

CATALOGUE 2022

**HVAC
PRODUCT &
SYSTEM
SOLUTIONS**



A Carrier Company

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This catalogue presents the key characteristics and selection data of our products and systems. The detailed technical manuals are available from the Professionals section of our website www.ciat.com

**COMFORT UNITS
HYSYS® SYSTEM**

Cassettes - Fan coil units
Ductable units - Diffusers
Comfort unit control

AIR TREATMENT SOLUTIONS

Air handling units
Air heaters - Close control units
Swimming pool dehumidifiers

**ROOFTOP REVERSIBLE AIR-TO-AIR
AND WATER-TO-AIR**

Rooftop units - Air condensed split and packaged systems - Water-sourced heat pumps - CIAT system control and supervision - Air scrubber

**HEAT PUMPS
WATER CHILLERS**

Air-cooled units

**DRYCOOLERS - CONDENSERS
HEAT EXCHANGERS
THERMAL ENERGY STORAGE**

Water-cooled units

Drycoolers - Condensers
Condensing units
Heat exchangers



CARRIER



Carrier is the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions with a world-class, diverse workforce. From the beginning, we've led in inventing new technologies and entirely new industries. Today, we continue to lead because we keep customers at the center of every product and service we offer and we act quickly to exceed their expectations. Through our performance-driven culture, we are driving shareowner value by growing sales and investing strategically to strengthen our position in the markets we serve.

Creating solutions that matter for people and our planet



Innovation is in our DNA

At Carrier, we have a proud history of pioneering industries through innovation. Our leading world-class brands are the legacy of our founders, who invented technologies to meet real needs, turned them into businesses, and then innovated to lead entire industries.

A Leading Legacy

Carrier was built on a legacy of innovation – beginning with our founders. We are innovators at heart and inventors by heritage. From the start, we've led in pioneering new technologies and in enabling entirely new industries that have changed the world. Today, building on our history of firsts, we're boldly advancing the industries we created to make a difference in people's lives.

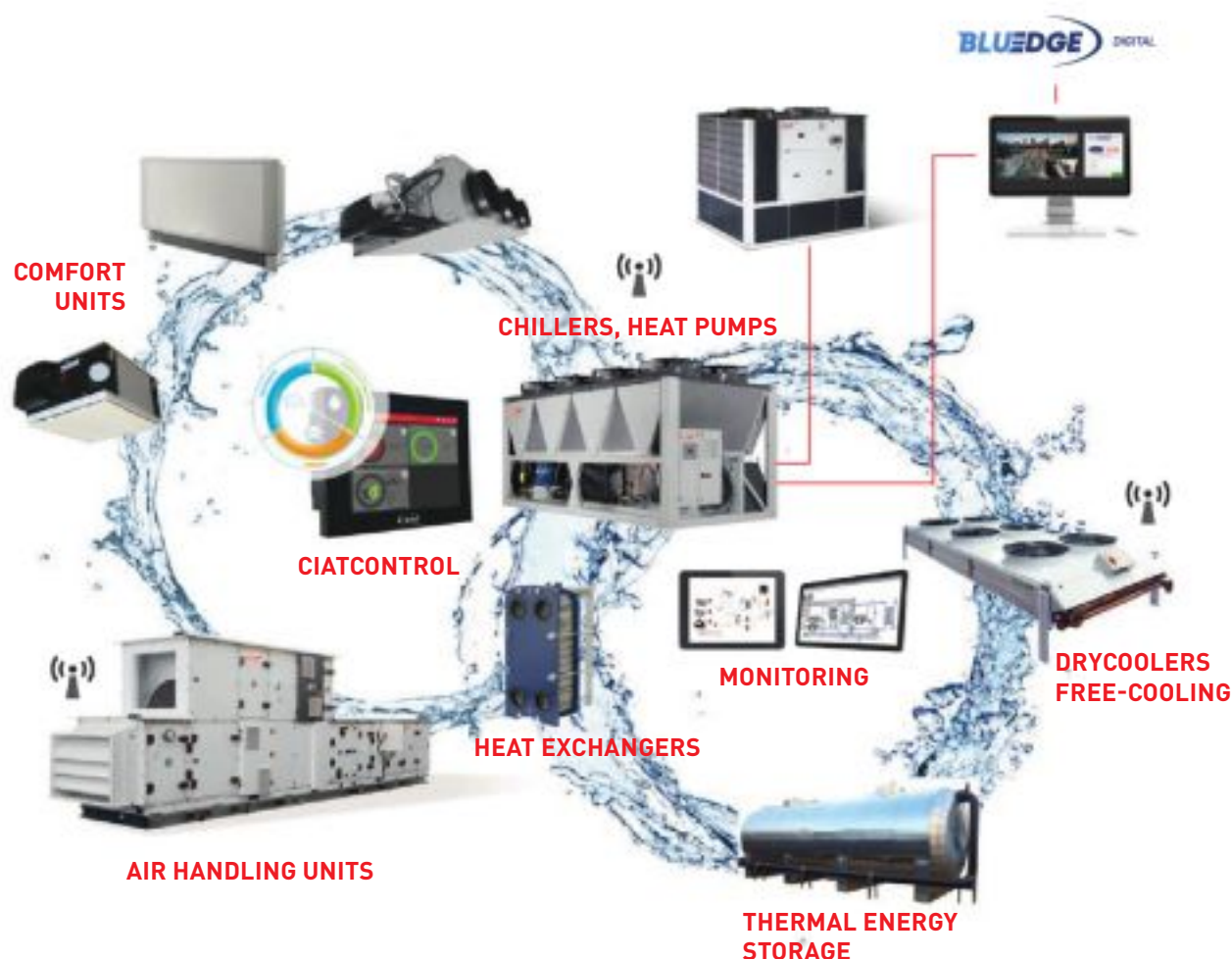
CARRIER HVAC IN EUROPE





CIAT A GLOBAL SYSTEM PROVIDER

CIAT is a part of Carrier, the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions. With over 80 years of experience, CIAT is one of Europe's leading brands in heating, ventilation, air conditioning and air handling solutions for commercial sectors such as healthcare, offices, hospitality and retail. Renowned for our capacity to create innovative, durable and high-performing products, we offer a complete range of equipment that is tailor-made and designed to work together. Our latest innovations have been specially designed to meet your most demanding requirements and provide you with the best-in-class technology.





CIAT EXPERT IN INDOOR CLIMATE SYSTEMS

As a pioneer of customised HVAC solutions, CIAT understands the importance of increasing the well-being of individuals in their living areas and places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, we have responded by developing global systems based on an adapted and efficient combination of products.

WATER-BASED GLOBAL ENERGY SYSTEMS FOR HEATING, COOLING AND INDOOR AIR QUALITY

To comply effectively with today's thermal and environmental regulations, CIAT designs optimised water-loop energy systems comprised of comfort units, heat pumps and dual-flow air handling units. As a renewable resource and a highly effective heat transfer fluid, water not only represents an excellent alternative to direct expansion systems it also meets F-Gas regulations in terms of confinement and limitation of refrigerants within buildings.

BENEFITS OF THE WATER LOOP

- ⊕ **More efficient:** equipment that is more cost effective and requires less maintenance than direct expansion systems
- ⊕ **Greater comfort:** flexible, precise control of comfort for the occupants
- ⊕ **Increased energy efficiency:** homogenous and thermally stable, water reduces the energy requirements for heat transfer
- ⊕ **Environmentally sustainable:** no refrigerant is required on the premises and only a small amount is used in the heat pump installed outside the building's occupied areas
- ⊕ **Easy to install:** no refrigerant specialists are required during installation
- ⊕ **Flexibility:** a water-loop energy system adapts easily to the design of buildings and the changes that may be made to its layout over time

Smart CIATControl: THE ENERGY MANAGEMENT SYSTEM

Connected to all HVAC components (refrigeration, comfort units, air handling units) and using a patented algorithm that can be programmed according to building occupancy and weather conditions, Smart CIATControl adapts the efficiency of the thermodynamic producer to the needs of the emitters in real-time.

In addition to automatic system changeover based on calculation requirements, features include:

- **Optimal Stop & Start:** predictive function which anticipates the stop and start times of the HVAC system.
- **Optimal Water®:** allows the temperature of the chiller or heat pump to be controlled according to the demand from the emitters.



- **Night cooling:** charges the building with fresh air during the night and delays the activation of the refrigeration request during the day.
- **Epure® Dynamics:** patented process which ensures a particulate level for the building that is beneath the fixed WHO recommendation of 10µg/m³.



The optimizations offered by Smart CIATControl allow **energy savings for the building.**



CIAT COMMITMENT FOR SAFER INDOOR AIR QUALITY :#CIAT4LIFE

Indoor air quality has now become a key challenge for building owners and managers. Our indoor environment must be preserved, protected, and made reliable. Together, we share the same ambition, helping to support the health and well-being of others. We call our approach #CIAT4life.

#CIAT4life

4 FOUNDATIONAL PILLARS



Trust

At the centre of our relationship, to guarantee that your result is optimal and lasting.



Tailored

Expert solutions that meet the demands specific to your sites.



Advice

Providing effective help at each stage, whatever your project.



Efficiency

Reliable and efficient technology and commissioning that have repeatedly proven themselves.

THE IMPORTANCE OF INDOOR AIR QUALITY

80%

of our time is spent inside (workplace, school, residence, transport) ¹



8 times

more pollution indoors compared to outside¹

€20 bn

is the estimated cost of caring for issues related to poor indoor air quality (headaches, allergies, asthma...)¹

40%

of buildings face indoor air quality issues²

¹ France Public Health

² Interior Air Quality Observatory

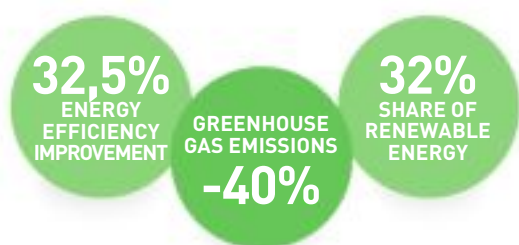


COMPLIANCE WITH STANDARDS AND RESPECT FOR THE ENVIRONMENT

CIAT pursues an exemplary quality approach to developing sustainable and efficient systems which conform to the standards of today and anticipate those of tomorrow. We ensure that our developments conform to the various environmental directives and regulations and, as a real driving force in our sector, also participate in their implementation.

THE ENERGY-RELATED PRODUCTS (ERP) EUROPEAN DIRECTIVE

The European Directive 2009/125/CE ErP outlines the conditions and criteria relating to the eco-design of products that affect energy consumption throughout their life cycle, from manufacture, to use and until disposal at end of life. It encourages manufacturers to design products that improve energy efficiency while reducing their overall impact on the environment, in particular the resources consumed throughout their service life. CIAT's commitment to limit its impact on environment is in line with the targets of the European climate and energy package for 2030.



ECO-DESIGN: RESULTS THAT EXCEED THE REGULATORY REQUIREMENTS OF TOMORROW, TODAY

At CIAT we strive to reduce the ecological impact of our equipment throughout its life cycle, from creation to final decommissioning. We confirm this strong environmental policy in our commitment to respecting ISO 14001 and ISO 45001 certifications, and undertake:

- To integrate environmental aspects as early as possible in the product design process;
- To take into account and make available the results of the life cycle analyses (LCA) for products (complete system for heating, ventilation and cooling);
- To provide environmental reports related to the equipment.

This approach benefits from an internationally recognised standard ISO 14062 "Environmental Management - integrating environmental aspects into product design and product development".

F-GAS REGULATIONS

Since 1 January 2015, the measures to control emissions from fluorinated greenhouse gases have been strengthened and a number of far-reaching changes have been introduced with a view to cutting the EU's F-Gas emissions by two-thirds by 2030 compared with 2014 levels.





CIAT COMMITMENT FOR SUSTAINABLE WORLD

EcoVadis is a collaborative platform which enables large companies to assess their corporate social responsibility commitment. The objective of this assessment is to enhance an environmentally respectful business collaboration with our partners, all committed to social, economic and ethic matters. CIAT is proud to obtain the SILVER medal 2021. A distinction that allows us to be in the top 25% of the evaluated companies. It is for CIAT a significant recognition of its values and commitments for more quality and social responsibility.



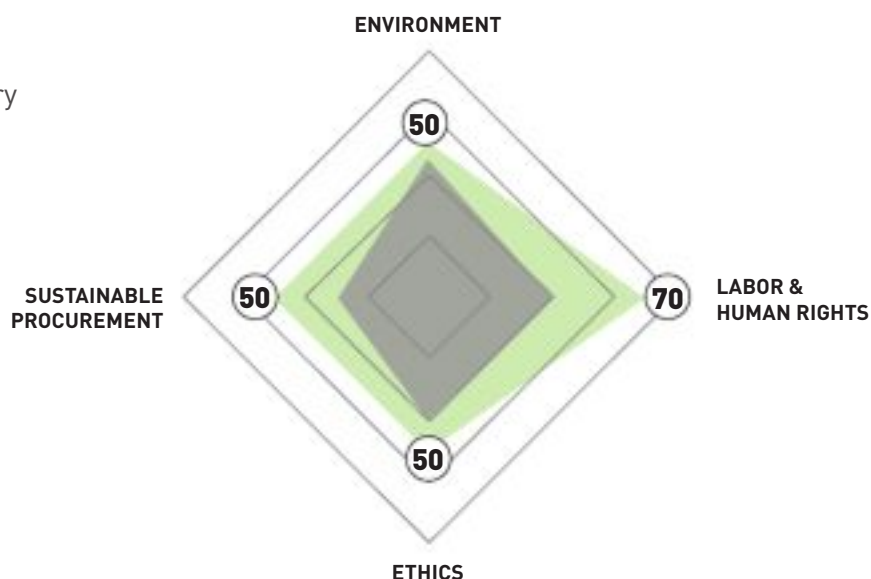
OVERALL SCORE
SILVER MEDAL 2021

The overall Ecovadis engagement Score for Ciat sustainability measures is above the industries general scores, with a growing 58% completion.

OUR OBJECTIVE IS TO KEEP PROGRESSING AND TO ENGAGE IN GREEN, ETHIC AND SOCIAL ACTIONS

CIAT EcoVadis RATING PROGRESS

- CIAT SA (Group) score
- All companies rated by EcoVadis in this industry





WORLD-CLASS OPERATIONS TO BRING BEST-IN-CLASS SOLUTIONS

Our European Centers of Excellence and production sites are all world-class facilities in their own right. Each center focuses on a specific field of expertise to support our customers in meeting the challenges they face today.



CULOZ CENTER OF EXCELLENCE FOR AIRSIDE TECHNOLOGIES

The research and design center and laboratory have fourteen innovation platforms, equipped with state-of-the-art test and measurement tools, fully dedicated to airside applications.



MONTILLA CENTER OF EXCELLENCE FOR ROOFTOPS AND PACKAGED SOLUTIONS

Our teams in Montilla, southern Spain have in-depth expertise in rooftop, packaged, preconditioned air (PCA) for aircraft and dehumidifier units. The center houses the largest HVAC factory in Spain and offers specialized laboratories, as well as Europe's biggest aircraft preconditioner air units laboratory.



MONTLUEL CENTER OF EXCELLENCE FOR CHILLER AND HEAT PUMP TECHNOLOGIES

Our Montluel site is Carrier' European Center of Excellence for chillers and heat pumps. Located close to Lyon, France, the research and design center and laboratory are able to draw on fifty-plus years of world-class expertise.



VENCE CENTER OF EXCELLENCE FOR CLIMATE CONTROL SYSTEMS

Developing customized control solutions and smart services for HVAC systems and plant room is the key activity at the Vence Center of Excellence.



A

MONTLUEL
Commercial Chillers

B

CULOZ
Airside products

C

VENCE
Control systems &
Connected services

D

MONTILLA
Rooftop & Light
commercial Chillers



R&D CENTER & LABORATORY



PRODUCTION SITES



SERVICE SOLUTIONS

THE BLUEDGE® SERVICE PLATFORM IS AT YOUR SERVICE FOR YOUR COMFORT, AIR QUALITY & ENERGY OPTIMISATION

As key European player for HVAC systems, our objective is to provide high quality service and develop partnerships with you throughout the lifecycle of your installations. We understand your changing needs, develop smart services and energy solutions for all types of applications that optimise performance and enable savings.

Committed to improve life quality, we provide the support you need to get the most out of your solution and develop strong partnerships with our customers, from project analysis to commissioning and operation for long-term satisfaction.



A WHOLE WORLD OF SERVICES

MAINTENANCE:

- Warranties and extensions
- Preventive and corrective
- Service contracts

CONTROL AND MONITORING:

- Real-time data, alerts and reports
- Monitoring and optimizing performance
- Prognosis and expert analysis

MODERNIZATION:

- Upgraded installation
- Performance improved
- Turnkey projects

REPAIRS:

- Efficient diagnostics
- Quick on-site interventions
- Technical assistance

SPARE PARTS:

- Universal and Factory Authorized Parts
- Consultancy and kit solutions
- Dedicated on-line shop

IAQ OFFERINGS:

- Monitor various air quality parameters
- Adjustments to get indoor quality to healthy level

A TIER FOR EVERY BUSINESS

Our BluEdge tiered service model offers you a range of options* to meet the particular needs of your business.



CORE

An economical solution for customers with IoT-enabled equipment that collects real-time data to improve staff efficiency and reduce unplanned downtime.



ENHANCE

Complete preventive maintenance and technical expertise including proactive monitoring of health, efficiency and performance with actionable insights to identify opportunities for reducing operating costs and avoiding failures.



ELITE

Our Elite plan is the ultimate worry-free, peace of mind program for clients. Realizing building comfort, efficiency and operational goals with Carrier turn-key solutions powered by predictive analytics and OEM expertise.

* Contact your local Carrier company for more details on each contract offer.



+60
SERVICE
TECHNICIANS

A LARGE
RANGE OF UNITS
UNDER SERVICE
CONTRACTS

CONTINUOUS
TRAINING
FOR TEAMS &
CUSTOMERS

HVAC EXPERTS CLOSE AT HAND

A COMBINATION OF KNOWLEDGE AND EXPERIENCE FOR BETTER TECHNICAL SUPPORT

Our qualified and responsive BluEdge teams of technicians are available to implement actions on site and ensure optimal operation of your equipment. Thanks to our expertise and experience in the fields of maintenance and technical service, our BluEdge service platform offers a wide range of services from pre-sales technical support and diagnostics right through to energy audits.

Our dedicated hotline for off-site support with our engineers and technicians on the field, work hand in hand to meet your expectations in terms of energy efficiency. Our priority, 24/7: to allow you to focus on your business whilst our BluEdge service platform provides you with the best possible level of service.



HVAC EUROPE PARTS CENTER

BUILDING SERVICE EXCELLENCE FOR CUSTOMERS

Thanks to our dedicated parts team and our factories located throughout Europe, HVAC Europe Parts Center is able to deliver 300 orders daily and ship efficiently around the world. With more than 40,000 active parts and 12,000 items in stock, we propose a comprehensive parts offer including compressors, universal parts and manufactured components. Our purchasing power ensures optimised pricing and leadtimes. Thanks to our manufacturing expertise, we provide advice to help you find the best service solution to meet your specific needs.

- State-of-the art logistics with reliable next day delivery for Europe
- Storage permanently adjusted according to customer demand
- Dedicated, accessible and reactive teams
- Dedicated online shop to facilitate parts selection
- Stock online, order tracking, parts selection: numerous specific online tools to ease and fasten your business

+90.000
MANAGED PARTS
NUMBER

store-eu.
carrier.com

98%
DELIVERIES
ON TIME



BLUEDGE® DIGITAL*

OPTIMIZE YOUR HVAC OPERATIONS & MAINTENANCE BY USING REAL-TIME DATA AND ANALYTICS, WITH THE CONTINUOUS SUPPORT OF REMOTE TEAMS OF EXPERTS.

In the current context of increasingly efficient building requirements, CIAT offers monitored services that help customers to improve the efficiency of their HVAC installations.

BluEdge® Digital is a portfolio of digital solutions within BluEdge Service Platform that are powered by IoT and cloud analytics. BluEdge® Digital has three tiers (Core, Enhance and Elite) to provide customers better visibility into their assets, resulting in better advice on how to manage their CIAT equipment and system optimizations to achieve key outcomes like uptime and comfort.

Depending on your contract:

- Real-time data and access to your assets on a visualization dashboard (depending on your contract)
- Email alert at any event on the equipment
- Monthly trends reports
- Annual reports with analysis and recommendations from CIAT experts



- + Better profitability
- + Equipment availability
- + Steady indoor air quality
- + Optimal equipment control
- + Fully secured connection

* BluEdge® digital is the new name for CIATM2M. Technology remains the same.

EUROPEAN SERVICE DIGITAL CENTER / VENCE

Expert in Digital, IoT & Connected Services Solutions for HVAC equipment and in Controls Solutions for Plant Room and HVAC Systems.

At the European Service Digital Center (ESDC), our engineers focus on developing and deploying Connected Services and Controls solutions for HVAC equipment & systems. They provide technical support on smart service solutions to our customers and our service organizations in Europe.

The team has a unique multi-disciplinary expertise in Digital/IoT/Controls and Cooling/Heating for HVAC systems.

Located in the south of France, ESDC is close to Sophia Antipolis, the first technopole in Europe. The Team has participated in major European research and innovation projects.

CONNECTED SERVICES, CONTROLS AND ENERGY OPTIMIZATION

- Monitoring of HVAC equipment
- Plant Room control system
- Thermal Energy Storage for HVAC applications
- HVAC system management
- Energy Optimization



+1,300
PIECES OF CONNECTED EQUIPMENT



+500 MW
OF POWER SAVED



+6,000,000 kWh
DAILY TRANSFER





HEALTHCARE SOLUTIONS



CONTROL OF AIRBORNE CONTAMINATION AND NOISE LEVELS IN RISK ZONES

In healthcare premises (hospitals, EPHAD, clinics, doctor's offices, etc.) hygiene and air quality are the core requisits for choosing the air treatment installations. The different actors in the health sector are also concerned about the comfort of public reception and the energy performance of their installations.

The CIAT product ranges actively participate in reducing and controlling the risk of infectious contamination, especially in risk areas by controlling airborne contamination and providing a high level filtering. Thanks to the Epure® solutions filtration outstanding capabilities and large installations or simply thanks to specifically developed mobile Air Scrubbers, CIAT adapts to various demanding environments and goes beyond the industry hygiene standards (VDI 6022, DIN 1946, NFS 90 351...).

The CIAT solutions, while ensuring comfort, hygiene and better indoor air quality in the accommodation or reception areas, also allow an optimal energy consumption and environmental sustainability, growing concern.

Thanks to its products complementarity, CIAT responds quickly to the needs of its customers to all types of installations, and provide as well all the customer services to guarantee a reliable response in line with the healthcare sector expectations.

CIAT solutions are Eurovent regulation certified.



**AIRBORNE
CONTAMINATION
CONTROL**

**COMFORT
AND
INDOOR AIR
QUALITY**

**HIGH
ENVIRONMENTAL
EFFICIENCY**



CLIMACIAT AIRCLEAN

Air handling unit designed for the specific characteristics of controlled environments

Certified Eurovent
DIN 1946-4 / VDI 6022.



COADIS LINE

Cassette comfort unit with Coanda effect for increased occupants' comfort.



COMFORT LINE

Ductable comfort units with excellent acoustic comfort and Epure® Dynamics technologies for air purification.



EPURE® DYNAMICS

Smart CIAT control air purification function for higher quality indoor air, specifically through purification on fine particles in accordance with WHO recommendations.



POWERCIAT

High efficiency air-cooled chiller with noise reduction technologies.



PowerCTRL

Plant system management designed to control a complete thermal energy production system (heating and cooling).



HOSPITALITY SOLUTIONS

BENEFIT FROM COMFORT, SILENCE AND DISCRETION TO SATISFY YOUR CUSTOMERS

The hospitality sector faces three major challenges in air management: thermal and acoustic comfort, air quality and energy optimization. CIAT offers solutions to meet these challenges but also to go beyond the regulation's requirements of tomorrow.



The CIAT ranges provide the thermal and acoustic comfort which hotel professionals are demanding for. They guarantee comfort, especially the temperature management as well as they provide solutions like the COANDA effect diffusers that maintain a constant, noise-free air flow. But they also manage the Indoor air quality appreciable by customers, thanks to advanced air filtration solutions in living spaces, which is particularly important device in urban areas.

CIAT gives to professionals of the hotel industry optimal comfort solutions for their buildings, and at the same time the benefit of energy optimization, a constant development effort at CIAT to reduce your costs, such as the «free cooling» feature which allows the use of outside air to cool down hydraulic air conditioning circuit.

Finally, the various CIAT service contracts ensure serenity over time with a complete customer support offer: warranty extensions, proximity to expert teams, remote supervision with BluEdge® Digital, in order to guarantee the installations controls and their long-term benefits.



FLOWAY

Compact air handling unit leading in its category in terms of ease of use, Ecodesign and energy efficiency



MAJOR LINE

Versatile and highly efficient comfort unit providing improved comfort and very low sound level.



COMFORT LINE

Comfort unit with high available static pressure, modular air discharge configurations, flexible installation and excellent acoustic comfort.



AQUACIAT

High efficiency air-cooled chiller with scroll compressor.



DYNACIAT

Compact heat pump with high energy-efficiency scroll compressors with excellent acoustic comfort.



OPERA

Drycooler range compatible with Dynaciat range for favourable all-round performance levels.



CLIMACIAT AIRACCESS

Accessible and efficient air handling unit that is simple to install and use.



SHOPPING CENTERS SOLUTIONS



SHOPPING CENTERS

FULL MODULARITY WITH PLUG AND PLAY SYSTEM AND OPTIMIZED OPERATING COSTS

Customer comfort is a key priority to guarantee an ideal welcome. CIAT offers a tailor-made range of heating ventilation and air conditioning solutions able to provide an optimal comfort while minimizing operating costs and energy consumption.

In order to guarantee the best occupant comfort, CIAT offers a wide range of customizable solutions with dedicated options especially designed to the retail market. With the most flexible offer in terms of Air Handling Units and particularly with Rooftops, the CIAT HVAC solutions can adapt to small, large, complex and variable shopping center configurations.

In large and multiple spaces environments, the CIAT multi-zone control system helps the shopping centers managing the temperature by zone while the CO₂ sensors adapt the temperature according to human traffic.

These complete solutions, fitted with the adapted controls can also be supported by the remote supervision which ensure a greater peace of mind and supports the complete installation optimization and the best way to capitalize onto the energy efficiency devices.



CUSTOMIZABLE SOLUTIONS

MANAGING BY ZONE REMOTE SUPERVISION

ENERGY EFFICIENCY



VECTIOS

Rooftop unit. All-in-one air conditioning solution, with flexible configuration, designed both to offer high levels of indoor air quality and high efficiency reducing total cost of ownership during its lifetime.



AQUACIAT^{POWER} HYDROCIAT

High efficiency air-cooled chiller & heat pump with noise reduction technologies and integrated hydraulic module.



Compact and reliable water-cooled chiller.



VEXTRA

Compact drycooler unit working with Hydrociat for an optimised global solution.



CLIMACIAT AIRACCESS

Accessible and efficient air handling unit that is simple to install and use.



COADIS LINE

Cassette comfort unit with Coanda effect for increased occupants' comfort.



MELODY 2

Optimum heating and cooling performance cassette, designed for perfect integration in suspended ceiling.



VECTIOS^{POWER}

New generation of rooftop air conditioning packaged units, designed to offer high levels of indoor air quality and high-efficiency and to reduce the total cost of ownership during its lifetime.



LIGHT COMMERCIAL SOLUTIONS



COMPREHENSIVE AND SIMPLE SOLUTIONS

CIAT offers comprehensive solutions and guaranteed services for building managers peace of mind.

The alliance of simplicity and ideal comfort for building occupants.



EREBATM 04R-16R

Simplicity and reliability in a high efficiency heat pump, with integrated hydraulic module.



AQUACIAT

Compact and silent heat pump with integrated hydraulic module.



FLOWAY

Compact air handling unit leading in its category in terms of ease of use, Ecodesign and energy efficiency.



MAJOR LINE

Versatile and highly efficient comfort unit providing improved comfort and very low sound level.



MELODY2

Optimum heating and cooling performance cassette, designed for perfect integration in suspended ceiling.

OFFICES SOLUTIONS



COMFORT AND INDOOR AIR QUALITY FOR BETTER PRODUCTIVITY

The CIAT ranges meet the various regulations and certifications related to buildings.

The complete offer ensures thermal and acoustic comfort as well as excellent indoor air quality for better productivity.



AQUACIATPOWER

High efficiency air-cooled chiller with scroll compressor.



DYNACIATPOWER

High energy performance water-cooled chiller with optimised footprint.



EPURE® DYNAMICS

Smart CIAT control air purification function for higher quality indoor air, specifically through purification on fine particles in accordance with WHO recommendations.



ITEX

High thermal transfer capacity gasketed plate heat exchanger.



CLIMACIAT AIRACCESS

Accessible and efficient air handling unit that is simple to install and use.



COADIS LINE

Cassette comfort unit with Coanda effect for increased occupants' comfort.



COMFORT LINE

Ductable comfort units with excellent acoustic comfort and Epure® Dynamics technologies for air purification



SMART CIATCONTROL

Energy management system allowing for centralization of the information, remote management of equipment, automatic changeover and enhanced energy optimization



INDUSTRY

INDUSTRY SOLUTIONS

HIGH EFFICIENCY AND RISK CONTROL FOR INDUSTRY NEED

CIAT solutions provide high efficiency and full reliability for industrial equipment and global process.

A major advantage consists in regulating the risks with ATEX certified heating (air heaters), ventilation, air handling and smoke extraction equipment.



POWERCIAT



High efficiency air-cooled chiller with heat recovery.



HYDROCIAT^{TURBO}

Highly efficient, compact and flexible water-cooled chillers equipped with a Maglev (Magnetic levitation) centrifugal two stage compressor.



VEXTRA

Compact dry cooler unit working with Hydrociat for an optimised global solution.



CLIMA AIR-TECH

Air handling unit combining efficiency and modularity to meet technical requirements.



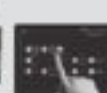
VECTIOS

Rooftop unit. All-in-one air conditioning solution, with flexible configuration, designed both to offer high levels of indoor air quality and high efficiency reducing total cost of ownership during its lifetime.



VECTIOS^{POWER}

New generation of rooftop air conditioning packaged units, designed to offer high levels of indoor air quality and high-efficiency and to reduce the total cost of ownership during its lifetime.



PowerCTRL

Plant system management designed to control a complete thermal energy production system (heating and cooling).



THERMAL ENERGY STORAGE

Reduced operating cost and non-stop support.

HIGH ENERGY EFFICIENCY

INDOOR AIR QUALITY

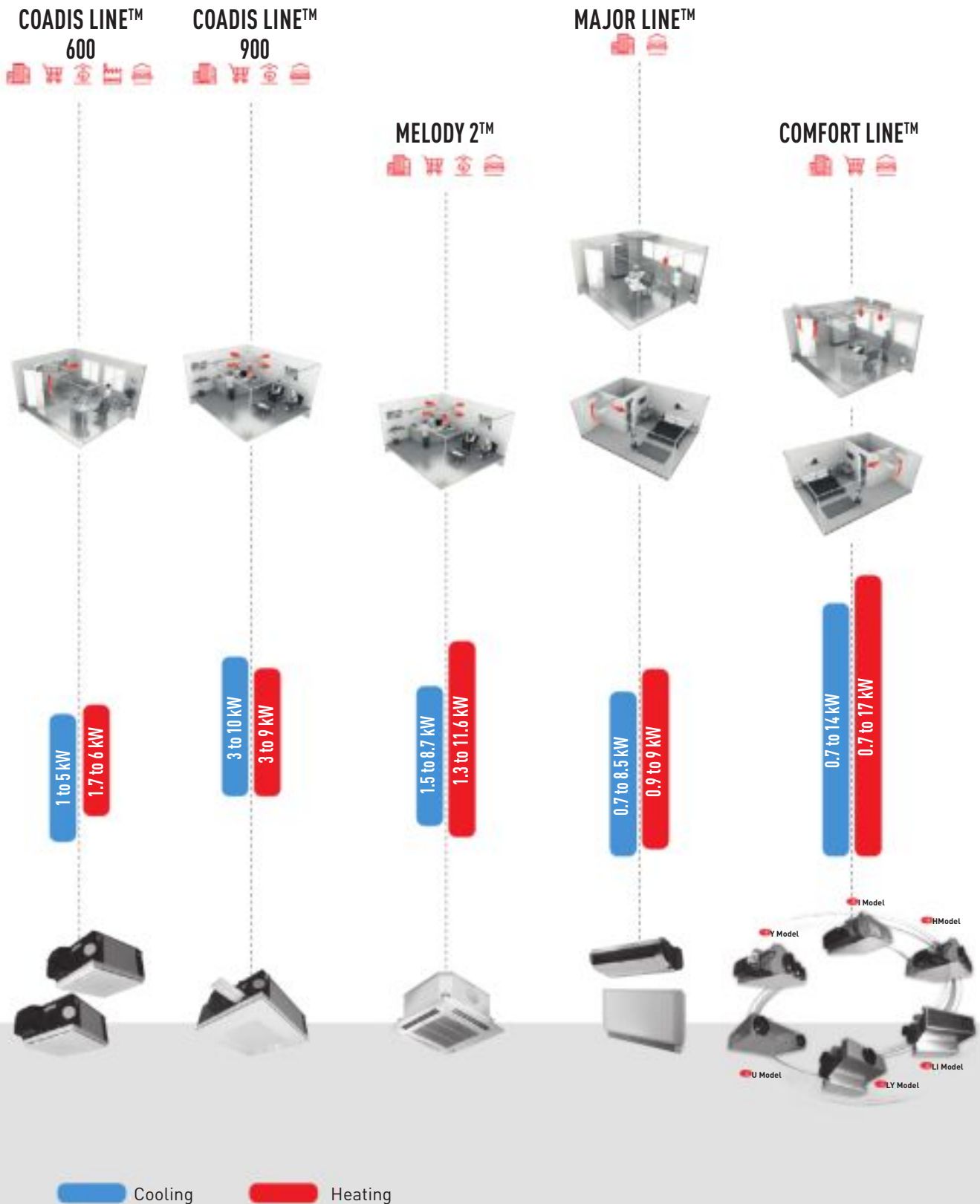
THERMAL AND ACOUSTIC COMFORT

ENVIRONMENTAL SUSTAINABILITY





COMFORT UNITS



CONTROL FOR COMFORT UNITS

V30 Customised performance at minimum cost.

Electronic control V30



V3000 KNX Condensation-free function management. CIAT Concept & Design. EuBac certification.

Electronic control V3000 KNX



V300 Simplified access with the Master/Slave function. 4 operating modes: complies with RT 2012. Quick and easy to upgrade on site. Centralised timer for managing multiple zones. CIAT concept and design. EuBac certification.

Electronic control V300



FRESH AIR CONTROL Energy savings and optimal air quality in office buildings.

Fresh air control



HYSYS® THE SYSTEM SOLUTION ON WATER LOOP

HYSYS®: THE HYDRAULIC SOLUTION WITH HYMOD



The hydraulic solution which adapts itself to your requirements and guarantees optimum levels of comfort and performance.

- Modular decoupling
- Variable water flow rate
- Variable water temperature (Optimal Water®)
- Network balancing

HYSYS®: THE AERAULIC SOLUTION



Guaranteeing high Indoor Air Quality, specifically through purification of fine particles in accordance with WHO recommendations.

- Monitor the air renewal according to the occupancy
- Monitor the levels of fine particles (Epure Dynamics®)

HYSYS®: THE INTELLIGENT SOLUTION



Management of your installation together with energy optimisation, and the setting of parameters via an intuitive interface, simplifying your day-to-day usage.

EPURE® DYNAMICS: THE HEALTHY SOLUTION



Particulate purification system: The EPURE DYNAMICS function allows the measurement and control of comfort units on a high IAQ criterion, in addition to thermal and acoustic comfort

- SMART CIATControl (System tracking and optimisation)
- Targeted particulate detection with Hysys System
- Communication with the V3000 electronic control to manage indoor comfort units

SYSTEM CONTROL

SMART CIATCONTROL



Optimisation of Hysys® system performance:

- Centralisation of the information
- Remote management of equipment
- Automatic changeover
- Enhanced energy optimisation
- Air quality optimisation function

Smart CIAT Control: Energy Management System



AIR TREATMENT SOLUTIONS

AIR HANDLING UNITS

AIR HEATER

AIR COMPACT™



The modular and ultra-slim AHU to guarantee perfect solution. Ideal for a compact installation. Available in single and dual flow vertical, ceiling or floor mounted versions.

up to 6 000 m³/h



FLOWAY®



All range class A+ High-efficiency heat recovery unit. High performance direct drive EC fan motor assembly. Plug & play unit (built-in control).

500 to 18 000 m³/h



CLIMACIAT®



AHU for all applications. Designed to meet the EN 13053 and EN 1886 standards. The effective solution for service sector, industry and healthcare applications.

1 000 to 30 000 m³/h



AIRTECH™



AHU designed for all types of applications. Thanks to the extraordinary modularity, it allows multiple configurations and installations, both indoor and outdoor.

1 000 to 66 000 m³/h



AIRCLEAN™



AHU designed for specifically controlled environments. This range incorporates latest hygienic technological solutions.

1 000 to 60 000 m³/h



HELIO THERME® 4000



The most competitively priced technical solution for heating large spaces. Ensures ultra-fast warm-up of buildings. Excellent diffusion thanks to the double deflection diffuser with its patented ET+ technology. New low energy consumption. HEE motor version. New 3-speed thermostat for HEE motor.

1 400 to 11 000 m³/h



Cooling

F = Air flow in m³/h



CLOSE CONTROL UNITS

SWIMMING POOL DEHUMIDIFIERS

EXPAIR™

- Reduced footprint
- Dual-wall construction
- PLC control
- Variable speed condenser fan

MAGISTER®

- Extensive range of chilled water or direct expansion systems
- Compact and attractive design
- Energy savings with EC motor and self-regulating control
- Easy to install

JUNIOR BCP™

- Excellent functions/price ratio
- Low energy consumption
- Energy recovery
- Control as standard
- Optional DUAL version
- Double-walled conception

AQUAIR® BCP

- Single or dual flow
- Optimised energy consumption
- Energy recovery
- Electronic control as standard. Modular and double-walled conception
- Optional DUAL and AERO versions

AQUAIR® PREMIUM BCP

- Electronic control. Optimised energy consumption.
- Scroll and R-410A compressors.
- EC plug fan with HE motor.
- Heating and dehumidification of covered pools.

5 to 50 kW

800 to 12 000 m³/h

10 to 116 kW

3 000 to 27 500 m³/h

4 to 15 kg water/h

22 to 74 kg water/h

56 to 74 kg water/h



Dehumidification capacity

- LIGHT COMMERCIAL
- OFFICES
- ADMINISTRATION
- SHOPPING CENTRES
- HEALTHCARE
- INDUSTRIES
- HOTELS

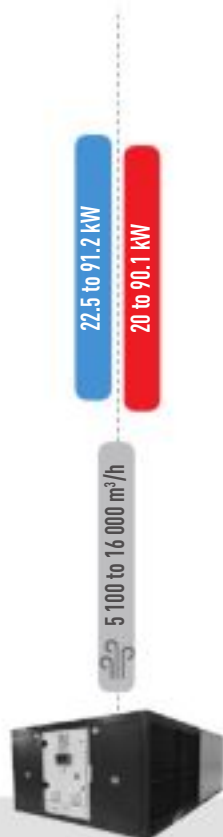
ROOFTOP REVERSIBLE AIR-TO-AIR AND WATER-TO-AIR

ROOFTOP UNITS

VECTIOS™



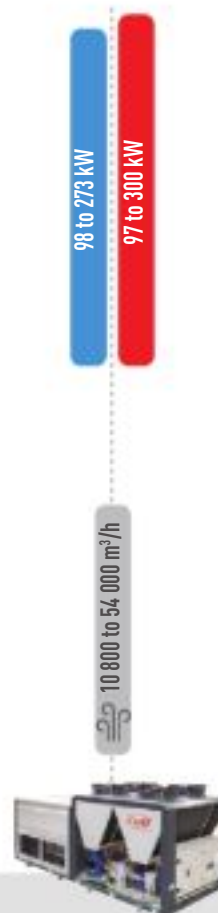
Integrated "plug&play" system
 Eco-Design ready ErP 2021
 High seasonal efficiency
 Reliability with superior quality
 Low refrigerant charge R-410A
 R-454B refrigerant in 2022
 Optimized dimensions
 and weights
 Active and passive recovery
 Air zoning option
 (up to 4 different zones)
 Active dehumidification
 and other key feature options



VECTIOS^{POWER} R-454B



Integrated "plug&play" system
 Large capacity range
 Eco-Design ready ErP 2021
 High seasonal efficiency &
 environmental responsibility
 Reliability with superior quality
 New R-454B refrigerant
 R-410A refrigerant is
 also available
 High levels of indoor air quality
 Airflow extended
 Optimized dimensions
 and weights
 Aluminum panels
 Active and passive recovery
 New functionalities



Cooling

Heating

F = Air flow in m³/h

CIAT SYSTEM CONTROL AND SUPERVISION

BOSS / BOSS MINI SUPERVISION

Remote control, managing up to 300 units (3500 variables) in BOSS or 50 units (500 variables) in BOSS MINI Alarm management, planner and event management, diagrams and reports. Installation drawing with units located, energy management, analysis of risks and critical control points, notes and integrated WiFi.



AIR CONDENSED SPLIT AND PACKAGED SYSTEMS

ISPK



Vertical packaged in mono-block or split configuration for indoor installations Reversible heat pump Tandem scroll compressors and EC plug-fan for indoor and outdoor section High seasonal efficiency Configuration flexibility R-410A refrigerant

4 000 to 21 000 m³/h

19 to 115 kW
19 to 120 kW



SC



Air-cooled condensing units designed for installation outdoors They can be connected on-site with one direct expansion exchanger Configuration flexibility Acoustic comfort operation R-410A refrigerant

20 to 135 kW
20 to 145 kW



CZ



Indoor units with direct expansion exchanger for R-410A refrigerant Horizontal construction designed for installation indoors, connected to a network of ducts Configuration flexibility

4 000 to 24 000 m³/h

20 to 135 kW
20 to 145 kW



AIR SCRUBBER

CIAT CLEAN LINE™



Enhanced indoor air quality Plug and play design High energy efficiency Easy cleaning and maintenance Acoustic comfort

1 000 to 2 500 m³/h



- LIGHT COMMERCIAL
- OFFICES
- ADMINISTRATION
- SHOPPING CENTRES
- HEALTHCARE
- INDUSTRIES
- HOTELS

HEAT PUMPS & WATER CHILLERS

AIR-COOLED UNITS

EREBA™ 04R-16R



Air-to-water reversible heat pump.
Designed for residential and light commercial installations
Easy and fast installation
Built-in Hydraulic module
Twin rotary DC inverter compressor and variable speed fans
High efficiency heat pump with R-32 refrigerant

4 to 14 kW
4 to 16 kW



R-32

AQUACIAT™ CALEO™ TD



Designed to replace conventional boilers
High temperature hot water (+65°C)
Winter operation (-20°C)
High energy efficiency
Compact and acoustic comfort
Condenserless unit

26 to 101 kW



EREBA™ 17-21



Inverter technology
Cooling only and reversible unit
Integrated hydraulic module
Lead/ lag operation

15.2 to 19 kW
16.9 to 20.7 kW



AQUACIAT™ LD / ILD R-32



High energy efficiency
Acoustic comfort
Easy installation
R-32 refrigerant

40 to 160 kW
40 to 150 kW



R-32

Cooling Heating

CONTROL AND SUPERVISION

POWER'CONTROL

Plant system management. Designed to control a complete thermal energy production system (heating and cooling).



Energy optimization for HVAC systems

BluEdge Digital

To track, monitor hvac system performance & take preventive and corrective actions remotely.



Monitoring solution for CIAT equipment

AQUACIAT^{POWER}™ LD/ILD R-32



High energy efficiency
Acoustic comfort.
Easy installation
R-32 refrigerant



R-32

DYNACIAT™ LGN



High energy efficiency
Compact and acoustic comfort
Scroll compressors
Braze-plate heat exchangers
Self-adjusting electronic control
Condenserless unit



POWERCIAT™ LX



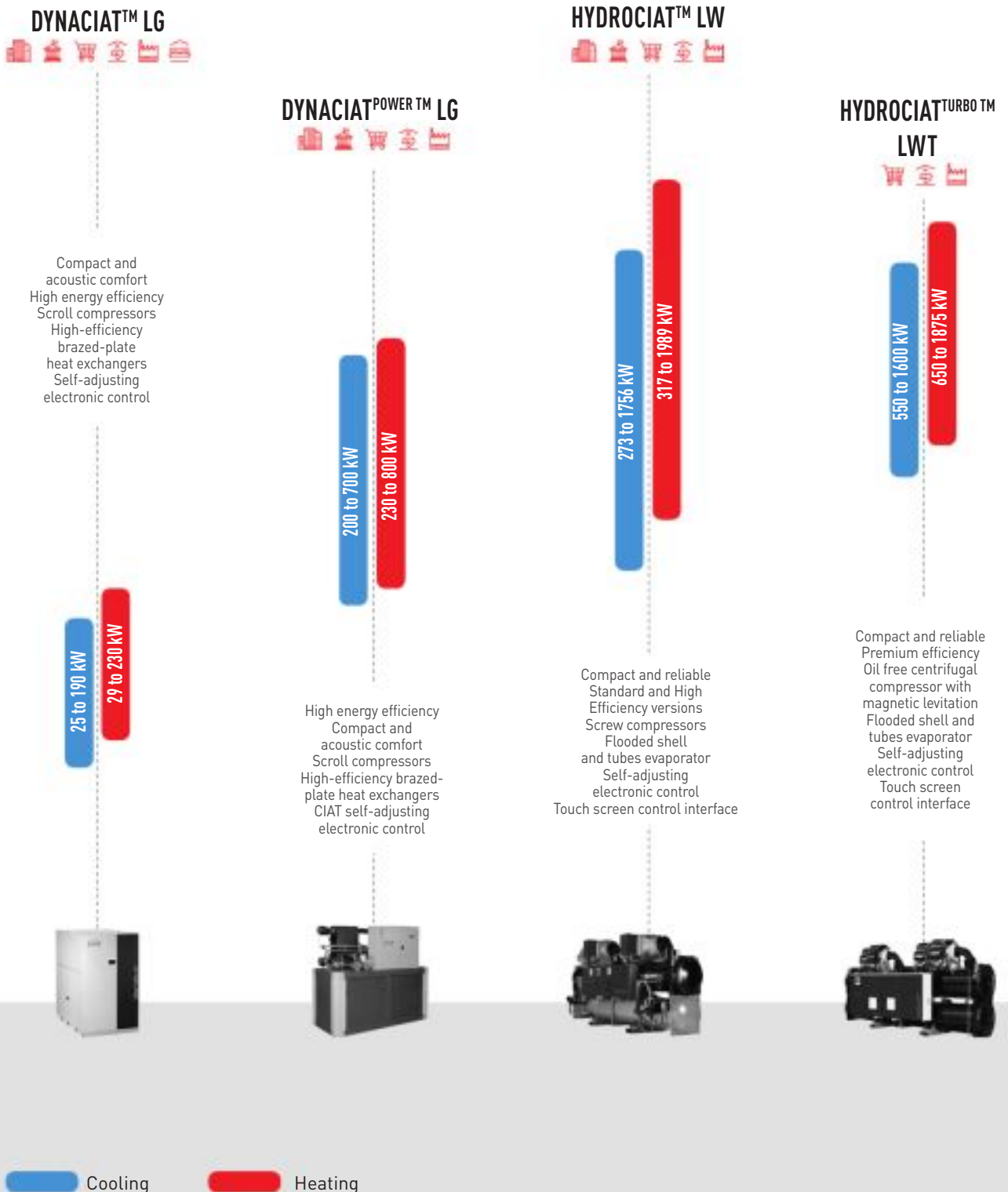
Compact and reliable
2 efficiency versions
Screw compressors
All-aluminum micro-channel condenser
Self-adjusting electronic control
Touch screen control interface



- LIGHT COMMERCIAL
- OFFICES
- ADMINISTRATION
- SHOPPING CENTRES
- HEALTHCARE
- INDUSTRIES
- HOTELS

HEAT PUMPS & WATER CHILLERS

WATER-COOLED UNITS





DRYCOOLERS - CONDENSERS - HEAT EXCHANGERS - THERMAL ENERGY STORAGE

ENERGY OPTIMISATION SOLUTIONS™

Optimised energy management. Information in multilingual clear text.



THERMAL ENERGY STORAGE

Shift your electricity consumption from peak to off peak hours:

- Turnkey solution
- Proven technology
- Unique expertise
- Reduced operating cost
- Non-stop support to
- Smart grid ready secure cooling production.

DRYCOOLERS & CONDENSERS

HEAT EXCHANGERS

OPERA™



up to 1100 kW

MORE
More efficient
More flexible
More intelligent

FOR

LESS
Less energy
Less time
Less noise



VEXTRA™



up to 1900 kW

Slim design and acoustic comfort
Saves up to 40% floor space



AEROFRESH™



Adiabatic cooling system
Alternative to cooling towers
Smaller units



ITEX



Liquid / Liquid heat exchangers
Benefit from a high thermal transfer capacity
Particularly well suited to low temperature differences between the two fluids





CIAT

COMFORT UNITS HYSYS® SYSTEM

COMFORT UNITS

COADIS LINE 600™ P.35

1 to 5kW 1.7 to 6kW

COADIS LINE 900™ P.47

3 to 10kW 3 to 9kW

MELODY2™ P.55

1.5 to 8.7kW 1.3 to 11.6kW

MAJOR LINE™ P.63

0.7 to 8.5kW 0.9 to 9kW

COMFORT LINE™ P.79

0.7 to 14kW 0.7 to 17kW

CONTROL FOR COMFORT UNITS

COMFORT UNIT CONTROLS P.113

V30 P.123

V300 P.127

V3000 KNX P.131

FRESH AIR CONTROL P.135

HYSYS® THE SYSTEM SOLUTION ON WATER LOOP

HYSYS®: THE HYDRAULIC SOLUTION P.137

HYSYS®: THE AERAULIC SOLUTION P.139

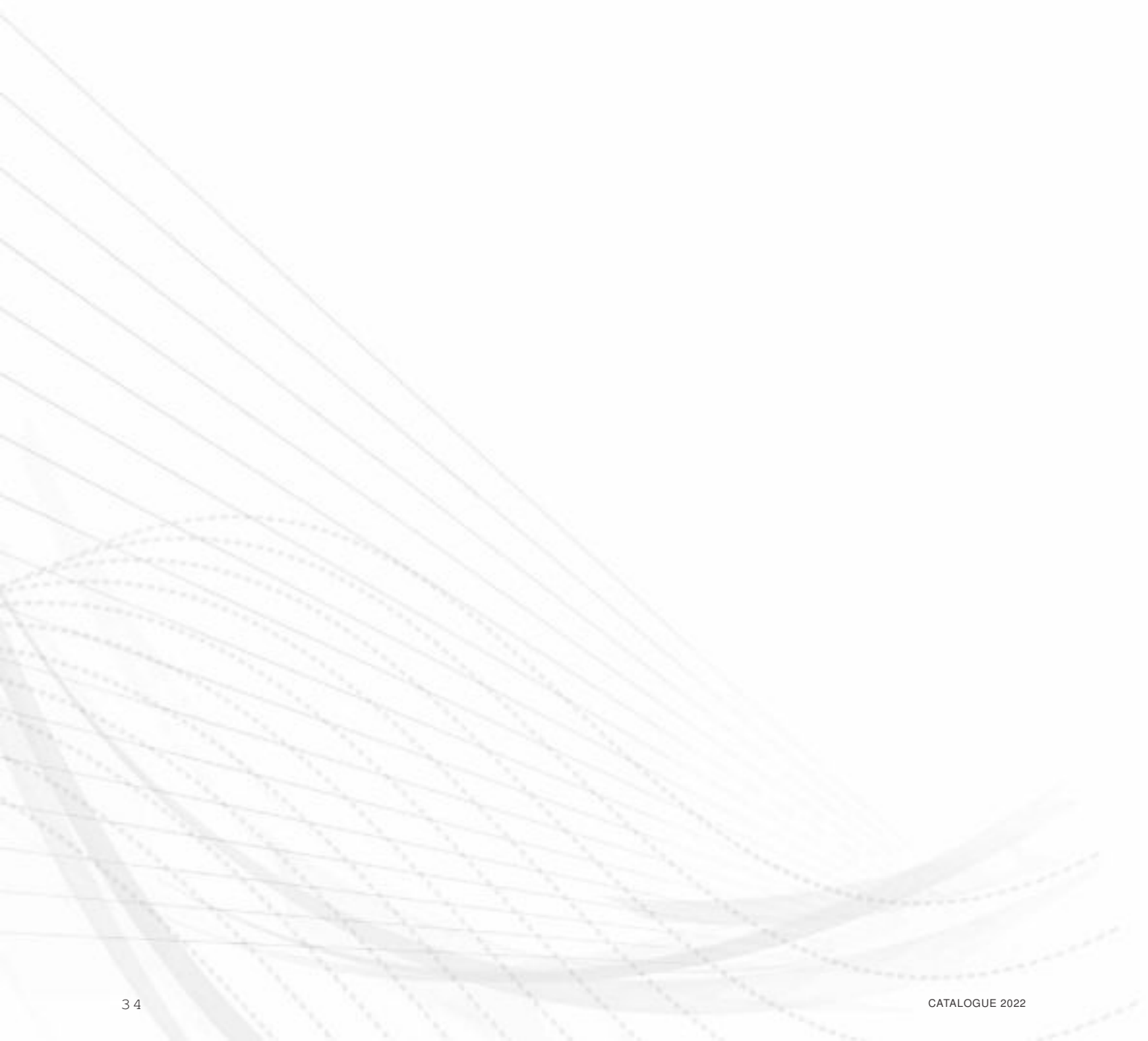
HYSYS®: THE INTELLIGENT SOLUTION P.141

EPURE® DYNAMICS

SYSTEM CONTROL

SMART CIATCONTROL P.145

■ Cooling ■ Heating



COADIS LINE 600™

Comfort units
COANDA effect cassette

COADIS LINE 600™

*the new generation
of cassette comfort units*

Innovative casing (Flexiway concept)

integrates perfectly into suspended ceilings

Air purification system



VISUAL 180°



VISUAL 360°

Cooling capacity: 1 kW to 5 kW
Heating capacity: 1,7 to 6 kW



COADIS LINE, INNOVATION AHEAD OF ITS TIME...

- CIAT has once again exceeded the established standards by offering increasingly innovative products in terms of environmental protection, while ensuring the user remains the key concern.
- Combining energy efficiency, comfort and indoor air quality, the COADIS LINE is the all-in-one solution designed to meet the heating and cooling requirements of tertiary buildings, while offering users maximum comfort.
- An active, variable-speed comfort unit offering high energy efficiency (HEE system), it allows the indoor temperature to be autonomously and independently adapted over very short periods to ensure the comfort of occupants.
- The EPURE function (air purification system) ensures an exceptionally high quality of indoor air by maintaining the concentration of PM 2.5 particles below the threshold recommended by the WHO (10µg/m³).
- Thanks to its single-size casing, the COADIS LINE can be fitted with 180° and 360° diffusion in order to suit different building layouts (FLEXIWAY concept).
- The Coanda effect diffusion has been redesigned and optimised in accordance with standard NF EN ISO 7730, guaranteeing optimal management of thermal phenomena which create discomfort. In addition, the COADIS LINE eliminates the sensation of draughts that can occur with sweeping diffusion systems or those supplying air directly to the occupants.
- The innovative casing of the COADIS LINE - an eco-designed product which is 90% recyclable - reduces the environmental impact throughout the duration of its life cycle.

RANGE

The range of COADIS LINE 600™ cassettes features 7 sizes covering flow rates from 250 to 770 m³/h, and meeting the most stringent sound level requirements.

→ 2 diffusion models

- Visual 180 °: Coanda effect diffuser across 180 °
- Visual 360 °: Coanda effect diffuser across 360 °

→ The COADIS LINE is available as:

- A 2-pipe system, with heating or cooling mode
- A 2-pipe + 2-wire system, with cooling + heating/cooling + electric mode.
- A 4-pipe system, with heating and cooling mode.

ADVANTAGES

- Uses an ecological and long-lasting heat-transfer fluid.
- Individual adaptation of the indoor temperature.
- Responsiveness of the system.
- Extensive capacity range.
- Diffusion by Coanda effect across 180 ° or 360 ° for comprehensive coverage, and perfect control of thermal phenomena which cause discomfort.
- Acoustic comfort.
- Optimum indoor air quality thanks to the EPURE function.
- Energy optimisation:
 - High Energy Efficiency motor
 - Epure filter.
 - Optimised hydraulic coil.
- Modularity for indoor spaces (Flexiway).
- Condensate drain by gravity avoiding the need for a drain pump.
- Modern, elegant design to ensure perfect integration.
- Environmentally-responsible product.
- Ease of maintenance.

INNOVATIVE DESIGN

- New-generation casing combining high-density PSE integrating combined thermal and acoustic functionalities, ABS PC and a ribbed galvanised steel base panel to stiffen the assembly.
- Single-size casing for all unit sizes with base adapted to 600 x 600 mm suspended ceiling framework.
- Hydraulic, air and electrical connections on the same side for easier mounting, access and maintenance.
- Hygienic supply of fresh air with 100 mm diameter sleeve integrated directly in the casing with removable plug.



FUNCTION

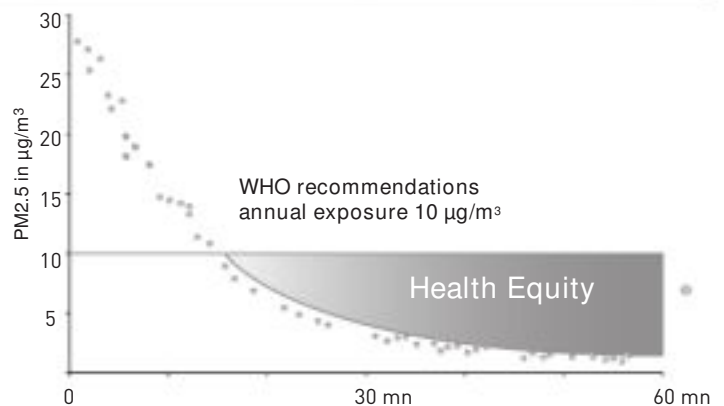


The air we breathe is full of fine particles which enter the respiratory system to varying degrees.

The EPURE function (air purification system) exceeds the WHO's recommendations on particle removal, reducing PM2.5 particulates to below 10 µg/m³ in less than an hour. This is equivalent to a reduction of 50% to 90% in particulate matter.

Epure is the combination of all the components that make up the COADIS LINE:

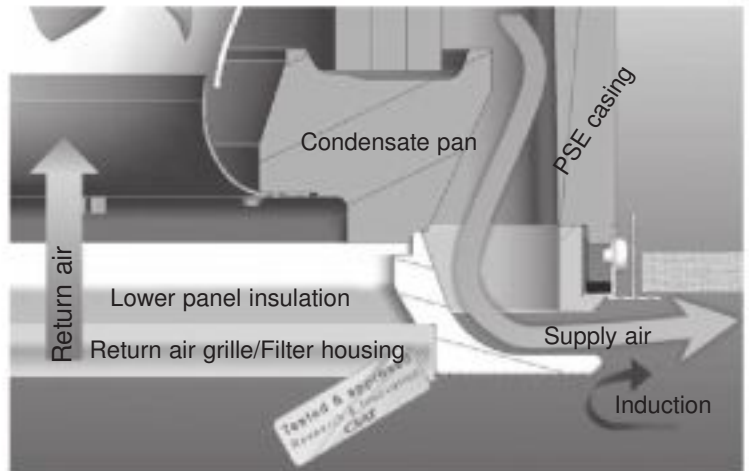
- A protected stream of air that is free of particulates present in suspended ceilings,
- Optimised air diffusion over 180 ° or 360 ° using the Coanda effect and a suitable mixing rate to ensure uniform treatment of the room,
- Very high-efficiency local room-by-room filtration of PM2.5 fine particles,
- Filter area x10.



THE COANDA EFFECT

VISUAL Coanda effect diffuser:

The single slot peripheral outlet with its narrow opening and specific internal profile will increase the initial speed of the air as it leaves the diffuser. The high speed of the moving flow of air causes an area of low pressure which keeps it close to the ceiling, (there is no direct blast on occupants) and the ambient air is drawn in by induction to be reinjected in the air stream. The air mix rate, the range and the coverage of the air flow are improved, which reduces thermal phenomena that cause discomfort in the occupied area (residual air flow rate, asymmetric temperatures, radiation caused by walls, etc.).



COOL AIR FALL PREVENTION SYSTEM

The new 180° diffusers are equipped with an "anti-cold shower" system which guarantees maximum comfort by preventing air from falling between two cassettes.

The system is specially designed by our Research and Innovation centre; two deflectors integrated in the insulation enable the air stream from the lateral channels to be slightly redirected. When the units are placed side by side in the same room, the air flows do not oppose one another and cross over in parallel, which avoids any cold air draughts.

This patented system removes the discomfort caused by draughts without having to reduce the outlets and with no increased noise levels, while maintaining the air flow necessary for the thermal requirements.

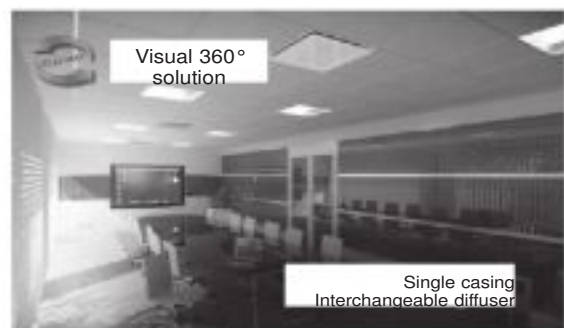
MODULARITY AND VISUAL COMFORT

To ensure perfect visual integration within your building, the FLEXIWAY concept offers two Coanda effect single-vent diffusion systems (Visual 180° and 360°), interchangeable on site, suitable for partitioned offices and open plan spaces.

Designed in close collaboration with both architects and designers, each interface, in RAL 9010 white painted steel, will integrate perfectly into suspended ceiling tiles.

FLEXIWAY

Offers greater flexibility when modifying indoor partitioned spaces, in order to reduce operational costs. Enables optimal adaptation to the new configuration (offices or open spaces) without the need to replace the comfort unit. Based on a casing with a single format, Flexiway means that units already in place can be quickly switched for Visual 180° and 360° diffusers, which can be positioned in any direction thanks to their symmetrical mounting points. If the site to be altered only has a single diffuser model, it is possible to order the model of your choice which is supplied separately in its protective packaging.



Perfect for new buildings, harmonising enclosed and open plan spaces. The Visual 180° solution is particularly suited to partitioned spaces from 10 to 20 m², with the unit positioned at the edge of the room. The Visual 360° solution is ideal for open plan areas with the unit positioned centrally.

The diffusion panels, which are delivered individually packaged, allow the unit to be installed easily without the risk of damaging or soiling the visible part.

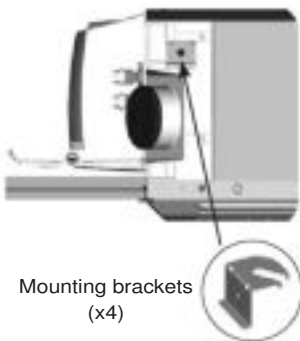
OVERVIEW

The air handling box is fitted inside the suspended ceiling at the edge of the room with the supply air opposite windows and the electrics box facing the interior of the building for models with a Visual 180° return/diffusion panel. For Visual 360° models, position the box in the centre of the room with the electrics box facing the interior of the building. Leave a minimum space of 300 mm to 600 mm at the rear of the unit to allow access to all of the air, electrical and hydraulic connections.

The COADIS LINE must be suspended from the ceiling using four 6 mm or 8 mm threaded rods (not supplied) to be fixed to the four unit mounting brackets with the anti-vibration resilient mounts or a nut/washer assembly positioned either side of the mounting bracket.



Mounting principle
2 methods



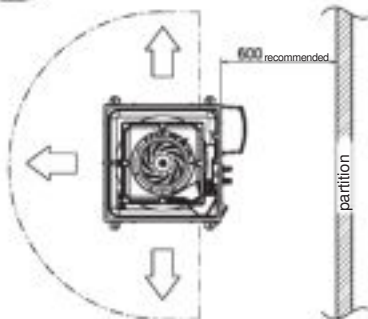
Mounting brackets
(x4)

Attached using
4 threaded rods
(6mm or 8mm)

Elastic
damper

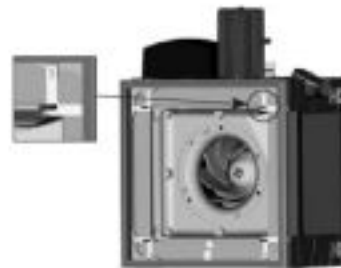
Nut/washer assembly

placed either side
of the mounting
bracket



Casing position for Visual 180°
diffusion only

Mounting system for Visual diffusers with
4 captive screws

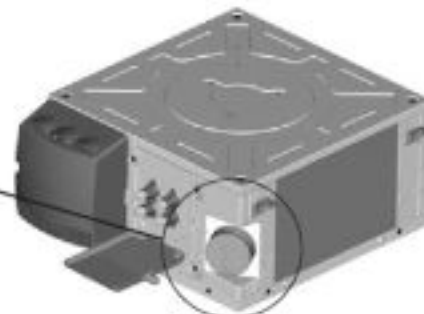


FRESH AIR INLET SPIGOT



R+ pack
Fresh air
control

Air quality control



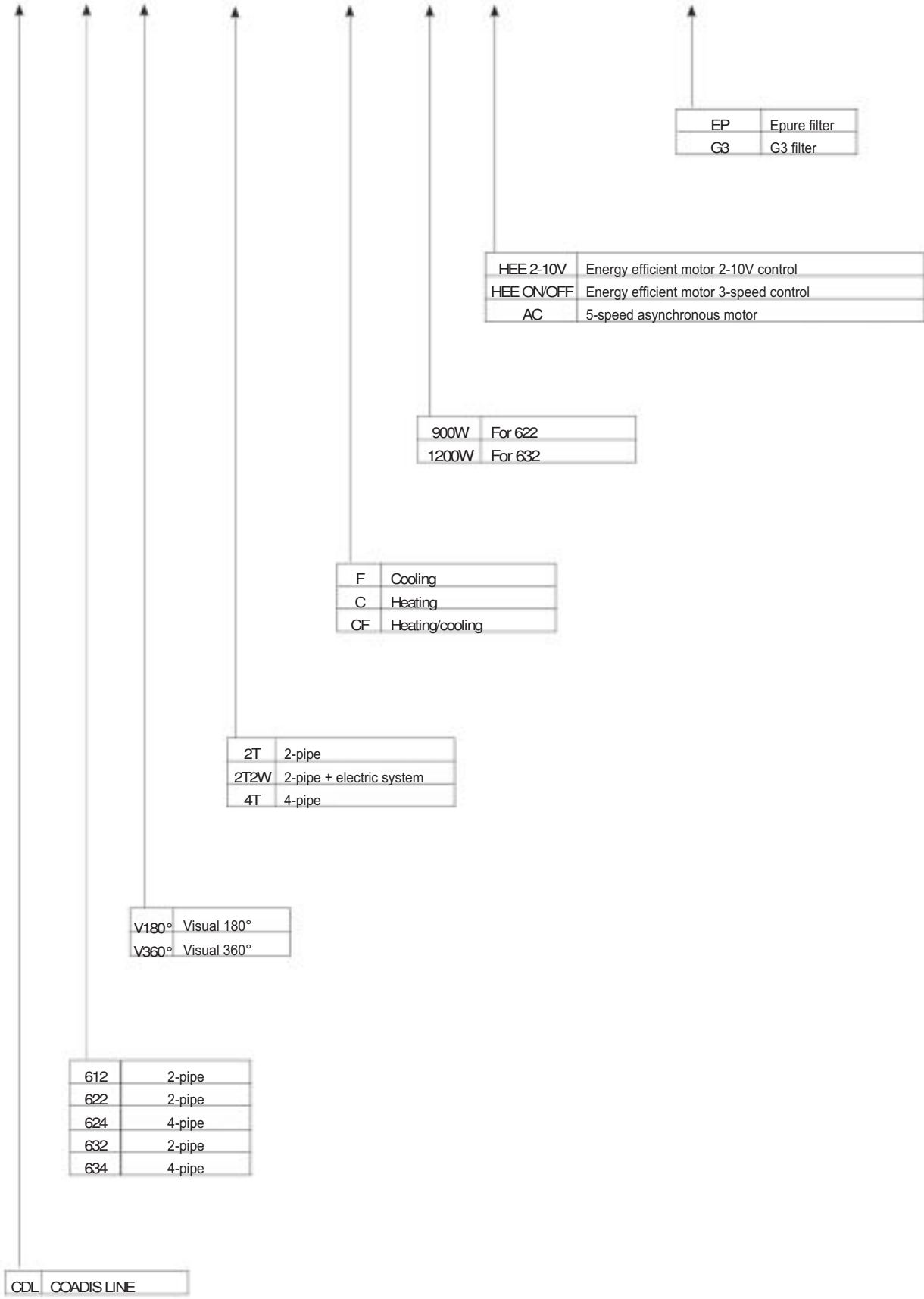
Ø 100 mm collar, max. air flow 90 m³/hr recommended.
Network balancing system (not supplied by CIAT)

IAQ pack

- For offices, air quality control with presence sensor (R1 pack),
- For meeting rooms, air quality control with CO₂ sensor (R+ pack).

COADIS LINE 600™ MORPHO-DESCRIPTIVE CODE

| Range | Size | Model | Coil type | Thermal function | | Motor | Speeds | Filter |
|-------|------|-------|-----------|------------------|----------|-------|------------------------|--------|
| CDL | 622 | V360° | 2T2W | F | + 1200 W | HEE | depending on selection | EP |



TECHNICAL DESCRIPTION

Return/supply air interface

VISUAL interfaces: Coanda effect diffusion via a single narrow opening vent and specific internal profile.

- 2 models available: Visual 180 ° or 360 °.
- In sheet metal painted in RAL 9010 to be fitted over the chassis and exactly the same dimensions as a standard suspended ceiling tile.
- Micro-perforated hinge-mounted metal return air grille with housing for EPURE function filter, opens fully without tools.
- PSE insulation, M1 fire resistance with very low heat transfer coefficient.
- An "anti-cold shower" system which is patented (filed under No. 1451872) which prevents air from falling between the two cassettes when they are aligned around the edges of the room (only with Visual 180 ° diffuser).

Casing

- Single casing and reduced size for all unit sizes, fits in place of a 600 x 600 mm or 675 x 675 mm suspended ceiling tile (option).
- Reduced weight compared to the previous generation cassette.
- Ribbed galvanised steel motor support base panel, 10/10th thick.
- High-density PSE casing integrating thermal and acoustic functionalities. 15 mm base and 25 mm to 30 mm thick vertical sides that make up the enclosure.
- Low emission of TVOCs and no halogenated compounds.
- ABS corner reinforcements fitted with open galvanised one-way steel mounting brackets for assembly of threaded rods.
- Fire rating: M1.
- Hydraulic, air and electrical connections on the same side of the technical panel at the rear of the unit providing a single access point.
- Finish frame in RAL 9010 galvanised steel, 8/10th thick, housing the diffusion interface.
- Centring of the unit between the suspended ceiling profiles using anti-vibration elastomer mounts fitted on the finish frame.

Water coil

- 1 hot or cold water circuit (2-pipe system).
- 1 hot water circuit + 1 cold water circuit (4-pipe system).
- Single piece sleeve with 40 mm centre to centre distance with integrated sealed flush fitting female revolving unions, for easy fitting of the control valves.
- Low pressure drop one, two, or three layer circular coils.
- Copper pipes, one-piece aluminium fins (1.6 mm pitch).
- Purge and drain.
- Rated pressure 16 bar (at 20°C).
- Test pressure 24 bar.
- Max. hot water inlet temperature:
 - 4-pipe application: 80 °C,
 - 2-pipe application: 70 °C,
 - 2-pipe/2-wire application: 55 °C (min air flow rate: 200m³/h).
- Min cold water inlet temperature: 6°C.

Electrical heater (2-pipe + electric system)

- 230/1/50 single-pipe electrical elements inserted into the aluminium housing.
- 2 temperature limiters, manually and automatically reset, inserted in the aluminium block with easy access that does not require the suspended ceiling to be opened, via the Intake / outlet interface.

- Heater element feed on the terminal block inside the electrics box.
- It is possible to deactivate a heater element on site by means of a shunt on the terminal to reduce the electrical power.

Condensate drain pan

- Single unit main pan in high-density sealed PSE for use in all climates, naturally sloped and removable from below without the need to open the suspended ceiling.
- Fire rating: M1.
- ABS PC auxiliary pan with no water retention provided as an accessory for the recovery of condensates from the valves and coming from the main pan.
- Gravity drain: height 70 mm.
- Drainage bushing: external Ø 15 to 20 mm.

Fan motor assembly

■ HEE motor

Low energy motor making it possible to reduce electrical consumption by up to 85%.

- Brushless technology.
- Sealed type, tropicalised with protected shaft.
- 3-speed gradual operation by 0-10V or on/off control signal, without expansion board.
- Internal normally closed series automatic overload protection on the windings.
- "DFS" motor fault output using a photocoupler for potential alarm feedback via a Konnex protocol communication bus (via the V3000 controller).
- Mounted on anti-vibration mounts.
- 230 V/1-Ph/50 Hz feed (60 Hz compatible).

Note: The minimum voltage to start up the motor is 2 V.

Or

■ Asynchronous motor

5 factory-wired speeds connected to a terminal strip for customisation.

- Sealed type, tropicalised with protected shaft.
- Permanent capacitor.
- Roller bearings.
- Internal normally closed series automatic overload protection on the windings.
- Resilient mounts.
- 230 V/1-Ph/50 Hz feed (60 Hz compatible).
- High output and Displacement Power Factor (Cos Phi).

■ Fan(s)

- Balanced centrifugal turbine Ø 282 mm with profiled blades.
- Polymer turbine.
- Single point mounting system with foolproofing device.

Electrics box

- Large ABS electrics box with supported hinge and closed with a bolt.
- IP20 Index of Protection.
- Electrical connection terminal on DIN rail in compliance with EN 50022, 7.5 mm deep.
- Marked out terminal strip with spring connectors. 0.5 to 2.5 mm² cross section - Max. current: 24 A – Shock resistance: 8 kV. Cable grommet for field connection.

Fresh air supply sleeve

Connection sleeve for fresh air inlet, Ø100 mm, integral to the frame with removable plug.

Air filter

- Epure function for superior indoor air quality.
- A protected air stream which prevents particles from being drawn into suspended ceilings.
- Uniform treatment of the room thanks to optimised diffusion over 180° or 360° using the Coanda effect.
- Suitable mixing rate.
- Local filtration by high efficiency filter medium effective on fine particles up to 2.5 microns.
- Filter area 10 times greater than the intake grille surface.
- No discharge from the filter during replacement thanks to the folded filter medium with heat-sealed lateral inserts to make it more rigid.
- Improved service life compared to a conventional flat filter, thanks to its high retention capacity.
- Low energy impact. Fire rating: M1.
- No release of glass fibres.
- 100% incinerable at end of life.

Device mounting

Open mounting brackets, factory-fitted, made from galvanised steel, 15/10th thick, with check valve for securing the threaded rods during fitting and levelling.

Packaging

- Strapped cardboard crate for the casing.
- Fitting template and direction of fitting printed on the cardboard.
- Visual return/supply air interface supplied separately in protective cardboard packaging.
- Delivered on film wrapped pallet from the factory.

Controls

- RTR-E electromechanical thermostat range
- V30 electronic range
- V300 electronic range
- V3000 networked electronic range (KNX)
- Networked electronic range (LON): V-LON2

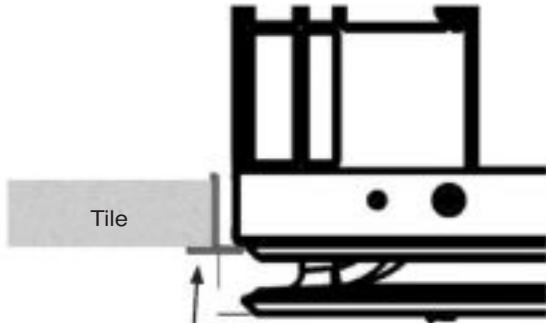
Options (factory-fitted)

- Hydraulic coil with protected blades for aggressive / corrosive areas (locations close to the sea or with chemical industries located close by).
- Condensate drain pump.
- G3 filter.
- Extension.
- Finishing trim frame for 675 x 675 mm suspended ceiling tiles.
- Finishing trim frame for STAFF ceilings.

Accessories (available separately)

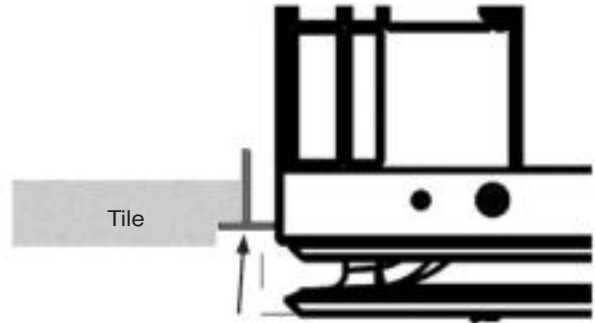
- Anti-vibration resilient mounts for mounting brackets.
- Self-regulating conditioned fresh air inlet module (3 flow rates adjustable using a set of shims).
- Ø 100-125 mm sleeve adapter.
- Condensate drain pump kit with high safety device.
- 230 V thermo valve kit.
- Prewired controller kit mounted on the plate.
- 80 mm riser kit for gravity drainage without condensate drain pump.
- Finish counter frame kit for 675 mm suspended ceiling tile.
- 300 mm connecting hose kit with or without 9 mm insulation.
- Fresh air pack:
 - R1: Fresh air managed via presence sensor.
 - R+: Fresh air management via CO₂ sensor (max. air flow 90 m³/h recommended, network balancing system not supplied by CIAT).
- Speed control unit kit for HEE motors with 3-speed on/off control.

INTEGRATION INTO THE SUSPENDED CEILING



24 mm T profile

Mounting position with 600 x 600 mm
suspended ceiling on T profile

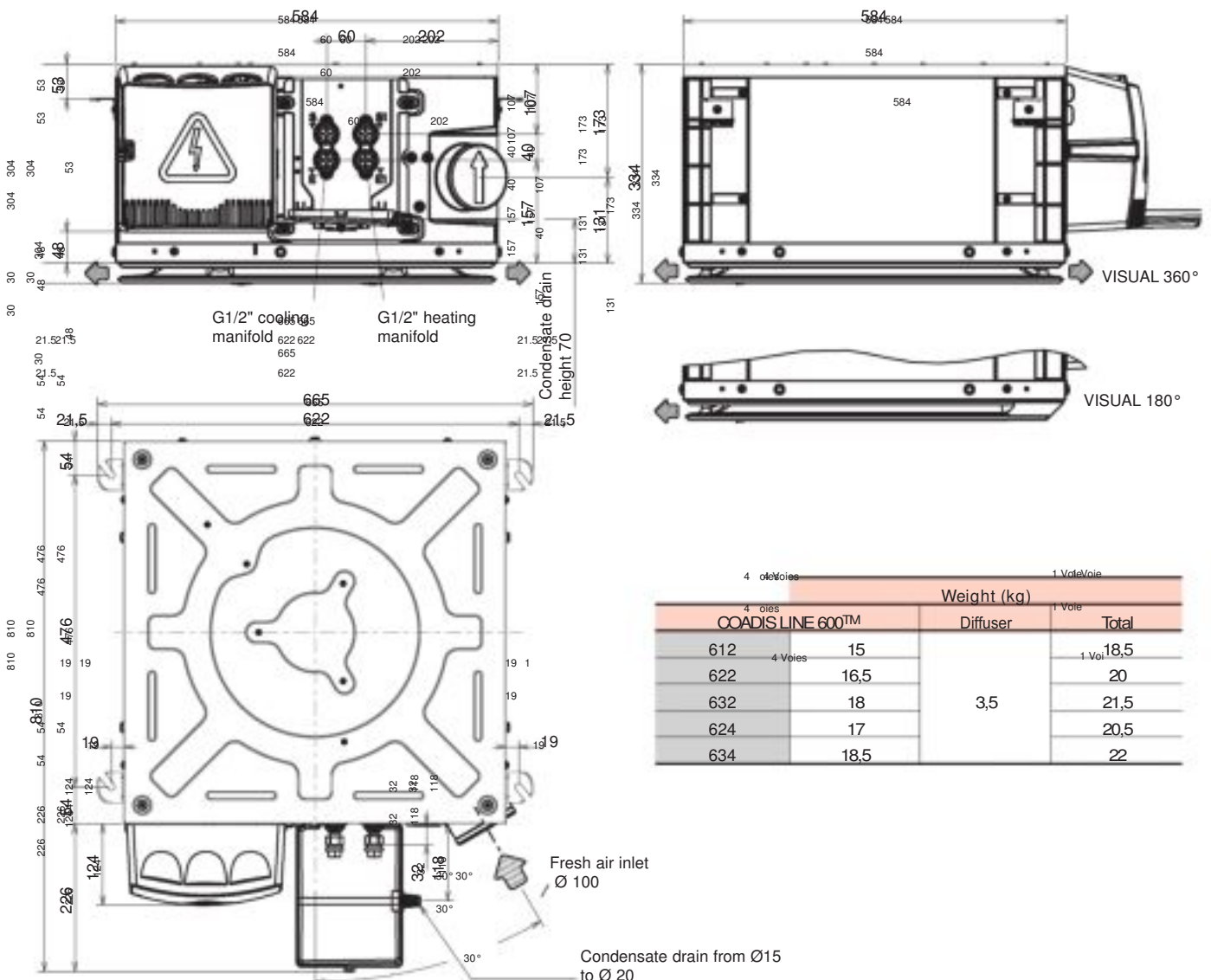


15 mm T-shaped profile
with 8 mm shadowgap

Mounting position with 600 x 600 mm
suspended ceiling on T profile with 8 mm
shadowgap

Note: not compatible with steel tray suspended ceilings and clip-in type mountings.

DIMENSIONS



| 4 voies | | 1 Voie | |
|------------------|------|-------------|-------|
| COADIS LINE 600™ | | Weight (kg) | |
| | | Diffuser | Total |
| 612 | 15 | 3,5 | 18,5 |
| 622 | 16,5 | | 20 |
| 632 | 18 | | 21,5 |
| 624 | 17 | | 20,5 |
| 634 | 18,5 | | 22 |

TECHNICAL CHARACTERISTICS

Coil capacity (L)

| COADIS LINE 600™ | | 612 | 622 | 622E | 632 | 632E | 624 | 634 |
|------------------|-----------------|-------|-------|-------|-------|-------|-------|-------|
| 2-pipe coil | | 0,407 | 0,796 | 0,608 | 1,212 | 1,017 | | |
| 4-pipe coil | Cold water coil | | | | | | 0,608 | 1,017 |
| | Hot water coil | | | | | | 0,231 | 0,237 |

Coil coupling diameters

Coil connection type: flush fit female threaded union nuts

Valve outlet coupling type: "male" threaded couplings to be used

| COADIS LINE 600™ | | 612 | 622 | 624 | 632 | 634 |
|------------------|-----------------|-------|-------|-------|-------|-------|
| 2-pipe system | | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" |
| 4-pipe system | Cold water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" |
| | Hot water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" |

Motor electrical data notes

| COADIS LINE | Motor code | AC asynchronous motor | | | HEE brushless motor | | |
|-------------------|------------|-----------------------|-----------|-----------|---------------------|-----------|-----------|
| | | 612 | 622 - 624 | 632 - 634 | 612 | 622 - 624 | 632 - 634 |
| Input power (W) | V5 | 70 | 70 | 101 | 38 | 38 | 56 |
| | V4 | 45 | 45 | 77 | 17 | 17 | 38 |
| | V3 | 41 | 41 | 56 | 12 | 12 | 21 |
| | V2 | 38 | 38 | 47 | 8 | 8 | 15 |
| | V1 | 34 | 34 | 40 | 5 | 5 | 11 |
| Input current (A) | V5 | 0,30 | 0,30 | 0,32 | 0,18 | 0,18 | 0,40 |
| | V4 | 0,21 | 0,21 | 0,29 | 0,09 | 0,09 | 0,28 |
| | V3 | 0,19 | 0,19 | 0,24 | 0,07 | 0,07 | 0,17 |
| | V2 | 0,18 | 0,18 | 0,22 | 0,04 | 0,04 | 0,13 |
| | V1 | 0,17 | 0,17 | 0,21 | 0,02 | 0,02 | 0,10 |

Note: Specifications determined for 230V +/-10% - 50Hz supply.

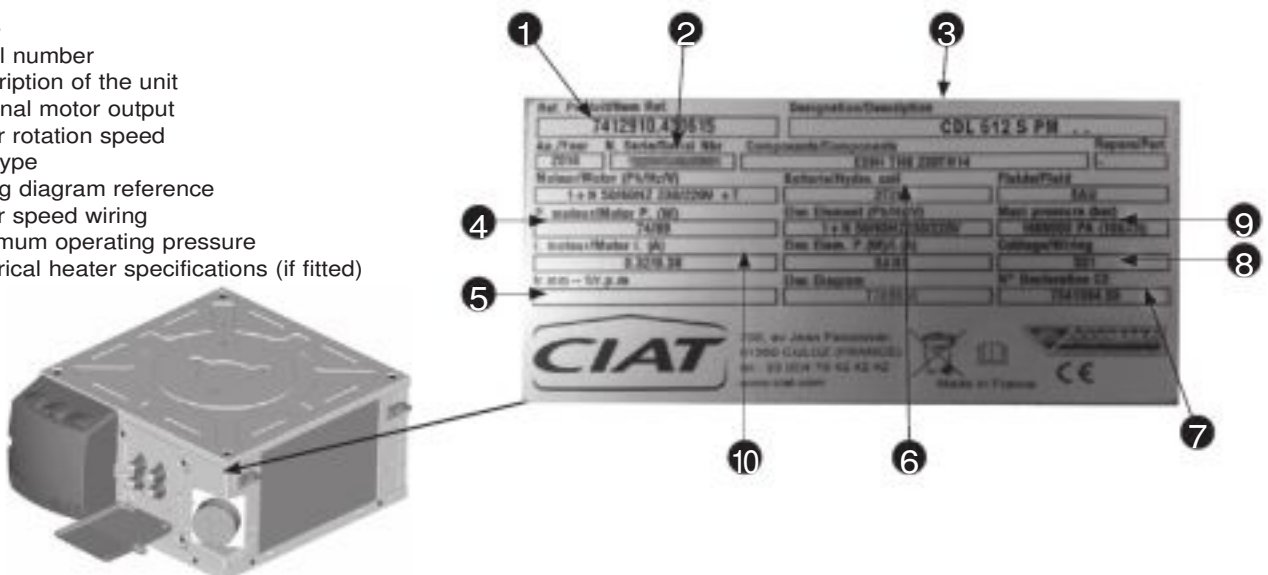
For operation at 60Hz, the power input and rotation speed values are generally higher.

- Motor operating range: minimum return T°C: 0°C
maximum return T°: 40°C

Unit information plate

The information plate shows all the information needed to identify the unit and its configuration. This plate is placed on the technical side that has all the connections, above the fresh air inlet.

- 1 Code
- 2 Serial number
- 3 Description of the unit
- 4 Nominal motor output
- 5 Motor rotation speed
- 6 Coil type
- 7 Wiring diagram reference
- 8 Motor speed wiring
- 9 Maximum operating pressure
- 10 Electrical heater specifications (if fitted)



2T/4T AC MOTOR PERFORMANCE

| COADIS LINE | Motor code | Air flow m³/h | 2-pipe and 4-pipe systems | | | Power input W | LW dB(A) | Comfort level (ISO or NR) | Average increase of air temperature (in K) 230/1/50 auxiliary electrical heater | |
|-------------|------------|------------------|---------------------------|----------|----------------------|------------------|-------------|------------------------------|--|--|
| | | | Cooling capacity (W) | | Heating capacity (W) | | | | 2R | |
| | | | Total | Sensible | | | | | | |
| 612 | V5 | 610 | 2 180 | 1 991 | 2 563 | 70 | 59 | 42 | | |
| | V4 | 440 | 1 765 | 1 582 | 2 051 | 45 | 49 | 32 | | |
| | V3 | 380 | 1 599 | 1 425 | 1 852 | 41 | 46 | 29 | | |
| | V2 | 310 | 1 429 | 1 256 | 1 627 | 38 | 42 | 25 | | |
| | V1 | 235 | 1 250 | 1 058 | 1 379 | 34 | 37 | 19 | | |
| 622 | V5 | 590 | 3 501 | 2 790 | 3 618 | 70 | 59 | 42 | | |
| | V4 | 420 | 2 662 | 2 054 | 2 713 | 45 | 51 | 34 | | |
| | V3 | 360 | 2 347 | 1 779 | 2 363 | 41 | 47 | 30 | | |
| | V2 | 290 | 2 016 | 1 488 | 1 988 | 38 | 42 | 25 | | |
| | V1 | 215 | 1 630 | 1 173 | 1 592 | 34 | 35 | 18 | | |
| 622E | V5 | 590 | 2 635 | 2 336 | 2 992 | 70 | 59 | 42 | 900 W (2P) | |
| | V4 | 420 | 2 114 | 1 818 | 2 385 | 45 | 51 | 34 | | |
| | V3 | 360 | 1 930 | 1 604 | 2 140 | 41 | 47 | 30 | | |
| | V2 | 290 | 1 699 | 1 362 | 1 868 | 38 | 42 | 25 | | |
| | V1 | 215 | 1 468 | 1 108 | 1 565 | 34 | 35 | 18 | | |
| 624 | V5 | 590 | 2 635 | 2 336 | 2 984 | 70 | 59 | 42 | | |
| | V4 | 420 | 2 114 | 1 818 | 2 464 | 45 | 51 | 34 | | |
| | V3 | 360 | 1 930 | 1 604 | 2 257 | 41 | 47 | 30 | | |
| | V2 | 290 | 1 699 | 1 362 | 2 029 | 38 | 42 | 25 | | |
| | V1 | 215 | 1 468 | 1 108 | 1 781 | 34 | 35 | 18 | | |
| 632 | V5 | 775 | 5 173 | 3 881 | 4 853 | 101 | 62 | 44 | | |
| | V4 | 660 | 2 262 | 3 318 | 4 176 | 77 | 58 | 40 | | |
| | V3 | 525 | 3 630 | 2 664 | 3 359 | 56 | 51 | 34 | | |
| | V2 | 460 | 3 226 | 2 348 | 2 962 | 47 | 48 | 30 | | |
| | V1 | 405 | 2 907 | 2 097 | 2 648 | 40 | 45 | 27 | | |
| 632E | V5 | 775 | 4 401 | 3 493 | 4 633 | 101 | 62 | 44 | 1200 W(2P) | |
| | V4 | 660 | 3 833 | 3 009 | 4 006 | 77 | 58 | 40 | | |
| | V3 | 525 | 3 169 | 2 442 | 3 263 | 56 | 51 | 34 | | |
| | V2 | 460 | 2 854 | 2 173 | 2 901 | 47 | 48 | 30 | | |
| | V1 | 405 | 2 600 | 1 955 | 2 615 | 40 | 45 | 27 | | |
| 634 | V5 | 775 | 4 401 | 3 493 | 3 363 | 101 | 62 | 44 | | |
| | V4 | 660 | 3 833 | 3 009 | 3 025 | 77 | 58 | 40 | | |
| | V3 | 525 | 3 169 | 2 442 | 2 623 | 56 | 51 | 34 | | |
| | V2 | 460 | 2 854 | 2 173 | 2 430 | 47 | 48 | 30 | | |
| | V1 | 405 | 2 600 | 1 955 | 2 275 | 40 | 45 | 27 | | |

EUROVENT conditions

Eurovent certified values

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)
 Heating temperature (2P): water temperature: 45/40 °C, inlet air temperature: 20 °C
 Heating temperature (4P): water temperature: 65/55 °C, inlet air temperature: 20 °C

2T/4T HEE MOTOR PERFORMANCE

| COADIS LINE | Control voltage (V) | Air flow m ³ /h | 2-pipe and 4-pipe systems | | | Power input W | LW dB(A) | Comfort level (ISO or NR) | Average increase of air temperature (in K) 230/1/50 auxiliary electrical heater | |
|-------------|---------------------|----------------------------|---------------------------|----------|----------------------|---------------|----------|---------------------------|---|--|
| | | | Cooling capacity (W) | | Heating capacity (W) | | | | 2R | |
| | | | Total | Sensible | | | | | | |
| 612 HEE | 6,7 | 610 | 2 160 | 1 969 | 2 582 | 38 | 59 | 42 | | |
| | 4,9 | 440 | 1 745 | 1 561 | 2 070 | 17 | 49 | 32 | | |
| | 4,2 | 380 | 1 577 | 1 401 | 1 872 | 12 | 46 | 29 | | |
| | 3,4 | 310 | 1 403 | 1 229 | 1 650 | 8 | 42 | 25 | | |
| | 2,5 | 235 | 1 221 | 1 029 | 1 404 | 5 | 37 | 19 | | |
| 622 HEE | 6,7 | 590 | 3 468 | 2 758 | 3 644 | 38 | 59 | 42 | | |
| | 4,9 | 420 | 2 637 | 2 027 | 2 737 | 17 | 51 | 34 | | |
| | 4,2 | 360 | 2 322 | 1 752 | 2 389 | 12 | 47 | 30 | | |
| | 3,4 | 290 | 1 984 | 1 457 | 2 016 | 8 | 42 | 25 | | |
| | 2,5 | 215 | 1 596 | 1 142 | 1 620 | 5 | 35 | 18 | | |
| 622E HEE | 6,7 | 590 | 2 609 | 2 309 | 3 014 | 38 | 59 | 42 | 900 W (2R) | |
| | 4,9 | 420 | 2 090 | 1 792 | 2 408 | 17 | 51 | 34 | | |
| | 4,2 | 360 | 1 904 | 1 577 | 2 164 | 12 | 47 | 30 | | |
| | 3,4 | 290 | 1 666 | 1 331 | 1 895 | 8 | 42 | 25 | | |
| | 2,5 | 215 | 1 430 | 1 076 | 1 594 | 5 | 35 | 18 | | |
| 624 HEE | 6,7 | 590 | 2 609 | 2 309 | 2 997 | 38 | 59 | 42 | | |
| | 4,9 | 420 | 2 090 | 1 792 | 2 477 | 17 | 51 | 34 | | |
| | 4,2 | 360 | 1 904 | 1 577 | 2 272 | 12 | 47 | 30 | | |
| | 3,4 | 290 | 1 666 | 1 331 | 2 045 | 8 | 42 | 25 | | |
| | 2,5 | 215 | 1 430 | 1 076 | 1 799 | 5 | 35 | 18 | | |
| 632 HEE | 7,9 | 775 | 5 132 | 3 839 | 4 891 | 56 | 62 | 44 | | |
| | 6,7 | 660 | 4 425 | 3 281 | 4 200 | 38 | 58 | 40 | | |
| | 5,3 | 525 | 3 596 | 2 630 | 3 389 | 21 | 51 | 34 | | |
| | 4,6 | 460 | 3 194 | 2 317 | 2 990 | 15 | 48 | 30 | | |
| | 3 | 290 | 2 190 | 1 530 | 1 970 | 6 | 38 | 19 | | |
| 632E HEE | 7,9 | 775 | 4 364 | 3 454 | 4 670 | 56 | 62 | 44 | 1200 W (2R) | |
| | 6,7 | 660 | 3 798 | 2 973 | 4 038 | 38 | 58 | 40 | | |
| | 5,3 | 525 | 3 136 | 2 410 | 3 292 | 21 | 51 | 34 | | |
| | 4,6 | 460 | 2 822 | 2 142 | 2 929 | 15 | 48 | 30 | | |
| | 4,1 | 405 | 2 570 | 1 927 | 2 640 | 11 | 45 | 27 | | |
| 634 HEE | 6,7 | 660 | 3 798 | 2 973 | 3 039 | 38 | 58 | 40 | | |
| | 5,3 | 525 | 3 136 | 2 410 | 2 637 | 21 | 51 | 34 | | |
| | 4,6 | 460 | 2 822 | 2 142 | 2 444 | 15 | 48 | 30 | | |
| | 4,1 | 405 | 2 570 | 1 927 | 2 288 | 11 | 45 | 27 | | |
| | 3 | 290 | 2 040 | 1 470 | 1 960 | 6 | 38 | 19 | | |

EUROVENT conditions

Eurovent certified values

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)
 Heating temperature (2P): water temperature: 45/40 °C, inlet air temperature: 20 °C
 Heating temperature (4P): water temperature: 65/55 °C, inlet air temperature: 20 °C

COADIS LINE 900™

Comfort units
COANDA effect cassette



New generation of cassette comfort units based on the water loop
360° Coanda effect diffusion
Energy efficient motor
and high-efficiency filtration

Cooling capacity: 3 to 10 kW
Heating capacity: 3 to 9 kW



USE

The active water loop comfort unit, for installation in suspended ceilings, can be used to autonomously and individually adapt the indoor temperature over very short periods to ensure the

comfort of occupants. Designed for offices, open plan areas, meeting rooms, commercial premises and entrance halls.

RANGE

The COADIS LINE 900™ range of cassettes features 9 sizes covering flow rates from 550 to 1400 m³/h, and meeting the most stringent sound level requirements.

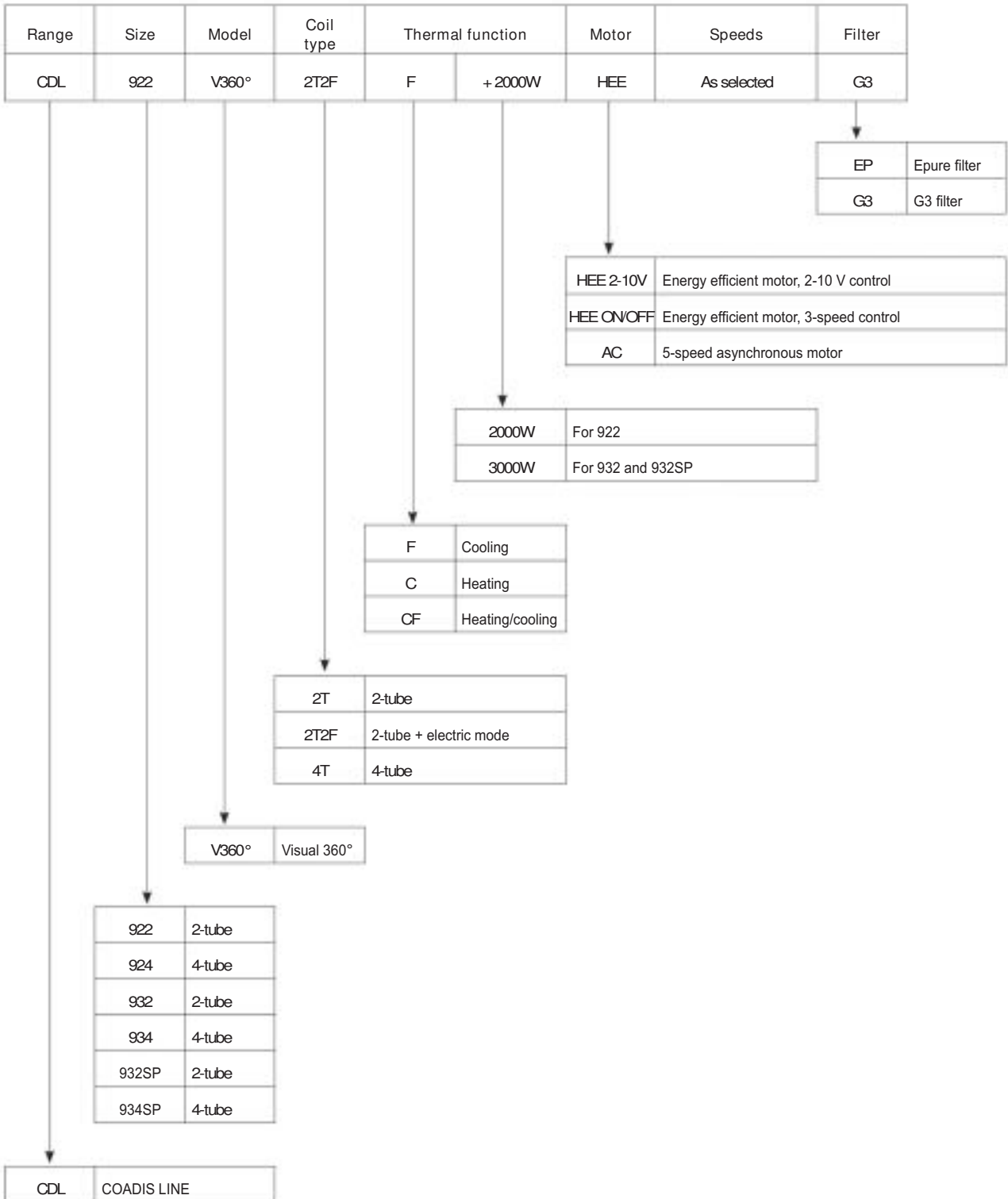
- 1 Visual 360° diffusion model:
Coanda effect diffuser across 360°

- The COADIS LINE is available as:
 - A 2-tube system, operating in cooling or heating mode,
 - A 2-tube + 2-wire system, operating in cooling or heating/cooling + electric mode,
 - A 4-tube system, operating in cooling and heating mode.

ADVANTAGES

- Uses an ecological and long-lasting heat-transfer fluid.
- Individual adaptation of the indoor temperature.
- Responsiveness of the system.
- Extensive capacity range.
- Diffusion by Coanda effect across 360° for comprehensive coverage, and perfect control of thermal phenomena which cause discomfort.
- Acoustic comfort.
- Optimum indoor air quality thanks to the EPURE function.
- Energy optimisation:
 - High Energy Efficiency motor,
 - EPURE filter with low pressure drop,
 - Optimised hydraulic coil.
- Maintenance facilitated by access to the filter and the highly accessible internal components.
- Modern, elegant design to ensure perfect integration.
- Environmentally-responsible product.

COADIS LINE 900™ MORPHO-DESCRIPTIVE CODES



TECHNICAL DESCRIPTION

Return/supply air interface

- VISUAL 360°
Painted galvanised steel.
PSE insulation, 10 to 40 mm thick.
Uniform RAL 9010 white colour for all components. Integration within a suspended ceiling, fitting in the centre of four tiles.
Perforated metal return air grille with filter housing with quick opening via 2 lugs.
Interface secured by 4 screws, to be removed to gain full access to the internal components (coil, FMA, temperature limiters, condensate pan, condensate drain pump).
Coanda effect diffusion which allows a jet of air to follow the ceiling, preventing cold air from dropping into the comfort area. Coanda effect offers 360° coverage of the surface area of the room to be treated, with no dead zone.
Narrow single-slot opening and specific internal profile.

Frame

- Ribbed galvanised steel motor support base panel.
- High-density PSE packaged casing, ensuring the acoustic and thermal insulation. 18 mm thick for the base and 25 mm to 30 mm thick for the vertical walls which form the casing. M1 fire rating.
- Low emission of TVOCs and no halogenated compounds.
- ABS technical plate supporting the electrics box, hydraulic and air couplings (fresh air).
- Reinforcing ABS angle bars fitted in the corners and equipped with open galvanised steel mounting brackets with check valve for fitting threaded rods.
- Fixed frame in RAL 9010 (white) painted galvanised steel, housing the return/supply air interface and providing rigidity to the casing assembly.

Water coil

- 1 hot water or cold water circuit (2-tube system),
- 1 hot water + 1 cold water circuit (4-tube system),
- one-piece coupling (40 mm centre distance) with rotating female couplings with integrated flat face and seals, for easy fitting of control valves,
- one, two or three-row circular coil with low pressure drop,
- copper tubes, continuous aluminium fins (1.8 mm spacing),
- bleeding and draining,
- nominal pressure of 16 bar (at 20°C),
- test pressure of 24 bar,
- max. hot water inlet temperature:
 - 4-tube application: 80°C,
 - 2-tube application: 70°C,
 - 2-tube/2-wire application: 55°C (min. air flow rate: 200 m³/h)
- min. cold water inlet temperature: 6°C.

Electrical heater (2-tube + electric system)

230/1/50 single-tube electrical elements inserted into the aluminium housing.
Two temperature limiters with manual and automatic reset, inserted into the aluminium housing and easily accessible without the need to open the suspended ceiling via the return/supply air interface.
Heater power supply connected to the terminal block inside the electrics box.
Option of deactivating a heater on site by removing a shunt from the terminal block, to reduce the electrical power.

Condensate drain pan

One-piece main pan with all-climate insulation in high-density PSE, with sealing treatment on the upper section.
Removable from below.
Condensate drainage (internal Ø 32 connection) provided by an internal drain pump equipped with a safety float, check valve and fitted on anti-vibration mounts.
Auxiliary pan available as an accessory for recovery of condensate from the valves.

Fan motor assembly

■ HEE motor

- High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.
- BLAC (Brushless Alternating Current) technology offering more linear torque progression and a lower operating sound level than BLDC (Brushless Direct Current) technology,
 - sealed, tropicalised, with protected shaft,
 - 3-speed gradual operation by 0-10V or on/off control signal, without expansion board,
 - ball bearings,
 - internal automatic overload protection as standard on winding,
 - "DFS" motor fault output using a photocoupler for potential alarm feedback via a Konnex protocol communication bus (via the V3000 controller),
 - fitted on anti-vibration mounts,
 - 230V/1Ph/50 Hz power supply (60Hz compatible).

Note: The minimum voltage required for start-up of the motor is 2V.

Or

■ Asynchronous motor

- 5 factory-fitted cabled speeds (connected and available at the terminal) for customised adjustment.
- sealed, tropicalised, with protected shaft,
 - permanent capacitor,
 - ball bearings,
 - internal automatic overload protection as standard on winding,
 - resilient mounts,
 - 230V/1Ph/50 Hz power supply (60Hz compatible),
 - high efficiency and power factor.

■ Fan(s)

- balanced centrifugal impeller (Ø 476mm) with airfoil blades,
- polymer impeller,
- single-point mounting system with foolproofing device.

Electrics box

- Large ABS electrics box, with a hinge to keep it open and screw closure.
- Index of Protection: IP20.
- Terminal block on DIN rail in accordance with EN 50022, depth 7.5 mm.
- Junction block located with tension clamp. Cross section 0.5 to 2.5 mm² - Max current: 24A – Shock resistance: 8 kV.
- Cable routing for customer electrical connections.

Fresh air supply sleeve

- Ø 100 mm sleeve integrated into the casing with removable plug.

Air filter

- EPURE function
 - a protected air stream which prevents particles present in the suspended ceilings from being drawn in,
 - uniform treatment of the room thanks to optimised diffusion (Coanda effect) and an adapted mixing rate,
 - local filtration by high efficiency filter medium effective on fine particles up to 2.5 microns,
 - filter area 10 times greater than the intake grille surface,
 - no discharge from the filter during replacement thanks to the folded filter medium with heat-sealed lateral inserts to make it more rigid
 - longer service life compared to a conventional flat filter, thanks to its high retention capacity,
 - low energy impact,
 - fire rating: M1,
 - no release of glass fibres,
 - 100% incinerable at end of life.

Or

- flexible filter medium made of regenerative polyester fibre,
- efficiency class (EN 779): G3,
- fire rating: M1,
- rigid metal frame,
- accessible via the hinged air recovery grille.

Unit mounting

Open mounting brackets, factory-fitted, made from galvanised steel, 15/10th thick, with check valve for securing the threaded rods during fitting and levelling.

Packaging

- Strapped cardboard crate for the casing.
- Fitting template and direction of assembly printed on the box.
- Visual return/supply air interface supplied separately in protective cardboard packaging.
- Delivered on a plastic-wrapped pallet.

Controls

- RTR-E electromechanical thermostat range.
- V30 electronic range.
- V300 electronic range.
- V3000 networked electronic range (KNX).
- V-LON networked electronic range (LON).

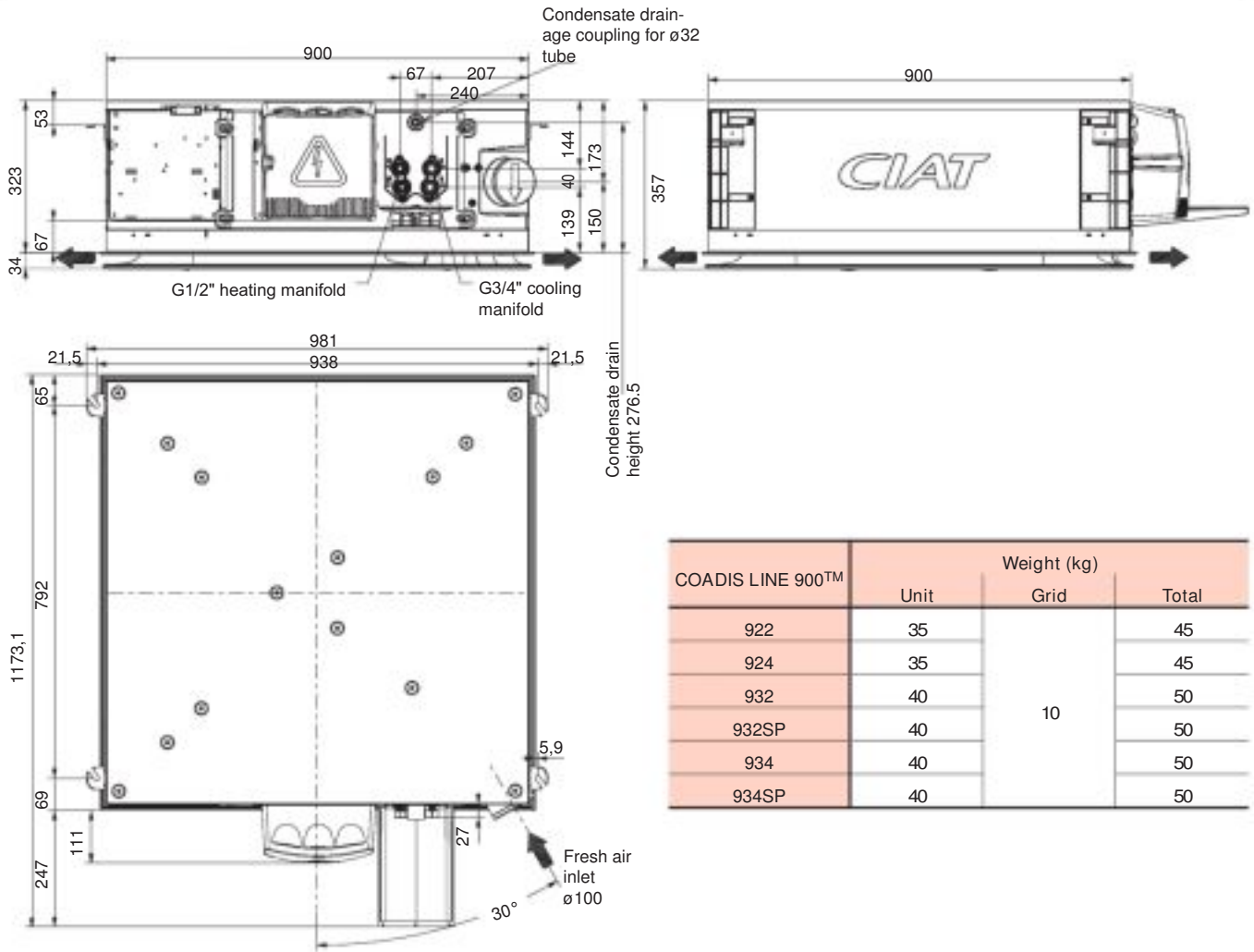
Options (factory-fitted)

- Hydraulic coil with blades protected for use in harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).

Accessories (available separately)

- 300 mm long flexible connections kit with or without 9 mm insulation.
- self-adjusting fresh air module kit:
 - 15/30/45 m³/h flow rates,
 - 60/75/90 m³/h flow rates,
- Ø100/125 mm adapter for fresh air sleeve,
- resilient mounts,
- finish frame for STAFF ceiling,
- fresh air pack:
 - R1: fresh air managed via presence sensor,
 - R+: fresh air management via CO₂ sensor (recommended max. air flow 90 m³/h; network balancing system not supplied by CIAT).

DIMENSIONS



| COADIS LINE 900™ | Weight (kg) | | |
|------------------|-------------|------|-------|
| | Unit | Grid | Total |
| 922 | 35 | 10 | 45 |
| 924 | 35 | | 45 |
| 932 | 40 | | 50 |
| 932SP | 40 | | 50 |
| 934 | 40 | | 50 |
| 934SP | 40 | | 50 |

Coil capacity (L)

| COADIS LINE 900™ | 922 | 932 | 932SP | 924 | 934 | 934SP |
|------------------|-----------------|-----|-------|-----|-----|-------|
| 2-tube coil | 2,2 | 3,5 | 3,5 | | | |
| 4-tube coil | Cold water coil | | | 2,2 | 3,5 | 3,5 |
| | Hot water coil | | | 0,6 | 0,6 | 0,6 |

Coil connection diameters

Coil coupling type: flat face swivel nuts with a female thread

Valve outlet coupling type: "male flat face" threaded couplings to be used

| Coadis Line | 922 | 932 | 932SP | 924 | 934 | 934SP |
|---------------|------------------------------|-------|-------|-------|-------|-------|
| 2-tube system | Hot water or cold water coil | G3/4" | G3/4" | G3/4" | | |
| | Cold water coil | | | | G3/4" | G3/4" |
| 4-tube system | Hot water coil | | | | G1/2" | G1/2" |
| | Cold water coil | | | | | |

TECHNICAL CHARACTERISTICS

Motor electrical specifications

| COADIS LINE | Motor code | AC asynchronous motor | | | | | | HEE brushless motor | | | | | |
|-------------------|------------|-----------------------|------|--------|------|------|--------|---------------------|------|-------|------|------|-------|
| | | 922 | 932 | 932SP* | 924 | 934 | 934SP* | 922 | 932 | 932SP | 924 | 934 | 934SP |
| Input power (W) | V5 | 102 | 102 | 157 | 102 | 102 | 157 | 51 | 51 | 113 | 51 | 51 | 113 |
| | V4 | 89 | 89 | 136 | 89 | 89 | 136 | 38 | 38 | 91 | 38 | 38 | 91 |
| | V3 | 69 | 69 | 119 | 69 | 69 | 119 | 24 | 24 | 72 | 24 | 24 | 72 |
| | V2 | 53 | 53 | 105 | 53 | 53 | 105 | 15 | 15 | 56 | 15 | 15 | 56 |
| | V1 | 35 | 35 | 93 | 35 | 35 | 93 | 10 | 10 | 42 | 10 | 10 | 42 |
| Input current (A) | V5 | 0,44 | 0,44 | 0,68 | 0,44 | 0,44 | 0,68 | 0,37 | 0,37 | 0,39 | 0,37 | 0,37 | 0,39 |
| | V4 | 0,39 | 0,39 | 0,59 | 0,39 | 0,39 | 0,59 | 0,28 | 0,28 | 0,61 | 0,28 | 0,28 | 0,61 |
| | V3 | 0,30 | 0,30 | 0,52 | 0,30 | 0,30 | 0,52 | 0,20 | 0,20 | 0,50 | 0,20 | 0,20 | 0,50 |
| | V2 | 0,23 | 0,23 | 0,46 | 0,23 | 0,23 | 0,46 | 0,14 | 0,14 | 0,39 | 0,14 | 0,14 | 0,39 |
| | V1 | 0,15 | 0,15 | 0,40 | 0,15 | 0,15 | 0,40 | 0,10 | 0,10 | 0,31 | 0,10 | 0,10 | 0,31 |

Note: Specifications determined for 230V +/-10% - 50Hz supply.

For operation at 60Hz, the power input and rotation speed values are generally higher.

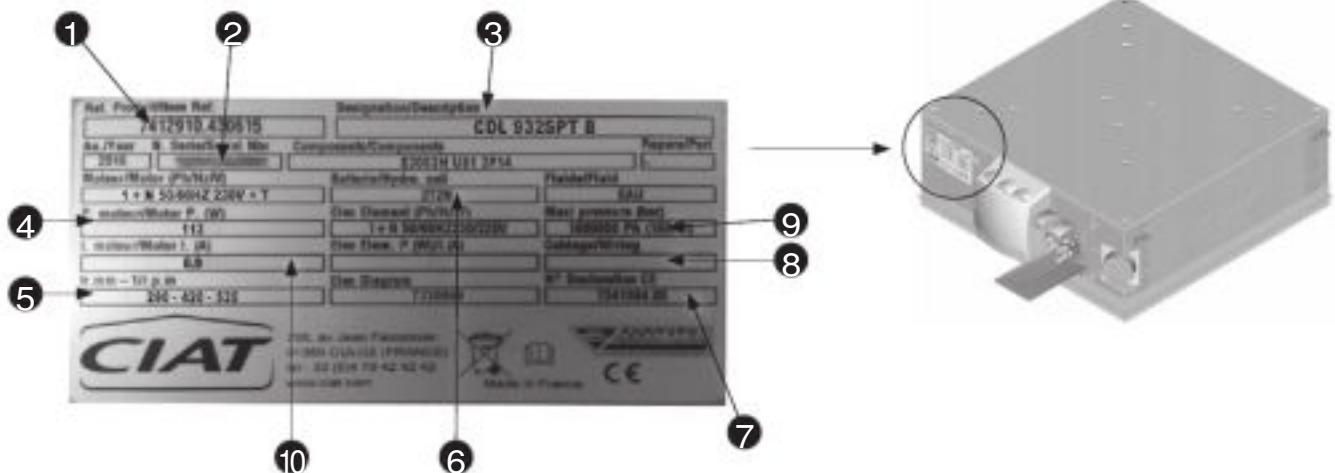
* fan motor assembly not compliant with the ErP2015 Directive

- Motor operating range: minimum return T°C: 0°C
maximum return T°: 40°C

Unit information plate

The name plate contains all the information required to identify the unit and its configuration. This plate is placed on the electrics box side.

- 1 Code
- 2 Serial number
- 3 Description of the unit
- 4 Nominal motor output
- 5 Motor rotation speed
- 6 Coil type
- 7 Wiring diagram reference
- 8 Motor speed wiring
- 9 Maximum operating pressure
- 10 Electrical heater specifications (if fitted)



PERFORMANCE

| COADIS LINE | Motor code | Air flow m³/h | 2-tube system and 4-tube system | | | Power input W | LW dB (A) | Comfort level (ISO or NR) | Average air temperature rise in K Auxiliary electric heater 230/1/50 2R or 3R | |
|-------------|------------|------------------|---------------------------------|----------|----------------------------|------------------|--------------|---------------------------------|---|------|
| | | | Cooling capacity (W) | | Heating capacity (W) | | | | | |
| | | | Total | Sensible | | | | | | |
| 922 | V5 | 1100 | 6 165 | 4 904 | 6 432 | 102 | 51 | 33 | 2000 W (2R) | 5,4 |
| | V4 | 990 | 5 677 | 4 478 | 6 012 | 89 | 48 | 31 | | 6,0 |
| | V3 | 845 | 5 093 | 3 983 | 5 352 | 69 | 46 | 28 | | 7,0 |
| | V2 | 700 | 4 403 | 3 401 | 4 626 | 53 | 42 | 24 | | 8,5 |
| | V1 | 550 | 3 673 | 2 767 | 3 825 | 35 | 39 | 20 | | 10,8 |
| 932 | V5 | 1090 | 7 718 | 5 689 | 7 408 | 102 | 50 | 33 | 3000 W (3R) | 8,2 |
| | V4 | 985 | 7 095 | 5 194 | 6 752 | 89 | 48 | 32 | | 9,0 |
| | V3 | 850 | 6 225 | 4 517 | 5 916 | 69 | 44 | 26 | | 10,5 |
| | V2 | 710 | 5 291 | 3 808 | 4 996 | 53 | 41 | 22 | | 12,5 |
| | V1 | 570 | 4 289 | 3 066 | 4 019 | 35 | 37 | 18 | | 15,6 |
| 932SP* | V5 | 1420 | 9 479 | 7 182 | 8 492 | 157 | 59 | 42 | 3000 W (3R) | 6,3 |
| | V4 | 1325 | 8 986 | 6 754 | 7 907 | 136 | 56 | 39 | | 6,7 |
| | V3 | 1225 | 8 460 | 6 303 | 7 405 | 119 | 54 | 37 | | 7,3 |
| | V2 | 1120 | 7 894 | 5 833 | 6 837 | 105 | 51 | 34 | | 8,0 |
| | V1 | 1020 | 7 287 | 5 345 | 6 338 | 93 | 48 | 32 | | 8,7 |
| 924 | V5 | 1100 | 6 165 | 4 904 | 3 581 | 102 | 51 | 33 | | |
| | V4 | 990 | 5 677 | 4 478 | 3 380 | 89 | 48 | 31 | | |
| | V3 | 845 | 5 093 | 3 983 | 3 124 | 69 | 46 | 28 | | |
| | V2 | 700 | 4 403 | 3 401 | 2 826 | 53 | 42 | 24 | | |
| | V1 | 550 | 3 673 | 2 767 | 2 490 | 35 | 39 | 20 | | |
| 934 | V5 | 1090 | 7 718 | 5 689 | 4 430 | 102 | 50 | 33 | | |
| | V4 | 985 | 7 095 | 5 194 | 4 192 | 89 | 48 | 32 | | |
| | V3 | 850 | 6 225 | 4 516 | 3 838 | 69 | 44 | 26 | | |
| | V2 | 710 | 5 291 | 3 808 | 3 428 | 53 | 41 | 22 | | |
| | V1 | 570 | 4 289 | 3 066 | 2 963 | 35 | 37 | 18 | | |
| 934SP* | V5 | 1420 | 9 479 | 7 182 | 4 978 | 157 | 59 | 42 | | |
| | V4 | 1325 | 8 986 | 6 753 | 4 850 | 136 | 56 | 39 | | |
| | V3 | 1225 | 8 460 | 6 302 | 4 690 | 119 | 54 | 37 | | |
| | V2 | 1120 | 7 894 | 5 833 | 4 494 | 105 | 51 | 34 | | |
| | V1 | 1020 | 7 287 | 5 345 | 4 266 | 93 | 48 | 32 | | |

EUROVENT conditions Eurovent certified values

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)
 Heating temperature (2T): water temperature: 45/40 °C, inlet air temperature: 20 °C
 Heating temperature (4T): water temperature: 65/55 °C, inlet air temperature: 20 °C

*: motor not compliant with ErP 2015

PERFORMANCE

| COADIS LINE | Voltage V | Air flow m³/h | 2-tube system and 4-tube system | | | Power input W | LW dB (A) | Comfort level (ISO or NR) | Average air temperature rise in K Auxiliary electric heater 230/1/50 | |
|-------------|--------------|------------------|---------------------------------|----------|---------------------------|------------------|--------------|---------------------------------|---|--|
| | | | Cooling capacity (W) | | Heating ca- pacity (W) | | | | 2R or 3R | |
| | | | Total | Sensible | | | | | | |
| 922 HEE | 7,1 | 1100 | 6 125 | 4 860 | 6 472 | 52 | 51 | 2000 W (2R) | 5,4 | |
| | 6,1 | 990 | 5 635 | 4 434 | 6 054 | 38 | 48 | | 6,0 | |
| | 5 | 845 | 5 055 | 3 943 | 5 390 | 25 | 46 | | 7,0 | |
| | 3,9 | 700 | 4 368 | 3 365 | 4 659 | 15 | 42 | | 8,5 | |
| | 2,7 | 550 | 3 649 | 2 742 | 3 848 | 10 | 39 | | 10,8 | |
| 932 HEE | 7,1 | 1090 | 7 669 | 5 639 | 7 454 | 52 | 50 | 3000 W (3R) | 8,2 | |
| | 6,2 | 985 | 7 045 | 5 144 | 6 798 | 38 | 48 | | 9,0 | |
| | 5 | 850 | 6 179 | 4 472 | 5 957 | 25 | 44 | | 10,5 | |
| | 3,9 | 710 | 5 251 | 3 770 | 5 030 | 16 | 41 | | 12,5 | |
| | 2,7 | 570 | 4 262 | 3 040 | 4 042 | 10 | 37 | | 15,6 | |
| 932SP HEE | 9,1 | 1320 | 8 945 | 6 711 | 7 943 | 92 | 56 | 3000 W (3R) | 6,8 | |
| | 8,2 | 1225 | 8 416 | 6 257 | 7 442 | 72 | 53 | | 7,3 | |
| | 7,3 | 1120 | 7 847 | 5 785 | 6 877 | 56 | 51 | | 8,0 | |
| | 6,5 | 1020 | 7 237 | 5 295 | 6 380 | 42 | 50 | | 8,7 | |
| | 3,6 | 660 | 4 960 | 3 650 | 4 700 | 14 | 39 | | 13,5 | |
| 924 HEE | 5 | 845 | 5 055 | 3 943 | 3 136 | 25 | 46 | | | |
| | 3,9 | 700 | 4 368 | 3 365 | 2 838 | 15 | 42 | | | |
| | 3,1 | 600 | 3 900 | 2 970 | 2 620 | 11 | 40 | | | |
| | 2,7 | 550 | 3 649 | 2 742 | 2 499 | 10 | 39 | | | |
| | 2 | 450 | 3 090 | 2 240 | 2 230 | 9 | 37 | | | |
| 934 HEE | 7,1 | 1090 | 7 669 | 5 639 | 4 446 | 52 | 50 | | | |
| | 6,2 | 985 | 7 045 | 5 144 | 4 209 | 38 | 47 | | | |
| | 5 | 850 | 6 179 | 4 472 | 3 854 | 25 | 44 | | | |
| | 3,9 | 710 | 5 251 | 3 770 | 3 442 | 16 | 40 | | | |
| | 2,7 | 570 | 4 262 | 3 040 | 2 973 | 10 | 37 | | | |
| 934SP HEE | 9,1 | 1320 | 8 945 | 6 711 | 4 863 | 92 | 56 | | | |
| | 8,2 | 1225 | 8 416 | 6 257 | 4 704 | 72 | 53 | | | |
| | 7,3 | 1120 | 7 847 | 5 785 | 4 509 | 56 | 51 | | | |
| | 6,5 | 1020 | 7 237 | 5 295 | 4 283 | 42 | 50 | | | |
| | 3,6 | 660 | 4 960 | 3 650 | 3 342 | 14 | 39 | | | |

EUROVENT conditions

Eurovent certified values

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)
 Heating temperature (2T): water temperature: 45/40 °C, inlet air temperature: 20 °C
 Heating temperature (4T): water temperature: 65/55 °C, inlet air temperature: 20 °C

MELODY2™

Cassettes



*Perfectly integrated,
the cassettes adapt to
aesthetic, financial
and material constraints*

*Rated cooling capacity: 1.5 to 8.7 kW
Rated heating capacity: 1.3 to 11.6 kW*



USE

The MELODY 2 cassette is a non-independent air handling terminal unit installed in suspended ceilings, which combines low cost installation and the operating advantages of central

hot/chilled water production with individual temperature controls in each room.

RANGE

The MELODY2™ range of cassette type fan coil units comprises 6 sizes which cover flow rates from 360 to 1450 m³/h and meet the most stringent sound level requirements.

2 models:

- Compact cassette 600 x 600, type 61 - 62 - 63.
- Large cassette 900 x 900, type 92 - 93 - 94.

MELODY 2 cassettes are available in 3 versions:

- A 2-tube system, with heating or cooling mode.
- A 2-tube + 2-wire system, with cooling + electric heating or heating/cooling + electric heating.
- A 4-tube system, with heating and cooling mode.

The MELODY 2 cassettes are available either with a 3-speed AC motor or a variable speed EC motor that meet the new building energy performance objectives.

OPERATING PRINCIPLE

The fan takes the air from the room through a grille.

Filtered to be purified, dehumidified, heated or cooled through a chilled or hot water exchanger coil, this air is then discharged

into the room to be air conditioned through 4 swivel blades so as to obtain a maximum increase of the air stream and ensure the diffusion by Coanda effect.

TECHNICAL DESCRIPTION

Return/supply air grille

- Fits perfectly within the suspended ceiling tile dimensions.
- Diffuser colour: Grille and frame: pure white (RAL 9010) and deflectors: signal white (RAL 9003).
- The manual deflectors are adjustable (2 positions) allowing air diffusion throughout the room.

Water coil (2-tube or 4-tube system)

- Galvanised steel sheet.
- Copper tubes, aluminium fins.
- Partial draining and air bleed valve.
- Rated pressure: 14 bar.
- Minimum water inlet temperature: 5 °C.
- Maximum water inlet temperature: 70 °C in 2-tube systems and 80 °C in 4-tube systems.

Electrical heater (2-tube system + electric mode)

- Heating element, stainless steel tubes, inserted in the finned block.
- 2 temperature limiter thermostats (1 auto + 1 manual).

Condensate drain pan

- A condensate drain pan in expanded polystyrene, covered with a waterproof film.
- Recovery is provided by a drain pump equipped with a safety float and mounted on anti-vibration mounts.
- The auxiliary pan is supplied as a standard accessory to recover the valve condensates.

Fan motor assembly

■ AC motor

3-speed motor

- Closed type, with protected shaft.
- Permanent capacitor in the electrics box.
- Automatic heat protection with opening as standard.
- Resilient mounts.
- 230 V-50/60 Hz single-phase power supply.
- Reduced consumption.

■ HEE motor

0 -10 V variable speed motor

- Brushless alternating current (BLAC) technology offering more linear torque progression and a lower operating sound level than brushless direct current (BLDC) motors.
- Sealed, tropicalised with protected well.
- Ball bearings.
- Internal automatic overload protection on the winding as standard.
- Resilient mounts.
- 230 V - 50/60 Hz single-phase power supply.

■ Fan

- Balanced centrifugal impeller with airfoil blades.
- Polymer impeller.

Air filter

- Located on the detachable grille, easy to remove without dismantling.
- Washable polypropylene filter, with efficiency class EU1 (EN13779).

Casing

- Galvanised steel sheet.
- Thermal and acoustic insulation of the internal surfaces.
- Pre-cut (Ø 70 mm for size 600 and Ø 100 for size 900). Pre-cut Ø 150 mm on the side for supply air into the adjacent room.

Electrics box

- Large ABS electrics box with a hinge to keep it open and screw closure.
- IP20 Index of Protection.
- Terminal block on DIN rail in accordance with EN 50022, 7.5 mm deep.
- Junction block located with tension clamp. Cross section 0.5 to 2.5 mm².
- Cable routing for customer connections.

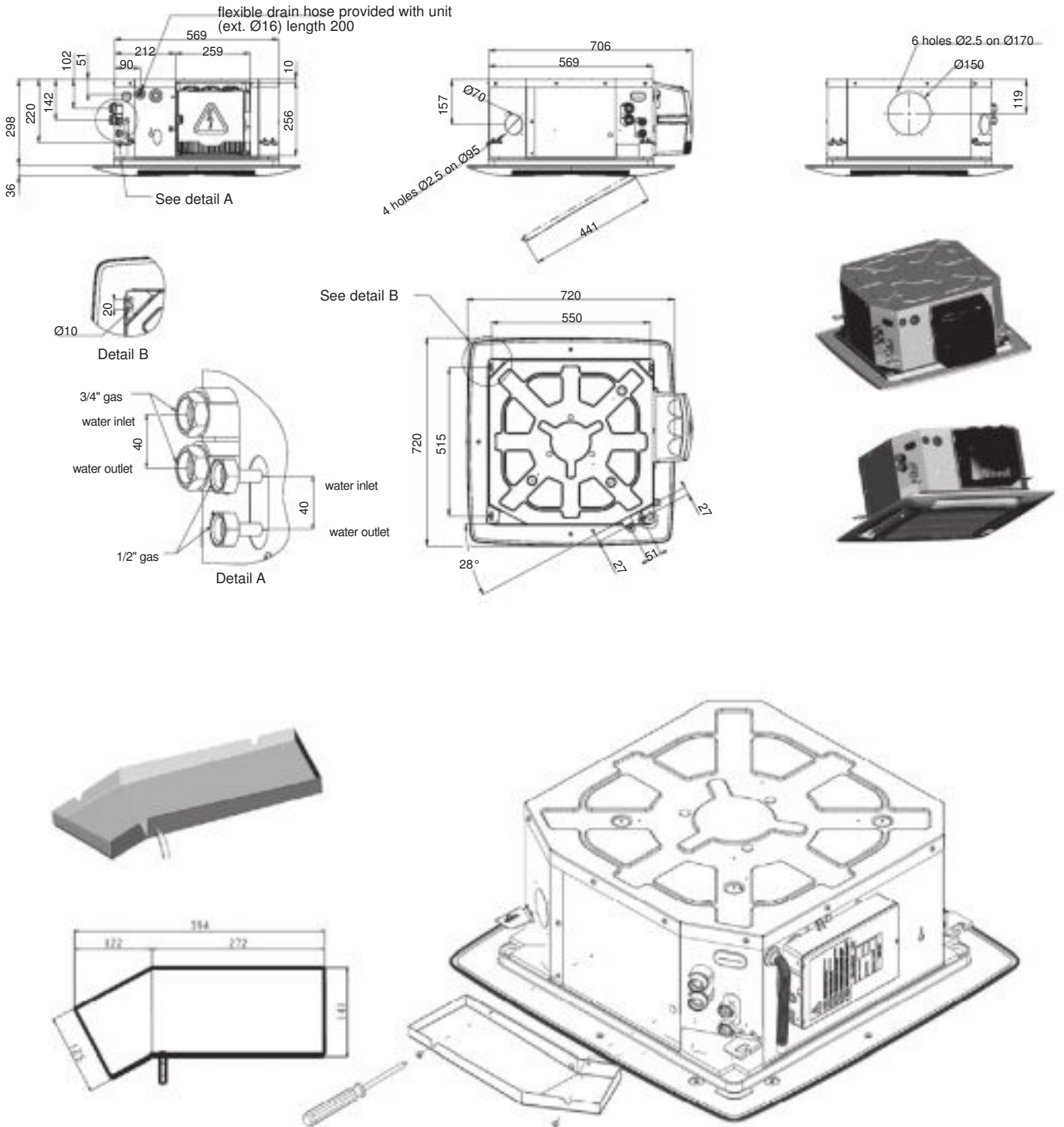
Accessories (available separately)

- Resilient mounts.
- 2-way or 3-way valve kit with bypass and 230 V on/off actuator.
- 2-way or 3-way valve kit with bypass and 24 V 3-point actuator.
- RTR-E & V30 thermostat (AC version only).
- V300 and V3000 control unit kit.

DIMENSIONS

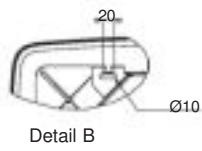
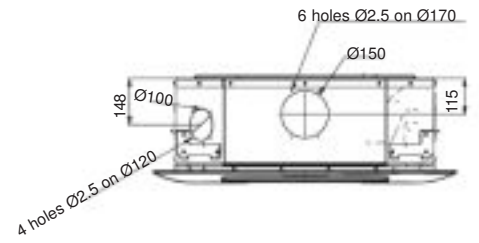
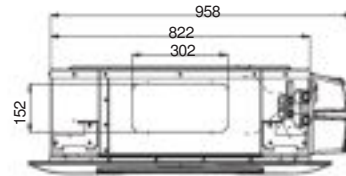
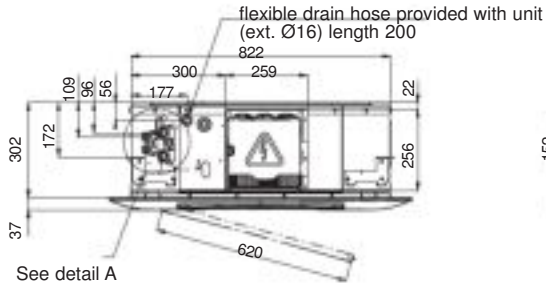
Size 600

Unit without valves

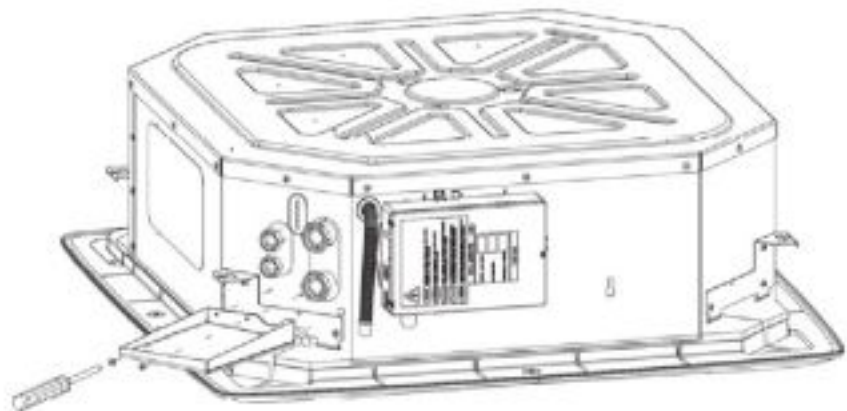
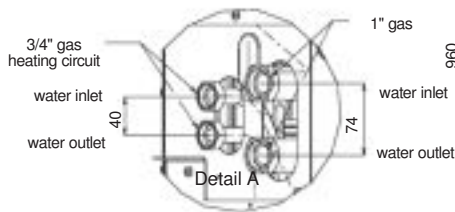
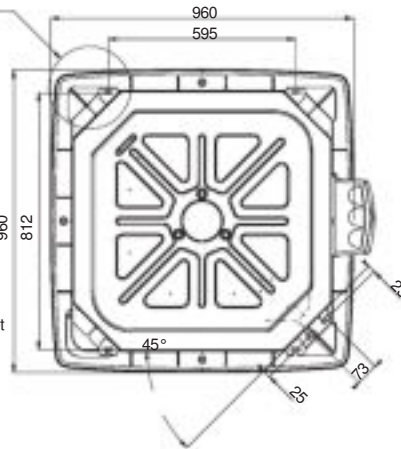


Size 900

Unit without valves



See detail B



AC MOTOR PERFORMANCE

2-tube

| Size | Speeds | Air flow rate m ³ /h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cool- ing) kPa | Sound power level Lw dB(A) | Sound pres- sure level LP * dB(A) | NR * |
|-------|--------|------------------------------------|--------------------------|--------------------------------------|------------------|---------------|--|----------------------------------|---|------|
| | | | | | Total W | Sensible W | | | | |
| 61 AC | 1 | 660 | 2 740 | 12 | 2 330 | 1 950 | 11 | 49 | 40 | 36 |
| | 2 | 450 | 2 170 | 8 | 1 740 | 1 460 | 7 | 41 | 32 | 28 |
| | 3 | 360 | 1 920 | 7 | 1 530 | 1 280 | 6 | 37 | 28 | 25 |
| 62 AC | 1 | 735 | 3 680 | 13 | 3 960 | 3 010 | 15 | 53 | 44 | 40 |
| | 2 | 505 | 3 150 | 10 | 2 860 | 2 161 | 9 | 47 | 35 | 31 |
| | 3 | 320 | 1 940 | 5 | 1 860 | 1 410 | 5 | 35 | 26 | 20 |
| 63 AC | 1 | 900 | 5 280 | 19 | 4 640 | 3 570 | 20 | 57 | 48 | 43 |
| | 2 | 625 | 3 920 | 12 | 3 460 | 2 640 | 12 | 48 | 39 | 34 |
| | 3 | 485 | 3 160 | 8 | 2 770 | 2 110 | 8 | 42 | 33 | 28 |
| 92 AC | 1 | 980 | 6 840 | 23 | 6 030 | 4 680 | 24 | 49 | 40 | 35 |
| | 2 | 720 | 5 080 | 14 | 4 410 | 3 440 | 13 | 40 | 31 | 26 |
| | 3 | 530 | 3 800 | 9 | 3 330 | 2 580 | 8 | 35 | 26 | 21 |
| 93 AC | 1 | 1160 | 8 510 | 15 | 7 130 | 5 370 | 12 | 54 | 45 | 40 |
| | 2 | 825 | 6 260 | 10 | 5 430 | 4 030 | 8 | 46 | 37 | 32 |
| | 3 | 500 | 3 850 | 5 | 3 680 | 2 660 | 5 | 38 | 29 | 22 |
| 94 AC | 1 | 1450 | 10 280 | 18 | 8 540 | 6 400 | 22 | 59 | 50 | 45 |
| | 2 | 1080 | 7 950 | 11 | 6 430 | 4 810 | 13 | 52 | 43 | 38 |
| | 3 | 600 | 4 380 | 5 | 4 020 | 2 950 | 6 | 40 | 31 | 25 |

4-tube

| Sizes | Speeds | Air flow rate m ³ /h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cooling) kPa | Sound power level Lw dB(A) | Sound pressure level LP * dB(A) | NR * |
|-------|--------|------------------------------------|--------------------------|--------------------------------------|------------------|---------------|--------------------------------------|----------------------------------|--|------|
| | | | | | Total W | Sensible W | | | | |
| 61 AC | 1 | 660 | 1 670 | 30 | 1 970 | 1 840 | 15 | 49 | 40 | 36 |
| | 2 | 450 | 1 270 | 19 | 1 490 | 1 370 | 9 | 41 | 32 | 28 |
| | 3 | 360 | 1 090 | 15 | 1 340 | 1 180 | 8 | 36 | 28 | 25 |
| 62 AC | 1 | 735 | 5 460 | 21 | 3 340 | 2 620 | 13 | 53 | 44 | 40 |
| | 2 | 505 | 4 400 | 15 | 2 670 | 2 050 | 9 | 47 | 35 | 31 |
| | 3 | 320 | 3 100 | 9 | 1 980 | 1 490 | 6 | 35 | 26 | 20 |
| 63 AC | 1 | 900 | 5 800 | 24 | 3 950 | 3 250 | 17 | 57 | 48 | 43 |
| | 2 | 625 | 5 000 | 19 | 3 180 | 2 550 | 11 | 48 | 39 | 34 |
| | 3 | 485 | 4 320 | 15 | 2 530 | 2 040 | 8 | 42 | 33 | 28 |
| 93 AC | 1 | 1160 | 10 040 | 12 | 6 580 | 5 080 | 25 | 54 | 45 | 40 |
| | 2 | 825 | 7 790 | 8 | 4 930 | 3 780 | 15 | 46 | 37 | 32 |
| | 3 | 500 | 5 280 | 5 | 2 960 | 2 310 | 7 | 38 | 29 | 22 |
| 94 AC | 1 | 1450 | 12 770 | 18 | 7 490 | 5 890 | 32 | 59 | 50 | 45 |
| | 2 | 1080 | 10 070 | 12 | 5 970 | 4 640 | 22 | 52 | 43 | 38 |
| | 3 | 600 | 6 430 | 7 | 3 140 | 2 530 | 7 | 40 | 31 | 25 |

EUROVENT conditions

Cooling mode: (2-tube & 4-tube): inlet air temperature: 27 °C/19 °C WB, inlet/outlet water temperature: 7 °C/12 °C

Heating mode: (2-tube): inlet air temperature: 20 °C, inlet/outlet water temperature: 45 °C/40 °C

Heating mode: (4-tube): inlet air temperature: 20 °C, inlet/outlet water temperature: 65 °C/55 °C

*Sound pressure level and noise rating values are based on a hypothetical sound attenuation of the room of 9 dB(A).

EC MOTOR PERFORMANCE

2-tube

| Size | Voltage V | Air flow rate m ³ /h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cooling) kPa | Sound power level Lw dB(A) | Sound pressure level LP * dB(A) | NR * |
|-------|--------------|------------------------------------|--------------------------|--------------------------------------|------------------|---------------|--------------------------------------|----------------------------------|--|------|
| | | | | | Total W | Sensible W | | | | |
| 61 EC | 10 | 660 | 2 740 | 12 | 2 360 | 1 980 | 11 | 49 | 40 | 35 |
| | 6 | 450 | 2 170 | 8 | 1 770 | 1 490 | 7 | 40 | 31 | 27 |
| | 2 | 360 | 1 920 | 7 | 1 540 | 1 290 | 6 | 36 | 27 | 23 |
| 62 EC | 10 | 735 | 3 680 | 13 | 3 960 | 3 010 | 15 | 53 | 44 | 40 |
| | 6 | 505 | 3 150 | 10 | 2 860 | 2 161 | 9 | 44 | 35 | 31 |
| | 2 | 320 | 1 940 | 5 | 1 860 | 1 410 | 5 | 35 | 26 | 20 |
| 63 EC | 10 | 900 | 5 280 | 19 | 4 640 | 3 570 | 20 | 57 | 48 | 43 |
| | 6 | 625 | 3 920 | 12 | 3 460 | 2 640 | 12 | 48 | 39 | 34 |
| | 2 | 485 | 3 160 | 8 | 2 770 | 2 110 | 8 | 42 | 33 | 28 |
| 92 EC | 10 | 980 | 6 840 | 23 | 6 030 | 4 680 | 24 | 49 | 40 | 35 |
| | 6 | 720 | 5 080 | 14 | 4 410 | 3 440 | 13 | 40 | 31 | 26 |
| | 2 | 530 | 3 800 | 9 | 3 330 | 2 580 | 8 | 35 | 26 | 21 |
| 93 EC | 10 | 1160 | 8 510 | 15 | 7 130 | 5 370 | 12 | 54 | 45 | 40 |
| | 6 | 825 | 6 260 | 10 | 5 430 | 4 030 | 8 | 46 | 37 | 32 |
| | 2 | 500 | 3 850 | 5 | 3 680 | 2 660 | 5 | 38 | 29 | 22 |
| 94 EC | 10 | 1600 | 11 030 | 31 | 18 | 7 160 | 27 | 61 | 52 | 47 |
| | 6 | 1080 | 7 950 | 11 | 6 490 | 4 860 | 13 | 52 | 43 | 38 |
| | 2 | 600 | 4 380 | 7 | 4 050 | 2 980 | 6 | 40 | 31 | 25 |

4-tube

| Sizes | Voltage V | Air flow rate m ³ /h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cooling) kPa | Sound power level Lw dB(A) | Sound pressure level LP * dB(A) | NR * |
|-------|--------------|------------------------------------|--------------------------|--------------------------------------|------------------|---------------|--------------------------------------|----------------------------------|--|------|
| | | | | | Total W | Sensible W | | | | |
| 61 EC | 10 | 660 | 1 670 | 30 | 1 970 | 1 840 | 15 | 49 | 40 | 36 |
| | 6 | 450 | 1 270 | 19 | 1 490 | 1 370 | 9 | 41 | 32 | 28 |
| | 2 | 360 | 1 090 | 15 | 1 340 | 1 180 | 8 | 36 | 28 | 25 |
| 62 EC | 10 | 735 | 5 460 | 21 | 3 340 | 2 620 | 13 | 53 | 44 | 40 |
| | 6 | 505 | 4 400 | 15 | 2 670 | 2 050 | 9 | 47 | 35 | 31 |
| | 2 | 320 | 3 100 | 9 | 1 980 | 1 490 | 6 | 35 | 26 | 20 |
| 63 EC | 10 | 900 | 5 800 | 24 | 3 950 | 3 250 | 17 | 57 | 48 | 43 |
| | 6 | 625 | 5 000 | 19 | 3 180 | 2 550 | 11 | 48 | 39 | 34 |
| | 2 | 485 | 4 320 | 15 | 2 530 | 2 040 | 8 | 42 | 33 | 28 |
| 93 EC | 10 | 1160 | 10 040 | 12 | 6 580 | 5 080 | 25 | 54 | 45 | 40 |
| | 6 | 825 | 7 790 | 8 | 4 930 | 3 780 | 15 | 46 | 37 | 32 |
| | 2 | 500 | 5 280 | 5 | 2 960 | 2 310 | 7 | 38 | 29 | 22 |
| 94 EC | 10 | 1600 | 14 000 | 20 | 7 910 | 6 280 | 34 | 61 | 52 | 47 |
| | 6 | 1080 | 10 070 | 12 | 6 020 | 4 640 | 22 | 52 | 43 | 38 |
| | 2 | 600 | 6 430 | 7 | 3 140 | 2 530 | 7 | 40 | 31 | 25 |

EUROVENT conditions

Cooling mode: (2-tube & 4-tube): inlet air temperature: 27 °C/19 °C WB, inlet/outlet water temperature: 7 °C/12 °C

Heating mode: (2-tube): inlet air temperature: 20 °C, inlet/outlet water temperature: 45 °C/40 °C

Heating mode: (4-tube): inlet air temperature: 20 °C, inlet/outlet water temperature: 65 °C/55 °C

*Sound pressure level and noise rating values are based on a hypothetical sound attenuation of the room of 9 dB(A).

TECHNICAL AND ELECTRICAL CHARACTERISTICS

Coil capacity (litres)

| | | 61 | 62 | 63 | 92 | 93 | 94 |
|-----------------------------|---------|------|-----|-----|-----|-----|-----|
| Standard 2-tube system coil | | 0.55 | 1.1 | 1.1 | 1.6 | 2.4 | 2.4 |
| 4-tube coil | Cooling | 0.4 | 1.1 | 1.1 | | 2.4 | 2.4 |
| | Heating | 0.1 | 0.6 | 0.6 | | 1.2 | 1.2 |

Coil connection diameter

| | | 61 | 62 | 63 | 92 | 93 | 94 |
|----------------------|---------|--------|--------|--------|------|--------|--------|
| Standard 2-tube coil | | G 3/4" | G 3/4" | G 3/4" | G 1" | G 1" | G 1" |
| 4-tube coil | Cooling | G 3/4" | G 3/4" | G 3/4" | | G 1" | G 1" |
| | Heating | G 1/2" | G 1/2" | G 1/2" | | G 3/4" | G 3/4" |

Electrical characteristics * (230 V - 50 Hz / 60 Hz single-phase) – AC fan motor

| | | Speed | 61 AC | 62 AC | 63 AC | 92 AC | 93 AC | 94 AC |
|----------------------|---|-------|-------|-------|-------|-------|-------|-------|
| Power input (W) | 1 | | 58 | 58 | 99 | 66 | 88 | 125 |
| | 2 | | 35 | 34 | 58 | 41 | 61 | 92 |
| | 3 | | 25 | 17 | 38 | 28 | 34 | 44 |
| Absorbed current (A) | 1 | | 0.27 | 0.24 | 0.41 | 0.3 | 0.46 | 0.63 |
| | 2 | | 0.17 | 0.14 | 0.24 | 0.17 | 0.27 | 0.41 |
| | 3 | | 0.12 | 0.07 | 0.16 | 0.12 | 0.14 | 0.19 |

Electrical characteristics * (230 V - 50 Hz / 60 Hz single-phase) – HEE fan motor

| | | Speed | 61 EC | 62 EC | 63 EC | 92 EC | 93 EC | 94 EC |
|----------------------|-----|-------|-------|-------|-------|-------|-------|-------|
| Power input (W) | 2V | | 29 | 33 | 57 | 25 | 45 | 115 |
| | 6V | | 13 | 14 | 23 | 12 | 23 | 40 |
| | 10V | | 9 | 7 | 13 | 7 | 9 | 11 |
| Absorbed current (A) | 2V | | 0.19 | 0.27 | 0.46 | 0.23 | 0.4 | 0.89 |
| | 6V | | 0.1 | 0.13 | 0.2 | 0.12 | 0.22 | 0.35 |
| | 10V | | 0.08 | 0.08 | 0.12 | 0.08 | 0.1 | 0.12 |

* Specifications determined for a 230 V +/- 10% - 50 Hz power supply. For operation at 60 Hz, the power input and rotation speed values are generally higher.

Electrical characteristics (240 V - 50 Hz single-phase) – electrical heater

| | | 61 | 62 | 63 | 92 | 93 | 94 |
|----------------------|--|------|------|------|------|------|------|
| Electrical power | | 1500 | 2500 | 2500 | 3000 | 3000 | 3000 |
| Absorbed current (A) | | 6,3 | 10,4 | 10,4 | 12,5 | 12,5 | 12,5 |

Dimensions and weights

| | | 61 | 62 | 63 | 92 | 93 | 94 |
|-------------------------------|--|-----------------|----------------|----------------|-----------------|----------------|----------------|
| Dimensions** (H x L x D) mm | | 298 x 706 x 706 | | | 302 x 958 x 958 | | |
| Grille dimensions (H x L x D) | | 36 x 720 x 720 | 36 x 720 x 720 | 36 x 720 x 720 | 37 x 960 x 960 | 37 x 960 x 960 | 37 x 960 x 960 |
| Weight unit/grille weight | | 14.8/3 | 16.5/3 | 16.5/3 | 37/5 | 39.6/5 | 39.6/5 |

** With electrics box and without valves

AIR THROW (IN METRES)

| MELODY2™ | Louvres all open | | |
|----------|------------------|--------------|-----------|
| | High speed | Medium speed | Low speed |
| 61 | 3.8 | 3.2 | 2.7 |
| 62 | 4.0 | 3.4 | 2.8 |
| 63 | 4.8 | 4.1 | 3.4 |
| 92 | 3.0 | 2.6 | 2.1 |
| 93 | 3.4 | 2.9 | 2.4 |
| 94 | 4.3 | 3.7 | 3.0 |

Notes:

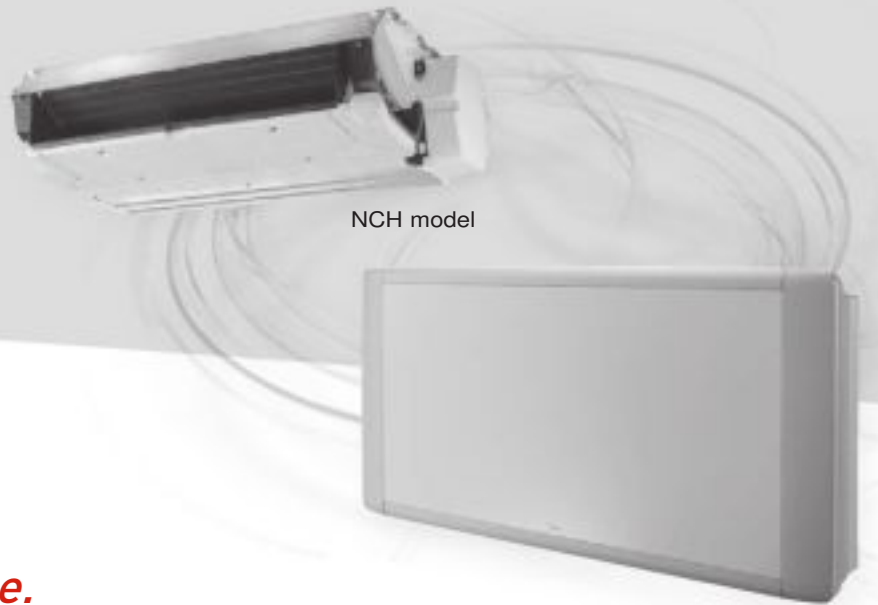
1. The deflectors were adjusted to use the Coanda effect to obtain an air flow pattern that adheres as closely as possible and parallel to the ceiling.
2. The air throw is defined as the distance at which the air flow speed falls to 0.2 m/s, when the air flow leaves the unit parallel to the ceiling.
3. The values are to be considered as indicative, as they may vary according to the type of ceiling, room dimensions and even the furniture used.

OPERATING LIMITS

| | | |
|--------------------|--|--|
| Water circuit | Maximum water-side pressure: 1400 kPa (142 mWG) | Minimum inlet water temperature: 5 °C |
| | | Maximum inlet water temperature: 80 °C |
| Indoor temperature | | Minimum temperature: 5 °C |
| | | Maximum temperature: 32 °C for units with electric heaters |
| Power supply | Nominal operating limits | 230 V - 50/60 Hz single-phase |
| | | Min. 207 - Max 253 V for units without electric heaters |
| | | Min. 216 - Max 244 V for units with electric heaters |

MAJOR LINE™

Comfort units



NCH model

CV model

Versatile

unit meeting all building-specific constraints

Energy and ecodesign performance.

*Improved occupant **comfort**,*

very low sound level

***Innovative** design ensuring easy installation and simplified maintenance*

New coils with patented fins, new size designations.



1

MAJOR LINE™

Designed for heating and cooling, MAJOR LINE™ is available in 4 models (cased or uncased, horizontal or vertical).

The versatility of MAJOR LINE™, thanks to its different assembly options and range of accessories, means it can be adapted to any type of installation.

In Europe, it has become a benchmark solution for renovations of large office blocks and hotel chains and restoration of buildings, etc.

Modern aesthetic lines, excellent sound levels and optimised thermal performance. With MAJOR LINE™, CIAT offers a comfort solution which is both economical and quick to set up.

INNOVATIVE DESIGN

A true stylistic evolution, MAJOR LINE™ has distinguished lines with a slim and elegant shape. Its attractive and modern design will blend perfectly with all types of interior.



VERSATILITY OF THE MODELS

- Two versions:
- Cased (visible)
 - Uncased (flush-mounted)
- The same product reference for both applications: CV (Cased Vertical)/CH (Cased Horizontal).
- The same product reference for both applications: NCV (Uncased Vertical)/NCH (Uncased Horizontal).

Units with left/right hydraulic connections available for easier adaptation to refurbished buildings.

Cased or Uncased models available with classic air return (assemblies 1, 41, 1V and 41V) and front mounted air return (assemblies 1D, 41D, 1VD and 41VD).

A large selection of accessories available in:

- Fresh air and mixed
- Diffusion and return air

For NCH, the hydraulic and electrical connections can be supplied on the same side making the unit more compact and simplifying installation.

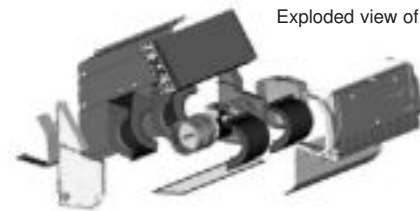
Unit operates with 50 and 60 Hz supply.

INNOVATIVE DESIGN

- New shaped ABS volute designed to optimise output and performance.
- 160 mm HEE (High Energy Efficiency) impeller, with CIAT exclusive airfoil blades in self-extinguishable HB ABS.
- Hydraulic coil with total frontal surface increased from 5 to 15% (according to the size and in relation to the units of previous ranges) for improved performance and output.



Shaped ABS volute



Exploded view of NCV model

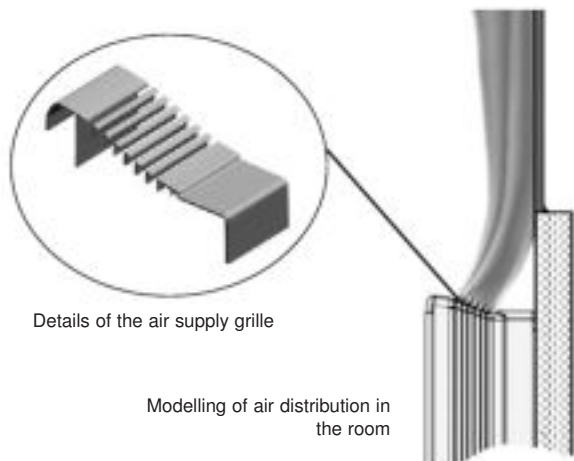
SIMPLE TO INSTALL AND MAINTAIN

- Filter easily accessible.
- Single unit casing easily removed with two screws in the lower part of the unit.
- Option of replacing only the faulty component on the fan motor assembly: only the motor or the impeller.
- All the speeds are connected to the electrical terminal of the unit and are easily accessible on site for customised adjustment.
- No plastic moving parts on the casing (hinged access hatch for example) for increased durability of the unit over time.



LATEST GENERATION OF COMFORT

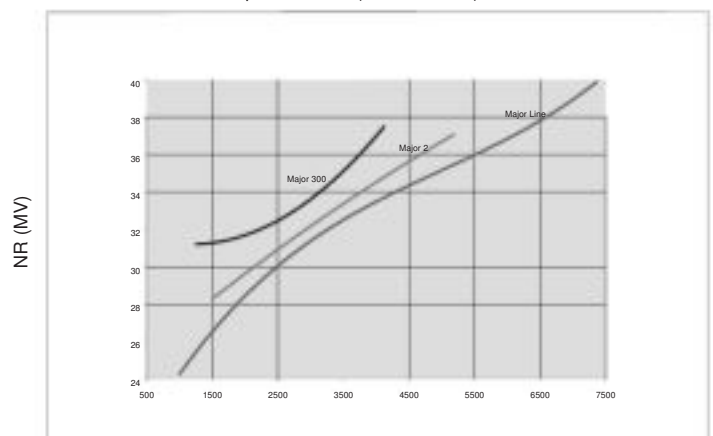
- Improved control of the supply air temperature to reduce discomfort.
- Diffusion grille optimised in our Research & Innovation Centre for increased overall comfort in accordance with the most demanding standards.



Details of the air supply grille

Modelling of air distribution in the room

Acoustic performance (MV trend line)



MV cooling capacity (W)

MORPHO CODES - MAJOR LINE™ DESCRIPTION

| Range | Size | Model | Installation | Coil type | Connector | Thermal function | Motor | Speeds | Filter |
|-------|-------|-------|--------------|-----------|-----------|------------------|-------|------------------------|--------|
| MUL | 10 2A | CV | 1 | 2T2F | G | F +500W | HEE | depending on selection | G3 |

| | |
|------------|---|
| HEE 2-10V | Energy efficient motor, 2-10 V control |
| HEE ON/OFF | Energy efficient motor, 3-speed control |
| AC | 5-speed asynchronous motor |

| | |
|----|------------------|
| 10 | 300 W or 600 W |
| 20 | 500 W or 1000 W |
| 30 | 800 W or 1600 W |
| 40 | 1200 W or 2400 W |
| 50 | 1600 W or 3200 W |
| 60 | Not available |

| | |
|----|-----------------|
| F | Cooling |
| C | Heating |
| CF | Heating/Cooling |

| | |
|---|--------------------------|
| G | Left, facing air supply |
| D | Right, facing air supply |

| | |
|------|-----------------|
| 2T | 2 pipes |
| 2T2F | 2-pipe + wiring |
| 4T | 4 pipes |

| | |
|------|--------------------------|
| 1 | Return underneath CV |
| 1D | Front-mounted return CV |
| 41 | Rear-mounted return CH |
| 41D | Return underneath CH |
| 1V | Return underneath NCV |
| 1VD | Front-mounted return NCV |
| 41V | Rear-mounted return NCH |
| 41VD | Return underneath NCH |

| | |
|------|---|
| CV | Cased Vertical model |
| CH | Cased Horizontal model |
| NCV | Uncased Vertical model |
| NCH | Uncased Horizontal model |
| NCHY | Y Uncased Horizontal model with supply plenum (plenum delivered not fitted) |
| NCHH | Horizontal uncased model with supply & return plenum |
| NCHU | Horizontal uncased model with supply & return plenum |

| | |
|----|---|
| 2J | 2-pipe 1.5-row version (+ possible wiring) |
| 2K | 2-pipe 2-row version |
| 2M | 2-pipe 2.5-row version (+ possible wiring) |
| 2N | 2-pipe 3-row version |
| 4P | 4-pipe, 2.5-row version (cooling) + 0.5 row version (heating) |
| 4R | 4-pipe, 1-row version (cooling) + 2 row version (heating) |

| | |
|----|------|
| 10 | Size |
| 20 | |
| 30 | |
| 40 | |
| 50 | |
| 60 | |

TECHNICAL DESCRIPTION

Casing

- Single-unit casing and side members in ABS
- Front/rear panel in galvanised steel with mounting holes for easy fixing.

Casing for CV/CH model

Bi-material casing in two colours:

- Flange, side member and supply air grille in RAL 7035 grey ABS
- Front pressed metal panel painted RAL 9010 white and front mounted return air grille (1D, 41D) in RAL 7035 grey
- Central access point for housing the built-in thermostats

Water coil

- High performance coil concept
- Coil casing in galvanised panels.
- Copper pipes, aluminium louvre or non-louvre fins, patented.
- Water coil tap on the left or right of the unit from the front of the supply air (to be specified when ordering).
- 2 or 4-pipe main coil fitted with ½" or ¾" rotary couplings with air purge and drain screw.
- Additional coil for 4 pipes fitted with ½" rotary couplings with 40 mm centre-to-centre distance.
- Nominal pressure of 16 bar (at 20°C)
- Test pressure 18 bar.
- Maximum hot water inlet temperature:
 - 4-pipe application: 90°C
 - 2-pipe application: 90°C
 - 2-pipe/2-wire application: 55°C (min. air flow: 200 m³/h)

Electric heater

- Single pipe 230V single phase 50/60 Hz electrical elements inserted into the aluminium housing.
- Two capillary tube temperature limiters with manual and automatic reset inserted in the aluminium housing.

Condensate drain pan

- Pan in ABS PC 10% fibreglass with M1 class reinforced EPS insulation (20 mm thick).
- Reinforced insulation for all climates, M1 class EPS panel (20 mm thick).
- ABS auxiliary pan.
- 22 mm external Ø raised condensate outlet.

Fan motor assembly

■ Fan(s)

Impeller(s) in ABS in split units for total accessibility of the different parts of the fan motor assembly. 160 mm HEE impeller(s), with CIAT exclusive airfoil blades in self-extinguishable HB ABS.

■ HEE motor

High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.

- Brushless technology.
- Sealed type, tropicalised with protected shaft.
- Progressive control with 0-10V control signal.
- Internal normally closed series automatic overload protection on the windings.
- Mounted on anti-vibration mounts.
- Supply 230V±10%/1-Ph/50-60 Hz.
- optional:
 - 3-speed on/off output motor actuation
 - "DFS" motor fault output using a photocoupler for potential alarm feedback via a KNX protocol communication bus. (via V3000 controller)

Note: The minimum voltage to start up the motor is 2V.

■ Asynchronous motor

- 5 factory-fitted wired speeds (connected and available at the terminal) for customised adjustment.
- Sealed, tropicalised type, class F with protected shaft.
- Permanent capacitor.
- Ball bearings.
- Automatic overload protection as standard on winding.
- Resilient mounts.
- 230V single-phase 50/60 Hz power supply, reduced consumption.

Electrics box

- Box incorporated on the side of the base opposite the hydraulics.
- Fully encased in an enclosure in PP 20% Talc.
- Electrical connection terminal on DIN rail in compliance with EN 50022, 7.5 mm deep.
- Wire clamps for customer connection.

Air filter

- Flexible filter medium made of regenerative polyester fibre, on rigid frame.
- Efficiency class EN 779: G3.
- Fire rating: M1.
- Mounted on pivoting runners for easy maintenance

Packaging

- Delivered in individual boxes on pallets protected by stretch wrap film.

Controls

- RTR-E electromechanical thermostat range.
- V30 electronic range.
- V300 electronic range.
- Networked electronic range (KNX): V3000.
- Networked electronic range (LON): V-LON2.

Factory-fitted options

- Condensate drain pump.
- Rectangular supply air sleeve for direct distribution in soffit.
- Supply and return air plenum for H and U assembly (contact us) for sizes 2 to 4.
- Electrics box on hydraulic side for NCH models only.
- Hydraulic coil with blades protected for use in harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).
- Unit without electrics box, or DIN Rail ("bare wire option")

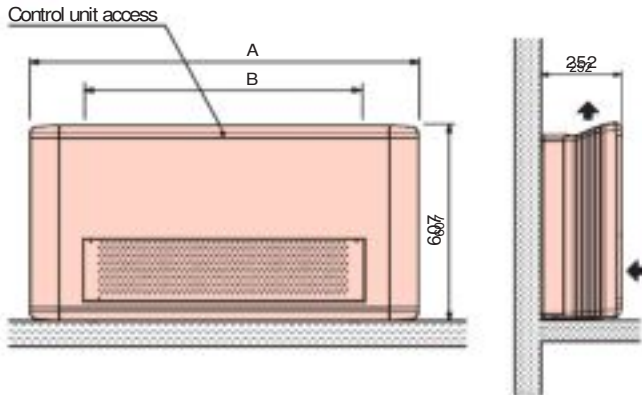
Accessories supplied separately

- Support feet or base
- Return air grille between feet
- Rear skirting support and rear painted panel
- Internal/external air recovery unit
- Single- or dual-deflection diffusion grille
- Diffusion kit with round duct
- Supply air plenum kit for sizes 1 to 6
- Condensate drain pump kit
- Elastic bushings
- Smooth sleeve or Ø 100 mm MR Module
- Hose or tube kit with or without insulation
- 2-way or 3-way valve kit with 230V on/off bypass

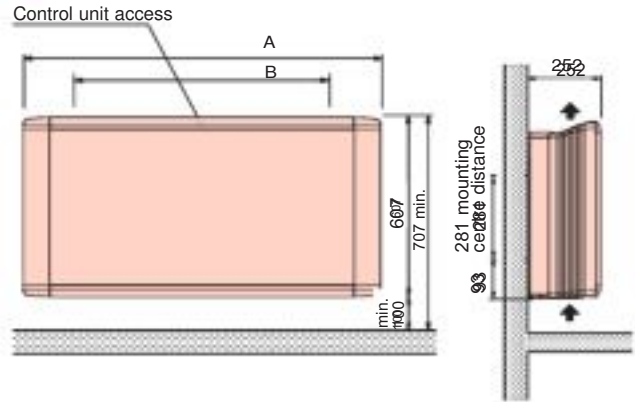
Note: refer to the technical manual and the instruction manual for more information.

ASSEMBLY AND DIMENSIONS – CV MODEL (CASED VERTICAL)

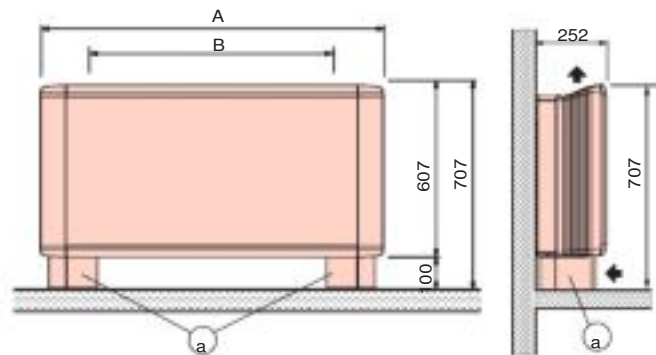
→ Assembly 1D: Unit with return on front



→ Assembly 1: Basic unit with return underneath

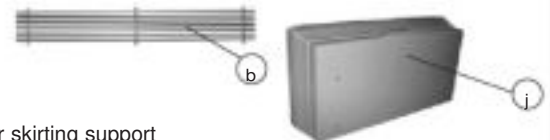


→ Assembly 2: Basic unit with feet



Options available with assembly 2:

- Base mounted grille
- Rear painted panel



- Rear skirting support



Accessories for assembly configurations (supplied separately)

- a: Support feet
- b: Aluminium return air grille between feet
- c: Painted rear skirting support
- j: Rear painted panel RAL 7035

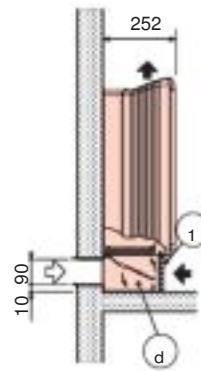
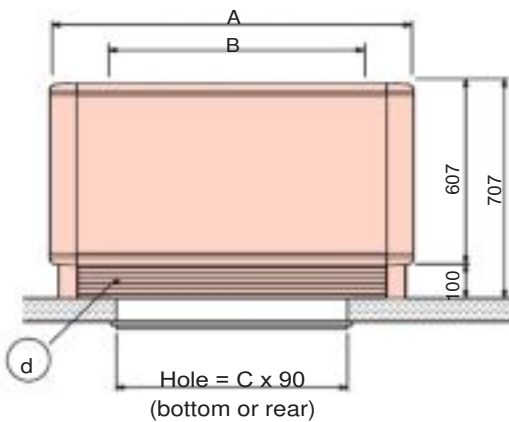
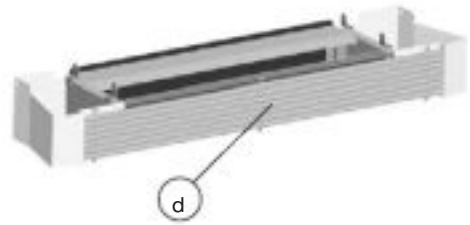
| Sizes MAJOR LINE™ | A | B mounting centre distance | Weight (kg) * | |
|----------------------|------|-------------------------------|----------------|------------|
| | | | Assembly 1/ 1D | Assembly 2 |
| 10 | 840 | 505 | 20 | 21 |
| 20 | 1000 | 665 | 23 | 24 |
| 30 | 1200 | 865 | 28 | 29 |
| 40 | 1400 | 1065 | 34 | 35 |
| 50 | 1600 | 1265 | 39 | 40 |
| 60 | 1800 | 1465 | 44 | 45 |

* Weight of the unit in 4-pipe version (without valves)

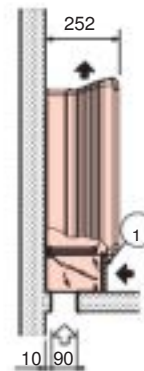
ASSEMBLY AND DIMENSIONS – CV MODEL (CASED VERTICAL)

→ Assemblies 5 and 6:

Basic unit equipped with a manual pretreated air/recycled air mixing unit with a return air grille and a damper regulating the pretreated air intake.



Assembly 5



Assembly 6

⇨ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

d: Manually controlled int./ext. air recovery unit with return air grille 1 for filter removal

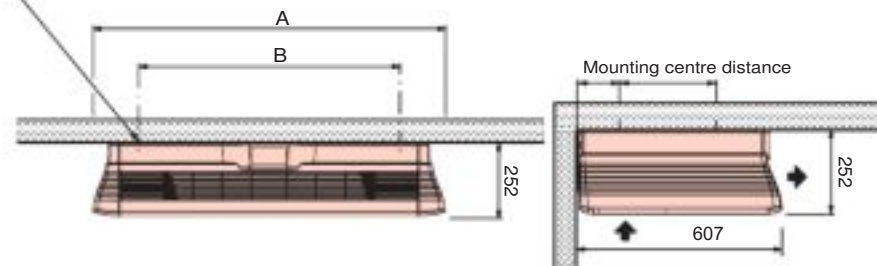
| Sizes MAJOR LINE™ | A | B mounting centre distance | C hole space | Weight (kg) * |
|----------------------|------|-------------------------------|-----------------|------------------|
| 10 | 840 | 505 | 430 | 24 |
| 20 | 1000 | 665 | 430 | 28 |
| 30 | 1200 | 865 | 780 | 32 |
| 40 | 1400 | 1065 | 780 | 40 |
| 50 | 1600 | 1265 | 1180 | 45 |
| 60 | 1800 | 1465 | 1180 | 50 |

* Weight of the unit in 4-pipe version (without valves)

ASSEMBLY AND DIMENSIONS – CH MODEL (CASED HORIZONTAL)

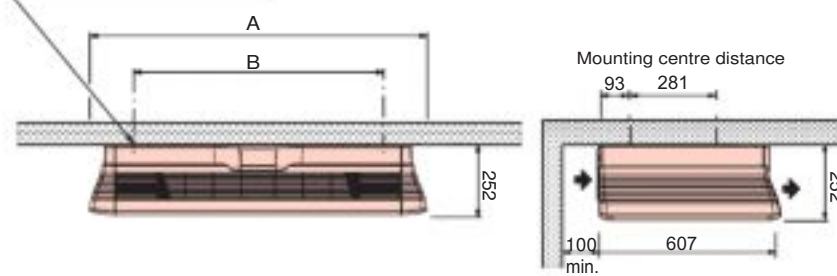
→ Assembly 41D: Unit with return on front

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



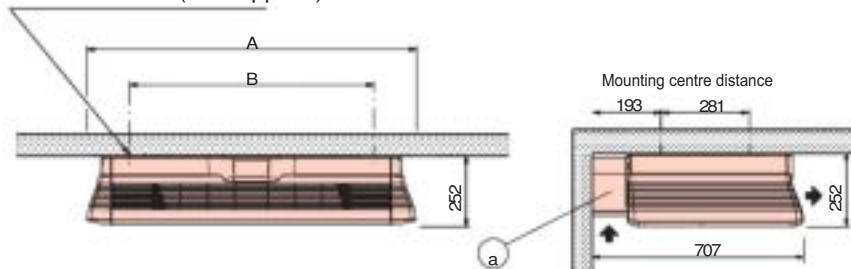
→ Assembly 41: Basic unit

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



→ Assembly 42: Basic unit with feet

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



Option available on assembly 42:

- Base mounted grille



Accessories for assembly configurations (supplied separately)

a: Support feet

b: Aluminium internal return air grille between feet

Note: For assembly 42 the condensate drain pump must be used.

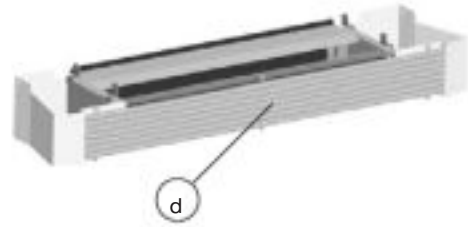
| Sizes MAJOR LINE™ | A | B mounting centre distance | Weight (kg) * | |
|----------------------|------|-------------------------------|------------------|-------------|
| | | | Assembly 41D/ 41 | Assembly 42 |
| 10 | 840 | 505 | 20 | 21 |
| 20 | 1000 | 665 | 23 | 24 |
| 30 | 1200 | 865 | 28 | 29 |
| 40 | 1400 | 1065 | 34 | 35 |
| 50 | 1600 | 1265 | 39 | 40 |
| 60 | 1800 | 1465 | 44 | 45 |

* Weight of heaviest unit in 4-pipe configuration

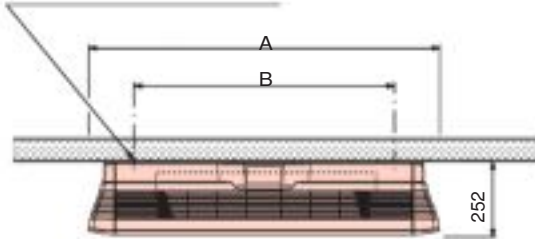
ASSEMBLY AND DIMENSIONS – CH MODEL (CASED HORIZONTAL)

→ Assemblies 45 and 46:

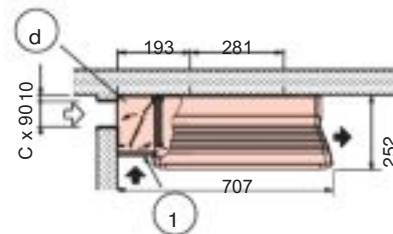
Basic unit equipped with a manual pretreated air/recycled air mixing unit with a return air grille and a damper regulating the pretreated air intake.



Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



Mounting centre distance



Assembly 46

Assembly 45:
identical with ceiling mounted pretreated air intake

↪ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

d Manually controlled int./ext. air recovery unit with return air grille (1) for filter removal

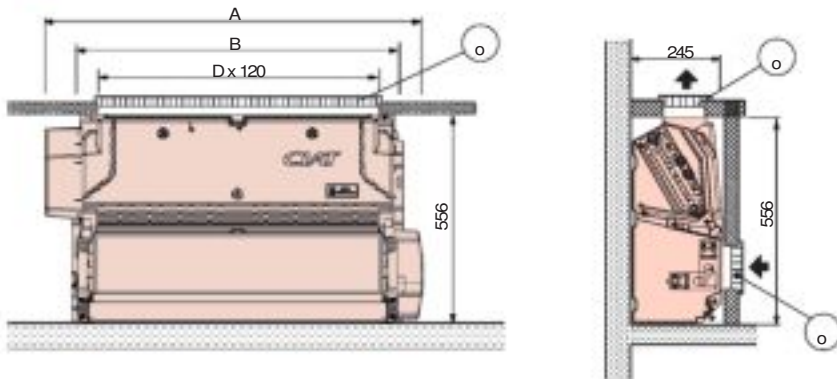
For assemblies 45-46 the condensate drain pump must be used.

| Size MAJOR LINE™ | A | B mounting centre distance | C hole space | Weight (kg) * |
|---------------------|------|-------------------------------|-----------------|------------------|
| 10 | 840 | 505 | 430 | 24 |
| 20 | 1000 | 665 | 430 | 28 |
| 30 | 1200 | 865 | 780 | 32 |
| 40 | 1400 | 1065 | 780 | 40 |
| 50 | 1600 | 1265 | 1180 | 45 |
| 60 | 1800 | 1465 | 1180 | 50 |

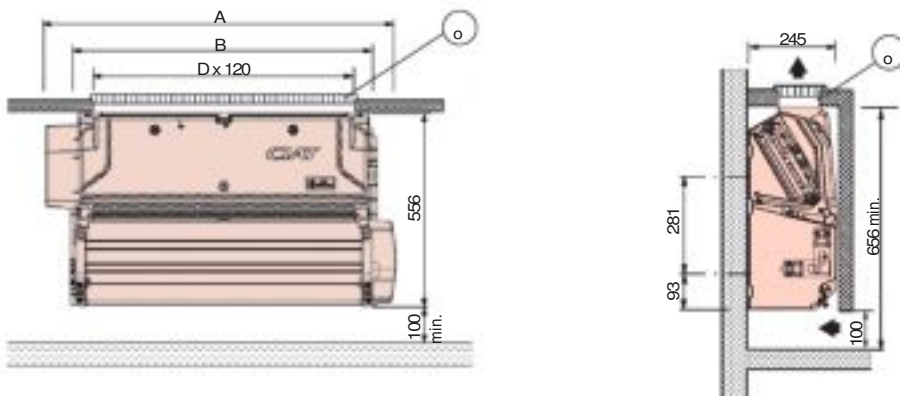
* Weight of the unit in 4-pipe version (without valves)

ASSEMBLY AND DIMENSIONS – NCV MODEL (UNCASED VERTICAL)

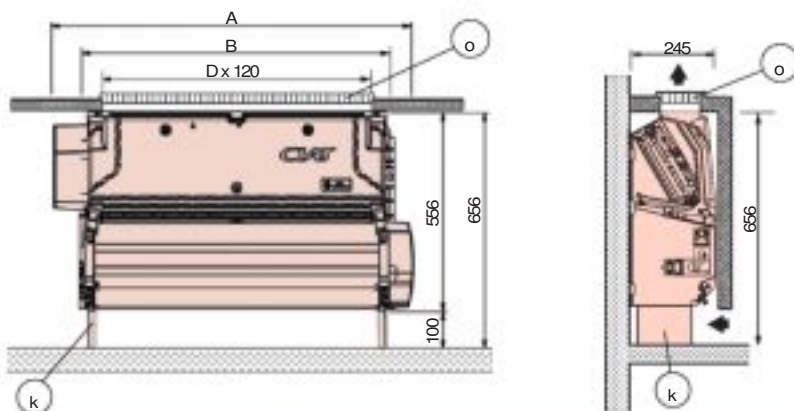
→ **Assembly 1VD:** Unit with return on front



→ **Assembly 1V:** Basic unit with bottom-mounted return



→ **Assembly 2V:** Basic unit with support base



Accessories for assembly configurations (supplied separately)



k Support base

o Aluminium single deflection diffusion or return air grille with sealing frame (without hatch).

Note: this grille can be used for both return and supply air.

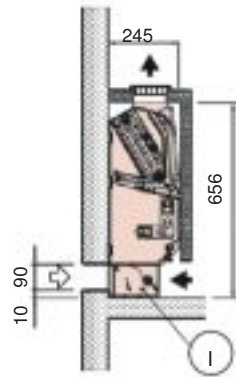
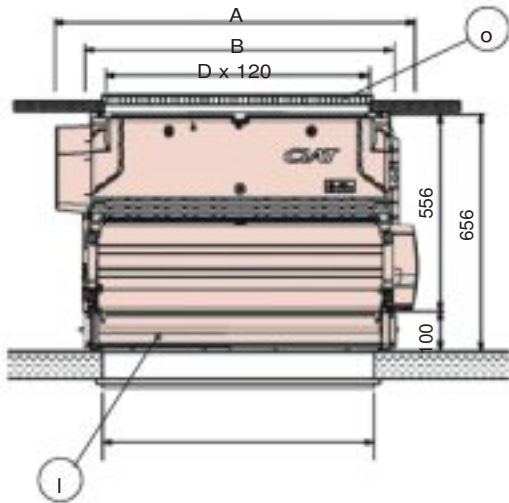
| Sizes MAJOR LINE™ | A | B mounting centre distance | D grille space | Weight (kg) * |
|----------------------|------|-------------------------------|-------------------|---------------|
| 10 | 652 | 505 | 355 | 15 |
| 20 | 812 | 665 | 515 | 18 |
| 30 | 1012 | 865 | 715 | 22 |
| 40 | 1212 | 1065 | 915 | 28 |
| 50 | 1412 | 1265 | 1115 | 32 |
| 60 | 1612 | 1465 | 1315 | 36 |

* Weight of the unit in 4-pipe version (without valves)

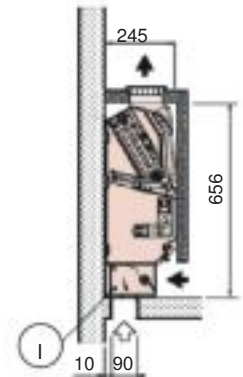
ASSEMBLY AND DIMENSIONS – NCV MODEL (UNCASED VERTICAL)

→ Assemblies 5V and 6V:

Basic unit equipped with a manual pre-treated air/ recycled air mixing unit with a damper regulating the pre-treated air intake.



Assembly 5V



Assembly 6V

↗ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

I: Internal/external manually controlled air return unit

o: Aluminium single deflection diffusion or return air grille with sealing frame (without hatch).

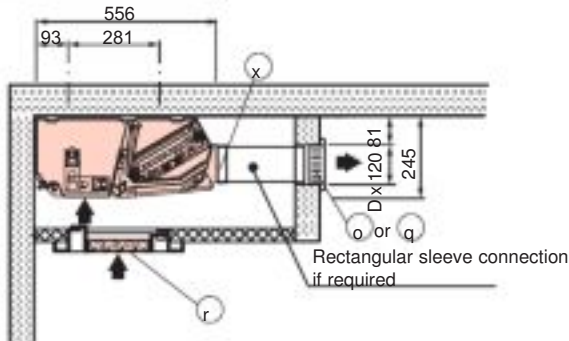
For other applications, please consult us.

| MAJOR LINET™ size | A | B mounting centre distance | C hole space | D grille space | Weight (kg)* |
|-------------------|------|----------------------------|--------------|----------------|--------------|
| 10 | 652 | 505 | 430 | 355 | 16,5 |
| 20 | 812 | 665 | 430 | 515 | 20 |
| 30 | 1012 | 865 | 780 | 715 | 25 |
| 40 | 1212 | 1065 | 780 | 915 | 32 |
| 50 | 1412 | 1265 | 1180 | 1115 | 37 |
| 60 | 1612 | 1465 | 1180 | 1315 | 42 |

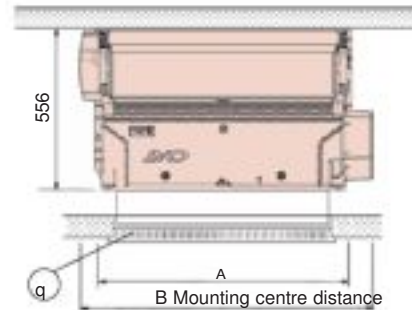
* Weight of heaviest unit in 4-pipe configuration

ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

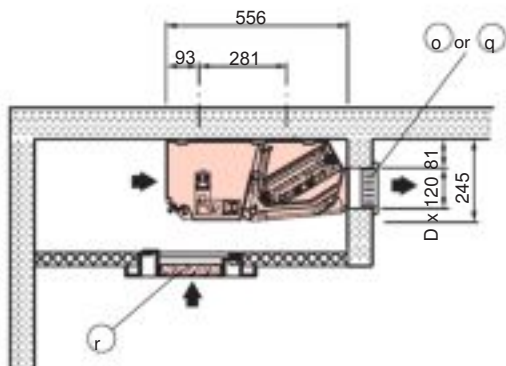
→ **Assembly 41VD:** Unit with return on front



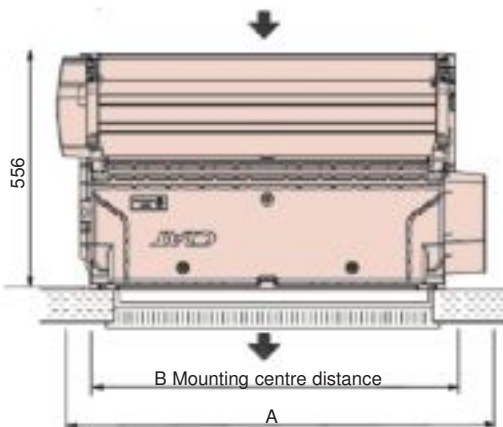
View from beneath



→ **Assembly 41VD:** Unit with return on front



View from beneath



Option available
on assemblies 41VD, 41V and 42V:

- Aluminium single (o) or double (q) deflection diffusion grille with sealing frame



- Metal sleeve for connection to air discharge



Accessories for assembly configurations (supplied separately)

- o: Aluminium single deflection diffusion grille with sealing frame.
- q: Aluminium double deflection diffusion grille with sealing frame
- r: 600 x 600 microperforated return air grille (see diffusion range)
- x: Metal sleeve connecting rectangular sleeve to supply air

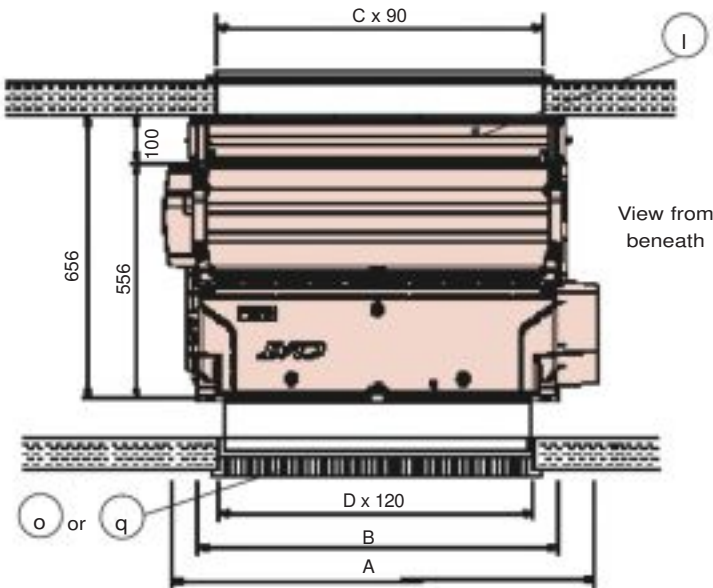
| Size MAJOR LINE™ | A | B mounting centre distance | D grille space | Weight (kg) * |
|---------------------|------|-------------------------------|-------------------|------------------|
| 10 | 652 | 505 | 355 | 15 |
| 20 | 812 | 665 | 515 | 18 |
| 30 | 1012 | 865 | 715 | 22 |
| 40 | 1212 | 1065 | 915 | 28 |
| 50 | 1412 | 1265 | 1115 | 32 |
| 60 | 1612 | 1465 | 1315 | 36 |

* Weight of the unit in 4-pipe version (without valves)

ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

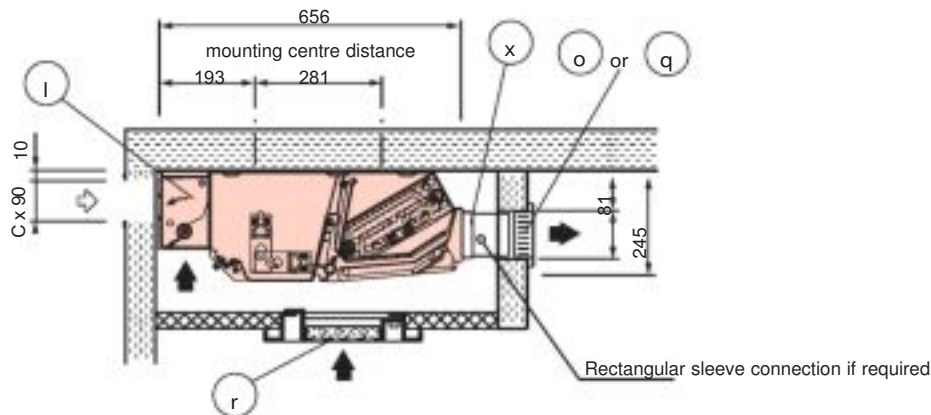
→ Assemblies 45V and 46V:

Basic unit equipped with a manual fresh air/recycled air mixing unit with a damper regulating the pre-treated air intake.



Option available
Assemblies 45V and 46V:

- Aluminium single or double deflection diffusion grille with sealing frame



↗ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

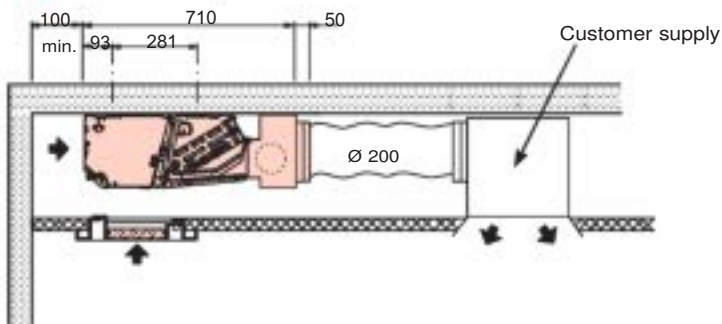
- l: Internal/external manually controlled air return unit
- o: Aluminium single deflection diffusion grille with sealing frame
- q: Aluminium double deflection diffusion grille with sealing frame
- r: 600 x 600 microperforated return air grille (see diffusion range)
- x: Metal sleeve connecting rectangular sleeve to supply air

| MAJOR LINE™ size | A | B Mounting centre distance | C hole space | D grille space | Weight (kg)* |
|------------------|------|-------------------------------|-----------------|-------------------|--------------|
| 10 | 652 | 505 | 430 | 355 | 16,5 |
| 20 | 812 | 665 | 430 | 515 | 20 |
| 30 | 1012 | 865 | 780 | 715 | 25 |
| 40 | 1212 | 1065 | 780 | 915 | 32 |
| 50 | 1412 | 1265 | 1180 | 1115 | 37 |
| 60 | 1612 | 1465 | 1180 | 1315 | 42 |

* Weight of heaviest unit in 4-pipe configuration

ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

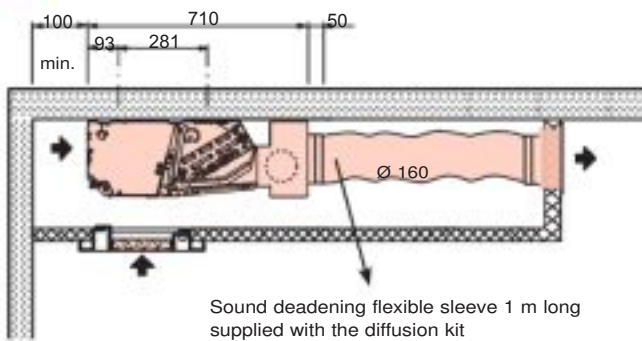
→ Y assembly:



| Size | Number of collars | Ø of collars |
|------|-------------------|--------------|
| T1 | 1 | 200 |
| T2 | 1 | 200 |
| T3 | 2 | 200 |
| T4 | 3 | 200 |
| T5 | 3 | 200 |
| T6 | 3 | 200 |

Supply air plenum delivered not fitted. Available for sizes 1 to 6

→ YK assembly:

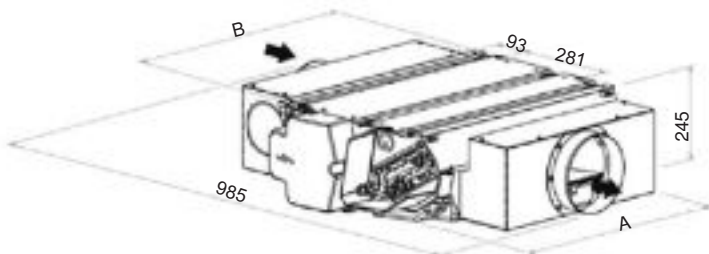


| Size | Number of collars | Ø of collars |
|------|-------------------|--------------|
| T1 | 1 | 160 |
| T2 | 1 | 160 |
| T3 | 2 | 160 |
| T4 | 3 | 160 |
| T5 | 3 | 160 |

Supply air plenum delivered not fitted. Available for sizes 1 to 5

→ Assembly H:

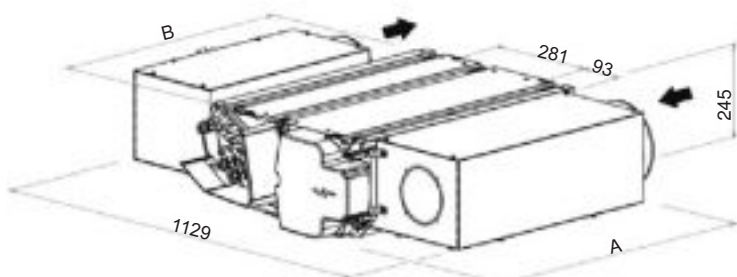
Supply and return air plenum factory-fitted with Ø 160 mm or 200 mm collars available for sizes 2 to 4



| Size | A | B | Number of collars |
|------|------|------|-------------------|
| T2 | 760 | 665 | 1 |
| T3 | 960 | 865 | 2 |
| T4 | 1160 | 1065 | 3 |

→ Assembly U:

Supply and return air plenum factory-fitted with Ø 160 mm or 200 mm collars available for sizes 2 to 4



| Size | A | B | Number of collars |
|------|------|------|-------------------|
| T2 | 770 | 665 | 1 |
| T3 | 970 | 865 | 1 |
| T4 | 1170 | 1065 | 1 |

PERFORMANCE – 2-TUBE SYSTEM

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)

Heating operation: water temperature: 45/40 °C, inlet air temperature: 20 °C

| MAJORLINE™ | AC motor Motor reference | HEE motor Voltage (V) | Cooling cap. W | | Heating capacity W | Sound power LW dB(A) | Electrical power W | | Electric heater | |
|--------------------|-----------------------------|--------------------------|----------------|----------|-----------------------|-------------------------|--------------------|----------|--------------------|-------------------|
| | | | Total | Sensible | | | Motor AC | Motor EC | High capacity W | Low capacity W |
| 102J / 120J HEE | V4 | 4,8 | 1 040 | 990 | 1 530 | 46 | 24 | 10 | 300 | 600 |
| | V3 | 3,9 | 880 | 830 | 1 380 | 41 | 19 | 8 | | |
| | V1 | 2,8 | 710 | 660 | 1 030 | 33 | 12 | 5 | | |
| 102M / 102M HEE | V4 | 5,0 | 1 390 | 1 130 | 1 880 | 46 | 25 | 11 | 300 | 600 |
| | V3 | 4,2 | 1 200 | 970 | 1 600 | 42 | 19 | 8 | | |
| | V1 | 2,9 | 850 | 670 | 1 160 | 36 | 11 | 5 | | |
| 202J / 202J HEE | V4 | 4,8 | 1 780 | 1 690 | 2 500 | 50 | 42 | 15 | 500 | 1000 |
| | V3 | 4,3 | 1 620 | 1 540 | 2 330 | 47 | 40 | 12 | | |
| | V1 | 2,7 | 1 150 | 1 050 | 1 550 | 38 | 33 | 5 | | |
| 202M / 202M HEE | V4 | 4,8 | 2 140 | 1 800 | 2 690 | 50 | 42 | 15 | 500 | 1000 |
| | V3 | 4,3 | 1 910 | 1 640 | 2 430 | 46 | 40 | 12 | | |
| | V1 | 2,7 | 1 320 | 1 120 | 1 670 | 36 | 33 | 5 | | |
| 202N / 202N HEE | V4 | 4,8 | 2 420 | 1 980 | 2 960 | 50 | 42 | 15 | | |
| | V3 | 4,3 | 2 190 | 1 770 | 2 650 | 47 | 40 | 12 | | |
| | V1 | 2,7 | 1 480 | 1 150 | 1 740 | 36 | 33 | 5 | | |
| 302J / 302J HEE | V4 | 5,3 | 2 720 | 2 150 | 3 410 | 53 | 53 | 26 | 800 | 1600 |
| | V3 | 4,4 | 2 390 | 1 870 | 2 960 | 47 | 47 | 17 | | |
| | V1 | 2,2 | 1 380 | 1 030 | 1 670 | 29 | 36 | 4 | | |
| 302K / 302K HEE | V4 | 5,3 | 3 180 | 2 620 | 3 840 | 53 | 53 | 26 | | |
| | V3 | 4,4 | 2 780 | 2 250 | 3 180 | 47 | 47 | 17 | | |
| | V1 | 2,2 | 1 300 | 1 080 | 1 680 | 29 | 36 | 4 | | |
| 302M / 302M HEE | V4 | 5,3 | 3 510 | 2 700 | 4 280 | 53 | 53 | 26 | 800 | 1600 |
| | V3 | 4,4 | 3 050 | 2 340 | 3 590 | 47 | 47 | 17 | | |
| | V1 | 2,2 | 1 370 | 1 060 | 1 690 | 29 | 36 | 4 | | |
| 402M / 402M HEE | V4 | 6,8 | 5 750 | 4 480 | 6 310 | 60 | 102 | 59 | 1200 | 2400 |
| | V3 | 5,4 | 4 740 | 3 590 | 5 150 | 55 | 87 | 31 | | |
| | V1 | 3,2 | 2 910 | 2 160 | 3 170 | 41 | 68 | 10 | | |
| 502M / 502M HEE | V4 | 7,1 | 6 150 | 4 840 | 6 950 | 60 | 94 | 60 | 1600 | 3200 |
| | V3 | 5,8 | 5 350 | 4 100 | 5 740 | 55 | 80 | 35 | | |
| | V1 | 3,6 | 3 440 | 2 620 | 3 660 | 42 | 64 | 11 | | |
| 602N / 602N HEE | V4 | 7,8 | 7 990 | 5 970 | 8 590 | 63 | 122 | 87 | | |
| | V3 | 7,1 | 7 420 | 5 550 | 7 870 | 61 | 118 | 85 | | |
| | V1 | 4,4 | 5 070 | 3 770 | 5 230 | 49 | 105 | 18 | | |

Table with hypothetical acoustic attenuation of the room and installation for 2-pipe system from previous page:

CV/CH/NCV models:

12dB: Sizes 102J, 102M, 202J, 202M, 202N, 302J, 302K, 302M

14dB: Sizes 402M, 502M

15dB: Size 602N

NCH models:

14dB: Sizes 102J, 102M, 202J, 202M, 202N, 302J, 302K, 302M

16dB: Sizes 402M, 502M, 602N

(1) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).

PERFORMANCE – 4 TUBE SYSTEM

Cooling operation: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)

Heating operation: water temperature: 65/55°C, inlet air temperature: 20°C

| MAJOR LINE™ | AC motor Motor reference | HEE motor Voltage (V) | Cooling cap. W | | Heating capacity W | Sound power LW dB(A) | Electrical power W | |
|-----------------|--------------------------------|-----------------------------|----------------|----------|--------------------------|----------------------------|--------------------|----------|
| | | | Total | Sensible | | | Motor AC | Motor EC |
| 104P / 104P HEE | V4 | 5.0 | 1 390 | 1 130 | 1 130 | 46 | 25 | 11 |
| | V3 | 4.2 | 1 200 | 970 | 1 030 | 42 | 19 | 8 |
| | V1 | 2.9 | 850 | 870 | 850 | 36 | 11 | 5 |
| 204P / 204P HEE | V4 | 4.8 | 2 130 | 1 850 | 1 860 | 50 | 42 | 15 |
| | V3 | 4.3 | 1 940 | 1 660 | 1 760 | 46 | 40 | 12 |
| | V1 | 2.7 | 1 320 | 1 120 | 1 390 | 35 | 33 | 5 |
| 204R / 204R HEE | V4 | 4.8 | 1 910 | 1 740 | 3 420 | 50 | 42 | 15 |
| | V3 | 4.3 | 1 720 | 1 560 | 3 250 | 46 | 40 | 12 |
| | V1 | 2.7 | 1 200 | 1 090 | 2 470 | 35 | 33 | 5 |
| 304P / 304P HEE | V4 | 5.3 | 3 310 | 2 690 | 2 980 | 53 | 53 | 26 |
| | V3 | 4.4 | 2 790 | 2 290 | 2 650 | 47 | 47 | 17 |
| | V1 | 2.2 | 1 200 | 1 040 | 1 540 | 29 | 36 | 4 |
| 304R / 304R HEE | V4 | 5.3 | 2 930 | 2 390 | 4 730 | 53 | 53 | 26 |
| | V3 | 4.4 | 2 550 | 2 040 | 4 150 | 47 | 47 | 17 |
| | V1 | 2.2 | 1 180 | 960 | 2 130 | 29 | 36 | 4 |
| 404P / 404P HEE | V4 | 6.8 | 5 480 | 4 300 | 4 110 | 60 | 102 | 59 |
| | V3 | 5.4 | 4 650 | 3 570 | 3 600 | 55 | 87 | 31 |
| | V1 | 3.2 | 2 940 | 2 190 | 2 810 | 41 | 68 | 10 |
| 404R / 404R HEE | V4 | 6.8 | 4 910 | 4 080 | 5 720 | 60 | 102 | 59 |
| | V3 | 5.4 | 4 150 | 3 380 | 4 990 | 55 | 87 | 31 |
| | V1 | 3.2 | 2 650 | 2 070 | 3 600 | 41 | 68 | 10 |
| 504P / 504P HEE | V4 | 7.1 | 5 880 | 4 810 | 5 770 | 60 | 94 | 60 |
| | V3 | 5.8 | 4 980 | 4 070 | 5 090 | 55 | 80 | 35 |
| | V1 | 3.6 | 3 330 | 2 590 | 3 790 | 42 | 64 | 11 |
| 804P / 804P HEE | V4 | 7.8 | 8 150 | 6 040 | 9 150 | 64 | 120 | 82 |
| | V3 | 7.1 | 7 460 | 5 550 | 8 160 | 62 | 117 | 61 |
| | V1 | 4.5 | 4 960 | 3 670 | 6 270 | 50 | 105 | 19 |

Table with hypothetical acoustic attenuation of the room and the installation:

CV/CH/NCV models

12dB: Sizes 104P, 204P, 204R, 304P, 304R

14dB: Sizes 404P, 404R, 504P

15dB: Sizes 604P

NCH models:

14dB: Sizes 104P, 104R, 204P, 204R, 304P, 304R,

16dB: Sizes 404P, 404R, 504P, 604P

TECHNICAL CHARACTERISTICS

Coil capacity (litres)

| | | 102J | 102M | 202J | 202M | 202N | 302J | 302K | 302M | 402M | 502M | 602N |
|---------------|------------------------|-------|-------|------|------|------|------|------|-------|------|------|------|
| 2-pipe system | Hot or cold water coil | 0,23 | 0,33 | 0,30 | 0,45 | 0,53 | 0,40 | 0,47 | 0,63 | 0,84 | 1,03 | 1,33 |
| | | 104P | 204P | 204R | 304P | 304R | 404P | 404R | 504P | 604P | | |
| 4-pipe system | Cold water coil | 0,33 | 0,45 | 0,36 | 0,60 | 0,52 | 0,71 | 0,72 | 1,11 | 1,32 | | |
| | Hot water coil | 0,075 | 0,098 | 0,19 | 0,13 | 0,21 | 0,22 | 0,24 | 0,274 | 0,47 | | |

Coil connection diameters

- Coil connection type: rotary couplings with flat face;
- Valve connection type: install flush fit male threaded unions.

| | | 102J | 102M | 202J | 202M | 202N | 302J | 302K | 302M | 402M | 502M | 602N |
|---------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2-pipe system | Hot or cold water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G3/4" | G3/4" |
| | | 104P | 204P | 204R | 304P | 304R | 404P | 404R | 504P | 604P | | |
| 4-pipe system | Cold water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G3/4" | G3/4" | G3/4" | |
| | Hot water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | |

Motor specifications

| | Speeds | AC Asynchronous Motor | | | | | | Speeds | HEE brushless motor | | | | | |
|------------------------|--------|-----------------------|------|------|------|------|------|--------|---------------------|------|------|------|------|------|
| | | Sizes | | | | | | | Sizes | | | | | |
| | | 10-- | 20-- | 30-- | 40-- | 50-- | 60-- | | 10-- | 20-- | 30-- | 40-- | 50-- | 60-- |
| Max. power input (W) | V5 | 33 | 58 | 88 | 106 | 108 | 135 | V5 | 11 | 25 | 32 | 77 | 90 | 100 |
| | V4 | 31 | 41 | 67 | 93 | 94 | 114 | V4 | 9 | 15 | 22 | 63 | 80 | 75 |
| | V3 | 29 | 36 | 52 | 80 | 79 | 99 | V3 | 6 | 11 | 13 | 36 | 42 | 55 |
| | V2 | 27 | 31 | 42 | 72 | 72 | 88 | V2 | 5 | 8 | 7 | 21 | 26 | 32 |
| | V1 | 26 | 27 | 35 | 63 | 63 | 77 | V1 | 4 | 5 | 3 | 11 | 13 | 16 |
| Max. input current (W) | V5 | 0,14 | 0,25 | 0,38 | 0,46 | 0,47 | 0,59 | V5 | 0,11 | 0,20 | 0,29 | 0,62 | 0,71 | 0,74 |
| | V4 | 0,13 | 0,18 | 0,29 | 0,40 | 0,41 | 0,50 | V4 | 0,09 | 0,13 | 0,20 | 0,50 | 0,62 | 0,67 |
| | V3 | 0,13 | 0,16 | 0,23 | 0,35 | 0,34 | 0,43 | V3 | 0,07 | 0,11 | 0,13 | 0,30 | 0,35 | 0,44 |
| | V2 | 0,12 | 0,13 | 0,18 | 0,31 | 0,31 | 0,38 | V2 | 0,06 | 0,09 | 0,08 | 0,19 | 0,21 | 0,27 |
| | V1 | 0,11 | 0,12 | 0,15 | 0,27 | 0,27 | 0,33 | V1 | 0,06 | 0,06 | 0,06 | 0,11 | 0,13 | 0,16 |

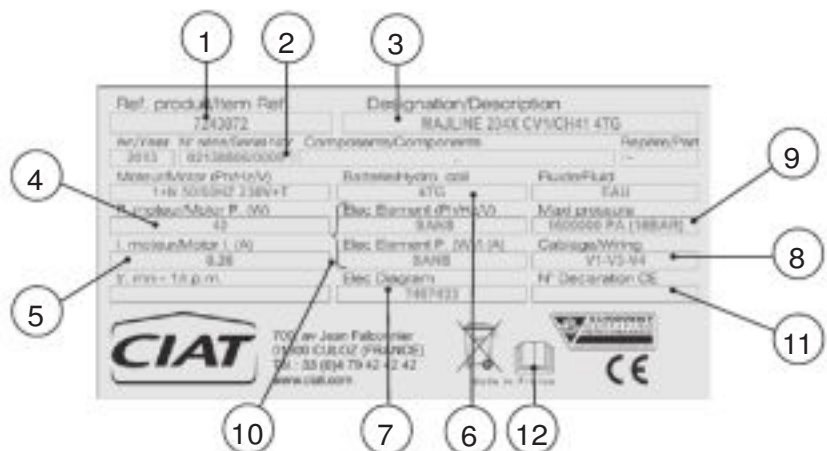
Note: Specifications determined for 230V +/-10% - 50Hz supply.

For operation at 60 Hz, the power input and rotation speed values are generally higher. Motor operating range: minimum return T°C: 0°C, maximum return T°: 40°C

Unit information plate

The information plate shows all the information needed to identify the unit and its configuration. This plate is located on the condensate pan, on the electrical connection side.

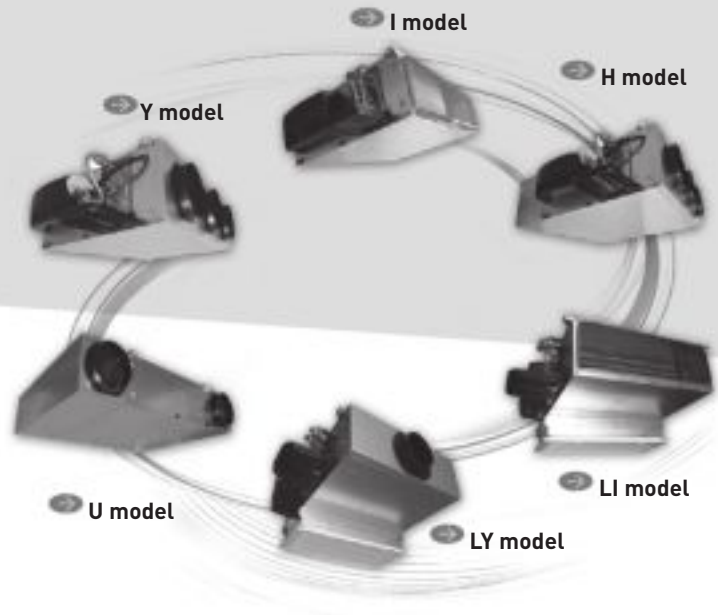
- 1 Code
- 2 Serial number
- 3 Description of the unit
- 4 Nominal motor output
- 5 Motor rotation speed
- 6 Coil type
- 7 Wiring diagram reference
- 8 Motor speed wiring
- 9 Maximum operating pressure
- 10 Electrical heater specifications (if fitted)
- 11 EC declaration no.
- 12 Refer to the installation instructions



COMFORT LINE™

Comfort units
Ductable

Comfort unit with **high available static pressure**.
Modular air discharge configurations
Flexible installation.
Excellent **acoustic comfort**.



ErP
READY



COMFORT LINE™

With its range of ductable comfort units, CIAT is strengthening its strategy of sustainable development and providing solutions that meet the latest requirements in terms of comfort, energy optimisation and quality for interior environments.

Integrating the latest technical developments, COMFORT LINE™ is the customisable solution designed to provide summer and winter comfort for occupants of new and renovated buildings.

Easy to install, COMFORT LINE™ is available in 6 frame sizes and comes in 3 thicknesses: 240, 245 and 280 mm, enabling perfect integration into all types of suspended ceilings.

For total flexibility and adaptability, COMFORT LINE™ is available in several assembly versions: I, Y, H, U, U Compact, LI and LY.

In the HEE version (High Energy Efficiency), COMFORT LINE™ not only provides energy savings of up to 85%, but also meets the strict requirements of thermal regulations such as RT 2012 in France. Furthermore, The COMFORT LINE™ complies with the ErP 2015 directive in all these sizes.

In conjunction with Epure technology, COMFORT LINE™ treats particle pollution. The EPURE solution guarantees excellent indoor air quality and ensures a PM2.5 particulate concentration below the limit recommended by the WHO (10 µg/m³).

RANGE

The COMFORT LINE™ range comprises 6 sizes covering a large scope of air flow rates, and comes in 10 models to provide great flexibility in terms of suspended ceiling configurations.

COMFORT LINE™ is available as:

- A 2-tube system, with heating or cooling mode.
- A 2-tube + 2-wire system, with cooling + electric mode or heating/cooling + electric mode.
- A 4-tube system, with heating and cooling mode.

RANGE CONFIGURATION

Linear concepts

I MODEL

- Smooth metal rectangular sleeve on the supply air (option).
- Smooth metal rectangular sleeve on the intake (option).



Y MODEL

- Supply plenum with collars for circular duct.
 - *Size 0: 1 Ø200 collar or 1 Ø160 collar, or 2 Ø200 collars or 2 Ø160 collars.
 - *Size 2: 2 Ø200 collars or 2 Ø160 collars.
 - *Size 3: 3 Ø200 collars or 3 Ø160 collars.
 - *Size 4: 3 Ø200 collars or 2 Ø250 collars.
 - *Size 5: 3 Ø200 collars or 2 Ø250 collars.
 - *Size 6: 4 Ø200 collars or 3 Ø250 collars.
- Smooth metal rectangular sleeve on the intake (option).



H MODEL

- Return plenum and supply plenum with collars for circular duct.
 - *Size 0: 1 Ø200 collar or 1 Ø160 collar, or 2 Ø200 collars or 2 Ø160 collars.
 - *Size 2: 2 Ø200 collars or 2 Ø160 collars.
 - *Size 3: 3 Ø200 collars or 3 Ø160 collars.
 - *Size 4: 3 Ø200 collars or 2 Ø250 collars.
 - *Size 5: 3 Ø200 collars or 2 Ø250 collars.
 - *Size 6: 4 Ø200 collars or 3 Ø250 collars.



U MODEL (sizes 0, 2, 3 et 4)

- Return plenum and supply plenum with Ø 200 lateral collars.



U COMPACT MODEL

- U model without filter for sizes 0 to 2.



L concepts

LI MODEL (sizes 0 to 4)

- Air recovery grille integrated into the unit, with air supply via rectangular sleeve.



LIk MODEL (sizes 0 to 4)

- Air recovery grille integrated into the unit, with air supply via air distribution kit: grille + counter frame.

LY MODEL (sizes 0 to 4)

- Air recovery grille integrated into the device, with air supply via Ø160 mm or Ø200 mm circular collars.



LYk MODEL (sizes 0 to 3)

- Air recovery grille integrated into the unit and supply air via diffusion kit with supply grille, supply plenum with Ø160 spigots and Ø160 mm flexible duct.

INNOVATIVE DESIGN

- Modular, scalable, functional frame,
- Simplified maintenance,
- No rivets used in its construction so it can be dismantled at the end of its service life,
- Multiple configurations depending on customer requirements.



ADVANTAGES

- Minimal dimensions in the suspended ceilings.
- Integration of the latest technical developments with a very-low-consumption HEE motor and the Epure function for high indoor air quality (IAQ).
- Total flexibility and adaptability (assembly, water temperature, diffusion, filtration, etc.).
- Extensive capacity range.
- Wide selection of coils to adapt to various water temperatures.
- Uses an ecological energy transfer fluid.
- Comfort unit with high available static pressure.
- Easy maintenance, simplified access.
- Environmentally-responsible product.

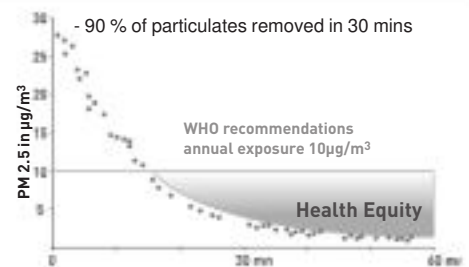
FUNCTION



IAQ - Indoor Air Quality

The air we breathe is full of fine particles which enter the respiratory system to varying degrees.

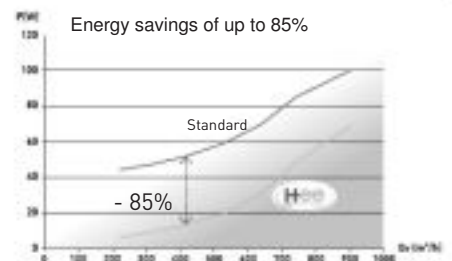
The Epure function (air purification system) is to exceed the WHO's recommendations on particle removal, reducing PM2.5 particulates to below 10 µg/m³ in less than an hour. This is equivalent to a reduction of 50% to 90% in particulate matter.



COMPLIANCE WITH ENERGY CONSERVATION REQUIREMENTS

High Energy Efficiency performance

In order to promote energy efficiency in buildings, COMFORT LINE™ is equipped with an HEE motor which reduces the unit's electricity consumption by up to 85%.



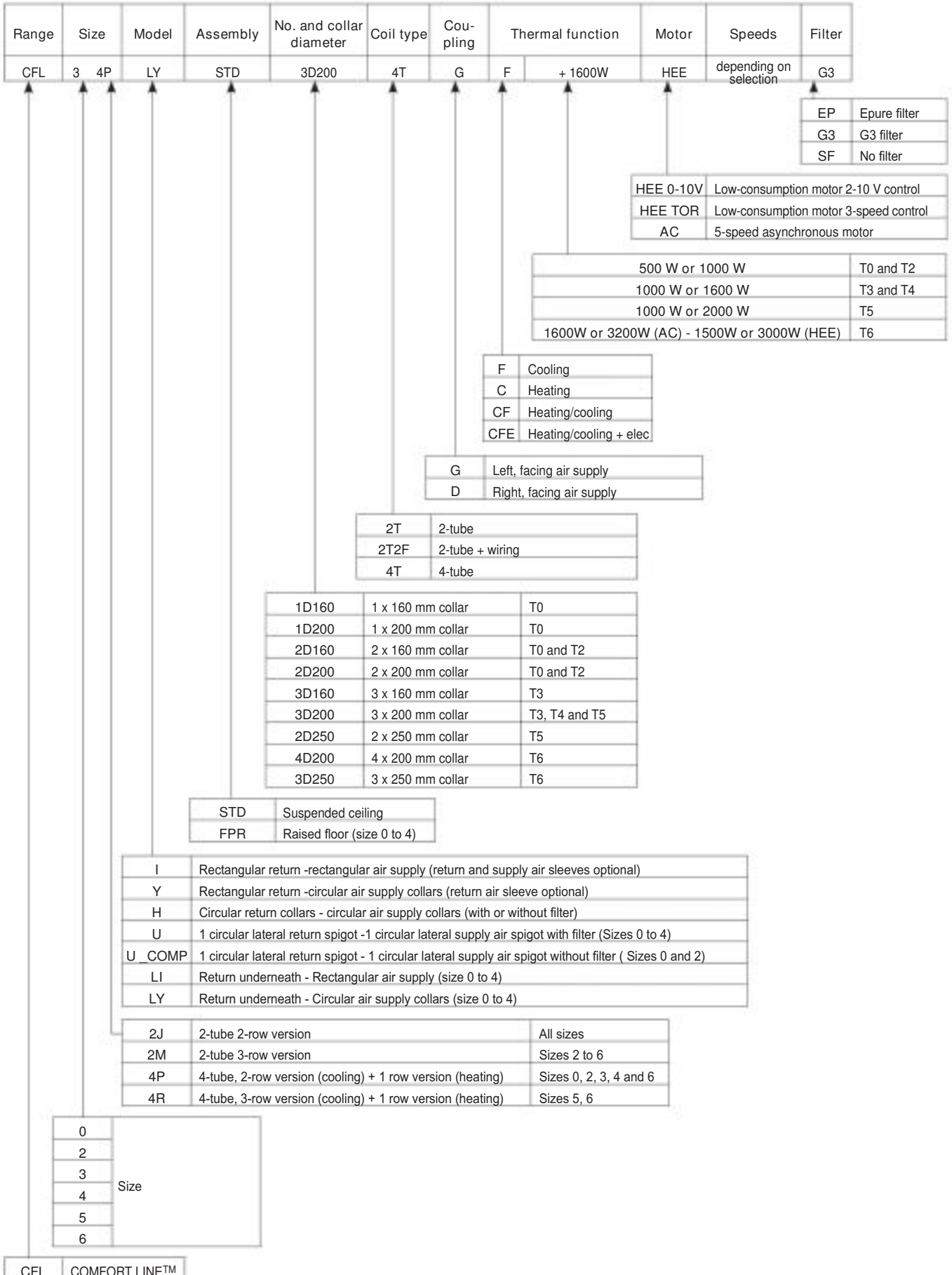
ECO-DESIGN

COMFORT LINE™ has been fully designed using eco-design principles and falls within CIAT's sustainable development policy.

- Choice of supplier located close to the production plant,
- 94% recyclability rate,
- Since 2013, CIAT has been working in partnership with ECOLOGIC for the collection and recovery of waste from our appliances at end of life, subject to the WEEE directive.



MORPHO CODES - COMFORT LINE™ DESCRIPTION



TECHNICAL DESCRIPTION

The frame

■ Galvanised panelling, nickel-plated zinc-coated steel fastenings.

Polyester textile fibre insulation. M1 fire rating, thickness 10 mm.

Water coil

- 1 hot water or cold water circuit (2-tube system),
- 1 hot water + 1 cold water circuit (4-tube system),
- Internally threaded rotating "female" couplings with flat face (diameter G $\frac{1}{2}$ " and G $\frac{3}{4}$ " according to size) and O-ring gasket,
- Copper tubes, continuous aluminium fins,
- Draining and air bleed valve,
- 16 Bar nominal service pressure (at 20°C), 18 Bar test pressure,
- Maximum hot water inlet temperature:
 - 4-tube application: 90°C,
 - 2-tube application: 90°C,
 - 2T/2-wire application: 55°C (min. air flow rate: 200 m³/h).

Electrical heater (230V-1Ph-50Hz)

Resistive wire type heater (230 V - 1-ph - 50 Hz)

The electrical heater has a double safety feature:

- Built-in safety thermostat with self-hold + auto reset.
- Destructive thermal fuse.

Condensate drain pan

Injected polypropylene drain pan insulated with 5 mm PE foam.

Drainage diameter: external Ø 16 mm.

Fan motor assembly size 0 to 4

1 fan motor assembly fitted with:

Fan

1 or 2 HEE impeller(s), with CIAT exclusive High Energy Efficiency airfoil blades in self-extinguishable ABS (HB) with galvanised metal housing.

HEE motor

High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.

HEE motor description:

- Brushless technology,
- Sealed, tropicalised, with protected shaft,
- Gradual actuation with 0-10V control signal,
- Internal normally closed series automatic heat protection on the winding,
- Supply 230V±10%/1-Ph/50-60 Hz.

As an option for sizes 0 to 5

- 3-speed on/off output motor actuation,
- "DFS" motor fault output using a photocoupler for potential alarm feedback via a KNX protocol communication bus (via V3000 controller).

Note: The minimum voltage required for start-up of the motor is 2V.

Or

Asynchronous motor:

5-speed motor connected to terminal block.

Asynchronous motor description:

- Sealed, tropicalised, with protected shaft,
- Permanent capacitor,
- Ball bearings,
- Internal automatic overload protection as standard on winding,
- Resilient mounts,
- 230 V±10 %/1-ph/50-60 Hz supply,
- High efficiency and power factor.

Sizes 5 & 6 fan AC motor assembly

Ventilator

2 turbines with ABS airfoil blades, dynamically balanced, with ABS impellers.

Asynchronous motor

5-speed motor connected to the terminal strip (see asynchronous motor description).

Sizes 5 & 6 fan HEE motor assembly

Size 5 :

Ventilator

2 HEE turbines, High Energy Efficiency (exclusive to CIAT) airfoil blades made from self-extinguishable ABS (HB) and galvanised metal impellers.

Motor

High energy efficiency motor enabling a reduction in electricity consumption of up to 80% (see HEE motor description).

Size 6 :

Ventilator

3 turbines, with PP airfoil blades and PP impellers.

Motor

High energy efficiency motor enabling a reduction in electricity consumption of up to 80% (see HEE motor description).

Electrics box

- Hydraulic connection side,
- Large ABS electrics box, 2-screw closure,
- Protection rating IP20,
- Terminal block on DIN rail in accordance with EN 50022, depth 7,5 mm,
- Cable routing for electrical connections installed by the customer.

Filtration available (excluding Compact U)

■ EPURE function

- A protected air stream which prevents particles from being drawn into suspended ceilings.
- Local filtration using a high efficiency folded filter medium effective for PM of 2,5 microns:
 - Filter area: 10 times the intake surface area,
 - Low energy impact,
 - Improved service life,
 - M1 fire rating,
 - Easily accessible via 2 or 4 screws on sizes 0 to 4 and via 2 sliding on sizes 5 and 6,
 - Return air sleeve compulsory for Sizes 5 & 6.

■ Filter G3

- Flexible filter medium made of regenerative polyester fibre,
- EN779 Efficiency Class: G3,
- Fire rating: M1,
- Rigid metal frame,
- Easily accessible via 2 or 4 screws on sizes 0 to 4 and via 2 sliding tabs and/or 3 clips on sizes 5 and 6.

Plenums

- Galvanised panelling, nickel-plated zinc-coated steel fastenings,
- ABS (HB) collars clipped onto the panelling,
- Supply plenum,
- Insulated plenum: polyester textile fibre insulation. M1 fire rating, thickness 10 mm,
- Return plenum:
 - uninsulated plenum.

Mounting the unit

- The COMFORT LINE™ must be suspended from the ceiling using 4 threaded rods: with CIAT resilient mounts min. diameter 6 mm and max. diameter 8 mm, without CIAT mount diameter 8 mm to 10 mm with a nut/washer assembly positioned on either side of the mounting bracket.

Packaging

- Delivered on pallet and protected by stretch wrap film.

Control

- RTR-E electromechanical wall-mounted thermostat range,
- V30 and V300 electronic range,
- V3000 networked electronic range (KNX),
- Networked electronic range (LON): VLON2,
- Fresh air control:
 - Pack R1: fresh air managed via presence sensor,
 - Pack R+ : Fresh air managed by CO₂ sensor.

Options (factory-fitted)

- Condensate drain pump for sizes 0 and 4,
- Rectangular smooth metal supply air sleeve,
- Rectangular smooth metal return air sleeve,
- Hydraulic coil with protected fins for harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).

Accessories (supplied separately)

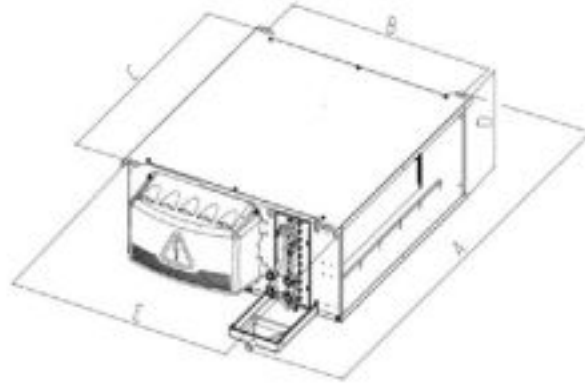
- Condensate drain pump for sizes 5 and 6,
- Smooth spigot, Ø 100 mm or 125 mm,
- Ø100 mm or 125 mm self-adjustable fresh air module kit:
 - Flow rate 15/30/45 m³/h,
 - Flow rate 60/75/90 m³/h,
- Resilient mounts,
- Ø 160 mm circular duct for air distribution kit (per 10 linear metre set),
- Condensate pan expansions,
- Flexible connection kit, length 300 mm, with or without 9-mm insulation.

Please consult us for options

- Return plenum insulation,
- Plenums with collar configurations (diameter and position) in addition to the standard offer,
- Electrical and hydraulic connections on opposite sides.

LINEAR CONCEPTS

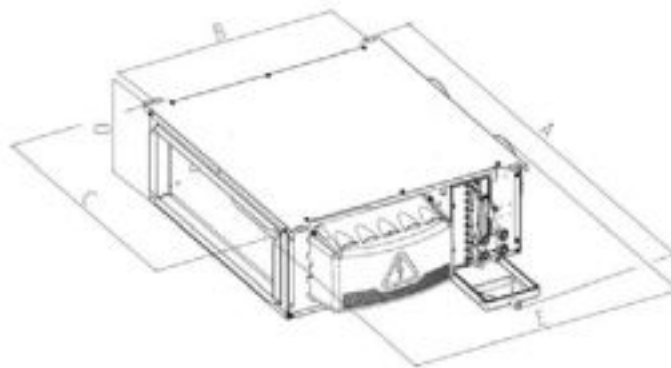
I MODEL



| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|------|------|-----|------|------------|------------|-----------|-----------|-------------|
| T0* | 708 | 535 | 485 | 241 | 590 | 430 x 209 | 430 x 209 | 14,8 |
| T2* | 875 | 558 | 652 | | 597 x 209 | 597 x 209 | 17,6 | |
| T3* | 1075 | | 852 | | 610 | 797 x 209 | 797 x 209 | 21,1 |
| T4* | 1275 | | 1052 | | 997 x 209 | 997 x 209 | 23,1 | |
| T5** | 1290 | 384 | 1070 | 280 | 568 | 990 x 248 | 960 x 245 | 29 |
| T6** | 1590 | | 1370 | 1290 x 248 | 1260 x 245 | 35 | | |

* Units with or without filter.
** Unit with G3 filter or without filter.

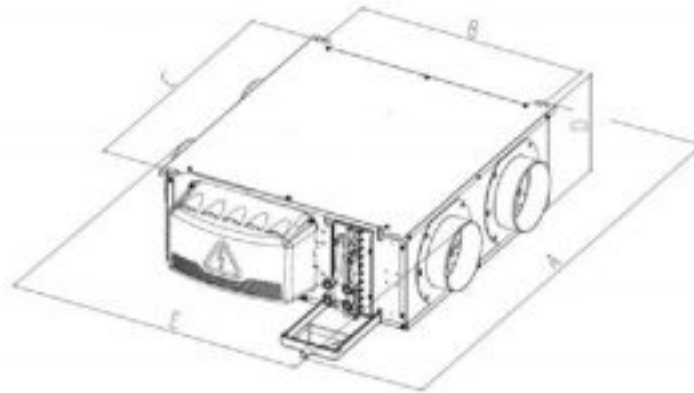
Y MODEL



| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|------|------|-----|------|---------------------------|---------------------------|---------------------------|-----------|-------------|
| T0* | 708 | 535 | 485 | 241 | 660 | 1 or 2 x Ø 160 or 200 mm | 430 x 209 | 15,5 |
| T2* | 875 | 558 | 652 | | 680 | 2 x Ø 160 or 200 mm | 597 x 209 | 18,5 |
| T3* | 1075 | | 852 | | 3 x Ø 160 or 200 mm | 797 x 209 | 22,4 | |
| T4* | 1275 | | 1052 | | 3 x Ø 200 or 2 x Ø 250 mm | 997 x 209 | 24,7 | |
| T5** | 1290 | 384 | 1070 | 280 | 620 | 3 x Ø 200 or 2 x Ø 250 mm | 960 x 245 | 31 |
| T6** | 1590 | | 1370 | 4 x Ø 200 or 3 x Ø 250 mm | 1260 x 245 | 37 | | |

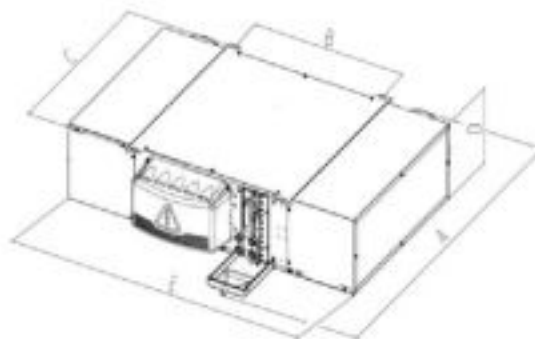
* Units with or without filter.
** Unit with G3 filter or without filter.

H MODEL (with or without filter)



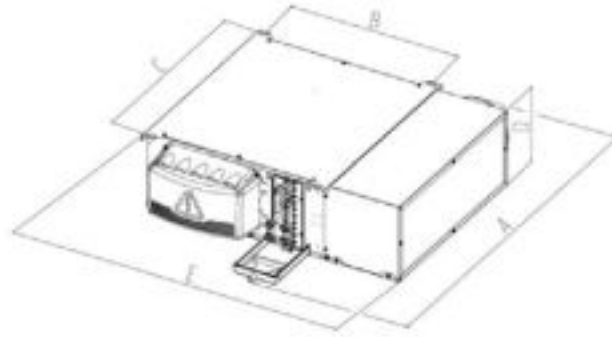
| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|----------------------------|------|-----|------|-----|---------------------------|---------------------------|---------------------------|-------------|
| T0 | 708 | 535 | 485 | 241 | 694 | 1 or 2 x Ø 160 or 200 mm | 1 or 2 x Ø 160 or 200 mm | 15,6 |
| T2 | 875 | 558 | 652 | | 714 | 2 x Ø 160 or 200 mm | 2 x Ø 160 or 200 mm | 18,9 |
| T3 | 1075 | | 852 | | 3 x Ø 160 or 200 mm | 3 x Ø 160 or 200 mm | 22,5 | |
| T4 | 1275 | | 1052 | | 3 x Ø 200 or 2 x Ø 250 mm | 3 x Ø 200 or 2 x Ø 250 mm | 25,1 | |
| T5 with filter | 1290 | 384 | 1070 | 280 | 755 | 3 x Ø 200 or 2 x Ø 250 mm | 3 x Ø 200 or 2 x Ø 250 mm | 35 |
| T6 with filter | 1590 | | 1370 | | 4 x Ø 200 or 3 x Ø 250 mm | 4 x Ø 200 or 3 x Ø 250 mm | 41 | |
| T5 without a filter | 1290 | 384 | 1070 | 280 | 670 | 3 x Ø 200 or 2 x Ø 250 mm | 3 x Ø 200 or 2 x Ø 250 mm | 32 |
| T6 without a filter | 1590 | | 1370 | | 4 x Ø 200 or 3 x Ø 250 mm | 4 x Ø 200 or 3 x Ø 250 mm | 38 | |

U MODEL (with filter)

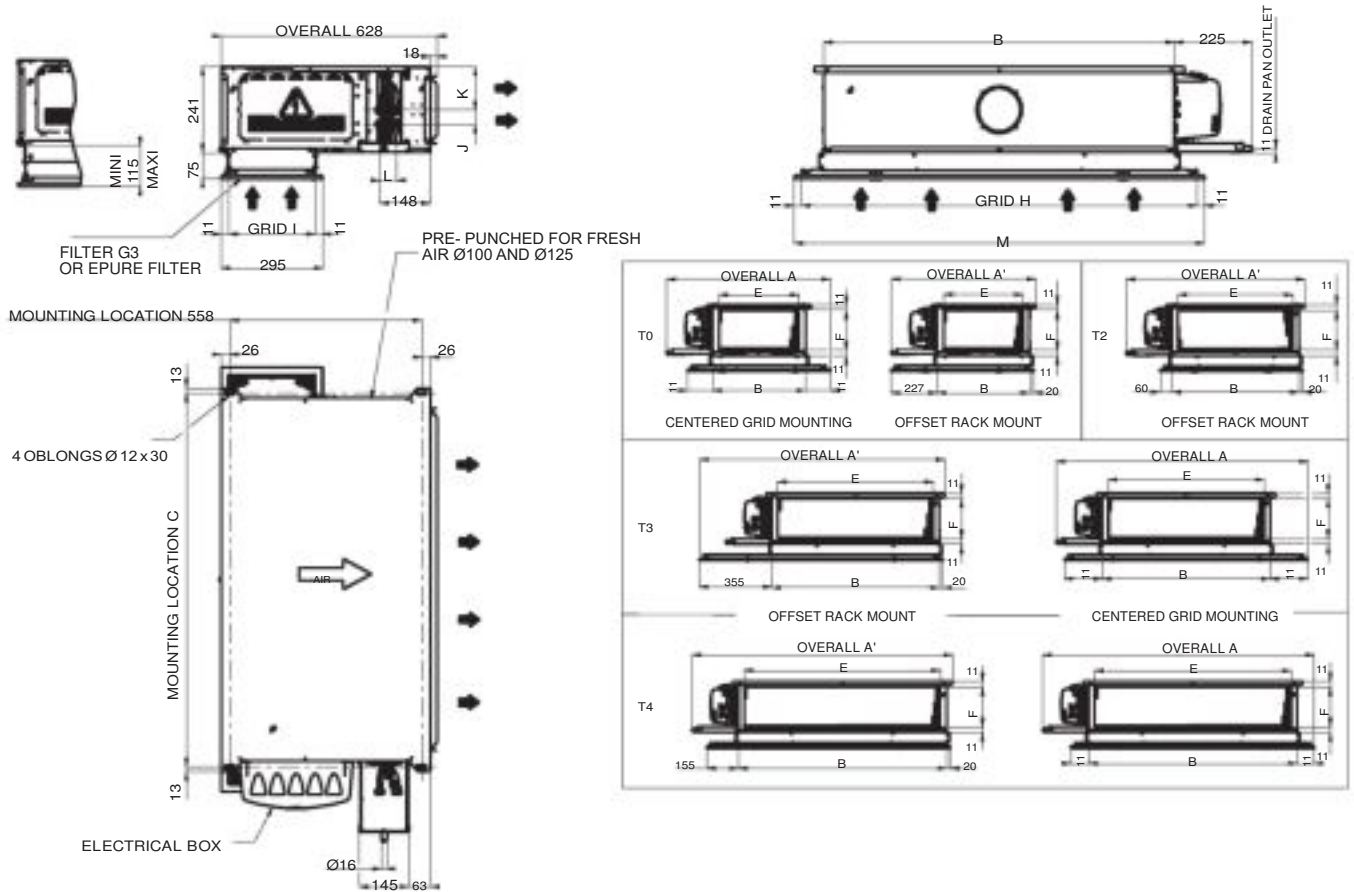


| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|----|------|-----|------|-----|--------------|--------------------------|--------------------------|-------------|
| T0 | 708 | 535 | 485 | 241 | 1060 | 1 x Ø 200 mm or Ø 160 mm | 1 x Ø 200 mm or Ø 160 mm | 20,8 |
| T2 | 875 | 558 | 652 | | 1080 | 1 x Ø 200 mm | 1 x Ø 200 mm | 25,5 |
| T3 | 1075 | | 852 | | 1 x Ø 200 mm | 1 x Ø 200 mm | 26,1 | |
| T4 | 1275 | | 1052 | | 1 x Ø 200 mm | 1 x Ø 200 mm | 35,1 | |

U Compact MODEL (without a filter)



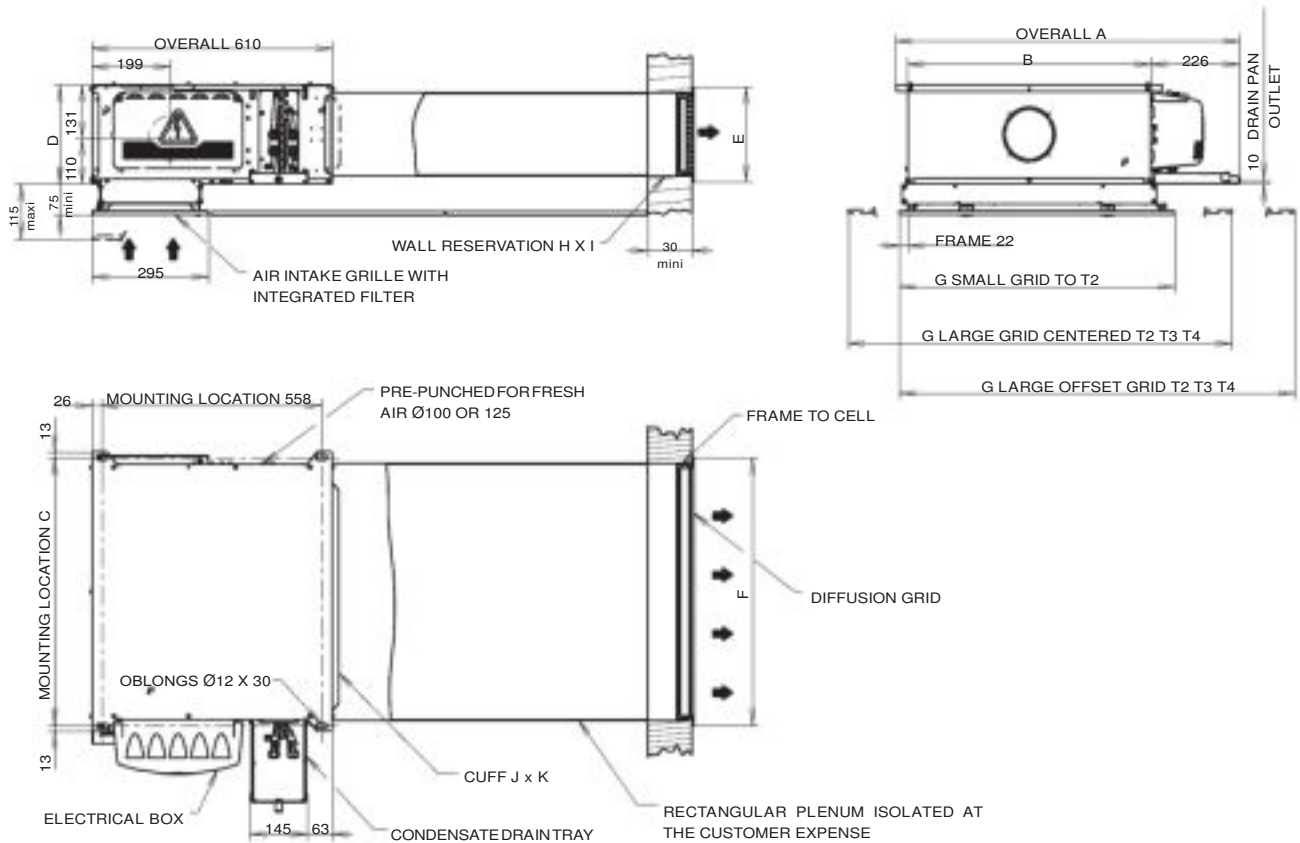
| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|----|-----|-----|-----|-----|-----|--------------------------|--------------------------|-------------|
| T0 | 704 | 558 | 485 | 241 | 825 | 1 x Ø 200 mm or Ø 160 mm | 1 x Ø 200 mm or Ø 160 mm | 17,8 |
| T2 | 875 | | 650 | | 845 | 1 x Ø 200 mm | 1 x Ø 200 mm | 21,5 |

L CONCEPTS
LI MODEL


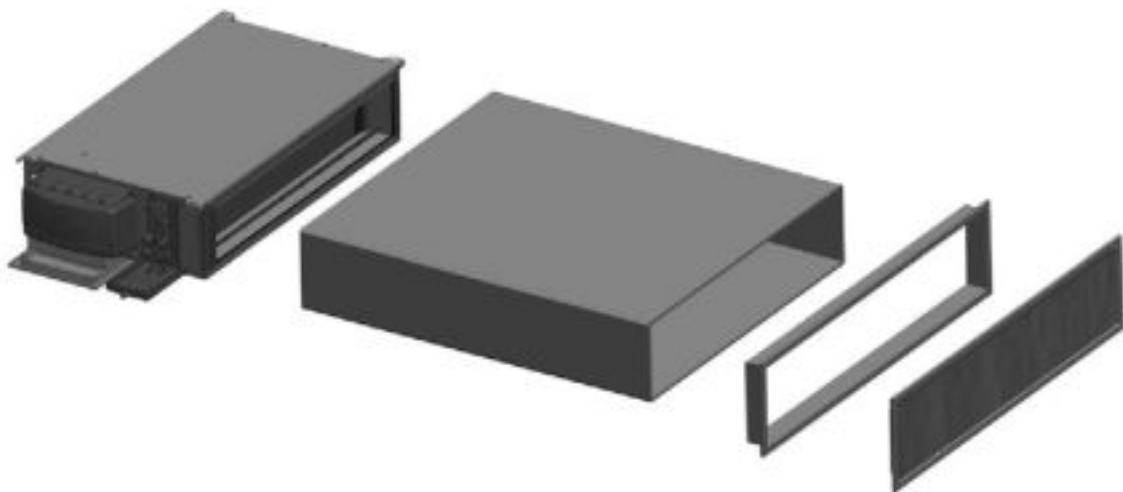
Note: 1200-mm long grille optional for sizes 2. Consult us.

| SIZE | A | A' | B | C | E Air supply | F Air supply | G | | H | I | J(4T) | K(4T) | L | M | N(2T) | P(2T) |
|------|------|------|------|------|--------------------|--------------------|--------|--------|------|-----|-------|-------|----|-----|-------|-------|
| | | | | | | | Coil f | Coil c | | | | | | | | |
| T0 | 803 | 709 | 453 | 485 | 393 | 190 | 1/2" | 1/2" | 656 | 251 | 40 | 121 | 50 | 700 | 40 | 121 |
| T2 | - | 875 | 620 | 652 | 563 | | | | | | | | | | | |
| T3 | 1233 | 1204 | 820 | 852 | 763 | | | | | | | | | | | |
| T4 | 1333 | 1275 | 1020 | 1052 | 963 | | | | 1151 | | | | | | | |

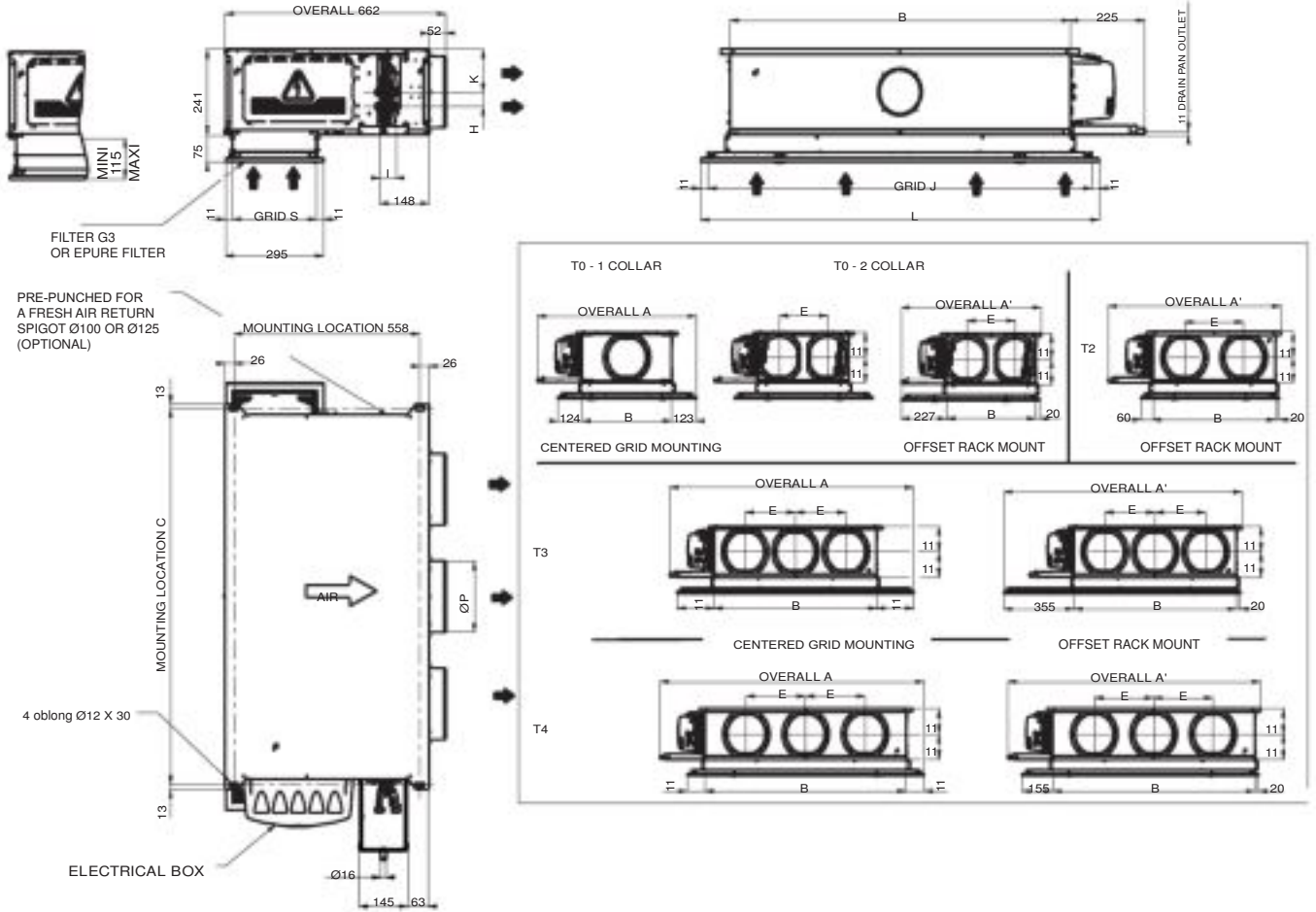
LIK MODEL



| SIZE | A | B | C | D | E | F | G | H | I | J | K |
|------|------|------|------|-----|-----|-----|----------|-----|-----|-----|-----|
| T0 | 709 | 453 | 485 | 241 | 220 | 423 | 700 | 195 | 398 | 393 | 190 |
| T2 | 875 | 620 | 652 | | | 593 | 700/1195 | | 568 | 563 | |
| T3 | 1204 | 820 | 852 | | | 793 | 1195 | | 768 | 763 | |
| T4 | 1274 | 1020 | 1052 | | | 993 | 968 | | 963 | | |



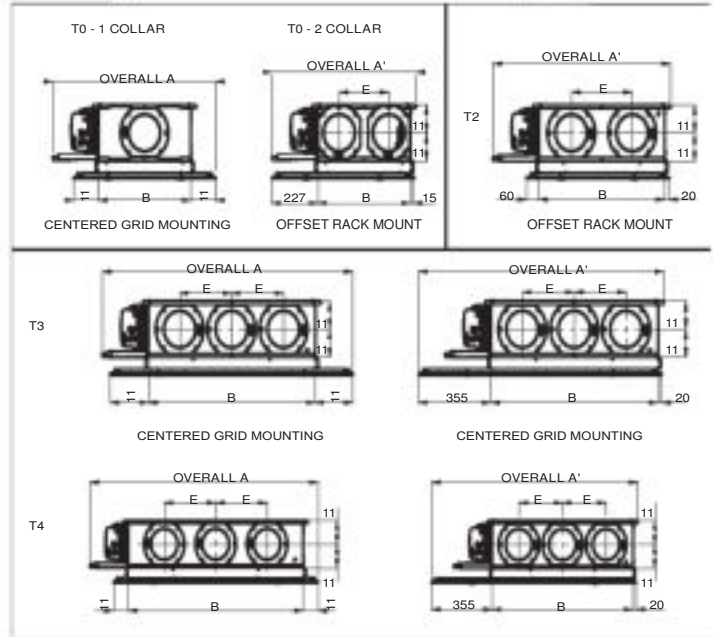
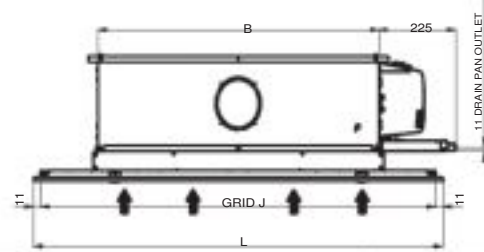
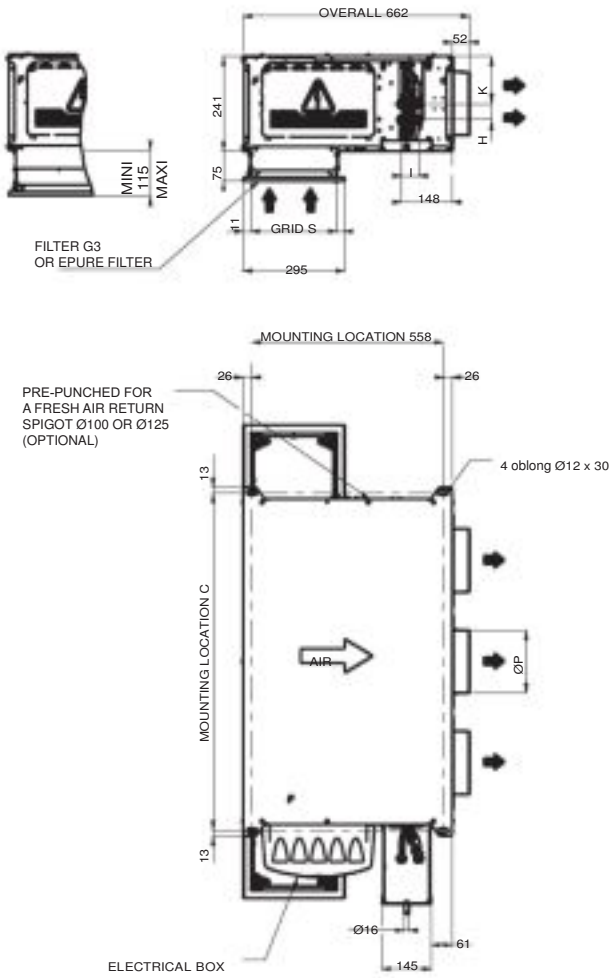
LY MODEL - ø 200 collar



Note: 1200-mm long grille optional for sizes 2. Consult us

| SIZE | A | A' | B | C | E | G | | H(4T) | K(4T) | I | J | L | M(2T) | N(2T) | ØP | S |
|------|------|------|------|------|-----|--------|--------|-------|-------|----|------|------|-------|-------|-----|-----|
| | | | | | | Coil f | Coil c | | | | | | | | | |
| T0 | 803 | 709 | 453 | 485 | 244 | 1/2" | 1/2" | 40 | 121 | 50 | 656 | 700 | 121 | 40 | 200 | 251 |
| T2 | - | 875 | 620 | 652 | 300 | | | | | | 1151 | 1195 | | | | |
| T3 | 1233 | 1204 | 820 | 852 | 255 | | | | | | | | | | | |
| T4 | 1333 | 1275 | 1020 | 1052 | 300 | | | | | | | | | | | |

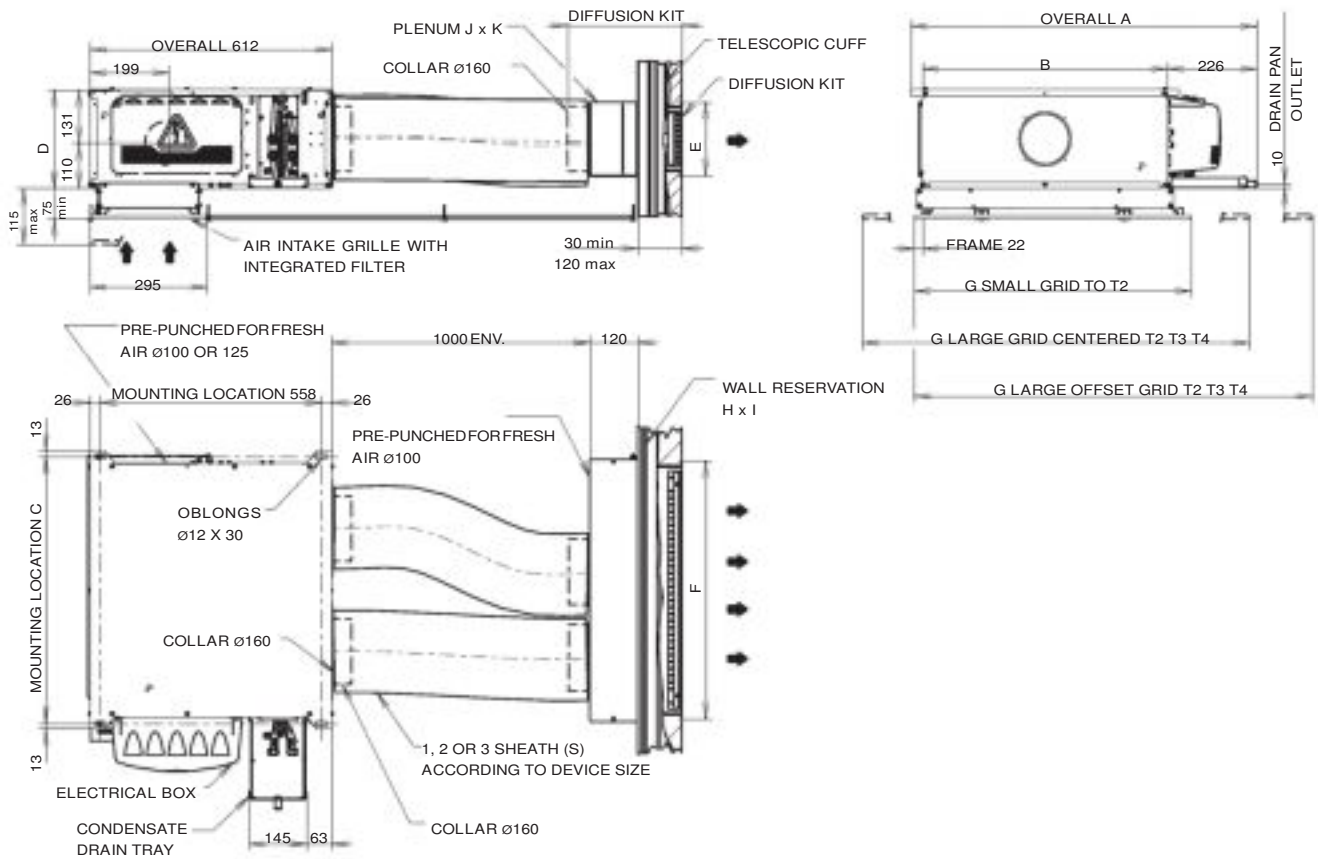
LY MODEL - ø 160 collar



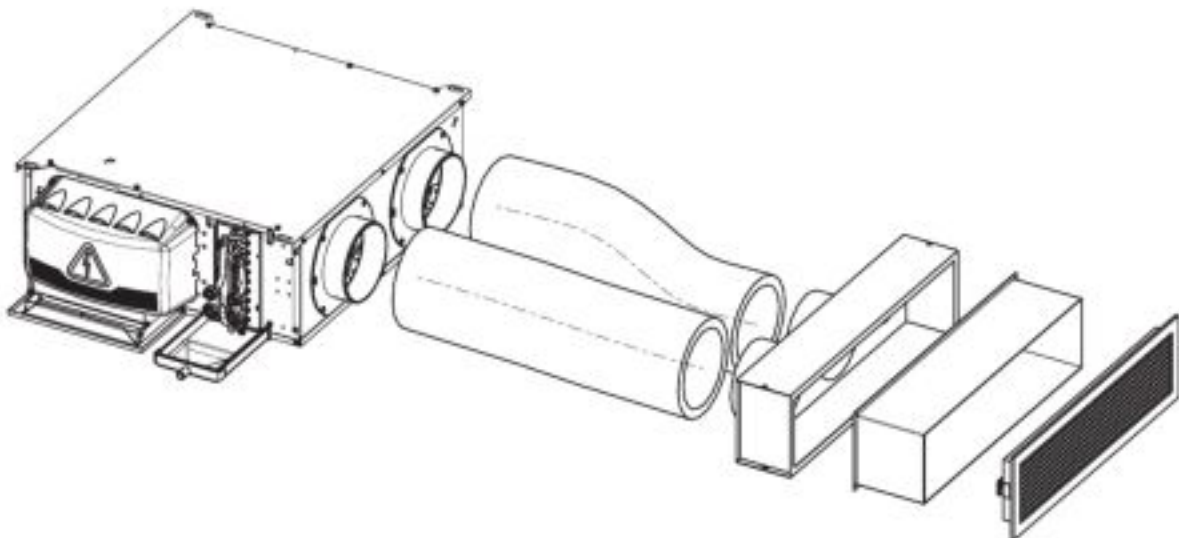
Note: 1200-mm long grille optional for sizes 2. Consult us

| SIZE | A | A' | B | C | E | G | | H(4T) | K(4T) | I | J | L | M(2T) | N(2T) | ØP | S |
|------|------|------|------|------|-----|--------|--------|-------|-------|----|------|------|-------|-------|-----|-----|
| | | | | | | Coil f | Coil c | | | | | | | | | |
| T0 | 803 | 709 | 453 | 485 | 244 | | | | | | | | | | | |
| T2 | - | 875 | 620 | 652 | 300 | | | | | | 658 | 700 | | | | |
| T3 | 1233 | 1204 | 820 | 852 | 255 | 1/2" | 1/2" | 40 | 121 | 50 | | | 121 | 40 | 160 | 251 |
| T4 | 1333 | 1204 | 1020 | 1052 | 300 | | | | | | 1153 | 1195 | | | | |

LYK MODEL



| SIZE | A | B | C | D | E | F | G | H | I | J | K | NBR GAINE |
|--------|------|------|------|-----|-----|-----|----------|-----|------|-----|-----|-----------|
| T0(1V) | 709 | 453 | 485 | 241 | 220 | 423 | 700 | 195 | 398 | 180 | 453 | 1 |
| T0(2V) | | | | | | 593 | 700/1195 | | 568 | | 620 | 2 |
| T2(2V) | 875 | 620 | 652 | | | 793 | 1195 | | 768 | | 820 | 3 |
| T3(3V) | 1204 | 820 | 852 | | | 993 | 968 | | 1020 | | | |
| T4(3V) | 1274 | 1020 | 1052 | | | | | | | | | |



NOTE: For COMFORT LINE™ LY Ø160, sizes 3 and 4, speed 5 must not be selected (air flow too high for Ø160 collars).

Motor electrical data notes

| | Motor speed | AC asynchronous motor | | | | | |
|------------------------|-------------|-----------------------|------|------|------|------|------|
| | | T0 | T2 | T3 | T4 | T5 | T6 |
| Max. power input (W) | V5 | 71 | 107 | 130 | 150 | 360 | 398 |
| | V4 | 48 | 87 | 123 | 134 | 330 | 373 |
| | V3 | 34 | 70 | 116 | 118 | 292 | 320 |
| | V2 | 21 | 41 | 105 | 109 | 245 | 249 |
| | V1 | 14 | 18 | 97 | 98 | 203 | 198 |
| Max. input current (A) | V5 | 0,31 | 0,45 | 0,51 | 0,62 | 1,47 | 1,77 |
| | V4 | 0,2 | 0,37 | 0,48 | 0,56 | 1,33 | 1,66 |
| | V3 | 0,15 | 0,30 | 0,46 | 0,51 | 1,21 | 1,37 |
| | V2 | 0,09 | 0,18 | 0,43 | 0,46 | 1,06 | 1,07 |
| | V1 | 0,07 | 0,08 | 0,41 | 0,42 | 0,91 | 0,87 |

| | Motor voltage | HEE brushless motor | | | | | |
|------------------------|---------------|---------------------|------|------|------|------|------|
| | | T0 | T2 | T3 | T4 | T5 | T6 |
| Max. power input (W) | 10V | 66 | 143 | 166 | 165 | 152 | 246 |
| | 9V | 60 | 109 | 127 | 141 | 147 | 246 |
| | 8V | 42 | 75 | 89 | 117 | 143 | 245 |
| | 7V | 29 | 54 | 62 | 83 | 101 | 192 |
| | 6V | 19 | 33 | 36 | 48 | 59 | 138 |
| | 5V | 14 | 23 | 25 | 33 | 40 | 98 |
| | 4V | 9 | 12 | 14 | 18 | 21 | 58 |
| | 3V | 6 | 8 | 10 | 12 | 13 | 36 |
| Max. input current (A) | 10V | 0,49 | 0,87 | 1,00 | 1,00 | 0,89 | 1,50 |
| | 9V | 0,45 | 0,67 | 0,77 | 0,86 | 0,87 | 1,50 |
| | 8V | 0,32 | 0,47 | 0,54 | 0,72 | 0,84 | 1,50 |
| | 7V | 0,23 | 0,34 | 0,39 | 0,51 | 0,60 | 1,17 |
| | 6V | 0,15 | 0,22 | 0,23 | 0,31 | 0,37 | 0,85 |
| | 5V | 0,11 | 0,16 | 0,17 | 0,22 | 0,26 | 0,61 |
| | 4V | 0,08 | 0,09 | 0,10 | 0,13 | 0,15 | 0,37 |
| | 3V | 0,06 | 0,07 | 0,08 | 0,09 | 0,10 | 0,24 |
| | 2V | 0,04 | 0,05 | 0,05 | 0,05 | 0,06 | 0,11 |

NB: Specifications given for a 230V +/-10% - 50 Hz power supply. Values with outlet open
 For operation at 60 Hz, the power input and rotation speed values are generally higher.
 Motor operating range: min. return T°C: 0°C, max. return T°C: 40°C.

Coil contents

| | Cooling coil | Heating coil | |
|-----|--------------|--------------|------|
| | | 2T | 4T |
| 02J | 0,31 | 0,31 | |
| 04P | 0,34 | | 0,12 |
| 22J | 0,43 | 0,43 | |
| 22M | 0,65 | 0,65 | |
| 24P | 0,47 | | 0,17 |
| 32J | 0,58 | 0,58 | |
| 32M | 0,87 | 0,87 | |
| 34P | 0,63 | | 0,23 |
| 42J | 0,72 | 0,72 | |
| 42M | 1,08 | 1,08 | |
| 44P | 0,80 | | 0,29 |
| 52J | 0,87 | 0,87 | |
| 52M | 1,30 | 1,30 | |
| 54R | 1,30 | | 0,43 |
| 62J | 1,13 | 1,13 | |
| 62M | 1,70 | 1,70 | |
| 64P | 1,22 | | 0,47 |
| 64R | 1,70 | | 0,57 |

Coil coupling diameters

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|--------|--------|--------|--------|--------|--------|
| 2-tube system | Hot or cold water coil | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 3/4" | G 3/4" |
| 4-tube system | Cold water coil | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 3/4" | G 3/4" |
| | Hot water coil | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 3/4" | G 3/4" |

Diameters and Kvs for standard 2-way or 3-way valves with bypass with 230 V thermal actuator

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| 2-tube system | Hot or cold water coil | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| 4-tube system | Cold water coil | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| | Hot water coil | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 1/2" Kvs = 2,5 |

Diameters and Kvs for standard 2-way or 3-way valves with bypass with 24 V 3-point actuator

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|----------------------|----------------------|----------------------|---------------------|---------------------|---------------------|
| 2-tube system | Hot or cold water coil | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| 4-tube system | Cold water coil | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| | Hot water coil | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 1,0 | G 3/4" Kvs = 2,5 | G 1/2" Kvs = 2,5 |

Diameters and flow rate range for automatic balancing two-way valves

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2-tube system | Hot or cold water coil | G 1/2" 90 - 450 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 1" 180 - 1300 l/h | G 1" 180 - 1300 l/h |
| 4-tube system | Cold water coil | G 1/2" 90 - 450 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 1" 180 - 1300 l/h | G 1" 180 - 1300 l/h |
| | Hot water coil | G 1/2" 30 - 210 l/h | G 1/2" 90 - 450 l/h | G 1/2" 90 - 450 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h |



PERFORMANCE

I MODEL

Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).
 Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.
 Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K (2) Auxiliary electric heater 230/150 | |
|-----------------------|-----------------|-----------------------|------------------|-------------------------------|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|---|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 500W | 1000W |
| 02B_AC | V5 | | 505 | | 2 480 | 2 110 | 2 980 | 68 | | 60 | 43 | 2,9 | 5,8 |
| | V4 | | 400 | | 2 110 | 1 760 | 2 500 | 46 | | 54 | 37 | 3,7 | 7,4 |
| | V3 | | 310 | 10 | 1 770 | 1 440 | 2 060 | 33 | | 48 | 31 | 4,7 | 9,5 |
| | V2 | | 220 | | 1 330 | 1 060 | 1 520 | 20 | | 40 | 23 | 6,7 | 13,4 |
| | V1 | | 145 | | 1 140 | 813 | 1 140 | 14 | | 32 | 15 | 10,1 | 20,3 |
| 02B_HEE | | 8,4 | 505 | | 2 460 | 2 090 | 3 000 | | 46 | 60 | 43 | 2,9 | 5,8 |
| | | 6,7 | 400 | | 2 100 | 1 740 | 2 520 | | 25 | 54 | 37 | 3,7 | 7,4 |
| | | 5,4 | 310 | 10 | 1 760 | 1 430 | 2 080 | | 14 | 48 | 31 | 4,7 | 9,5 |
| | | 3,7 | 220 | | 1 320 | 1 040 | 1 540 | | 7 | 40 | 23 | 6,7 | 13,4 |
| | | 2,6 | 145 | | 1 130 | 804 | 1 150 | | 4 | 32 | 15 | 10,1 | 20,3 |
| 04B_AC | V5 | | 505 | | 2 430 | 2 130 | 2 960 | 68 | | 60 | 43 | | |
| | V4 | | 400 | | 2 030 | 1 750 | 2 560 | 46 | | 54 | 37 | | |
| | V3 | | 310 | 10 | 1 610 | 1 380 | 2 190 | 33 | | 48 | 31 | | |
| | V2 | | 220 | | 1 160 | 985 | 1 690 | 20 | | 40 | 23 | | |
| | V1 | | 145 | | 1 020 | 762 | 1 560 | 14 | | 32 | 15 | | |
| 04B_HEE | | 8,4 | 505 | | 2 410 | 2 110 | 2 970 | | 46 | 60 | 43 | | |
| | | 6,7 | 400 | | 2 020 | 1 730 | 2 570 | | 25 | 54 | 37 | | |
| | | 5,4 | 310 | 10 | 1 590 | 1 360 | 2 200 | | 14 | 48 | 31 | | |
| | | 3,7 | 220 | | 1 150 | 972 | 1 700 | | 7 | 40 | 23 | | |
| | | 2,6 | 145 | | 1 000 | 751 | 1 570 | | 4 | 32 | 15 | | |
| 22CJ_AC | V5 | | 780 | | 3 580 | 2 680 | 4 160 | 104 | | 61 | 44 | 1,9 | 3,8 |
| | V4 | | 720 | | 3 320 | 2 480 | 3 920 | 85 | | 59 | 42 | 2,0 | 4,1 |
| | V3 | | 620 | 10 | 2 900 | 2 160 | 3 500 | 69 | | 55 | 39 | 2,4 | 4,7 |
| | V2 | | 420 | | 1 990 | 1 495 | 2 550 | 40 | | 47 | 30 | 3,5 | 7,0 |
| | V1 | | 230 | | 1 020 | 769 | 1 530 | 18 | | 35 | 18 | 6,4 | 12,8 |
| 22M_AC | V5 | | 735 | | 3 690 | 2 940 | 4 880 | 102 | | 62 | 44 | 2,0 | 4,0 |
| | V4 | | 680 | | 3 440 | 2 740 | 4 580 | 83 | | 60 | 43 | 2,2 | 4,3 |
| | V3 | | 590 | 10 | 3 050 | 2 420 | 4 080 | 69 | | 57 | 40 | 2,5 | 5,0 |
| | V2 | | 405 | | 2 160 | 1 710 | 1 940 | 40 | | 48 | 32 | 3,6 | 7,3 |
| | V1 | | 220 | | 1 160 | 944 | 1 690 | 18 | | 36 | 20 | 6,7 | 13,4 |
| 22J_HEE | | 10,0 | 995 | | 4 710 | 3 650 | 4 940 | | 137 | 66 | 48 | 1,5 | 3,0 |
| | | 8,0 | 800 | | 3 830 | 2 920 | 4 270 | | 70 | 60 | 43 | 1,8 | 3,7 |
| | | 7,3 | 730 | 10 | 3 510 | 2 680 | 4 020 | | 56 | 58 | 41 | 2,0 | 4,0 |
| | | 6,0 | 585 | | 2 820 | 2 130 | 3 420 | | 31 | 53 | 36 | 2,5 | 5,0 |
| | | 4,0 | 380 | | 1 790 | 1 360 | 2 450 | | 11 | 45 | 27 | 3,9 | 7,7 |
| | | 3,0 | 290 | | 1 320 | 1 020 | 1 960 | | 7 | 37 | 20 | 5,1 | 10,1 |
| | | 2,0 | 185 | | 782 | 623 | 1 300 | | 4 | 29 | <15 | 7,9 | 15,9 |
| 22M_HEE | | 10,0 | 860 | | 4 130 | 3 330 | 5 730 | | 126 | 66 | 49 | 1,7 | 3,4 |
| | | 7,8 | 650 | 10 | 3 260 | 2 590 | 4 520 | | 58 | 60 | 43 | 2,3 | 4,5 |
| | | 7,0 | 575 | | 2 940 | 2 320 | 4 070 | | 44 | 57 | 40 | 2,6 | 5,1 |
| | | 6,0 | 485 | | 2 530 | 1 980 | 3 490 | | 25 | 53 | 37 | 3,0 | 6,1 |
| | | 4,0 | 300 | | 1 610 | 1 260 | 2 230 | | 9 | 44 | 27 | 4,9 | 9,8 |
| | | 3,0 | 230 | | 1 230 | 984 | 1 760 | | 7 | 37 | 21 | 6,4 | 12,8 |
| | | 2,0 | 170 | | 970 | 751 | 1 290 | | 4 | 29 | <15 | 8,7 | 17,3 |
| 24P_AC | V5 | | 735 | | 3 530 | 2 990 | 4 670 | 102 | | 62 | 44 | | |
| | V4 | | 680 | | 3 280 | 2 760 | 4 490 | 83 | | 60 | 43 | | |
| | V3 | | 590 | 10 | 2 890 | 2 410 | 4 160 | 69 | | 57 | 40 | | |
| | V2 | | 405 | | 2 040 | 1 650 | 3 320 | 40 | | 48 | 32 | | |
| | V1 | | 220 | | 1 090 | 868 | 2 150 | 18 | | 36 | 20 | | |
| 24P_HEE | | 10,0 | 865 | | 3 850 | 3 380 | 5 300 | | 127 | 67 | 49 | | |
| | | 8,2 | 690 | 10 | 3 160 | 2 720 | 4 680 | | 68 | 61 | 44 | | |
| | | 7,0 | 580 | | 2 720 | 2 300 | 4 220 | | 44 | 57 | 41 | | |
| | | 6,0 | 485 | | 2 330 | 1 940 | 3 790 | | 26 | 53 | 37 | | |
| | | 4,0 | 300 | | 1 480 | 1 200 | 2 710 | | 9 | 44 | 28 | | |
| | | 3,0 | 25 | | 1 150 | 927 | 2 240 | | 7 | 38 | 21 | | |
| | 2,0 | 170 | | 832 | 665 | 1 720 | | 4 | 29 | <15 | | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.
 (2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).

I MODEL (continued)

| COMFORT LINE™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m ³ /h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | | |
|-----------------------|-----------------|-----------------------|-------------------------------|--|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|---|-------|-----|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W | |
| 32J_AC | V5 | | 1 095 | | 4 740 | 4 390 | 5 950 | 123 | | 61 | 44 | 1,9 | 3,8 | |
| | V4 | | 875 | | 3 890 | 3 490 | 5 140 | 116 | | 56 | 39 | 2,4 | 4,7 | |
| | V3 | | 720 | 10 | 3 270 | 2 830 | 4 490 | 111 | | 52 | 35 | 2,9 | 5,7 | |
| | V2 | | 570 | | 2 660 | 2 200 | 3 770 | 103 | | 47 | 31 | 3,6 | 7,2 | |
| | V1 | | 450 | | 2 100 | 1 670 | 3 100 | 95 | | 43 | 26 | 4,6 | 9,2 | |
| 32M_AC | V5 | | 1 040 | | 5 330 | 4 010 | 6 490 | 116 | | 63 | 46 | 2,0 | 4,0 | |
| | V4 | | 870 | 10 | 4 550 | 3 360 | 5 740 | 112 | | 59 | 42 | 2,4 | 4,7 | |
| | V3 | | 725 | | 3 840 | 2 770 | 5 000 | 106 | | 55 | 38 | 2,8 | 5,7 | |
| | V2 | | 590 | | 3 180 | 2 270 | 4 260 | 100 | | 51 | 35 | 3,5 | 7,0 | |
| | V1 | | 475 | | 2 560 | 1 830 | 3 530 | 94 | | 47 | 30 | 4,3 | 8,7 | |
| 32J_HEE | | 10,0 | 1 335 | | 5 440 | 5 110 | 6 710 | | 159 | 67 | 51 | 1,5 | 3,1 | |
| | | 9,0 | 1 190 | | 4 990 | 4 610 | 6 290 | | 121 | 64 | 47 | 1,7 | 3,5 | |
| | | 7,4 | 945 | 10 | 4 180 | 3 730 | 5 500 | | 68 | 59 | 42 | 2,2 | 4,4 | |
| | | 6,0 | 715 | | 3 350 | 2 860 | 4 570 | | 34 | 55 | 38 | 2,9 | 5,8 | |
| | | 5,0 | 595 | | 2 880 | 2 390 | 3 990 | | 24 | 51 | 34 | 3,5 | 6,9 | |
| | | 4,0 | 475 | | 2 370 | 1 920 | 3 350 | | 13 | 46 | 30 | 4,3 | 8,7 | |
| | | 2,0 | 270 | | 1 340 | 1 060 | 2 030 | | 5 | 32 | 15 | 7,6 | 15,3 | |
| 32M_HEE | | 10,0 | 1 250 | | 5 970 | 4 790 | 7 470 | | 153 | 67 | 52 | 1,6 | 3,3 | |
| | | 9,0 | 1 110 | | 5 430 | 4 330 | 6 970 | | 116 | 65 | 48 | 1,9 | 3,7 | |
| | | 7,8 | 955 | 10 | 4 780 | 3 780 | 6 300 | | 74 | 61 | 44 | 2,2 | 4,3 | |
| | | 6,0 | 710 | | 3 720 | 2 910 | 5 090 | | 34 | 55 | 38 | 2,9 | 5,8 | |
| | | 5,0 | 580 | | 3 120 | 2 430 | 4 330 | | 24 | 51 | 34 | 3,5 | 7,1 | |
| | | 4,0 | 455 | | 2 490 | 1 930 | 3 500 | | 13 | 46 | 30 | 4,5 | 9,0 | |
| | | 2,0 | 210 | | 1 220 | 939 | 1 680 | | 6 | 34 | 17 | 9,8 | 19,6 | |
| 34P_AC | V5 | | 1 010 | | 5 130 | 4 320 | 5 340 | 115 | | 63 | 45 | | | |
| | V4 | | 855 | | 4 440 | 3 690 | 4 970 | 111 | | 58 | 41 | | | |
| | V3 | | 710 | 10 | 3 800 | 3 110 | 4 570 | 105 | | 55 | 38 | | | |
| | V2 | | 585 | | 3 180 | 2 570 | 4 140 | 99 | | 51 | 34 | | | |
| | V1 | | 470 | | 2 600 | 2 080 | 3 660 | 94 | | 47 | 30 | | | |
| 34P_HEE | | 10,0 | 1 250 | | 5 910 | 5 070 | 6 320 | | 153 | 67 | 52 | | | |
| | | 9,0 | 1 110 | | 5 370 | 4 560 | 5 940 | | 116 | 65 | 48 | | | |
| | | 7,8 | 955 | 10 | 4 680 | 3 930 | 5 440 | | 74 | 61 | 44 | | | |
| | | 6,0 | 710 | | 3 570 | 2 940 | 4 570 | | 34 | 55 | 38 | | | |
| | | 5,0 | 580 | | 2 960 | 2 420 | 4 020 | | 24 | 51 | 34 | | | |
| | | 4,0 | 455 | | 2 320 | 1 880 | 3 410 | | 13 | 46 | 30 | | | |
| 42J_AC | | 10,0 | 1 305 | | 5 640 | 4 820 | 6 690 | 141 | | 62 | 43 | 1,6 | 3,2 | |
| | | 9,0 | 965 | 10 | 4 370 | 3 690 | 5 510 | 129 | | 55 | 37 | 2,1 | 4,3 | |
| | | 7,5 | 755 | | 3 520 | 2 950 | 4 630 | 115 | | 50 | 32 | 2,7 | 5,5 | |
| | | 6,0 | 605 | | 2 870 | 2 400 | 3 920 | 107 | | 46 | 27 | 3,4 | 6,8 | |
| | | 4,8 | 480 | | 2 280 | 1 920 | 3 250 | 97 | | 42 | 23 | 4,3 | 8,6 | |
| | 42M_AC | V5 | | 1 260 | | 6 410 | 5 170 | 7 650 | 139 | | 63 | 44 | 1,6 | 3,3 |
| | | V4 | | 955 | 10 | 5 100 | 3 970 | 5 900 | 127 | | 57 | 38 | 2,2 | 4,3 |
| | | V3 | | 775 | | 4 280 | 3 250 | 4 860 | 117 | | 52 | 34 | 2,7 | 5,3 |
| | | V2 | | 615 | | 3 500 | 2 600 | 3 900 | 108 | | 48 | 29 | 3,3 | 6,7 |
| | | V1 | | 505 | | 2 910 | 2 140 | 3 220 | 97 | | 44 | 26 | 4,1 | 8,2 |
| | 42J_HEE | | 10,0 | 1 505 | | 6 050 | 5 150 | 8 010 | | 165 | 68 | 50 | 1,4 | 2,7 |
| | | | 9,0 | 1 415 | | 5 780 | 4 910 | 7 660 | | 138 | 67 | 48 | 1,5 | 2,9 |
| | | | 7,7 | 1 300 | 10 | 5 410 | 4 590 | 7 210 | | 102 | 64 | 45 | 1,6 | 3,2 |
| | | | 6,0 | 975 | | 4 350 | 3 680 | 5 800 | | 48 | 58 | 39 | 2,1 | 4,2 |
| | | | 5,0 | 800 | | 3 710 | 3 140 | 4 950 | | 32 | 54 | 35 | 2,6 | 5,1 |
| | | | 4,0 | 625 | | 3 020 | 2 560 | 4 050 | | 17 | 49 | 31 | 3,3 | 6,6 |
| | | 2,0 | 290 | | 1 410 | 1 250 | 2 050 | | 4 | 36 | 18 | 7,1 | 14,2 | |
| 42M_HEE | | 10,0 | 1 505 | | 7 230 | 6 120 | 9 010 | | 165 | 68 | 50 | 1,4 | 2,7 | |
| | | 9,0 | 1 410 | | 6 890 | 5 780 | 8 500 | | 137 | 66 | 47 | 1,5 | 2,9 | |
| | | 7,6 | 1 250 | 10 | 6 290 | 5 200 | 7 600 | | 99 | 63 | 44 | 1,6 | 3,3 | |
| | | 6,0 | 975 | | 5 160 | 4 160 | 5 970 | | 48 | 58 | 39 | 2,1 | 4,2 | |
| | | 5,0 | 795 | | 4 390 | 3 470 | 4 900 | | 32 | 54 | 35 | 2,6 | 5,2 | |
| | | 4,0 | 625 | | 3 570 | 2 780 | 3 850 | | 17 | 49 | 30 | 3,3 | 6,6 | |
| | | 2,0 | 290 | | 1 700 | 1 310 | 1 740 | | 4 | 36 | 18 | 7,1 | 14,2 | |
| 44P_AC | V5 | | 1 260 | | 5 280 | 4 760 | 7 250 | 139 | | 63 | 44 | | | |
| | V4 | | 955 | | 4 400 | 3 850 | 6 030 | 127 | | 57 | 38 | | | |
| | V3 | | 775 | 10 | 3 820 | 3 270 | 5 230 | 117 | | 52 | 34 | | | |
| | V2 | | 615 | | 3 240 | 2 710 | 4 440 | 108 | | 48 | 29 | | | |
| | V1 | | 505 | | 2 790 | 2 290 | 3 840 | 97 | | 44 | 26 | | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.
 (2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).

I MODEL (continued)

| COMFORT LINET™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m ³ /h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K (2) Auxiliary electric heater 230/1/50 | |
|------------------------|-----------------|-----------------------|-------------------------------|-------------------------------|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|--|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 44P_HEE | | 10,0 | 1 510 | | 6 130 | 5 100 | 9 210 | | 165 | 68 | 51 | | |
| | | 9,0 | 1 415 | | 5 840 | 4 870 | 8 800 | | 138 | 66 | 48 | | |
| | | 8,0 | 1 330 | 10 | 5 560 | 4 640 | 8 390 | | 111 | 63 | 46 | | |
| | | 6,0 | 980 | | 4 350 | 3 680 | 6 620 | | 48 | 58 | 39 | | |
| | | 5,0 | 800 | | 3 700 | 3 150 | 5 630 | | 32 | 54 | 35 | | |
| | | 4,0 | 625 | | 3 010 | 2 580 | 4 600 | | 17 | 49 | 31 | | |
| | | 2,0 | 290 | | 1 450 | 1 260 | 2 340 | | 4 | 36 | 18 | | |
| | | | | | | | | | | | | 1000W | 2000W |
| 52J AC | V5 | | 2 215 | | 9 190 | 8 230 | 11 100 | 340 | | 65 | 39 | 1,3 | 2,7 |
| | V4 | | 1 990 | | 8 600 | 7 620 | 10 500 | 310 | | 62 | 37 | 1,5 | 3,0 |
| | V3 | | 1 655 | | 7 630 | 6 650 | 9 400 | 281 | | 58 | 32 | 1,8 | 3,6 |
| | V2 | | 1 250 | 10 | 6 310 | 5 370 | 7 790 | 239 | | 51 | 26 | 2,4 | 4,7 |
| | V1 | | 945 | | 5 150 | 4 290 | 6 330 | 201 | | 45 | 21 | 3,1 | 6,2 |
| 52M AC | V5 | | 1 915 | | 10 200 | 8 730 | 13 700 | 321 | | 66 | 40 | 1,5 | 3,1 |
| | V4 | | 1 730 | | 9 490 | 8 000 | 12 600 | 290 | | 63 | 37 | 1,7 | 3,4 |
| | V3 | | 1 510 | | 8 630 | 7 110 | 11 300 | 259 | | 60 | 34 | 1,9 | 3,9 |
| | V2 | | 1 210 | 10 | 7 350 | 5 860 | 9 280 | 227 | | 55 | 29 | 2,4 | 4,9 |
| | V1 | | 925 | | 5 970 | 4 600 | 7 240 | 193 | | 50 | 25 | 3,2 | 6,4 |
| 52J HEE | | 10,0 | 1 625 | | 7 680 | 6 820 | 8 870 | | 157 | 64 | 45 | 1,8 | 3,6 |
| | | 8,7 | 1 570 | 10 | 7 490 | 6 610 | 8 690 | | 142 | 63 | 44 | 1,9 | 3,7 |
| | | 8,0 | 1 540 | | 7 390 | 6 510 | 8 600 | | 135 | 63 | 44 | 1,9 | 3,8 |
| | | 7,0 | 1 340 | | 6 660 | 5 780 | 7 910 | | 95 | 60 | 41 | 2,2 | 4,4 |
| | | 6,0 | 1 140 | | 5 910 | 5 030 | 7 140 | | 56 | 56 | 37 | 2,6 | 5,2 |
| | | 4,0 | 750 | | 4 240 | 3 480 | 5 280 | | 20 | 47 | 29 | 3,9 | 7,8 |
| | | 2,0 | 380 | | 2 260 | 1 820 | 2 960 | | 5 | 33 | <15 | 7,7 | 15,5 |
| 52M HEE | | 10,0 | 1 500 | | 8 790 | 7 200 | 11 700 | | 162 | 66 | 46 | 2,0 | 3,9 |
| | | 8,6 | 1 380 | 10 | 8 250 | 6 680 | 10 900 | | 127 | 64 | 45 | 2,1 | 4,3 |
| | | 8,0 | 1 335 | | 8 030 | 6 470 | 10 500 | | 113 | 63 | 44 | 2,2 | 4,4 |
| | | 7,0 | 1 145 | | 7 120 | 5 630 | 9 150 | | 80 | 60 | 41 | 2,6 | 5,1 |
| | | 6,0 | 960 | | 6 160 | 4 790 | 7 760 | | 47 | 56 | 37 | 3,1 | 6,1 |
| | | 4,0 | 610 | | 4 130 | 3 130 | 5 030 | | 16 | 47 | 29 | 4,8 | 9,6 |
| | 2,0 | 265 | | 1 980 | 1 430 | 2 190 | | 5 | 34 | <15 | 11,1 | 22,2 | |
| 54R AC | V5 | | 1 915 | | 9 610 | 8 181 | 12 900 | 321 | | 66 | 46 | | |
| | V4 | | 1 730 | | 8 970 | 7 510 | 12 200 | 290 | | 63 | 43 | | |
| | V3 | | 1 510 | | 7 160 | 6 690 | 11 300 | 259 | | 60 | 40 | | |
| | V2 | | 1 210 | 10 | 6 940 | 5 540 | 9 920 | 227 | | 55 | 36 | | |
| | V1 | | 925 | | 5 650 | 4 380 | 8 360 | 193 | | 50 | 31 | | |
| 54R HEE | | 10,0 | 1 495 | | 7 960 | 6 570 | 10 800 | | 162 | 65 | 40 | | |
| | | 9,0 | 1 410 | | 7 650 | 6 270 | 10 500 | | 136 | 64 | 39 | | |
| | | 8,0 | 1 325 | 10 | 7 340 | 5 980 | 10 100 | | 112 | 63 | 38 | | |
| | | 7,0 | 1 140 | | 6 620 | 5 300 | 9 280 | | 80 | 59 | 35 | | |
| | | 6,0 | 955 | | 5 820 | 4 580 | 8 330 | | 47 | 56 | 31 | | |
| | | 4,0 | 610 | | 4 020 | 3 080 | 6 170 | | 16 | 47 | 22 | | |
| | | 2,0 | 265 | | 1 980 | 1 440 | 3 160 | | 5 | 34 | <15 | | |
| | | | | | | | | | | | | 1600 W | 3200 W |
| 62J AC | V5 | | 2 745 | | 11 700 | 10 500 | 15 100 | 413 | | 72 | 51 | 1,7 | 3,4 |
| | V4 | | 2 330 | 10 | 10 300 | 9 090 | 13 000 | 384 | | 66 | 42 | 2,0 | 4,0 |
| | V3 | | 1 630 | | 7 770 | 6 570 | 9 270 | 317 | | 55 | 28 | 2,9 | 5,8 |
| | V2 | | 1 110 | | 5 580 | 4 570 | 6 380 | 259 | | 47 | 20 | 4,2 | 8,5 |
| | V1 | | 870 | | 4 460 | 3 590 | 5 030 | 202 | | 42 | 16 | 5,4 | 10,8 |
| 62M AC | V5 | | 2 585 | | 14 000 | 11 100 | 15 900 | 395 | | 72 | 51 | 1,8 | 3,6 |
| | V4 | | 2 195 | 10 | 12 600 | 9 810 | 14 100 | 367 | | 67 | 43 | 2,1 | 4,3 |
| | V3 | | 1 555 | | 9 900 | 7 420 | 10 800 | 317 | | 59 | 31 | 3,0 | 6,1 |
| | V2 | | 1 055 | | 7 340 | 4 340 | 7 740 | 248 | | 51 | 25 | 4,5 | 8,9 |
| | V1 | | 805 | | 5 840 | 4 190 | 6 060 | 197 | | 44 | 17 | 5,8 | 11,7 |
| | | | | | | | | | | | | 1500 W | 3000 W |
| 62J HEE | | 10,0 | 2 395 | | 10 700 | 9 530 | 13 200 | | 255 | 65 | 49 | 1,8 | 3,7 |
| | | 9,0 | 2 370 | | 10 700 | 9 450 | 13 000 | | 248 | 65 | 48 | 1,9 | 3,7 |
| | | 7,7 | 2 290 | 10 | 10 400 | 9 140 | 12 600 | | 226 | 64 | 47 | 1,9 | 3,9 |
| | | 6,0 | 1 940 | | 9 140 | 7 810 | 10 900 | | 136 | 60 | 42 | 2,3 | 4,5 |
| | | 5,0 | 1 670 | | 7 980 | 6 780 | 9 470 | | 96 | 57 | 37 | 2,6 | 5,3 |
| | | 4,0 | 1 410 | | 6 880 | 5 750 | 8 070 | | 57 | 53 | 32 | 3,1 | 6,3 |
| | | 2,0 | 740 | | 3 810 | 3 050 | 4 330 | | 13 | 39 | 19 | 6,0 | 11,9 |
| 62M HEE | | 10,0 | 2 305 | | 10 700 | 9 530 | 13 200 | | 260 | 66 | 50 | 1,9 | 3,8 |
| | | 9,0 | 2 280 | | 10 700 | 9 450 | 13 000 | | 256 | 66 | 49 | 1,9 | 3,9 |
| | | 7,0 | 2 005 | 10 | 10 400 | 9 140 | 12 600 | | 188 | 63 | 46 | 2,2 | 4,4 |
| | | 6,0 | 1 770 | | 9 140 | 7 810 | 10 900 | | 126 | 60 | 41 | 2,5 | 5,0 |
| | | 5,0 | 1 520 | | 7 980 | 6 780 | 9 470 | | 89 | 56 | 37 | 2,9 | 5,8 |
| | | 4,0 | 1 280 | | 6 880 | 5 750 | 8 070 | | 52 | 52 | 31 | 3,4 | 6,9 |
| | | 2,0 | 685 | | 3 810 | 3 050 | 4 330 | | 12 | 39 | 19 | 6,4 | 12,9 |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).



I MODEL (continued)

| COMFORT LINE™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------|-----------------|-----------------------|------------------|--|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|---|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 1500 W | 3000 W |
| 64P AC | V5 | | 2 525 | | 13 100 | 11 600 | 13 600 | 389 | | 69 | 54 | | |
| | V4 | | 2 185 | | 11 800 | 10 200 | 12 600 | 360 | | 65 | 47 | | |
| | V3 | | 1 565 | 10 | 8 970 | 7 490 | 10 400 | 314 | | 57 | 36 | | |
| | V2 | | 1 060 | | 6 380 | 5 170 | 8 150 | 247 | | 50 | 30 | | |
| | V1 | | 800 | | 4 900 | 3 910 | 6 730 | 197 | | 42 | 23 | | |
| 64R AC | V5 | | 2 415 | | 13 700 | 10 500 | 15 400 | 389 | | 72 | 51 | | |
| | V4 | | 2 085 | 10 | 12 300 | 9 230 | 14 400 | 357 | | 67 | 44 | | |
| | V3 | | 1 470 | | 9 590 | 6 990 | 12 100 | 313 | | 58 | 30 | | |
| | V2 | | 1 010 | | 7 100 | 5 060 | 9 680 | 244 | | 50 | 23 | | |
| | V1 | | 780 | | 5 680 | 4 070 | 8 160 | 194 | | 45 | 19 | | |
| 64PHEE | | 10,0 | 2 305 | | 12 200 | 10 600 | 13 000 | | 260 | 66 | 43 | | |
| | | 9,0 | 2 280 | | 12 100 | 10 500 | 12 900 | | 256 | 66 | 42 | | |
| | | 7,0 | 2 005 | 10 | 10 900 | 9 290 | 12 100 | | 188 | 63 | 39 | | |
| | | 6,0 | 1 770 | | 9 780 | 8 230 | 11 300 | | 126 | 60 | 34 | | |
| | | 5,0 | 1 520 | | 8 590 | 7 100 | 10 400 | | 89 | 56 | 30 | | |
| | | 4,0 | 1 280 | | 7 330 | 5 980 | 9 330 | | 52 | 52 | 24 | | |
| | | 2,0 | 685 | | 4 090 | 3 220 | 6 170 | | 12 | 39 | <15 | | |
| 64R HEE | | 10,0 | 2 175 | | 13 000 | 9 370 | 14 800 | | 264 | 67 | 44 | | |
| | | 9,0 | 2 175 | | 13 000 | 9 370 | 14 800 | | 264 | 67 | 44 | | |
| | | 7,0 | 1 890 | 10 | 11 800 | 8 490 | 13 800 | | 189 | 64 | 39 | | |
| | | 6,0 | 1 615 | | 10 600 | 7 560 | 12 800 | | 117 | 60 | 35 | | |
| | | 5,0 | 1 370 | | 9 390 | 6 700 | 10 800 | | 82 | 56 | 30 | | |
| | | 4,0 | 1 130 | | 8 100 | 5 750 | 10 600 | | 47 | 52 | 24 | | |
| | | 2,0 | 555 | | 4 360 | 3 070 | 6 500 | | 11 | 39 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).

Y MODEL
Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K (2) Auxiliary electric heater 230/1/50 | |
|-----------------------|-----------------|-----------------------|------------------|-------------------------------|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|--|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 500W | 1000W |
| 02B_AC | V5 | | 440 | | 2280 | 1920 | 2700 | 66 | | 60 | 41 | 3,3 | 6,7 |
| | V4 | | 360 | | 1970 | 1620 | 2300 | 44 | | 55 | 36 | 4,1 | 8,2 |
| | V3 | | 285 | 20 | 1660 | 1340 | 1920 | 32 | | 49 | 30 | 5,2 | 10,3 |
| | V2 | | 200 | | 1250 | 986 | 1420 | 20 | | 41 | 22 | 7,4 | 14,7 |
| | V1 | | 135 | | 1070 | 762 | 1070 | 14 | | 33 | <15 | 10,9 | 21,8 |
| 02B_HEE | | 8,5 | 440 | | 2270 | 1900 | 2710 | | 44 | 60 | 41 | 3,3 | 6,7 |
| | | 7,0 | 360 | | 1950 | 1600 | 2320 | | 25 | 55 | 36 | 4,1 | 8,2 |
| | | 5,7 | 285 | 20 | 1650 | 1330 | 1940 | | 15 | 49 | 30 | 5,2 | 10,3 |
| | | 3,9 | 200 | | 1240 | 974 | 1430 | | 8 | 41 | 22 | 7,4 | 14,7 |
| | | 2,7 | 135 | | 1060 | 752 | 1080 | | 4 | 33 | <15 | 10,9 | 21,8 |
| 04B_AC | V5 | | 440 | | 2210 | 1920 | 2720 | 66 | | 60 | 41 | | |
| | V4 | | 360 | | 1880 | 1610 | 2390 | 44 | | 55 | 36 | | |
| | V3 | | 285 | 20 | 1500 | 1280 | 2060 | 32 | | 49 | 30 | | |
| | V2 | | 200 | | 1080 | 915 | 1590 | 20 | | 41 | 22 | | |
| | V1 | | 135 | | 941 | 709 | 1470 | 14 | | 33 | <15 | | |
| 04B_HEE | | 8,5 | 440 | | 2190 | 1900 | 2740 | | 44 | 60 | 41 | | |
| | | 7,0 | 360 | | 1860 | 1590 | 2400 | | 25 | 55 | 36 | | |
| | | 5,7 | 285 | 20 | 1480 | 1260 | 2070 | | 15 | 49 | 30 | | |
| | | 3,9 | 200 | | 1070 | 902 | 1600 | | 8 | 41 | 22 | | |
| | | 2,7 | 135 | | 928 | 698 | 1480 | | 4 | 33 | <15 | | |
| 22J_AC | V5 | | 730 | | 3380 | 2530 | 3960 | 101 | | 60 | 40 | 2,0 | 4,0 |
| | V4 | | 680 | | 3150 | 2350 | 3750 | 83 | | 58 | 39 | 2,2 | 4,3 |
| | V3 | | 595 | 20 | 2790 | 2050 | 3380 | 68 | | 55 | 36 | 2,5 | 4,9 |
| | V2 | | 405 | | 1910 | 1400 | 2470 | 40 | | 46 | 27 | 3,6 | 7,3 |
| | V1 | | 225 | | 972 | 741 | 1480 | 18 | | 34 | <15 | 6,5 | 13,1 |
| 22M_AC | V5 | | 685 | | 3 490 | 2 780 | 4 610 | 100 | | 60 | 41 | 2,1 | 4,3 |
| | V4 | | 640 | | 3 280 | 2 610 | 4 370 | 81 | | 59 | 39 | 2,3 | 4,6 |
| | V3 | | 565 | 20 | 2 930 | 2 320 | 3 920 | 67 | | 56 | 37 | 2,6 | 5,2 |
| | V2 | | 390 | | 2 080 | 1 650 | 2 840 | 40 | | 47 | 29 | 3,8 | 7,5 |
| | V1 | | 215 | | 1 130 | 916 | 1 630 | 18 | | 35 | 16 | 6,8 | 13,7 |
| 22J_HEE | | 10,0 | 935 | | 4 450 | 3 440 | 4 730 | | 128 | 64 | 45 | 1,6 | 3,1 |
| | | 8,0 | 750 | | 3 590 | 2 740 | 4 080 | | 65 | 58 | 39 | 2,0 | 3,9 |
| | | 7,3 | 680 | 20 | 3 280 | 2 480 | 3 810 | | 53 | 56 | 37 | 2,2 | 4,3 |
| | | 6,0 | 545 | | 2 640 | 1 980 | 3 250 | | 29 | 51 | 32 | 2,7 | 5,4 |
| | | 4,0 | 355 | | 1 670 | 1 270 | 2 330 | | 11 | 41 | 23 | 4,1 | 8,3 |
| | | 3,0 | 270 | | 1 210 | 942 | 1 840 | | 7 | 35 | 16 | 5,4 | 10,9 |
| | | 2,0 | 170 | | 743 | 589 | 1 230 | | 4 | 28 | <15 | 8,7 | 17,3 |
| 22M_HEE | | 10,0 | 800 | | 3 900 | 3 140 | 5 390 | | 118 | 65 | 46 | 1,8 | 3,7 |
| | | 7,8 | 610 | 20 | 3 090 | 2 450 | 4 280 | | 54 | 58 | 39 | 2,4 | 4,8 |
| | | 7,0 | 540 | | 2 790 | 2 200 | 3 850 | | 41 | 55 | 36 | 2,7 | 5,4 |
| | | 6,0 | 455 | | 2 400 | 1 880 | 3 310 | | 24 | 51 | 33 | 3,2 | 6,5 |
| | | 4,0 | 285 | | 1 530 | 1 200 | 2 140 | | 9 | 42 | 23 | 5,2 | 10,3 |
| | | 3,0 | 220 | | 1 180 | 938 | 1 670 | | 7 | 36 | 17 | 6,7 | 13,4 |
| | | 2,0 | 160 | | 939 | 723 | 1 230 | | 4 | 27 | <15 | 9,2 | 18,4 |
| 24P_AC | V5 | | 685 | | 3 330 | 2 810 | 4 500 | 100 | | 60 | 41 | | |
| | V4 | | 640 | | 3 120 | 2 620 | 4 350 | 81 | | 59 | 39 | | |
| | V3 | | 565 | 20 | 2 790 | 2 310 | 4 050 | 67 | | 56 | 37 | | |
| | V2 | | 390 | | 1 960 | 1 590 | 3 230 | 40 | | 47 | 29 | | |
| | V1 | | 215 | | 1 040 | 834 | 2 090 | 18 | | 35 | 16 | | |
| 22J_HEE | | 10,0 | 815 | | 3 660 | 3 190 | 5 110 | | 120 | 65 | 46 | | |
| | | 8,2 | 650 | 20 | 3 010 | 2 580 | 4 530 | | 65 | 60 | 40 | | |
| | | 7,0 | 545 | | 2 590 | 2 180 | 4 080 | | 42 | 56 | 37 | | |
| | | 6,0 | 460 | | 2 220 | 1 850 | 3 670 | | 24 | 52 | 33 | | |
| | | 4,0 | 285 | | 1 420 | 1 150 | 2 630 | | 9 | 42 | 24 | | |
| | | 3,0 | 225 | | 1 090 | 883 | 2 160 | | 7 | 36 | 17 | | |
| | | 2,0 | 160 | | 808 | 642 | 1 660 | | 4 | 27 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

Y MODEL (continued)

| COMFORT LINET™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K (2) Auxiliary electric heater 230/1/50 | |
|------------------------|-----------------|-----------------------|------------------|-------------------------------|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|--|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 32J_AC | V5 | | 1 000 | 20 | 4 360 | 3 990 | 5 620 | 117 | | 60 | 41 | 2,1 | 4,1 |
| | V4 | | 810 | | 3 650 | 3 220 | 4 890 | 110 | | 56 | 37 | 2,5 | 5,1 |
| | V3 | | 680 | | 3 130 | 2 680 | 4 330 | 107 | | 52 | 33 | 3,0 | 6,1 |
| | V2 | | 550 | | 2 560 | 2 110 | 3 670 | 101 | | 48 | 29 | 3,7 | 7,5 |
| | V1 | | 435 | | 2 040 | 1 620 | 3 020 | 94 | | 43 | 24 | 4,7 | 9,5 |
| 32M_AC | V5 | | 970 | 20 | 5 020 | 3 750 | 6 210 | 113 | | 62 | 43 | 2,1 | 4,2 |
| | V4 | | 830 | | 4 350 | 3 190 | 5 550 | 109 | | 58 | 39 | 2,5 | 5,0 |
| | V3 | | 695 | | 3 710 | 2 670 | 4 860 | 104 | | 54 | 35 | 3,0 | 5,9 |
| | V2 | | 575 | | 3 100 | 2 210 | 4 170 | 99 | | 51 | 32 | 3,6 | 7,2 |
| | V1 | | 465 | | 2 510 | 1 790 | 3 460 | 93 | | 46 | 28 | 4,4 | 8,9 |
| 32J_HEE | | 10,0 | 1 235 | 20 | 5 130 | 4 780 | 6 410 | | 152 | 65 | 45 | 1,7 | 3,3 |
| | | 9,0 | 1 100 | | 4 710 | 4 300 | 6 000 | | 114 | 62 | 43 | 1,9 | 3,7 |
| | | 7,4 | 875 | | 3 950 | 3 480 | 5 240 | | 65 | 58 | 39 | 2,4 | 4,7 |
| | | 6,0 | 670 | | 3 170 | 2 690 | 4 350 | | 32 | 53 | 34 | 3,1 | 6,1 |
| | | 5,0 | 555 | | 2 720 | 2 240 | 3 780 | | 23 | 49 | 30 | 3,7 | 7,4 |
| | | 4,0 | 440 | | 2 220 | 1 780 | 3 150 | | 13 | 44 | 26 | 4,7 | 9,4 |
| | | 2,0 | 250 | | 1 230 | 977 | 1 890 | | 5 | 30,0 | <15 | 8,2 | 16,5 |
| 32M_HEE | | 10,0 | 1 165 | 20 | 5 650 | 4 520 | 7 150 | | 144 | 65 | 46 | 1,8 | 3,5 |
| | | 9,0 | 1 035 | | 5 130 | 4 080 | 6 650 | | 109 | 63 | 43 | 2,0 | 4,0 |
| | | 7,8 | 885 | | 4 500 | 3 550 | 5 990 | | 69 | 59 | 40 | 2,3 | 4,7 |
| | | 6,0 | 665 | | 3 510 | 2 730 | 4 820 | | 32 | 53 | 34 | 3,1 | 6,2 |
| | | 5,0 | 545 | | 2 940 | 2 290 | 4 090 | | 23 | 49 | 30 | 3,8 | 7,6 |
| | | 4,0 | 430 | | 2 350 | 1 830 | 3 320 | | 13 | 45 | 26 | 4,8 | 9,6 |
| | | 2,0 | 200 | | 1 180 | 903 | 1 600 | | 6 | 32 | <15 | 10,3 | 20,6 |
| 34P_AC | V5 | | 925 | 20 | 4 760 | 3 980 | 5 150 | 110 | | 61 | 42 | | |
| | V4 | | 795 | | 4 180 | 3 450 | 4 820 | 107 | | 58 | 39 | | |
| | V3 | | 675 | | 3 620 | 2 950 | 4 460 | 103 | | 54 | 35 | | |
| | V2 | | 565 | | 3 070 | 2 470 | 4 050 | 98 | | 51 | 32 | | |
| | V1 | | 460 | | 2 540 | 2 020 | 3 600 | 93 | | 46 | 28 | | |
| 34P_HEE | | 10,0 | 1 165 | 20 | 5 570 | 4 750 | 6 080 | | 144 | 66 | 46 | | |
| | | 9,0 | 1 035 | | 5 050 | 4 270 | 5 700 | | 109 | 64 | 43 | | |
| | | 7,8 | 885 | | 4 390 | 3 670 | 5 220 | | 69 | 63 | 40 | | |
| | | 6,0 | 665 | | 3 350 | 2 750 | 4 370 | | 32 | 56 | 34 | | |
| | | 5,0 | 545 | | 2 770 | 2 260 | 3 850 | | 23 | 52 | 30 | | |
| | | 4,0 | 430 | | 2 180 | 1 770 | 3 270 | | 13 | 47 | 26 | | |
| 2,0 | 200 | 996 | 805 | 1 840 | 6 | 34 | <15 | | | | | | |
| 42J_AC | V5 | | 1 215 | 20 | 5 310 | 4 520 | 6 410 | 134 | | 61 | 40 | 1,7 | 3,4 |
| | V4 | | 925 | | 4 220 | 3 550 | 5 360 | 124 | | 55 | 34 | 2,2 | 4,5 |
| | V3 | | 730 | | 3 430 | 2 870 | 4 540 | 113 | | 50 | 29 | 2,8 | 5,6 |
| | V2 | | 590 | | 2 810 | 2 350 | 3 860 | 106 | | 46 | 25 | 3,5 | 7,0 |
| | V1 | | 470 | | 2 230 | 1 880 | 3 200 | 96 | | 41 | 20 | 4,4 | 8,8 |
| 42M_AC | V5 | | 1 170 | 20 | 6 050 | 4 830 | 7 160 | 132 | | 62 | 40 | 1,8 | 3,5 |
| | V4 | | 905 | | 4 890 | 3 780 | 5 640 | 123 | | 56 | 35 | 2,3 | 4,5 |
| | V3 | | 750 | | 4 160 | 3 150 | 4 720 | 115 | | 52 | 31 | 2,7 | 5,5 |
| | V2 | | 600 | | 3 410 | 2 530 | 3 800 | 107 | | 47 | 26 | 3,4 | 6,9 |
| | V1 | | 495 | | 2 850 | 2 090 | 3 160 | 96 | | 43 | 22 | 4,2 | 8,3 |
| 42J_HEE | | 10,0 | 1 460 | 20 | 5 920 | 5 040 | 7 820 | | 167 | 66 | 45 | 1,4 | 2,8 |
| | | 9,0 | 1 350 | | 5 590 | 4 750 | 7 400 | | 134 | 64 | 43 | 1,5 | 3,1 |
| | | 7,7 | 1 225 | | 5 180 | 4 390 | 6 880 | | 95 | 61 | 40 | 1,7 | 3,4 |
| | | 6,0 | 920 | | 4 160 | 3 520 | 5 540 | | 46 | 55 | 34 | 2,2 | 4,5 |
| | | 5,0 | 750 | | 3 530 | 2 990 | 4 710 | | 31 | 51 | 31 | 2,7 | 5,5 |
| | | 4,0 | 590 | | 2 880 | 2 440 | 3 860 | | 16 | 47 | 26 | 3,5 | 7,0 |
| | | 2,0 | 275 | | 1 370 | 1 200 | 1 960 | | 4 | 34 | <15 | 7,5 | 15,0 |
| 42M_HEE | | 10,0 | 1 450 | 20 | 7 060 | 5 950 | 8 720 | | 167 | 66 | 45 | 1,4 | 2,8 |
| | | 9,0 | 1 340 | | 6 630 | 5 530 | 8 080 | | 133 | 64 | 43 | 1,5 | 3,1 |
| | | 7,6 | 1 175 | | 6 000 | 4 920 | 7 140 | | 92 | 61 | 40 | 1,8 | 3,5 |
| | | 6,0 | 915 | | 4 910 | 3 930 | 5 610 | | 45 | 55 | 34 | 2,3 | 4,5 |
| | | 5,0 | 745 | | 4 160 | 3 270 | 4 590 | | 31 | 51 | 30 | 2,8 | 5,5 |
| | | 4,0 | 585 | | 3 390 | 2 620 | 3 620 | | 16 | 46 | 26 | 3,5 | 7,0 |
| 2,0 | 275 | 1 640 | 1 250 | 1 650 | 4 | 33 | <15 | 7,5 | 15,0 | | | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

Y MODEL (continued)

| COMFORT LINE™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------|-----------------|-----------------------|------------------|--|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|---|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | | |
| 44P AC | V5 | | 1 170 | | 5 040 | 4 500 | 6 920 | 132 | | 62 | 40 | | |
| | V4 | | 905 | 20 | 4 250 | 3 700 | 5 830 | 123 | | 56 | 35 | | |
| | V3 | | 750 | | 3 740 | 3 190 | 5 120 | 115 | | 52 | 31 | | |
| | V2 | | 600 | | 3 180 | 2 650 | 4 360 | 107 | | 47 | 26 | | |
| | V1 | | 495 | | 2 750 | 2 250 | 3 780 | 96 | | 43 | 22 | | |
| 44P HEE | 10,0 | | 1 465 | | 6 000 | 5 000 | 9 000 | | 167 | 66 | 45 | | |
| | 9,0 | | 1 355 | | 5 650 | 4 720 | 8 500 | | 134 | 64 | 43 | | |
| | 8,0 | 20 | 1 260 | | 5 340 | 4 470 | 8 050 | | 105 | 63 | 41 | | |
| | 6,0 | | 930 | | 4 170 | 3 530 | 6 340 | | 46 | 56 | 35 | | |
| | 5,0 | | 755 | | 3 530 | 3 010 | 5 370 | | 31 | 52 | 31 | | |
| | 4,0 | | 595 | | 2 870 | 2 460 | 4 400 | | 16 | 47 | 26 | | |
| | 2,0 | | 275 | | 1 390 | 1 210 | 2 250 | | 4 | 34 | <15 | | |
| | | | | | | | | | | | | 1000W | 2000W |
| 52J AC | V5 | | 2075 | | 8 830 | 7 860 | 10 800 | 321 | | 64 | 43 | 1,4 | 2,8 |
| | V4 | | 1900 | | 8 330 | 7 360 | 10 200 | 293 | | 62 | 4 | 1,5 | 3,1 |
| | V3 | | 1630 | | 7 540 | 6 570 | 9 310 | 268 | | 58 | 37 | 1,8 | 3,6 |
| | V2 | | 1255 | 20 | 6 330 | 5 390 | 7 830 | 232 | | 52 | 31 | 2,3 | 4,7 |
| | V1 | | 945 | | 5 150 | 4 290 | 6 340 | 199 | | 46 | 25 | 3,1 | 6,2 |
| 52M AC | V5 | | 1800 | | 9 750 | 8 280 | 13 000 | 304 | | 65 | 43 | 1,6 | 3,3 |
| | V4 | | 1640 | | 9 140 | 7 640 | 12 100 | 276 | | 63 | 41 | 1,8 | 3,6 |
| | V3 | | 1455 | | 8 410 | 6 890 | 10 900 | 247 | | 60 | 38 | 2,0 | 4,0 |
| | V2 | | 1180 | 20 | 7 220 | 5 740 | 9 100 | 221 | | 55 | 33 | 2,5 | 5,0 |
| | V1 | | 905 | | 5 870 | 4 510 | 7 070 | 191 | | 50 | 29 | 3,2 | 6,5 |
| 52J HEE | 10,0 | | 1580 | | 7 540 | 6 660 | 8 710 | | 162 | 63 | 38 | 1,9 | 3,7 |
| | 8,7 | | 1495 | 20 | 7 240 | 6 360 | 8 440 | | 139 | 62 | 37 | 2,0 | 3,9 |
| | 8,0 | | 1450 | | 7 080 | 6 200 | 8 300 | | 126 | 61 | 36 | 2,0 | 4,1 |
| | 7,0 | | 1260 | | 6 380 | 5 490 | 7 600 | | 90 | 58 | 33 | 2,3 | 4,7 |
| | 6,0 | | 1075 | | 5 660 | 4 790 | 6 860 | | 52 | 54 | 29 | 2,7 | 5,5 |
| | 4,0 | | 710 | | 4 060 | 3 310 | 5 050 | | 19 | 46 | 21 | 4,1 | 8,3 |
| | 2,0 | | 365 | | 2 140 | 1 730 | 2 850 | | 5 | 31 | <15 | 8,1 | 16,1 |
| 52M HEE | 10,0 | | 1450 | | 8 580 | 7 000 | 11 300 | | 165 | 65 | 39 | 2,0 | 4,1 |
| | 8,6 | | 1310 | 20 | 7 940 | 6 390 | 10 400 | | 123 | 62 | 37 | 2,2 | 4,5 |
| | 8,0 | | 1260 | | 7 680 | 6 140 | 9 990 | | 106 | 61 | 36 | 2,3 | 4,7 |
| | 7,0 | | 1080 | | 6 800 | 5 350 | 8 670 | | 76 | 58 | 33 | 2,7 | 5,4 |
| | 6,0 | | 905 | | 5 890 | 4 560 | 7 360 | | 45 | 55 | 30 | 3,2 | 6,5 |
| | 4,0 | | 585 | | 3 950 | 2 990 | 4 800 | | 15 | 46 | 21 | 5,0 | 10,1 |
| 2,0 | | 255 | | 1 920 | 1 380 | 2 090 | | 5 | 32 | <15 | 11,5 | 23,1 | |
| 54R AC | V5 | | 1800 | | 9 220 | 7 770 | 12 500 | 304 | | 65 | 39 | | |
| | V4 | | 1640 | | 8 640 | 7 170 | 11 900 | 276 | | 63 | 37 | | |
| | V3 | | 1455 | | 7 950 | 6 490 | 11 100 | 247 | | 60 | 34 | | |
| | V2 | | 1180 | 20 | 6 820 | 5 430 | 9 780 | 221 | | 55 | 29 | | |
| | V1 | | 905 | | 5 540 | 4 290 | 8 220 | 191 | | 50 | 25 | | |
| 54R HEE | 10,0 | | 1440 | | 7 770 | 6 390 | 10 600 | | 165 | 65 | 39 | | |
| | 9,0 | | 1335 | | 7 390 | 6 030 | 10 200 | | 134 | 63 | 38 | | |
| | 8,0 | 20 | 1245 | | 7 040 | 5 690 | 9 770 | | 105 | 61 | 36 | | |
| | 7,0 | | 1070 | | 633 | 5 040 | 8 920 | | 76 | 58 | 33 | | |
| | 6,0 | | 900 | | 5 560 | 4 360 | 8 010 | | 44 | 54 | 29 | | |
| | 4,0 | | 580 | | 3 830 | 2 930 | 5 940 | | 15 | 45 | 21 | | |
| 2,0 | | 250 | | 1 910 | 1 380 | 3 030 | | 5 | 32 | <15 | | | |
| | | | | | | | | | | | | 1600 W | 3200 W |
| 62J AC | V5 | | 2685 | | 11 500 | 10 300 | 14 800 | 405 | | 70 | 47 | 1,8 | 3,5 |
| | V4 | | 2320 | 20 | 10 300 | 9 060 | 13 000 | 376 | | 64 | 39 | 2,0 | 4,1 |
| | V3 | | 1645 | | 7 840 | 6 630 | 9 370 | 315 | | 54 | 26 | 2,9 | 5,7 |
| | V2 | | 1115 | | 5 610 | 4 590 | 6 420 | 259 | | 46 | 19 | 4,2 | 8,4 |
| | V1 | | 865 | | 4 430 | 3 570 | 5 000 | 202 | | 41 | <15 | 5,4 | 10,9 |
| 62M AC | V5 | | 2525 | | 13 800 | 10 900 | 15 600 | 389 | | 69 | 47 | 1,9 | 3,7 |
| | V4 | | 2185 | 20 | 12 600 | 9 750 | 14 100 | 360 | | 65 | 40 | 2,2 | 4,3 |
| | V3 | | 1565 | | 9 950 | 7 460 | 10 800 | 314 | | 57 | 29 | 3,0 | 6,0 |
| | V2 | | 1060 | | 7 360 | 5 360 | 7 780 | 247 | | 50 | 23 | 4,4 | 8,9 |
| | V1 | | 800 | | 5 810 | 4 170 | 6 020 | 197 | | 42 | 16 | 5,9 | 11,8 |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

Y MODEL (continued)

| COMFORT LINET™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m ³ /h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|------------------------------|--------------------|--------------------------------|----------------------------------|--|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|---|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 1500 W | 3000 W |
| 62J HEE | | 10,0 | 2370 | 20 | 10 700 | 9 450 | 13 000 | | 263 | 65 | 40 | 1,9 | 3,7 |
| | | 9,0 | 2325 | | 10 500 | 9 280 | 12 800 | | 250 | 65 | 39 | 1,9 | 3,8 |
| | | 7,7 | 2225 | | 10 100 | 8 900 | 12 300 | | 222 | 63 | 38 | 2,0 | 4,0 |
| | | 6,0 | 1885 | | 8 860 | 7 620 | 10 600 | | 133 | 59 | 32 | 2,3 | 4,7 |
| | | 5,0 | 1620 | | 7 780 | 6 600 | 9 210 | | 95 | 56 | 28 | 2,7 | 5,4 |
| | | 4,0 | 1370 | | 6 700 | 5 590 | 7 850 | | 56 | 52 | 24 | 3,2 | 6,4 |
| 62M HEE | | 2,0 | 720 | 20 | 3 700 | 2 950 | 4 190 | | 13 | 39 | <15 | 6,1 | 12,3 |
| | | 10,0 | 2240 | | 12 700 | 9 870 | 13 800 | | 262 | 66 | 40 | 2,0 | 3,9 |
| | | 9,0 | 2210 | | 12 600 | 9 760 | 13 600 | | 258 | 65 | 40 | 2,0 | 4,0 |
| | | 7,0 | 1935 | | 11 400 | 8 720 | 12 400 | | 187 | 62 | 36 | 2,3 | 4,6 |
| | | 6,0 | 1700 | | 10 400 | 7 810 | 11 400 | | 123 | 59 | 32 | 2,6 | 5,2 |
| | | 5,0 | 1460 | | 9 240 | 6 840 | 10 100 | | 88 | 56 | 27 | 3,0 | 6,0 |
| 64P AC | | 4,0 | 1225 | 20 | 8 060 | 5 880 | 8 810 | | 51 | 52 | 24 | 3,6 | 7,2 |
| | | 2,0 | 655 | | 4 710 | 3 340 | 5 110 | | 12 | 38 | <15 | 6,7 | 13,5 |
| | | V5 | 2400 | | 12 600 | 11 000 | 13 200 | 375 | | 67 | 44 | | |
| | | V4 | 2125 | | 11 500 | 9 910 | 12 400 | 345 | | 63 | 38 | | |
| | | V3 | 1575 | | 9 010 | 7 530 | 10 400 | 308 | | 56 | 28 | | |
| | | V2 | 1070 | | 6 420 | 5 210 | 8 190 | 245 | | 49 | 22 | | |
| 64R AC | | V1 | 790 | 4 850 | 3 880 | 6 680 | 196 | | 41 | <15 | | | |
| | | V5 | 2360 | 13 500 | 10 300 | 15 200 | 382 | | 70 | 47 | | | |
| | | V4 | 2060 | 12 200 | 9 230 | 14 300 | 349 | | 65 | 40 | | | |
| | | V3 | 1485 | 9 640 | 7 030 | 12 100 | 311 | | 56 | 28 | | | |
| | | V2 | 1010 | 7 120 | 5 070 | 9 710 | 243 | | 48 | 22 | | | |
| | | V1 | 770 | 5 630 | 4 030 | 8 100 | 194 | | 44 | 17 | | | |
| 64PHEE | | 10,0 | 2240 | 20 | 11 900 | 10 300 | 12 800 | | 265 | 66 | 40 | | |
| | | 9,0 | 2210 | | 11 800 | 10 200 | 12 700 | | 258 | 65 | 40 | | |
| | | 7,0 | 1935 | | 10 600 | 8 980 | 11 800 | | 187 | 62 | 36 | | |
| | | 6,0 | 1700 | | 9 430 | 7 900 | 11 000 | | 123 | 59 | 32 | | |
| | | 5,0 | 1455 | | 8 270 | 6 810 | 10 100 | | 88 | 53 | 27 | | |
| | | 4,0 | 1225 | | 7 060 | 5 740 | 9 090 | | 51 | 52 | 24 | | |
| 64R HEE | | 2,0 | 655 | 20 | 3 900 | 3 070 | 5 960 | | 12 | 38 | <15 | | |
| | | 10,0 | 2130 | | 12 800 | 9 250 | 14 600 | | 269 | 66 | 42 | | |
| | | 9,0 | 2130 | | 12 800 | 9 250 | 14 600 | | 269 | 66 | 42 | | |
| | | 7,0 | 1830 | | 11 600 | 8 320 | 13 600 | | 190 | 63 | 38 | | |
| | | 6,0 | 1555 | | 10 300 | 7 350 | 12 600 | | 114 | 59 | 32 | | |
| | | 5,0 | 1320 | | 9 130 | 6 510 | 11 500 | | 81 | 56 | 27 | | |
| | 4,0 | 1090 | 7 870 | 5 580 | 10 300 | | 46 | 52 | 23 | | | | |
| | 2,0 | 535 | 4 220 | 2 980 | 6 330 | | 10 | 38 | <15 | | | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

H MODEL

Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ H model | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|--------------------------|-----------------|-----------------------|------------------|--|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|---|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 500W | 1000W |
| 02B_AC | V5 | | 315 | | 1 810 | 1 480 | 2 060 | 62 | | 58 | 35 | 4,7 | 9,3 |
| | V4 | | 270 | | 1 600 | 1 290 | 1 820 | 42 | | 54 | 31 | 5,4 | 10,9 |
| | V3 | | 225 | 40 | 1 380 | 1 100 | 1 560 | 31 | | 49 | 26 | 6,5 | 13,1 |
| | V2 | | 160 | | 1 040 | 810 | 1 160 | 20 | | 41 | 18 | 9,2 | 18,4 |
| | V1 | | 110 | | 878 | 625 | 871 | 14 | | 32 | <15 | 13,4 | 26,7 |
| 02B_AC | | 8,0 | 315 | | 1 790 | 1 460 | 2 090 | | 31 | 58 | 35 | 4,7 | 9,3 |
| | | 6,8 | 270 | | 1 580 | 1 270 | 1 840 | | 21 | 54 | 31 | 5,4 | 10,9 |
| | | 5,7 | 225 | 40 | 1 370 | 1 080 | 1 580 | | 13 | 49 | 26 | 6,5 | 13,1 |
| | | 4,0 | 160 | | 1 030 | 797 | 1 170 | | 7 | 41 | 18 | 9,2 | 18,4 |
| | | 2,7 | 110 | | 867 | 615 | 881 | | 4 | 32 | <15 | 13,4 | 26,7 |
| 04B_AC | V5 | | 315 | | 1 720 | 1 460 | 2 190 | 62 | | 58 | 35 | | |
| | V4 | | 270 | | 1 490 | 1 250 | 1 970 | 42 | | 54 | 31 | | |
| | V3 | | 225 | 40 | 1 210 | 1 030 | 1 730 | 31 | | 49 | 26 | | |
| | V2 | | 160 | | 883 | 744 | 1 340 | 20 | | 41 | 18 | | |
| | V1 | | 110 | | 799 | 593 | 1 210 | 14 | | 32 | <15 | | |
| 04B_HEE | | 8,0 | 315 | | 1 690 | 1 430 | 2 210 | | 31 | 58 | 35 | | |
| | | 6,8 | 270 | | 1 470 | 1 240 | 1 990 | | 21 | 54 | 31 | | |
| | | 5,7 | 225 | 40 | 1 200 | 1 010 | 1 740 | | 13 | 49 | 26 | | |
| | | 4,0 | 160 | | 871 | 732 | 1 350 | | 7 | 41 | 18 | | |
| | | 2,7 | 110 | | 790 | 584 | 1 220 | | 4 | 32 | <15 | | |
| 22J_AC | V5 | | 605 | | 2 840 | 2 100 | 3 390 | 97 | | 56 | 33 | 2,4 | 4,9 |
| | V4 | | 565 | | 2 680 | 1 970 | 3 240 | 79 | | 55 | 31 | 2,6 | 5,2 |
| | V3 | | 510 | 40 | 2 400 | 1 770 | 2 970 | 65 | | 52 | 28 | 2,9 | 5,8 |
| | V2 | | 355 | | 1 670 | 1 230 | 2 210 | 40 | | 44 | 20 | 4,1 | 8,3 |
| | V1 | | 195 | | 857 | 654 | 1 320 | 17 | | 31 | <15 | 7,5 | 15,1 |
| 22M_AC | V5 | | 565 | | 2 960 | 2 350 | 3 900 | 96 | | 57 | 33 | 2,6 | 5,2 |
| | V4 | | 535 | | 2 810 | 2 230 | 3 740 | 77 | | 55 | 31 | 2,7 | 5,5 |
| | V3 | | 480 | 40 | 2 550 | 2 020 | 3 410 | 65 | | 53 | 29 | 3,1 | 6,1 |
| | V2 | | 340 | | 1 830 | 1 460 | 2 510 | 40 | | 45 | 21 | 4,3 | 8,7 |
| | V1 | | 190 | | 1 030 | 828 | 1 440 | 17 | | 32 | <15 | 7,7 | 15,5 |
| 22J_HEE | | 10,0 | 730 | | 3 530 | 2 700 | 3 970 | | 103 | 59 | 36 | 2,0 | 4,0 |
| | | 8,0 | 580 | | 2 800 | 2 120 | 3 370 | | 52 | 54 | 30 | 2,5 | 5,1 |
| | | 7,3 | 525 | 40 | 2 530 | 1 910 | 3 130 | | 44 | 51 | 28 | 2,8 | 5,6 |
| | | 6,0 | 425 | | 2 040 | 1 540 | 2 670 | | 24 | 47 | 23 | 3,5 | 6,9 |
| | | 4,0 | 280 | | 1 270 | 982 | 1 890 | | 9 | 37 | <15 | 5,3 | 10,5 |
| | | 3,0 | 210 | | 878 | 711 | 1 470 | | 7 | 31 | <15 | 7,0 | 14,0 |
| | | 2,0 | 140 | | 618 | 483 | 1 000 | | 4 | 23 | <15 | 10,5 | 21,0 |
| 22M_HEE | | 10,0 | 645 | | 3 270 | 2 600 | 4 450 | | 98 | 60 | 37 | 2,3 | 4,6 |
| | | 7,8 | 495 | 40 | 2 590 | 2 040 | 3 550 | | 46 | 53 | 30 | 3,0 | 5,9 |
| | | 7,0 | 440 | | 2 330 | 1 830 | 3 190 | | 36 | 51 | 27 | 3,3 | 6,7 |
| | | 6,0 | 375 | | 2 010 | 1 580 | 2 760 | | 21 | 47 | 23 | 3,9 | 7,8 |
| | | 4,0 | 240 | | 1 260 | 1 010 | 1 800 | | 8 | 38 | <15 | 6,1 | 12,3 |
| | | 3,0 | 180 | | 1 020 | 799 | 1 390 | | 7 | 31 | <15 | 8,2 | 16,3 |
| 24P_AC | V5 | | 565 | | 2 820 | 2 340 | 4 040 | 96 | | 57 | 33 | | |
| | V4 | | 535 | | 2 670 | 2 210 | 3 920 | 77 | | 55 | 31 | | |
| | V3 | | 480 | 40 | 2 410 | 1 980 | 3 680 | 65 | | 53 | 29 | | |
| | V2 | | 340 | | 1 730 | 1 390 | 2 950 | 40 | | 45 | 21 | | |
| | V1 | | 190 | | 904 | 729 | 1 890 | 17 | | 32 | <15 | | |
| 24P_HEE | | 10,0 | 670 | | 3 110 | 2 680 | 4 580 | | 103 | 60 | 37 | | |
| | | 8,2 | 545 | 40 | 2 590 | 2 180 | 4 050 | | 57 | 55 | 31 | | |
| | | 7,0 | 455 | | 2 210 | 1 840 | 3 630 | | 37 | 51 | 28 | | |
| | | 6,0 | 390 | | 1 900 | 1 570 | 3 270 | | 22 | 47 | 24 | | |
| | | 4,0 | 245 | | 1 220 | 984 | 2 340 | | 9 | 38 | <15 | | |
| | | 3,0 | 190 | | 906 | 736 | 1 880 | | 7 | 32 | <15 | | |
| | 2,0 | 140 | | 723 | 563 | 1 450 | | 4 | 23 | <15 | | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).

H MODEL (continued)

| COMFORT LINET™ Modèle H | Vitesses moteur AC | Tension moteur HEE (V) | Débit d'air en m ³ /h | Pression statique disponible (1) | P. frigorifique W | | Puissance calorifique W | Puissance absorbée | | Puissance acoustique LW globale dB(A) | Niveau de confort ISO ou NR | Elévation moyenne de température sur l'air en K (2) Batterie électrique d'appoint 230/1/50 | |
|----------------------------|--------------------|------------------------|----------------------------------|----------------------------------|-------------------|----------|-------------------------|--------------------|--------------|---------------------------------------|-----------------------------|--|-------|
| | | | | | Totale | Sensible | | Moteur AC W | moteur HEE W | | | 700W | 1400W |
| 32J_AC | V5 | | 790 | | 3 560 | 3 130 | 4 810 | 106 | | 57 | 34 | 2,6 | 5,2 |
| | V4 | | 670 | | 3 070 | 2 620 | 4 270 | 101 | | 54 | 31 | 3,1 | 6,1 |
| | V3 | | 585 | 40 | 2 700 | 2 250 | 3 840 | 99 | | 51 | 28 | 3,5 | 7,0 |
| | V2 | | 485 | | 2 270 | 1 830 | 3 310 | 96 | | 47 | 23 | 4,2 | 8,5 |
| | V1 | | 390 | | 1 830 | 1 420 | 2 750 | 91 | | 42 | 19 | 5,3 | 10,6 |
| 32M_AC | V5 | | 810 | | 4 260 | 3 120 | 5 460 | 107 | | 58 | 35 | 2,5 | 5,1 |
| | V4 | | 710 | | 3 770 | 2 720 | 4 940 | 103 | | 55 | 32 | 2,9 | 5,8 |
| | V3 | | 615 | 40 | 3 280 | 2 350 | 4 380 | 100 | | 52 | 29 | 3,3 | 6,7 |
| | V2 | | 515 | | 2 790 | 1 990 | 3 800 | 96 | | 48 | 25 | 4,0 | 8,0 |
| | V1 | | 425 | | 2 280 | 1 630 | 3 180 | 91 | | 44 | 21 | 4,8 | 9,7 |
| 32J_HEE | | 10,0 | 985 | | 4 360 | 3 920 | 5 600 | | 129 | 61 | 37 | 2,1 | 4,2 |
| | | 9,0 | 875 | | 3 960 | 3 490 | 5 190 | | 99 | 58 | 35 | 2,4 | 4,7 |
| | | 7,4 | 710 | 40 | 3 340 | 2 850 | 4 520 | | 56 | 53 | 30 | 2,9 | 5,8 |
| | | 6,0 | 560 | | 2 750 | 2 270 | 3 810 | | 29 | 49 | 26 | 3,7 | 7,4 |
| | | 5,0 | 465 | | 2 320 | 1 870 | 3 260 | | 21 | 45 | 22 | 4,4 | 8,9 |
| | | 4,0 | 370 | | 1 890 | 1 500 | 2 720 | | 12 | 40 | 17 | 5,6 | 11,1 |
| | | 2,0 | 210 | | 1 080 | 836 | 1 610 | | 5 | 26 | <15 | 9,8 | 19,6 |
| 32M_HEE | | 10,0 | 945 | | 4 770 | 3 780 | 6 210 | | 123 | 61 | 37 | 2,2 | 4,4 |
| | | 9,0 | 835 | | 4 310 | 3 400 | 5 710 | | 95 | 58 | 35 | 2,5 | 4,9 |
| | | 7,8 | 720 | 40 | 3 770 | 2 950 | 5 110 | | 61 | 55 | 32 | 2,9 | 5,7 |
| | | 6,0 | 540 | | 2 930 | 2 280 | 4 060 | | 29 | 49 | 26 | 3,8 | 7,6 |
| | | 5,0 | 440 | | 2 420 | 1 880 | 3 400 | | 21 | 45 | 22 | 4,7 | 9,4 |
| | | 4,0 | 355 | | 1 940 | 1 520 | 2 780 | | 12 | 40 | 17 | 5,8 | 11,6 |
| | | 2,0 | 170 | | 1 040 | 787 | 1 360 | | 5 | 27 | <15 | 12,1 | 24,2 |
| 34P_AC | V5 | | 735 | | 3 900 | 3 200 | 4 650 | 103 | | 58 | 34 | | |
| | V4 | | 655 | | 3 520 | 2 860 | 4 380 | 99 | | 55 | 32 | | |
| | V3 | | 575 | 40 | 3 110 | 2 520 | 4 090 | 97 | | 52 | 29 | | |
| | V2 | | 490 | | 2 710 | 2 160 | 3 750 | 94 | | 49 | 26 | | |
| | V1 | | 410 | | 2 270 | 1 800 | 3 350 | 90 | | 45 | 22 | | |
| 34P_HEE | | 10,0 | 945 | | 4 670 | 3 920 | 5 380 | | 123 | 61 | 37 | | |
| | | 9,0 | 835 | | 4 190 | 3 490 | 5 020 | | 95 | 58 | 35 | | |
| | | 7,8 | 720 | 40 | 3 620 | 2 990 | 4 580 | | 61 | 55 | 32 | | |
| | | 6,0 | 540 | | 2 760 | 2 250 | 3 820 | | 29 | 49 | 26 | | |
| | | 5,0 | 440 | | 2 260 | 1 830 | 3 340 | | 21 | 45 | 22 | | |
| | | 4,0 | 355 | | 1 780 | 1 450 | 2 850 | | 12 | 40 | 17 | | |
| | | 2,0 | 170 | | 875 | 694 | 1 600 | | 5 | 27 | <15 | | |
| 42J_AC | V5 | | 995 | | 4 510 | 3 800 | 5 650 | 121 | | 58 | 32 | 2,1 | 4,1 |
| | V4 | | 805 | 40 | 3 740 | 3 130 | 4 880 | 114 | | 53 | 27 | 2,6 | 5,1 |
| | V3 | | 655 | | 3 110 | 2 600 | 4 190 | 108 | | 48 | 23 | 3,1 | 6,3 |
| | V2 | | 540 | | 2 580 | 2 160 | 3 590 | 102 | | 44 | 18 | 3,8 | 7,6 |
| | V1 | | 430 | | 2 040 | 1 720 | 2 970 | 94 | | 40 | <15 | 4,8 | 9,6 |
| 42M_AC | V5 | | 965 | | 5 160 | 4 020 | 5 990 | 121 | | 58 | 32 | 2,1 | 4,3 |
| | V4 | | 785 | 40 | 4 320 | 3 280 | 4 920 | 114 | | 53 | 28 | 2,6 | 5,2 |
| | V3 | | 670 | | 3 770 | 2 830 | 4 240 | 109 | | 50 | 24 | 3,1 | 6,1 |
| | V2 | | 540 | | 3 100 | 2 290 | 3 440 | 104 | | 45 | 20 | 3,8 | 7,6 |
| | V1 | | 450 | | 2 610 | 1 910 | 2 890 | 94 | | 41 | 16 | 4,6 | 9,2 |
| 42J_HEE | | 10,0 | 1250 | | 5 300 | 4 500 | 6 940 | | 158 | 62 | 36 | 1,6 | 3,3 |
| | | 9,0 | 1110 | | 4 850 | 4 120 | 6 370 | | 121 | 59 | 33 | 1,9 | 3,7 |
| | | 7,7 | 965 | 40 | 4 340 | 3 670 | 5 720 | | 80 | 56 | 30 | 2,1 | 4,3 |
| | | 6,0 | 745 | | 3 520 | 2 980 | 4 670 | | 38 | 50 | 25 | 2,8 | 5,5 |
| | | 5,0 | 605 | | 2 950 | 2 500 | 3 930 | | 27 | 46 | 21 | 3,4 | 6,8 |
| | | 4,0 | 485 | | 2 390 | 2 040 | 3 240 | | 14 | 41 | 16 | 4,2 | 8,5 |
| | | 2,0 | 230 | | 1 220 | 1 040 | 1 660 | | 4 | 29 | <15 | 9,0 | 17,9 |
| 42M_HEE | | 10,0 | 1235 | | 6 270 | 5 190 | 7 440 | | 157 | 62 | 36 | 1,7 | 3,3 |
| | | 9,0 | 1100 | | 5 730 | 4 680 | 6 660 | | 120 | 59 | 33 | 1,9 | 3,7 |
| | | 7,6 | 940 | 40 | 5 040 | 4 050 | 5 730 | | 77 | 56 | 30 | 2,2 | 4,4 |
| | | 6,0 | 740 | | 4 130 | 3 250 | 4 540 | | 38 | 50 | 25 | 2,8 | 5,6 |
| | | 5,0 | 600 | | 3 460 | 2 680 | 3 680 | | 27 | 46 | 21 | 3,4 | 6,9 |
| | | 4,0 | 480 | | 2 810 | 2 160 | 2 930 | | 14 | 41 | 16 | 4,3 | 8,6 |
| | | 2,0 | 230 | | 1 450 | 1 080 | 1 370 | | 4 | 28 | <15 | 9,0 | 17,9 |
| 44P_AC | V5 | | 965 | | 4 440 | 3 890 | 6 090 | 121 | | 58 | 32 | | |
| | V4 | | 785 | 40 | 3 850 | 3 300 | 5 280 | 114 | | 53 | 28 | | |
| | V3 | | 670 | | 3 450 | 2 910 | 4 730 | 109 | | 50 | 24 | | |
| | V2 | | 540 | | 2 940 | 2 430 | 4 040 | 104 | | 45 | 20 | | |
| | V1 | | 450 | | 2 560 | 2 080 | 3 530 | 94 | | 41 | 16 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).

H MODEL (continued)

| COMFORT LINE™ H model | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K (2) Auxiliary electric heater 230/1/50 | |
|--------------------------|-----------------|-----------------------|------------------|-------------------------------|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|--|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 44P_HEE | | 10,0 | 1280 | | 5 440 | 4 560 | 8 120 | | 161 | 62 | 36 | | |
| | | 9,0 | 1150 | | 4 990 | 4 200 | 7 470 | | 124 | 59 | 34 | | |
| | | 8,0 | 1045 | 40 | 4 620 | 3 900 | 6 950 | | 89 | 57 | 31 | | |
| | | 6,0 | 775 | | 3 600 | 3 070 | 5 460 | | 40 | 50 | 25 | | |
| | | 5,0 | 630 | | 3 020 | 2 590 | 4 600 | | 28 | 46 | 21 | | |
| | | 4,0 | 500 | | 2 460 | 2 120 | 3 780 | | 14 | 42 | 16 | | |
| | | 2,0 | 240 | | 1 180 | 1 030 | 1 960 | | 4 | 29 | <15 | | |
| 52J_AC | V5 | | 1 740 | | 7 870 | 6 900 | 9 690 | 289 | | 62 | 36 | 1,7 | 3,4 |
| | V4 | | 1 630 | | 7 540 | 6 560 | 9 320 | 263 | | 60 | 34 | 1,8 | 3,6 |
| | V3 | | 1 460 | | 7 000 | 6 040 | 8 680 | 245 | | 57 | 31 | 2,0 | 4,0 |
| | V2 | | 1 190 | 40 | 6 080 | 5 150 | 7 540 | 218 | | 52 | 26 | 2,5 | 4,9 |
| | V1 | | 900 | | 4 970 | 4 130 | 6 110 | 195 | | 46 | 20 | 3,3 | 6,5 |
| 52M_AC | V5 | | 1 545 | | 8 780 | 7 270 | 11 500 | 273 | | 62 | 36 | 1,9 | 3,8 |
| | V4 | | 1 435 | | 8 330 | 6 810 | 10 800 | 249 | | 60 | 34 | 2,0 | 4,1 |
| | V3 | | 1 300 | | 7 750 | 6 240 | 9 930 | 227 | | 58 | 32 | 2,3 | 4,5 |
| | V2 | | 1 085 | 40 | 6 770 | 5 320 | 8 420 | 208 | | 54 | 28 | 2,7 | 5,4 |
| | | 835 | | 5 490 | 4 190 | 6 540 | 186 | | 49 | 23 | 3,5 | 7,0 | |
| 52J_HEE | | 10,0 | 1 415 | | 6 990 | 6 110 | 8 130 | | 166 | 60 | 35 | 2,1 | 4,2 |
| | | 8,7 | 1 275 | 40 | 6 460 | 5 580 | 7 640 | | 125 | 58 | 33 | 2,3 | 4,6 |
| | | 8,0 | 1 220 | | 6 250 | 5 370 | 7 430 | | 107 | 57 | 32 | 2,4 | 4,8 |
| | | 7,0 | 1 055 | | 5 590 | 4 720 | 6 730 | | 79 | 54 | 29 | 2,8 | 5,6 |
| | | 6,0 | 900 | | 4 940 | 4 110 | 6 050 | | 46 | 50 | 25 | 3,3 | 6,5 |
| | | 4,0 | 605 | | 3 530 | 2 850 | 4 420 | | 17 | 42 | 17 | 4,9 | 9,7 |
| | 2,0 | 315 | | 1 810 | 1 480 | 2 480 | | 5 | 27 | <15 | 9,3 | 18,7 | |
| 52M_HEE | | 10,0 | 1 270 | | 7 780 | 6 250 | 10 000 | | 163 | 62 | 36 | 2,3 | 4,6 |
| | | 8,6 | 1 105 | 40 | 6 950 | 5 490 | 8 810 | | 113 | 58 | 33 | 2,7 | 5,3 |
| | | 8,0 | 1 045 | | 6 660 | 5 230 | 8 400 | | 93 | 57 | 32 | 2,8 | 5,6 |
| | | 7,0 | 900 | | 5 890 | 4 560 | 7 290 | | 68 | 54 | 29 | 3,3 | 6,5 |
| | | 6,0 | 765 | | 5 080 | 3 890 | 6 230 | | 40 | 50 | 25 | 3,8 | 7,7 |
| | | 4,0 | 495 | | 3 320 | 2 520 | 4 070 | | 14 | 42 | 17 | 5,9 | 11,9 |
| | 2,0 | 220 | | 1 720 | 1 220 | 1 810 | | 5 | 28 | <15 | 13,4 | 26,7 | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).



H MODEL (continued)

| COMFORT LINE™ Modèle H | Vitesses moteur AC | Tension moteur HEE (V) | Débit d'air en m³/h | Pression statique disponible (1) | P. frigorifique W | | Puissance calorifique W | Puissance absorbée | | Puissance acoustique LW globale dB(A) | Niveau de confort ISO ou NR | Élévation moyenne de température sur l'air en K (2) Batterie électrique d'appoint 230/1/50 | | | |
|---------------------------|--------------------------|------------------------------|------------------------|---|-------------------|----------|-------------------------------|--------------------|-----------------|--|--------------------------------------|---|-------|-----|------|
| | | | | | Totale | Sensible | | Moteur AC W | moteur HEE W | | | 1000W | 2000W | | |
| 54R_AC | V5 | | 1545 | | 8 300 | 6 830 | 11 500 | 273 | | 62 | 36 | | | | |
| | V4 | | 1440 | | 4 890 | 6 430 | 11 000 | 249 | | 60 | 34 | | | | |
| | V3 | | 1300 | | 7 320 | 5 890 | 10 400 | 227 | | 58 | 32 | | | | |
| | V2 | | 1085 | | 40 | 6 400 | 5 040 | 9 280 | | 208 | 54 | | | 28 | |
| | V1 | | 835 | | 5 190 | 3 990 | 7 790 | 186 | | 49 | 23 | | | | |
| 54R_HEE | 10,0 | | 1235 | 40 | 7 050 | 5 710 | 9 680 | | 161 | 62 | 36 | | | | |
| | 9,0 | | 1105 | | 6 520 | 5 220 | 9 070 | | 124 | 59 | 34 | | | | |
| | 8,0 | | 1005 | | 6 080 | 4 820 | 8 590 | | 90 | 57 | 32 | | | | |
| | 7,0 | | 865 | | 5 440 | 4 250 | 7 810 | | 66 | 54 | 29 | | | | |
| | 6,0 | | 735 | | 4 750 | 3 670 | 7 030 | | 39 | 50 | 25 | | | | |
| | 4,0 | | 480 | | 3 140 | 2 410 | 5 130 | | 14 | 41 | 16 | | | | |
| | 2,0 | | 215 | | 1 690 | 1 200 | 2 610 | | 5 | 28 | <15 | | | | |
| | | | | | | | | | | | | 1600W | 3200W | | |
| 62J_AC | V5 | | 2 430 | 40 | 10 700 | 9 450 | 13 500 | 385 | | 63 | 38 | | | | |
| | V4 | | 2 165 | | 9 760 | 8 500 | 12 100 | 356 | | 59 | 31 | | | 2,2 | 4,3 |
| | V3 | | 1 600 | | 7 650 | 6 450 | 9 120 | 309 | | 51 | 26 | | | 2,9 | 5,9 |
| | V2 | | 1 080 | | 5 450 | 4 460 | 6 210 | 258 | | 43 | 16 | | | 4,4 | 8,7 |
| | V1 | | 815 | | 4 220 | 3 380 | 4 720 | 201 | | 38 | <15 | | | 5,8 | 11,5 |
| 62M_AC | V5 | | 2 270 | 40 | 12 900 | 10 100 | 14 500 | 372 | | 63 | 38 | | | | |
| | V4 | | 2 020 | | 11 900 | 9 170 | 13 300 | 342 | | 59 | 31 | | | 2,3 | 4,7 |
| | V3 | | 1 510 | | 9 680 | 7 230 | 10 500 | 306 | | 53 | 25 | | | 3,1 | 6,2 |
| | V2 | | 13 025 | | 7 170 | 5 210 | 7 550 | 245 | | 46 | 19 | | | 0,4 | 0,7 |
| | V1 | | 755 | | 5 540 | 3 980 | 5 710 | 196 | | 38 | <15 | | | 6,2 | 12,5 |
| | | | | | | | | | | | | 1500W | 3000W | | |
| 62J_HEE | 10,0 | | 2 265 | 40 | 10 300 | 9 080 | 12 500 | | 266 | 65 | 38 | | | | |
| | 9,0 | | 2 200 | | 10 100 | 8 830 | 12 200 | | 246 | 65 | 37 | | | 2,0 | 4,0 |
| | 7,7 | | 2 075 | | 9 590 | 8 360 | 11 500 | | 212 | 63 | 35 | | | 2,1 | 4,3 |
| | 6,0 | | 1 755 | | 8 330 | 7 120 | 9 890 | | 127 | 59 | 31 | | | 2,5 | 5,0 |
| | 5,0 | | 1 500 | | 7 290 | 6 130 | 8 550 | | 90 | 56 | 28 | | | 2,9 | 5,9 |
| | 4,0 | | 1 270 | | 6 280 | 5 200 | 7 300 | | 53 | 52 | 24 | | | 3,5 | 6,9 |
| | 2,0 | | 670 | | 3 460 | 2 760 | 3 920 | | 13 | 39 | <15 | | | 6,6 | 13,2 |
| 62M_HEE | 10,0 | | 1 965 | 40 | 11 600 | 8 900 | 12 500 | | 260 | 63 | 35 | | | | |
| | 9,0 | | 1 805 | | 10 900 | 8 280 | 11 800 | | 228 | 63 | 34 | | | 2,4 | 4,9 |
| | 7,0 | | 1 685 | | 10 400 | 7 810 | 11 200 | | 178 | 60 | 31 | | | 2,6 | 5,2 |
| | 6,0 | | 1 475 | | 9 350 | 6 940 | 10 200 | | 116 | 57 | 28 | | | 3,0 | 6,0 |
| | 5,0 | | 1 260 | | 8 260 | 6 040 | 8 970 | | 83 | 53 | 25 | | | 3,5 | 7,0 |
| | 4,0 | | 1 060 | | 7 170 | 5 180 | 7 810 | | 48 | 49 | 22 | | | 4,2 | 8,3 |
| | 2,0 | | 565 | | 4 090 | 2 890 | 4 440 | | 12 | 36 | <15 | | | 7,8 | 15,6 |
| 64P_AC | V5 | | 2 050 | 40 | 11 200 | 9 600 | 12 100 | 347 | | 62 | 35 | | | | |
| | V4 | | 1 870 | | 10 400 | 8 810 | 11 500 | 316 | | 59 | 30 | | | | |
| | V3 | | 1 490 | | 8 590 | 7 140 | 10 100 | 291 | | 53 | 25 | | | | |
| | V2 | | 1 035 | | 6 230 | 5 040 | 8 020 | 241 | | 46 | 19 | | | | |
| | V1 | | 740 | | 4 580 | 3 650 | 6 380 | 195 | | 38 | <15 | | | | |
| 64R_AC | V5 | | 2 120 | 40 | 12 500 | 9 450 | 14 500 | 363 | | 63 | 37 | | | | |
| | V4 | | 1 890 | | 11 500 | 8 600 | 13 800 | 332 | | 60 | 32 | | | | |
| | V3 | | 1 430 | | 9 390 | 6 830 | 11 900 | 305 | | 52 | 25 | | | | |
| | V2 | | 975 | | 6 910 | 4 920 | 9 480 | 240 | | 45 | 18 | | | | |
| | V1 | | 720 | | 5 330 | 3 820 | 7 730 | 194 | | 40 | <15 | | | | |
| 64P_HEE | 10,0 | | 1965 | 40 | 10 800 | 9 180 | 11 900 | | 260 | 63 | 35 | | | | |
| | 9,0 | | 1805 | | 10 000 | 8 430 | 11 400 | | 228 | 63 | 34 | | | | |
| | 7,0 | | 1685 | | 9 420 | 7 900 | 11 000 | | 178 | 60 | 31 | | | | |
| | 6,0 | | 1475 | | 8 380 | 6 920 | 10 200 | | 116 | 57 | 28 | | | | |
| | 5,0 | | 1260 | | 7 260 | 5 910 | 9 220 | | 83 | 53 | 25 | | | | |
| | 4,0 | | 1060 | | 6 210 | 5 000 | 8 290 | | 48 | 49 | 22 | | | | |
| | 2,0 | | 565 | | 3330 | 2620 | 5320 | | 12 | 36 | <15 | | | | |
| 64R_HEE | 10,0 | | 1870 | 40 | 11 800 | 8 500 | 13 700 | | 257 | 64 | 36 | | | | |
| | 9,0 | | 1875 | | 11 800 | 8 500 | 13 700 | | 257 | 64 | 36 | | | | |
| | 7,0 | | 1610 | | 10 600 | 7 610 | 12 800 | | 183 | 60 | 32 | | | | |
| | 6,0 | | 1360 | | 9 360 | 6 680 | 11 700 | | 107 | 57 | 28 | | | | |
| | 5,0 | | 1150 | | 8 230 | 5 850 | 10 600 | | 76 | 53 | 25 | | | | |
| | 4,0 | | 955 | | 7 070 | 5 010 | 9 520 | | 43 | 49 | 21 | | | | |
| | 2,0 | | 475 | | 3750 | 2640 | 5730 | | 10 | 36 | <15 | | | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).

U and U Compact MODELS (U Compact sizes 0 to 2 only)
Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ U model | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|--------------------------|-----------------|-----------------------|------------------|--|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|---|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 500W | 1000W |
| 02B_AC | V5 | | 260 | | 1 580 | 1 270 | 1 750 | 58 | | 59 | 36 | 5,7 | 11,3 |
| | V4 | | 230 | | 1 400 | 1 120 | 1 570 | 39 | | 55 | 32 | 6,4 | 12,8 |
| | V3 | | 195 | 50 | 1 230 | 966 | 1 370 | 29 | | 51 | 27 | 7,5 | 15,1 |
| | V2 | | 140 | | 926 | 713 | 1 020 | 19 | | 43 | 19 | 10,5 | 21,0 |
| | V1 | | 100 | | 772 | 550 | 764 | 13 | | 34 | <15 | 14,7 | 29,4 |
| 02B_HEE | | 9,3 | 260 | | 1 560 | 1 250 | 1 770 | | 38 | 59 | 36 | 5,7 | 11,3 |
| | | 8,0 | 230 | | 1 390 | 1 100 | 1 580 | | 26 | 55 | 32 | 6,4 | 12,8 |
| | | 6,7 | 195 | 50 | 1 220 | 954 | 1 380 | | 17 | 51 | 27 | 7,5 | 15,1 |
| | | 4,8 | 140 | | 915 | 703 | 1 030 | | 9 | 43 | 19 | 10,5 | 21,0 |
| | | 3,3 | 100 | | 762 | 541 | 774 | | 5 | 34 | <15 | 14,7 | 29,4 |
| 04B_AC | V5 | | 260 | | 1 460 | 1 230 | 1 910 | 58 | | 59 | 36 | | |
| | V4 | | 230 | | 1 280 | 1 070 | 1 740 | 39 | | 55 | 32 | | |
| | V3 | | 195 | 50 | 1 060 | 896 | 1 550 | 29 | | 51 | 27 | | |
| | V2 | | 140 | | 808 | 667 | 1 200 | 19 | | 43 | 19 | | |
| | V1 | | 100 | | 720 | 529 | 1 060 | 13 | | 34 | <15 | | |
| 04B_HEE | | 9,3 | 260 | | 1 440 | 1 210 | 1 930 | | 38 | 59 | 36 | | |
| | | 8,0 | 230 | | 1 260 | 1 060 | 1 750 | | 26 | 55 | 32 | | |
| | | 6,7 | 195 | 50 | 1 040 | 883 | 1 550 | | 17 | 51 | 27 | | |
| | | 4,8 | 140 | | 800 | 657 | 1 210 | | 9 | 43 | 19 | | |
| | | 3,3 | 100 | | 712 | 521 | 1 070 | | 5 | 34 | <15 | | |
| 22J_AC | V5 | | 535 | | 2 540 | 1 880 | 3 080 | 92 | | 53 | 28 | 2,7 | 5,5 |
| | V4 | | 505 | | 2 400 | 1 770 | 2 960 | 74 | | 52 | 27 | 2,9 | 5,8 |
| | V3 | | 460 | 50 | 2 180 | 1 590 | 2 730 | 61 | | 49 | 24 | 3,2 | 6,4 |
| | V2 | | 325 | | 1 530 | 1 130 | 2 060 | 38 | | 42 | 16 | 4,5 | 9,0 |
| | V1 | | 185 | | 807 | 608 | 1 230 | 17 | | 30 | <15 | 7,9 | 15,9 |
| 22M_AC | V5 | | 505 | | 2 670 | 2 120 | 3 510 | 91 | | 53 | 28 | 2,9 | 5,8 |
| | V4 | | 480 | | 2 540 | 2 020 | 3 380 | 73 | | 52 | 27 | 3,1 | 6,1 |
| | V3 | | 435 | 50 | 2 320 | 1 840 | 3 120 | 61 | | 50 | 25 | 3,4 | 6,8 |
| | V2 | | 315 | | 1 680 | 1 350 | 2 320 | 38 | | 42 | 17 | 4,7 | 9,3 |
| | V1 | | 175 | | 976 | 777 | 1 340 | 17 | | 30 | <15 | 8,4 | 16,8 |
| 22J_HEE | | 10,0 | 595 | | 2 910 | 2 210 | 3 430 | | 83 | 56 | 31 | 2,5 | 4,9 |
| | | 8,0 | 475 | | 2 290 | 1 730 | 2 900 | | 43 | 50 | 25 | 3,1 | 6,2 |
| | | 7,3 | 430 | 50 | 2 060 | 1 560 | 2 670 | | 37 | 48 | 23 | 3,4 | 6,8 |
| | | 6,0 | 350 | | 1 650 | 1 260 | 2 280 | | 20 | 44 | 18 | 4,2 | 8,4 |
| | | 4,0 | 230 | | 988 | 788 | 1 600 | | 8 | 34 | <15 | 6,4 | 12,8 |
| | | 3,0 | 175 | | 755 | 600 | 1 240 | | 7 | 29 | <15 | 8,4 | 16,8 |
| | | 2,0 | 115 | | 533 | 414 | 857 | | 3 | 22 | <15 | 12,8 | 25,6 |
| 22M_HEE | | 10,0 | 550 | | 2 870 | 2 270 | 3 880 | | 83 | 56 | 31 | 2,7 | 5,3 |
| | | 7,8 | 425 | 50 | 2 280 | 1 790 | 3 100 | | 41 | 50 | 25 | 3,5 | 6,9 |
| | | 7,0 | 380 | | 2 040 | 1 600 | 2 780 | | 32 | 47 | 22 | 3,9 | 7,7 |
| | | 6,0 | 325 | | 1 760 | 1 390 | 2 430 | | 19 | 44 | 19 | 4,5 | 9,0 |
| | | 4,0 | 210 | | 1 140 | 900 | 1 590 | | 8 | 35 | <15 | 7,0 | 14,0 |
| | | 3,0 | 160 | | 926 | 712 | 1 210 | | 6 | 29 | <15 | 9,2 | 18,4 |
| 24P_AC | V5 | | 505 | | 2 530 | 2 080 | 3 770 | 91 | | 53 | 28 | | |
| | V4 | | 480 | | 2 410 | 1 980 | 3 670 | 73 | | 52 | 27 | | |
| | V3 | | 435 | 50 | 2 190 | 1 790 | 3 460 | 61 | | 50 | 25 | | |
| | V2 | | 315 | | 1 590 | 1 270 | 2 780 | 38 | | 42 | 17 | | |
| | V1 | | 175 | | 847 | 674 | 1 770 | 17 | | 30 | <15 | | |
| 24P_HEE | | 10,0 | 590 | | 2 800 | 2 380 | 4 250 | | 89 | 57 | 32 | | |
| | | 8,2 | 480 | 50 | 2 320 | 1 940 | 3 750 | | 50 | 51 | 27 | | |
| | | 7,0 | 405 | | 1 980 | 1 630 | 3 350 | | 34 | 48 | 23 | | |
| | | 6,0 | 345 | | 1 710 | 1 400 | 3 010 | | 20 | 44 | 19 | | |
| | | 4,0 | 220 | | 1 080 | 876 | 2 150 | | 8 | 35 | <15 | | |
| | | 3,0 | 165 | | 826 | 660 | 1 700 | | 6 | 29 | <15 | | |
| | | 2,0 | 125 | | 667 | 510 | 1 320 | | 4 | 21 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

U model sound level:

Values given as a guideline for devices with ducted return and discharge, and for room and installation attenuation of 19 dB (sizes 0 to 3), 21 dB (sizes 4).

U MODEL

| COMFORT LINET™ U model | AC motor speeds | HEE motor voltage (V) | Air flow in m ³ /h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|---------------------------|-----------------|-----------------------|-------------------------------|--|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|---|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 32J_AC | V5 | | 690 | | 3 140 | 2 690 | 4 360 | 98 | | 54 | 30 | 3,0 | 6,0 |
| | V4 | | 595 | | 2 750 | 2 300 | 3 920 | 93 | | 51 | 26 | 3,5 | 6,9 |
| | V3 | | 525 | 50 | 2 450 | 2 000 | 3 550 | 92 | | 48 | 23 | 3,9 | 7,8 |
| | V2 | | 445 | | 2 090 | 1 660 | 3 090 | 90 | | 44 | 19 | 4,6 | 9,3 |
| | V1 | | 365 | | 1 700 | 1 310 | 2 590 | 86 | | 40 | <15 | 5,6 | 11,3 |
| 32M_AC | V5 | | 730 | | 3 850 | 2 790 | 5 030 | 100 | | 55 | 30 | 2,8 | 5,6 |
| | V4 | | 645 | | 3 440 | 2 460 | 4 580 | 96 | | 52 | 27 | 3,2 | 6,4 |
| | V3 | | 565 | 50 | 3 030 | 2 160 | 4 090 | 94 | | 49 | 23 | 3,6 | 7,3 |
| | V2 | | 480 | | 2 590 | 1 850 | 3 570 | 91 | | 45 | 20 | 4,3 | 8,6 |
| | V1 | | 400 | | 2 140 | 1 530 | 3 010 | 87 | | 41 | 16 | 5,1 | 10,3 |
| 32J_HEE | | 10,0 | 830 | | 3 810 | 3 340 | 5 000 | | 109 | 57 | 33 | 2,5 | 5,0 |
| | | 9,0 | 735 | | 3 450 | 2 970 | 4 600 | | 86 | 54 | 30 | 2,8 | 5,6 |
| | | 7,4 | 595 | 50 | 2 910 | 2 420 | 3 980 | | 49 | 50 | 24 | 3,5 | 6,9 |
| | | 6,0 | 485 | | 2 430 | 1 970 | 3 400 | | 26 | 45 | 20 | 4,2 | 8,5 |
| | | 5,0 | 395 | | 2 010 | 1 600 | 2 860 | | 19 | 41 | 16 | 5,2 | 10,4 |
| | | 4,0 | 330 | | 1 670 | 1 310 | 2 420 | | 11 | 36 | <15 | 6,2 | 12,5 |
| | | 2,0 | 185 | | 997 | 748 | 1 420 | | 4 | 22 | <15 | 11,1 | 22,3 |
| | | 10,0 | 810 | | 4 210 | 3 320 | 5 570 | | 106 | 57 | 33 | 2,5 | 5,1 |
| 32M_HEE | | 9,0 | 720 | | 3 800 | 2 980 | 5 090 | | 83 | 55 | 30 | 2,9 | 5,7 |
| | | 7,8 | 620 | 50 | 3 320 | 2 590 | 4 540 | | 53 | 51 | 26 | 3,3 | 6,6 |
| | | 6,0 | 470 | | 2 570 | 1 990 | 3 580 | | 25 | 45 | 20 | 4,4 | 8,8 |
| | | 5,0 | 380 | | 2 100 | 1 640 | 2 980 | | 19 | 41 | 16 | 5,4 | 10,8 |
| | | 4,0 | 310 | | 1 670 | 1 320 | 2 450 | | 10 | 36 | <15 | 6,6 | 13,3 |
| | | 2,0 | 150 | | 949 | 711 | 1 210 | | 4 | 23 | <15 | 13,7 | 27,5 |
| 34P_AC | V5 | | 645 | | 3 450 | 2 810 | 4 350 | 95 | | 54 | 30 | | |
| | V4 | | 580 | | 3 140 | 2 540 | 4 120 | 91 | | 52 | 27 | | |
| | V3 | | 515 | 50 | 2 830 | 2 270 | 3 860 | 90 | | 49 | 24 | | |
| | V2 | | 450 | | 2 490 | 1 980 | 3 560 | 88 | | 46 | 21 | | |
| | V1 | | 375 | | 2 100 | 1 660 | 3 190 | 85 | | 42 | 17 | | |
| 34P_HEE | | 10,0 | 810 | | 4 090 | 3 400 | 4 920 | | 106 | 57 | 33 | | |
| | | 9,0 | 720 | | 3 650 | 3 020 | 4 580 | | 83 | 55 | 30 | | |
| | | 7,8 | 620 | 50 | 3 160 | 2 600 | 4 170 | | 53 | 51 | 26 | | |
| | | 6,0 | 470 | | 2 400 | 1 950 | 3 470 | | 25 | 45 | 20 | | |
| | | 5,0 | 380 | | 1 940 | 1 580 | 3 010 | | 19 | 41 | 16 | | |
| | | 4,0 | 310 | | 1 530 | 1 250 | 2 580 | | 10 | 36 | <15 | | |
| | 2,0 | 150 | | 795 | 622 | 1 450 | | 4 | 23 | <15 | | | |
| 42J_AC | V5 | | 890 | | 4 070 | 3 420 | 5 230 | 110 | | 55 | 28 | 2,3 | 4,6 |
| | V4 | | 740 | 50 | 3 450 | 2 890 | 4 580 | 105 | | 50 | 23 | 2,8 | 5,6 |
| | V3 | | 615 | | 2 910 | 2 440 | 3 980 | 101 | | 46 | 18 | 3,3 | 6,7 |
| | V2 | | 510 | | 2 420 | 2 030 | 3 420 | 97 | | 42 | <15 | 4,0 | 8,1 |
| | V1 | | 410 | | 2 210 | 1 900 | 2 510 | 88 | | 37 | <15 | 5,0 | 10,0 |
| 42M_AC | V5 | | 865 | | 4 690 | 3 610 | 5 400 | 112 | | 55 | 28 | 2,4 | 4,8 |
| | V4 | | 720 | 50 | 4 000 | 3 010 | 4 530 | 106 | | 50 | 23 | 2,9 | 5,7 |
| | V3 | | 625 | | 3 540 | 2 630 | 3 960 | 103 | | 47 | 20 | 3,3 | 6,6 |
| | V2 | | 505 | | 2 920 | 2 140 | 3 230 | 98 | | 42 | 15 | 4,1 | 8,2 |
| | V1 | | 430 | | 2 470 | 1 800 | 2 740 | 89 | | 39 | <15 | 4,8 | 9,6 |
| 42J_HEE | | 10,0 | 1 085 | | 4 780 | 4 060 | 6 240 | | 141 | 57 | 32 | 1,9 | 3,8 |
| | | 9,0 | 960 | | 4 330 | 3 680 | 5 670 | | 107 | 55 | 29 | 2,1 | 4,3 |
| | | 7,7 | 825 | 50 | 3 830 | 3 250 | 5 050 | | 68 | 51 | 25 | 2,5 | 5,0 |
| | | 6,0 | 645 | | 3 110 | 2 630 | 4 120 | | 33 | 45 | 19 | 3,2 | 6,4 |
| | | 5,0 | 520 | | 2 570 | 2 190 | 3 460 | | 24 | 41 | 15 | 4,0 | 7,9 |
| | | 4,0 | 420 | | 2 080 | 1 790 | 2 860 | | 12 | 36 | <15 | 4,9 | 9,8 |
| | | 2,0 | 205 | | 1 130 | 939 | 1 480 | | 4 | 23 | <15 | 10,0 | 20,1 |
| | | 10,0 | 1 065 | | 5 600 | 4 560 | 6 430 | | 139 | 58 | 32 | 1,9 | 3,9 |
| 42M_HEE | | 9,0 | 940 | | 5 060 | 4 070 | 5 700 | | 106 | 55 | 29 | 2,2 | 4,4 |
| | | 7,6 | 795 | 50 | 4 410 | 3 490 | 4 860 | | 66 | 52 | 24 | 2,6 | 5,2 |
| | | 6,0 | 630 | | 3 610 | 2 810 | 3 860 | | 32 | 46 | 19 | 3,3 | 6,5 |
| | | 5,0 | 510 | | 3 000 | 2 310 | 3 130 | | 24 | 42 | <15 | 4,0 | 8,1 |
| | | 4,0 | 410 | | 2 440 | 1 870 | 2 510 | | 12 | 37 | <15 | 5,0 | 10,0 |
| | | 2,0 | 200 | | 1 320 | 968 | 1 190 | | 4 | 25 | <15 | 10,3 | 20,6 |
| 44P_AC | V5 | | 865 | | 4 110 | 3 560 | 5 650 | 112 | | 55 | 28 | | |
| | V4 | | 720 | 50 | 3 610 | 3 070 | 4 970 | 106 | | 50 | 23 | | |
| | V3 | | 625 | | 3 270 | 2 740 | 4 490 | 103 | | 47 | 20 | | |
| | V2 | | 505 | | 2 800 | 2 300 | 3 850 | 98 | | 42 | 15 | | |
| | V1 | | 430 | | 2 450 | 1 980 | 3 380 | 89 | | 39 | <15 | | |
| 44P_HEE | | 10,0 | 1 150 | | 5 000 | 4 210 | 7 450 | | 147 | 58 | 32 | | |
| | | 9,0 | 1 015 | | 4 520 | 3 820 | 6 770 | | 111 | 56 | 29 | | |
| | | 8,0 | 920 | 50 | 4 160 | 3 530 | 6 270 | | 77 | 53 | 26 | | |
| | | 6,0 | 680 | | 3 240 | 2 770 | 4 920 | | 35 | 46 | 19 | | |
| | | 5,0 | 555 | | 2 700 | 2 320 | 4 120 | | 25 | 42 | 15 | | |
| | | 4,0 | 445 | | 2 210 | 1 900 | 3 410 | | 13 | 38 | <15 | | |
| | | 2,0 | 215 | | 1 090 | 941 | 1 780 | | 4 | 25 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

U model sound level:

Values given as a guideline for devices with ducted return and discharge, and for room and installation attenuation of 19 dB (sizes 0 to 3), 21 dB (sizes 4).

LIK/LYK MODELS
Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| Size | AC motor code | HEE motor voltage (V) | Air flow in m³/h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | AC motor power input W | HEE motor power input W | Sound power LW dB(A) | ISO or NR comfort level for LI | ISO or NR comfort level for LY | Average air temperature rise in K (2) Auxiliary electric heater 230/1/50 | |
|---------|---------------|-----------------------|------------------|-------------------------------|----------------|----------|--------------------|------------------------|-------------------------|----------------------|--------------------------------|--------------------------------|--|-------|
| | | | | | Total | Sensible | | | | | | | 500W | 1000W |
| 02B_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 02B_HEE | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 04B_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 04B_HEE | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 22J_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 22M_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 22J_HEE | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 22M_HEE | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 24P_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 24P_HEE | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Availability Q4 2021

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

Model LI sound level:

Values are given as a guideline for units with room and installation attenuation of 12 dB (Sizes 0 to 3) and 14 dB (Size 4).

Model LY sound level:

Values are given as a guideline for units with room and installation attenuation of 14 dB (Sizes 0 to 3) and 16 dB (Size 4).

(2) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).



L1k / LYk MODELS (continued)

| Size | AC motor code | HEE motor voltage (V) | Air flow in m ³ /h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | AC motor power input W | HEE motor power input W | Sound power LW dB(A) | ISO or NR comfort level for LI | ISO or NR comfort level for LY | Average air temperature rise in K (2) Auxiliary electric heater 230/1/50 | |
|---------|---------------|-----------------------|-------------------------------|-------------------------------|----------------|----------|--------------------|------------------------|-------------------------|----------------------|--------------------------------|--------------------------------|--|-------|
| | | | | | Total | Sensible | | | | | | | 700W | 1400W |
| 32J_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 32M_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| 32J_HEE | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 32M_HEE | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 34P_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 34P_HEE | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |

Availability Q4 2021

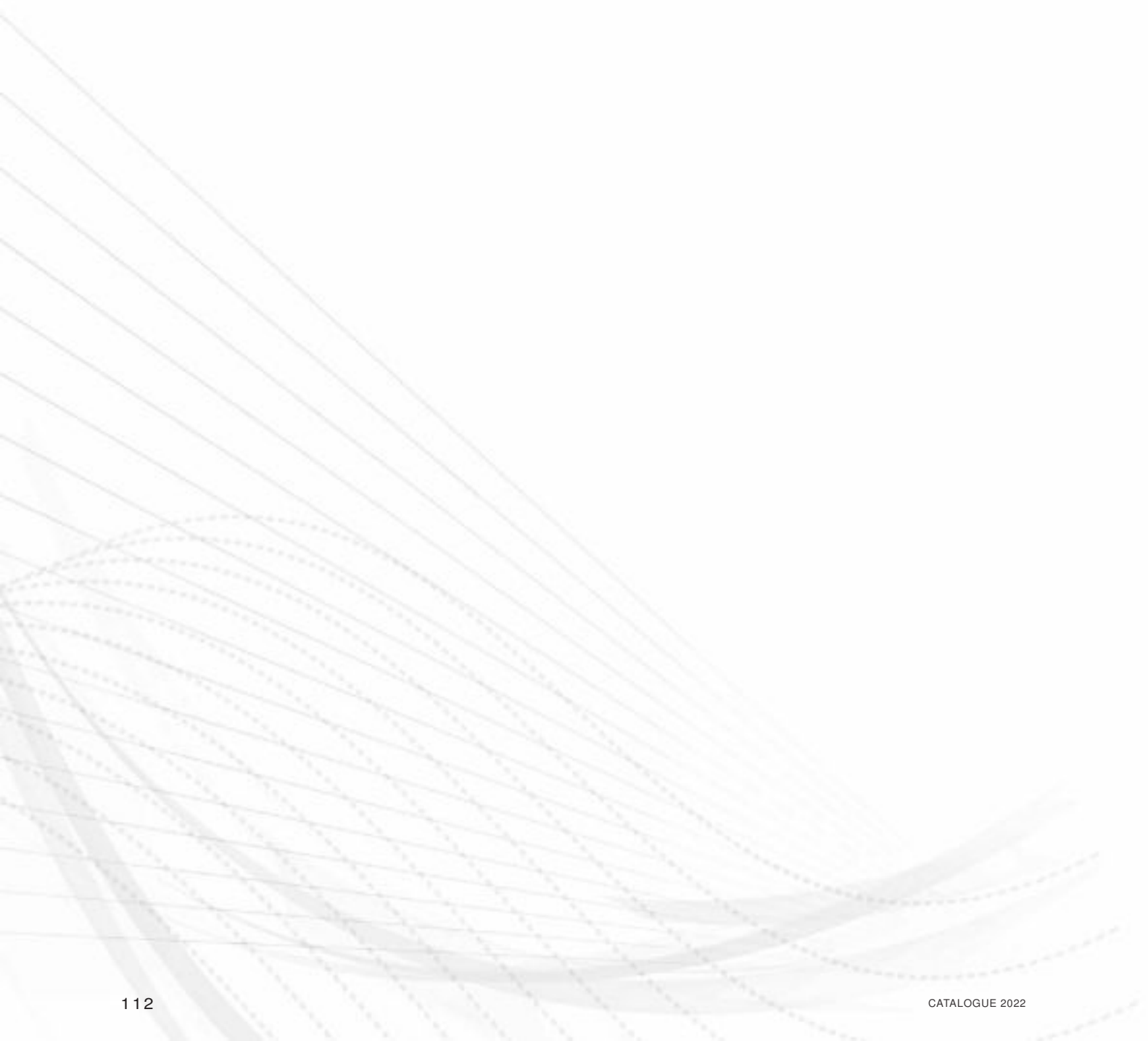
(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.
 Model LI sound level:
 Values are given as a guideline for units with room and installation attenuation of 12 dB (Sizes 0 to 3) and 14 dB (Size 4).
 Model LY sound level:
 Values are given as a guideline for units with room and installation attenuation of 14 dB (Sizes 0 to 3) and 16 dB (Size 4).
 (2) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).

LIk/LYk MODELS (continued)

| Size | AC motor code | HEE motor voltage (V) | Air flow in m ³ /h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | AC motor power input W | HEE motor power input W | Sound power LW dB(A) | ISO or NR comfort level for LI | ISO or NR comfort level for LY | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|---------|---------------|-----------------------|-------------------------------|--|----------------|----------|--------------------|------------------------|-------------------------|----------------------|--------------------------------|--------------------------------|---|-------|
| | | | | | Total | Sensible | | | | | | | 700W | 1400W |
| 42J_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 42M_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 42J_HEE | | | | | | | | | | | | | | |
| 42M_HEE | | | | | | | | | | | | | | |
| 44P_AC | V5 | | | | | | | | | | | | | |
| | V4 | | | | | | | | | | | | | |
| | V3 | | | | | | | | | | | | | |
| | V2 | | | | | | | | | | | | | |
| | V1 | | | | | | | | | | | | | |
| 44P_HEE | | | | | | | | | | | | | | |

Availability Q4 2021

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.
 Model LI sound level:
 Values are given as a guideline for units with room and installation attenuation of 12 dB (Sizes 0 to 3) and 14 dB (Size 4).
 Model LY sound level:
 Values are given as a guideline for units with room and installation attenuation of 14 dB (Sizes 0 to 3) and 16 dB (Size 4).
 (2) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).



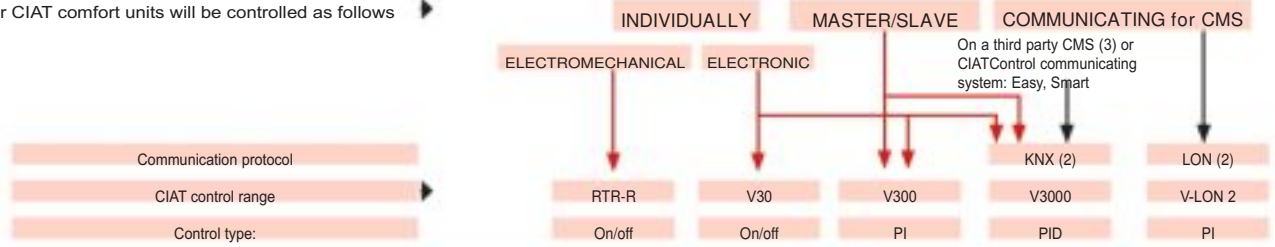
COMFORT UNIT CONTROLS

| Electromechanical controls | | |
|--|----------------------------------|--|
| | Air type | On/off room thermostat range |
| | Water type | On/off room thermostat range |
| Electronic controls | | |
| | Air type | V30 range on/off |
| | Water type | V30 range on/off |
| V300 range master/slave PI | | |
| V3000 range KNX communicating PID | | |
| | | |
| Fresh air management | | |
| | | R1 pack with occupancy sensor for use in offices |
| | | R+ pack with CO ₂ sensor for use in meeting rooms |
| Centralised management for CIATControl V3000® system | | |
| | Control of CIAT system solutions | Smart CIATControl: Centralised management system |

1

SELECTION TABLE FOR DEDICATED COMFORT UNIT CONTROLS

Your CIAT comfort units will be controlled as follows



| APPLICATIONS | | | | | |
|---|--------------------|----------------------|------------------------|------------------------|------------------------|
| Air control | | | | | |
| 2 heating tubes only | RTR-E 7015 | X | Option | | |
| 2 cooling tubes only | RTR-E 7015 | X | Option | | |
| 2 heating/cooling tubes, manual reversal via selector | RTR-E 7015 | | | | |
| 2 heating/cooling tubes, automatic reversal via local changeover sensor | RTR-E 7009 | X | Option | | |
| 2 cooling tubes only + electric heater with deadband (1) | | X | Option | | |
| 2 heating/cooling tubes + electric heater - automatic selection (1) | | X | Option | | |
| Water control with 2-way valve (V2V) or 3-way valve + by-pass (V4V) | | | | | |
| 2 heating tubes only with V2V or V4V | RTR-E 7011 | X | X | X | X |
| 2 cooling tubes only with V2V or V4V | RTR-E 7011 | X | X | X | X |
| 2 heating/cooling tubes, manual reversal via selector with V2V or V4V | RTR-E 7012 | | | | |
| 2 heating/cooling tubes, automatic reversal via local sensor with V4V | RTR-E 7203 | X | X | X | (4) |
| 2 cooling tubes only + electric heater with deadband (1) with V2V or V4V | RTR-E 7203 | X | X | X | X |
| 2 cooling tubes only + electric heater + manual selection via selector (1) with V2V or V4V | RTR-E 7012 | | | | |
| 2 heating/cooling tubes + electric heater - automatic selection via local sensor (1) with V4V | | X | X | X | (4) |
| 4 tubes with 2 x V2V or 2 x V4V | RTR-E 7203 | X | X | X | X |
| Functions | | | | | |
| Management of window switch with frost protection | | X | X | X | X |
| Standby mode with frost protection | | X | X | X | X |
| Input for external timer | | | X | X | |
| Reconfiguration of controller on-site without specific tools | | X | X | X | |
| Zone timer (additional module) | | | X | X | |
| Changeover (possible option) | | | | | |
| Centralised changeover with control line | According to model | X | X | | |
| Changeover managed by the bus from the CMS | | | Option | X | Compulsory (4) |
| Control unit | | | | | |
| Wall-mounted | X | X | X | X | X |
| Flush-mounted in the vertical cased or uncased MAJOR LINE comfort unit | | X | X | X | |
| Digital display | | | X | X | Option |
| Potentiometer | X | X | | Option | X |
| Radiofrequency remote control | | | X | X | |
| Blank wall-mounted terminal | | | | X | |
| On/off button | According to model | X | X | X | X |
| Summer/winter toggle switch | According to model | | | | |
| +/- adjustment of setpoint | X | X | X | X | X |
| Ventilation | | | | | |
| Deadband ventilation (for water control above) | Manual I II III | Manual I II III | Manual I II III + auto | Manual I II III + auto | Manual I II III + auto |
| HEE motor energy optimisation by 0/10V signal | Permanent | Stopped or permanent | Stopped or permanent | Stopped or permanent | Stopped or permanent |
| Valves | | | | | |
| Thermal, on/off | X | X | | | |
| Thermal, chrono-proportional | | | X | | X |
| Modulating, 3-position | | | | X | |
| Automatic balancing 2-way valves | X | X | X | X | X |
| CIAT supervision (see corresponding offer in our catalogue) | | | | | |
| Smart CIATControl | | | | X | |
| Eu.bac certification | No | No | Yes | Yes | Yes |

(1) Depending on the capacity of the selected electric heater, an additional relay may be required.

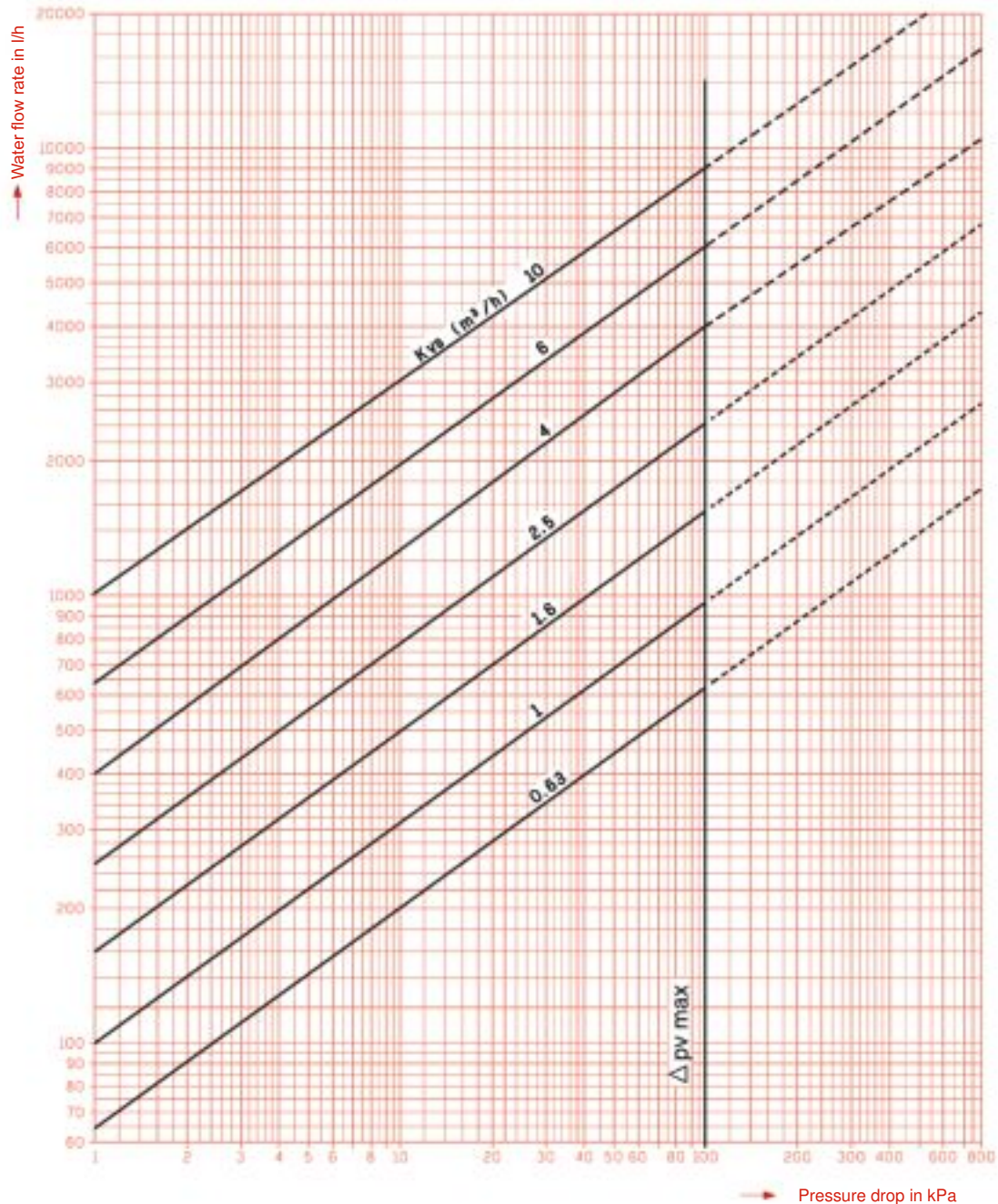
(2) Refer to the technical details for the selected communication technology.

(3) Centralised Management System.

(4) Not supplied by CIAT. Changeover managed by the CMS via bus

- After having selected a type of control, ensure it is compatible with the selected comfort unit. Some controls offer a panel of extra options: Refer to the relevant instruction manuals.

THEORETICAL WATER FLOW RATE/PRESSURE DROPS, BASED ON THE Kvs OF THE VALVES



The limits of use vary depending on the suppliers and the type of valve used.
Refer to the commercial offer.

$\Delta_{pv} \text{ max}$.: Maximum permissible differential pressure on the valve at all speeds.

To prevent any risk of noise and erosion of the seat and valve, an operating $\Delta p < \Delta_{pv} \text{ max}$. must be observed.

To guarantee correct operation of the valves and ensure their service life, we recommend:

- Ensuring the hydraulic networks are correctly balanced (use adjustment tees),
- The use of discharge valves or variable flow pumps for networks equipped with terminal units regulated by 2-way valve(s),
- Ensuring the hydraulic system is free of sludge or any other particles liable to adversely affect the operation of the valves.
- An operating Δp in line with manufacturers' instructions is available on request to prevent flow noise.

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

Room thermostat



MAJOR LINE
COADIS LINE
COMFORT LINE
MELODY2

2-tube system

Cooling only or heating only

| | | |
|--|------|---------|
| <ul style="list-style-type: none"> ■ 3-speed ventilation RTR-E 7015 room thermostat with manual summer/winter toggle switch Note: For operation without manual reverse switch, please contact us | Code | 5201023 |
|--|------|---------|

Heating/cooling with manual summer/winter toggle switch

| | | |
|---|------|---------|
| <ul style="list-style-type: none"> ■ 3 ventilation speeds RTR-E 7015 room thermostat with manual summer/winter toggle switch | Code | 5201023 |
|---|------|---------|

Heating/cooling with automatic changeover




| | | |
|--|------|-------------------------|
| <ul style="list-style-type: none"> ■ 3 ventilation speeds RTR-E 7009 room thermostat with automatic changeover thermostat | Code | 7124612 + 7128892 |
|--|------|-------------------------|

* For ceiling units with the following scenarios:






- High local humidity,
- Very low temperature chilled water,
- Fresh air supply,
- Use of high speeds,
- Intermittent operation.

We recommend the use of controls acting on valves (see next page).

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| COADIS LINE 600, MAJOR LINE, MELODY 2 | | | | VALVE KIT |
|--|--|---|---------|---|
|  | |  | |  |
| 230/150 valve kit - Fittings not included Max. Δ Pv of 70 to 300 kPa based on the KVS** | | | | Thermostats |
| 2-tube and 2-tube cooling + electric systems | | | | 2-tube system |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN 16 - DN15 - KVS 1.6 max. | | | | Cooling only or heating only Code 5201018 |
| COADIS LINE 612, 622, 632 | | Code | 7301640 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve* PN 16 - DN15 - KVS 1.6 max. | | | | 3 ventilation speeds RTR-E 7011 room thermostat Code 5201018 |
| COADIS LINE 612, 622, 632 | | Code | 7301641 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN 16 - DN15- KVS 1.6 max. | | | | HOT/COLD operation 3 ventilation speeds - Manual summer/winter toggle switch RTR-E 7012 room thermostat Code 5201024 |
| MAJOR LINE 102-, 202-, 302-, 402-, | | Code | 7245718 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve* PN 16 - DN15- KVS 1.6 max. | | | | 3 ventilation speeds - Automatic summer/winter changeover switch RTR-E 7203 room thermostat + automatic changeover (on four-way valve only) Code 5201021 + 7128892 |
| MAJOR LINE 502- & 602- | | Code | 7245719 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN 16 - DN20- KVS 2.5 max. | | | | 2-tube cooling with electric heater (1) Manual summer/winter toggle switch 3 ventilation speeds RTR-E 7012 room thermostat Manual summer/winter toggle switch (Pélec≤1400 W) (2) Code 5201024 |
| MAJOR LINE 502- & 602- | | Code | 7245720 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve* PN 16 - DN20- KVS 2.5 max. | | | | Deadband thermostats 3 ventilation speeds RTR-E 7203 room thermostat with deadband (Pélec≤1400 W) (2) Code 5201021 |
| MELODY 2 61, 62, 63 | | Code | 7245721 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN16 - DN20 - KVS 2.5 max. | | | | Optional two-contact 230 V relay(4) 16 A - factory-fitted (3) Code E038806 |
| MELODY 2 61, 62, 63 | | Code | 7469216 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve PN16 - DN20 - KVS 2.5 max. | | | | 4-tube system 3 ventilation speeds RTR-E 7203 room thermostat with deadband Code 5201021 |
| MELODY 2 92, 93, 94 | | Code | 7469217 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN16 - DN25 - KVS 4.5 max. | | | | 3 ventilation speeds RTR-E 7203 room thermostat with deadband Code 5201021 |
| MELODY 2 92, 93, 94 | | Code | 7469214 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve PN16 - DN25 - KVS 4.5 max. | | | | Code E038806 |
| MELODY 2 92, 93, 94 | | Code | 7469215 | |
| <ul style="list-style-type: none"> 2 electrothermic two-way valves PN 16 - DN 15 - KVS 1.6 max. | | | | Code E046500 |
| COADIS LINE 624, 634 | | Code | E046500 | |
| <ul style="list-style-type: none"> 2 electrothermic* four-way valves* PN 16 - DN 15 - KVS 1.6 max. | | | | Code E046501 |
| COADIS LINE 624, 634 | | Code | E046501 | |
| <ul style="list-style-type: none"> 2 electrothermic two-way valves PN 16 - DN 15 - KVS 1.6 max. | | | | * three-way valve(s) with bypass. ** Refer to instruction manuals for information on the maximum allowable differential pressures and the maximum operating pressures based on the KVS of the valve used. (1) MAJOR LINE: 2-pipe setup + electric battery with one resistor only. (2) For higher capacities, an optional relay or a relay supplied by the customer is required. (3) Not including Coadis Line and Mélody 2: CDL600: P max. 1200 W CDL900 and Mélody 2: Relay included in the basic unit |
| MAJOR LINE 104-, 204-, 304-, 404- | | Code | 7245722 | |
| <ul style="list-style-type: none"> 2 electrothermic* four-way valves* PN 16 - DN 15 - KVS 1.6 max. | | | | Code 7245723 |
| MAJOR LINE 104-, 204-, 304-, 404- | | Code | 7245723 | |
| <ul style="list-style-type: none"> 2 electrothermic two-way valves PN 16 heating DN 15 - cooling DN 20-KVS 2.5 max. | | | | Code 7245724 |
| MAJOR LINE 504- & 604 - | | Code | 7245724 | |
| <ul style="list-style-type: none"> 2 electrothermic four-way valves* PN 16 heating DN 15 - cooling DN 20-KVS 2.5 max. | | | | Code 7245725 |
| MAJOR LINE 504- & 604 - | | Code | 7245725 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN16 - DN20 - KVS 2.5 max. | | | | Code 7469216 |
| MELODY2 61, 62, 63 | | Code | 7469216 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN16 - heating DN15 - KVS 1.6 max. | | | | Code 7301640 |
| MELODY2 61, 62, 63 | | Code | 7301640 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve PN16 - DN20 - KVS 2.5 max. | | | | Code 7469217 |
| MELODY2 61, 62, 63 | | Code | 7469217 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve PN16 - heating DN15 - KVS 1.6 max. | | | | Code 7301641 |
| MELODY2 61, 62, 63 | | Code | 7301641 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN16 - DN25 - KVS 4.5 max. | | | | Code 7469214 |
| MELODY2 92, 93, 94 | | Code | 7469214 | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN16 - heating DN20 - KVS 2.5 max. | | | | Code 7469216 |
| MELODY2 92, 93, 94 | | Code | 7469216 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve PN16 - DN25 - KVS 4.5 max. | | | | Code 7469215 |
| MELODY2 92, 93, 94 | | Code | 7469215 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve PN16 - heating DN20 - KVS 2.5 max. | | | | Code 7469217 |
| MELODY2 92, 93, 94 | | Code | 7469217 | |

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| COADIS LINE 600 & 900 - COMFORT LINE MAJOR LINE | | | | VALVES FITTED AND WIRED | |
|---|--|---|--|---|--|
|      | | 230/150 valve - Fittings not mounted or wired Max. Δ Pv up to 300 kPa based on the KVS** | | Thermostats | |
| 2-tube and 2-tube cooling + electric systems | | | | 2-tube system | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN 16 - DN15- KVS 1.6 max. | | COADIS LINE 612, 622, 632 MAJOR LINE | | Code E037605 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve* PN 16 - DN15- KVS 1.6 max. | | 102-, 202-, 302-, 402-, COMFORT LINE 02-, 12-, 22-, 32- | | Code E037567 | |
| | | | | Heating only or cooling only | |
| | | | | <ul style="list-style-type: none"> 3 ventilation speeds RTR-E 7011 room thermostat | |
| | | | | Code 5201018 | |
| | | | | HOT/COLD operation | |
| | | | | <ul style="list-style-type: none"> 3 ventilation speeds - Manual summer/winter toggle switch RTR-E 7012 room thermostat | |
| | | | | Code 5201024 | |
| | | | | <ul style="list-style-type: none"> 3 ventilation speeds - Automatic summer/winter changeover RTR-E 7203 room thermostat + automatic changeover (on four-way valve only) | |
| | | | | Code 5201021 + 7128892 | |
| | | | | 2-tube cooling with electric heater (1) | |
| | | | | Manual summer/winter toggle switch | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN 16 - DN20- KVS 2.5 max. | | COADIS LINE 922 MAJOR LINE 502- & 602- COMFORT LINE 42- & 52- | | Code E037613 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve* PN 16 - DN20- KVS 2.5 max. | | | | Code E037575 | |
| | | | | <ul style="list-style-type: none"> 3 ventilation speeds RTR-E 7012 room thermostat Manual summer/winter toggle switch (Pélec≤1400 W) (2) | |
| | | | | Code 5201024 | |
| | | | | Deadband thermostats | |
| <ul style="list-style-type: none"> 1 electrothermic two-way valve PN16 - DN20 - KVS 4 max. | | COADIS LINE 932 & 932SP COMFORT LINE 62- | | Code E037613 | |
| <ul style="list-style-type: none"> 1 electrothermic four-way valve PN16 - DN20 - KVS 4 max. | | | | Code E037575 | |
| | | | | <ul style="list-style-type: none"> 3 ventilation speeds RTR-E 7203 room thermostat with deadband (Pélec≤1400 W) (2) | |
| | | | | Code 5201021 | |
| | | | | <ul style="list-style-type: none"> Optional two-contact 230 V relay(4) 16 A - factory-fitted (3) | |
| | | | | Code E038806 | |
| 4-tube system | | | | | |
| <ul style="list-style-type: none"> 2 electrothermic two-way valves PN 16 - DN 15 - KVS 1.6 max. | | COADIS LINE 624 & 634 MAJOR LINE | | Code E037621 | |
| <ul style="list-style-type: none"> 2 electrothermic* four-way valves* PN 16 - DN 15 - KVS 1.6 max. | | 104-, 204-, 304-, 404-, COMFORT LINE 04-, 14-, 24-, 324 | | Code E037583 | |
| <ul style="list-style-type: none"> 2 electrothermic two-way valves PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 2.5 max. | | COADIS LINE 924 MAJOR LINE 504- & 604- COMFORT LINE 44- & 54- | | Code E037648 | |
| <ul style="list-style-type: none"> 2 electrothermic four-way valves* PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 2.5 max. | | | | Code E037591 | |
| <ul style="list-style-type: none"> 2 electrothermic two-way valves PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 4 max. | | COADIS LINE 934 & 934SP | | Code E037648 | |
| <ul style="list-style-type: none"> 2 electrothermic four-way valves* PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 4 max. | | | | Code E037591 | |
| <ul style="list-style-type: none"> 2 electrothermic two-way valves PN 16 heating DN 20 - KVS 2.5 max. - cooling DN 20-KVS 4 max. | | COMFORT LINE 64- | | Code E037648 | |
| <ul style="list-style-type: none"> 2 electrothermic four-way valves* PN 16 heating DN 20 - KVS 2.5 max. - cooling DN 20-KVS 4 max. | | | | Code E037591 | |
| | | | | <ul style="list-style-type: none"> * three-way valve(s) with bypass. ** Refer to instruction manuals for information on the maximum allowable differential pressures and the maximum operating pressures based on the KVS of the valve used. (1) MAJOR LINE: 2-pipe setup + electric battery with one resistor only. (2) For higher capacities, an optional relay or a relay supplied by the customer is required. (3) Not including Coadis Line and Mélody 2: CDL600: P max. 1200 W CDL900 and Mélody 2: Relay included in the basic unit | |

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| | |
|--|---|
| COADIS LINE 600 & 900 - COMFORT LINE MAJOR LINE | AUTOMATICALLY BALANCED VALVES FITTED AND WIRED |
|--|---|







| |
|---|
| 230/1/50 valve - Fittings not mounted or wired ΔP_v from 30 to 400 kPa - To be set on-site |
| 2-tube and 2-tube cooling + electric systems |



| | | | |
|--|---|------|---------|
| ■ 1 automatically balanced two-way valve 90 - 450 l/h PN 16 - DN10 | MAJOR LINE 102-, 202-, COMFORT LINE 02-, 12- | Code | E048812 |
| ■ 1 automatically balanced two-way valve 150 - 1050 l/h PN 16 - DN15 | COADIS LINE 612, 622, 632 MAJOR LINE 302-, 402-, COMFORT LINE 22-, 32- COADIS LINE 922 | Code | E048813 |
| ■ 1 automatically balanced two-way valve 180 - 1300 l/h PN 16 - DN20 | MAJOR LINE 502-, 602-, COMFORT LINE 42-, 52-, 62- COADIS LINE 932 & 932SP | Code | E048814 |
| 4-tube system | | | |
| ■ 2 automatically balanced two-way valves 90 - 450 l/h cooling and 30-210 l/h heating PN 16 - DN10 | MAJOR LINE 104-, 204-, COMFORT LINE 04-, 14- | Code | E048815 |
| ■ 2 automatically balanced two-way valves 150 - 1050 l/h cooling and 30-210 l/h heating PN 16 - DN10 | COMFORT LINE 24- | Code | E048816 |
| ■ 2 automatically balanced two-way valves 150 - 1050 l/h cooling and 90-450 l/h heating PN 16 - DN15 | COADIS LINE 624, 634 MAJOR LINE 304-, 404-, COMFORT LINE 34- COADIS LINE 924 | Code | E048817 |
| ■ 2 automatically balanced two-way valves 180 - 1300 l/h cooling and 90-450 l/h heating PN 16 - DN20 | MAJOR LINE 504-, 604-, COMFORT LINE 44-, 54- | Code | E048818 |
| ■ 2 automatically balanced two-way valves 180 - 1300 l/h cooling and 105-1050 l/h heating PN 16 - DN20 | COADIS LINE 934 & 934SP COMFORT LINE 64- | Code | E048819 |

Note for 4-tube units:
 Coadis Line 600: Cooling valve fitted/Heating valve supplied in kit
 Coadis Line 900: Cooling valve and Heating valve supplied in kit
 MajorLine: Cooling valve fitted/Heating valve supplied in kit
 Comfort Line: Cooling and Heating valves fitted

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| | Description | Application | Codes |
|---|---|--|---------|
|  <p>RTR-E 7015</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating and cooling ■ Control on ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 manual heating/cooling (winter/summer) toggle switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ All terminal units | 5201023 |
|  <p>RTR-E 7009</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating/cooling, with extra automatic changeover thermostat ■ Control on ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ All terminal units | 7124612 |
|  <p>RTR-E 7012</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Cooling and heating ■ Control on: <ul style="list-style-type: none"> - Water coil solenoid valve - Electric heater with or without relay ■ Permanent ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 manual heating/cooling (winter/summer) toggle switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) ■ 6 A, resistive circuit (electric heater, 1400 W max.) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ COMFORT LINE/ MAJOR LINE/COADIS LINE 600 <ul style="list-style-type: none"> - Electric heater 1400 W max. - Compulsory relay from 1400 W ■ COADIS LINE 900 & MELODY 2 <ul style="list-style-type: none"> - Electric heater 3000 W max. "Relay built-in to the device" | 5201024 |
|  <p>RTR-E 7011</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating only or cooling only ■ Control on water coil solenoid valve ■ Permanent ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) ■ 6 A, resistive circuit (electric heater, 1400 W max.) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ All terminal units | 5201018 |

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| | Description | Application | Codes |
|---|--|---|----------------|
|  <p>RTR-E 7203</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating and cooling with deadband ■ Control on: <ul style="list-style-type: none"> - Water coil solenoid valve(s) - Electric heater with or without relay ■ Permanent ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - changeover switch with midpoint (rest position) with fixed 3 K deadband ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) ■ 6 A, resistive circuit (electric heater, 1400 W max.) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ COMFORT LINE/MAJOR LINE/COADIS LINE 600 <ul style="list-style-type: none"> - Electric heater 1400 W max. - Compulsory relay from 1400 W ■ COADIS LINE 900 & MELODY 2 <ul style="list-style-type: none"> - Electric heater 3000 W max. <p>"Relay built-in to the device"</p> | <p>5201021</p> |
| <p>Potentiometer for variable speed control</p>  | <p>Function</p> <ul style="list-style-type: none"> ■ Manual variation from 0 to 100% of the Brushless fan speed <p>Components</p> <ul style="list-style-type: none"> ■ Potentiometer with stop position <p>Supply voltage 230 V-50-60 Hz</p> <p>Outlet</p> <ul style="list-style-type: none"> ■ 0 - 10 V (8 mA max.) <p>L x l x H = 82 x 82 x 65 mm</p> | <ul style="list-style-type: none"> ■ Comfort units equipped with Brushless motor management 0 - 10 V | <p>7180650</p> |

V30

Electronic on/off
air or water control system



Wall-mounted thermostat
with potentiometer



Hotels version with
graduated potentiometer



Factory-recessed thermostat

*Customised performance
with a **low cost** solution*

GENERAL DESCRIPTION

The V30 control system is a specific CIAT control system with an innovative design, dedicated to fan coil units, and developed using our expertise.

The V30 control system is a CIAT electronic control system devised to control a non-independent air handling terminal unit (ductable, cassette-type fan coil units...) for applications using 2 tubes, 2 tubes/2 wires, 4 tubes with recirculated air.

There are two types of V30 controls:

- Air control types, which act on the ventilation. This application has its drawbacks when used with vertical devices: the coil continually supplies cold water or hot water, which creates an

incorrect temperature reading at the intake.

- Water control types, which act on two-way valves or four-way valves with a 230 V electrothermic motor and ventilation (recommended to ensure comfort levels).

The V30 control is available in a built-in version factory-fitted in a fan coil unit to be mounted under a sill, or a wall-mounted version to be connected by the installer.

DESCRIPTION

The V30 control is an on/off type control, which can be configured for the chosen application on site using 8 switches. It has a potentiometer for setting the required temperature, which can be adjusted across a range of +/- 6 °C.

The wall-mounted version is available with a potentiometer graduated in degrees on request.

Two temperature setpoints: heating (19 °C) and cooling (factory-set at 25 °C).

The cooling setpoint can be configured on-site (25 °C or 23 °C).

The V30 has a selector to actuate three manual ventilation speeds.

The operating statuses of the thermostat are displayed using 3 LEDs: comfort/heating/cooling on.

The changeover is managed automatically by the thermostat via a water temperature sensor or via a signal from an external dry contact.

When heating or cooling is requested, the fan is triggered automatically at the speed selected by the user.




The V30 controls the heating via the electric heater in time-proportional mode, according to the ventilation speed selected, to prevent the comfort unit overheating.

The thermostat manages the fan delays required for unit shut down.

If the selector is in the off position, the thermostat keeps the room in which it is installed frost-free at a setpoint of 8 °C.

A dry contact input, which can be configured on-site, enables the thermostat to be automatically switched to economy mode (automatic shift of +/- 5 °C in the heating and cooling setpoints) or frost protection mode (heating setpoint +8 °C).


See our instruction manual for more detailed information.



| | | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 (1) |
|---|---|----------|---|----------------------------------|
| CONTROL SYSTEM ASSEMBLY V30 electronic On/Off controller Terminal with potentiometer Wall-mounted or built-in version (without disconnect switch) No valve Return sensor (for the built-in version) Without valves and fittings |  | | | |
| V terminal: built-in, fitted and wired in the factory | V | | | Code |
| H terminal: wall-mounted, to be wired by the installer | | H | | |
| AIR REGULATION (without control valves, not recommended for vertical units*) | | | | |
| 2-tube system | | | | |
| • Heating only (or heating/cooling selection by external contact) | A30V | A30H | | E038859 • |
| • Cooling only (or heating/cooling selection by external contact) | A32V* | A32H | | E038862 • |
| • Automatic heating/cooling with changeover sensor (supplied separately on wall-mounted versions) | A34V* | A34H | | E038866 • |
| 2-tube system + max 2000 W electrics | | | | |
| • Cooling + electrics** or Heating/cooling + electrics ** with water temperature sensor supplied in a kit. | A38V* | A38H | | E038869 • |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 and MELODY 2 | | | | E038806 • |
| Option and accessories | | | | |
|  | Return air temperature sensor for wall thermostat, supplied in a kit or changeover sensor kit | | | L = 2.5 m 7209243 • |
|  | Wall thermostat version with potentiometer graduation in degrees for hotels (to be stated when ordering) | | | 7166782 • |
| System start-up assistance | | | | |
| Travel expenses (mainland France) + Supplement for work per unit | | | | E002003 • |
| | | | | E002011 • |

(1) MELODY2: V30 not available with HEE motor

*Note: For vertical units equipped with this control principle, the effect of permanent radiation from the heat exchange coil on the sensor may prevent the control system from operating correctly. It is the customer's responsibility to find a suitable location to site this sensor to ensure the units operate correctly.

UNIT CODING FOR RECIRCULATED AIR APPLICATIONS ONLY

| VALVE KVS = 1.6 max - G1/2" Max flow rate 1000 l/h | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 (1) |
|--|---|--|--|
| CONTROL SYSTEM ASSEMBLY V30 electronic On/Off controller Terminal with potentiometer Wall-mounted or built-in version (without disconnect switch) PN 16 valve with 230 V motor No return sensor (for the wall-mounted version) Without valves and fittings |  | auxiliary pan included, and valves factory-fitted | Two-way valve or four-way valve in a kit, supplied separately Not available with self-balancing 2-way valves[2] |
| V terminal: built-in, fitted and wired in the factory | V | | Code |
| H terminal: wall-mounted, to be wired by the installer | | H | • |
| WATER CONTROL | | | |
| 2-tube system | | | |
| • Heating only >1 two-way valve | E30V | E30H | E038432 |
| > 1 self-balancing 2-way valve** | | | • |
| | | | E048797 |
| | | | • |
| > 1 four-way valve* | E31V | E31H | E038467 |
| | | | • |
| • Cooling only >1 two-way valve | E32V | E32H | E038433 |
| > 1 self-balancing 2-way valve** | | | • |
| | | | E048798 |
| | | | • |
| > 1 four-way valve* | E33V | E33H | E038468 |
| | | | • |
| • Heating/cooling with 230 V pilot line relay >1 two-way valve | E34V | E34H | E051073 |
| > 1 self-balancing two-way valve** (for use with the CIAT hydraulic module) | | | • |
| | | | E048799 |
| | | | • |
| • Automatic heating/cooling with changeover sensor (supplied separately on wall-mounted versions) > 1 four-way valve* | E35V | E35H | E038484 |
| | | | • |
| 2-tube system + max 2000 W electrics | | | |
| • Cooling only + electrics* with deadband >1 two-way valve | E36V | E36H | E038629 |
| > 1 self-balancing 2-way valve** | | | • |
| | | | E048800 |
| | | | • |
| > 1 four-way valve* | E37V | E37H | E038645 |
| | | | • |
| • Heating/cooling + electrics with 230 V pilot line relay >1 two-way valve | E38V | E38H | E051074 |
| > 1 self-balancing two-way valve** (for use with the CIAT hydraulic module) | | | • |
| | | | E048801 |
| | | | • |
| • Automatic heating/cooling + electrics with changeover sensor (supplied separately on wall-mounted versions) > 1 four-way valve* | E39V | E39H | E038662 |
| | | | • |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 and MELODY 2 | | | E038806 |
| | | | • |

| 4-tube system | | | |
|--|---|------|------------------|
| > 2 x 2-way valves | E40V | E40H | E038688 |
| > 2 x self-balancing 2-way valves ** | | | E048802 |
| > 2 x 4-way valves* | E41V | E41H | E038710 |
| Compulsory supplements for valves with Kvs over 1.6 | | | |
| Price supplement for 1 x 3/4" 2-way valve Kvs 2.5 or Kvs 4 | MAJOR LINE T5 & T6 Comfort Line T4, T5 and T6 Coadis Line 900 Melody 2 | | E044008 |
| Price supplement for 1 x 3/4" 4-way valve Kvs 2.5 or Kvs 4 | | | E038407 |
| OPTION and ACCESSORIES | | | |
|  | Return air temperature sensor for wall thermostat, supplied in a kit or changeover sensor kit | | L = 2.5 m |
| | | | 7209243 |
|  | Wall thermostat version with potentiometer graduation in degrees for hotels (to be stated when ordering) | | 7166782 |
| | | | |
| System start-up assistance | | | |
| Travel expenses (mainland France) + Supplement for work per unit | | | E002003 |
| | | | E002011 |

(1) MELODY2: V30 not available with HEE motor

(2) Self-balancing two-way valves for MELODY2: please contact us

* Three-way valve(s) with bypass.

** Valves to be adjusted on-site / for change-over 2-tube operation: please contact us
For 4-tube units: Coadis Line 600: Cooling valve fitted / Heating valve supplied in kit
Coadis Line 900: Cooling valve and Heating valve supplied in kit
MajorLine: Cooling valve fitted / Heating valve supplied in kit
Comfort Line: Cooling and Heating valve fitted

V300

Proportional-Integral
V300 water control



Simplified access with the master/slave function

4 operating modes: complies with RT 2012

Quick and easy to upgrade on site

Centralised timer for managing multiple zones

CIAT concept and design

Eubac certified



The CIAT V300 networked electronic control is designed for use with system-powered comfort units (ductable units, cassettes, AHUs etc.) in 2-tube, 4-tube, 2-tube + 2 wire applications using recirculated air.

It is available in a water control version with actuation of the 230 V thermo valves in time-proportional mode.

The V300 control is available in a factory-fitted, built-in comfort unit with a standard wall-mounting or a low wall-mounting version to be connected by the installer. The V300 control provides a master/slave function to manage the comfort units installed in meeting rooms or large spaces (e.g. open spaces, lobby).

A serial communication bus (3-wire) connects the master unit to its primary slave, then connects the primary slave to the secondary slave, and so on.

The master communicates the following information to the slaves: setpoints, air and water temperature, current mode, window switch state.

A wall-mounted radio-frequency terminal is available on sites which do not allow wiring (renovation projects etc.).

The installation can be managed using a centralised zone timer located in a distribution box.

DESCRIPTION

The V300 is a Proportional-Integral control. It controls the valve(s), the electric heater and the ventilation speeds. It has an option to select manual or automatic control of the ventilation speed.

All the control parameters are factory set, but these can be changed on site (using the LCD room terminal) to adapt to the constraints of individual sites.

The factory-set comfort temperatures are +19 °C in heating mode (adjustable) and +26 °C in cooling mode (adjustable) with a range of +/-4 °K (adjustable from +/-1 °K to +/- 9 °K).

The control automatically manages the CIAT HEE motors to optimise the energy performance of our comfort units.

The LCD room unit is used to adjust the temperature setpoint in the predefined range, to select on/off and the desired ventilation speed.

Two configurable inputs are used to control the window switch, if applicable, condensate pump faults, Economy mode, etc.

The controller has 4 operating modes: comfort/economy/frost protection/off.

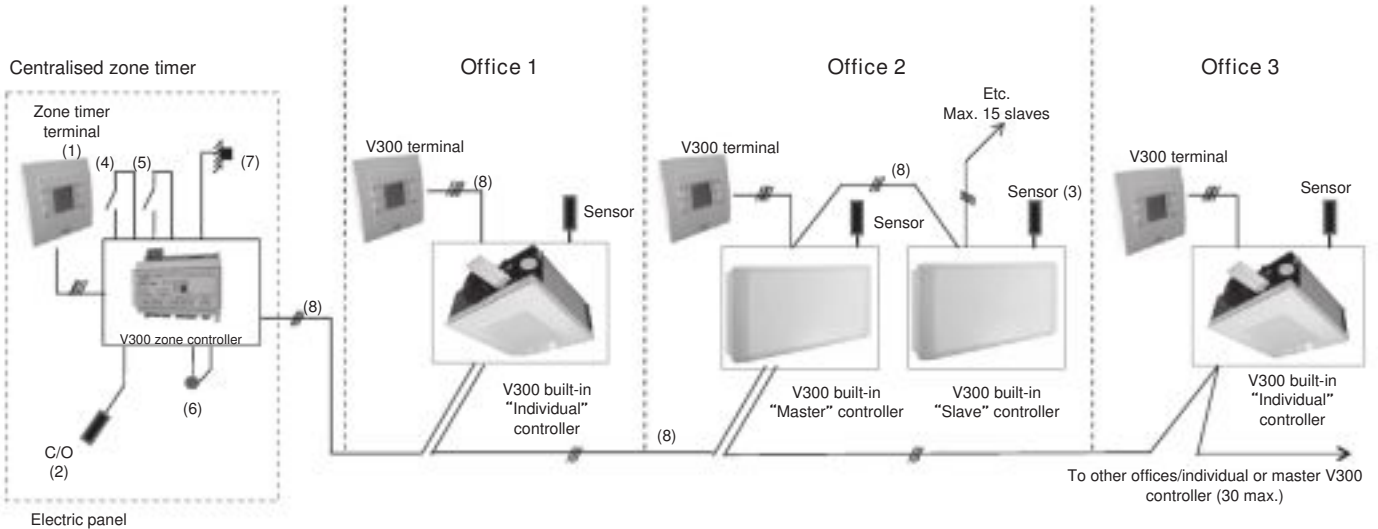
These modes – comfort (+19 °C in heating mode + 26 °C in cooling mode, adjustable), economy (+14 °C in heating mode + 28 °C in cooling mode, adjustable), frost protection (+8 °C) and off — can be activated via a dry contact input (to be combined, for example, with a commercial programmable timer or a key).

A centralised zone timer, to be located in a distribution box, may be used to automatically control the 4 operating modes of your installation over 6 self-contained zones.

See our manual for more detailed information.

CENTRALISED MANAGEMENT USING ZONE TIMER IN VERTICAL UNIT

This application enables automatic and centralised management of the 4 operating modes (comfort/economy/frost protection/off) for 30 master or individual comfort units with V300 control loop.



- (1) Zone timer terminal for daily/weekly time scheduling over 6 zones.
- (2) C/O: changeover sensor for 2-tube reversible heating/cooling application in the case of a central changeover.
- (3) Sensor on the return of slave units: two control options possible via parameters:
 - Sensor disabled: the slave controls using the temperature information measured by the master.
 - Sensor activated: the slave controls using its own return temperature information (in the case of large open plan offices).
- (4) Contact input to override mode to on/economy/frost protection or switch the installation off.
- (5) Bypassing the electric heaters on the comfort units.

- (6) 230 V output for automatic on/off control of ancillary equipment (AHU, extractors, etc.)
- (7) Outdoor temperature sensor option (activation limit for electric heaters on comfort units and/or advance heating restart).
- (8) RS485 communication bus: 2 shielded twisted pairs for connection between controllers and the V300 terminal.

See technical manuals N12-54 (V300 control) and N14-13 (V300 zone timer).

The comfort units are all equipped with V300 control.

The comfort units, whether self-contained or controlled by a master/slave unit, have a wall-mounted terminal.

A centralised timer, located in the electrical cabinet outside the zones, is used to manage all the comfort units throughout all (or part) of the building (distribution by floor or wings, etc.)

Users can:

This timer includes an additional configured controller and a terminal connected to this controller.

- Change the setpoint, but only within the restricted range defined by the controller/zone timer,
- Switch to Off mode by pressing the button,
- Manually control the ventilation speeds,
- Restart comfort mode, if the time slot set on the timer is programmed to switch the installation to economy/frost protection/off mode. In this case, the restart time depends on the value authorised by the timer.

This terminal is used to:

- Set the daily/weekly timer integrated in the module,
- Distribute all the comfort units across 6 self-contained zones,
- Determine, for each zone, the hourly management over 7 days of the 4 modes: comfort/economy/frost protection/off,
- Set, for each zone:
 - ▶ The heating and cooling comfort setpoints,
 - ▶ The heating and cooling economy setpoints,
 - ▶ Override the time slots per zone, or for the entire building,

Optionally, the "zone controller" can manage the installation's changeover, enabling this function to be centralised and allowing 2-way valves to be used (e.g. for variable flow hydraulic circuits).

The "zone controller" is used to globally manage:


An "advance" function can be activated to restart heating in winter when the outdoor temperature is low.

- The setpoint shift range authorised locally in the zones,
- Adjustment of the comfort restart time on the wall-mounted terminal.

Whenever the timer's "comfort switch" is operated, the comfort units restart from their middle setpoints and "auto speed" to ensure the installation is operating uniformly - the key to energy savings.

NOTE: Contact us for more detailed technical information.

UNIT CODING FOR RECIRCULATED AIR APPLICATIONS ONLY

| VALVE KVS = 1.6 max - /1/2" Max flow rate 1800 l/h | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 |
|---|--------------------|---|--|
| CONTROL SYSTEM ASSEMBLY: Configured PI electronic controller, wired Wall terminal with display (7335303) Master-Slave management PN 16 valve with 230 V motor With return air sensor fitted Without valves and fittings | |  Auxiliary pan included, valves factory fitted Fuse disconnect switch included | Controller unit kit with disconnect switch included and 2-way or 4-way* valve kit supplied separately Self-balancing two-way valves not available (2) |
| Flush-mounted terminal, wired and fitted in factory | V | | |
| Wall-mounted terminal, to be wired by installer | | H | CODE |
| WATER CONTROL (230 V THERMO VALVE) | | | |
| 2-tube system | | | |
| • Heating only | | | E048555 |
| > 1 x 2-way valve | E300V | E300H | • |
| > 1 x self-balancing 2-way valve ** (2) | | | E048556 |
| > 1 x 4-way valve* | E301V | E301H | • |
| | | | E048557 |
| • Cooling only | | | E048555 |
| > 1 x 2-way valve | E302V | E302H | • |
| > 1 x self-balancing 2-way valve ** (2) | | | E048556 |
| > 1 x 4-way valve* | E303V | E303H | • |
| | | | E048557 |
| • Automatic Heating/Cooling via 230 V pilot line (1) | | | E051075 |
| > 1 x 2-way valve | E304V | E304H | • |
| > 1 x self-balancing 2-way valve ** (2) | | | E049041 |
| • Automatic Heating/Cooling with fitted changeover sensor | | | E048558 |
| > 1 x 4-way valve* | E305V | E305H | • |
| 2-tube system + 2000 W max. electrics | | | |
| • Cooling only + electrics with deadband | | | E048559 |
| > 1 x 2-way valve | E306V | E306H | • |
| > 1 x self-balancing 2-way valve ** (2) | | | E048560 |
| > 1 x 4-way valve* | E307V | E307H | • |
| | | | E048561 |
| • Auto Heating/Cooling + electrics via 230 V pilot line (1) | | | E051076 |
| > 1 x 2-way valve | E308V | E308H | • |
| > 1 x self-balancing 2-way valve ** (2) | | | E049042 |
| • Automatic Heating/Cooling + Electrics with changeover sensor supplied fitted | | | E048562 |
| > 1 x 4-way valve* | E309V | E309H | • |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 & MELODY 2 | | | E038556 |
| 4-tube system | | | |
| > 2 x 2-way valves | E340V | E340H | E048563 |
| > 2 x 2-way self-balancing valves** | | | • |
| | | | E048564 |
| > 2 x 4-way valves* | E341V | E341H | • |
| | | | E048565 |
| Compulsory supplements for valves with Kvs over 1.6 | | | |
| Price supplement for 1 x 3/4" 2-way valve Kvs 2.5 or 4 | MJL T5 & T6 | | E044008 |
| Price supplement for 1 x 3/4" 4-way valve Kvs 2.5 or 4 | CFLine T4-T5-T6 | | • |
| | CoadisLine 900 | | E038407 |
| | Melody 2 600 & 900 | | • |
| System start-up assistance (recommended) | | | |
| | | | E002003 |
| Travel expenses (mainland France) + Supplement for work per unit | | | • |
| | | | E002046 |

(1) for 2T + central changeover operation with V300 zone timer: please contact us

(2) Self-balancing two-way valve for Melody2: please contact us

* 3-way valve(s) with bypass

** Self-balancing valves: to be adjusted on-site / for 2T changeover operation: please contact us




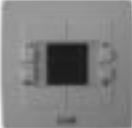
Note for 4-tube units with self-balancing valves:

Coadis Line 600: Cooling valve fitted / Heating valve supplied in kit

Coadis Line 900: Cooling valve and Heating valve supplied in kit

MajorLine: Cooling valve fitted / Heating valve supplied in kit

Comfort Line: Cooling valve and Heating valve fitted

| | | | | MAJOR LINE - COMFORT LINE - COADIS LINE MELODY 2 |
|---|---|--|-------------------|---|
| DEDUCTION FOR USER TERMINAL | | | | |
| Deduction for not including user terminal with display | | | | E039994 |
| OPTIONS and ACCESSORIES | | | | |
|  | Wall-mounted user terminal with display/wireless/radio-frequency supplied with 2 x AAA/LR03 batteries | | | 7335308 |
|  | Radio-frequency receiver kit | For MJ Line: | 7388624 | |
| | | For CF Line and Melody 2 | 7388625 | |
| | | For CD Line | 7388626 | |
| Zone timer with Zone Terminal to control 30 Master or individual Comfort units over 6 self-contained zones Integrated daily/weekly timer |  |  | 7335309 + 7335310 | |
| ZONE TIMER OPTIONS | Changeover sensor kit (for centralised CO) | | 7209243 | |
| | Outdoor temperature sensor kit | | 7423427 | |
| AIR REGULATION (without control valves, not recommended for vertical units *) | | | | |
| 2-tube system | | | | |
| • Heating only (or heating/cooling selection by external contact) | A300V* | A300H | E048566 | |
| • Cooling only (or heating/cooling selection by external contact) | A302V* | A302H | E048566 | |
| • Automatic Heating/Cooling with changeover sensor supplied fitted | A304V* | A304H | E048567 | |
| 2-tube system + 2000 W max. electrics | | | | |
| • Heating/Cooling + Electrics with changeover sensor supplied fitted | A308V* | A308H | E048568 | |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 & MELODY 2 | | | E038556 | |

Note*: For vertical units equipped with this control principle, the effect of permanent radiation from the heat exchange coil on the sensor may prevent the control system from operating correctly. It is the customer's responsibility to find a suitable location to site this sensor to ensure the units operate correctly.

V3000

PID electronic water control,
3-point, networked KNX



Radio frequency
remote control



Factory-recessed
thermostat



Wall-mounted
terminal with
potentiometer



Wall-mounted
terminal with
display

New generation
networked control
Variable flow HEE function control
CIAT concept & design
EuBac certification



GENERAL DESCRIPTION

The CIAT V3000 networked electronic control is designed for use with system-powered air handling terminal units (fan coil units, cassettes, ductable units, etc.) in 2-tube, 4-tube, 2-tube + 2 wire applications using recirculated air.

It is available as a water control with actuation of 3-point 24 V valves which enable optimised control of the room temperature conditions.

Unlike the operation of a thermal actuator, this motor is used to stabilise the valve in any state of opening (from 0 to 100 %), according to the control system requirements.

The V3000 control is available in a built-in version factory-fitted in a fan coil unit to be mounted under a sill, or a wall-mounted version to be connected by the installer.

A radio frequency remote control is available on sites which do not allow wiring (renovation projects etc.).

The V3000 control system communicates via the KNX open protocol (ISO standard 14543-3) ensuring it is completely compatible with other products used on-site.

DESCRIPTION

The V3000 control is a Proportional-Integral-Derivative control. It controls the valve(s), the electric heater and the ventilation speeds. It is available with display terminals or a potentiometer enabling the setting of the indoor comfort conditions to be optimised.

The control settings (PID, deadband ventilation, etc.) are preset in the factory but can be adjusted using the room terminal with display.

Without connecting to a BMS, the V3000 can manage the master/slave function on a KNX bus (bus power supply provided as an accessory).

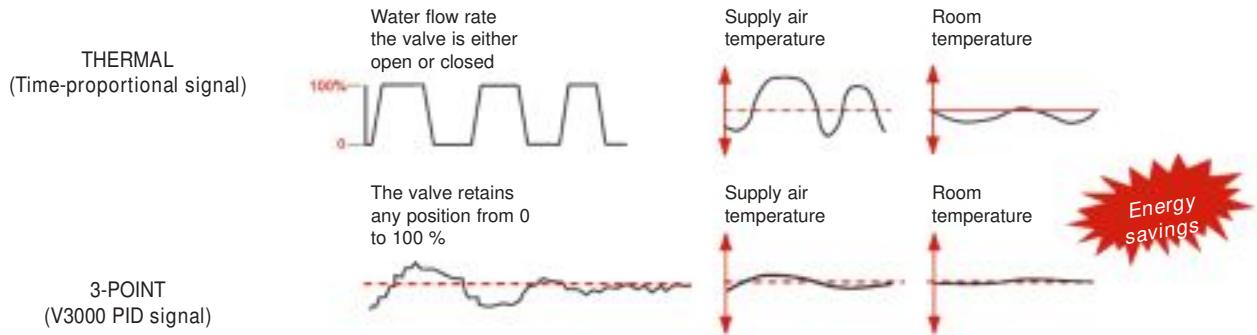
The V3000 control automatically controls the CIAT HEE concept to improve the energy performance of our fan coil units:

- Modulating output for actuating the fan speed according to ambient requirements,

Consult our manuals for more detailed information on the operation and range of configuration options for this control system.

KEY ADVANTAGES

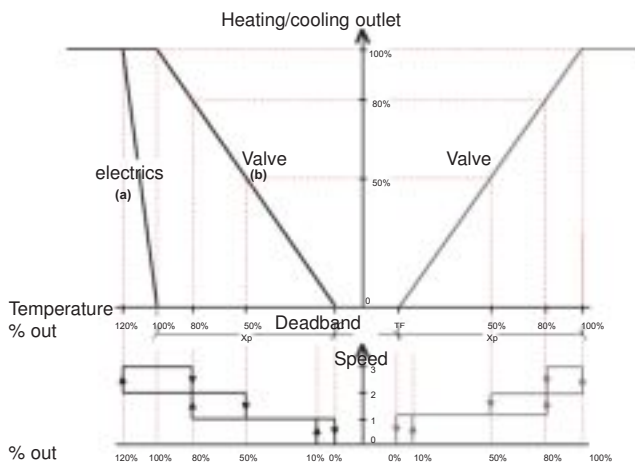
Modulating valve comparison



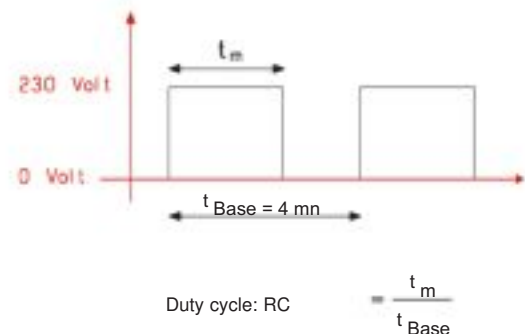
- A 3-point motor enables a valve to be actuated as close as possible to the control system requirements, by controlling its position between 0 and 100 % (water flow control). The terminal unit supply air temperature is more stable and the room temperature varies very little (variations cause discomfort).
- This temperature stability not only ensures optimal comfort, it also allows energy savings to be made.
- The 3-point motor uses no electricity when the thermal balance is struck, unlike the thermal actuator (return on investment on the energy savings made: 2 - 3 years).
- The service life of a 3-point motor is approximately twice as long as a thermal actuator.
- To facilitate its maintenance, the motor is equipped with a plug connector.

Electric heater management

- 2-tube 2-wire control algorithm (application: cooling + electrics or heating/cooling + electrics).



- Presence of hot water, operation of the electric heater as per (a).
- Absence of hot water, operation of the electric heater as per (b).



The controller acts simultaneously on:

- The gradual opening or closing of the control valve,
- The electric heater operating in time-proportional mode,
- The 3 fan speeds or switching the fan off.


Priority is given to low-speed operation (medium speed activated from 80 % valve opening). For heating/cooling + electric heater, priority is given to heating the hot water; the electric heater is only activated as an additional measure. If there is no hot water, the electric heater is triggered when there is a heating requirement. Note: the above algorithm supposes that the fan speed is selected automatically and that the ventilation is off in the deadband. It does not demonstrate the proportional characteristic. In reality, the control is Proportional-Integral-Derivative.

The variation in the duty cycle enables the electrical energy to be modulated thereby enabling a similar function to that of a progressive valve. If the user manually selects low speed, the duty cycle will be limited to 50 %. If the user selects medium speed, the duty cycle will be limited to 80 %. This limitation prevents overheating in the terminal unit. The controller can limit the duty cycle based on the outdoor temperature.

Timer

The V3000 control integrates a timer, as standard, which can be set from 30 mins to 24 hours (in 30-min increments). This function enables the user to manually start the room air conditioning as he or she enters. It will switch off automatically (e.g.: after four hours for morning and evening time slots).

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| VALVE KVS = 2.5 max. - G1/2" max. Max. water flow 1800 l/h | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 |
|--|---------------------|--|--|
| CONTROL SYSTEM ASSEMBLY Configured PID electronic control, wired Display terminal PN 16 valve with 24 V 3-point motor Without valves and fittings V terminal: built-in, fitted and wired in the factory H terminal: wall-mounted, to be wired by the installer SH terminal: wall-mounted, to be wired by the installer + supply air limit temperature sensor. Not available with the radio-frequency remote control option. | |  auxiliary pan included, valves factory fitted Fuse disconnect switch included | Controller unit kit with disconnect switch included and 2-way or 4-way* valve kit supplied separately Self-balancing two-way valves not available (2) |
| | V | H | Code |
| | | SH | € |
| WATER CONTROL (24 V 3-POINT VALVE) | | | |
| 2-tube system | | | |
| • Heating only > 1 two-way valve" | E3000V | E3000H | E047501 |
| | | E3000SH(1) | • NOT AVAILABLE |
| > 1 x self-balancing two-way valve** (2) | E3001V | E3000H | E048803 |
| | | E3000SH(1) | • NOT AVAILABLE |
| > 1 x 4-way valve* | E3002V | E3001H | E047521 |
| | | E3001SH(1) | • NOT AVAILABLE |
| • Cooling only > 1 two-way valve" | E3002V | E3002H | E047501 |
| | | E3002SH(1) | • NOT AVAILABLE |
| > 1 x self-balancing two-way valve** (2) | E3003V | E3002H | E048803 |
| | | E3002SH(1) | • NOT AVAILABLE |
| > 1 x 4-way valve* | E3005V | E3003H | E047521 |
| | | E3003SH(1) | • NOT AVAILABLE |
| • Automatic heating/cooling with changeover sensor fitted > 1 four-way valve* | E3005V | E3005H | E047561 |
| | | E3005SH(1) | • NOT AVAILABLE |
| 2-tube system + electrics, max 2000 W | | | |
| • Cooling only + electrics* with deadband > 1 two-way valve | E3006V | E3006H | E047581 |
| | | E3006SH(1) | • NOT AVAILABLE |
| > 1 x self-balancing two-way valve** (2) | E3007V | E3006H | E048804 |
| | | E3006SH(1) | • NOT AVAILABLE |
| > 1 x 4-way valve* | E3009V | E3007H | E047601 |
| | | E3007SH(1) | • NOT AVAILABLE |
| • Automatic heating/cooling + electrics with automatic changeover sensor fitted > 1 x 4-way valve* | E3009V | E3009H | E047641 |
| | | E3009SH(1) | • NOT AVAILABLE |
| • Supplement for electrical power from 2000 W to 4600 W included on COADIS LINE 900 & MELODY 2 | | | E038556 |
| 4-tube system | | | |
| > 2 x 2-way valves | E3040V | E3040H | E047661 |
| | | E3040SH(1) | • NOT AVAILABLE |
| > 2 x self-balancing two-way valves*** | E3041V | E3040H | E048805 |
| | | E3040SH(1) | • NOT AVAILABLE |
| > 2 x 4-way valves* | E3041V | E3041H | E047681 |
| | | E3041SH(1) | • NOT AVAILABLE |
| Compulsory supplements for valves with Kvs over 2.5 | | | |
| Price supplement for 1 x 3/4" 2-way valve Kvs 4 | Comfort Line T6 | | E038563 |
| | Coadis Line 932-934 | | • |
| Price supplement for 1 x 3/4" four-way valve Kvs 4 | Melody 2 size 9x | | E038571 |
| | | | • |
| System start-up assistance | | | |
| | | | E002003 |
| Travel expenses (mainland France) + Supplement for work per unit | | | • |
| | | | E002046 |

(1) Option not available for Major Line CV/CH, Coadis Line and Melody 2

(2) Self-balancing two-way valve for Melody 2: please contact us







* Three-way valve with bypass.

** Valves to be adjusted on-site / for 2-tube changeover operation: please contact us

Note for 4-tube units with self-balancing valves:

- Major Line: Cooling valve fitted / Heating valve supplied in kit
- Comfort Line: Cooling and heating valve supplied fitted
- Coadis Line 600 & 900: 2 valves supplied in a kit

Note: Price with wall-mounted user terminal with potentiometer identical to that with display terminal. Please specify the required type of terminal when ordering. Terminal with potentiometer only available wall-mounted

| | | MAJOR LINE | COMFORT LINE MELODY 2 | COADIS LINE | |
|---|--|------------|--------------------------|-------------|---------|
| DEDUCTION FOR USER TERMINAL | | | | | |
| Deduction for user terminal with display | | Code | E039097 | | |
| OPTIONS AND ACCESSORIES | | | | | |
|  | Wall-mounted terminal with potentiometer | Code | 7161243 | | |
|  | Blank wall-mounted terminal with sensor No user action possible / designed for public access buildings | Code | 7161242 | | |
|  | Radio-frequency remote control (1 remote control, controls up to eight V3000s located in a single zone) | Code | 7161247 | | |
|  | Radio-frequency receiver kit (1 receiver must be provided per unit) Supplied in a kit | Code | 7407452 | 7393361 | 7350539 |
|  | 320 mA KNX bus power supply for max. 64 x V3000 Refer to our manual for the specifications for setting up a KNX bus | Code | 7222279 | | |
|  | KNX timer for control of 60 x V3000 in comfort/economy mode in 8 zones in accordance with manual .09.38 | Code | 7361491 | | |

FRESH AIR CONTROL

Fresh air control

Save energy and optimise the air quality in office buildings



Occupancy sensor (fits into suspended ceilings)

Wall-mounted CO₂ sensor

- R1 pack with occupancy sensor for use in offices
- R+ pack with CO₂ sensor for use in meeting rooms

These systems are designed for offices, meeting rooms and other spaces with varying occupancy rates.

They help to keep down energy costs caused by air changes by adjusting the flow of fresh air to actual room occupancy rates.

Since the treatment of fresh air accounts for up to 70% of the heating and cooling needs in office buildings, this adjustment in the flow of fresh air results in significant energy savings.

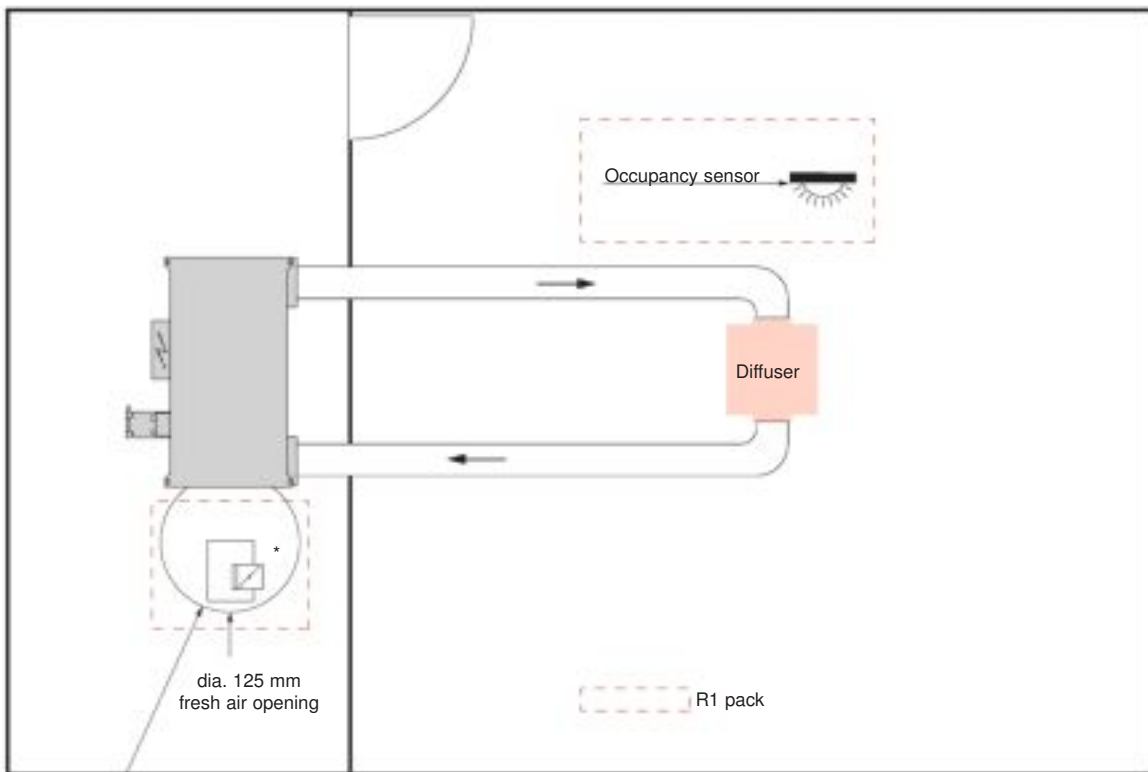
R1 PACK FOR OFFICES

Draw fresh air into rooms only when they are occupied:

- R1E motorised damper with dual path calibrated to fresh air and controlled by an occupancy sensor recessed in a ceiling tile:

- ✓ 1 minimum air flow to ensure clean, healthy air in the room.
- ✓ 1 nominal air flow when the room is occupied.

■ Example of a system with U model COMFORT LINE.



R1E motorised damper (15-45 m³/h)

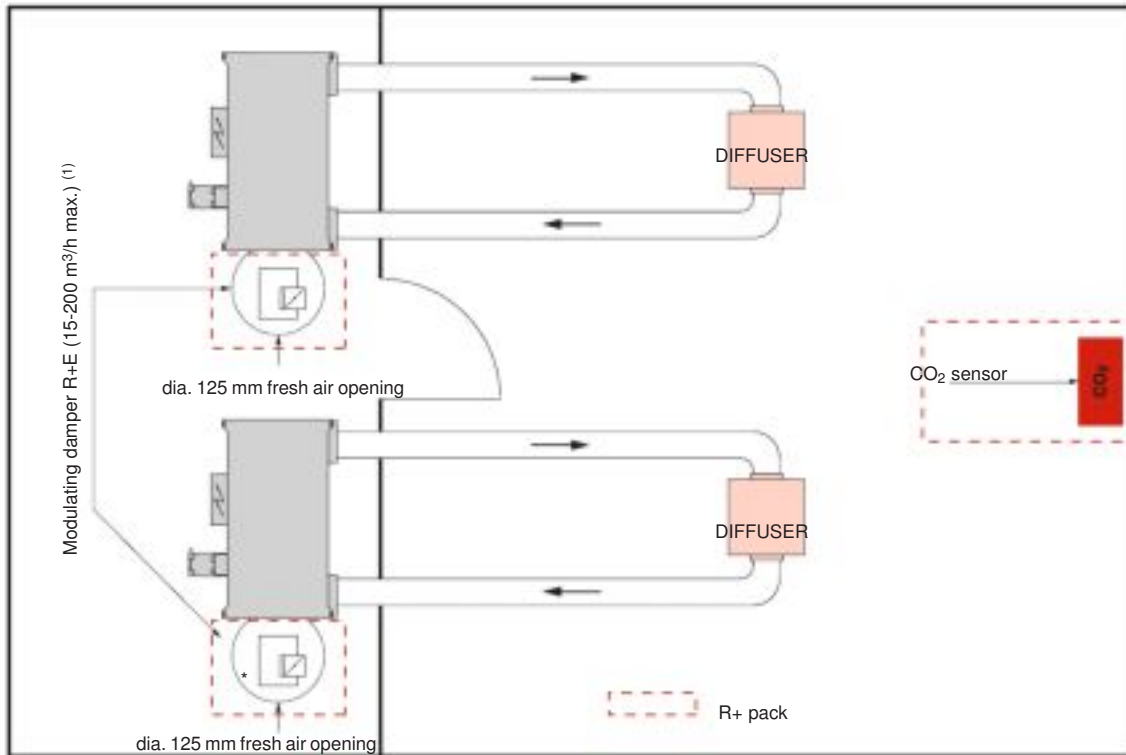
*Schematic diagram. Actual positions of components not shown.

R+ PACK FOR YOUR MEETING ROOMS

Adjust the amount of fresh air according to the number of people present in your meeting rooms.

- The R+E modulating damper with automatically calibrated minimum flow adjusts the amount of incoming fresh air to the amount of CO₂, which varies with number of people inside a room, to maintain clean and healthy indoor conditions.

■ Example of a system using U model COMFORT LINE with a CIAT "COADIS COMBI" diffuser.





General note regarding installation:

- The intake and exhaust fans on fresh air handlers must be fitted with a variable speed drive (pressure sensor on the air distribution duct).
- The fresh air temperature must be kept constant so as not to affect the control loop on the comfort units (risk of rapid drift in the ambient temperature).

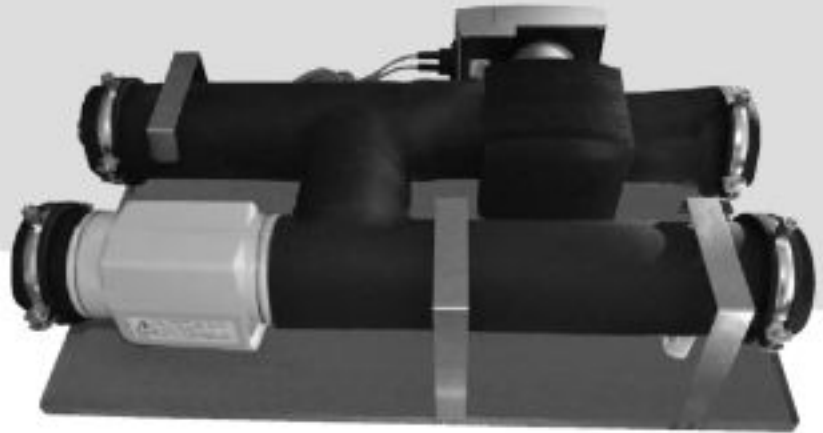
Note **: the network balancing system is not supplied by CIAT (max. air flow for speed of 4.5 m/s.).

(1) Max. recommended fresh air flow: COADIS LINE: 90 m³/h/COMFORT LINE: 200 m³/h

| | | |
|--|---|--|
| <p>R1 PACK For use in OFFICES Flush-mounted occupancy sensor + Motorised damper R1 E dia. 125 mm as per data sheet N07127</p> |  | <p>Code 7180644 + 7180646</p> |
| <p>R+ PACK For use in MEETING ROOMS CO₂ sensor 2 (one per four comfort units maximum) + 230/24 V transformer as per circuit diagram 7180642 Dia. 125 mm R+E damper + Modulating actuator (one per comfort unit)</p> |  | <p>Code 7180644 + 7180646 Code 7180644 + 7180646</p> |

HYSYS[®]

Hysys[®] : the Hydraulic solution



Hydraulic module for the energy performance, comfort and modularity of the Hysys[®] system

HY-MOD, THE VARIABLE FLOW MODULAR SOLUTION FOR HYSYS[®]

In light of the stricter F-Gas regulations governing refrigerant, the solution of the water loop as energy transfer fluid has once again become the natural choice for heating and cooling buildings.

Through its Hysys[®] package, CIAT now offers a complete, high-performance solution for commissioning hydraulic installations with:

- A thermodynamic unit with a low volume of fluid contained inside the machine.
- HEE comfort units perfectly adapted to the needs of different markets.
- High-efficiency recovery dual-flow air handling units.
- A Smart CIATControl tablet for system energy optimisation - variable water temperature.
- HY-MOD modules for balancing the network and variable water flow rate.

DESCRIPTION OF THE MODULE

Placed between the generator and the comfort units, HY-MOD modules comply with regulations governing network balancing and ensure the distribution of water for each emitter. The HY-MOD guarantees the comfort, performance and conformity of the installation. It comprises:

- A balancing valve on the primary network
- A primary bypass
- a secondary accelerator pump with 0 to 100% variable

flow to suit the emitter requirements. The accelerator pump motor uses low-consumption EC technology

- Very thick armaflex insulation
- Used together with V30/V300 controllers, the HY-MOD offers an optional changeover unit to transmit the operating mode information to the comfort units via a pilot line (see intelligent solution double page)

MAIN CHARACTERISTICS

- Nominal flow rate : 0 to 6 m³/h
- Power input : 16 to 310 W depending on demand
- Dimensions : 775 x 479 x 227 mm
- Diameter of the 4 connections : G 1 1/4 threaded
- Module reference : 7 462 593
- C/O unit reference : 7 401 984

SIZING AID FOR PRIMARY AND SECONDARY NETWORKS

Primary network

Secondary network

Pipe diameter calculation based on the loop power and the equivalent SUPPLY** length

| Diameter | Installation power (kW) | | | | | | | | | | | | | | | | | |
|----------|-------------------------|-----|-----|----|-----|-----|-----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 120 | 140 | 160 | 180 | 200 |
| DN 50 | 357 | 172 | 100 | 71 | 50 | 35 | 27 | | | | | | | | | | | |
| DN 65 | | | | | 185 | 143 | 111 | 71 | 50 | 37 | 31 | | | | | | | |
| DN 80 | | | | | | | | | | 83 | 66 | 52 | 41 | 29 | | | | |
| DN 100 | | | | | | | | | | | | 200 | 156 | 113 | 76 | 60 | 48 | 39 |
| DN 125 | | | | | | | | | | | | | | | 217 | 178 | 135 | 111 |

Pipe diameter calculation based on the zone power and the equivalent SUPPLY** length

| Diameter | Zone power (kW) | | | | | | | | | | | | | | | | | |
|----------|-----------------|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|----|
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 35 |
| DN 25 | 675 | 188 | 85 | | | | | | | | | | | | | | | |
| DN 32 | | | | 193 | 146 | 96 | 71 | 59 | 44 | 38 | | | | | | | | |
| DN 40 | | | | | | 207 | 150 | 122 | 96 | 79 | 67 | 56 | 48 | 42 | | | | |
| DN 50 | | | | | | | | | | 250 | 207 | 187 | 158 | 140 | 120 | 108 | 97 | 91 |

COMMISSIONING AND USING THE MODULE

Benefit from all of CIAT's experience in monitoring water loop systems. As part of its sales package for the Hysys® system, CIAT Service will fine-tune all equipment, configure the Smart CIATControl and hydraulically balance the primary and secondary networks.

This support is bolstered by preventive maintenance contracts, training and a technical audit. This guarantees the performance of your HVAC solution.

* To ensure the optimal functioning of the unit, a minimum volume of 14 litres of water per kW is recommended; take into account the compressor's stage 1 power.

** The recommendations and indicated length values are for information only, and in no way engage CIAT's liability .

HYSYS®

Hysys®: the Aeraulic solution



Quality of interior environments and optimal comfort, thanks to the air handling unit linked to the comfort units

OPTIMISED AIR DIFFUSION

Air diffusion is a determining factor for comfort. CIAT's HYSYS® package offers diffusion solutions via its comfort units with:



- VISUAL 180° and 360° diffuser for the Coadis Line range with Coanda effect enabling excellent temperature uniformity and optimum comfort.



- Range of diffusers associated with the Comfort Line range, to best adapt to your design, comfort and integration requirements.

MODULAR AIR CHANGE

The Hysys® package systematises the use of FLOWAY high-efficiency dual-flow air handling units for air renewal. The Hysys® HEP version features 2 fresh air flow control modules. This can be controlled centrally (unit operation based on the CO₂ level) or individually (R1 or R+ pack):

- R1 pack: Fresh air flow control managed by a presence sensor (individual offices)
- R+ pack: Fresh air flow control managed by a CO₂ sensor (meeting rooms)



PURIFICATION OF INTERIOR ENVIRONMENTS (EPURE)

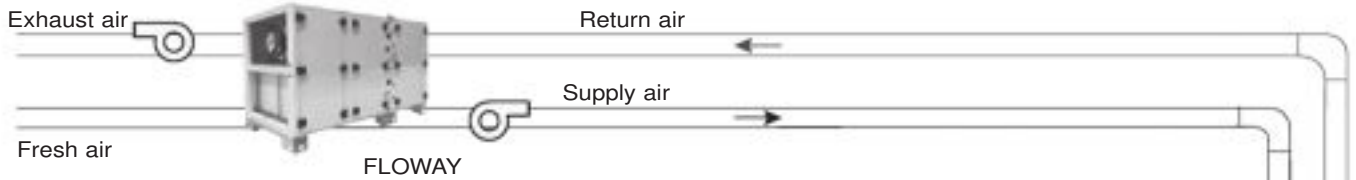
The air quality is ensured by controlling the fine particles inside the building. These are responsible for 70% of health problems linked to IAQ. The Hysys® HEP version works on 3 levels:

- Reinforced filtration of fresh air on the FLOWAY air handling unit
- EPURE function on the comfort units
- Dynamic purification with Smart CIATControl (Epure Dynamics®): Particle sensors associated with the comfort units, guaranteeing a fine particle level below the threshold recommended by the WHO (10 µg/m³).

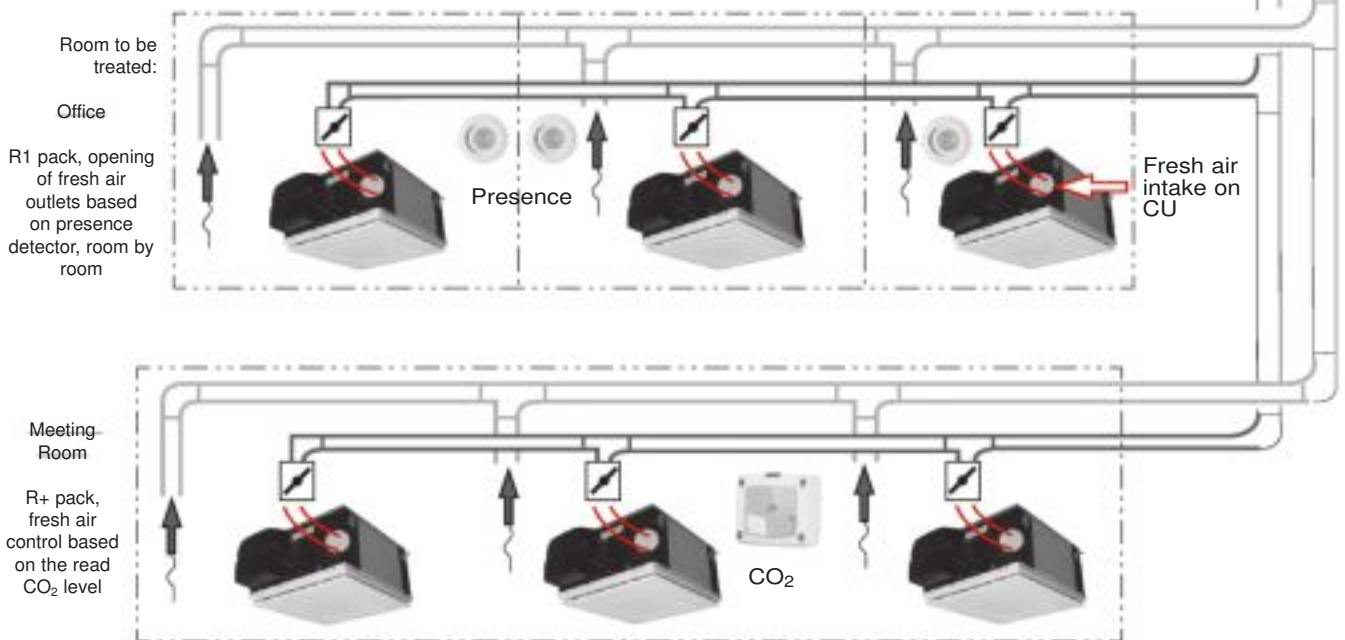
The Hysys® HEP version is designed to meet requirements concerning health and comfort.



SIZING AID FOR THE AIR DUCT NETWORK



| Equivalent length of the SUPPLY pipe available for the primary network (linear metres) (based on the capacity of the loop) | | | | | | | | | | | | | | | | |
|--|-----|----|-----|-----|-----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| Installation power (kW) | | | | | | | | | | | | | | | | |
| Diameter | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 120 | 140 | 160 | 180 | 200 |
| DN 50 | 100 | 71 | 50 | 35 | 27 | | | | | | | | | | | |
| DN 65 | | | 185 | 143 | 111 | 71 | 50 | 37 | 31 | | | | | | | |
| DN 80 | | | | | | | | 83 | 66 | 52 | 41 | 29 | | | | |
| DN 100 | | | | | | | | | | 200 | 156 | 113 | 76 | 60 | 48 | 39 |
| DN 125 | | | | | | | | | | | | | 217 | 178 | 135 | 111 |



| Equivalent length of the SUPPLY pipe available for the secondary network (linear metres) (based on the capacity for the zone in question) | | | | | | | | | | | | | | | | |
|---|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|----|
| Zone power (kW) | | | | | | | | | | | | | | | | |
| Diameter | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 35 |
| DN 25 | 85 | | | | | | | | | | | | | | | |
| DN 32 | | 193 | 146 | 96 | 71 | 59 | 44 | 38 | | | | | | | | |
| DN 40 | | | | 207 | 150 | 122 | 96 | 79 | 67 | 56 | 48 | 42 | | | | |
| DN 50 | | | | | | | | 250 | 207 | 187 | 158 | 140 | 120 | 108 | 97 | 91 |

RULES FOR DETERMINING AIR FLOW RATES

There are various ways of defining the ventilation flow rate required in a building. 3 methods are generally used to calculate the required air flow rates:

- Based on a certain volume of air to treat; generally 1 vol/h, that is to say the air change of the whole volume of the building in one hour (this is calculated by multiplying the surfaces by the average ceiling height).
- Based on average occupancy (number of people per room), use and type of room. In France 25 m³/h/per person is generally accepted for the majority of buildings.
- In compliance with European standard EN 15251, which sets the required fresh air flow rates depending on how the building is used, its surface area, the number of occupants, pollutant emissions, etc. This is the most exhaustive standard, and takes into account all of these criteria, which generally imposes higher flow rates.

* The recommendations and indicated length values are for information only, and in no way engage CIAT's liability

HYSYS®

Hysys®: the intelligent solution

CIATControl: Intelligence and control for the Hysys® system



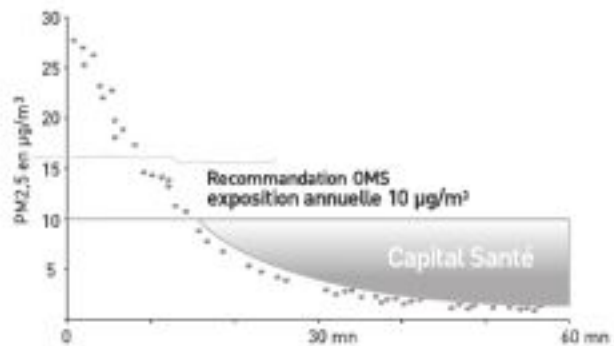
SMART CIATCONTROL, LA SOLUTION INTELLIGENTE AU COEUR DU SYSTEME HYSYS®

The SMART CiatControl is a stand-alone management tablet that ensures the quality of indoor air and performance of Hysys® system.

* Optimizing Indoor Air Quality (IAQ) with Epure dynamics

We spend 90% of our time in enclosed spaces (work, home, transport). Indoor air is up to 8 times more polluted than outdoor air. Among the pollutants found inside buildings, fine particulate matter (PM) is responsible for 70% of the health problems associated with IAQ. The IAQ and the health of the occupants therefore go through the control of fine particles inside the building. The Hysys® system combined with Epure Dynamics is the ideal solution to capture up to 90% of PM2.5 fine particles.

Epure Dynamics is a high-efficiency particulate clean-up system by local recycling.



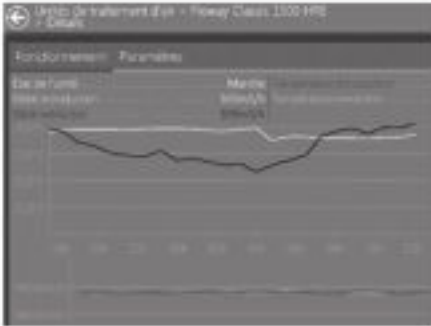
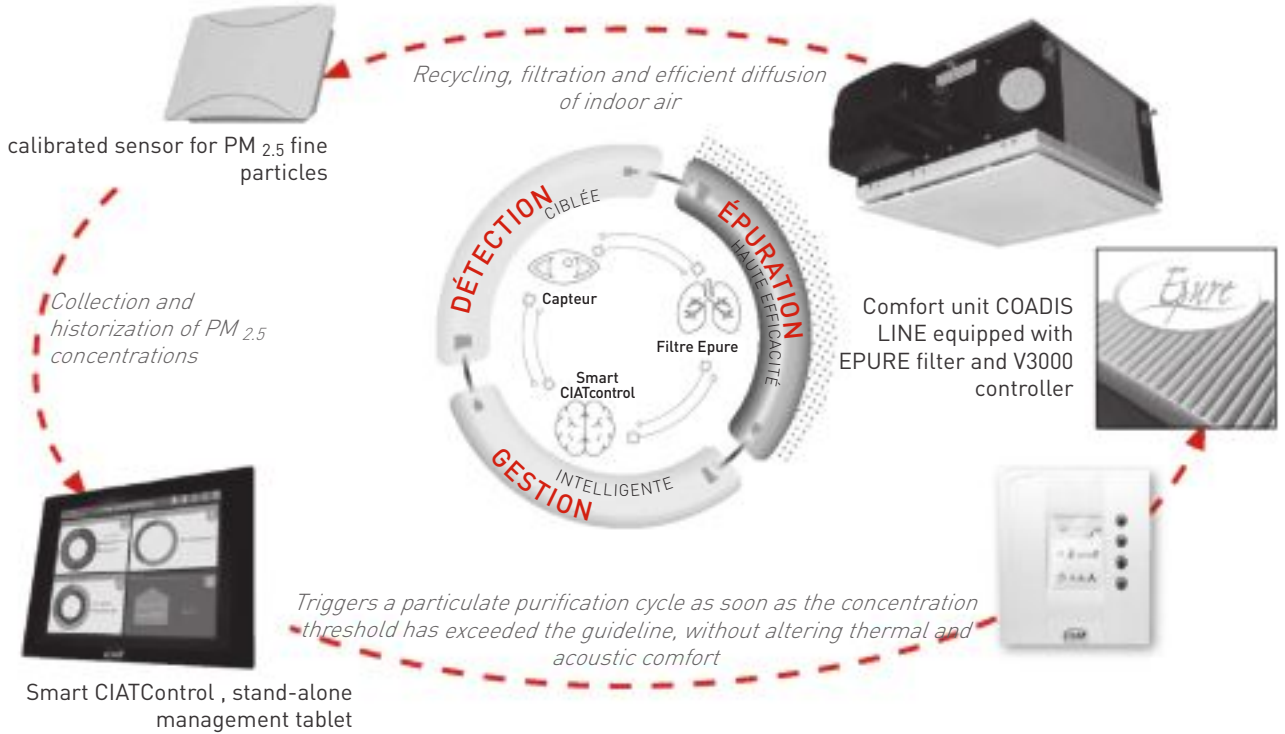
* Results of particulate abatement in an indoor living space equipped with the Hysys solution with the Epure Dynamics function.

The particulate abatement is visible in real time and historiated in Smart CIATControl's "Epure Dynamics" menu thanks to the permanent measurement of the particle detector.

How does Epure Dynamics work in the Hysys system?

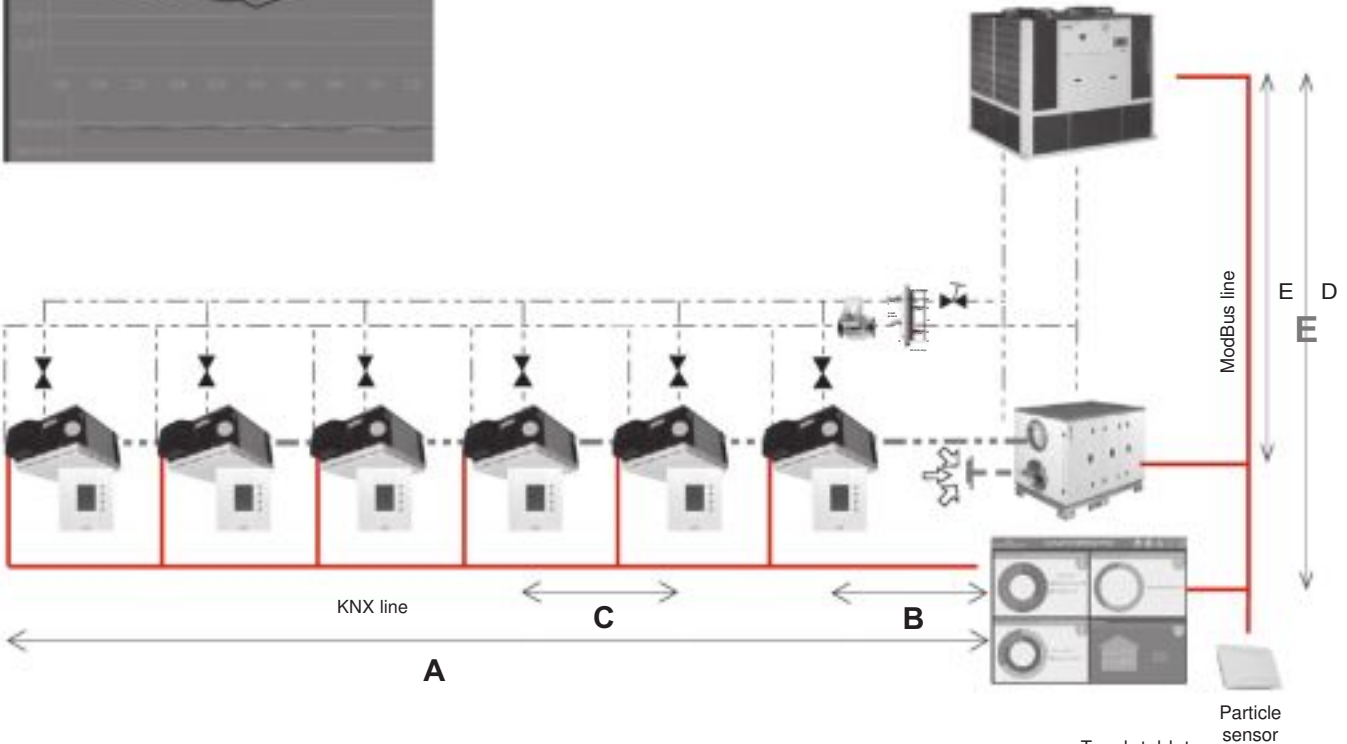
- Targeted particulate detection with the addition of a specially calibrated sensor for PM 2.5 fine particles to the HYSYS system
- Smart MANAGEMENT of PM 2.5 rate information by SMART CIATControl
- Communication with V3000 electronic regulation for steering interior comfort units
- Action on coadis Line (cassette) or Comfort Line (gainable) comfort units equipped with a specific EPURE filter (filter surface x10) to trigger a particulate purification cycle.





*** Energy optimizing with Optimal Water®**

Depending on the different building needs, Smart CIATControl optimizes the HYSYS system in real time to get the best output from the generator.



- Touch tablet
- Remote access to setpoints and parameters of connected products.
- Automatic changeover - Multi-zone time schedule based on 4 stages.
- Optimal Stop and Start (building restart time based on stored temperature readings).
- Optimal Water® Energy optimisation function that calculates the best water temperature based on emitter requirements.
- Epure Dynamics® Indoor air quality optimisation function for individual zones based on the fine particle concentration level.

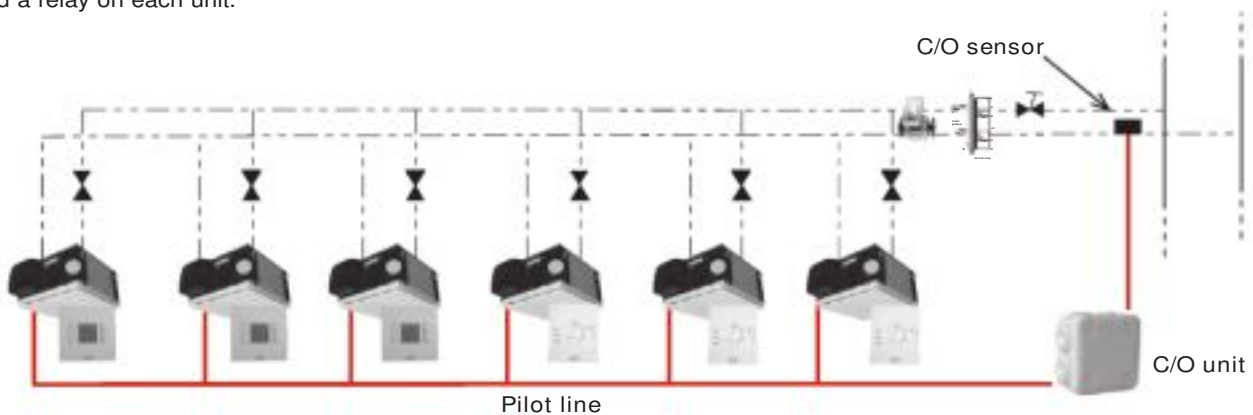
Lengths A, B, C, D, E (KNX and ModBus lines): see "Sizing aid for connections" table on next page

SIZING AID FOR SMART CIATCONTROL CONNECTIONS

| Protocol Cable reference | Max. connection length (m) | System | Maximum number of connected units | Number of lines | |
|---|---|------------------------|-----------------------------------|-----------------|---------------|
| YCYM 2x2x0.8 or JY(St) Y 2x2x0.8 VDE 0815 cable | A: 1000 m Total line length B: 300 m Tablet - V3000 C: 700 m V3000 - V3000 | Smart CIATControl 60: | 60 V3000 units | 1 KNX line | |
| | | Smart CIATControl 120: | 120 V3000 units | 2 KNX lines | |
| | | Smart CIATControl 180: | 180 V3000 units | 3 KNX lines | |
| RS 485 shielded twisted pair cable E.g.: 2 x 2 x 0.5 | D: 1000 m Total line length E: 500 m Between 2 nodes | | Heat pump or chiller | AHU | |
| | | Smart CIATControl 60: | 3 | 2 | 1 ModBus line |
| | | Smart CIATControl 120: | 3 | 4 | |
| | | Smart CIATControl 180: | 3 | 5 | |

CENTRAL CHANGEOVER (FOR V30 AND V300 CONTROL ONLY)

For 2-tube Heating/Cooling comfort units equipped with non-communicating controllers (V30 and V300), Hysys® offers a central C/O solution with the decoupling module. It comprises a unit with a C/O sensor which is positioned on the primary supply circuit and a relay on each unit.

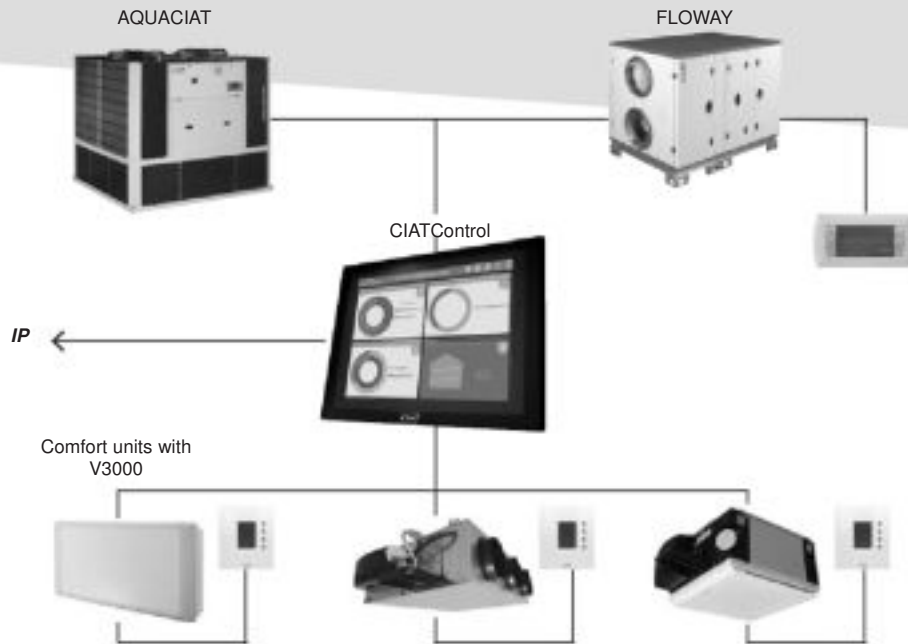


230 V pilot line, 2 x 1.5 mm² cable section; contact us for possibilities and options for these controls.
 For V300 application: see our centralised changeover solutions via a zone timer

CIATCONTROL

CIATControl

Smart system solutions from CIAT



DESCRIPTION



Smart CIATControl

Smart CIATControl facilitates access to the Hysys[®] system and enables the following:

- centralisation of information for all of the components according to different levels of use,
- manual centralised system changeover,
- Remote management of the building's HVAC equipment. Smart CIATControl allows you to view and control all the equipment remotely from a computer or tablet.

Smart CIATControl enables programmed management of the building:

- Timed programming of all components based on the building's occupancy level,
- Daily/weekly programming according to 4 setpoint levels (comfort/standby/economy/frost protection-off),
- Identification of bank holidays and annual closures,
- Individual setpoint management per room or grouped into building zones.

Smart CIATControl: System memory

- It is able to take temperature readings based on your criteria: (water outlet T°, room T°, outdoor T°, etc.),
- The generator's consumption readings are also logged as per statutory requirements,
- It enables information to be sent to a centralised building management system (with IP BACnet optional).

Smart CIATControl optimises the Hysys system in real time. The patented programming algorithm ensures perfect optimisation of the HVAC system based on variations in the weather and occupancy levels.

■ Energy optimisation with:

- Automated changeover of the system according to the calculation of the majority requirements of the building,
- Optimal stop & start: calculates optimisation of the heating and cooling start and stop times based on a programming calculation of the building's inertia,
- Optimal Water[®]: depending on the differing needs of the building, Smart CIATControl optimises the water loop system in real time to ensure the best performance from the generator.

■ Air quality optimisation with:

- Epure Dynamics[®]: particulate processing of zones according to WHO recommendations.
- Active CO₂: controlling air change according to CO₂ concentrations.

Compatible controllers

Smart CIATControl collects information from CIAT controllers using open protocols (KNX and MODBUS).

The following units are compatible:

- comfort units equipped with V3000,
- AQUACIAT LD/ILD and water chillers,
- FLOWAY.

Assistance

Smart CIATControl systems are fully commissioned by CIAT:

- Configuration of units based on building plans,
- Start-up of Hysys system equipment.

CODES

| | | Standard version | Bacnet version |
|---|---|------------------|----------------|
| Smart CIATControl 60 60 x CU max 3 x CS - 2 x AHU Mandatory system start-up, to be charged separately | - 1 KNX 320 mA supply - 10" touch screen | E047240 | E047243 |
| Smart CIATControl 120 120 x CU max 3 x CS - 4 x AHU Mandatory system start-up, to be charged separately | - 2 x KNX 320 mA supplies - 10" touch screen | E047241 | E047244 |
| Smart CIATControl 180 180 x CU max 3 x CS - 5 x AHU Mandatory system start-up, to be charged separately | - 3 x KNX 320 mA supplies - 10" touch screen | E047242 | E047245 |
| 1-year EXTENDED WARRANTY including Smart 60 SYSTEM START-UP (France only) | | Code | E003817 |
| 1-year EXTENDED WARRANTY including Smart 120 SYSTEM START-UP (France only) | | Code | E003818 |
| 1-year EXTENDED WARRANTY including Smart 180 SYSTEM START-UP (France only) | | Code | E003819 |
| Accessories* & Options | - 1 x I/O Module Kit 4I-4O for 1 x Specific chiller or 4 x auxiliary equipment (extractors, etc.) | Code | 7258312 |
| | - Epure dynamics function, 1 sensor | Code | E051288 |
| | - Epure dynamics function, 2 sensors | Code | E051289 |
| | - Epure dynamics function, 3 sensors | Code | E051290 |
| | - Epure dynamics function, 4 sensors | Code | E051291 |
| | - Epure dynamics function, 5 sensors | Code | E051292 |
| | - Epure dynamics function, 6 sensors | Code | E051293 |
| | - BACnet levelling for Smart Control 60-120 or 180 including on-site support from a CIAT After-Sales technician (France only) | Code | E039072 |

* Refer to instruction manuals for the possible combinations for this equipment on the various buses.



CIAT

AIR TREATMENT SOLUTIONS

AIR HANDLING UNITS

AIR COMPACT™ P.151

 Up to 6 000 m³/h

FLOWAY CLASSIC® P.155

 500 to 18 000 m³/h

CLIMACIAT® P.161

 1 000 to 30 000 m³/h

AIRTECH™ P.175

 1 000 to 66 000 m³/h

AIRCLEAN™ P.179

 1 000 to 60 000 m³/h

AIR HEATER

HELIO THERME® 4 000 P.183

 1 400 to 11 000 m³/h

CLOSE CONTROL UNITS

EXPAIR™ P.199

5 to 50kW  800 to 12 000 m³/h

MAGISTER® P.207

10 to 116kW  3 000 to 27 500 m³/h

SWIMMING POOL DEHUMIDIFIERS

JUNIORTM BCP P.213

 4 to 15kg water/h


AQUAIR® PREMIUM BCP P.219


 56 to 74kg water/h

AQUAIR® BCP P.225

 22 to 74kg water/h

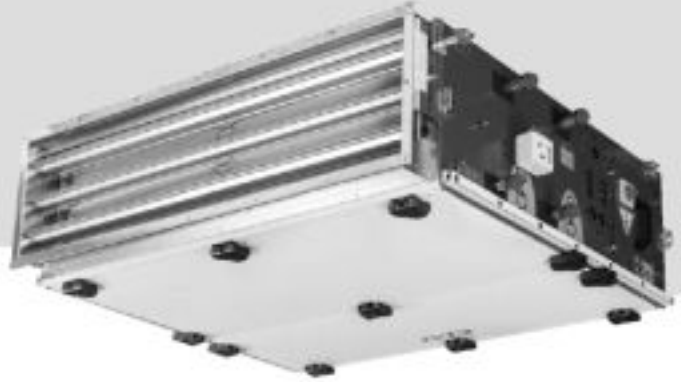
 Cooling

 F = Air flow in m³/h

 Dehumidification capacity

AIR COMPACT™

Air handling unit



The **modular Ultra-Slim AHU** is guaranteed to provide the perfect solution
 Ideal for a **compact** installation
 Available in a **single-flow** and **dual-flow** version

Air flow capacity: up to 6000 m³/h
 Operating pressure: up to 1000 Pa

USE

The **AIR COMPACT™** air handling unit is a modular ventilation unit, which can be configured to meet all your requirements whilst complying with current standards.

It is available in a single-flow or dual-flow version.

The AIR COMPACT™ AHU is used for fresh air introduction or compensation, air recirculation, and air extraction using its filtration, heating, cooling, recovery and ventilation functions.

Three versions of the AIR COMPACT™ AHU are available, ensuring it is easy to integrate:

- horizontal ceiling-mounted version, accessed from underneath,
- horizontal floor-mounted version, accessed from the top,
- vertical wall-mounted version, accessed via the front.

It is available in 3 sizes to provide a perfect match for your requirements, handling air flow rates from 1000 to 6000 m³/h.

At 400 mm thick, it is ultra compact and can be fitted into the tightest of spaces.

This range is particularly well-suited to tertiary buildings:

- administration, offices,
- education facilities, libraries, community centres,
- cafés, hotels, restaurants,
- shopping centres, nursing homes, healthcare facilities,
- collective housing

All installations requiring ventilation.

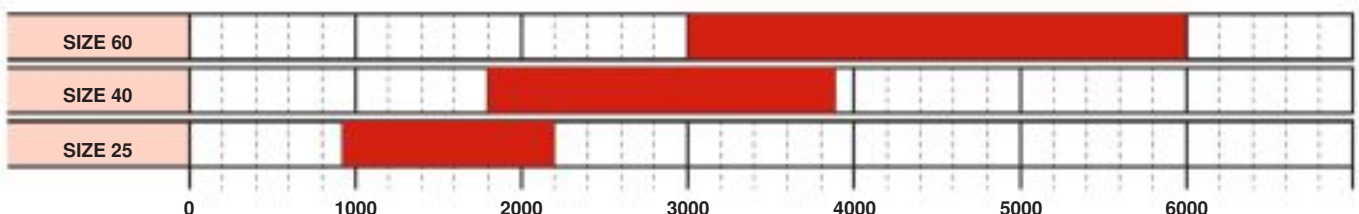
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RANGE

The AIR COMPACT™ range comprises three sizes from 1000 to 6000 m³/h.

There are four standardised lengths of module, adapted to the selected configuration and options.

The AHU will therefore comprise one or several modules, depending on your selection; 610, 830, 1100 and 1400 mm modules.



DESCRIPTION

Casing

Double-skin panels made from galvanised sheet steel, 0.8 mm thick
 External panels made from galvanised steel, precoated in RAL 7035 and RAL 7024
 M0/A1 class fire insulation
 Mineral wool, thickness 25 mm

Connection and utilities

Hydraulic connection possible on the right or left (to be specified when ordering).

The access doors are positioned according to the choice of model:

- horizontal ceiling-mounted model: access doors located underneath the unit,
- horizontal floor-mounted model: access doors located on top of the unit,
- vertical wall-mounted model: access doors on the front of the unit.

Damper

Uncased external damper

Class 1 leakage as per EN1751; class 3 dampers available as an option

Optional servomotor

Filtration

Filter cells with universal dimensions (287x592 mm)

Three filtration stages possible Pressure tapping as standard on each filtration stage

Pressure switch and pressure gauge available as an option

| Filters | Efficiency EN779:2012 | Efficiency ISO16890 |
|----------------------|-----------------------|---------------------|
| Compact filters | G4 | Coarse 65% |
| | M5 | ePM10 50% |
| | F7 | ePM1 60% |
| | F9 | ePM1 90% |
| Flexible bag filters | M6 | ePM10 65% |
| | F7 | ePM1 60% |
| | M6 | ePM10 70% |
| Rigid bag filters | F7 | ePM1 60% |
| | F8 | ePM1 70% |
| | F9 | ePM1 80% |

Heat exchange coil

■ Hydraulic coil

Copper tubes, aluminium fins

Choice of 3 coil sizes for each AHU size

Antifreeze thermostat with optional automatic reset

Stainless condensate drain pan

■ Evaporator coil

Copper tubes, aluminium fins

Choice of 3 coil sizes for each AHU size

Stainless condensate drain pan

■ Electric heater

Shielded resistors in scrolled finned tubes

Two high temperature safety thermostats: one automatic and one manual reset

Anti-radiation screen, depending on the upstream and downstream elements

| Output power supplied by the electric heaters | | | |
|---|------------------|------------------|------------------|
| AHU size | Main casing | Additional box | |
| | 2 stages | 2 stages | 4 stages |
| 25 | 2 x 7.5 = 15 kW | 2 x 7.5 = 15 kW | 4 x 7.5 = 30 kW |
| 40 | 2 x 12 = 24 kW | 2 x 12 = 24 kW | 4 x 12 = 48 kW |
| 60 | 2 x 16.5 = 33 kW | 2 x 16.5 = 33 kW | 4 x 16.5 = 66 kW |

Ventilation

"Plug fan" type direct drive fan motor assembly.

1 or 2 fans for each air flow rate, depending on the size and conditions.

Two motor technologies are available:

AC motor with optional frequency inverter.

EC motor (electronically commutated motor with built-in variable speed control).

| AIR COMPACT™ SIZE | | 25 | 40 | 60 |
|---------------------------------------|-----------------|--|--------|------|
| Rated air flow rate (m³/h) | | 2000 | 4000 | 6000 |
| Number of fans for each air flow rate | | 1 | 1 or 2 | 2 |
| AC motors* | Output per unit | 0.55 kW / 1.1 kW / 1.4 kW | | |
| | Power supply | 3~230/400 V (or 1~230 V with the single-phase inverter option) | | |
| EC motors | Output per unit | 1 kW | | |
| | Power supply | 3~400 V - 50/60 Hz | | |

* Requires a frequency inverter

Accessories and options

2-channel mixing box: 3 air flow positions available

3-way mixing box

Angled or straight plenum

Sound attenuator

Adjacent plate heat exchanger (available on sizes 25 and 40)

Control system

Controls (Option)

- Electrics box for power, control and regulation built into the unit, comprising as standard:
 - compatibility with a 3~400 V + E - 50 Hz power supply
 - main disconnect switch
 - 24 V transformer with primary and secondary protection
 - protection and control of all electrical components by a circuit breaker and contact switch

- surface-mounted electric heater unit, or delivered unassembled
- control via a PLC, preinstalled with a program developed by CIAT
- hand-held cabled micro-terminal
- fault summary contact
- ventilation actuated at a constant flow rate, constant pressure, or via a CO₂ sensor
- pressure and temperature sensors, depending on the selection

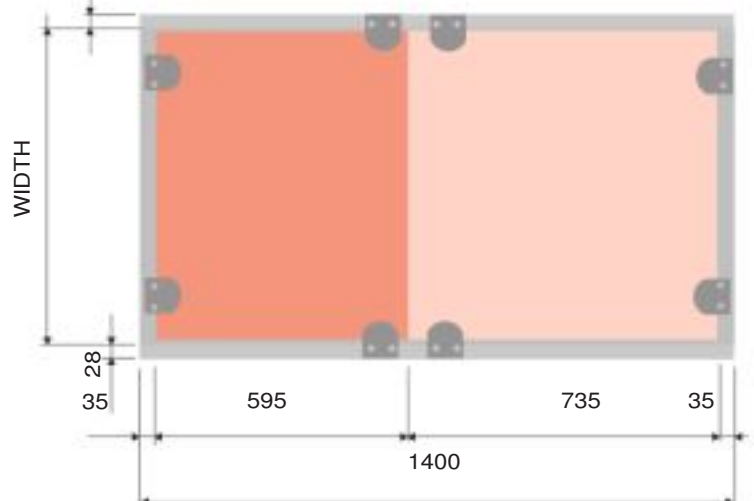
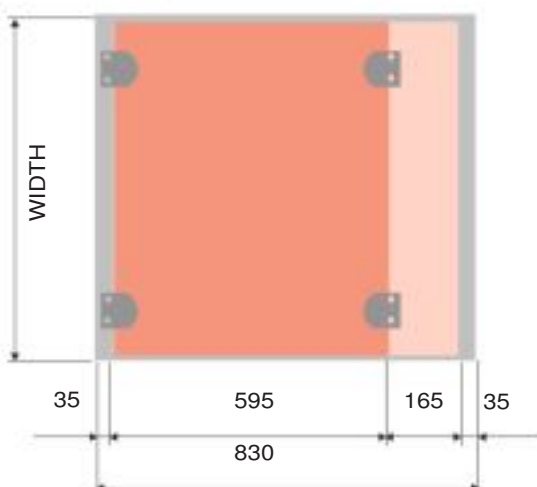
| AIR COMPACT™ Control functions available | | Included | Option |
|---|--|---|--------|
| Timer | Option to define up to 4 weekly programs and 4 annual programs. The programs available are: temperature and ventilation in eco/comfort mode, frost protection, night cooling | x | |
| Human Machine Interface | LCD screen | x | |
| | Room remote control with special interface for the end user | | x |
| Remote actuation and CMS | Communication Protocols | MODBUS RS485 (RTU) | x |
| | | MODBUS IP | |
| | | BACnet IP | |
| | | KNX | |
| | | LON | |
| Filtration | Monitoring filter fouling (via analogue sensor or pressure switch depending on the number of filter stages) | x | |
| | Maintaining the air flow rate with compensation for filter fouling | x | |
| Ventilation management | Single zone | Constant volume air flow rate | x |
| | | Variable air volume via the CO ₂ sensor | |
| Multi-zone | | Constant supply air pressure (for installations equipped with ducted variable flow louvres) | x |
| | | | |
| Temperature management | Control of the supply air temperature | x | |
| | Control of the return air or ambient temperature | | x |
| | Free-cooling (depends on the machine configuration) | | x |
| Direct expansion coil | On/off output for outdoor unit in cooling only mode | x | |
| Heat recovery unit anti-icing | Via DP control on the exhaust air | | x |
| Protection of the internal components | Checking the heat protection for the motors | x | |
| | Checking the temperature and pressure sensors | x | |
| | Alarm if the operating limit thresholds are exceeded | x | |
| Auxiliary contacts | Inputs (dry contacts) | Fire fault | x |
| | | Remote On/Off | x |
| | | Electric heater load shedding | x |
| | | External humidifier fault | x |
| | Outputs (dry contacts) | AHU operating feedback | x |
| | | Maintenance fault summary | x |
| | | Danger fault summary | x |
| | | Direct expansion unit On/Off | x |

SPACE REQUIREMENTS AND DIMENSIONS:

| DIMENSIONAL SPECIFICATIONS | | | |
|---|--|------------|------------|
| AHU size | 25 | 40 | 60 |
| External dimensions of the single-flow modules (width x height in mm) | 750 x 400 | 1310 x 400 | 1880 x 400 |
| Casing length (in mm) | 610 – 830 – 1100 – 1400: Four standardised lengths of casing, automatically adapted to the components and options selected | | |

610 mm module ▶ 1 x 540 mm door
830 mm module ▶ 1 x 595 mm door

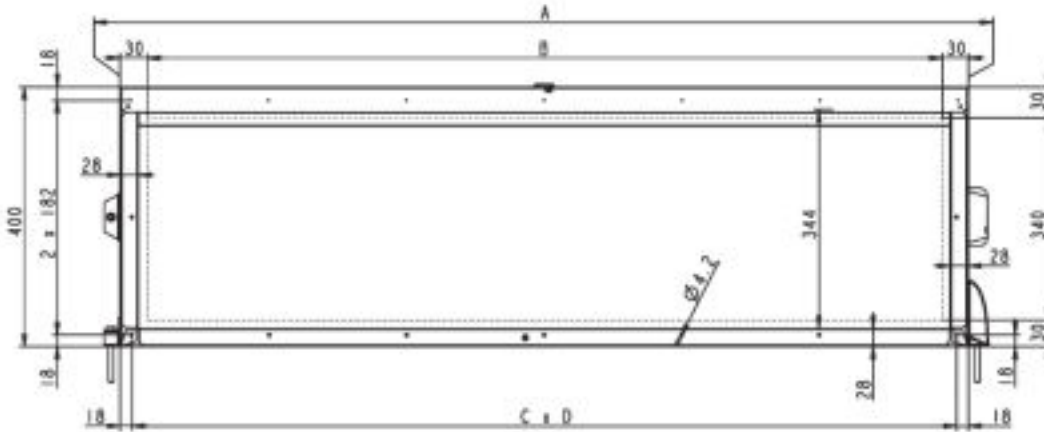
1100 module ▶ 1 x 595 mm door + 1 x 435 mm door
1400 module ▶ 1 x 595 mm door + 1 x 735 mm door



AIR CONNECTION

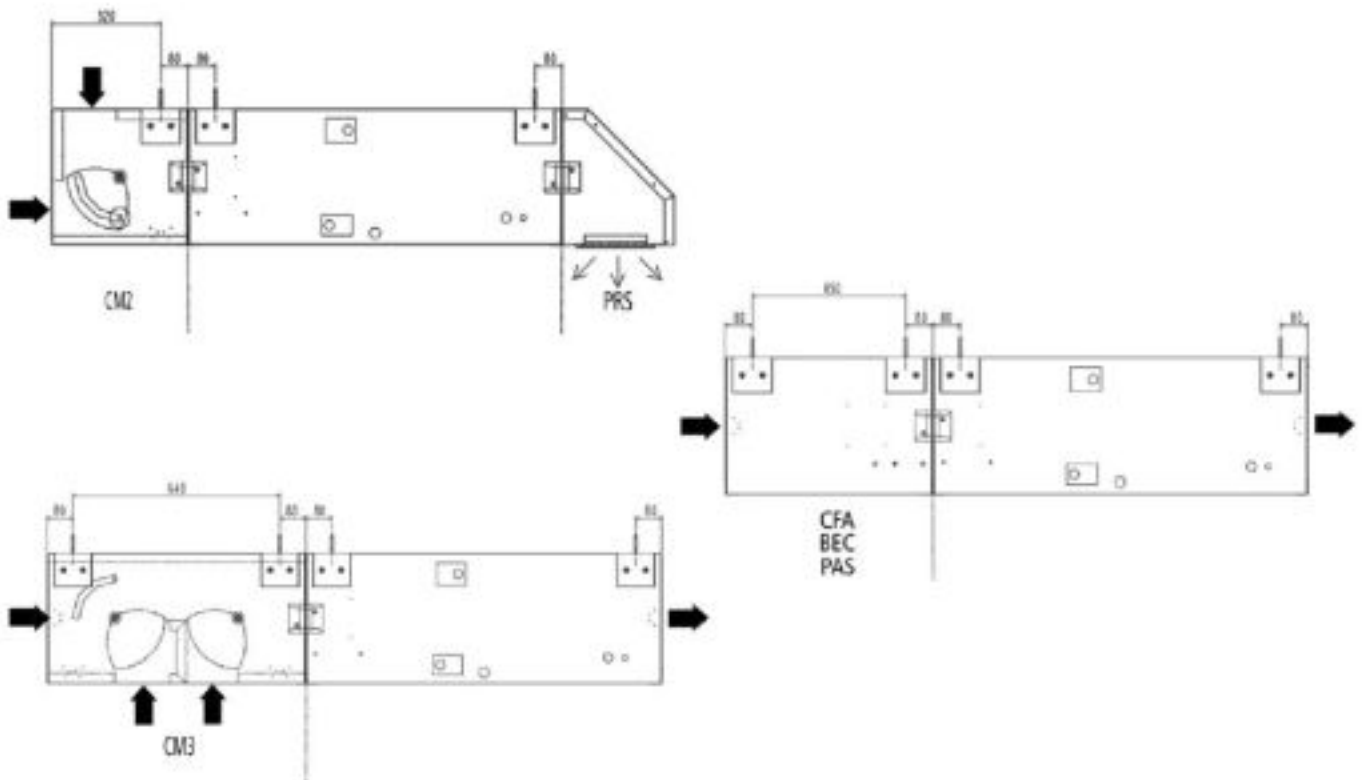
■ Air connection

Air connection AHU intake - AHU discharge - Mixing and plate heat exchanger



| | A | B | C | D |
|--------------------|------|------|---|-------|
| AIR COMPACT™ 25 | 750 | 690 | 3 | 238 |
| AIR COMPACT™ 40 | 1310 | 1250 | 6 | 212,3 |
| AIR COMPACT™ 60 | 1880 | 1820 | 8 | 230,5 |

■ Examples of compositions





FLOWAY® CLASSIC

Air handling unit

*Plug & Play AHU with onboard control,
Energy class A+ across the entire range, High
efficiency heat recovery unit, EC fan motor
assembly, high performance*



| Specifications | Class |
|----------------------|-------|
| Mechanical strength | D2 |
| Airtightness | L1 |
| Filter bypass leak | F9 |
| Thermal transmission | T3 |
| Thermal bridge | TB2 |

Air flow rate: 500 to 18,000 m³/h

USE

The FLOWAY® dual-flow air handling unit is a PLUG & PLAY ventilation unit equipped with a highly efficient heat recovery unit with plug fans and high performance EC motors, designed to meet all the requirements of recent ecodesign regulations.

Unit supplied ready to use, prewired, preprogrammed in the factory and supplied with a remote control.

It draws clean, fresh air indoors using, on average, 80% less energy than that needed for air conditioning (cooling and heating).

The FLOWAY® AHU range is particularly well-suited to the following applications:

- Administrative buildings, Offices
 - Shopping Centres
 - Education facilities, Libraries, Community centres
 - Nursing homes, Healthcare facilities
 - Cafés, Hotels, Restaurants
 - Collective housing
- All facilities where ventilation is required.

High energy-efficiency heat recovery unit

Two types of high efficiency heat recovery units are available based on the CTA FLOWAY® model:

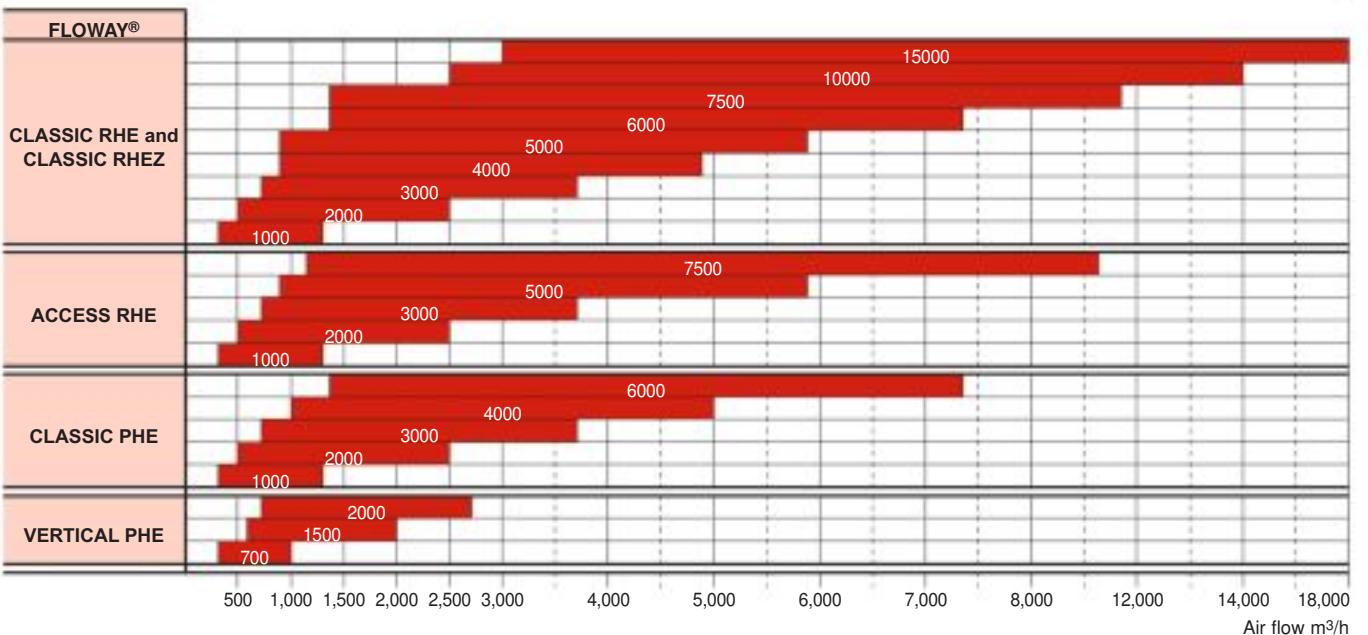


"CONTRA FLOW" plate heat exchanger with bypass (Classic PHE & Vertical PHE models)



Rotary heat exchanger (Classic RHE-RHEZ and Access RHE models)
Year-round optimal heat recovery
Classic RHEZ: With purge sector as standard

AIR FLOW RANGE



2

DESCRIPTION

Casing

- Double-skin panels made from steel sheet metal, galvanised on both sides, thickness 0.8 mm.
- External panels made from galvanised steel, precoated in RAL7035.
- M0/A1 insulation fire rating.
- Mineral wool, thickness 50 mm.

Filtration

- M5, F7, F9 filters.
- Filter cells kept compressed by a special system to ensure a leaktight seal.
- Classic PHE & RHE-RHEZ, Vertical PHE models: fouling value monitored by analogue sensor and displayed by controller.
- Access RHE model: pressure switch control on each air flow. Pressure switch status displayed by controller.

Ventilation

- "Plug Fan" type direct-drive fan.
- Plug fan driven by an electronically commutated motor with built-in speed control.

Heat recovery units

- "Contra Flow" plate heat exchanger equipped with a motorised bypass (Vertical PHE and Classic PHE models). Efficiency greater than 80% across the range of air flows.
- Rotary heat exchanger equipped with rotation speed control (Classic RHE model). Efficiency greater than 80% at nominal flow rate.
- Purge sector as standard (Classic RHEZ model)
- Constant speed rotary heat exchanger (Access RHE model). 80% efficiency at nominal flow rate.

Hydraulic coil

- Copper pipes, aluminium fins.
- Coil can be integrated or additional (cased).
- With the accessories fitted: 2- or 3-way control valve and 0-10 V actuator controlled by FLOWAY® Control for precise setpoint maintenance.
- Stainless steel condensate drain pan (cooling coil or mixed coil only).

Electric heaters

- High-limit safety thermostats with automatic and manual reset.
- 2- or 3-stage control based on the selected option, controlled by the FLOWAY® Control.

DX coil

- Copper tubes, aluminium fins.
 - For reversible heating/cooling operation.
 - Internal space optimised for VRV units.
 - Condensate drain pan in stainless steel.
- List of outdoor units optimised for FLOWAY® Access available on request.

Electrics box

- Electrics box for power, control and regulation built into the unit, comprising as standard:
 - Power supply (3-Ph/400 V/Earth or 1-Ph/230 V/Earth).
 - Main disconnect switch.
 - Protected transformer.
 - Protection and control of all electrical components by a circuit breaker.
 - Peripheral options and power terminal block.
 - Factory-programmed PLC control.
 - Hand-held cabled micro-terminal.
 - Fault summary contact.
 - 3 temperature sensors.
 - 4 pressure sensors (2 pressure sensors and 2 pressure switches on the Access model).

Accessories

- Damper formed of airfoil blades, powered by a TOR servomotor with spring return.
- Flexible sleeve.
- Adjustable feet.
- CO₂ air quality sensor.
- Roof.
- Canopy.
- Mixing section (Classic RHE model).

POWER SUPPLY

| FLOWAY® CLASSIC PHE and CLASSIC RHE-RHEZ | | | |
|--|---------------------------------------|-------------------|-----------------|
| Size | Nominal flow rate (m ³ /h) | Rated current (A) | Supply type |
| 1000 | 1000 | 5,8 | 1~230 V - 50 Hz |
| 2000 | 2000 | 4,2 | |
| 3000 | 3000 | 7,0 | |
| 4000 | 4000 | 8,6 | |
| 5000 | 5000 | 8,6 | 3~400 V - 50 Hz |
| 6000 | 6000 | 10,0 | |
| 7500 | 7500 | 10,0 | |
| 10000 | 10000 | 19,0 | |
| 15000 | 15000 | 24,6 | |
| | | | |
| FLOWAY® ACCESS RHE | | | |
| Size | Nominal flow rate (m ³ /h) | Rated current (A) | Supply type |
| 1000 | 1000 | 5,4 | 1~230 V - 50 Hz |
| 2000 | 2000 | 2,9 | |
| 3000 | 3000 | 6,1 | |
| 5000 | 5000 | 8,8 | 3~400 V - 50 Hz |
| 7500 | 7500 | 10,3 | |
| | | | |
| FLOWAY® VERTICAL PHE | | | |
| Size | Nominal flow rate (m ³ /h) | Rated current (A) | Supply type |
| 700 | 1000 | 6,2 | 1~230 V - 50 Hz |
| 1500 | 1500 | 4,2 | |
| 2000 | 2000 | 4,2 | 3~400 V - 50 Hz |

CONTROL

FLOWAY® Control

FLOWAY® features, as standard, an electrics box equipped with a factory-programmed PLC and a wired human machine interface.

| Available control features | | Included | Option |
|--|--|---|--------|
| CLASSIC PHE - CLASSIC RHE - ACCESS RHE - VERTICAL PHE models | | | |
| Timer | Option to define up to 6 weekly programs and 6 annual programs. The programs available are: temperature and ventilation in eco/comfort mode, shut-down, night cooling and frost protection | X | |
| Human Machine Interface | LCD display | X | |
| | Colour touch screen | | X |
| | Webserver (integrated web pages) | | X |
| | Room remote control with special interface for the end user | | X |
| Remote actuation and CMS | Communication Protocols | MODBUS RS485 (RTU) | X |
| | | MODBUS IP | |
| | | BACnet IP | |
| | | KNX | |
| | | LON | |
| Filtration | Monitoring filter fouling (via analogue sensor or pressure switch depending on the model) | X | |
| Ventilation management | Single zone | Constant air volume | X |
| | | Variable air volume via the CO ₂ sensor | |
| | Multi-zone | Constant supply air pressure (for installations equipped with ducted variable flow louvres) | |
| Temperature management | Control of return air or supply air temperature | X | |
| | Room temperature control | | X |
| | Automatic correction of the set-point based on the outdoor temperature | X | |
| | Free-cooling | X | |
| Direct expansion coil** | Gradual action on a reversible inverter outdoor unit | | X |
| | Hot/cold control | | X |
| | Optimised defrost cycle management | | X |
| Heat recovery unit anti-icing | Via fresh air temperature control | X | |
| | Via ΔP control on the exhaust air | | X |
| | Via electric pre-heater | | X |
| Protection of the internal components | Checking the heat protection for the motors | X | |
| | Checking the temperature and pressure sensors | X | |
| | Alarm if the operating limit thresholds are exceeded | X | |
| Auxiliary contacts | Inputs (dry contacts) | Fire fault | X |
| | | Coil 1* pump fault | X |
| | | Coil 2* pump fault | X |
| | | Remote On/Off | X |
| | | Eco/Comfort changeover | X |
| | Outputs (dry contacts) | AHU operating feedback | X |
| | | Maintenance fault summary* | X |
| | | Danger fault summary | X |
| | | Configurable external heater or cooler* | X |
| | | On/Off coil pump no. 1* | X |
| On/Off coil pump no. 2* | X | | |

* Not available on the Access RHE model

** Not available on the Classic PHE, Classic RHE-RHEZ, Vertical PHE models

AIR FLOW DIMENSIONS AND ORIENTATION

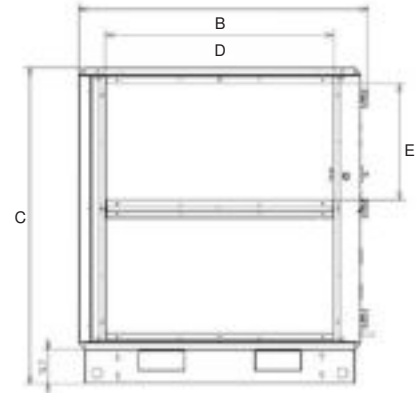
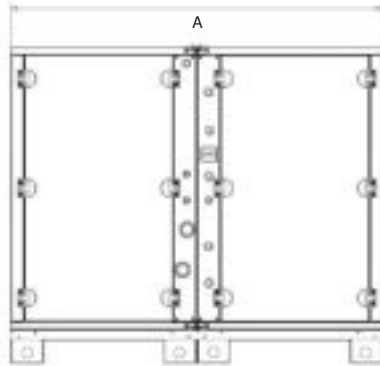
FLOWAY® CLASSIC PHE, CLASSIC RHE-RHEZ, ACCESS RHE

| SIZES | FLOWAY® Classic PHE, Classic RHE-RHEZ, Access RHE | | | | | | | | | |
|-------|---|-------------------|--------------------|-------------|--------------|------------|--------------|-------------|--------------|------------|
| | Height (C) (mm) | Width (B) (mm) | Length (A) (mm) | | | | Weight (kg)* | | | |
| | | | Classic PHE | Classic RHE | Classic RHEZ | Access RHE | Classic PHE | Classic RHE | Classic RHEZ | Access RHE |
| 1000 | 958 | 810 | 1580 | 1266 | 1480 | 1266** | 200 | 201 | 273 | 180 |
| 2000 | 1158 | 1010 | 1150 + 800 | 510 + 800 | 800+800 | 1310** | 350 | 309 | 382 | 250 |
| 3000 | 1359 | 1210 | 1264 + 800 | 800 + 800 | 1264+800 | 1600 | 465 | 432 | 556 | 330 |
| 4000 | 1659 | 1510 | 1264 + 800 | 800 + 800 | 1264+800 | - | 580 | 558 | 654 | - |
| 5000 | 1659 | 1510 | - | 800 + 800 | 1264+800 | 1600 | - | 604 | 704 | 445 |
| 6000 | 1959 | 1810 | 1407 + 800 | 800 + 800 | 1407+850 | - | 765 | 702 | 742 | - |
| 7500 | 1959 | 1810 | - | 800 + 800 | 1407+850 | 1600 | - | 751 | 811 | 580 |
| 10000 | 2090 | 1920 | - | 1100 + 1100 | 1820+1100 | - | - | 955 | 1065 | - |
| 15000 | 2340 | 2192 | - | 1100 + 1200 | 1820+1200 | - | - | 1250 | 1357 | - |

* Without internal option.

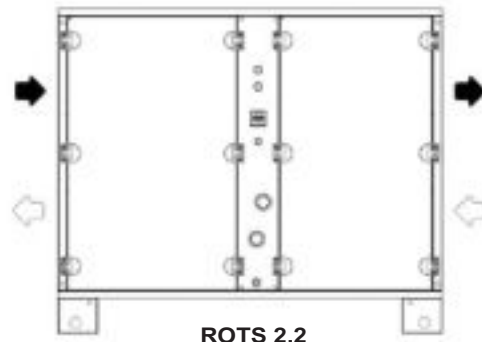
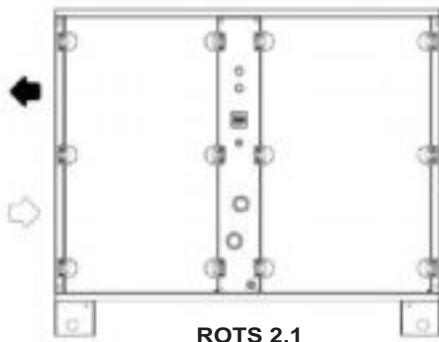
** Circular coupling; protrudes 47 mm on either side.

Condensate draining connection diameter: 16 mm smooth



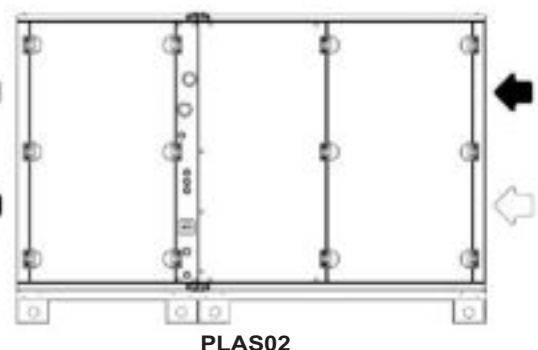
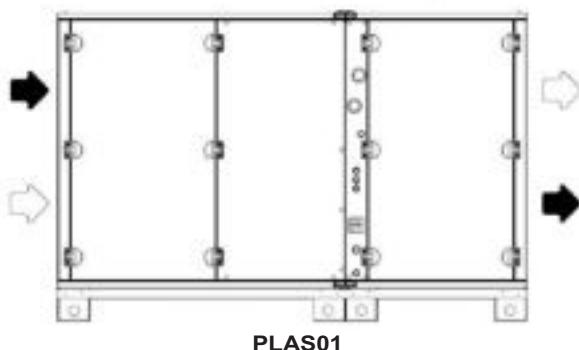
AIR FLOW ORIENTATION

Access RHE and Classic RHE-RHEZ models



WHITE ARROW = FRESH AIR
 BLACK ARROW = EXTRACTED AIR

Classic PHE models

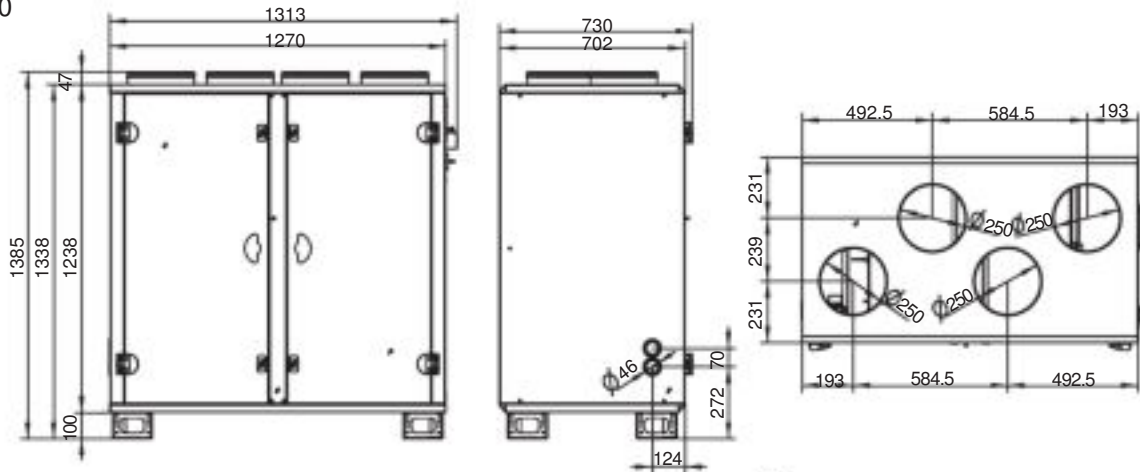


FLOWAY® Vertical PHE

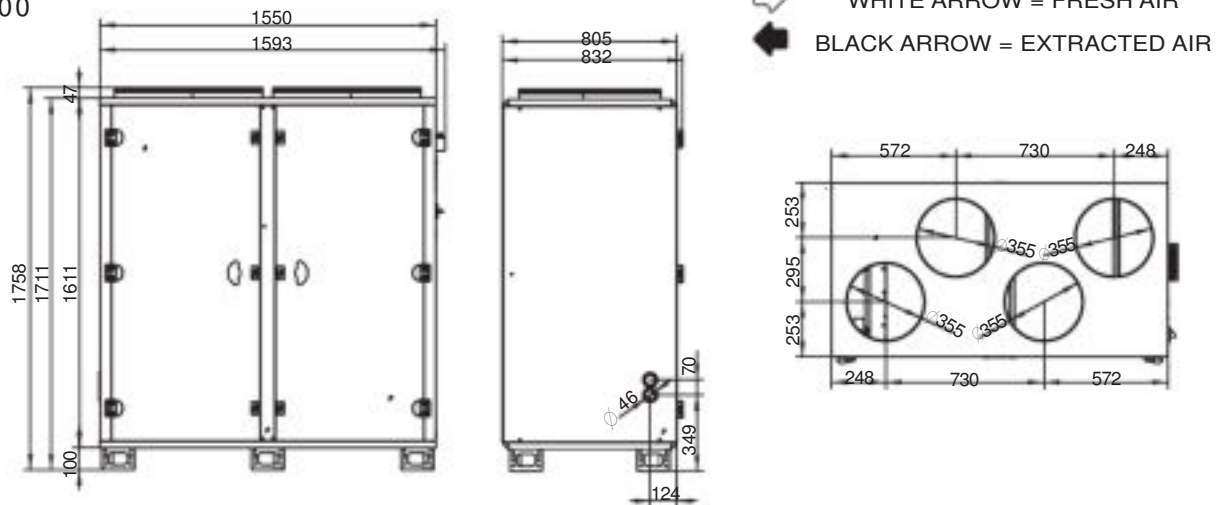
| MODELS | Dimensions | | | Weight (kg)* |
|--------|------------|--------|-------|--------------|
| | Height | Length | Width | |
| 700 | 1385 | 1313 | 730 | 202 |
| 1500 | 1758 | 1593 | 832 | 330 |
| 2000 | 1901 | 1735 | 832 | 389 |

Condensate draining connection diameter: 16 mm smooth.
 * Without internal option

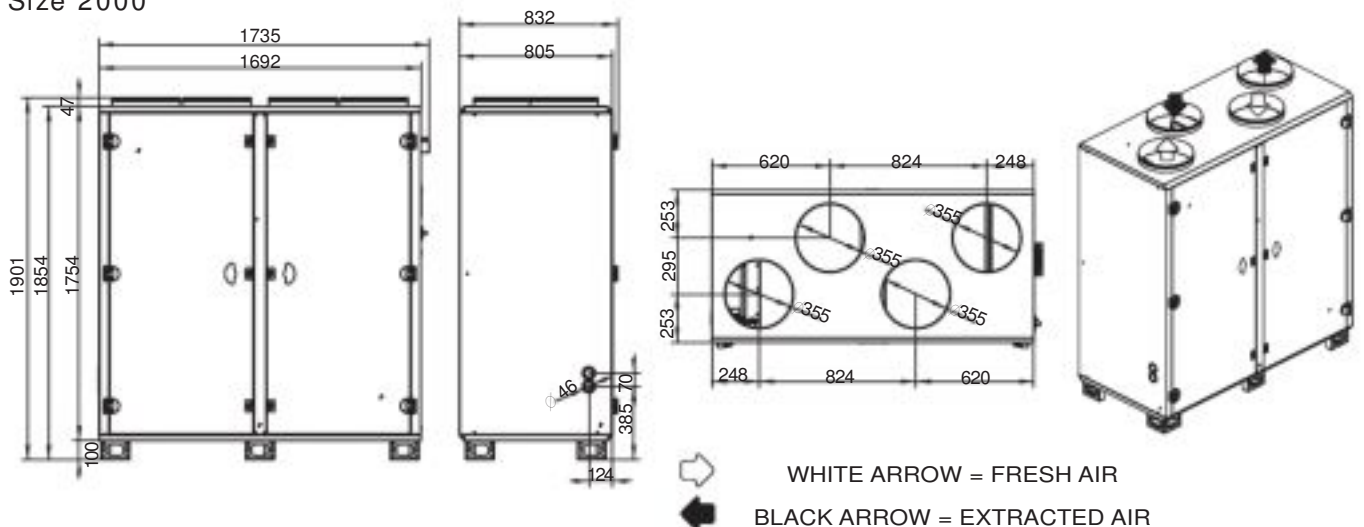
Size 700



Size 1500

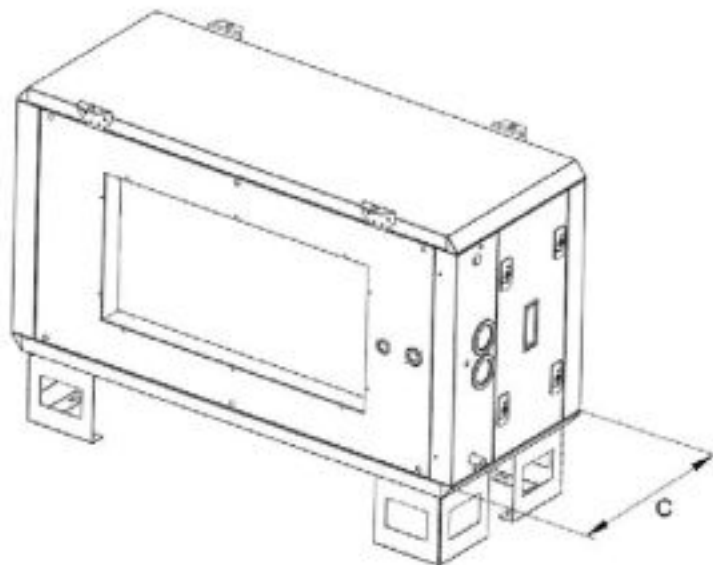
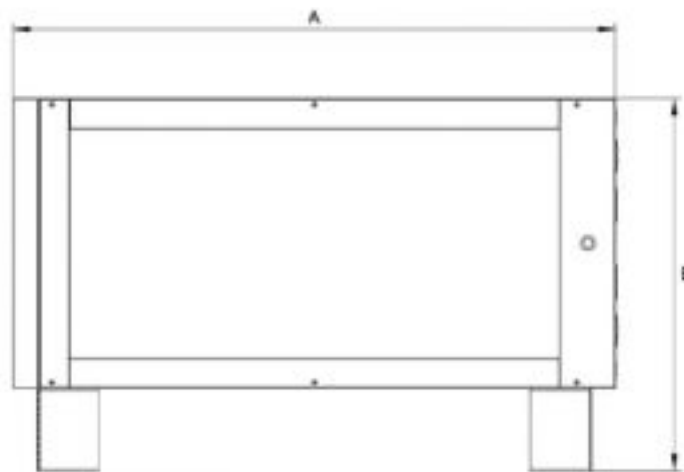


Size 2000



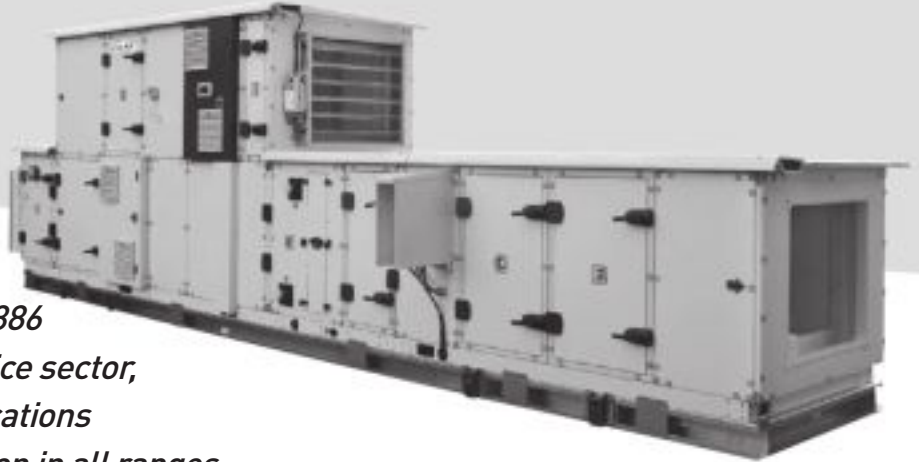
Additional casing (MUST ONLY BE POSITIONED IN A HORIZONTAL AIR FLOW)

| Size of additional casing | Corresponding FLOWAY® model | Width (A) (mm) | Height (B) (mm) | Length (C) (mm) | Weight +/-10% (kg) |
|---------------------------|---|-------------------|--------------------|--------------------|-----------------------|
| 1 | Classic RHE-RHEZ & PHE 1000 Vertical PHE 700 | 810 | 589 | 400 | 49 |
| 2 | Classic RHE-RHEZ & PHE 2000 Vertical PHE 1500 & 2000 | 1010 | 689 | 400 | 62 |
| 3 | Classic RHE-RHEZ & PHE 3000 | 1210 | 759 | 400 | 68 |
| 4 | Classic RHE-RHEZ & PHE 4000 - 5000 | 1510 | 909 | 400 | 88 |
| 5 | Classic RHE-RHEZ & PHE 6000 - 7500 | 1810 | 1059 | 400 | 112 |



CLIMACIAT®

Air handling unit



AHU for every applications

Designed to conform to standards EN 13053 and EN 1886

The effective solution for service sector, industry and healthcare applications

VDI 6022 hygienic version option in all ranges

CLIMACIAT® AIRCLEAN hygienic

AIRCLEAN DIN 1946-4 certified as option



| Specifications | Class | |
|----------------------|-----------------------|---------------------------------|
| | CLIMACIAT® Air Access | CLIMACIAT® Air Tech / Air Clean |
| Mechanical strength | D2 | D1 |
| Airtightness | L1 | L1 |
| Thermal transmission | T3/T2(option) | T2 |
| Thermal bridge | TB3/TB2(option) | TB1 |

AIR HANDLING UNIT: CLIMACIAT®

CLIMACIAT® represents the modern air handling units that CIAT has been offering for more than 40 years. The first air handling units were produced more than 80 years ago.

The CLIMACIAT® Airaccess/Airtech/Airclean is the latest generation of AHU to be developed, and is the fruit of this experience, integrating the EN 1886 and EN13053 standards, the ERP ECODESIGN 1253-2014 regulations and current innovations (filters, heat recovery units, fans, electric motors).

CIAT is ISO 9001, ISO14001 and ISO18001 certified. This means product development meets rigorous standards and stringent environmental requirements.

Ecodesign is a very important component of the studies for the CLIMACIAT® Airaccess/Airtech/Airclean range. The resulting product has a low environmental impact, in terms of its constituent materials and their recyclability and provenance, and in terms of consumption during the equipment's life cycle.

All the relevant elements are listed on an environmental sheet which provides an overview of materials and consumption, and an impact study.

This latest generation has been designed according to its criteria and adapted based on the applications.

The renowned European Air Side research and test centre validated the choices using its extensive digital resources, confirmed by tests in climatic test and acoustic chambers.

It also has a huge amount of test equipment at its disposal, meaning it can perform the tests requested as part of some orders.

The entire process is automated from reception of the order to manufacture, it is unique and specifically dedicated to production of this range.

New, comprehensive industrial resources are dedicated to this production, including paint processing, machining of panelling, frame, application of gaskets, welding, tests.

CIAT also manufactures air-to-water or refrigerant fluid heat exchangers using our own calculating and sizing tools, and our own fully-integrated production lines.

This gives us complete control of our performance levels and procurement cycles.

All of the above aspects combine to allow us to create a high quality product which gives you complete satisfaction in a diverse range of applications from office and service sector administration to industrial processes and controlled environments in industry and also the healthcare sector.

USE

The CLIMACIAT® range is designed for the service sector, industry and healthcare to meet different requirements in terms of air mixing, filtration, heating, refrigeration, dehumidification, humidification, ventilation, recovery and sound attenuation. It is available as a horizontally-mounted version for installation indoors or outdoors with a roof and accessories to protect it from the weather. The range is available in a single or dual-flow version.

Thanks to the broad spectrum of solutions on offer, and the product's excellent modularity, the specifications for this product will always comply with the EN 13053 and EN 1886 standards, whatever its configuration.

CLIMACIAT® Airaccess



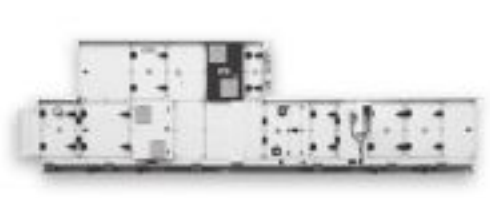
CONCENTRATED EXPERTISE
TO OBTAIN THE ESSENCE

CLIMACIAT® Airtech



COMBINING EFFICIENCY
AND MODULARITY TO MEET
TECHNICAL REQUIREMENTS

CLIMACIAT® Airclean



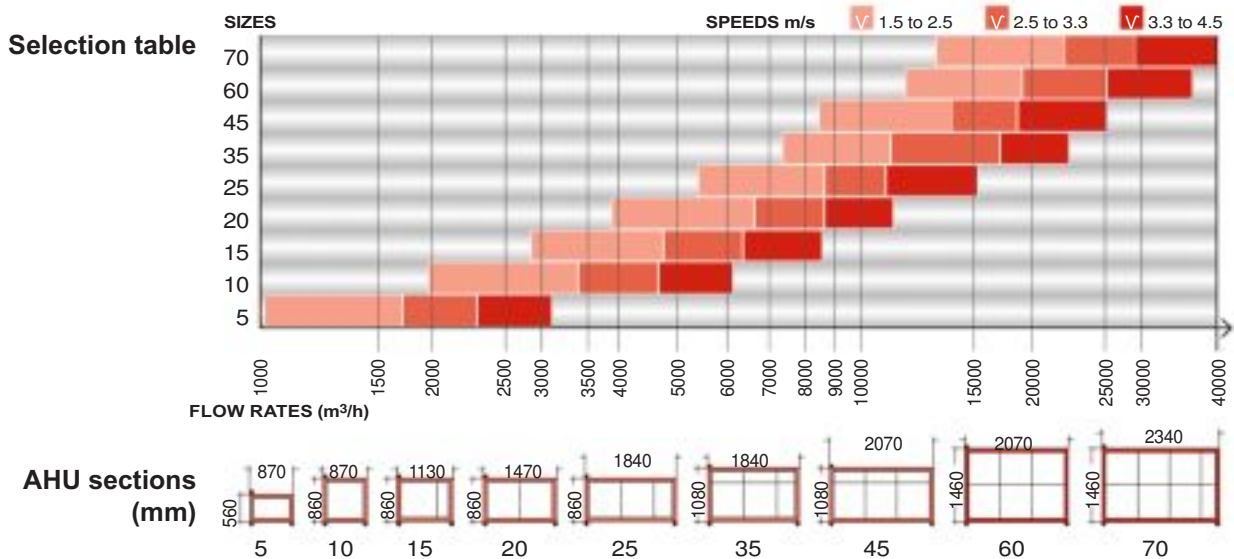
DESIGNED FOR THE SPECIFIC
CHARACTERISTICS OF CON-
TROLLED ENVIRONMENTS

RANGE

The CLIMACIAT® segment 1 range includes 9 different sizes to handle air flows from 1000 to 30,000 m³/h.

The diagram below is used to pre-select the required size according to:

- The through speed in the front active section of the heat exchange coils
- The air flow rate to be handled



COMPONENTS DESCRIPTION

CLIMACIAT® Airtech

Mounted actuators (option)

Class 1, 3, 4 damper and ATEX solution (optional)

Control mounted as option

Temperature and RH sensors mounted (option)

Variable speed controller for AC motors

Extensive choice of fans with plug fan impeller solutions, AC/EC motor

Simplified handling and positioning device

G1 to H14 filters with assemblies suited to various configurations

Doors on frames with thermal bridges and form-in-place gaskets for a perfect fit. Easy access for maintenance

Heat recovery for all applications and performance levels (anti-corrosion protection, enthalpy transfer, etc.)

Air tight special sealings without thermal bridge with heat exchange coils manufactured in our factories

CLIMACIAT® Airclean

Stainless steel or painted filter mounted with universal frames and absolute frames

High-performance casing with low thermal bridge. Various coatings and materials possible (stainless steel, paint, etc.)

Multi-slope stainless steel condensate pan, fully accessible for decontamination purposes

Protection and paint solutions on all ventilation components

Sound attenuator with baffle protection by means of an anti-defibration system (stainless steel or painted rails as option)

CLIMACIAT® Airaccess

Filtration from G1 to H14

Functional and high-performance casing with doors with form-in-place gaskets

Rotary heat recovery systems or plate heat exchangers

High-performance AC/EC fans

Various types of droplet separators (aluminium, stainless steel, polypropylene) on rails for sideways removal

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Casing

- Self-supporting panel construction up to size 70
- Double-skin panels, with 50 mm thick, long-fibre mineral wool insulation, reinforced with a non-woven fibreglass fabric, welded on for greater vertical strength.
- Moulded high strength bi-component polyurethane gaskets for the casing and door, guaranteeing a perfect seal.
- Inside of the AHU is perfectly smooth and even, with no protruding screws, as per the specifications in European standard EN 13053 (no internal handles).
- Doors hung on high quality frames, guaranteeing durability, performance and easy access for maintenance with adjustable hinges, external twist-lock handles and decompression system.
- AHUs delivered in several units are equipped with specific factory-fitted connective pieces, which ensure perfect alignment to simplify assembly.
- Each component unit of the AHU is equipped with an 80 mm ground insulation frame and multifunction ergonomic supports (handling, assembly).
- Each component is fitted with its own service panels. This allows independent removal for each function.

The standard EN-1886, define the main construction features for Air Handling units.

Among most important features we have :

Thermal transmittance [W.m⁻².K⁻¹]: The heat flow per area and temperature difference through the casing of the air handling unit.

CLIMACIAT® Airtech

- Highly-insulated panels, with thermal bridge break profiles
- External walls made from sheet metal with RAL 9010 lacquer coating
- Internal wall in Z275 galvanised steel

CLIMACIAT® Airclean

- Highly-insulated panels, with thermal bridge break profiles
- External wall made from galvanised steel with RAL 9010 lacquer coating
- Internal wall made from galvanised steel with RAL 9010 lacquer coating

CLIMACIAT® Airaccess

- Conventional double-wall panels
- External wall in Z275 galvanised sheet steel
- Internal wall in Z275 galvanised steel

Thermal bridging factor [-]: The ratio between the lowest temperature difference between any point on the external surface and the mean internal air temperature and the mean air-to-air temperature difference

CLIMACIAT® range can be upgraded from T3/TB3 to T2/TB2 offering improved technical features and significant energy savings.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|----------|----------|
| Smooth RAL 9010 paintwork on external panels | NA | Standard | Standard |
| Smooth RAL 9010 paintwork on internal panels | NA | X | Standard |
| Internal and/or external panels in 304 L or Z3CN 18.10 stainless steel | NA | X | X |
| Internal and/or external panels in 316 L or Z3CND 17.11.02 stainless steel | NA | X | X |
| Stainless steel indoor baseframe | X | X | X |
| Sloped stainless steel indoor baseframe with drainage | X | X | X |
| Galvanised ground insulation frame (h = 80mm) | Standard | Standard | Standard |
| Painted frame | NA | X | X |
| Stainless steel frame | NA | X | X |
| Factory-assembled AHU on common rack : max size 45 or maximum length 6 m | X | X | X |
| Container kit | X | X | X |
| Adjustable support feet with 60 mm extension | X | X | X |
| Fixed extension feet from 200 to 400 mm | X | X | X |
| Sloped roof for outdoor mounting | X | X | X |
| Special louvers to match external casing finish | X | X | X |
| Protective cover for external components to match external casing finish | X | X | X |
| Factory-fitted cable raceway | X | X | X |
| Lateral technical unit | X | X | X |

X: Option

NA: Not applicable

■ **Mixing and air intakes**

The air intakes and mixing section may be installed at the intake, inserted between the functions or installed at the device outlet.

These functions are equipped with dampers formed of counter-rotating profiled blades, with lateral gaskets, and driven by conrods.

These dampers are installed outside of or inside the casing, depending on the solution chosen.

Independent control of the louvres: manual, motorised or ready to be motorised

The functions provided depend on the selection:

- Isolation damper
- Frost protection damper
- Safety damper (compliant with French fire security normative , article CH 38)
- 2-way mixing with air intake
- 2-way flow distributions: top, front or lateral
- 3-way mixing: aligned, stacked or juxtaposed

Depending on the finishes:

- CLIMACIAT® Airaccess
 - Class 1 galvanised steel blades and frame compliant with EN1751
- CLIMACIAT® Airtech / Airclean
 - Class 3 galvanised steel blades and frame compliant with EN1751

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|---------|----------|
| Servomotor operated damper | X | X | X |
| Manual operated damper | X | X | X |
| Class 3 damper with defrosting system | X | X | X |
| Class 4 airtightness damper compliant with EN 1751 | NA | X | X |
| Polyester coated face and bypass dampers (frame and blades) | X | X | X |
| Stainless steel 304L damper | NA | X | X |
| ATEX damper | NA | X | X |
| Stainless steel drain pan | X | X | X |
| Hinged access door | X* | X* | X* |
| Lift-off door | X* | X* | X* |
| Porthole on door | X* | X* | X* |
| 230V bulkhead light | X* | X* | X* |
| Door contact switch | X* | X* | X* |

* Availability depends on the configuration

X: Option

NA: Not applicable

■ Filters

To meet the requirements of all the applications, a very wide range of filter efficiencies, technologies and dimensions is available.

Across the entire range, and for each type of filter, cells with international dimensions of 24" x 24" and 12" x 24" are available.

On sizes 05 to 45, compact filters which are 50mm thick are available in full section (FS) to optimise energy consumption.

Different types of filter assembly are available, depending on the efficiency level, technology and location within the AHU.

There are 6 specific assembly systems:

Assembly A available for filters with international dimensions and **Assembly A FS** for filters with a full section

- Traditional tracks designed for efficiency levels Coarse to 50% ePM10 or G1 to M6: For Compact cells, 50 mm thick, side door

Assembly B available for filters with international dimensions and **Assembly B FS** for filters with a full section

- Compressible tracks designed for efficiency levels G4 to F9 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with side door.

Assembly C for filters with international dimensions:

- Universal frames designed for efficiency levels Coarse or 80% ePM1 or G4 to F9, E10 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with access section and side door

Assembly D for Absolute filters with international dimensions
- Absolute large-media frames for EPA and HEPA Absolute cubic cells

Assembly ED for Absolute filters with international dimensions
- Absolute plate for EPA and HEPA Absolute cubic cells for industrial applications (e.g. pharmaceuticals).

Assembly F for Cubic carbon filters with international dimensions

- Large-media frames for Activated Carbon cubic cells.

| Description | Construction Code | Assembly | Efficiency levels ISO16890; EN779-2012; EN1822 | Cell descriptive code |
|---|-------------------|--------------|--|---|
| 50 mm flat metal filter | C | A or C | Coarse 30% - G1 | Galvanised steel metal medium and frame |
| 50 mm flat filter | C | A, B or C | Coarse 60% - G4 ePM10 50% - M5 M6 ePM1 60% - F7 | Galvanised steel metal frame and synthetic medium |
| 50 mm flat filter (full section) up to size 45 | C FS | A FS or B FS | Coarse 60% - G4 ePM10 50% - M5 M6 ePM1 60% - F7 | Galvanised steel metal frame and synthetic medium |
| 292 mm rigid bag filter | RB | B or C | ePM10 70% - M6 ePM1 60% - F7 ePM1 70% - F8 ePM1 85% - F9 E10 | Polypropylene frame and fibreglass medium |
| 380 mm short flexible bag filter | SB | B or C | Coarse 60% - G4 ePM10 60% - M5 ePM10 65% - M6 ePM1 60% - F7 | Galvanised steel metal frame and synthetic medium |
| 600 mm long flexible bag filter | LB | B or C | ePM10 65% - M6 ePM1 60% - F7 ePM1 85% - F9 | Galvanised steel metal frame and synthetic medium |
| 292 mm Absolute filter | CUBIC 610x610 | D | E10 H13 H14 | Polypropylene frame and fibreglass medium |
| 292 mm rigid bag carbon filter + fine filter, std universal frame | RB | B or C | Carbon +ePM1 60% - F7 | Polypropylene frame, synthetic + carbon medium |
| Flexible carbon bag filter + 600 mm long bag fine filter | LB | B or C | Carbon +ePM1 70% - F7 | ABS frame, synthetic + carbon medium |
| 292 mm rigid bag carbon filter | RB | B or C | Carbon | Carbon polypropylene frame |
| Cubic carbon filter | CUBIC 595x595 | F | Carbon | Metal frame + carbon panel |

C: 50 mm compact filter
C FS: 50 mm compact filter, full section
RB: 290 mm rigid bag filter

SB: 380 mm short flexible bag filter
LB: 600 mm long flexible bag filter
CUBIC: 292 mm cubic

* CLIMACIAT® software offers the equivalent classification of the filters according the ISO 16890

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|----------|----------|
| Lift-off door | X | X | X |
| Filter pressure tapping | Standard | Standard | Standard |
| Additional filter set | X | X | X |
| Galvanized steel drip tray | X | X | X |
| Stainless steel drip tray | X | X | X |
| Liquid manometer (supplied loosely in a kit) | X | X | X |
| Differential pressure switch | X | X | X |
| Magnehelic pressure gauge (supplied loosely in a kit) | X | X | X |
| Magnehelic pressure gauge factory fitted | X | X | X |
| Double glass porthole | X | X | X |
| 230V bulkhead light (supplied loosely) | X | X | X |
| 230V bulkhead light and wired to external switch | X | X | X |
| Door contact switch | X | X | X |
| Filter slide rails painted | X | X | Standard |
| Filter frame painted | X | X | Standard |
| 304 L or 316 L stainless steel slide rails | X | X | X |
| Stainless steel frontal access filter frame (fine filters •F") | NA | X | X |
| Painted filter frame (EPA/HEPA filters) | X | X | Standard |
| Stainless steel filter frame (HEPA filters •H") | NA | X | X |
| ATEX filters | NA | X | X |

X: Option

NA: Not applicable

■ Plate heat exchanger

- 3 efficiency levels available: from 60% to 85%
- The plate heat exchangers are always equipped with a total bypass on fresh air and access hatch to the servomotor
- Condensate drain pan on exhaust air side, made from galvanised steel with condensate drain piping as standard
- Available in a stacked configuration for all sizes
- Available in a juxtaposed configuration for size 60 and 70
- Access door to the condensate drain pan(s)

In the standard construction, the heat exchanger has aluminium plates, and can be used routinely up to an air temperature of 90°C (if the plate heat exchanger is a component of an AHU, the standard limit temperature is 80°C). The leakage flow rate is 0.1%, the nominal flow rate for a pressure difference of 400 Pa between the 2 air streams.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|----------|----------|
| Pre-painted aluminium plates | X | X | X |
| Condensate drain pan (exhaust air side) stainless steel | X | X | X |
| Condensate drain pan (fresh air side) stainless steel | X | X | X |
| Paint on baffle, partition and support | X | X | X |
| Plate exchangers components made of 304 L or 316 L stainless steel | NA | X | X |
| Painted bypass damper | X | X | X |
| Stainless steel bypass damper | NA | X | X |
| Servomotor or manual damper operation | X | X | X |
| Pressure tappings in intake and exhaust | Standard | Standard | Standard |
| Additional access door | X | X | X |
| Door porthole | X | X | X |

X: Option

NA: Not applicable

■ Rotary heat exchanger

- Several efficiency levels available: from 75% to 85%
- Corrugated aluminium fins
- Adjustable peripheral gasket to guarantee a minimum leak flow rate
- Lateral inspection panel
- Constant speed gear motor (230 / 400 V three-phase power supply)
- Maintenance-free ball bearing

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|---|-----------|----------|----------|
| Gear motor and variable frequency drive for variable speeds from 0 to 10 rpm – 230 V single-phase | X | X | X |
| Coated aluminium heat recovery wheel | X | X | X |
| Hygroscopic heat recovery wheel (for humidity exchange) | X | X | X |
| Enthalpic heat recovery wheel (for total power exchange) | X | X | X |
| Condensates drain pan | NA | X | X |
| 316 stainless steel drain pan | NA | X | X |
| Indoor panels polyester coated | X | X | X |
| Indoor panels in 304 L or 316 L stainless steel | NA | X | X |
| Pressure tappings | Standard | Standard | Standard |
| Purge sector | X | X | X |
| Door porthole | X | X | X |

X: Option

NA: Not applicable

■ Heating coil

Fluids:

- Hot water

- Construction with copper tubes and aluminium fins.
- Maximum primary fluid temperature = 120 °C.
- Operating pressure for water: 16 bar as standard - Higher pressures on consultation.
- Removable sealing collars between the casing and manifolds (up to a diameter of 3" to prevent damage to the sealing system when connecting up).

Depending on the type of coil and the diameters required, the manifolds and supply tubes are:

- Copper tubes with unions up to a diam. of 2"1/2.
- Grooved steel tubes for larger diameters.

- Superheated water

- Construction with steel tubes and aluminium fins.
- Maximum primary fluid temperature = 200 °C.
- Operating pressure for water: max 30 bars.
- Manifolds and supply tubes are steel tubes with smooth ends.

- Condensation refrigerant

- Construction with copper tubes and aluminium fins.
- Supply tubes are copper tubes with smooth ends.

- Steam

- Max pressure 2 to 8 bars - stainless steel tubes, aluminium fins.
- Manifolds and supply tubes are stainless steel tubes with smooth ends.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|---|-----------|---------|----------|
| Superheated water coil | X | X | X |
| Steam coil | X | X | X |
| Condensation coil | X | X | X |
| Pressure tapping, upstream and downstream | X | X | X |
| Precoated fins/ max. primary fluid temperature 110 °C | X | X | X |
| Stainless steel water coil | NA | X | X |
| ALTENA treatment, max. temperature 160 °C | X | X | X |
| BLYGOLD treatment, max. temperature 90 °C | X | X | X |
| HERESITE treatment, max. temperature 180 °C | X | X | X |
| Copper fins | X | X | X |
| Paint on tracks | X | X | X |
| 304 L or 316 L stainless steel tracks | X | X | X |
| 304 L or 316 L stainless steel slide rails | X | X | X |
| Standard screw flanges | X | X | X |
| Stainless steel screw flanges | X | X | X |
| Quick connections kit (copper tubes) (victaulic type) | X | X | X |
| Threaded connections (steel tubes) | X | X | X |
| Frost protection thermostat (manual reset) | X | X | X |
| Frost protection thermostat with automatic reset supplied loosely | X | X | X |
| Frost protection thermostat with automatic reset (factory fitted) | X | X | X |

X: Option

NA: Not applicable

■ Electric heater

- Shielded resistors in stainless steel scrolled finned tubes - Connection to copper jumper strips.
- Assembly with double insulation.
- The electric heater is equipped with two safety thermostats. The first has a manual reset, the second has an automatic reset.
- To set up the coil, refer to the instructions sent with each unit.
- Take the necessary measures to prevent abnormal overheating when the fan is switched off (fan delay).

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|---------|----------|
| Slide rails painted | X | X | X |
| 304 L or 316 L stainless steel slide rails | X | X | X |
| 304 L or 316 L stainless steel coil casing | X | X | X |
| Single- or three-phase connection | X | X | X |

X: Option

NA: Not applicable

■ Refrigeration coil

Fluids:

- Chilled water

- Construction with copper tubes and aluminium fins.
- Operating pressure for water: 16 bar as standard - Higher pressures on consultation.
- Sloped condensate drain pan with drain tubes to be connected on site to a siphon (compulsory requirement).
- Droplet separator as standard if necessary, as an option on request.
- Removable sealing flanges between the casing and manifolds up to 3" in diameter, preventing damage to the sealing system during connection operations.

Depending on the type of coil and the diameters required, the manifolds and supply tubes are

- Copper tubes with unions up to a diam. of 2"1/2.
- Grooved steel tubes for larger diameters.

- Direct expansion evaporation

- Construction with copper tubes and aluminium fins.
- Sloped condensate drain pan with drain tubes to be connected to a siphon on site (compulsory requirement).
- Droplet separator as standard if necessary, as an option on request.
- Standard smooth copper refrigerant supply tubes (supplied capped)
- Manifold on fluid intake as standard.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|---------------------------|----------|
| Chilled water coil | X | X | X |
| Direct expansion evaporation coil | X | X | X |
| Access panel on droplet separator | | as standard if compulsory | |
| Precoated fins/ max. primary fluid temperature 110°C | X | X | X |
| Stainless steel tubes coil | NA | X | X |
| Copper fins coil | X | X | X |
| ALTENA treatment, max. temperature 160°C | X | X | X |
| BLYGOLD treatment, max. temperature 90°C | X | X | X |
| HERESITE treatment, max. temperature 180°C | X | X | X |
| Slide rails painted | X | X | X |
| Stainless steel slide rails | X | X | X |
| 304 L or 316 L stainless steel coil casing | X | X | X |
| 316 L stainless steel condensate drain pan | X | X | X |
| 316L stainless steel hygienic drain pan | NA | X | X |
| Insulated drain pan (cell foam) | X | X | X |
| Headers/elbows insulation | X | X | X |
| All stainless steel droplet separator (frame and medium) | X | X | X |
| Polypropylene blade droplet separator, galvanised frame | X | X | X |
| Polypropylene blade droplet separator, stainless steel frame | X | X | X |
| Aluminium blade droplet separator, galvanised frame | X | X | X |
| Aluminium blade droplet separator, stainless steel frame | X | X | X |
| Pressure tapping, upstream and downstream | X | X | X |
| Standard screw flanges | X | X | X |
| Stainless steel screw flanges | X | X | X |
| Tubes with quick connections (copper tubes) (victaulic type) | X | X | X |
| Threaded connections (steel tubes) | X | X | X |
| Frost protection sensor support | X | X | X |

X: Option

NA: Not applicable

■ Fans

- Forward-curved dual-inlet fan.
Steel scroll and impeller.
Belt and pulley transmission on the dual-inlet fans.
Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Backward-curved dual-inlet fan.
Steel scroll and impeller.
Belt and pulley transmission on the dual-inlet fans.
Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Metal impeller plug fan with AC motor
Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.

- Standard motor: asynchronous three-phase, 230 / 400 V 50 Hz up to 3 kW - 400 V - 50 Hz from 4 kW, IP 55 protection, class F with PTC thermistors (thermal protection)
- Steel plug fan with EC motor with integrated fan
Assembly on partition.
- Inspection hatch with bolts in compliance with the "MECHANICAL SAFETY" specification in the EN 1886 standard and the machinery directive.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|----------|----------|
| Fan with forward-curved blades and transmission | X | X | X |
| Fan with backward-curved blades and transmission | X | X | X |
| Plug fan | X | X | X |
| EC plug fan | X | X | X |
| ATEX fan | NA | X | X |
| Flush mounted panel | X | X | X |
| Hinged door | Standard | Standard | Standard |
| Pressure tappings | X | X | X |
| Door contact switch | X | X | X |
| Double glass porthole | X | X | X |
| Smoke detector (NF S61961) | X | X | X |
| 230V Bulkhead light (supplied loose item) | X | X | X |
| 230V Bulkhead light fitted and wired to an external switch | X | X | X |
| Anticorrosion painting for wheel and motor assembly (centrifugal and AC plug fan motor) | X | X | X |
| Stainless steel wheel and motor assembly (centrifugal and AC motor plug fan) | NA | X | X |
| Anticorrosion painting for EC fan wheel | NA | X | X |
| Protection grill for centrifugal fan | X | X | X |
| Screened door protection | X | X | X |
| Belt housing | X | X | X |
| 2 motors set in parallel | X | X | X |
| Motor support on rails | X | X | X |
| Variable frequency drive (supplied loose item) | X | X | X |
| Variable frequency drive factory fitted | X | X | X |
| Door switch factory fitted | X | X | X |
| Door switch (supplied loose item) | X | X | X |
| Anti recirculation damper for fan | X | X | X |

X: Option

NA: Not applicable

■ Sound attenuator

- Different lengths of baffle depending on the required attenuation.
- Mineral wool of different densities, the faces are covered with an anti-erosion shield.
- Galvanised panelling.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--------------------------------------|-----------|-------------------------|----------|
| Baffle lengths (in mm) | | 600 - 900 - 1200 - 1500 | |
| Anti schredding glass cloth | NA | X | X |
| Polyester coated slide rails | X | X | X |
| Epoxy painted sheet metal baffles | X | X | X |
| 304 L or 316 L stainless steel rails | NA | X | X |
| Ground wire for ATEX applications | NA | X | X |

X: Option

NA: Not applicable

■ Standalone production steam humidifier

With steam production (standalone with electrodes)

The supply includes:

- Aluminium steam distributor.
- Steamer with electrical cabinet and controller (IP 33).
- Proportional or On/Off control.
- Duct/cylinder connection.
- Condensate return tubes and connections.
- 230 V single-phase or 400 V three-phase supply voltage - 415 V according to capacity
- Min and max supply water conductivity limits 125 - 1250 microsiemens /cm (8000 - 800 ohm).
- Water hardness (orientative values for France 15-30 degrees) check local regulations

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|---------|----------|
| Stainless steel | X | X | X |
| Galvanised droplet separator | X | X | X |
| Stainless steel droplet separator | X | X | X |
| Double glass porthole | X | X | X |
| 230V Bulkhead light factory fitted and wired to an external switch | X | X | X |
| Flush mounted panel | X | X | X |
| Door contact switch | X | X | X |

X: Option

NA: Not applicable

Steam humidifier with electrical heaters available on request

■ Control

The electrics box is integrated into the unit and the electrical cables are protected by an enclosed cable raceway, factory-fitted.

The unit can be supplied as a single unit, equipped with a control which is fully assembled and tested in the factory if it is formed of one block, or a multi-block assembled on the optional multi-block frame.

Plug & Play solution: the electrics box is powered by a 400 V + earth power supply

The control software for the CLIMACIAT® range enables the following:

- Temperature regulation*: sensor on supply air/return air/room air
- Humidification and dehumidification regulation*: sensor on return or room air
- Fan management: constant flow/constant pressure
- Filter fouling management (4-stage filtration as maximum)
- Single-zone air quality management CO₂ sensor on return air or room air
- Water coil: cooling/heating/mixed/direct expansion (3 maximum)
- 2-way valve
- 3-way valve
- Electric heater (4-stage heaters as maximum)
- Proportional and On/Off control
- 1 TRIAC type proportional stage (compulsory)
- Independent power supply, controlled by the AHU PLC.
- Steam humidifier with electrode:
- Independent power supply, controlled by the AHU PLC.
- Management of cooling modes: Free cooling / Night cooling
- Management of frost protection faults
- Fire protection
- Communication board available:
- Direct expansion coil management
- Adiabatic humidifier management
- Modbus RTU RS485 / Modbus TCP IP / KNX / LON / BACNET IP

The functions below requires an external regulation (independent from the integrated control)

- Steam coil/Superheated water coil/Glycol/mixed water coils/
- Gas burner

*availability depends on options; see specific control document

■ Extra accessories:

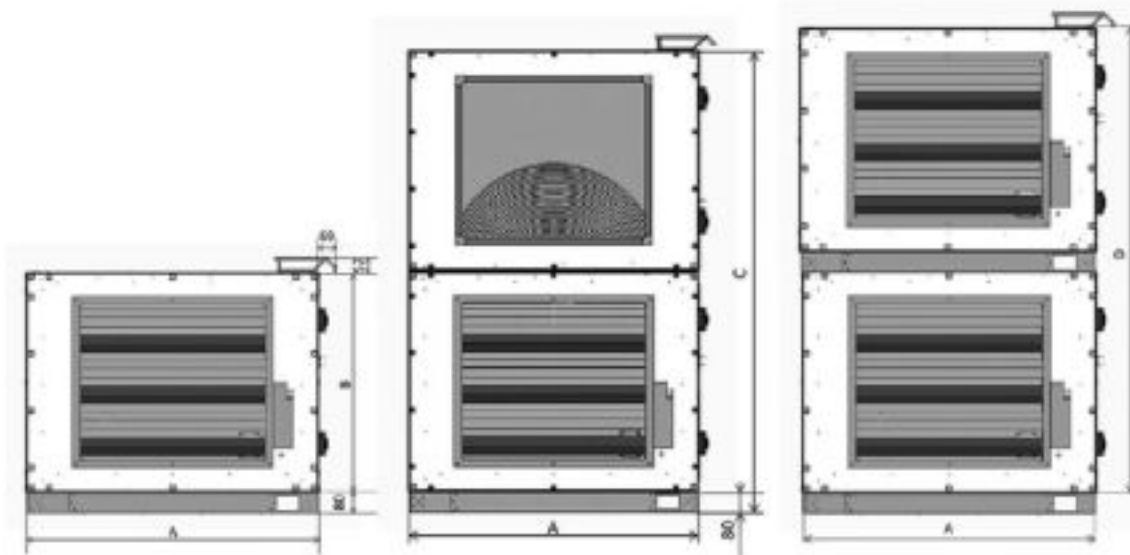
| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--|-----------|---------|----------|
| Flexible duct connections | X | X | X |
| Rain protection hood (supplied with grill) | X | X | X |
| Additional protection grill | X | X | X |
| Factory-assembled AHU on common rack: max size 45 or maximum length 6 m | X | X | X |

X: Option

NA: Not applicable

DIMENSIONS

■ External dimensions and raceway details*

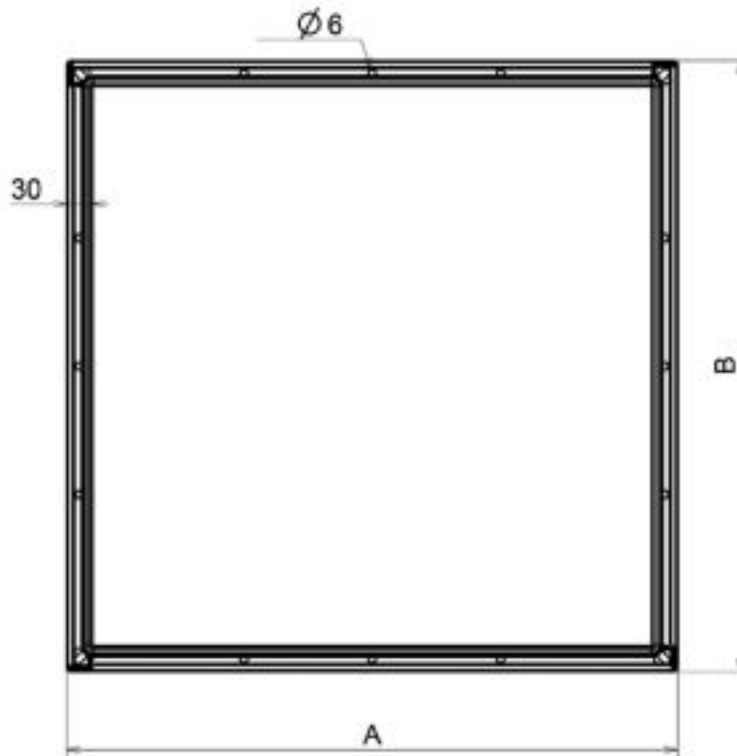


| Sizes | Casing external dimension | | | | Section lenght ** |
|-------|---------------------------|------|------|------|-------------------|
| | A | B | C | D | |
| 5 | 870 | 560 | 1122 | | 250 < L < 2800 |
| 10 | 870 | 860 | 1722 | | 250 < L < 2800 |
| 15 | 1130 | 860 | 1722 | | 250 < L < 2800 |
| 20 | 1470 | 860 | 1722 | | 250 < L < 2800 |
| 25 | 1840 | 860 | 1722 | | 250 < L < 2800 |
| 35 | 1840 | 1080 | 2162 | | 250 < L < 2800 |
| 45 | 2070 | 1080 | 2162 | | 250 < L < 2800 |
| 60 | 2070 | 1460 | | 3000 | 250 < L < 2800 |
| 70 | 2340 | 1460 | | 3000 | 250 < L < 2300 |

*Optional raceway with height of 70 mm and width of 57 mm

**Length excluding the 23 mm unit end panel at each end

■ Connection flanges



Reference 00: Lateral air intake
 Reference 1: Air intake, small section
 Reference 2: Air intake, large section
 Reference 3: Scroll fan discharge air intake

| CLIMACIAT® UNIT | Airaccess | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 60 | 70 |
|-----------------------------|-----------|-----|-----|-----|------|------|------|------|------|------|
| | Airtech | | | | | | | | | |
| | Airclean | | | | | | | | | |
| Reference 00 - LATERAL | A | 320 | 320 | 470 | 620 | 720 | 770 | 970 | 870 | 970 |
| | B | 370 | 670 | 670 | 670 | 670 | 870 | 870 | 1270 | 1270 |
| Reference 1 - SMALL SECTION | A | 515 | 515 | 775 | 1115 | 1485 | 1485 | 1715 | 1715 | 1985 |
| | B | 220 | 370 | 370 | 370 | 370 | 470 | 470 | 670 | 670 |
| Reference 2 - LARGE SECTION | A | 515 | 515 | 775 | 1115 | 1485 | 1485 | 1715 | 1715 | 1985 |
| | B | 370 | 670 | 670 | 670 | 670 | 870 | 870 | 1270 | 1270 |
| Reference 3: FAN DISCHARGE | A | | 520 | 520 | 520 | 520 | 620 | 620 | 920 | 920 |
| | B | | 520 | 520 | 520 | 520 | 620 | 620 | 920 | 920 |

AIRTECH™

Air handling units



AIRTECH™

The technological choice

Air flow rate: 1000 to 66,000 m³/h



| Specifications | Class | |
|----------------------|---------------|-----------------|
| | Size 25 to 75 | Size 100 to 600 |
| Mechanical strength | D1 | D2 |
| Airtightness | L1 | L1 |
| Filter bypass leak | F9 | F9 |
| Thermal transmission | T2 | T2 |
| Thermal bridge | TB2 | TB2 |

AIR HANDLING FOR ALL APPLICATIONS

Thanks to its large range of air flows and comprehensive selection of air handling features, **AIRTECH™** efficiently responds to all requirements in industrial and service sector applications.

The specifications for this product will always fulfil requirements thanks to the broad spectrum of solutions on offer, the product's excellent modularity, and the multiple installation options (horizontal, vertical, stacked, juxtaposed, indoor or outdoor).

HIGH PERFORMANCE IN LINE WITH NEW STANDARDS

AIRTECH™ air handling units have been designed in accordance with the recommendations of standard EN 13053 and to meet the best classifications of standard EN 1886: Thermal transmission and bridging, casing airtightness, filter bypass leakage, complying with the requirements for fans concerning mechanical safety.

All components and accessories (handles, closing latches, wall feedthroughs, portholes, sealing gaskets) have been developed by CIAT to achieve exceptional performance, thanks to its special benchmark design.

LATEST-GENERATION DESIGN

Casing

- ① Double-skin panels, painted external panel, 50-mm insulation
- ② At least one removable panel for each function in accordance with EN 13053
- ③ Smooth panels devoid of protruding internal screws in accordance with EN 13053
- ④ Access panels as standard on functions requiring maintenance
- ⑤ Offset hinges and handles with closing latches, in composite material: Resistance to corrosion and temperatures from -40 °C to +80 °C
- ⑥ Multifunction ergonomic support which enables and is suitable for handling, installation, block connection, panel ventilation, a control system
- ⑦ High-tech profiled door seal in a special material. The high-quality fixed panels feature a gasket which contributes to the casing airtightness classification in accordance with EN 1886
- ⑧ Large-section square porthole in accordance with EN 13053, dual-wall construction with increased leaktightness thanks to the internal connection bellows.

Air intake

- ⑨ Damper with opposed blades, driven by toothed wheels, "Class 3" tightness according to EN 1751



⑤ Composite hinge



⑤ Opening handle



⑬ Condensate pan



⑭ Sealing flanges



⑱ Adjustable motor support bracket

Filters

- 10 Parallel clamping filter tracks. Class F9 in accordance with EN 1886
- 11 Pressure tappings on each filtration stage

Exchangers

- 12 Up to three threaded connections as standard
- 13 Inclined condensate drain pan in accordance with EN 13053
- 14 Sealing flange, total air efficiency and thermal bridge rupture between the pipes and the casing

Fans

- 15 Three types of fan available: LP, MP and plug fans (with AC or EC motor) in a range of sizes
- 16 Fans installed on an anti-vibration chassis with spring mounts as standard for all AC motor solutions
- 17 Internal flexible connector between the fan and the casing for all AC motor solutions
- 18 Motor mounted on an adjustable self-guided bracket
- 19 Packing box fitted for power supply



THE KEY TO AIRTECH™'S EXCEPTIONAL PERFORMANCE IS ITS BENCHMARK FILTRATION SYSTEM.

Pre-filtering

Designed exclusively by CIAT, the filter supports meet the strictest quality standards for optimum sealing in accordance with the current EN 1886 standard.

Compressible tracks on the counter frame with a peripheral gasket guaranteeing a quality seal on the filtration system.

Unit filtration

Ultra-high unit filtration standard:

- Dual leakage barrier for enhanced performance,
- Separate panels to prevent any mechanical deformation when carrying out operations inside the unit, thereby helping protect the peripheral sealing gaskets.

THE HIGH-PERFORMANCE RANGE

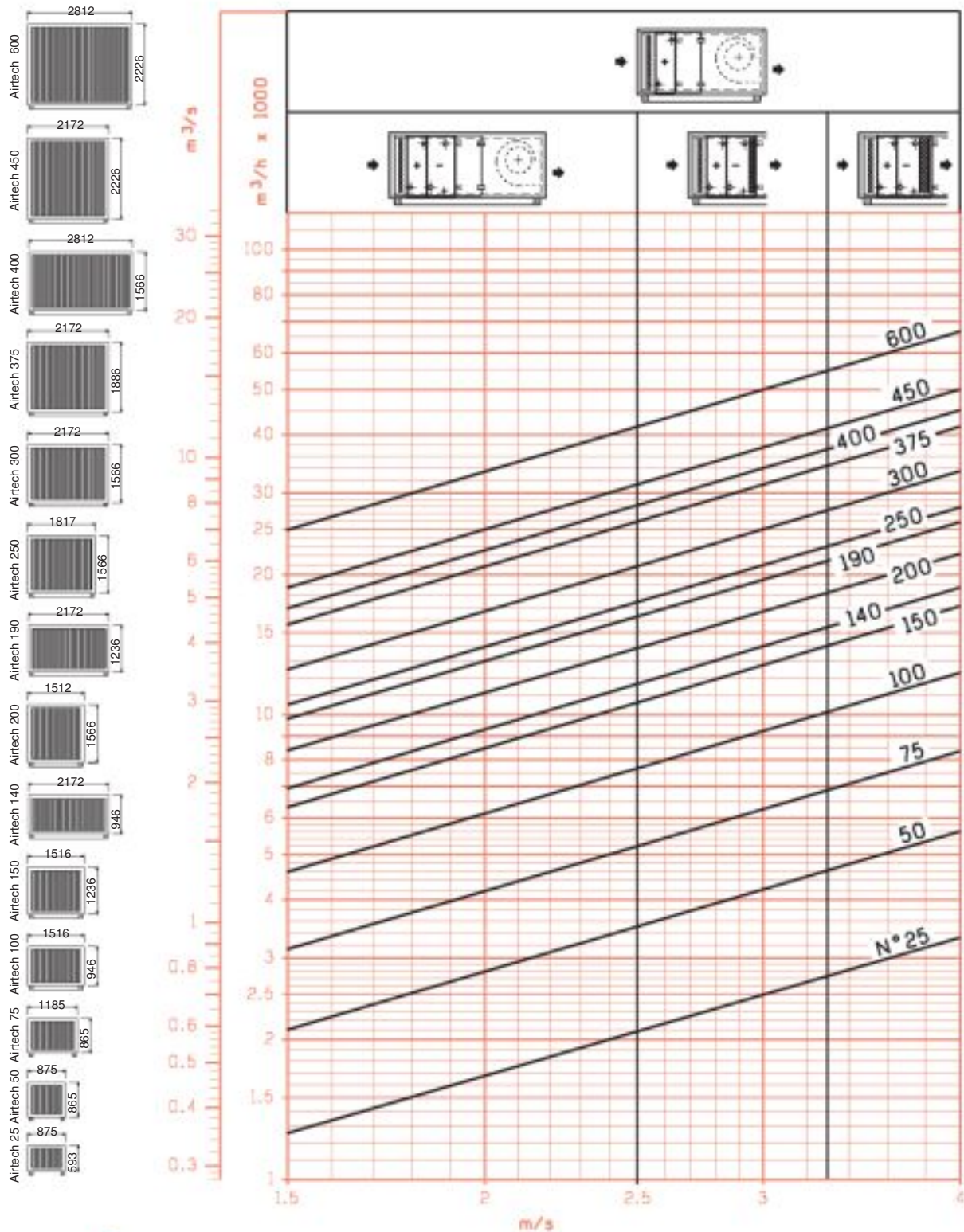
The AIRTECH™ range consists of 14 sizes to handle air flow rates from 1000 to 66,000 m³/h.

The diagram below is used to pre-select the required size according to:

- The through speed in the front active section of the heat exchange coils
- The air flow rate to be handled

The diagrams show the standard compositions with the usage limit corresponding to the components.

Air heater (A), air conditioning unit without droplet separator (B), with drain screen separator (C), with blade-type separator (D).



➔ Please contact us for more information on this range.



AIRCLEAN™

Air handling units



AIRCLEAN™
*Ultra-cleanliness
has a name*

AIRCLEAN™ SANTE
*Healthcare has its
experts*

Air flow: 1 000 to 60 000 m³/h



| Specifications | Class | |
|-----------------------|---------------|-----------------|
| | Size 25 to 75 | Size 100 to 600 |
| Mechanical strength | D1 | D2 |
| Airtightness | L1 | L1 |
| Filter bypass leakage | F9 | F9 |
| Thermal transmission | T2 | T2 |
| Thermal bridge | TB2 | TB2 |

DESCRIPTION

Design, adaptation and options in complete accordance with the "hygiene" recommendations of the EN 13053 norm relating to air treatment of areas under controlled atmosphere.

High quality solutions and materials used.

Totally smooth internal design, all functions are fully cleanable and decontaminable.

APPLICATIONS

AIRCLEAN™

Clean rooms, laboratories, microelectronics, car industry, plastics processing.

AIRCLEAN™ SANTE

Pharmaceutical industry, hospitals

AIRCLEAN™, THE ULTIMATE IN ULTRA-CLEANLINESS

An AHU that meets high demands

- Plug fan with profiled, high efficiency blades.
- Air flow control by an integrated frequency inverter with display (option).
- Filter assemblies adapted to the necessary level of filtration to ensure the highest filtration performances.
- Materials and coatings ensure the levels of chemical resistance, bacteriological cleanliness, and cleanability required to control contamination.
- Panels and accessories designed to meet the highest performance level requirements (airtightness, acoustics, thermal, etc.).

Meets new standards in performance

- Design tailored to the most stringent requirements of new-generation ultra-clean processes.
- Maximum efficiency particulate filtration.
- Reinforced seals withstand required pressure levels.
- Easy decontamination.
- Total control over quality, from design to manufacturing.

An AIRCLEAN™ concept

- Completely smooth inside and outside.
- White RAL 9010 coated casing inside and outside.
- Mineral wool insulation (long fibres, thickness 50 mm).
- Panels, inside components and accessories made of 304L or 316L stainless steel (option).
- Specific coatings and steels available for each function.
- Flat or sloped stainless steel bottom (option).

An AIRCLEAN™ SANTE concept

- Completely smooth inside.
- White RAL 7035 coated casing inside and outside.
- Mineral insulation (long fibres, thickness 50 mm).
- 4-slope hygienic condensates drain pan.
- Flat or sloped stainless steel bottom (option).

High standards right down to the smallest details

- Offset hinges and lockable handles made of composite materials: excellent corrosion resistance, proven strength, easy to open and close, good temperature resistance (-40 to +80 °C).
- The hinge pins are designed to avoid any leakage and ensure the casing's thermal performances.
- Base frame raised above water.
- Double-shouldered door profile with specially shaped EPDM seal for optimum leakage performance.
- Large double-wall, square inspection window with central seals on the inside and outside and inside the panel provided by a one-piece bellow.



European Standards
EN 13053 design



Filters



Fan motor assembly



Airtight handle designed by CIAT



Inspection window

- Doors downline of fan open inwards.
- Dampers with opposing blades, "Class 3" airtightness in accordance with EN 1751 (Class 4 available as an option).
- Plug fan technology adapted to chosen operating points and desired acoustic performance levels.
- Integrated air flow control to ensure zero contamination (option).
- Fan assemblies adapted to performance levels and allowing optimum aerodynamic efficiency (connection sleeve size and quality, specially sized anti-vibration mounts, turbines sized to each enclosure in strict accordance with aerodynamic rules, etc.).
- Stainless steel condensates drain pan.
- Acoustic baffles have a special surface coating that prevents

the release of particles from contaminating the air flow.

- Ultra-high unit filtration standard:
 - Dual leakage barrier ensures the full level of filtration for the entire filtration area.
 - Separate filtration area ground panel to prevent damage from any seal distortion.

AIRCLEAN™, STRINGENT STANDARDS

Whisper quiet

- Obtaining the lowest overall noise level involves selecting the best fan, the prime source of noise in an air handling unit.
- The two walls of the panel are specially designed to absorb a maximum of noise. They are not connected and contain two different thicknesses (different natural frequencies).
- Each anti-vibration mount is selected to reduce vibration and noise phenomena "at the source".
- The geometry of the sound attenuators is optimised to lower noise to the unit's overall acoustic performance level.

Cleaned air

- High level of filtration efficiency ensured by assemblies adapted to each filter class (large-media frames for H10 and higher HEPA filtration).
- Usable with completely recyclable, new-generation filters with polypropylene media containing no fibre glass.
- Control and use of innovations in molecular and biological filtration that make it possible to address the issue of contamination by VOCs (Volatile Organic Compounds), bacteria, viruses, organic molecules, and even certain inorganic molecules.
- Filters comply with the maximum allowable pressure drops recommended in the EN 13053 standard.
- High-flow air washing systems operate using raw water, deionised water or ultrapure water.

Easy decontamination

- The AIRCLEAN™ AHU meets the hygiene requirements of EN 13053:
 - Accessibility, position and size of doors and inspection hatches.
 - Smooth panels for easy cleaning.
 - Sound attenuators that prevent particles from being released during servicing and operation
 - Inspection window (large section, full view) and lighting in all accessible sections.
 - Air leakage and filter bypass leakage comply with the highest classifications required by EN 1886.

Controlled humidity

STEAM HUMIDIFIER

- Self-contained steam generator
- Uses electrodes or heating elements depending on the quality of the water supply.
- The size and quality of the ducts are adapted to the steam

generated.

- Stainless steel overflow pan and separator.
- Stainless steel ducts adapted to central steam generation systems.

ADIABATIC HUMIDIFIER

- Spray or sprinkling.
- Stainless steel enclosure and eliminator as standard.
- Pan washing lance.
- UV water treatment systems may be integrated.

Controlled environments

Meets the following standards governing air handling in controlled environments:

- NF S 90-351: Healthcare institutions - Clean rooms and associated controlled environments - Requirements for the control of airborne contamination.
- ISO 14644: Clean rooms and associated controlled environments, particularly sections relating to the classification of air cleanliness and design and operating specifications.
- Pharmaceutical GMP (Good Manufacturing Practices).

Common cleaning and decontamination procedures have been taken into account in the general design and the recommended locations of each function.

Unlimited modularity

- All filter classes up to H14 plus molecular filtration using specific absorbents.
- Heating (hot water supply, superheated water, steam or electricity), cooling (chilled water, direct expansion).
- Number of rows, circuiting, fin pitches and coil coatings adapted to thermal, hydraulic and environmental criteria.
- Droplet separator technology and quality adapted to operating conditions.
- Fans of all sizes (diameters 180 to 1 000 mm), scroll or plug types (optimised for desired operating point). All discharge configurations possible.
- Various coatings for each AHU section.
- All functions can be fully adapted to your space and location requirements.

Please consult us for any further information you may need on this product range.

HELIOTHERME® 4000

Axial air heaters



The best *technical/economical* solution for heating large areas

Ensures buildings warm up ultra fast

Excellent diffusion via patented JET+ double deflection technology

High Energy Efficiency motor version



ErP
READY



Heating Cooling and heating

USE

In wall-mounted or ceiling-mounted versions, the HELIOTHERME® is the simple, affordable heating/cooling solution for all your applications: for your premises in the service sector (sales outlets, halls, multi-purpose rooms, etc.) or in industry (workshop, garage, storage unit, logistics platform, etc.).

The HELIOTHERME® range meets APSAD and NFPA recommendations on air speeds along the edges of units.

All are less than 5 m/s at 0.5 m from the diffuser and thus do not interfere with sprinkler systems.

The air heater may be combined with destratifiers (TPL) to promote mixing of the air within the building. (Anti-stratification solution)

HELIOTHERME® ATEX version: voluntary type examination certificate LCIE 13 ATEX 1015 X gas environment.

HELIOTHERME® 4631S version: specially designed for "logistics platforms" (on request and for a minimum of 15 units). Only available as hot water (1 row) with 400 V/3 PH/50 Hz power supply.

CONTROL

A range of "Plug & Play" proportional air-source/water-source controllers with heat exchanger (or electric heater) are used to control the air flow of the fan motor assembly and the heating capacity required for the room, according to the occupancy periods (built-in timer).

- LP water application + 1-PH AC FMA:
 - 1-PH Eco+ BOX can control up to 3 1-PH H4000 ACs.

- LP water application + THREE-PHASE AC FMA:
 - THREE-PHASE Eco+ BOX can control up to 9 THREE-PHASE H4000s.
- LP water application + 1-PH HEE FMA:
 - 1-PH HEE BOX can control:
 - 6 1-PH HEE H4000s
 - 6 1-PH HEE TPL 4000s
 - 3 1-PH HEE H4000s + 3 1-PH HEE TPLs
 - 4 1-PH HEE H4000s + 2 1-PH HEE TPLs

OPTIONS AND ACCESSORIES

- Wall bracket, ceiling bracket, IPN additional kit
- Filter box
- Specific diffuser (on door, high-level etc.)
- Room thermostat for THREE-PHASE or SINGLE-PHASE installation
- LS/HS switch for 3-PH fan motor assembly
- 5 speed autotransformer for 1-PH AC FMAs
- Proximity switch
- Circuit breaker unit

RANGE

| Heating/cooling medium | LP water | HP superheated water - Oil | HP steam | Electrical |
|------------------------|---|----------------------------|--------------------------|---------------------|
| Standard drive | THREE-PHASE 2 speeds – SINGLE-PHASE 1 variable speed IP 44 (H4350) and IP54 (H4400 to H4630) | | | |
| Reinforced variant | CORROBLOC version – IP 55/65 – 700-hour salt spray test | | | |
| Coil (tubing/row) | Copper/Alu | 316L stainless steel/Alu | 316L stainless steel/Alu | Stainless steel/Alu |
| Reinforced versions | 316L stainless steel tubes/HERESITE coating | HERESITE coating | | |
| Casing | Precoated off-white (RAL 7035) galvanised steel | | | |
| Reinforced versions | 304L stainless steel | | | |
| ATEX versions | LCIE 13 ATEX 1015 X – Zone 1 or 2 – IIB or IIC – T4 or T6 | | | |



Standard/HEE



Reinforced version
(high resistance to corrosion)

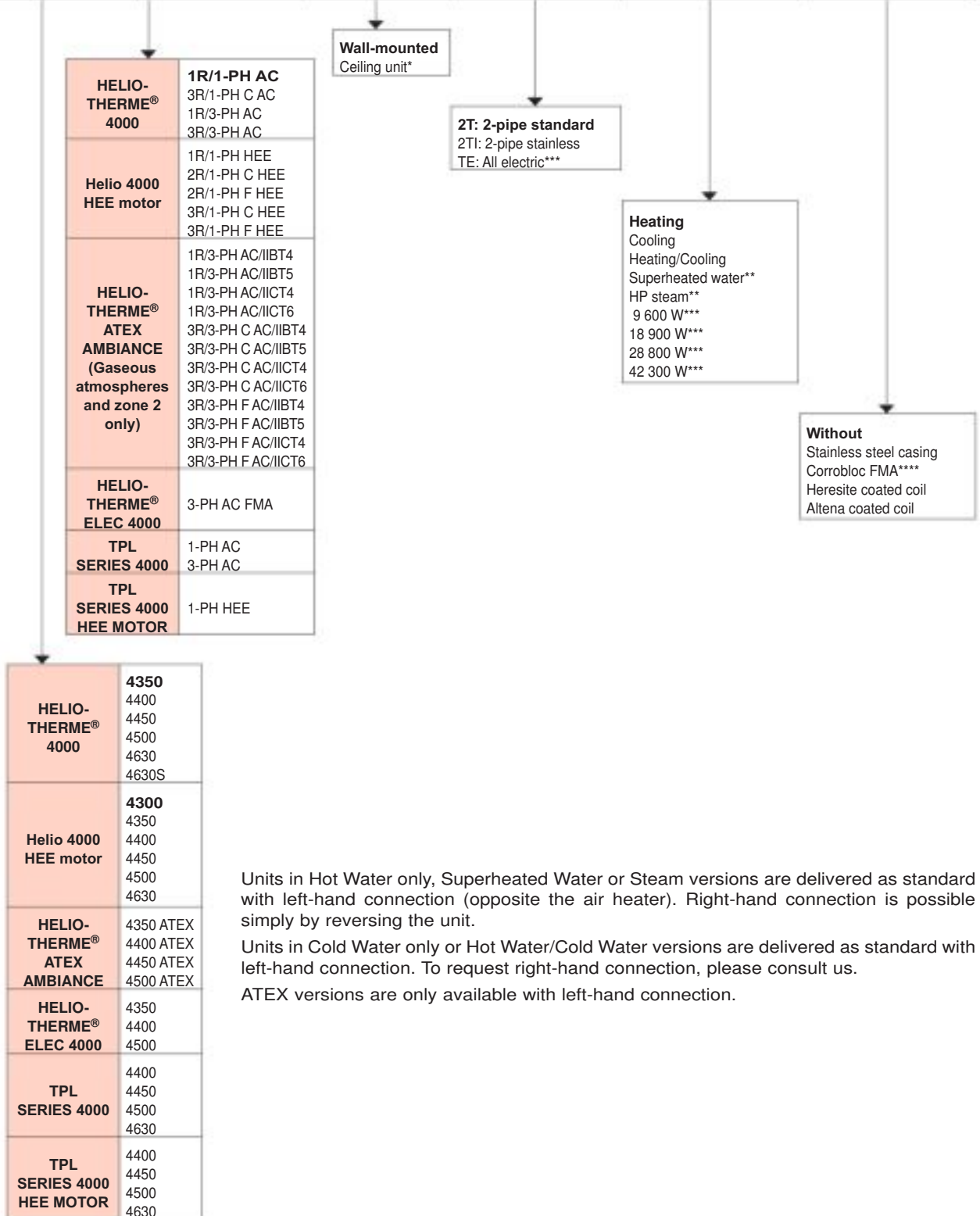


ATEX version

| Heating/cooling medium | LP water with HEE FMA |
|------------------------|---|
| HEE drive | 1-phase variable speed with 0-10 V signal IP 54 (H4300 and H4350) and IP55 (H4400 to H4630) |
| Coil (tubing/row) | Copper/Alu |
| Casing | Precoated off-white (RAL 7035) galvanised steel Condensate pan + built-in nautical coupling for cooling |
| Reinforced versions | 304L stainless steel |

H4000 MORPHO CODES

| Range | Series | Size | Model | Coil | Thermal function | Specific options |
|-------|--------|------------|--------------|------|------------------|------------------|
| H4000 | 4350 | 1R/1-PH AC | Wall-mounted | 2T | Heating | Without |



Units in Hot Water only, Superheated Water or Steam versions are delivered as standard with left-hand connection (opposite the air heater). Right-hand connection is possible simply by reversing the unit.

Units in Cold Water only or Hot Water/Cold Water versions are delivered as standard with left-hand connection. To request right-hand connection, please consult us.

ATEX versions are only available with left-hand connection.

Note:

- * Except HELIO THERME® ATEX AMBIANCE
- ** Except HELIO THERME® 4000 HEE motor
- *** HELIO THERME® ELEC 4000 only
- **** HELIO THERME® 4000 only

DESCRIPTION

High-efficiency fan motor assembly

Silent FMA with an aluminium epoxy polyester-coated airfoil propeller to ensure the best compromise between air flow efficiency and acoustic comfort.

The ROTOREX design, with its electrical coils inserted into the fan hub, guarantees perfect cooling of the motor to ensure it runs with optimum efficiency.

Available versions:

- **THREE-PHASE** 2 speed (230/400 V - 3-Ph - 50 Hz) (**accessory LS/HS switch**)
- **SINGLE PHASE** 1 variable speed (230 V - 1-Ph - 50 Hz) (**accessory 5-speed autotransformer**)
- **CORROBLOC** version guaranteed to withstand corrosive environments.

HEE FMA

Fan motor assembly equipped with a powerful HEE EC (electronically commutated) motor. These EC motors (single-phase 230 V - 1-Ph - 50/60 Hz drive) will be progressively controlled by the 0-10 V signal, to ensure acoustic comfort and air flow efficiency and to optimise consumption of electricity. A shunt can be used to operate the air heater at maximum speed.



CORROBLOC FMA

IP65/700-hour salt spray test



Casing

- Elegant galvanised steel casing, pre-coated with RAL 7035 (light grey) paint (stainless steel version available on request).
- Built-in condensate drain pan for cooling applications, featuring an antibacterial design (perforated bottom) and quick-release fitting (diameter 1'1/4).
- Inlet cone optimised for improved air flow performance and acoustic comfort level.
- **Advantages:**
 - Its classic design means that it can easily blend into the architecture of the installation site.
 - No need to add an unsightly condensate drain pan.
 - Condensate pipes quick and extremely simple to connect, without the need for a clamp, (1'1/4 diam. quick-release fitting).

Diffuser

Double deflection diffuser made from rigid aluminium sections, based on the BERNOULLI fluid flow principle and on NACA0012 airfoils, creating a high induction rate on the primary air, in order to increase the air streams, limit the stratification phenomenon and thereby reduce energy consumption.

■ Basic version (H4630S: On request only and for a minimum of 15 units):

- Single-deflection diffuser with swivel blade
- Off-white galvanised steel louvre
- **JET+ version** (fitted as standard):
- Double deflection diffuser
- JET+ aluminium louvre with NACA0012 airfoil design
- Each louvre can be adjusted independently
- **Advantages:**
 - Air flows adjustable in 4 directions for optimum coverage of the area to be handled, while limiting draughts.
 - Laminar air flow for better acoustic comfort (zero turbulence at the diffuser outlet).
 - Increased air speed, thanks to the resulting aerodynamics (depression along lower surface of blade) due to the curve of the airfoil, thereby increasing the air throws and the induction rate.
 - Limited stratification phenomenon.
 - Reduced building warm-up times:
 - Recorded energy savings of 15 to 20%.

Heat exchanger

HIGH EFFICIENCY heat exchanger coil with tapered intake baffles to help pressurise the finned casing, available in the following versions:

- **LP hot or cold water version** – Available with 1 or 3 rows:
 - Copper tube Ø 9.52 mm
 - Embossed aluminium fins – Thickness 10/100 mm
 - Fin spacing 2.1 mm
 - **Advantage:** Excellent thermal yield (dry transfer coefficient > 50 W/m².k)
- **HP superheated water - oil version** – Available with 1 row:
 - 316L stainless steel Ø 16 mm thick pipe
 - Embossed aluminium fins – Thickness 28.5/100 mm
 - Fin spacing 2.5 mm
 - Compatible for use with thermal oils
 - **Advantage:** robust finned aluminium coil block suitable for use in industrial environments (dirty air) and may be cleaned using a high-pressure water jet.
- **HP steam version** – Available with 1 row:
 - 316L stainless steel Ø 16 mm thick pipe
 - Embossed aluminium fins – Thickness 28.5/100 mm
 - Fin spacing 2.5 mm
 - **Advantage:** excellent corrosion resistance thanks to chemicals pumped through steam network piping.
- **Electric version** – Four capacities available:
 - Stainless steel single-tube heating element
 - Embossed aluminium fins – Thickness 10/100 mm
 - Fin spacing 2.5 mm
 - Double overheating thermostat with automatic and manual reset for compliance with fire protection standards (CH37)
 - **Advantage:** Heating elements inserted directly into the finned block ensure excellent heat transfer.

HELIO THERME® PERFORMANCE - SUPERHEATED WATER AND STEAM - 230 V/1-Ph/50 Hz MOTOR - AC AND HEE

| HEATING - 230 V/1-Ph/50 Hz motor - AC and HEE | | | | | | | | | | |
|---|-------------|-------------------------------|----------------|---------------|----------------|-----------|-----------------------|------|------|----------------------|
| Model | No. of rows | Supply air speed SINGLE-PHASE | Flow rate m³/h | Air speed m/s | Range (metres) | | Heating capacity (kW) | | | Sound pressure dB(A) |
| | | | | | Wall-mounted | Suspended | HW | SW | HPS | |
| H4300 | 2 | Direct | 1 420 | 3.16 m/s | 15 | 3 | 12,9 | | | 45 |
| H4350 | 1 | Direct | 2 600 | 3.92 m/s | 22 | 6 | 10,3 | 28,7 | 49 | 48 |
| | | R3* | 2 360 | 3.56 m/s | 18 | 4 | 9,93 | 27 | 46,5 | 46 |
| | 3 | Direct | 2 075 | 3.13 m/s | 15 | 2,5 | 22,3 | | | 50 |
| H4400 | 1 | R3* | 1 780 | 2.68 m/s | 14 | 2 | 20,4 | | | 48 |
| | | Direct | 4 200 | 4.57 m/s | 26 | 8,5 | 14,9 | 45,4 | 69,6 | 54 |
| | R3* | 3 914 | 4.26 m/s | 24 | 7,5 | 14,5 | 43,5 | 66,7 | 52 | |
| | 3 | Direct | 3 450 | 3.75 m/s | 23 | 7 | 34,6 | | | 56 |
| H4450 | 1 | R3* | 3 220 | 3.50 m/s | 20 | 5,5 | 33,2 | | | 54 |
| | | Direct | 5 200 | 4.20 m/s | 27 | 8,5 | 20,3 | | | 56 |
| | R3* | 4 100 | 3.31 m/s | 24 | 6 | 18,5 | | | 49 | |
| | 3 | Direct | 4 550 | 3.68 m/s | 18 | 3,5 | 47 | | | 59 |
| | | R3* | 3 650 | 2.95 m/s | 17 | 3 | 41,2 | | | 52 |
| H4500 | 1 | Direct | 7 100 | 4.22 m/s | 28 | 9 | 26,9 | 77,9 | 120 | 56 |
| | | R3* | 5 700 | 3.39 m/s | 26 | 7 | 24,7 | 67,9 | 104 | 50 |
| | 3 | Direct | 6 200 | 3.69 m/s | 24 | 6,5 | 64,1 | | | 58 |
| | | R3* | 5 055 | 3.01 m/s | 23 | 5,5 | 56,9 | | | 52 |
| H4630 | 1 | Direct | 10 450 | 4.19 m/s | 28 | 10,5 | 39,3 | 130 | 171 | 54 |
| | | R3* | 8 900 | 3.57 m/s | 22 | 8 | 37 | 118 | 155 | 47 |
| | 3 | Direct | 8 280 | 3.32 m/s | 21 | 6,5 | 91,4 | | | 56 |
| | | R3* | 6 270 | 2.52 m/s | 19 | 5 | 77 | | | 44 |

| HEATING - COOLING - 230 V/1-Ph/50 Hz Motor - HEE | | | | | | | | | | | |
|--|-------------|------------------|---------------|---------------|----------------|------|-----------------------|------|-----------------------|------|----------------------|
| Model | No. of rows | Air supply speed | Air flow m³/h | Air speed m/s | Range (metres) | | Heating capacity (kW) | | Cooling capacity (kW) | | Sound pressure dB(A) |
| | | | | | Wall-mounted | | HW | | TCC | SCC | |
| H4300 HEE | 2 | Direct | 1200 | 2.67 m/s | 12 | | 11,8 | | 2,6 | 2,6 | 43 |
| H4350 HEE | 3 | | 1640 | 2.47 m/s | 23 | | 19,4 | | 5,6 | 5,2 | 30 |
| H4400 HEE | | | 2160 | 2.35 m/s | 26 | | 26,1 | | 7,7 | 7 | 48 |
| H4450 HEE | | | 3025 | 2.44 m/s | 24 | | 36,9 | | 11,6 | 10,2 | 45 |
| H4500 HEE | 4060 | | 2.41 m/s | 23 | | 48,1 | | 15,7 | 13,8 | 54 | |
| H4630 HEE | 5960 | | 2.39 m/s | 21 | | 72,1 | | 24,4 | 20,8 | 53 | |

Specifications determined using the following information:

- **Hot water:** temperature: 80 - 60 °C / RT=15 °C - RH 50%
 - **superheated water (HP SW):** temperature: 180 - 100 °C / RT=15 °C - RH 50 %
 - **Steam (HPS):** temperature 175 °C - 8 bar/RT=15 °C - RH 50 %
 - **Cooling:** temperature 7 - 12 °C / RT=27 °C - RH 50 %
 - **Air stream:** * with JET+ diffuser for a residual speed of 0.1 m/s
* defined with Δt OT/RT of 15 °C (heating) and 7 °C (cooling)
* with LP water or electric heating
 - **Air speed:** JET+ diffuser outlet
 - **Sound pressure:** measured 5 metres from unit, directivity 2, attenuation of 22 dB
- ⇒ **Direct:** speed obtained when wired directly to single-phase motor.
 ⇒ **R3*** (version with AC motor): supply air velocity obtained with autotransformer set to "3". Other operation points (5 in total) can be supplied on request by your agent using our technical selection software.

Defined performance without accessories (unit only)

HELIO THERME® PERFORMANCE HOT WATER, SUPERHEATED WATER AND STEAM 400 V/3-PH/50 Hz MOTOR

| HEATING - 400 V/3-Ph/50 Hz motor | | | | | | | | | | | |
|----------------------------------|-------------|------------------|-------|-----------|-----------|----------------|-----------|-----------------------|------|------|----------------|
| Model | No. of rows | Air supply speed | | Flow rate | Air speed | Range (metres) | | Heating capacity (kW) | | | Sound pressure |
| | | THREE-PHASE | | m³/h | m/s | Wall-mounted | Suspended | HW | SW | HPS | dB(A) |
| H4350 | 1 | HS | △ | 2 600 | 3.92 m/s | 22 | 6 | 10,3 | 28,7 | 49 | 48 |
| | | LS | ★ | 2 210 | 3.33 m/s | 17 | 3,5 | 9,7 | 25,9 | 44,9 | 44 |
| | 3 | HS | △ | 2 165 | 3.26 m/s | 18 | 4,5 | 22,9 | | | 50 |
| LS | | ★ | 1 775 | 2.67 m/s | 14 | 2 | 20,4 | | | 46 | |
| H4400 | 1 | HS | △ | 4 000 | 4.35 m/s | 25 | 8 | 14,6 | 44,1 | 67,7 | 55 |
| | | LS | ★ | 3 480 | 3.79 m/s | 21 | 5 | 13,9 | 40,5 | 62,2 | 51 |
| | 3 | HS | △ | 3 400 | 3.70 m/s | 22 | 6,5 | 34,3 | | | 56 |
| LS | | ★ | 2 960 | 3.22 m/s | 17 | 3,5 | 31,7 | | | 52 | |
| H4450 | 1 | HS | △ | 5 400 | 4.36 m/s | 28 | 9 | 20,6 | | | 56 |
| | | LS | ★ | 3 910 | 3.16 m/s | 23 | 5,5 | 18,2 | | | 49 |
| | 3 | HS | △ | 5 000 | 4.04 m/s | 24 | 7,5 | 49,6 | | | 59 |
| LS | | ★ | 3 910 | 3.16 m/s | 20 | 4 | 43,1 | | | 52 | |
| H4500 | 1 | HS | △ | 7 500 | 4.46 m/s | 30 | 10 | 27,4 | 80,4 | 124 | 56 |
| | | LS | ★ | 5 740 | 3.41 m/s | 26 | 7 | 24,8 | 68,2 | 105 | 50 |
| | 3 | HS | △ | 6 500 | 3.86 m/s | 26 | 8,5 | 65,9 | | | 58 |
| LS | | ★ | 5 020 | 2.98 m/s | 23 | 5,5 | 56,7 | | | 52 | |
| H4630 | 1 | HS | △ | 11 140 | 4.47 m/s | 29 | 11,5 | 40,2 | 136 | 178 | 55 |
| | | LS | ★ | 9 635 | 3.87 m/s | 24 | 8,5 | 38,1 | 124 | 163 | 48 |
| | 3 | HS | △ | 9 175 | 3.68 m/s | 25 | 10 | 97 | | | 57 |
| LS | | ★ | 7 545 | 3.03 m/s | 21 | 7 | 86,5 | | | 49 | |

| ELECTRIC HEATING - 400V/3Ph/50 Hz motor | | | | | | | | | |
|---|------------------|------|-----------|-----------|----------------|-----------------------|---------------|-----------------|----------------|
| Model | Air supply speed | | Flow rate | Air speed | Range (metres) | Electrical power (kW) | | | Sound pressure |
| | | | m³/h | m/s | Wall-mounted | Total | No. of stages | Power per stage | dB(A) |
| H4350 | HS | △ | 2600 | 3.92 m/s | 22 | 9.6 kW | 2 | 2.4 kW | 48 |
| | LS | ★ | 2210 | 3.33 m/s | 17 | | | 7.2 kW | 44 |
| H4400 | HS | △ | 4000 | 4.35 m/s | 25 | 18.9 kW | 2 | 5.4 kW | 55 |
| | LS | ★ | 3480 | 3.79 m/s | 21 | | | 13.5 kW | 51 |
| H4500 | HS | △ | 7500 | 4.46 m/s | 30 | 28.8 kW | 2 | 10.8 kW | 56 |
| | LS | ★ | 5740 | 3.41 m/s | 26 | | | 18 kW | 50 |
| | HS | △ | 7500 | 4.10 m/s | 30 | 43.2 kW | 3 | 14.4 kW x 3 | 56 |
| LS | ★ | 5740 | 3.21 m/s | 26 | 50 | | | | |

Specifications determined using the following information:

- **Hot water:** temperature: 80 - 60 °C / RT=15 °C - RH 50%
- **Cold water:** temperature: 7 - 12 °C / RT=27 °C - RH 50%
- **Superheated water (HP SW):** temperature: 180 - 100 °C / RT=15 °C - RH 50 %
- **Steam (HPS):** Temperature 175 °C - 8 bar/RT=15 °C - RH 50 %
- **Air stream:**
 - * with JET+ diffuser for a residual speed of 0.1 m/s
 - * defined with Δt OT/RT of 15 °C
 - * with LP water or electric heating
- **Air speed:** JET+ diffuser outlet
- **Sound pressure:** measured 5 metres from unit, directivity 2, attenuation of 22 dB

Defined performance without accessories (unit only)

TPL DETERMINATION AND SELECTION EXAMPLE (DESTRATIFIER)

S = Supply (released at the top of the building)

TR= Temperature under roof

TW = Temperature setpoint in the work area

$$\text{Calculated flow rate for destratifiers} = \frac{A}{0.3 \times (TR-TW)}$$

Selection example:

Supply under building roof = S = 45,000 kcal (52,200 Watts)

Temperature under roof = TR = 30 °C

Temperature setpoint in the work area = TW = 16 °C

$$\text{Calculated flow rate for destratifiers} = \frac{45\,000}{0.3 \times (30-16)} = 10714 \text{ m}^3/\text{h}$$

So: 2 x TPL 4500 at HS or 1 x TPL 4630 at HS.

TPL AIR FLOW AND ACOUSTIC PERFORMANCE

| TPL | 4400 | | 4450 | | 4500 | | 4630 | |
|--|--------|------|--------|------|--------|------|--------|------|
| | HS | LS | HS | LS | HS | LS | HS | LS |
| 230/400V-3Ph-50 Hz Motor (3-phase 400V coupling) | △ | * | △ | * | △ | * | △ | * |
| 230 V-1-Ph-50 Hz AC and HEE motor | Direct | - | Direct | - | Direct | - | Direct | - |
| Flow rate m ³ /h | 4400 | 3000 | 6000 | 4100 | 8000 | 5500 | 11500 | 8800 |
| Air stream m | 15 | 8 | 14 | 9 | 16 | 10 | 19 | 14 |
| Sound pressure dB(A) | 54 | 43 | 56 | 46 | 57 | 47 | 55 | 50 |

Specifications determined using the following information:

Air stream:* with JET+ diffuser for a residual speed of 0.1 m/s

Sound pressure: * measured 8 metres from unit, directivity 2, attenuation of 26 dB

ELECTRIC MOTOR CHARACTERISTICS

| Use | Model | Motor | Speed of rotation (rpm) | Nom. current A | Max power input (W) | IP | Thermal cut-out | Class | Operating T° |
|----------------|--------------------|---|-------------------------|----------------|---------------------|----|-----------------------|-------|-----------------|
| HEATING | H4350 | THREE-PHASE 230/400V - 3Ph - 50 Hz | HS - Δ 1385 | 0,35 | 110 | 44 | YES 6.3 A - 165 °C | F | -40 °C / +60 °C |
| | | | LS - ★ 1175 | 0,15 | 70 | | | | |
| | H4400 TPL4400 | | HS - Δ 1404 | 0,5 | 260 | 54 | | | -40 °C/+70 °C |
| | | | LS - ★ 1176 | 0,3 | 170 | | | | |
| | H4450 TPL4450 | | HS - Δ 1385 | 1,13 | 550 | 54 | | | -40 °C/+70 °C |
| | | | LS - ★ 1040 | 0,64 | 380 | | | | |
| | H4500 TPL4500 | | HS - Δ 1391 | 1,51 | 770 | 54 | | | -40 °C/+70 °C |
| | | | LS - ★ 1176 | 0,9 | 520 | | | | |
| | H4630 TPL4630 | | HS - Δ 870 | 1,3 | 590 | 54 | | | -40 °C/+70 °C |
| LS - ★ 750 | | 0,63 | 250 | | | | | | |
| HEATING | H4350 H/TPL4400 | SINGLE-PHASE 230 V - 1 Ph - 50 Hz - AC | Direct 1330 | 0,7 | 150 | 44 | YES 6.3 A - 165 °C | F | -40 °C / +60 °C |
| | | | Direct 1400 | 1,3 | 300 | 54 | | | |
| | H/TPL4450 | | Direct 1380 | 2,01 | 480 | | | | 54 |
| | H/TPL4500 | | Direct 1403 | 2,78 | 630 | 54 | | | |
| | H/TPL4630 | | Direct 913 | 2,6 | 580 | | | | 54 |
| | | | | | | | | | |
| HEE FMA | | | | | | | | | |
| HEATING | H4300 | SINGLE-PHASE 230 V - 1-Ph - 50/60 Hz - HEE | 1530 | 0,8 | 85 | 54 | PTC | B | -25 °C/+55 °C |
| | H4350 | | 1480 | 1,35 | 165 | 54 | PTC | B | -25 °C/+50 °C |
| | H/TPL4400 | | 1760 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H/TPL4450 | | 1500 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H/TPL4500 | | 1440 | 3,25 | 740 | 55 | Thermal cut-out | B | -40 °C/+60 °C |
| | H/TPL4630 | | 1020 | 3,2 | 730 | 55 | Thermal cut-out | B | -40 °C/+60 °C |
| COOLING | H4300 | SINGLE-PHASE 230 V - 1-Ph - 50/60 Hz - HEE | 1530 | 0,8 | 85 | 54 | PTC | B | -25 °C/+55 °C |
| | H4350 | | 1040 | 0,65 | 73 | 54 | PTC | B | -25 °C/+60 °C |
| | H4400 | | 1760 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H4450 | | 1500 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H4500 | | 970 | 1,1 | 250 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H4630 | | 770 | 1,1 | 250 | 55 | Thermal cut-out | B | -25 °C/+60 °C |

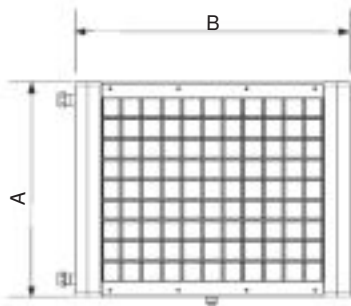
COIL SPECIFICATIONS

| | | 4300 | 4350 | | 4400 | | 4450 | | 4500 | | 4630 | |
|----------------------------|----------------------------|---|---------|------|---------|------|------|------|---------|------|------|-----|
| LOW PRESSURE WATER COIL | Number of heating rows | 2 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 |
| | Number of cooling rows | 2 | 3 | | | | | | | | | |
| | Coil capacity (L) | 0,8 | 0,68 | 1,66 | 0,96 | 2,28 | 1,38 | 3,22 | 2,18 | 4,55 | 2,97 | 6,4 |
| | Connection diameter | ½" | ¾" | | | | 1" | | 1" ¼ | | | |
| | Connection type | Threaded unions 243 GCU F/M | | | | | | | | | | |
| | Maximum operating pressure | 13 bar | | | | | | | | | | |
| | Test pressure | 24 bar | | | | | | | | | | |
| | Max T° | 110 °C | | | | | | | | | | |
| HP OIL/WATER COIL | Number of heating rows | 1 | | | | | | | | | | |
| | Coil capacity (L) | | 1,19 | | 1,69 | | - | | 2,66 | | 3,69 | |
| | Connection diameter | | 33.7 mm | | 42.4 mm | | - | | 42.4 mm | | | |
| | Connection type | Smooth 316L stainless steel tube (to be welded) | | | | | | | | | | |
| | Maximum operating pressure | 16 bar | | | | | | | | | | |
| | Test pressure | 24 bar | | | | | | | | | | |
| Max T° | 200 °C | | | | | | | | | | | |
| HP STEAM COIL | Number of heating rows | 1 | | | | | | | | | | |
| | Coil capacity (L) | | 0,97 | | 1,22 | | - | | 1,95 | | 2,86 | |
| | Connection diameter | | 26.9 mm | | 33.7 mm | | - | | 48.3 mm | | | |
| | Connection type | Smooth 316L stainless steel tube (to be welded) | | | | | | | | | | |
| | Maximum operating pressure | 16 bar | | | | | | | | | | |
| Test pressure | 24 bar | | | | | | | | | | | |
| Max T° | 200 °C | | | | | | | | | | | |

Version with Heresite coating available on request. Contact our sales network.

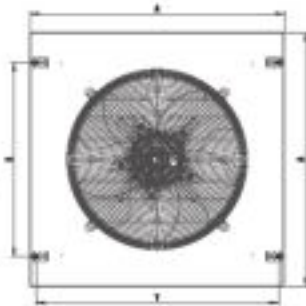
DIMENSIONS

HELIO-THERME®



| Size | A | B | C | D | | Weight (kg) | | |
|---------------|-----|------|-----|-----|-----|-------------|--------|--------|
| | | | | STD | HEE | 1 row | 2 rows | 3 rows |
| | | | | mm | | | | |
| H4300 | 395 | 600 | 286 | - | 115 | - | 18 | - |
| H4350 | 460 | 646 | 286 | 101 | 126 | 21 | - | 26 |
| H4400 | 557 | 700 | 286 | 142 | 143 | 30 | - | 34 |
| H4450 | 620 | 813 | 286 | 142 | 143 | 40 | - | 44 |
| H4500 | 716 | 918 | 336 | 142 | 188 | 50 | - | 56 |
| H4630 | 876 | 1050 | 336 | 142 | 200 | 62 | - | 72 |
| H4630S | 872 | 1050 | 295 | 126 | - | 60 | - | - |

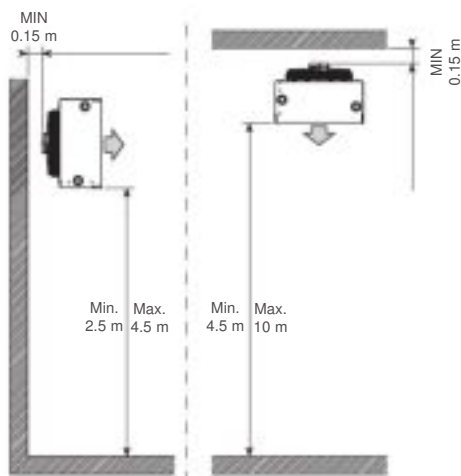
TPL DESTRATIFIER



| TPL | A | B | C | | X | Y | Weight (kg) |
|----------------|-----|-----|-----|-----|-----|-----|-------------|
| | | | STD | HEE | | | |
| TPL4400 | 586 | 183 | 143 | 143 | 370 | 552 | 17 |
| TPL4450 | 666 | 212 | 143 | 143 | 470 | 632 | 22 |
| TPL4500 | 747 | 225 | 143 | 188 | 570 | 712 | 25 |
| TPL4630 | 907 | 273 | 143 | 200 | 705 | 872 | 33 |

INSTALLATION

HELIO-THERME®

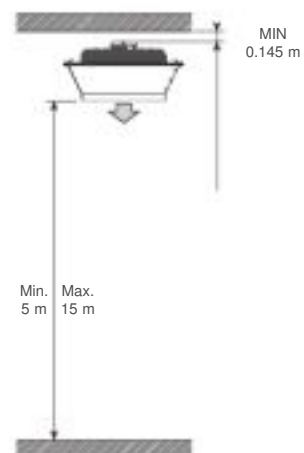


Wall mounting

Ceiling mounting



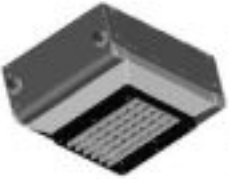


DESTRATIFIER

(Recommended for buildings between 5 and 15 metres high)





ASSEMBLY ACCESSORIES

A different assembly for each use.




| RETURN AIR MODULE | | | | | | |
|--|-------------------|------|------|----------------|----------------|----------------|
|  | Size | A | B | C | Codes | |
| | 4300 | | 395 | | 220 | 7417083 |
| | 4350 | | 440 | 7185105 | | |
| | 4400 | | 520 | 7185106 | | |
| | 4450 | | 600 | 7185107 | | |
| | 4500 | | 680 | 7185108 | | |
| | 4630 | | 840 | 7185110 | | |
| Filter box (G1 filter in accordance with EN 779) Prevents premature clogging of exchanger coils Not ductable | | | | | | |
| DIFFUSION MODULE | | | | | | |
|  | Size | A | B | C | Codes | |
| | 4300 | 750 | 655 | 300 | 7417084 | |
| | 4350 | 750 | 700 | 300 | 7185133 | |
| | 4400 | 850 | 750 | 325 | 7185134 | |
| | 4450 | 970 | 850 | 350 | 7185135 | |
| | 4500 | 1100 | 970 | 375 | 7185136 | |
| | 4630 | 1250 | 1170 | 400 | 7185137 | |
| Diffuser on door Create an air curtain that limits energy loss when doors are opened. Warning: Use a system that is suited to the diffuser mounting. | | | | | | |
|  | Size | A | B | C | Codes | |
| | 4300 | - | - | - | - | |
| | 4350 | - | - | - | - | |
| | 4400 | 178 | 555 | 522 | 7185138 | |
| | 4450 | 136 | 637 | 618 | 7185139 | |
| | 4500 | 132 | 740 | 714 | 7185140 | |
| | 4630 | 282 | 872 | 814 | 7185141 | |
| Diffuser for large spaces Reduction cone for increasing the air throws. | | | | | | |
| ASSEMBLY SUPPORT ACCESSORIES | | | | | | |
|  | Size | | | | Codes | |
| | All | | | | 7181226 | |
| | 300 to 450 | | | | 7181228 | |
| | 500 to 630 | | | | 7181230 | |
| Wall bracket Additional kit for fastening on an IPN | | | | | | |
|  | Size | | | | Codes | |
| | All | | | | 7282116 | |
| Suspension support for ceiling mounting | | | | | | |

ELECTRICAL ACCESSORIES



ELECTRICAL & USER SAFETY

| | | | | | |
|---|--------------|---|--|--|--|
|  | Codes | | Padlockable proximity switch | | |
| | 0596142 | | Available in a 1 or 2-speed version, this accessory must be placed at least 2 metres from any rotating part, to comply with French standard IT 246, Art. 4-7-3, and EC requirements. | | |
| | 0596147 | | | | |
|  | Use | Circuit breaker unit - 1-PH AC FMA heating | Circuit breaker unit - 1-PH HEE FMA heating | Circuit breaker unit - 1-PH HEE FMA cooling | Circuit breaker unit THREE-PHASE AC |
| | H4300 | | 7252526 | 7252526 | |
| | H4350 | 7252526 | 7252527 | 7252526 | 7252523 |
| | H4400 | 7252527 | 7252528 | 7252528 | 7252525 |
| | H4450 | 7252528 | 7252528 | 7252528 | 7252527 |
| | H4500 | 7252529 | 7252529 | 7252527 | 7252527 |
| | H4630 | 7252529 | 7252529 | 7252527 | 7252527 |
| | TPL4400 | 7252527 | 7252528 | | 7252525 |
| | TPL4450 | 7252528 | 7252528 | | 7252527 |
| | TPL4500 | 7252529 | 7252529 | | 7252527 |
| TPL4630 | 7252529 | 7252529 | | 7252527 | |

THERMOSTATS

| | | |
|---|--------------|---|
|  | Codes | Manual/auto room thermostat – 1-PH AC/1-PH HEE installation |
| | 7486653 | 3-speed EC thermostat kit (for SINGLE-PHASE HEE FMA) - Heating and cooling with manual toggle switch - Inductive breaking capacity 3.53 A |
| | 7486654 | 1-speed AC thermostat kit (for SINGLE-PHASE AC FMA) - Heating and cooling with manual toggle switch - Inductive breaking capacity 3.53 A |
|  | 5201027 | Summer or Winter thermostat - 1-PH AC FMA |
| | 5201028 | Summer or Winter thermostat - 1-PH AC FMA |
|  | Codes | IP54 industrial environment thermostat – THREE-PHASE AC installation |
| | 7113335 | Summer or Winter thermostat - 3-PH AC FMA - 1 Stage |
| | 7113336 | Summer or Winter thermostat - 3-PH AC FMA - 2 Stages |

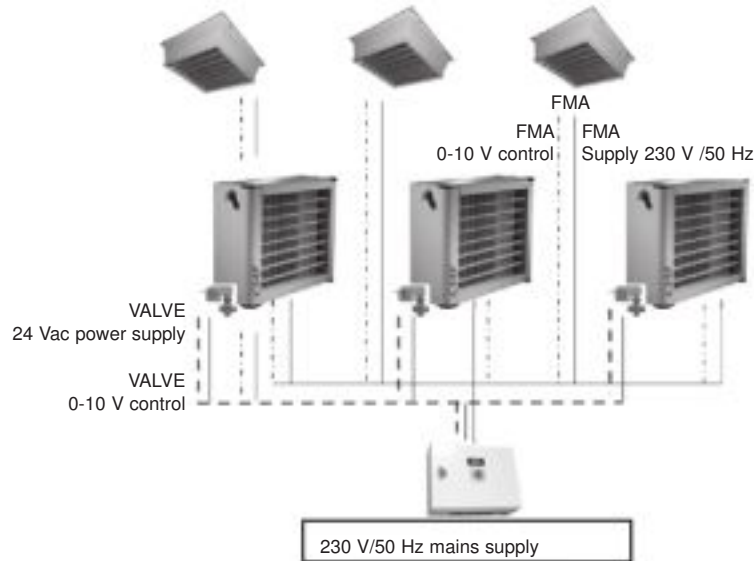
SUPPLY AIR SPEED SELECTION

| | | |
|---|--------------|---|
|  | Codes | LS/HS switch |
| | 7169961 | For 3-phase AC motor, selects two motor rotation speeds and stop. |
|  | Codes | Autotransformer with selector switch (3.5 A) |
| | 7166982 | Used to obtain 5 supply air speeds by varying the voltage on the variable speed AC 1 single-phase motors. |

SINGLE-PHASE HEE HELIOTHERME® CONTROL (EC MOTOR)

HEE 1-PH BOX range, controls: 6 HELIOTHERME® units, 6 TPLs, 3 HELIOTHERME® units + 3 TPLs, 4 HELIOTHERME® units + 2 TPLs

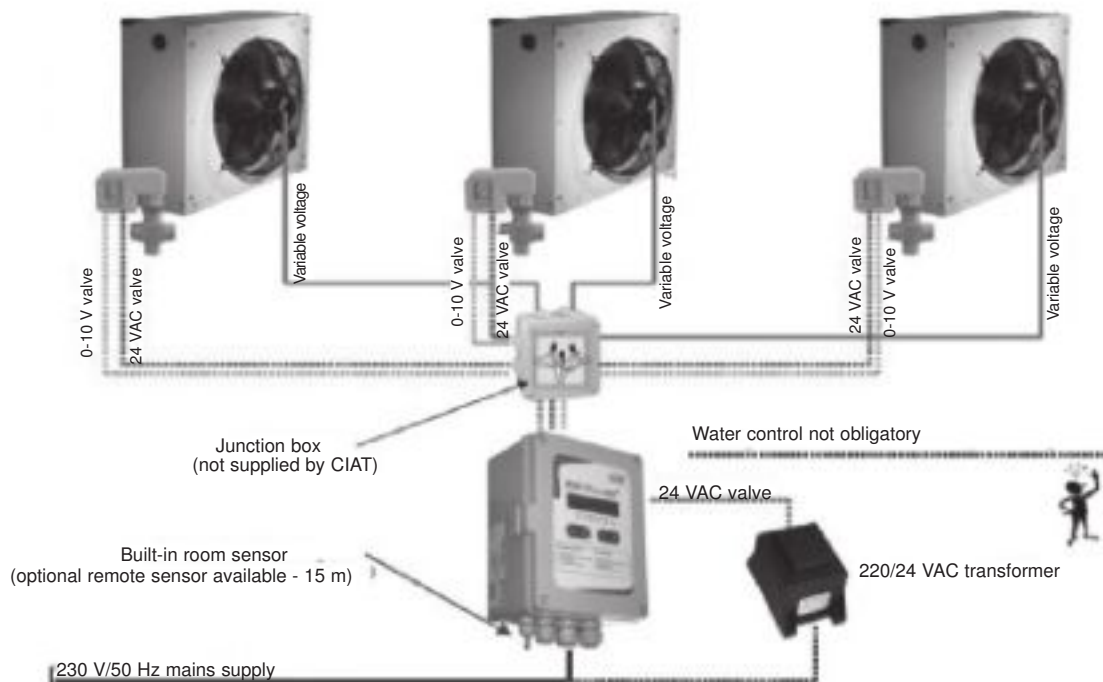
Figure A



SINGLE-PHASE HELIOTHERME® CONTROL (AC MOTOR)

Eco+ 1-PH BOX range

Figure B



THREE-PHASE HELIOTHERME® CONTROL (AC MOTOR)

3-PH Eco+ BOX range

Figure C

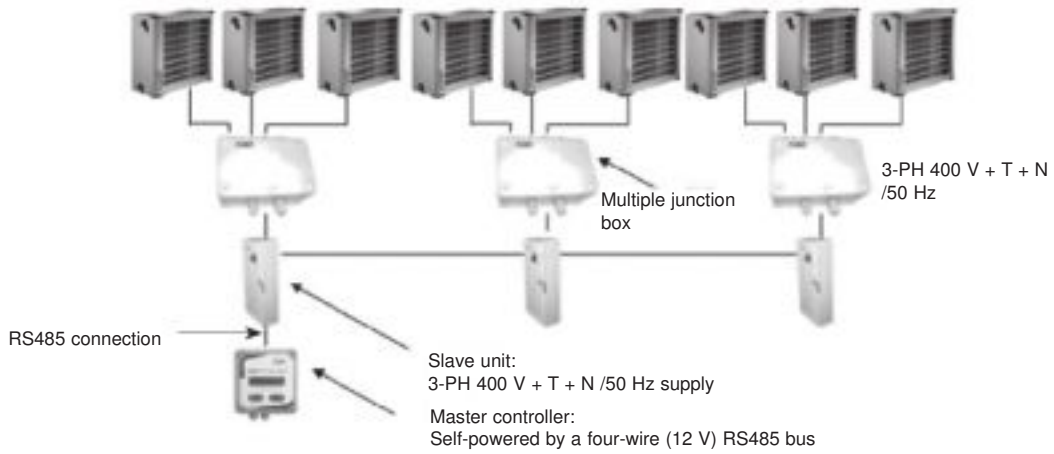
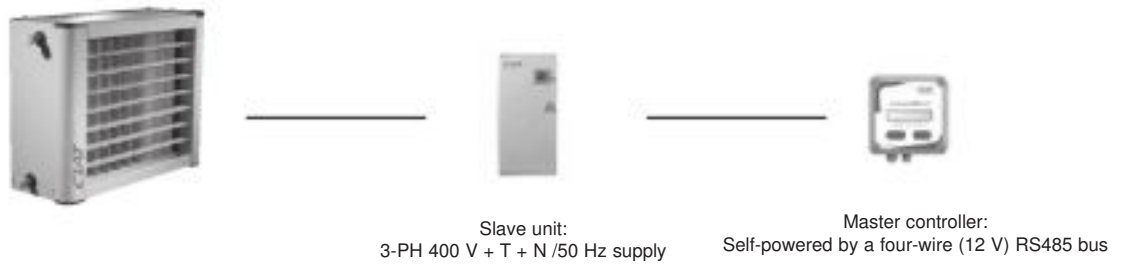


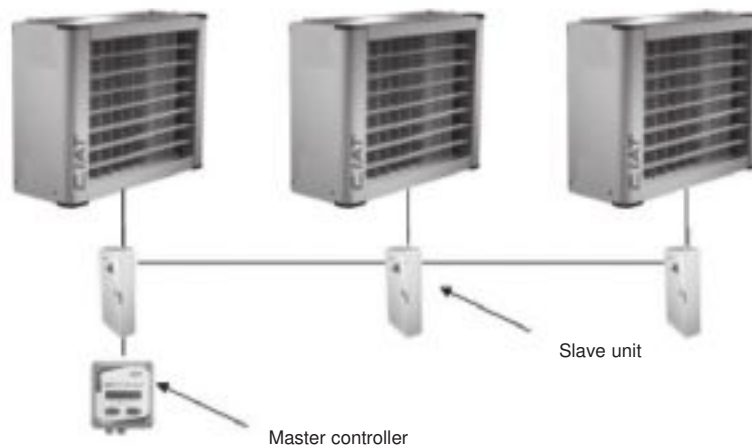
Figure D



ALL-ELECTRIC HELIOTHERME® CONTROL (diagram in Eco+ ELEC BOX user manual)

Eco+ ELEC BOX range

Figure E



TECHNICAL CHARACTERISTICS OF THE DIFFERENT CONTROLLERS

| HELIOTHERME® or TPL CONRHOL AND ACCESSORIES | | | | |
|---|----------------------|--------------------------|--------------------------------------|------------------|
| CONRHOL | 1-PH HEE BOX | 1-Ph ECO+ BOX unit | 3-PH ECO BOX + multiple junction box | ECO + ELEC BOX |
| Figure | a | b | C and D | e |
| FUNCTION | | | | |
| Number of heliotherms or TPLs that can be controlled | 1 to 6 | 1 to 3 | 1 to 9 | 1 to 3 |
| Protection rating | 54 | 55 | 55 | 55 |
| Weekly timer (Comfort/ECO/frost protection) | Included | Included | Included | Included |
| Supply Voltage/Phase/Frequency | 230 V/1/50 Hz | 230 V/1/50 Hz | 400 V/3/50 Hz+N | 400 V/3/50 Hz+N |
| Electrical protection (circuit breakers, connectors, disconnect switches) | Included | TO BE FITTED | Included | Included |
| Air control | Proportional 0 - 10V | Proportional 110 - 230 V | 2-speed LS/HS | 1 speed LS or HS |
| Water control | Proportional 0 - 10V | Proportional 0 - 10V | Proportional 0 - 10V | |
| Integrated temperature sensor | INCLUDED | INCLUDED | INCLUDED | INCLUDED |
| Remote on/off switch and fault summary | INCLUDED | NOT INCLUDED | NOT INCLUDED | NOT INCLUDED |
| MODBUS/LON and BACnet IP communication | OPTION | no | no | no |
| Fresh air control | yes | no | no | no |
| ACCESSORIES | | | | |
| BOX CONRHOL | 7391284 | 7184939 | 7219774 | 7219774 |
| Slave unit for 3-PH Eco+ BOX | | | 7218912 | |
| BMR 3-PH Eco+ BOX Multiple connection unit (controls max. 3 units) | | | 7239492 | |
| Eco+ ELEC BOX slave unit - 9.6 KW (for H4350 TE 3-PH) | | | | 7218907 |
| Eco+ ELEC BOX slave unit - 18.9 KW (for H4400 TE 3-PH) | | | | 7218908 |
| Eco+ ELEC BOX slave unit - 28.8 KW (for H4500 TE 3-PH) | | | | 7218910 |
| Eco+ ELEC BOX slave unit - 43.2 KW (for H4500 TE 3-PH) | | | | 7218911 |
| ½ " valve kit KV 1.6 (H4300) | B403210 | | | |
| ¾ " valve kit – KV 2.5 (H4351-4352-4401-4451) | | B400410 | | |
| ¾ " valve kit – KV 4 (H4353-4402-4403-4452-4501) | | B400411 | | |
| 1" ½ valve kit – KV 6.3 (H4453-4502-4503-4631) | | B400412 | | |
| 1" ½ valve kit – KV 10 (H4632-4633) | | B400413 | | |
| 220/24 Vac safety transformer (required for the power supply of the valve servomotor(s) (010 V) | INCLUDED | 7435107 | INCLUDED | |
| Change-over switch thermostat (for automatic Summer-Winter change-over) | | 7128892 | | |
| 6P padlockable proximity switch for 3-PH Eco+ BOX | | | 0596147 | INCLUDED |
| 3P padlockable proximity switch for 1-PH or HEE Eco+ Box | 0596142 | 0596142 | | |
| Remote sensor | 7462538 | | 7207381 | |

HELIO THERME®..... is also the solution for ATEX compliance

Ex II 2 G
 II c 65 °C - 105 °C or 120 to 220 °C
 EEx d/de IIB or IIC T4 to T6

CIAT has put all its expertise and know-how into a special series of ATEX certified HELIO THERME® units. This approval, issued by an independent external body, is your guarantee of complete compliance with the ATEX directives. The ATEX HELIO THERME® range is certified for your applications:

- In the presence of explosive gas agent
- In zone 1 or 2
- For IIB or IIC explosion groups
- With T4 to T6 gas auto-ignition temperatures
- Low pressure water, superheated water, steam, oil, compressed air, etc.



What is ATEX?

An ATEX (explosive atmosphere) can be caused in atmospheric conditions by flammable gases, vapours or mists or by combustible dusts mixed with air. After ignition, combustion spreads through the whole of the unburnt mixture.

How is an ATEX zone defined?

ATEX zones are determined based on the probability and duration of the occurrence of an explosive atmosphere. This risk analysis is used to define zones, explosion groups and maximum surface temperature classes. These atmospheres are mainly found in painting workshops, metal processing workshops, waste recycling, wood processing, etc.

Who defines ATEX zones?

Any operator of a production facility where an explosive atmosphere may occur must define the relevant ATEX zones, explosion groups and temperature classes. By doing so, the operator will also be able to set up the necessary means of prevention (communication, documentation, recommendations, etc.).

"Directive 94/9/EC divides the equipment and protective systems which it covers into equipment groups and categories; this Directive (1999/92/EC) provides for a classification by the employer of the places where explosive atmospheres may occur in terms of zones and determines which equipment and protective systems groups and categories should be used in each zone."

| ZONE | | Category | The explosive agent is: |
|---------|----------|----------|--|
| Gas (G) | Dust (D) | | |
| 0 | 20 | 0 | Occurs continuously, often and over extended periods: NOT APPLICABLE TO ANY CIAT PRODUCTS |
| 1 | 21 | 1 | Occasionally present during normal use (on request) |
| 2 | 22 | 2 | Rarely or briefly present |

| GAS - EXPLOSION GROUP AND TEMPERATURE CLASS | | | | | | |
|---|---|---|---------------------------------------|--------------|--------|-------------------|
| Temperature class | T1 | T2 | T3 | T4 | T5 | T6 |
| Max surface temp | 450 °C | 300 °C | 200 °C | 135 °C | 100 °C | 85 °C |
| Explosion group | | | | | | |
| IIA | Acetone Ammonia Benzene Acetic acid Ethane Ethyl acetate Ethyl chloride Methanol Naphthalene Phenol Propane | i-Amyl acetate Butane Butyl alcohol | Petrol Diesel Hot oil Hexane | Acetaldehyde | | |
| II B | Town gas | Ethylene | Hydrogen sulphide | Ethyl ether | | |
| II C | Hydrogen | Acetylene | | | | Carbon disulphide |

OPERATING LIMITS

| | Cooling mode | Heating mode | Steam mode | Superheated water mode |
|---------------------------|--|--|---|---|
| Water circuit | Min. water inlet temp.: 5 °C Max. operating pressure: 13 bar | Max. water inlet temp.: 110 °C Max. operating pressure: 13 bar | Max.temp./Operating pressure: 200 °C/16 bar | Max. water inlet temp.: 200 °C Max. operating pressure: 16 bar |
| Indoor temperature | Tmax: 60 °C and Tmin -15 °C | | | |
| 1-PH AC motor | | 230 V(+/-6 %)/50 Hz - 1 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 230 V(+/-6 %)/50 Hz - 1 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 230 V(+/-6 %)/50 Hz - 1 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 |
| 3-PH AC motor | | 400 V(+/-6%) / 50 Hz - 3 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 400 V(+/-6%) / 50 Hz - 3 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 400 V(+/-6%) / 50 Hz - 3 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 |
| 1-PH EC motor | 230 V (+/-6%)/50/60 Hz - 1 Ph IP54: H4300 and H4350 IP 55: H4400-H4450- H4500-H4630 | 50/60 Hz - 1-Ph IP54: H4300 and H4350 IP 55: H4400-H4450- H4500-H4630 | | |

EXPAIR™

Precision air handling cabinets



- Compact footprint*
- Dual-wall construction*
- Fan motor assembly with EC motor (electronically commutated)*
- PLC control*
- Condenser fan variable speed control*



Chilled water :
 Cooling capacity : 5 to 27 kW
 Air flow rate : 800 to 6 000 m³/h
 Direct expansion :
 Cooling capacity : 5 to 47 kW
 Air flow rate : 800 to 12 000 m³/h

USE

Precision air conditioning cabinet specially designed for the air handling requirements (filtration, temperature and humidity control) of computer rooms, telecommunications rooms and specific purpose rooms (electronics, sensitive storage, medical, controlled atmosphere rooms, etc.). Dual-wall construction. The choice of technology used (self regulation depending on the room loads, EC motor: electronically commutated) can reduce the energy consumption. This unit is quick and easy to install, and particularly simple to use.

EXPAIR™ CW

Cabinet supplied with chilled water.

EXPAIR™ DXA

Vertical self-contained unit with separate air condensation unit (CL2) (R410A).

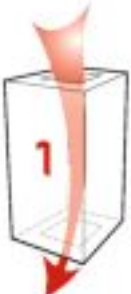
2

ASSEMBLY

UNDER installation: reversed air supply

OVER installation: top air supply

Installation 1



Air supply via raised floor

Installation 3



Front return

Installation 4



Rear return

Assembly 5



Return air below

RANGE

| Units | CW | 5 | 8 | 12 | 16 | | 27 | | | | | |
|--------------------------------------|-----|------|------|------|------|------|------|------|------|------|-------|-------|
| | DXA | 5 | 8 | 10 | 12 | 15 | 19 | 24 | 31 | 36 | 38 | 48 |
| Nominal air flow rate (1) | | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| Associated CL2 condensation unit (2) | | 28 | 28 | 35 | 35 | 50 | 65 | 75 | 2x50 | 2x65 | 2x65 | 2x75 |

(1) Air flow adjustable via the controller.

(2) Two condensation units per close control unit for models 31 and 48.

QUICK SELECTION

EXPAIR™ CW

| Units | CW 5 | CW 8 | CW 12 | CW 16 | | CW 27 | |
|--|---------|---------|------------|-------------|-----------|-------------|-----------|
| Air flow rate (m ³ /h) | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| *Maximum operating pressure with M5 (ePM10 50%) or F7 (ePm1: 60%) filtration | 400 | 400 | 259 | 400 | 85 | 400 | 324 |
| Total/sensible cooling capacity (kW) | 5 / 4.8 | 8 / 7.6 | 10.5 / 9.9 | 14.7 / 13.2 | 18 / 16.7 | 23.5 / 21.5 | 27 / 25.1 |
| Water flow rate (m ³ /h) | 0,86 | 1,4 | 1,8 | 2,5 | 3,1 | 4 | 4,6 |
| Pressure drop (mWC) (Coil + valve) | 4,3 | 4,9 | 5,1 | 4,7 | 10 | 4,1 | 5,2 |

Specifications: total cooling capacity, pure water 7°C/12°C, air 24°C 45%. Pressure drop with control valve.

Cooling capacity for a maximum ΔT in air of 12°C.

* Maximum operating pressure dependent on air flow rate. Take off approximately 20 Pa if there is a hot water coil on EXPAIR™.

The operation point can be adjusted directly via the controller. All air flow/operating pressure combinations are therefore possible.

| Correction factors | 7/12 °C | 10/15 °C | 12/18 °C |
|--------------------|---------|----------|----------|
| 22 °C/45% | 0,84 | 0,58 | 0,44 |
| 24 °C/45% | 1 | 0,74 | 0,5 |
| 30 °C/35% | 1,48 | 1,18 | 0,9 |

EXPAIR™ DXA

| Units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|--|---------|----------|------------|-----------|-----------|-----------|-------------|-------------|---------|-----------|-----------|
| Air flow rate (m ³ /h) | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| *Maximum operating pressure with M5 (ePM10 50%) or F7 (ePm1: 60%) filtration | 400 | 400 | 276 | 400 | 89 | 400 | 324 | 273 | 26 | 330 | 21 |
| Total/sensible cooling capacity (kW) | 7.2 / 6 | 8 / 7.65 | 10.6 / 9.7 | 11 / 10.9 | 15 / 14.7 | 19 / 18.6 | 23.2 / 22.4 | 30.1 / 27.9 | 35 / 32 | 38 / 37.4 | 47 / 45.4 |

Specifications: total cooling capacity, air 24 °C 45%, 32 °C outdoor.

* Maximum operating pressure dependent on air flow rate. Take off approximately 20 Pa if there is a hot water coil on EXPAIR™.

The operation point can be adjusted directly via the controller. All air flow/operating pressure combinations are therefore possible.

| Correction factors | 30 °C | 32 °C | 35 °C | 40 °C |
|--------------------|-------|-------|-------|-------|
| 24 °C/50% | 1,02 | 1 | 0,98 | 0,93 |
| 26 °C/50 % | 1,06 | 1,04 | 1,02 | 0,98 |

Correction factors to apply to the cooling capacity based on the outdoor temperature and the return air conditions.

QUICK SELECTION

Hot water coil

| Units | CW | 5 | 8 | 12 | 16 | | 27 | | | | | |
|------------------------|-----|------|------|------|-------|------|-------|------|-------|------|-------|-------|
| | DXA | 5 | 8 | 10 | 12/15 | | 19/24 | | 31/36 | | 38/48 | |
| Air flow rate (m³/h) | | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| Heating capacity (kW) | | 4,5 | 6,2 | 7,5 | 11,9 | 13,7 | 17,8 | 19,5 | 25,8 | 27,6 | 37,5 | 40,9 |
| Water flow rate (m³/h) | | 0,21 | 0,27 | 0,33 | 0,5 | 0,6 | 0,8 | 0,9 | 1,1 | 1,2 | 1,65 | 1,8 |
| Pressure drop (mWC) | | 1,3 | 2,6 | 4,3 | 2,1 | 2,8 | 1 | 1,2 | 1,7 | 1,9 | 2,8 | 3,3 |

Specifications: heating capacity, air 20°C, pure water 80°C/60°C, pressure drop with control valve.
Correction factors to apply to the heating capacity for 90°C/70°C water temperature range: 1.23 and 45°C/35°C: 0.37.

2 stage or TRIAC electric heater, depending on the option selected

| | | CW 5 | | CW 8 | | CW 12 | | CW 16 | | CW 27 | | | | | | | |
|-------------------------------|----------------|----------|-------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--|----------|--|--|--|
| | | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 | | | | | |
| Total electrical power | | 3 | | 6 | | 9 | | 12 | | 18 | | 24 | | | | | |
| Electrical power (kW) | Stage 1 | 3 | | 6 | | 6 | | 12 | | 12 | | 12 | | | | | |
| | Stage 2 | - | | 3 | | 3 | | 6 | | 6 | | 12 | | | | | |
| Number of heaters | Stage 1 | 3 x 1 kW | | 3 x 2 kW | | 3 x 2 kW | | 3 x 4 kW | | 3 x 4 kW | | 3 x 4 kW | | | | | |
| | Stage 2 | - | | 3 x 1 kW | | 3 x 1 kW | | 3 x 2 kW | | 3 x 2 kW | | 3 x 4 kW | | 3 x 4 kW | | | |
| Total current (A) | | 4,3 | | 8,7 | | 13 | | 17,3 | | 26 | | 34,6 | | | | | |

DESCRIPTION

Casing

- Dual-wall construction.
- RAL 7035 grey precoated panel, removable:
 - 1 mm precoated exterior panels,
 - Glass wool, thickness 25 mm, class M0 (A2-s1),
 - 0.8 mm galvanised interior panels.

Filtration

- Filter cell efficiency ePM10 50% according to ISO16890 (M5 efficiency according to EN 779-2012).
- Optional filter efficiency ePM1: 60% according to ISO16890 (F7 efficiency according to EN 779-2012).
- Optional (except DXA 5/8/10 and CW 5/8/12) dual ePM10 50% + ePM1: 60% according to ISO16890 (M5 +F7 according to EN 779-2012).
- Filter cells tightly compressed against counter-frame by a gasket to ensure a completely leaktight seal.
- Fouling level monitored by an analogue pressure sensor.

Cooling coil cross-section

- Coil made of copper tubes, aluminium fins.
- Aluminium condensate drain pan.
- CW model with 2- or 3-way control valve fitted and connected. Optional thermally insulated flexible connections.
- DXA model with thermostatic expansion valve.

Ventilation section

- Direct drive centrifugal fan, associated with an electronically commutated (EC motor).
EC motor: fan adaptation via manual adjustment or "self-regulating" adjustment by the controller, depending on the room load - system air control.
- EC electric motor 1-Ph/230 V/50-60 Hz, 4-pole, class F.
- Air flow rate monitored by an analogue pressure sensor.

Electrics box for the indoor unit

Electrical power and control box consisting of:

- Power supply: 3-Ph/400 V/50 Hz+E+N.
- Emergency stop master switch.
- Protected transformer (three-phase, 400/24 V).
- Protection and control of fan motor, and of humidifier and electric heater depending on options selected.
- CIAT µAIR CONNECT2 control systems using PLC.
- Return air dry-bulb temperature control.
- Return humidity control:
 - Supply humidity control (optional)
 - Dehumidification humidity control (optional)
- Options available: standard water leak detection, fire thermostat and supply air low limit monitoring.
- Remote control and fault summary contact.
- Condensate drain pump (optional).

Accessories (option)

- Support base for air supply via raised floor.
- Supply plenum.
- Acoustic plenum with sound trap.
- Motorised damper on intake section.
- Fire thermostat.
- Hydraulic connection kit (chilled water and hot water coils).

Description of the outdoor unit (DXA model)

- CL2 type air condensation unit.
- Power supply: 3-Ph/400 V/50 Hz+E+N.
- SCROLL hermetic compressor.
- HP and LP safety pressure switches.
- Shut-off and control valves.
- 1 refrigerant circuit.
- Refrigerant fluid: R410A.
- Condensation pressure control by electronic board and pressure sensor. Variable speed control on condenser fan.
- Fault signal on indoor unit.

OPTIONS

Electric heater

- Fan-controlled operation.
- 2-stage control (except 3 kW electric heater).
- 2-stage or TRIAC control.
- Two high-limit safety thermostats with automatic and manual reset.

Hot water coil

- 1-row coil made of copper tubes with aluminium fins.
- 2- or 4-way control valve, fitted and connected.
- Optional flexible connections.

Humidifier

- Humidifier with immersed electrodes and a CPY board to relay all information relating to the humidifier directly to the CIAT μ AIR CONNECT2 PLC:
 - Stainless steel large surface area electrodes,
 - 3 kg steam per hour, for sizes CW5/8/12 and DXA5/8/10,
 - 8 kg steam per hour, for other sizes,
 - Steam cylinder in a single easy to remove component,
 - Filling solenoid valves,
 - Drain pump,
 - Electronics board for operation management,
 - Diffusion jet,
 - Water supply connection kit.
- Operates on municipal water supply only (water conductivity of between 350 and 1250 μ S and hardness 15 to 30 °F). Do not use deionised or softened water.

CONTROL

Unit control and monitoring

CIAT μ AIR CONNECT2


- 160-character display showing the operating instructions, operating states, faults and solutions. Configurable controller.
- Two fault levels.
- Monitoring of operating times.
- RS 485 output with Jbus/ModBus RTU protocol.
- Master/slave type management possible. (Backup, rotation and additions between the units).
- BACNET IP or MSTP gateways optional..
- Optional changeover thermostat (only on CW).

ELECTRICAL DATA

Indoor unit (CW and DXA models)

| | | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | | |
|------------------------------------|------------------------------|-------|-------|--------|-----------|-----------|-----------|-----------|-------|
| | | DXA 5 | DXA 8 | DXA 10 | DXA 12/15 | DXA 19/24 | DXA 31/36 | DXA 38/48 | |
| Fan motor | Voltage (V) | 230 V | | | | | | | |
| | Power (kW) | 1,036 | | 1,029 | | 2,072 | 2,058 | 3,087 | |
| | Current (A) | 4,51 | | 4,38 | | 9,02 | 8,76 | 13,14 | |
| Control circuit (transformer) | Voltage (V) | 24 V | | | | | | | |
| | Current (A) | 1 | | | | | | | |
| Humidifier (option) | Voltage (V) | 400 | | | | | | | |
| | Power (kW) | 2,25 | | | 6 | | | | |
| | Current (A) | 3,2 | | | 8,7 | | | | |
| Electric heater (option) | Voltage (V) | 400 | | | | | | | |
| | Power (kW) | 3 | 6 | | 9 | 12 | 18 | 24 | |
| | Current (A) | 4,3 | 8,7 | | 13 | 17,3 | 26 | 34,6 | |
| Total current without option | Current (A) | 5,51 | | 5,38 | | 10,2 | 9,76 | 14,14 | |
| | Disconnect switch rating (A) | 16 | | | | | | | |
| Total current with humidifier | Current (A) | 8,71 | | | 14,08 | | 18,72 | 18,46 | 22,84 |
| | Disconnect switch rating (A) | 16 | | | | 25 | | | |
| Total current with electric heater | Current (A) | 9,81 | | 14,21 | | 18,38 | 27,32 | 35,76 | 48,74 |
| | Disconnect switch rating (A) | 16 | | | 25 | | 40 | | 63 |
| Total current all options | Current (A) | 13,01 | | 17,41 | | 27,08 | 36,02 | 44,46 | 57,44 |
| | Disconnect switch rating (A) | 16 | | 25 | | 40 | | 63 | |

Outdoor unit : Condensation unit (CL2) (DXA model)

| Units | 5 | 8 | 10 | 12 | 15 | 19 | 24 | 31 | 36 | 38 | 48 |
|------------------------|--------------------|------|------|------|------|------|--------------------|--------|--------|--------|--------|
| Outdoor unit no./type | 1x28 | 1x28 | 1x35 | 1x35 | 1x50 | 1x65 | 1x75 | 2x50 | 2x65 | 2x65 | 2x75 |
| Power supply no./type | 3-Ph/400V/50Hz+E+N | | | | | | 3-Ph/400V/50Hz+E+N | | | | |
| Max. total current (A) | 7,5 | 7,5 | 9,0 | 9,0 | 11,3 | 17,0 | 17,0 | 2x11,3 | 2x17,0 | 2x17,0 | 2x17,0 |

SOUND PRESSURE LEVEL

Indoor unit (CW and DXA models)

| Units | CW | 5 | 8 | 12 | 16 | 27 | | | | | | |
|----------------------------|-----|------|------|------|-------|-------|-------|-------|------|------|-------|-------|
| | DXA | 5 | 8 | 10 | 12/15 | 19/24 | 31/36 | 38/48 | | | | |
| Air flow rate (m³/h) | | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| Sound pressure level (dBA) | | 49 | 53 | 58 | 57 | 61 | 59 | 63 | 60 | 63 | 60 | 64 |

Sound pressure level of indoor unit (CW and DX) at 2 m in a free field, supply air connected, +/-3 dB.

Outdoor unit : Condensation unit (CL2) (DXA model)

| DXA units | 5 | 8 | 10 | 12 | 15 | 19 | 24 | 31 | 36 | 38 | 48 |
|----------------------------|----|----|----|----|----|----|----|------|------|------|------|
| Models | 28 | 28 | 35 | 35 | 50 | 65 | 75 | 2x50 | 2x65 | 2x65 | 2x75 |
| Sound pressure level (dBA) | 39 | 39 | 45 | 45 | 43 | 47 | 47 | 46 | 50 | 50 | 50 |

Sound pressure level of outdoor unit, at 5 m, 1.5 m from floor, in a free field, directivity 2 and +/-3 dB.

CONNECTIONS/WEIGHTS

Indoor unit

| Units | Chilled water | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | |
|----------------------------|------------------|-------|-------|--------|----------|----------|-----------|-----------|
| | Direct expansion | DXA 5 | DXA 8 | DXA 10 | DXA12/15 | DXA19/24 | DXA 31/36 | DXA 38/48 |
| Weight of indoor unit (kg) | | 115 | 120 | 125 | 280 | 310 | 375 | 480 |

Chilled water coil (CW)

| Units chilled water | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | |
|--------------------------|----------|----------|----------|----------|--------|--------|------------|
| Inlet/outlet connections | G 1/2" M | G 3/4" M | G 3/4" M | G 3/4" M | G 1" M | G 1" M | G 1 1/4" M |
| Condensate draining* | Ø 32 mm | | | | | | |

Direct expansion coil (DXA)

| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|------------------------|----------|----------|----------|----------|----------|------------|------------|------------|------------|--------------|--------------|
| Intake pipe | G 5/8" M | G 5/8" M | G 3/4" M | G 7/8" M | G 7/8" M | G 1 1/8" M | G 1 1/8" M | G 2X7/8" M | G 2X7/8" M | G 2X1 1/8" M | G 2X1 1/8" M |
| Liquid pipes | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 2x1/2" | 2x1/2" | 2x1/2" | 2x1/2" |
| Condensate draining* | Ø 32 mm | | | | | | | | | | |

Hot water coil

| Units chilled water | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | |
|--------------------------|----------|----------|----------|----------|----------|-----------|-----------|
| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA12/15 | DXA19/24 | DXA 31/36 | DXA 38/48 |
| Inlet/outlet connections | G 1/2" M | G 1/2" M | G 1/2" M | G 1/2" M | G 3/4" M | G 3/4" M | G 3/4" M |

Chilled water coil connections: inlet on threaded coupling and outlet on threaded control valve.

Condensate drain connection on smooth coupling.

* Drain connections if optional pump fitted: Diam. 6

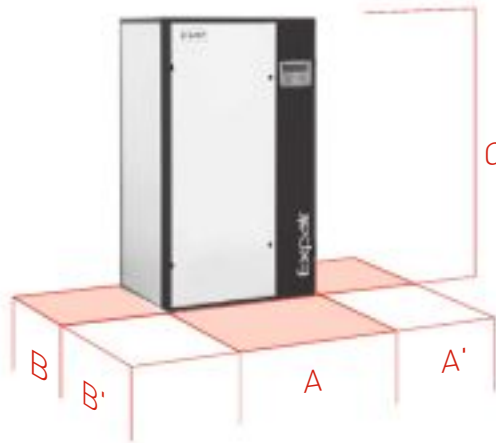
Outdoor unit : Condensation unit (CL2)

| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|-----------------------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Outdoor units no./type | 1x28 | 1x28 | 1x35 | 1x35 | 1x50 | 1x65 | 1x75 | 2x50 | 2x65 | 2x65 | 2x75 |
| Weight of outdoor unit (kg) | 64 | 69 | 69 | 69 | 101 | 112 | 118 | 101 | 112 | 112 | 118 |

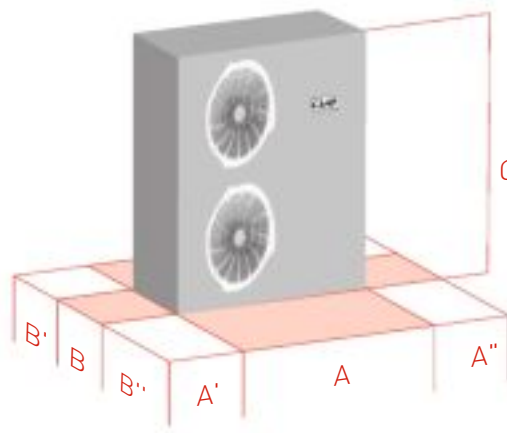
Refrigerant connections

| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|------------------------|---------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Intake pipe | 5/8" | 5/8" | 3/4" | 3/4" | 3/4" | 7/8" | 7/8" | 2x3/4" | 2x7/8" | 2x7/8" | 2x7/8" |
| Liquid pipes | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 1/2" | 2x3/8" | 2x3/8" | 2x3/8" | 2x1/2" |
| Condensate drain | Ø 32 mm | | | | | | | | | | |

DIMENSIONS



| Indoor unit | | | | | | |
|----------------|-----------------|-----|-----|-----|------|-------------|
| Units | Dimensions (mm) | | | | | Weight (kg) |
| | A | A' | B | B' | C | |
| CW5 DXA5 | 675 | 500 | 500 | 700 | 1700 | 115 |
| CW8 DXA8 | 675 | 500 | 500 | 700 | 1700 | 120 |
| CW12 DXA10 | 675 | 500 | 500 | 700 | 1700 | 125 |
| CW16 DXA12/15 | 850 | 500 | 780 | 700 | 1900 | 280 |
| CW27 DXA 19/24 | 1150 | 500 | 780 | 700 | 1900 | 310 |
| DXA 31/36 | 1490 | 500 | 780 | 700 | 1900 | 375 |
| DXA 38/48 | 1990 | 500 | 780 | 700 | 1900 | 480 |



| Outdoor unit (CL2) | | | | | | | | |
|--------------------|-----------------|-----|------|-----|-----|------|------|-------------|
| Models | Dimensions (mm) | | | | | | | Weight (kg) |
| | A | A' | A'' | B | B' | B'' | C | |
| 28 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 732 | 69 |
| 35 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 732 | 69 |
| 50 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 1332 | 101 |
| 65 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 1332 | 112 |
| 75 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 1332 | 118 |

OPERATING LIMITS

Chilled water (CW)

| | | |
|--------------------|------------------------|--|
| Water circuit | Maximum pressure: PN16 | Minimum water inlet temperature: 5 °C (consult us for other values) |
| | | Maximum water inlet temperature: 80 °C (consult us for other values) |
| Indoor temperature | | Minimum air inlet temperature: 12 °C, and according to return humidity |
| | | Maximum air inlet temperature: 45 °C and according to return humidity (Weight in water, condensed < 0.8 g of water/kg of dry air) |
| Power supply | | 3PH / 400V + E + N |

Direct expansion (DXA)

| | | |
|---------------------|-----------------|---|
| Indoor temperature | | Minimum air inlet temperature: 18 °C, and according to return humidity |
| | | Maximum air inlet temperature: 28 °C, and according to return humidity (Weight in water, condensed < 0.8 g of water/kg of dry air) |
| Outdoor temperature | | Minimum air inlet temperature: -15 °C |
| | | Maximum air inlet temperature: 45 °C |
| Power supply | Indoor unit | 3PH / 400V + E + N |
| | Outdoor unit(s) | 3PH / 400V + E + N |

MAGISTER®

Precision air handling cabinet



Wide range of chilled water systems
Compact and attractive design
Energy savings with EC motor
and self-adjusting control
Easy installation

Cooling capacity: 10 to 116 kW
Air flow rate: 3000 to 27,500 m³/h



USE

Close control unit specifically adapted to meet the needs of rooms with a high heat load or sensitive locations (data centres, computer rooms, autocom rooms, etc.).

The choice of technology used (self-adjusting control which

adapts to the room loads, electronically commutated EC motor) can reduce the energy consumption. Thanks to its skilful design, the **MAGISTER®** integrates seamlessly into its intended location.

CHILLED WATER OPERATION

- **MAGISTER® CW** - Chilled water
Air handling cabinet supplied with chilled water.

The fan also has a ModBus card which allows faults and settings such as the actual power input, current, rotation speed, etc. to be transmitted.

■ Fitting UNDER

Air supply via raised floor


■ Fitting OVER

Return air on front panel



Return air below

QUICK SELECTION

CW range - Chilled water

| Units | CW40 | CW53 | CW78 | CW100 |
|---|-----------|-----------|-----------|-----------|
| Air flow rate (m ³ /h) | 10 000 | 13 300 | 18 800 | 24 500 |
| * Maximum operating pressure with M5 filtration / ePM10 50% | 400 | 230 | 400 | 344 |
| * Maximum operating pressure with F7 filtration / ePM1: 60% | 400 | 141 | 400 | 261 |
| Total/sensible cooling capacity (kW) | 41.9 / 40 | 57.4 / 54 | 80.7 / 76 | 107 / 100 |
| Water flow rate (m ³ /h) | 7,2 | 9,8 | 14 | 18 |
| Pressure drop (mWC) (Coil + valve) | 6,4 | 9,6 | 8,1 | 7,1 |

 Conditions: return air 24 °C 45% (RH)
 Water temperature 7/12 °C

| Units | CW40 | CW53 | CW78 | CW100 |
|---|---------|---------|---------|-----------|
| Air flow rate (m ³ /h) | 13 300 | 13 300 | 20 500 | 27 000 |
| * Maximum operating pressure with M5 filtration / ePM10 50% | 175 | 237 | 400 | 124 |
| * Maximum operating pressure with F7 filtration / ePM1: 60% | 66 | 148 | 400 | 30 |
| Total/sensible cooling capacity (kW) | 46 / 46 | 51 / 51 | 78 / 78 | 100 / 100 |
| Water flow rate (m ³ /h) | 7,9 | 8,8 | 13 | 17 |
| Pressure drop (mWC) (Coil + valve) | 7,5 | 7,7 | 7,5 | 6,2 |

 Conditions: return air 26 °C 40% (RH)
 Water temperature 10/15 °C

| Units | CW40 | CW53 | CW78 | CW100 |
|---|---------|---------|---------|-----------|
| Air flow rate (m ³ /h) | 13 300 | 13 300 | 20 500 | 27 000 |
| * Maximum operating pressure with M5 filtration / ePM10 50% | 174 | 236 | 400 | 123 |
| * Maximum operating pressure with F7 filtration / ePM1: 60% | 67 | 145 | 400 | 30 |
| Total/sensible cooling capacity (kW) | 56 / 56 | 60 / 60 | 94 / 94 | 132 / 132 |
| Water flow rate (m ³ /h) | 9,6 | 10 | 16 | 23 |
| Pressure drop (mWC) (Coil + valve) | 10 | 10 | 10 | 10 |

 Conditions: return air 32 °C 35% (RH)
 Water temperature 12/17 °C

* Maximum operating pressure dependent on air flow rate. If there is a heating coil present, see "heating coil" table.
 The operation point can be adjusted directly via the controller. Hence all the air flow/operating pressure combinations are possible, with the values in the table above as the maximum values.

OPTIONS (AVAILABLE CAPACITIES)

■ Electric heaters

| Units | CW | | | |
|-------------------|-------|-------|-------|--------|
| | CW 40 | CW 53 | CW 78 | CW 100 |
| Power (kW) | 12 | 18 | 24 | 33,6 |
| Total current (A) | 17,3 | 26 | 34,7 | 48,6 |

■ Hot water support coil

| Units | CW40 | | CW53 | CW78 | | CW100 | |
|--|-----------------------------------|--------|--------|--------|--------|--------|--------|
| | Air flow rate (m ³ /h) | 10 000 | 13 300 | 13 300 | 18 800 | 20 500 | 24 500 |
| * Maximum operating pressure with M5 filtration /ePM10 50% | 400 | 135 | 200 | 400 | 400 | 295 | 170 |
| * Maximum operating pressure with F7 filtration /ePM1: 60% | 400 | 25 | 115 | 400 | 380 | 216 | 80 |
| Heating capacity (kW) | 36 | 40 | 44 | 63 | 66 | 71 | 73 |
| Water flow rate (m ³ /h) | 1,5 | 1,7 | 1,9 | 2,7 | 2,8 | 3,1 | 3,1 |
| Pressure drop (mWC) (Coil + valve) | 2,2 | 2,6 | 2,8 | 5,3 | 5,8 | 6,6 | 6,9 |

Conditions: return air 17 °C 35% (RH)

Water temperature 80/60 °C

* Maximum operating pressure dependent on air flow rate.

The operation point can be adjusted directly via the controller. Hence all the air flow/operating pressure combinations are possible, with the values in the table above as the maximum values.

■ Humidifier

| Model | CW 40 to CW100 |
|------------------------|----------------|
| Steam flow rate (kg/h) | 8 |
| Electrical power (kW) | 6 |
| Current (A) | 8,7 |

■ Ventilation

| Units | CW | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|
| | CW 40 | | CW 53 | | CW 78 | | CW 100 | |
| | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum |
| Air flow rate (m ³ /h) | 10 000 | 13 300 | 13 300 | 13 300 | 18 800 | 20 500 | 24 500 | 27 000 |
| * Maximum operating pressure with M5 filtration (ePM10 50% according to ISO16890) | 400 | 171 | 229 | 229 | 400 | 400 | 343 | 157 |
| * Maximum operating pressure with F7 filtration ePM1 60% according to ISO16890) | 400 | 60 | 140 | 140 | 400 | 400 | 261 | 68 |

DESCRIPTION

■ Casing

Dual-wall construction (with M0/A1 fire rating).
RAL 7035 and 7024 grey precoated removable panel.
- 0.8 mm painted precoated exterior panel.
- Mineral wool, 25 mm thick.
- 0.8 mm galvanised interior panel.

■ Filtration

Filter cells.
Filter cells kept compressed against the counter frame with the gasket directly on the filter cells.

EN 779-2012 efficiency: M5

ISO16890 efficiency: ePM10 50%

Or

EN 779-2012 efficiency: F7

ISO16890 efficiency: ePM1: 60%

Filter fouling value monitored by analogue sensor and displayed by the controller.

■ Cooling coil cross-section

Copper tubes, aluminium fins.
Stainless condensate drain pan.
Stainless coil flanges (option).
2-way or 3-way control valve fitted and connected.

■ Ventilation cross-section

Centrifugal plug fan, associated with an electronically commutated (EC motor).

EC motor: fan adaptation via manual adjustment or "self-regulating" adjustment by the controller, depending on the room load - system air control.

The fan* also has a ModBus card which allows faults and settings such as the actual power input, current, rotation speed, etc. to be transmitted * except CW115.

■ Electrics box

Power, command and control electrics box consisting of:

- Three-phase 400 V power supply + Earth.
- Main disconnect switch.
- Three-phase 400 V 50 Hz transformer with protection.
- Protection and control of all electrical components by a circuit breaker and contact switch.
- CIAT μ AIR CONNECT2 control systems using PLC.
- Return air dry-bulb temperature control.
- Return humidity control, in supply or dehumidification mode.
- Water leak detection as standard.
- Remote control and fault summary contact.

■ Accessories (option)

Free cooling box.
Support sub-base for supply air via raised floor.
Cased sub-base with grille or damper.
Supply plenum.
Motorised damper on intake section.
Fire thermostat.
Supply air low limit sensor.
BACnet gateway (IP or MSTP).
Raised floor pressure management.
Changeover thermostat.

OPTIONS

■ Electric heater

Fan-controlled operation.
Control by 2-stage operation or by progressive action (TRIAC).
High-limit safety thermostat with automatic and manual reset.

■ Hot water air coil

1-row coil made of copper tubes with aluminium fins.
2- or 4-way progressive action valve fitted, and connected.

■ Humidifier

Humidifier with immersed electrodes and a CPY board to relay all information relating to the humidifier directly to the CIAT μ AIR CONNECT2 PLC

- Stainless steel large surface area electrodes.
- Flow rate of 8 kg/h, depending on the model.
- Steam cylinder in a single easy to remove component.
- Drain pump and filling solenoid valve.
- Electronics board for operation management.
- Diffusion duct.

Operates using municipal water supply only (water conductivity of between 350 and 1250 μ S inclusive and hardness between 15 and 30°F). Do not use deionised or softened water.

CONTROL SYSTEM

Unit control and monitoring:

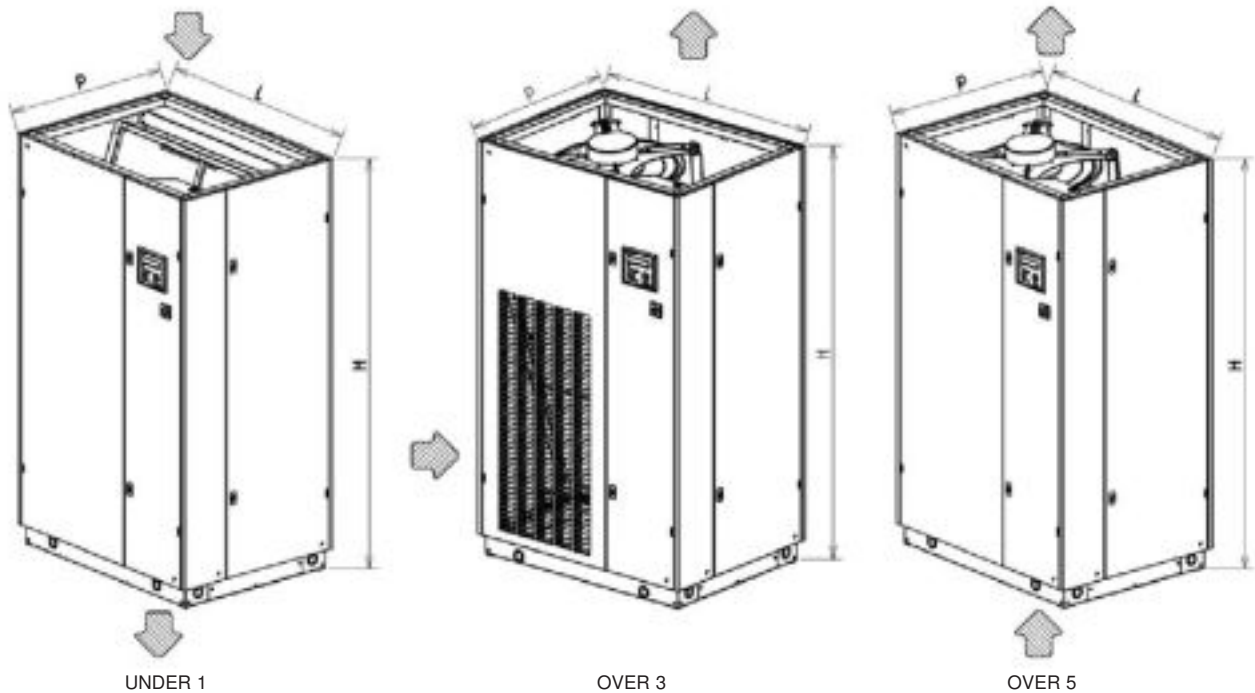
CIAT μ AIR CONNECT2 PLC

- 160-character display showing the operating instructions, operating states, faults and solutions. Configurable controller.
- Two fault levels.
- Monitoring of operating times.
- RS 485 output with Jbus/ModBus RTU protocol.
- Master/slave type management possible. (Backup, rotation and additions between the units)
- On special request, BacNet gateway (IP or MSTP) or ModBus/JBus TCP/IP gateway
- Bacnet gateway (IP or MSTP) optional
- Optional management of pressure in raised floor
- Optional changeover thermostat
- Bus management between the centrifugal plug fan and the μ AIR CONNECT2 controller.
- Transmits fan faults and settings such as the actual power input, current, rotation speed, etc. to the controller.



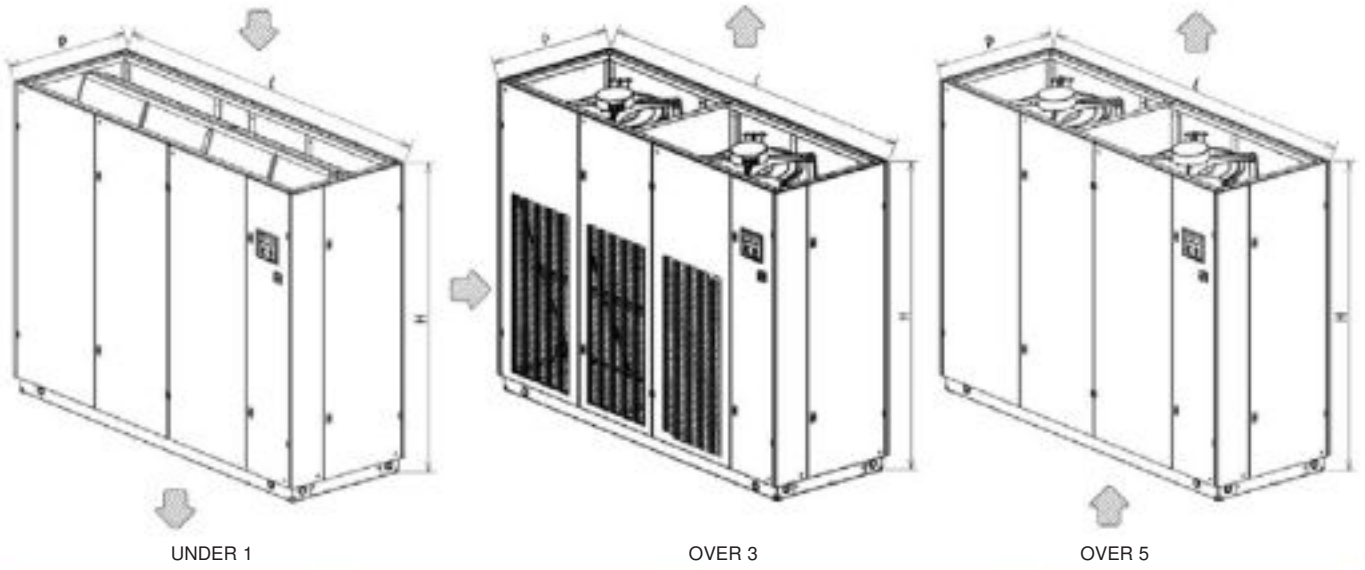
DIMENSIONS*

CW 40 - 53



| CW | H | L | D |
|----|------|------|-----|
| 40 | 1990 | 1190 | 890 |
| 53 | | 1520 | |

CW 78 - 100



| CW | H | L | D |
|-----|------|------|-----|
| 78 | 1990 | 2070 | 890 |
| 100 | | 2620 | |

WEIGHT

Chilled water (CW)

| CW | 40 | 53 | 78 | 100 |
|-------------|-----|-----|-----|-----|
| Weight (kg) | 350 | 385 | 545 | 635 |

JUNIOR™ BCP

Air handling units for swimming pools

Models 70 / 80 / 90

Models 20 / 30 / 40 / 50 / 60



Heating and dehumidification
of covered pools
Low consumption
High energy efficiency

Dehumidification capacity : 4 to 15 kg eau/h



Dehumidification



Air filtration



Heating



Condensation heat recovery



Free cooling

DESCRIPTION

JUNIOR™ BCP series units use a refrigerating circuit to dehumidify the air in covered pools and recover all the heat generated by the condensation process. They are designed primarily for conventional covered pools and other dehumidification applications.

These units are designed to be fitted inside a machine room. Please consult us for special applications (salt water environments, high concentrations of salts or chemical products, high temperatures, etc.).

RANGE

JUNIOR™ BCP series: 1 refrigerating circuit, 1 compressor, 8 models: ■ 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90

OPERATING LIMITS

Air inlet dry temperature

Maximum: 35°C (65% RH - 29°C WB)

Minimum: 18°C (90% RH - 17°C WB)

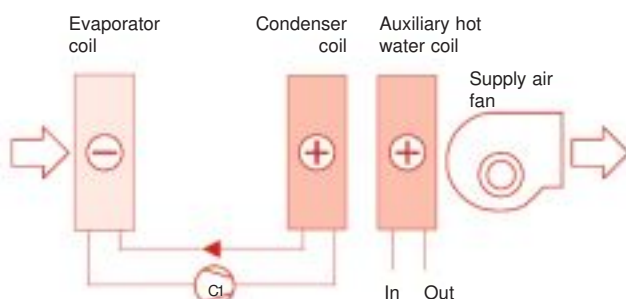
Condenser water inlet temperature

Maximum: 35°C

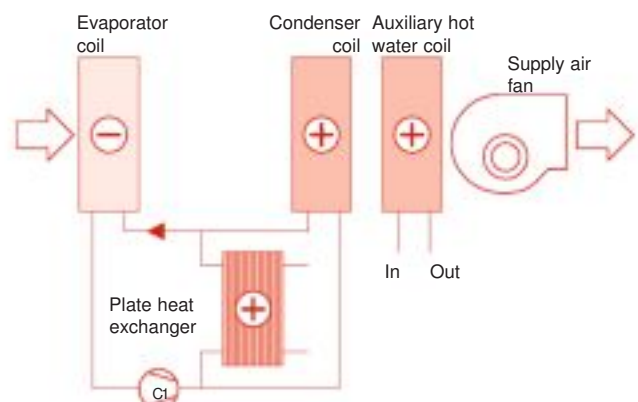
Minimum: 20°C

PRINCIPLE DIAGRAMS

■ JUNIOR™ BCP 20 / 30 / 40 / 50 / 60



■ JUNIOR™ BCP 70 / 80 / 90 (40 / 50 / 60 option)



UNIT COMPONENTS

Standard equipment

- Casing made from 1 mm galvanised steel double-walled panelling, with polyester paint on both sides and 25 mm of fibreglass insulation sandwiched between them.
- Removable access panels and free-standing frame. Hinged door for access to the electrical cabinet.
- Panel with rubber gasket seals to ensure a tight fit.
- Sized to fit through door widths of 680 mm and over (removable mounts on models 40, 50 and 60).

Air circuit

- Reusable G3 filter with access for cleaning.
- Direct expansion cooling coil with copper tubing and aluminium blades, and protective polyurethane.
- Stainless steel condensate drain pan with drain port. This pan is tilted towards the drain so that no stagnant water builds up inside, to prevent health issues.
- Condensation coil with copper tubing and aluminium blades, and protective polyurethane.
- Galvanised sheet metal centrifugal fan with direct drive. Low-noise external motor rotor.
- Fan speed controlled via manual voltage adjustment potentiometer (models 20 to 60).
- Manually-adjusted bypass air damper.

Refrigerating circuit

- Scroll compressor with sound insulation, fitted on anti-vibration mounts. Features a complete protection module that provides combined protection for the motor temperature and the supply air temperature.
- Special SMO-254 steel plate heat exchanger with nickel welding, installed in parallel with the condensation coil. As standard on models 70, 80 and 90, and as an option on models 40, 50 and 60.
- Acid-resistant dehumidifier filter.

Security features

- High and low pressure switches.
- Main door switch.
- Thermal-magnetic protection for the compressor and fan motor power supply line.
- Automatic control circuit switch.
- Inlet limit temperature thermostat in the dehumidification coil.
- Compressor short-cycle protection timer.

Electrical cabinet

- Complete electrical cabinet, fully wired.
- Main earth connection.
- Compressor and fan motor assembly switches.

Standard control

- For the relative humidity: compressor operation controlled by a humidity sensor and an electromechanical controller for one stage.
- For the temperature (option): temperature sensor and an electromechanical controller that regulates the auxiliary hot water coil or electric heater, three-way proportional valve for hot water coil.

Options

- DUAL remote aerocondenser: makes it possible to select, based on needs for comfort, for the condensation to be done in the indoor air circuit or in the remote outdoor condenser.
- Coils with copper tubing and copper blades.
- 1 or 2 stage auxiliary electrical heater with built-in control.
- Antifreeze thermostat.
- Two-row auxiliary hot water coil and a three-way proportional valve and polyurethane or copper-copper coating.
In free cooling mode, the antifreeze thermostat is compulsory for low outdoor air temperatures.
- Water condenser made from special SMO-254 steel with nickel welding (models 40 to 60).
- G4 filters.
- Fouled filter differential pressure switch.
- Discharge plenum (models 70 to 90).
- Free cooling mixing boxes, with motorised dampers and centrifugal return air fan, in a self-contained module. For the free-cooling control CIATpool electronic control is required
- Flexible connections for the water condenser and the auxiliary hot water coil.
- Rubber anti-vibration mounts.

CIATpool electronic control

CIATpool control is basically composed of a μ PC MEDIUM control board, a pGD1 graphical terminal, a TCO user terminal (optional) and sensors.

The control can connect to a centralised technical management system through a BMS communication card

The control also manages a local connection between units through a pLAN (μ PC MEDIUM Local Area Network), thus allowing for a maximum of 15 units to communicate data and information.

The electronic control CIATpool is supplied separate from the BCP unit in an airtight box (remote control panel).

Main functions:

- Dehumidification control during operating modes: COOLING / HEATING / AUTO and selection of setpoints.
- Permanent control of the operating parameters.
- View of the values measured by the sensors.
- Daily and weekly programming.
- Anti-fire safety device.
- Operating fault diagnosis and main alarm.

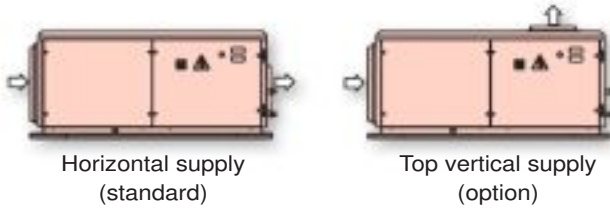
Optional functions:

This control allows controlling optional elements such as:

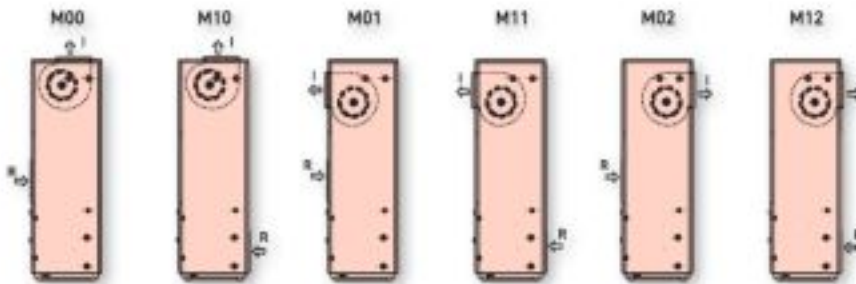
- Outdoor air damper for refreshing air.
- Mixing box for thermal or thermoenthalpic free-cooling.
- Auxiliary electrical heaters.
- Hot water auxiliary coil.
- Air-cooled condenser for DUAL operation.
- Clogged filter detector

AVAILABLE CONFIGURATIONS

BCP - 20 / 30 / 40 / 50 / 60



BCP - 70 / 80 / 90

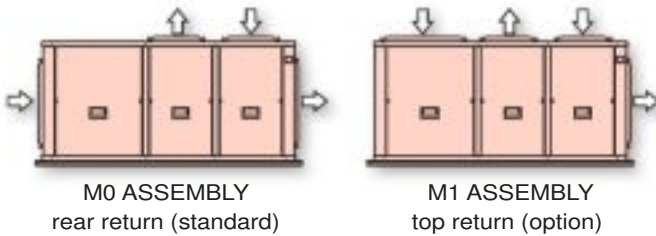


Air Inlet/Outlet
I = Supply air
R = Return

Description
Mxy

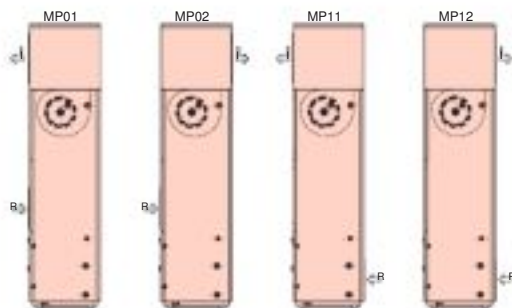
- Int. C. supply air { 0 = Standard
1 = Option
- Int. C. air return { 0 = Standard
1 = Option

Optional Free cooling (3 dampers with return air fan)



NOTE: the installer will have to connect the free cooling module to the machine.

Optional supply plenum: BCP - 70 / 80 / 90 (for direct air supply into the room)



Entrée / Sortie Air
I = Soufflage
R = Reprise

SOUND LEVELS dB(A)

a) Sound power level

Sound power level at the supply air fan discharge and the return air fan intake (option), to be taken into account when calculating the silencer required.

b) Sound pressure level

Measurement conditions: in a free field, measured at a distance of 5 metres, directivity 2 and 1.5 metres from the ground.

Note: the sound pressure level depends on the installation conditions, and is therefore only given as a guide.

| JUNIOR™ BCP | | 20 | 30 | 40M | 40 | 50 | 60 | 70 | 80 | 90 |
|----------------------------|-------|------|------|------|------|------|------|------|------|------|
| a) Supply air fan | dB(A) | 63 | 64 | 71 | 71 | 72 | 77,5 | 72 | 73,5 | 74,2 |
| a) Return air fan (option) | dB(A) | 70 | 71 | 66,6 | 66,6 | 67,3 | 73,7 | 77 | 67,8 | 68,2 |
| b) Standard unit | dB(A) | 45,4 | 46,1 | 50,7 | 50,2 | 51,4 | 56,3 | 52,9 | 54,0 | 56,6 |

TECHNICAL CHARACTERISTICS

| JUNIOR™ BCP | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-------------------------------------|------------------------------------|-----------------|---------------------------|-------|-------|-------|----------|--------|--------|
| Air circuit | Dehumidification capacity ❶ (kg/h) | 3,9 | 5,1 | 7,1 | 8,7 | 10,7 | 12,6 | 14,3 | 15,2 |
| | Heating capacity (kW) | 7,2 | 9,4 | 13 | 16 | 19,8 | 11,3 | 12,8 | 13,9 |
| | Cooling capacity ❷ (kW) | 5,6 | 7,3 | 10,2 | 12,6 | 15,5 | 18,2 | 20,7 | 22 |
| | Power input (kW) | 2 | 2,5 | 3,4 | 4 | 4,9 | 6 | 6,7 | 7,3 |
| | Nominal air flow rate (m³/h) | 1 200 | 1 500 | 2 100 | 2 600 | 3 200 | 3 700 | 4 300 | 4 600 |
| | Maximum air flow rate (m³/h) | 1 440 | 1 800 | 2 520 | 3 120 | 3 840 | 4 440 | 5 160 | 5 520 |
| | Available static pressure (mmWC) | 15 | 15 | 15 | 15 | 15 | 17 | 15 | 13 |
| | Fan type/Quantity | Centrifugal/1 | | | | | | | |
| | Power (kW) | 0,4 | 0,4 | 0,6 | 0,6 | 0,6 | 1,1 | 1,1 | 1,1 |
| Water condenser | Availability | Non | Option | | | | Standard | | |
| | Heating capacity ❸ (kW) | -- | -- | 6,6 | 8,2 | 10,1 | 11,8 | 13,5 | 14,3 |
| | Nominal water flow rate (m³/h) | -- | -- | 1,2 | 1,4 | 1,8 | 2,1 | 2,4 | 2,7 |
| | Pressure drop (mmWC) | -- | -- | 1 | 1,3 | 1,9 | 1,1 | 1,4 | 1,7 |
| | Hydraulic connections | -- | -- | 1" | 1" | 1" | 1 1/4" | 1 1/4" | 1 1/4" |
| Auxiliary hot water coil (optional) | Availability | Option | | | | | | | |
| | Heating capacity ❹ (kW) | 15,4 | 16,5 | 18,5 | 21 | 23,6 | 35 | 39,7 | 41,1 |
| | Nominal water flow rate (m³/h) | 0,8 | 0,9 | 1 | 1,1 | 1,2 | 1,8 | 2,1 | 2,1 |
| | Pressure drop (mmWC) | 1,7 | 2,4 | 0,6 | 0,7 | 0,9 | 1,6 | 1,9 | 2 |
| | Hydraulic connections | 3/4" | 3/4" | 1" | 1" | 1" | 1 1/4" | 1 1/4" | 1 1/4" |
| Compressor | Type | Scroll | | | | | | | |
| | Number/Number of circuits | 1 / 1 | | | | | | | |
| | Oil volume (l) | 1 | 1 | 1,1 | 1,4 | 1,7 | 1,7 | 1,7 | 3,3 |
| Electrical power supply | 230 V / I ph / 50 Hz | 2 wires + earth | | | -- | | | | |
| | 400 V / III ph / 50 Hz | -- | 3 wires + earth + neutral | | | | | | |
| Max. input current | 230 V / I ph / 50 Hz (±10%) (A) | 17,1 | 21,6 | 30,6 | -- | -- | -- | -- | -- |
| | 400 V / III ph / 50 Hz (±10%) (A) | -- | -- | 15,6 | 17,6 | 20,6 | 18,6 | 21,6 | 21,6 |
| Refrigerant | Type | R407C | | | | | | | |
| | Global warming potential (GWP) ❺ | 1,744 | | | | | | | |
| | Charge (kg) | 2,3 | 2,2 | 2,8 | 3,4 | 3 | 4,8 | 4,9 | 5,7 |
| Dimensions | Length (mm) | 1 430 | 1 430 | 1 530 | 1 530 | 1 530 | 1 082 | 1 082 | 1 082 |
| | Width (mm) | 658 | 658 | 838 | 838 | 838 | 680 | 680 | 680 |
| | Height (mm) | 636 | 636 | 700 | 700 | 700 | 2 143 | 2 143 | 2 143 |
| Poids | (kg) | 168 | 172 | 208 | 212 | 222 | 300 | 302 | 329 |
| Evacuation des condensats Ø | | 3/4" connection | | | | | | | |

- ❶ Dehumidification capacity of the refrigeration unit. When selecting the unit, the dehumidification required by the provision of outdoor air for ventilation purposes (UNE 100011) must be taken into account.
- ❷ Cooling capacity for air intake temperature conditions of 28°C and 65% RH
- ❸ Heating capacity for water in the recovery circuit: 28/33°C Recovery of 50% of the condensation capacity.
- ❹ Boiler water for the auxiliary hot water coil 82/65°C and air intake at 20°C.
- ❺ Global warming potential of one kilogram of a fluorinated greenhouse gas relative to one kilogram of carbon dioxide over a period of 100 years.

TECHNICAL CHARACTERISTICS OF THE SELF-CONTAINED RETURN MODULE (OPTION)

| JUNIOR™ BCP | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-------------------------|-------------------------------|---------------|-------|-------|-------|-------|-------|-------|-------|
| Return air fan (option) | Avail. static pressure (mmWC) | 11 | 10 | 11 | 10 | 10 | 10 | 10 | 10 |
| | Fan type/Quantity | Centrifugal/1 | | | | | | | |
| | Fan power (kW) | 0,1 | 0,1 | 0,5 | 0,5 | 0,5 | 0,5 | 0,6 | 0,6 |
| Dimensions | Length (mm) | 1 417 | 1 417 | 1 500 | 1 500 | 1 500 | 1 500 | 1 500 | 1 500 |
| | Width (mm) | 660 | 660 | 840 | 840 | 840 | 840 | 840 | 840 |
| | Height (mm) | 636 | 636 | 700 | 700 | 700 | 700 | 700 | 700 |
| Weight | (kg) | 90 | 90 | 139 | 139 | 139 | 139 | 140 | 140 |

MAXIMUM CURRENTS (A)

| JUNIOR™ BCP | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-------------------------|-------------------------------|------|-----|-----|-----|-----|-----|-----|-----|
| Compressor | 230 V / I ph / 50 Hz (±10%) | 13,5 | 18 | 24 | -- | -- | -- | -- | -- |
| | 400 V / III ph / 50 Hz (±10%) | -- | -- | 9 | 11 | 14 | 14 | 17 | 17 |
| Supply air fan | 230 V / I ph / 50 Hz (±10%) | 3,6 | 3,6 | 6,6 | 6,6 | 6,6 | -- | -- | -- |
| | 400 V / III ph / 50 Hz (±10%) | -- | -- | -- | -- | -- | 4,6 | 4,6 | 4,6 |
| Return air fan (option) | 230 V / I ph / 50 Hz (±10%) | 1,4 | 1,4 | 3,8 | 3,8 | 3,8 | 3,8 | 8,2 | 8,2 |

AUXILIARY HEATER (OPTION)

Available capacities

| JUNIOR™ BCP | Voltage Power (kW) | 230 V / I ph / 50Hz | | | |
|---------------|-----------------------|---------------------|------|------|------|
| | | 3 | 4 | 5 | 6 |
| 20 / 30 / 40M | Current (A) | 13 | 17,4 | 21,7 | 26,1 |

| JUNIOR™ BCP | Voltage Power (kW) | 400 V / III ph / 50 Hz | | | | | |
|--------------|-----------------------|------------------------|-----|----|------|---------------|---------------|
| | | 3 | 6 | 9 | 12 | 15 | 18 |
| 40 | Current (A) | 4,3 | 8,7 | 13 | | Not available | |
| 50 | Current (A) | 4,3 | 8,7 | 13 | 17,3 | Not available | |
| 60 | Current (A) | 4,3 | 8,7 | 13 | 17,3 | 21,7 | Not available |
| 70 / 80 / 90 | Current (A) | 4,3 | 8,7 | 13 | 17,3 | 21,7 | 26,0 |

REACTION TO CORROSION

The plates exchangers of JUNIOR™ BCP units (standard in models 70 to 90 and optional in models 40 to 60) are made up of SMO-254 stainless steel, and the material used for the plates welding is pure copper.

The attached table indicates the behaviour to corrosion for stainless steel SMO-254 with respect to different compositions of water. Values outside these ranges may suppose corrosion problems.

Important recommendations:

- If the pool water is introduced directly into the unit water condenser, the addition of chlorine should never be carried out before the inlet to this condenser.
- These exchangers should never be used in swimming pools with electrolysis efficiency treatment. In these cases it is necessary to install intermediate titanium exchanger, otherwise serious corrosion problems may occur.
- In the case of a longer standstill, leave the exchanger full of water pool without flowing or empty may cause corrosion problems. During periods of inactivity it is mandatory to fill up the hydraulic circuit of the exchanger completely with demineralised water. To isolate the hydraulic circuit of the rest of the installation, the installer must have shut-off valves at the input and output, and a drain for emptying.

Note: Consult "Assembly recommendations" included in the operating instructions manual.

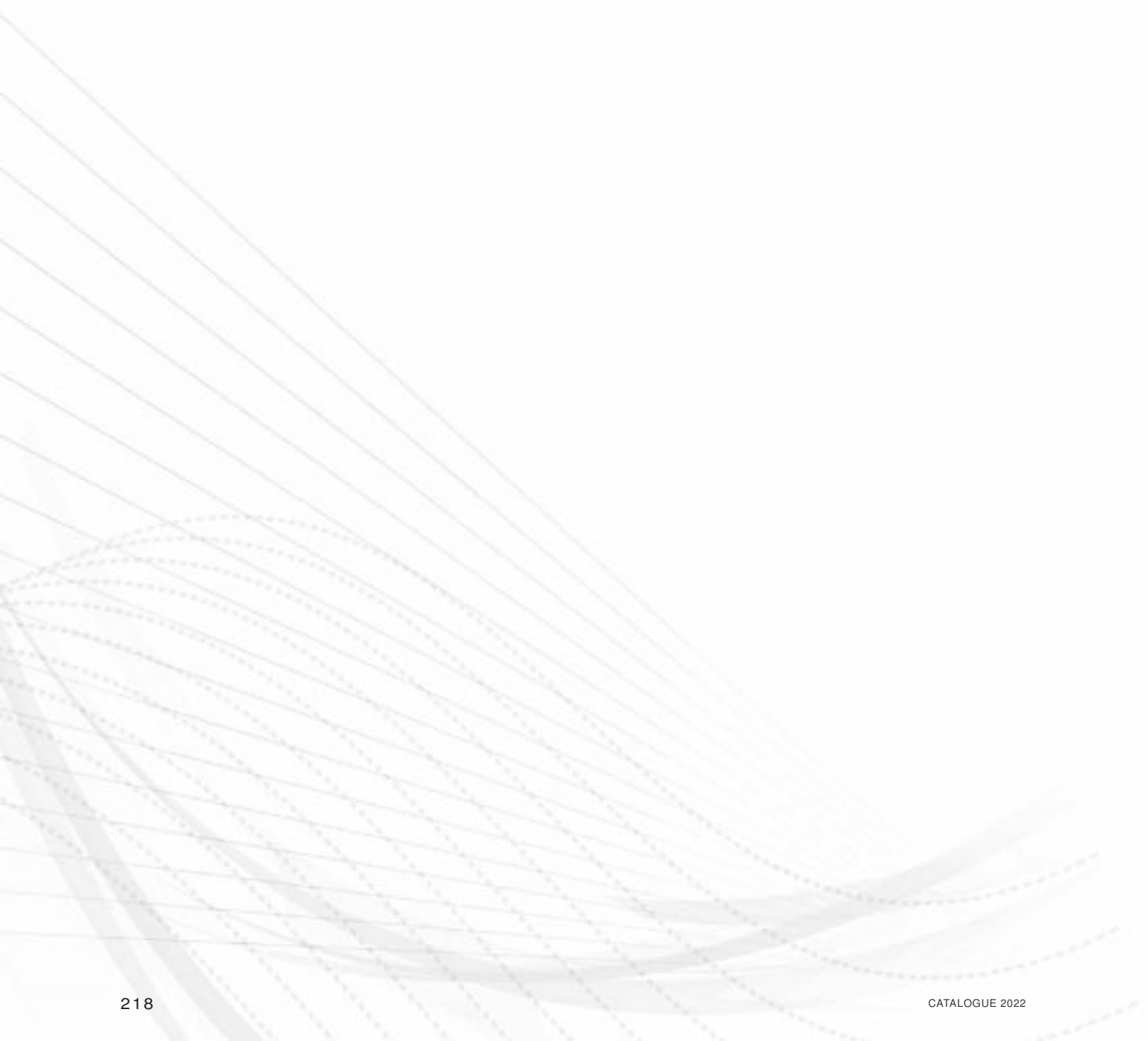
| Water content | Concentration (mg/l or ppm) | Time limits (analyze before) | SMO-254 | Water content | Concentration (mg/l or ppm) | Time limits (analyze before) | SMO-254 |
|---|-----------------------------|------------------------------|---------|---|-----------------------------|------------------------------|---------|
| Alkalinity (HCO ₃ ⁻) | < 70 | Within 24h | + | Free chlorine (Cl ₂) | < 1 | Within 5 horas | + |
| | 70 - 300 | | + | | 1 - 5 | | 0 |
| | > 300 | | + | | > 5 | | - |
| Sulphate (SO ₄ ²⁻) | < 70 | No limit | + | Hydrogen sulfide (H ₂ S) | < 0.05 | No limit | + |
| | 70 - 300 | | + | | > 0.05 | | + |
| | > 300 | | + | | | | |
| HCO ₃ ⁻ / SO ₄ ²⁻ | > 1.0 | No limit | + | Free (aggressive) carbon dioxide (CO ₂) | < 5 | No limit | + |
| | < 1.0 | | + | | 5 - 20 | | + |
| | | | + | | > 20 | | + |
| Electrical conductivity | < 10 S/cm | No limit | + | Total hardness (°dH) | 4.0 - 8.5 | No limit | + |
| | 10-500 S/cm | | + | | | | |
| | > 500 S/cm | | + | | | | |
| pH | < 6.0 | Within 24h | 0 | Nitrate (NO ₃ ⁻) | < 100 | No limit | + |
| | 6.0 - 7.5 | | + | | > 100 | | + |
| | 7.5 - 9.0 | | + | | < 0.2 | | + |
| | > 9.0 | | + | | > 0.2 | | + |
| | | | + | | | | |
| Ammonium (NH ₄ ⁺) | < 2 | Within 24h | + | Aluminium (Al) | < 0.2 | No limit | + |
| | 2 - 20 | | + | | > 0.2 | | + |
| | > 20 | | + | | | | |
| Chlorides (Cl ⁻) | < 100 | No limit | + | Manganese (Mn) | < 0.1 | No limit | + |
| | 100 - 200 | | + | | > 0.1 | | |
| | 200 - 300 | | + | | | | |
| | > 300 | | | | | | |

Legend :
 + Good resistance under normal conditions.
 0 Corrosion problems may occur specially when more factors are value 0.
 - Use is not recommended.

① Sulfates and nitrates works as inhibitors for piping corrosion caused by chlorides in pH neutral environments.
 ② In general, low pH (below 6) increases corrosion risk and high pH (above 7.5) decreases the corrosion risk.
 ③ Fe³⁺ and Mn⁴⁺ are strong oxidants and may increase the risk for localised corrosion on stainless steels. SiO₂ above 150 ppm increase the risk of scaling.

OPTIONS

JUNIOR™ BCP Dual version, please consult us (see the AQUAIR BCP model).



AQUAIR® PREMIUM BCP

Air handling units for swimming pools



Electronic control
Optimised energy consumption
Scroll compressors and R-410A
Plug-fan with EC HEE motor
Heating and dehumidification of covered pools

Dehumidification capacity:
 56 to 74 kg water/h



Dehumidification



Air filtration



Heating



Condensation heat recovery



Free cooling



Heat recovery



DESCRIPTION

AQUAIR® PREMIUM BCP are dehumidification units by cooling circuit, with total condensing heat recovery, specially designed for conventional covered pools and other dehumidification applications. These units have been designed for indoor or outdoor installation.

For outdoor installation (optional), these units add a hood at the new air intake.

RANGE

AQUAIR® PREMIUM BCP: 2 refrigerating circuits, 2 compressors, 2 models:

- 270 / 360

OPERATING LIMITS

Air inlet dry temperature

Maximum: 35°C (65% RH - 29°C WB)

Minimum: 18°C (90% RH - 17°C WB)

Condenser water inlet temperature

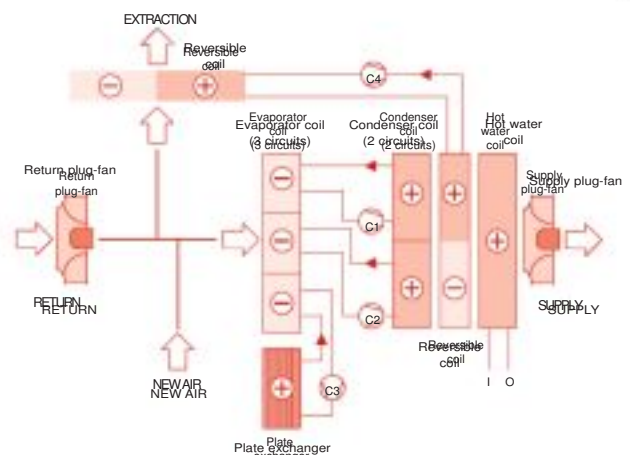
Maximum: 50°C

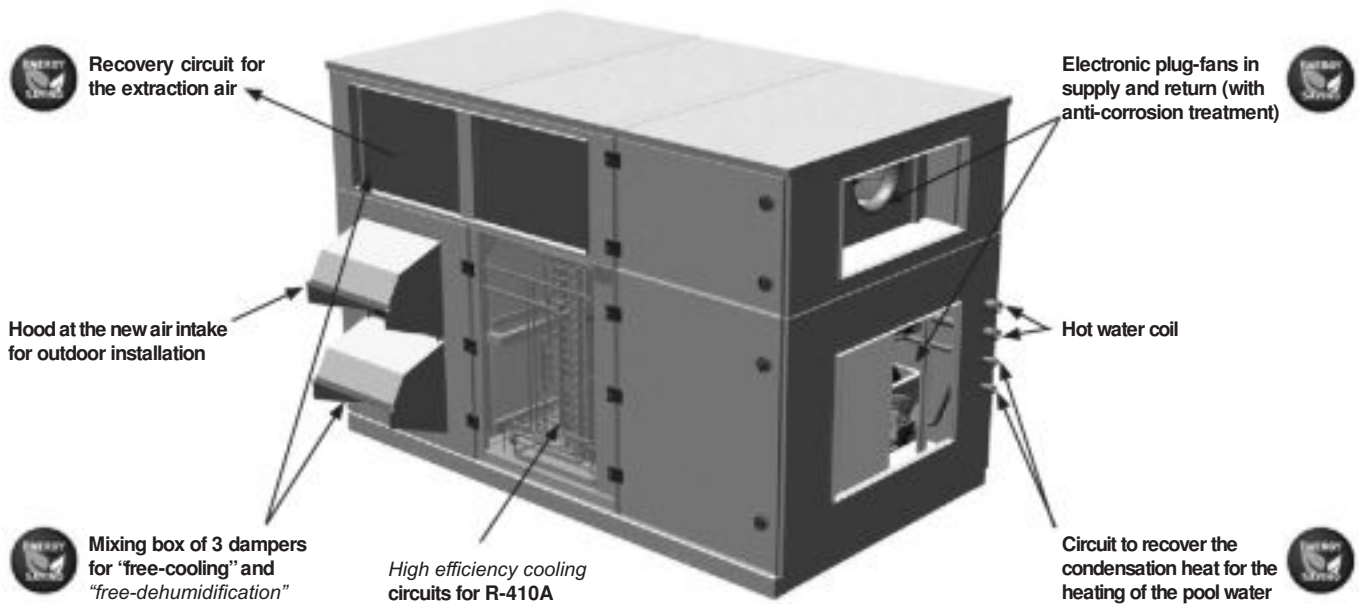
Minimum: 20°C

PRINCIPLE DIAGRAMS

This unit consists of three stages of dehumidification by means of three cooling circuits:

- One of the circuits condensates on a plates exchanger of SMO 254 steel, alloyed with chromium and molybdenum, with high resistance against corrosion in presence of chloride, filled with pool water, recovering part of the energy from the evaporation process.
- The other two circuits condensate on two air coils installed at the outlet of the evaporator, heating the cold and dry air that comes from it.
- It also integrates a cooling reversible circuit to recover the heat from the extraction air.





UNIT COMPONENTS

Casing

- Sandwich-panel casing made up in galvanized steel plate of 1 mm covered with polyester paint outside and inside, with glass fiber insulation of 25 mm.
- Support frame and hinged doors to access to the sections of the unit. Panels and doors with rubber joints to ensure tightness.

Indoor circuit

- Direct expansion cooling coil with copper tubes and aluminium fins, with polyurethane coating.
- Condenser coil with copper tubes and aluminium fins, with polyurethane coating.
- Stainless steel condensates drain pan with drainage outlet. This pan is inclined towards the drainage outlet so that the water does not stagnate in the pan, avoiding sanitary problems.
- Electronic EC plug-fans directly coupled with variable speed and flow sensor. Anti-corrosion treatment.
- Mixing box of 3 dampers, with motorized dampers and return EC plug-fan directly coupled with variable speed and flow sensor.
- Reusable air filters, assembled on a frame.

Main cooling circuits

- Unit with three cooling circuits:
 - All circuits participate in the air dehumidification when evaporating on the 3 circuit coil.
 - One of the circuits is condensed over a special SMO-254 plate exchanger welded with copper, filled with pool water, recovering part of the energy from the evaporation process
 - The other two circuits condensate over two air coils located at the evaporator air outlet, heating the cold and dry air, before discharge over the optional hot water coil.
- Three hermetic scroll-type compressor, assembled over antivibration mounts, with thermal insulation and integral protection of the motor temperature.
- Thermostatic expansion valve with external equalization.
- Antiacid dryer filter.

Recovery circuit in the extraction air

This reversible circuit allows to recover the energy from the extraction air to heat the air in the pool.

- Hermetic scroll-type compressor with sound insulation, and integral protection of the motor temperature, assembled over antivibration mounts.
- Air circuit comprised of coils with copper pipes and aluminium fins, with polyurethane coating.
- Thermostatic expansion valve with external equalisation.
- Antiacid filter drier.
- Crankcase heater.
- Four-way cycle reversing valves.
- Liquid receiver and liquid sight glass.

Protections

- High pressure pressostat.
- Low pressure pressostat.
- Main door switch.
- Magnetothermic protection switches for the power line of compressors and fan motors.
- Automatic switch in the control circuit.
- Probe for mixing air temperature.

Electric panel

- Complete and fully wired electrical panel. Insulated panel cover to prevent condensation. Protection IP55.
- Main ground connection and power supply with neutral.
- Compressor and fan motor contacts.

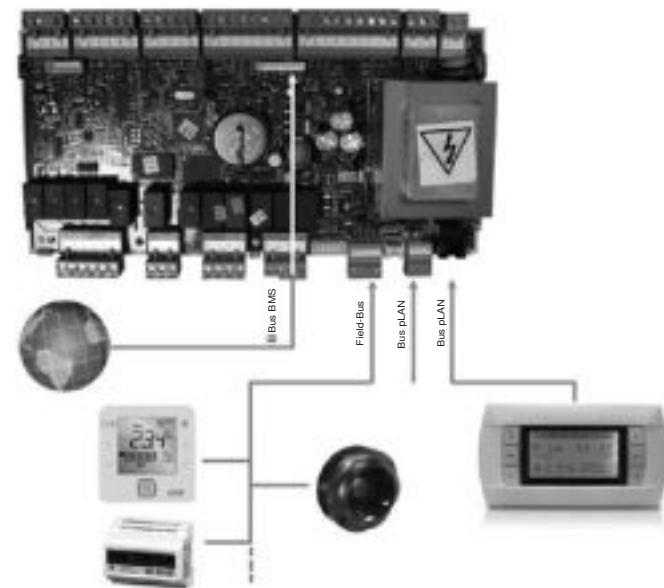
CIATpool electronic control

CIATpool carries out a control of the dehumidification of the pool depending on temperature and humidity of the ambient air probe reading.

This control is basically comprised of a μ PC MEDIUM control board, a pGD1 graphic terminal, a TCO user terminal (optional) and sensors.

A BMS card (optional) allows the connection to a centralised technical management system.

It also manages a local connection between units through a pLAN network (μ PC MEDIUM Local Area Network), thus allowing communication of data and information for a maximum of 15 units.



Main functions:

- Dehumidification control during operating modes: cooling / heating / AUTO
- Selection of setpoints.
- Temperature control (with optional hot water coil).
- Selection of control priorities.
- Timing of the compressors.
- Permanent control of the operating parameters.
- View of the values measured by the probes.
- Failure diagnosis and main alarm.
- Water circuit pump control.
- EC plug-fans control.
- Air flow control.
- Cooling recovery circuit control.

Optional functions:

- Free-dehumidification, free-cooling and regulation of the opening of the outdoor dampers.
- Proportional control of the hot water coil
- Clogged filter detection.
- Anti-fire safety.
- Connection to a centralised technical management system (BMS) for supervision.

pGD1 terminal:

This terminal, installed on the electric panel, allows:

- The initial programming of the unit and the modification of operating parameters.
- Unit ON / OFF.
- The selection of the operating mode and the setting of setpoints.
- On-screen display of controlled variables and sensor values measured.
- On-screen display of active alarms and historical record of alarms.



TCO user terminal (optional):

This terminal can be installed on the electric panel, instead of pGD1 terminal. In this case, the remote connection of the pGD1 terminal is possible.

Important: with this terminal, it is not possible the access to the parameters.



Options

Outdoor ambient

- INERA® coils with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.

Comfort / heating

- Hot water auxiliary coil of two or four rows, with a proportional three-way valve. Polyurethane coating or fins of INERA® aluminium alloy. This coil has an independent condensates drain pan.

Safety

- Differential pressostat for the detection of clogged filters.

Electric panel

- Energy meter for monitoring of the power consumption.
- Transformer for power supply without neutral (on request).

Comfort / indoor air quality options

- Gravimetric filters G4.
- Gravimetric filters G4 + opacimetric folded filters F6 to F9.
- Double stage folded opacimetric filters F6 + F8.

Installation

- Flexible hydraulic connections for water condenser and hot water coil.
- Antivibration mounts made of rubber.
- Hood at the new air intake for outdoor installation.

Control / communication

- Control with two ambient temperature and humidity probes.
- TCO user terminal, for installation on the electric panel, instead of pGD1 terminal.
- Kit remote control to 200 meters with pGD1 terminal (pGD1 terminal + 2 TCONN bypass cards). In this case it's possible to install the TCO terminal on the electric panel.
- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.

TECHNICAL CHARACTERISTICS

| AQUAIR® Premium BCP | | 270 | 360 |
|--|--|---|-------------|
| Main circuits capacities + extraction air recovery | Dehumidification capacity ¹ (kg/h) | 56.2 | 73.5 |
| | Useful heating capacity in air / water ² (kW) | 18,9 / 34,1 | 26,1 / 43,5 |
| | Heating capacity of extraction air recovery (kW) | 32.1 | 43.3 |
| | Power input ³ (kW) | 20.6 | 27.6 |
| | Useful thermodynamic efficiency | 5.8 | 5.9 |
| Air circuit: supply fan | Nominal air flow (m ³ /h) | 15 900 | 24 000 |
| | Available static pressure (mm.w.c) | 25 | 25 |
| | Type | EC Plug Fan | |
| | Number / Diameter (mm) | 2 / 500 | 3 / 500 |
| | Motor output (kW) | 2 x 5,5 | 3 x 5,5 |
| | Power input (kW) | 4.6 | 6.9 |
| | Maximum speed (r.p.m.) | 2 x 2 220 | 3 x 2 220 |
| Air circuit: Return fan | Nominal air flow (m ³ /h) | 15 900 | 24 000 |
| | Available static pressure (mm.w.c) | 15 | 15 |
| | Type | EC Plug Fan | |
| | Number / Diameter (mm) | 2 / 560 | 2 / 560 |
| | Motor output (kW) | 2 x 4,7 | 2 x 4,7 |
| | Power input (kW) | 2,38 | 3,74 |
| | Maximum speed (r.p.m.) | 2 x 1 763 | 2 x 1 763 |
| Water condenser | Nominal water flow (m ³ /h) | 5.9 | 7.5 |
| | Pressure drop (m.w.c.) | 9.1 | 5.1 |
| | Hydraulic connections | 1 1/4" M | |
| Hot water coil (optional) | Heating capacity (2-row coil) ⁴ (kW) | 130.0 | 147.0 |
| | Nominal water flow (m ³ /h) | 6.6 | 7.4 |
| | Pressure drop (m.w.c.) | 2.0 | 2.6 |
| | Hydraulic connections | 2 1/8" | |
| | Type | Scroll | |
| Compressor | Number of compressors | 4 | |
| | No. circuits of air/water condensat. heat recovery | 2 / 1 | |
| | No. circuits of extraction air heat recovery | 1 | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | |
| | Oil volume (l) | 4 x 2,5 | 4 x 3,3 |
| | Mains voltage | 400 V / III ph / 50 Hz (±10%) | |
| Electrical characteristics | Power supply | 3 Wires + Ground + Neutral | |
| | Compressors (A) | 60.8 | 82.0 |
| Maximum absorbed current | Supply fan (A) | 16.6 | 24.9 |
| | Return fan (A) | 14.6 | 14.6 |
| | Control (A) | 0.4 | 0.4 |
| | Total (A) | 92.4 | 121.9 |
| Sound level | Sound pressure level ⁵ dBA | 62.5 | 63.5 |
| | Type | F410A | |
| Refrigerant | Global warming potential (GWP) (GWP) ⁶ | 2 088 | |
| | Charge (kg) | C1 : 7,5 / C2 : 7,0 / C3 : 4,8 / C4 : 11,2 C1 : 7,8 / C2 : 7,3 / C3 : 5,5 / C4 : 12,2 | |
| | Environment impact (tCO ₂ eq) | 63.7 | 68.5 |
| Weight | Length (mm) | 3 389 | |
| | Width (mm) | 1 900 | |
| | Height (mm) | 2 267 | |
| Poids | (kg) | 2 220 | 2 270 |
| Condensate outlet Ø | | 3/4" M gas threaded | |

¹ Unit cooling dehumidification capacity. For unit selection, it should be taken into account the dehumidification which provides fresh air of ventilation (UNE 100011).

² Useful heating capacity in air / water. Air inlet temperature conditions of 28°C and 65% RH (taking into account the contribution of condensation less the sensitive cooling capacity previously provided in the evaporator). Water recovery conditions of 28 / 33°C.

³ Total power input by compressors under nominal conditions

⁴ Water from boiler for hot water coil 82 / 65°C and air inlet at 20°C.

⁵ Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

⁶ Climate warming potential of one kg of greenhouse-effect fluored gas relative to one kilogram of carbon dioxide over a period of 100 years.

HOT WATER COIL (OPTIONAL)

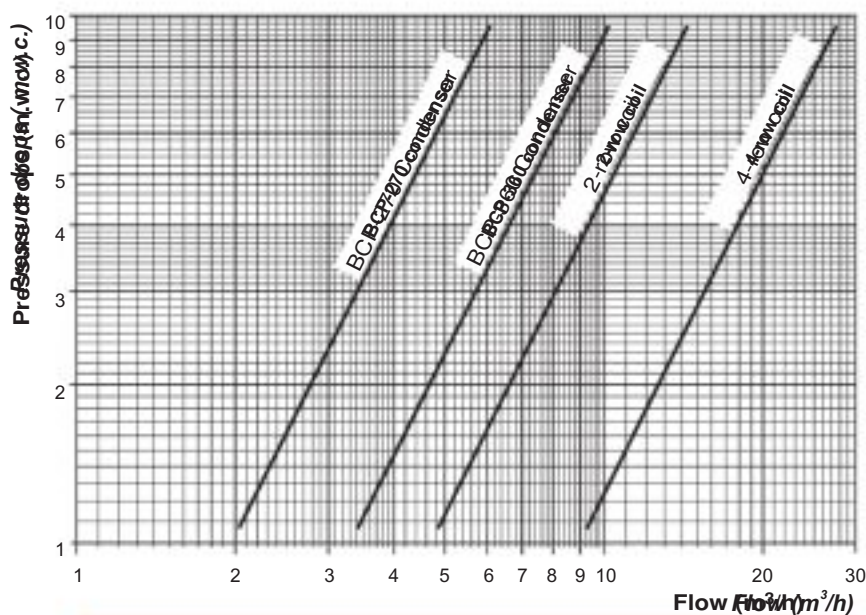
| Model | Air flow (m ³ /h) | Air inlet temperature (°C) | Air relative humidity (%) | Water inlet temperature (°C) | Water outlet temperature (°C) | 2-row | | | 4-row | | |
|-------|------------------------------|----------------------------|---------------------------|------------------------------|-------------------------------|-----------------------|--------------------------------|------------------------------|-----------------------|--------------------------------|------------------------------|
| | | | | | | Heating capacity (kW) | Water flow (m ³ /h) | Water pressure drop (m.w.c.) | Heating capacity (kW) | Water flow (m ³ /h) | Water pressure drop (m.w.c.) |
| 270 | 15900 | 20 | 60 | 82 | 65 | 129.9 | 6.6 | 2.0 | 193.6 | 9.8 | 1.2 |
| | | 20 | 60 | 55 | 47 | 75.2 | 8.1 | 3.1 | 111.1 | 11.9 | 1.9 |
| | | 28 | 65 | 82 | 65 | 107.6 | 5.4 | 1.4 | 161.2 | 8.1 | 0.9 |
| | | 28 | 65 | 55 | 47 | 53.8 | 5.8 | 1.7 | 80.4 | 8.6 | 1.0 |
| | | 35 | 50 | 82 | 65 | 88.5 | 4.5 | 1.0 | 133.6 | 6.8 | 0.6 |
| | | 35 | 50 | 55 | 47 | 35.4 | 3.8 | 0.8 | 54.1 | 5.8 | 0.5 |
| 360 | 24000 | 20 | 60 | 82 | 65 | 146.9 | 7.4 | 2.6 | 225.9 | 11.4 | 1.6 |
| | | 20 | 60 | 55 | 47 | 85.1 | 9.1 | 3.8 | 129.7 | 13.9 | 2.5 |
| | | 28 | 65 | 82 | 65 | 121.7 | 6.2 | 1.8 | 187.9 | 9.5 | 1.6 |
| | | 28 | 65 | 55 | 47 | 60.9 | 6.5 | 2.1 | 93.6 | 10.1 | 1.4 |
| | | 35 | 50 | 82 | 65 | 100.1 | 5.1 | 1.3 | 155.5 | 7.9 | 0.8 |
| | | 35 | 50 | 55 | 47 | 40.0 | 4.3 | 1.0 | 62.9 | 6.8 | 0.7 |

AIR PRESSURE DROPS

| Model | Air flow (m ³ /h) | Pressure drop (mm.w.c.) | | | | | |
|-------|------------------------------|------------------------------|-----------|-----------|-----------|------------------|------------------|
| | | standard filter ¹ | G4 filter | F6 filter | F8 filter | 2-row water coil | 4-row water coil |
| 270 | 15900 | 5.2 | 11.7 | 16.8 | 22.3 | 2.5 | 5.0 |
| 360 | 24000 | 11.9 | 14.5 | 19.6 | 28.0 | 5.6 | 11.4 |

¹ Perte de charge incluse dans la machine standard, à soustraire en cas d'ajout du filtre G4 (en option).
Remarque : les pertes de charge dans les filtres ont été calculées pour un niveau d'encrassement moyen.

WATER PRESSURE DROPS



Note: hot water coil with water at 82 / 65°C and air inlet at 20°C

REACTION TO CORROSION

See detail info in AQUAIR® BPC

AQUAIR® BCP

Air handling units for swimming pools



Electronic control
Heating and dehumidification
 of covered pools
Low consumption
High energy efficiency

Dehumidification capacity: 22 to 74 kg water/h



Dehumidification



Air filtration



Heating



Condensation heat recovery



Free cooling

DESCRIPTION

AQUAIR® BCP series units use a refrigerating circuit to dehumidify the air in covered pools and recover all the heat generated by the condensation process. They are designed primarily for conventional covered pools and other dehumidification applications.

These units are designed for installation inside a machine room; outdoor installation is available as an option.

Consult us for special applications (marine environments, high concentrations of salt or chemicals, high temperatures, etc.)

RANGE

AQUAIR® BCP: 2 refrigerating circuits, 2 compressors, 5 models:
 ■ 110 / 140 / 180 / 230 / 265

AQUAIR® BCP: 3 refrigerating circuits, 3 compressors, 2 models:
 ■ 315 / 355

OPERATING LIMITS

Air inlet dry temperature

Maximum: 35°C (65% RH - 29°C WB)

Minimum: 18°C (90% RH - 17°C WB)

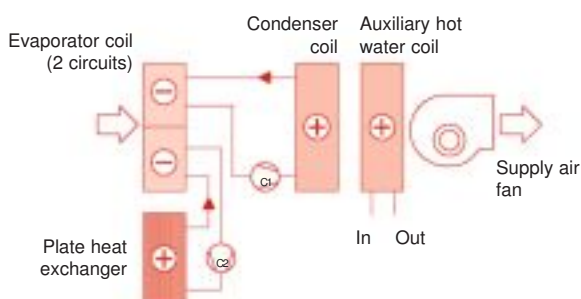
Condenser water inlet temperature

Maximum: 50°C

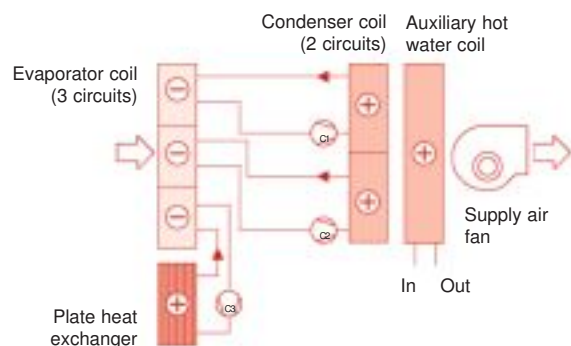
Minimum: 20°C

PRINCIPLE DIAGRAMS

■ AQUAIR® BCP 110 / 140 / 180 / 230 / 265



■ AQUAIR® BCP 315 / 355



UNIT COMPONENTS

Standard equipment

- Casing made from 1 mm galvanised steel double walls, with polyester paint on both sides and 25 mm of fibreglass insulation sandwiched between them.
- Free-standing frame and hinged doors for access to different sections of the unit. All panels and doors lined with rubber gaskets for airtight seal.

Indoor air circuit

- Reusable G3 filter fitted on a frame.
- Direct expansion cooling coil with copper tubes and aluminium blades, protected by a polyurethane coating.
- Condensation coil with copper tubes and aluminium blades protected by a polyurethane coating.
- Stainless steel condensate drain pan with drain port. This pan is tilted to prevent water stagnating and causing health issues.
- Galvanised metal belt-driven centrifugal fan, with direct drive.
- Manually-adjusted bypass air damper.

Refrigerating circuit

- Units equipped with two or three refrigerating circuits:
 - All the circuits help to dehumidify the air by means of evaporation over a coil with two or three circuits.
 - One of the circuits condenses on a plate heat exchanger made from special SMO-254 steel brazed with copper, supplied with pool water, thereby recovering some of the energy consumed during the evaporation process.
 - The other circuit or two other circuits condense, and thereby heat, the cold, dry air over an air-cooled coil placed downstream of the evaporator circuit before sending it on to the optional heating coil.
- Two or three hermetic scroll compressors (depending on the model) with sound insulation and integral motor temperature protection, fitted on anti-vibration mounts.
- Thermostatic expansion valve with external equaliser.
- Acid-resistant dehumidifier filter.

Security features

- High and low pressure switches.
- Main switch on electrical cabinet door.

OPTIONS

- AERO remote aerocondenser: replaces the water recovery circuit that condenses over the plate exchanger with an air split-system in which the condensation is done on the outside in a remote air condenser.
- DUAL remote aerocondenser: makes it possible to select, based on needs for comfort, for the condensation to be done in the indoor air circuit or in the remote outdoor condenser.
- Copper tubes and copper fins coils.
- 1 or 2 stages of auxiliary electrical heaters.
- 2-rows hot water coil with 3-ways proportional valve, with polyurethane coating or in copper-copper.
- High flow in discharge and return air (except for upper discharge and return).

- Magnetothermic protection switches for the compressor(s) and motorfan(s) power supply.
- Automatic control circuit switch.
- Inlet temperature limit thermostat on dehumidification coil.
- Double access door for fan.

Electrical cabinet

- Complete electrical cabinet, fully wired.
- Main earth connection.
- Compressor and fan motor assembly switches.

CIATpool electronic control

CIATpool control is basically composed of a µPC MEDIUM control board, a pGD1 graphical terminal, a TCO user terminal (optional) and sensors.

The control can connect to a centralised technical management system through a BMS communication card. The control also manages a local connection between units through a pLAN (µPC MEDIUM Local Area Network), thus allowing for a maximum of 15 units to communicate data and information.

Main functions :

- Dehumidification control during operating modes: COOLING / HEATING / AUTO and selection of setpoints.
- Permanent control of the operating parameters.
- View of the values measured by the sensors.
- Timing of the compressors.
- Daily and weekly programming.
- Anti-fire safety device.
- Operating fault diagnosis and main alarm.

Optional functions :

This control allows controlling optional elements such as:

- Outdoor air damper for refreshing air.
- Mixing box for thermal or thermoenthalpic free-cooling.
- Auxiliary electrical heaters.
- Hot water auxiliary coil.
- Air-cooled condenser for DUAL operation.
- Management of the AERO version.
- Clogged filter detector.

- Clogged filter detector.
- G4 gravimetric filter and F7 opacimetric filter.
- Protection roof for outdoor installation.
- Protection roof for outdoor installation.
- Manual damper for outdoor air intake.
- Mixing box with two motorized dampers.
- Mixing box with three motorized dampers and centrifugal return fan.
- Flexible connections for water condenser and for hot water coil.
- Rubber antivibration mounts.

TECHNICAL CHARACTERISTICS

| AQUAIR® BCP | | 110 | 140 | 180 | 230 | 265 | 315 | 355 | |
|-------------------------------------|------------------------------------|---------------|-----------|-----------|---------|-----------|-------------|------------|--|
| Air circuit | Dehumidification capacity ① (kg/h) | 21,7 | 27,3 | 36,1 | 44,6 | 53,4 | 65,5 | 74,4 | |
| | Heating capacity (kW) | 27,5 | 30,1 | 42,0 | 55,0 | 63,4 | 69,5 | 85,2 | |
| | Cooling capacity ② (kW) | 31,6 | 39,7 | 53,3 | 67,3 | 77,1 | 95,2 | 108,2 | |
| | Power input ③ (kW) | 7,0 | 8,8 | 12,4 | 15,6 | 18,5 | 22,9 | 25,6 | |
| | Nominal air flow rate (m3/h) | 5 500 | 7 000 | 9 000 | 11 500 | 13 250 | 16 000 | 16 000 | |
| | Maximum air flow rate (m3/h) | 6 600 | 8 400 | 10 800 | 13 800 | 15 900 | 19 200 | 19 200 | |
| | Available static pressure ⑦ (mmWC) | 15 | 15 | 15 | 15 | 15 | 15 | 15 | |
| | Fan type/Quantity | Centrifugal/1 | | | | | | | |
| Power (kW) | 1,1 | 1,5 | 2,2 | 3,0 | 4,0 | 5,5 | 5,5 | | |
| High-flow air circuit (option) | Nominal air flow rate (m3/h) | 10 500 | 10 500 | 17 250 | 17 250 | 24 000 | 24 000 | 24 000 | |
| | Available static pressure (mmWC) | 15 | 15 | 15 | 15 | 15 | 15 | 15 | |
| | Fan type/Quantity | Centrifugal/1 | | | | | | | |
| | Power (kW) | 3,0 | 3,0 | 5,5 | 5,5 | 7,5 | 7,5 | 7,5 | |
| Water condenser | Heating capacity ④ (kW) | 10 | 16,9 | 20,7 | 24,9 | 28,2 | 43,1 | 43,1 | |
| | Nominal water flow rate (m3/h) | 1,73 | 2,92 | 3,57 | 4,30 | 4,86 | 7,45 | 7,45 | |
| | Pressure drop (mmWC) | 4,4 | 3,2 | 4,7 | 3,9 | 5,0 | 4,6 | 4,6 | |
| | Hydraulic connections | 1" | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | |
| Auxiliary hot water coil (optional) | Heating capacity ⑤ (kW) | 61,5 | 71,5 | 90,0 | 105,0 | 129,0 | 145,0 | 145,0 | |
| | Nominal water flow rate (m3/h) | 3,2 | 3,7 | 4,7 | 5,5 | 6,7 | 7,5 | 7,5 | |
| | Pressure drop (mmWC) | 2,3 | 3,1 | 1,4 | 1,8 | 2,1 | 2,6 | 2,6 | |
| | Hydraulic connections | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | |
| Compressor | Type | Scroll | | | | | | | |
| | No. of compressors /No. of stages | 2 | | | | | 3 | | |
| | No. of air/recovery circuits | 1 / 1 | | | | | 2 / 1 | | |
| | Oil volume (l) | 1,7 / 1,0 | 3,3 / 1,4 | 3,3 / 1,7 | 4 / 1,7 | 6,2 / 1,7 | 3,3+1,7/3,3 | 3,3x2/ 3,3 | |
| Electrical power supply | 3 Wires + Earth + Neutral | | | | | | | | |
| Max. input current | 400 V / III ph / 50 Hz (A) | 37,7 | 31,6 | 48,0 | 55,9 | 61,0 | 86,6 | 98,6 | |
| Refrigerant | Type | R-407C | | | | | | | |
| | Global warming potential (GWP) ⑥ | 1 652,5 | | | | | | | |
| | Charge (kg) | 7,4 | 8,6 | 14,7 | 15,5 | 17,8 | 16,9 | 18,2 | |
| Dimensions | Length (mm) | 2 070 | 2 070 | 2 282 | 2 282 | 2 450 | 2 450 | 2 450 | |
| | Width (mm) | 1 248 | 1 248 | 1 498 | 1 498 | 1 498 | 1 498 | 1 498 | |
| | Height (mm) | 1 315 | 1 315 | 1 613 | 1 613 | 1 813 | 1 813 | 1 813 | |
| Weight | (kg) | 630 | 665 | 895 | 920 | 1 080 | 1 155 | 1 175 | |
| Condensate drain diameter | | 3/4" tube | | | | | | | |

① Dehumidification capacity of refrigeration system. When selecting a unit, take into account the moisture removal capacity of the outdoor air provided by the fan (UNE 100011).

② Cooling capacity for air inlet temperature conditions of 28°C and 65% RH.

③ Total input power of the compressor and fan motor assemblies under rated conditions.

④ Heating capacity for water in recovery circuit: 28/33°C.

⑤ Boiler water for the auxiliary hot water coil 82/65°C and air intake at 20°C.

⑥ Global warming potential of one kilogram of a fluorinated greenhouse gas relative to one kilogram of carbon dioxide over a period of 100 years.

⑦ For greater operating pressures, please consult us

TECHNICAL CHARACTERISTICS OF THE RETURN AIR FAN (OPTION)

| AQUAIR® BCP | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|----------------------------------|---------------|------|-----|-----|-----|-----|-----|
| Nominal flow rate | | | | | | | |
| Available static pressure (mmWC) | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Fan type/Quantity | Centrifugal/1 | | | | | | |
| Power (kW) | 0,55 | 0,75 | 1,5 | 2,2 | 2,2 | 3 | 3 |
| High flow rate (option) | | | | | | | |
| Available static pressure (mmWC) | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Fan type/Quantity | Centrifugal/1 | | | | | | |
| Power (kW) | 2,2 | 2,2 | 3,0 | 3,0 | 4,0 | 4,0 | 4,0 |

WEIGHT PER MODULE (kg)

| AQUAIR® BCP | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|---|-----|-----|-----|-----|------|------|------|
| Nominal flow rate | | | | | | | |
| Standard unit (without options) | 630 | 665 | 895 | 920 | 1080 | 1155 | 1175 |
| Auxiliary hot water coil | 40 | 40 | 45 | 45 | 55 | 55 | 55 |
| Bag filter module | 270 | 270 | 350 | 350 | 400 | 400 | 400 |
| Mixing box module with 2 dampers | 380 | 380 | 470 | 470 | 520 | 520 | 520 |
| Mixing box module with 3 dampers + return vent. | 438 | 444 | 602 | 609 | 697 | 700 | 700 |
| High flow rate (option) | | | | | | | |
| Standard unit (without options) | 645 | 675 | 975 | 995 | 1175 | 1230 | 1230 |
| Auxiliary hot water coil | 40 | 40 | 45 | 45 | 55 | 55 | 55 |
| Bag filter module | 270 | 270 | 350 | 350 | 400 | 400 | 400 |
| Mixing box module with 2 dampers | 380 | 380 | 470 | 470 | 520 | 520 | 520 |
| Mixing box module with 3 dampers + return vent. | 456 | 456 | 737 | 737 | 815 | 743 | 743 |

MAXIMUM CURRENTS (A)

| AQUAIR® BCP | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|---|----------------------|---------|---------|---------|---------|---------------|--------|
| Compressor 400 V / 3 ph / 50 Hz | 18 + 17 | 17 + 11 | 29 + 14 | 35 + 14 | 35 + 17 | (29 x 2) + 17 | 29 x 3 |
| Forced-draught fan 230 V / 3 ph / 50 Hz | 4,7 | 6,1 | 8,7 | 11,9 | 15,5 | 20,1 | 20,1 |
| | 400 V / 3 ph / 50 Hz | 2,7 | 3,6 | 5,0 | 6,9 | 9,0 | 11,6 |
| High-speed supply air fan (option) 230 V / 3 ph / 50 Hz | 11,9 | 11,9 | 20,1 | 20,1 | - | - | - |
| | 400 V / 3 ph / 50 Hz | 6,9 | 6,9 | 11,6 | 11,6 | 14,7 | 14,7 |
| Return air fan (option) 230 V / 3 ph / 50 Hz | 2,8 | 3,6 | 6,1 | 8,7 | 8,7 | 11,9 | 11,9 |
| | 400 V / 3 ph / 50 Hz | 1,6 | 2,1 | 3,6 | 5,0 | 5,0 | 6,9 |
| High-speed supply air fan (option) 230 V / 3 ph / 50 Hz | 8,9 | 8,9 | 11,9 | 11,9 | 15,5 | 15,5 | 15,5 |
| | 400 V / 3 ph / 50 Hz | 5,0 | 5,0 | 6,9 | 6,9 | 9,0 | 9,0 |

SOUND LEVELS dB(A)

■ Sound power level

Sound power level at the supply air fan discharge and the return air fan intake (option), to be taken into account when calculating the silencer required:

| AQUAIR® BCP | | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|--------------------------------|-------|------|------|------|------|------|------|------|
| Nominal flow rate | | | | | | | | |
| Forced-draught fan | dB(A) | 75,0 | 77,8 | 81,3 | 85,9 | 87,2 | 91,1 | 91,1 |
| Return air fan (option) | dB(A) | 75,8 | 80,9 | 77,4 | 83,0 | 81,3 | 86,0 | 86,0 |
| High flow rate (option) | | | | | | | | |
| Forced-draught fan | dB(A) | 86,3 | 86,3 | 85,5 | 85,5 | 85,7 | | 85,3 |
| Return air fan (option) | dB(A) | 80,7 | 80,7 | 80,7 | 80,7 | 83,2 | | 83,2 |

■ Sound pressure level

Measurement conditions: in a free field, measured at a distance of 5 metres, directivity 2 and 1.5 metres from the ground.

| AQUAIR® BCP | | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|-----------------|-------|------|------|------|------|------|------|------|
| Standard device | dB(A) | 63,2 | 66,9 | 69,8 | 73,6 | 74,8 | 77,7 | 77,6 |

NOTE: the sound pressure level depends on the installation conditions and is only given as a guide.

AUXILIARY HEATER (OPTION)

Available capacities

Assembly inside unit.

| Voltage | 400 V / 3 ph / 50 Hz | | | | | | | | | |
|-------------|----------------------|-----|------|------|------|------|------|------|------|------|
| Power (kW) | 3 | 6 | 9 | 12 | 15 | 18 | 24 | 27 | 36 | 54 |
| Current (A) | 4.3 | 8.7 | 13.0 | 17.3 | 21.7 | 26.0 | 34.6 | 39.0 | 52.0 | 77.9 |

REACTION TO CORROSION

The plates exchangers of AQUAIR® BCP units are made up of SMO-254 stainless steel, and the material used for the plates welding is pure copper.

The attached table indicates the behaviour to corrosion for stainless steel SMO-254 with respect to different compositions of water. Values outside these ranges may suppose corrosion problems.

Important recommendations:

- If the pool water is introduced directly into the unit water condenser, the addition of chlorine should never be carried out before the inlet to this condenser.

- These exchangers should never be used in swimming pools with electrolysis efficiency treatment. In these cases it is necessary to install intermediate titanium exchanger, otherwise serious corrosion problems may occur.
- In the case of a longer standstill, leave the exchanger full of water pool without flowing or empty may cause corrosion problems. During periods of inactivity it is mandatory to fill up the hydraulic circuit of the exchanger completely with demineralised water. To isolate the hydraulic circuit of the rest of the installation, the installer must have shut-off valves at the input and output, and a drain for emptying.

| Water content | Concentration (mg/l or ppm) | Time limits (analyze before) | SMO-254 |
|---|-----------------------------|------------------------------|---------|
| Alkalinity (HCO ₃ ⁻) | < 70 | Within 24h | + |
| | 70 - 300 | | + |
| | > 300 | | + |
| Sulphate ¹ (SO ₄ ²⁻) | < 70 | No limit | + |
| | 70 - 300 | | + |
| | > 300 | | + |
| HCO ₃ ⁻ / SO ₄ ²⁻ | > 1.0 | No limit | + |
| | < 1.0 | | + |
| Electrical conductivity | < 10 S/cm | No limit | + |
| | 10-500 S/cm | | + |
| | > 500 S/cm | | + |
| pH ² | < 6.0 | Within 24h | 0 |
| | 6.0 - 7.5 | | + |
| | 7.5 - 9.0 | | + |
| | > 9.0 | | + |
| Ammonium (NH ₄ ⁺) | < 2 | Within 24h | + |
| | 2 - 20 | | + |
| | > 20 | | + |
| Chlorures (Cl ⁻) | < 100 | No limit | + |
| | 100 - 200 | | + |
| | 200 - 300 | | + |
| | > 300 | | + |

Légende:

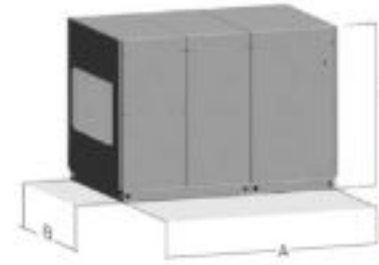
- + Good resistance under normal conditions.
- 0 Corrosion problems may occur specially when more factors are value 0.
- Use is not recommended..

| Water content | Concentration (mg/l or ppm) | Time limits (analyze before) | SMO-254 |
|--|-----------------------------|------------------------------|---------|
| Free chlorine (Cl ₂) | < 1 | Within 5 horas | + |
| | 1 - 5 | | 0 |
| | > 5 | | - |
| Hydrogen sulfide (H ₂ S) | < 0.05 | No limit | + |
| | > 0.05 | | + |
| Free (aggressive) carbon dioxide (CO ₂) | < 5 | No limit | + |
| | 5 - 20 | | + |
| | > 20 | | + |
| Total hardness (°dH) | 4.0 - 8.5 | No limit | + |
| Nitrate ¹ (NO ₃ ⁻) | < 100 | No limit | + |
| | > 100 | | + |
| Iron ³ (Fe) | < 0.2 | No limit | + |
| | > 0.2 | | + |
| Aluminium (Al) | < 0.2 | No limit | + |
| | > 0.2 | | + |
| Manganese ³ (Mn) | < 0.1 | No limit | + |
| | > 0.1 | | + |

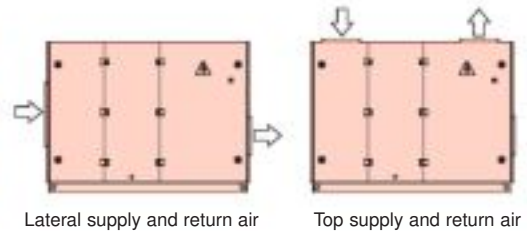
- ¹ Sulfates and nitrates works as inhibitors for piping corrosion caused by chlorides in pH neutral environments.
- ² In general, low pH (below 6) increases corrosion risk and high pH (above 7.5) decreases the corrosion risk.
- ³ Fe₃⁺ and Mn₄⁺ are strong oxidants and may increase the risk for localised corrosion on stainless steels. SiO₂ above 150 ppm increase the risk of scaling.

DIMENSIONS

| Model (5) | Dimensions (mm) | | | Weight (kg) |
|-----------|-----------------|-------|-------|-------------|
| | A | B | C | |
| BCP 110 | 2 070 | 1 248 | 1 315 | 630 |
| BCP 140 | 2 070 | 1 248 | 1 315 | 665 |
| BCP 180 | 2 282 | 1 498 | 1 613 | 895 |
| BCP 230 | 2 282 | 1 498 | 1 613 | 920 |
| BCP 265 | 2 450 | 1 498 | 1 813 | 1 080 |
| BCP 315 | 2 450 | 1 498 | 1 813 | 1 155 |
| BCP 355 | 2 450 | 1 498 | 1 813 | 1 175 |



(5) For machines with free cooling or bag filter boxes, refer to the technical documentation for the dimensions



REMOTE CONDENSATION (OPTION)

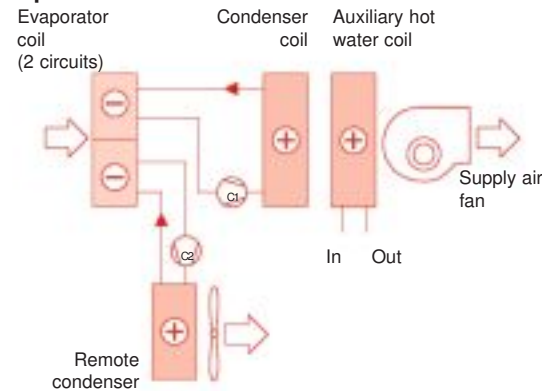
AQUAIR® BCP AERO

This option replaces the recovery water circuit which condenses on the plate heat exchanger with a split air-cooled condenser where condensation takes place externally.

Solution for covered pool applications which do not need to recover any heat from the actual swimming pool.

The air-cooled condenser outdoor unit, mainly comprising one or more fans and a coil, can be selected with a centrifugal fan from series ASN and ASM, or with an axial flow fan from series ASJ and ASW.

Important: These air-cooled condenser units must incorporate the condensation pressure control option.



| Model: AQUAIR® BCP AERO | Air-cooled condenser model | | | |
|----------------------------------|----------------------------|---------|-----------------|---------|
| | Propeller fan | | Centrifugal fan | |
| BCP 110 | ASJ 45 | - | ASN 45 | - |
| BCP 140 | ASJ 55 | - | ASN 45 | - |
| BCP 180 | ASJ 70 | - | ASN 65 | - |
| BCP 230 | ASJ 70 | - | ASN 65 | - |
| BCP 265 | - | ASW 100 | - | ASM 80 |
| BCP 315 | - | ASW 120 | - | ASM 120 |
| BCP 355 | - | ASW 120 | - | ASM 120 |

REMOTE CONDENSATION (OPTION)

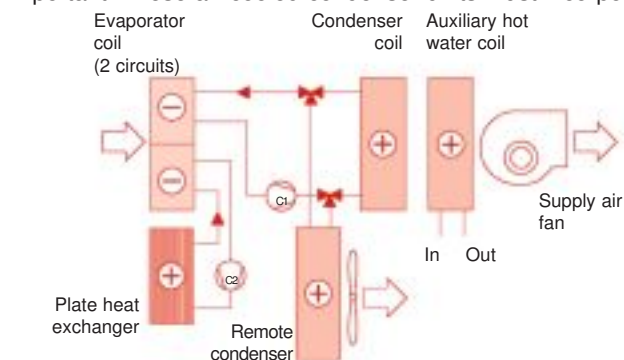
AQUAIR® BCP DUAL

This option is used to select whether condensation takes place in the indoor air circuit or in the external condenser, depending on the comfort requirements.

For models with two air circuits, the high-capacity circuit is the one which can be switched with the air-cooled condenser. The condenser is switched using a manual switch.

The air-cooled condenser outdoor unit, mainly comprising one or more fans and a coil, can be selected with a centrifugal fan from the ASM series, or with an axial flow fan from the ASW series.

Important: These air-cooled condenser units must incorporate the condensation pressure control option.



| Model: AQUAIR® BCP DUAL | Air-cooled condenser model | |
|----------------------------------|----------------------------|-----------------|
| | Propeller fan | Centrifugal fan |
| BCP 110 | ASW 100 | ASM 80 |
| BCP 140 | ASW 100 | ASM 80 |
| BCP 180 | ASW 120 | ASM 120 |
| BCP 230 | ASW 185 | ASM 155 |
| BCP 265 | ASW 315 | - |
| BCP 315 | ASW 120 | ASM 120 |
| BCP 355 | ASW 120 | ASM 120 |



CIAT

ROOFTOP REVERSIBLE AIR-TO-AIR AND WATER-TO-AIR

ROOFTOP UNITS

VECTIOS™ PJ P.235

22.5 to 91.2kW **20 to 90.1kW**  5 100 to 16 000 m³/h

VECTIOS^{POWER}™ PJ R-454B P.275

98 to 273 kW **97 to 300 kW**  10 800 to 54 000 m³/h

BluEdge® digital is the new name for CIATM2M. Technology remains the same.

AIR CONDENSED SPLIT AND PACKAGED SYSTEMS

ISPK P.307

19 to 115kW **19 to 120kW**  4 000 to 21 000m³/h

SC P.317

20 to 135kW **20 to 145kW**

CZ P.329

20 to 135kW **20 to 145kW**  4 000 to 24 000m³/h

CIAT SYSTEM CONTROL AND SUPERVISION

BOSS / BOSS MINI SUPERVISION..... P.335



AIR SCRUBBER

CIAT CLEAN LINE™ P.339

 1000-1800-2500 m³/h

 Cooling

 Heating

  F = Air flow in m³/h





VECTIOS™ PJ

Compact air-air rooftop units



Integrated **“plug&play”** system
 Eco-Design: **high** seasonal **efficiency**
Reliability with superior quality
Optimized dimensions and weights
 Brand new **intelligent control** concept



R-410A



NEW

DESCRIPTION

-
-

taking up no floor space at all. This design reduces the cost

-
-
- Active dehumidification.
- Zoning with variation of air flow.
-
- Air filtration.
-

RANGE

| | |
|--|--|
| | |
| | |
| | |
| | |
| | |



standard configuration.

COMPLIANCE

CUSTOMER BENEFITS

High energy efficiency & environmental responsibility

CIAT concentrates its efforts on making its units more efficient and more environmentally responsible.

VECTIOS™ goes beyond 2021 Ecodesign rooftop requirements. Up to 38% savings.



SEER up to 4,92
SCOP up to 3,68



We have designed the VECTIOS™ range with specific features to reduce energy consumption to the minimum for each application: variable ventilation, free-cooling, low pressure drop filters and energy recovery systems.

Packaged system flexibility

VECTIOS™ offers a wide range of options to address the most specific requirements to be the **perfect solution for every application** with maximum comfort, energy efficiency and indoor air quality in mind.



SHOPPING CENTERS



CINEMAS



LOGISTICS



INDUSTRIES



OFFICES



ADMINISTRATION

- Free-cooling
- Energy recovery
- Fresh air
- 100% fresh air without return
- Quality sensors
- Filtration
- Overpressure control
- Heating back-up
- Humidity control
- Active dehumidification
- Multi zone control
- All season operations
- Heat recovery coil
- Low temperature applications
- Master/slave and back-up
- Energy meter
- Refrigerant or smoke detector
- Anti-corrosion options
- Supervision
- Communication

Weight and dimensions optimized. Possibility of transport of two stacked units.

Acoustic comfort

VECTIOS™ guarantee **low noise level** during operation to meet the highest requirements thanks to the design optimization and the use of latest technology for fans and compressors.



Simplicity

We guarantee an easy installation and integration in the building management system.



- **Plug & play solution** fully programmed and set-up from factory.
- **Communication** with all building management system protocols through Modbus, Ethernet, LonWorks, BACnet & KNX.
- **Wide supervision** offer from 1 to 300 units
- **Remote supervision** solution BluEdge®Digital.

Extensive scope

More applications in a wider temperature range:

- **Air zoning** to control up to 4 zones or in case of large surfaces with high thermal dispersion. 
- **Heat recovery coil** using energy rejected by food refrigeration system or industrial process. 
- **Active dehumidification** for applications which require the highest degree of indoor comfort and humidity control, such as supermarkets, restaurants, museums and in case of high latent cooling load and/or in humid climates. 
- **Low return temperature 15°C** in cooling mode operation which allows to answer the request of certain application as food conservation in large store facilities. 

Advanced system control

VECTIC control is dedicated to optimizing the performance at part load conditions, increases the seasonal efficiency and operational limits in all seasons.



Full reliability

CIAT designs and manufactures reliable products to meet the highest expectations and facilitate maintenance.

VECTIOS™ offers **Eurovent certified** performance.



The robust qualification process guarantees the highest standards.



MODEL NUMBER NOMENCLATURE

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|---|---|---|----|----|-----|---|----|----|----|----|-----|------|------|----|----|------|----|-----|-----|------|------|------|
| IPJ_ | 0090 | A | 3 | U | C0 | AA | 000 | 0 | N | B | E | 0 | 000 | 0000 | 0000 | 0 | 0 | T100 | 00 | P00 | 000 | C100 | 0000 | 0000 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

Group 1: Unit type _____

Group 2: Unit model _____

Group 3: Version of the series _____

Group 4: Electrical power _____

Group 5: Type of refrigerant _____

Group 6: Air flow + Assembly _____

- C0: Cross flow with standard assembly
- CS: Cross flow with 2 dampers
- CF: Cross flow 100% fresh air
- CK: Cross flow with 3 dampers
- CA: Cross flow with axial return fan
- CP: Cross flow with lower return plug-fan
- CR: Cross flow with lower return plug-fan and active

- CW: Cross flow with passive recovery
- T0: Tunnel flow with standard assembly
- TS: Tunnel flow with 2 dampers
- TP: Tunnel flow with return plug-fan
- TW: Tunnel flow with passive recovery

Group 7: Coil coating : Indoor - Outdoor _____

Group 8: Heating _____

Group 9: Protection for low outdoor temperature _____

Group 10: Available pressure of the indoor fan _____

Group 11: Air filtration + stop-drop _____

Group 12: Type of outdoor fan _____

Group 13: Insulation _____

Group 14: Indoor unit configuration _____

Group 15: Outdoor unit configuration _____

Group 16: Passive recovery _____

Group 17: Extra heating _____

Group 18: Special applications _____

- H: Active dehumidification condensation coil

- M: Low T application + Active dehumidification

Group 19: Sensors _____

Group 20: Free-cooling + Outdoor humidity _____

Group 21: Terminal + Unit communication _____

Group 22: Miscellaneous item 1 _____

- 1: Management of an on/off humidifier
- 2: Management of a proportional humidifier

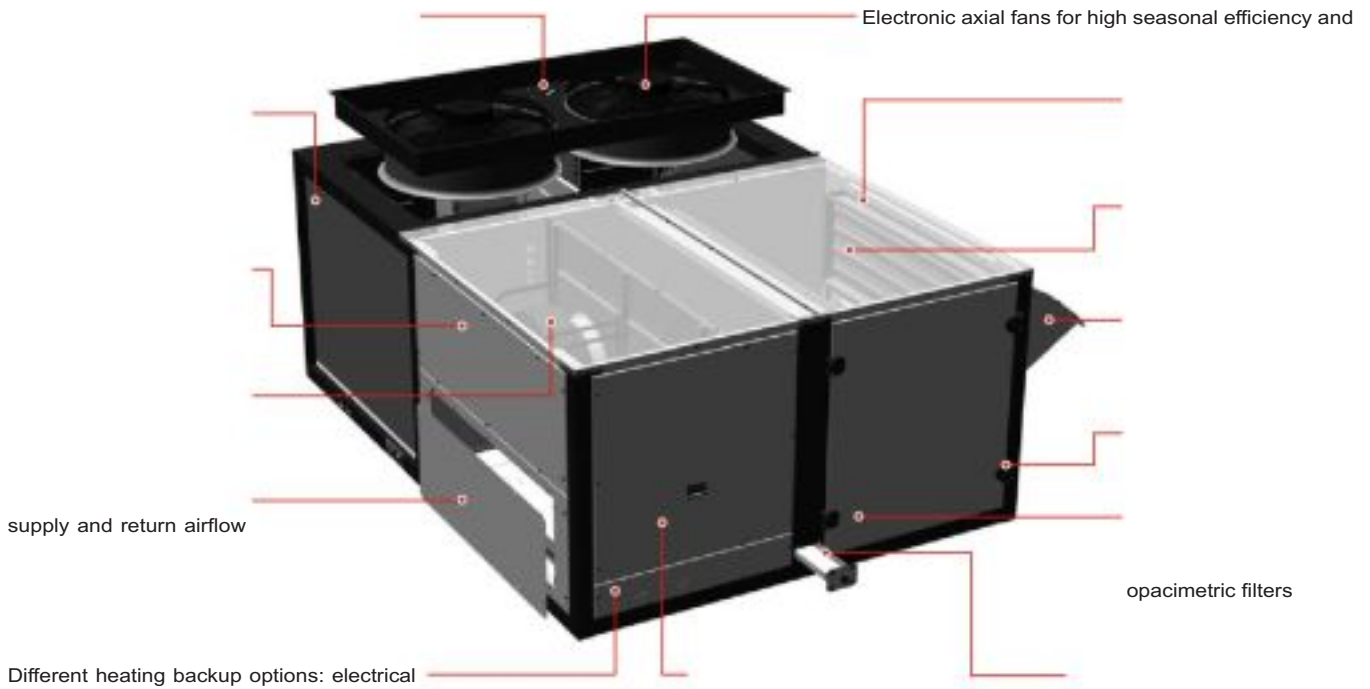
Group 23: Miscellaneous item 2 _____

Group 24: Centrifugal return fan _____

- 1: Low flow + nominal pressure
- 2: Low flow + high pressure
- 3: Nominal flow + nominal pressure
- 4: Nominal flow + high pressure
- 5: High flow + nominal pressure
- 6: High flow + high pressure
- 7: Low flow + low pressure
- 8: Nominal flow + low pressure
- 9: High flow + low pressure

Group 25: Indoor air direction _____

MAIN FEATURES



UNIT COMPONENTS

-
-
- electrical cabinet, compressors, fans, filters, etc.

Outdoor unit

- Coil with copper pipes and aluminium fins.
-

the unit's average seasonal efficiency.

Indoor unit

- registers, with Euroclass A2-s1, d0 (M0) fire classification.
- Coil with copper pipes and aluminium fins.
- and flow rate controller.

fans for transporting air. Using fans which are more efficient direct drive and variable speed offer the following advantages:

- Greater aeraulic efficiency of the rotor (reactive blades

with an optimized profile), running at very high operating

- Greatly increased motor efficiency. Permanent magnets
- Variable speed to ensure a constant supply air flow rate, independent of the filters clogging level.
- Measuring the flow rate thought a calibrated section at the fan intake and a differential pressure sensor allows the control to handle the flow rate reliably and precisely in both

- Reusable gravimetric air filters G4, mounted on a frame. Dual locking system mounted on the access panel to filters.

Cooling circuit

-
-
-
- Acid-resistant filter(s) dryer.
-



UNIT COMPONENTS (...CONTINUATION)

Protections

- High pressure pressostat(s).
- High and low pressure transducers.
- Refrigerant leak control (by low-pressure alarm).
- Compressor discharge temperature control.
- Main door switch.
- Protection for power lines of compressors with manual motor starters and power lines of fan motors with magnetothermic switches. These devices provide protection against overload, short circuit, phase failure and undervoltage.
- Automatic switch in the control circuit.

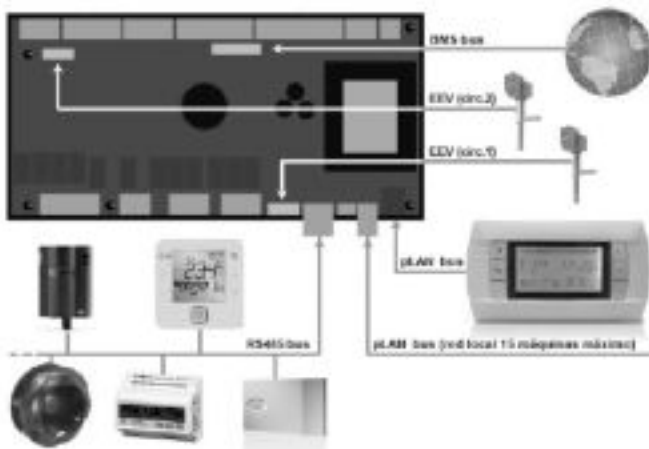
Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Forced ventilation of the electrical cabinet. Protection IP54.
- Numeration of wired and identification of components in the electrical cabinet. It permits easy tracing and diagnostics.
- Hinges + quarter-turn latches on the removable access door.
- Electrical power supply with neutral.
- Main ground connection.
- Compressor and fan motor contacts.

Vectic electronic control

The Vectic control consist of a control board, sensors, a graphic terminal, an user terminal (optional).

This system uses a RS485 field-bus to manage additional components such as: expansion modules and boards, plug-fans, probes of temperature or relative humidity of the ambient air, leak detectors, energy meters, etc.



Using a BMS communication card (optional) the unit can be connected to a centralised technical management system with the following communication protocols: Carel, Modbus RTU, LonWorks®, BACnet™ MSTP, Konnex, Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.

Vectic control enables unit integration with our local supervision solutions: **pCO Web** (1 unit), **PlantWatchPRO3** (30 units), **BOSS mini** (50 units) and **BOSS** (300 units), as well as with the remote solution: **BluEdge®Digital**

With this control it is also possible to connect to a local pLAN (Vectic Local Area Network) for a maximum of 15 units, with one unit configured as "Master" and the others as "Slaves". This network allows the exchange of data and information between

the units, and depending on the conditions of the installation, share the reading of some probes installed on the unit configured as "Master", temperature setpoints and operating mode. It is also possible to configure one unit as "Back-up" just in case for failure of the another unit on the pLAN network.

Main functions:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
 - Continuous control of the operating parameters.
 - Display of the values measured by the sensors.
 - Compressors time delays.
 - Defrosting management.
 - Control of the supply air temperature.
 - All-seasons operation via the condensation and evaporation pressure control.
- The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.
- Setpoint compensation based on the outdoor temperature.
 - Hourly and weekly schedule.
 - Fire protection.
 - Diagnosis of faults and general alarm.
 - Management of all the optional components available for the unit: dampers and mixing boxes, back-up heating, air quality sensors, air zoning, energy recovery,...

VecticGD graphic terminal:

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

This terminal is used to:

- Carry out initial programming of the unit.
- Modify operating parameters.
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the variables controlled and sensor values measured.
- Display the current alarms and their historical record.

TCO user terminal (optional):

This terminal can be installed on the electrical cabinet, instead of the VecticGD graphic terminal. In this case, the remote connection of the VecticGD terminal is possible. Please consult the chapter "Options".



This terminal is used to:

- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO₂ sensor and opening of the outdoor damper.
- Display alarms codes.

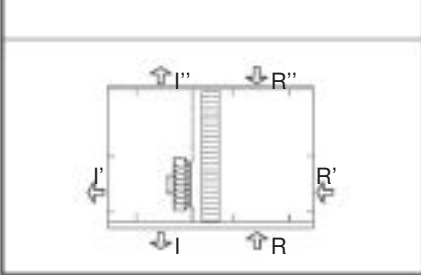
FACTORY OPTIONS AND ACCESSORIES

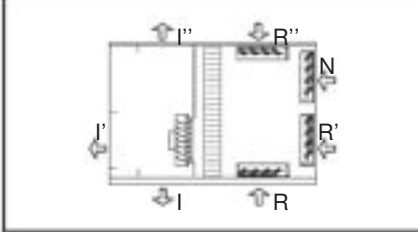
Assembly (Group 6) + Indoor air direction (Group 25)

"Cross Flow" assemblies (all models)

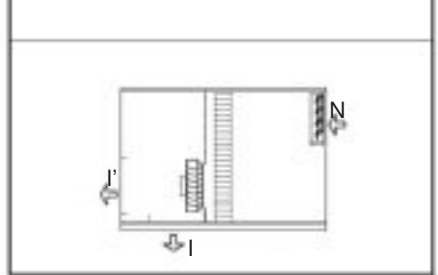
C0 assembly

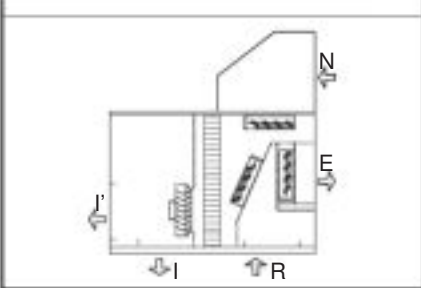
Standard


CS assembly

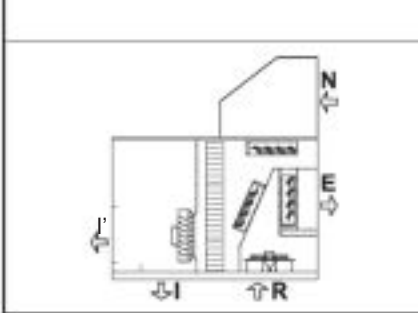
 2 dampers mixing box:
fresh air damper interlocked with return damper

CF assembly

100% fresh air

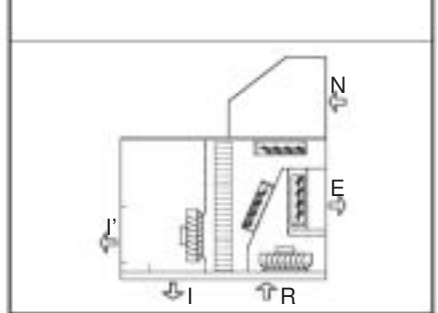

CK assembly

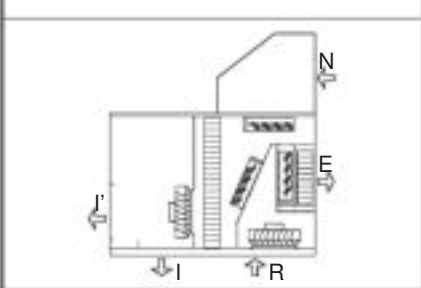
 3 dampers mixing box:
fresh air damper and exhaust air damper

CA assembly

Axial return fan

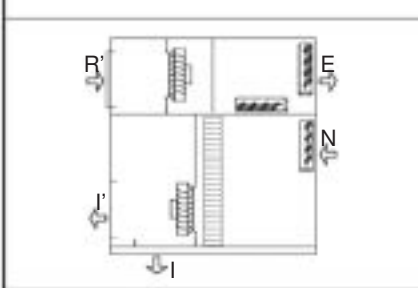

CP assembly

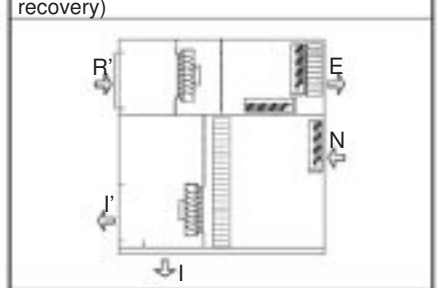
Lower return plug-fan


CR assembly

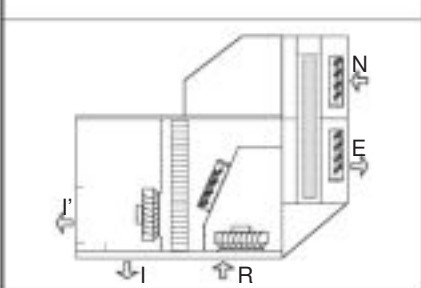
 Lower return plug-fan +
Cooling recovery circuit (active recovery)

CQ assembly

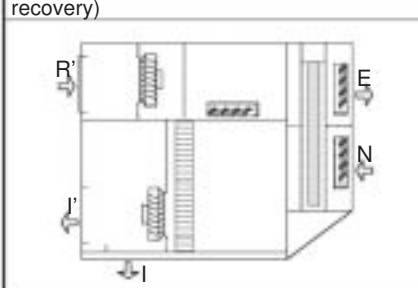
Return plug-fan or centrifugal fan in top box


CT assembly

 Return plug-fan or centrifugal fan in top box +
Cooling recovery circuit (active recovery)

CW assembly

Lower return plug-fan + Rotary heat exchanger (passive recovery)


CL assembly (upon request)

 Return plug-fan or centrifugal fan in top box +
Rotary heat exchanger (passive recovery)

Legend

| | |
|------------------------------|------------------------------|
| I Lower air supply | R Lower air return |
| I' Lateral air supply | R' Lateral air return |
| I'' Upper air supply | R'' Upper air return |
| N Fresh air intake | E Exhaust air outlet |

Note: only one of the three possible options (lower, lateral or upper) can be selected for both, supply and return.

The airflow direction selected for supply and return (lower or lateral) is easily interchangeable on site.

Indoor airflow direction (Group 25)

| | | |
|--|--|--|
| 0 Lower supply and lower return | 3 Lateral supply and lateral return | 6 Upper supply and lateral return |
| 1 Lateral supply and lower return | 4 Upper supply and lower return | 7 Lower supply and upper return |
| 2 Lower supply and lateral return | 5 Lateral supply and upper return | 8 Upper supply and upper return |

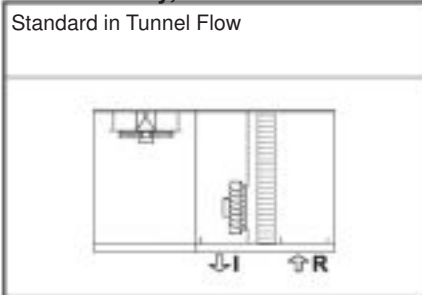
FACTORY OPTIONS AND ACCESSORIES

Assembly (Group 6) + Indoor air direction (Group 25)

“Tunnel Flow” assemblies (models 0200 to 0240)

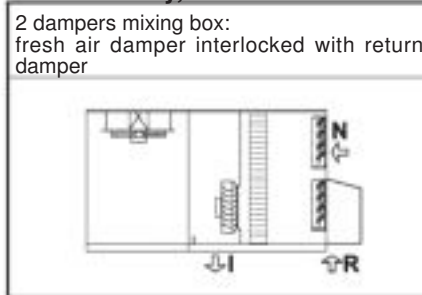
T0 assembly, Direction 0

Standard in Tunnel Flow



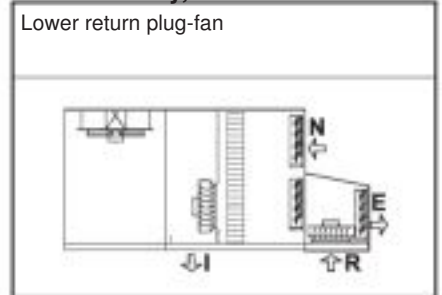
TS assembly, Direction 0

2 dampers mixing box:
fresh air damper interlocked with return damper



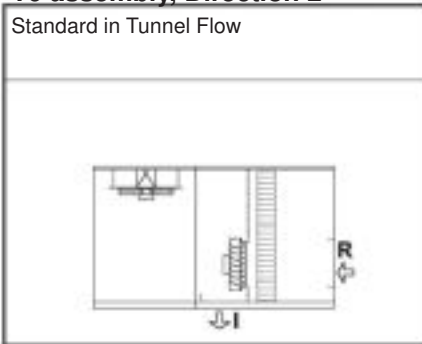
TP assembly, Direction 0

Lower return plug-fan



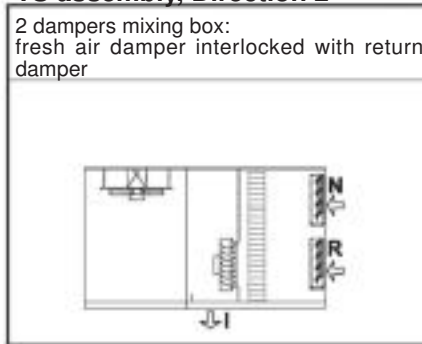
T0 assembly, Direction 2

Standard in Tunnel Flow



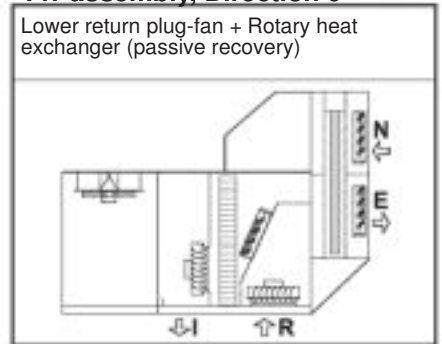
TS assembly, Direction 2

2 dampers mixing box:
fresh air damper interlocked with return damper



TW assembly, Direction 0

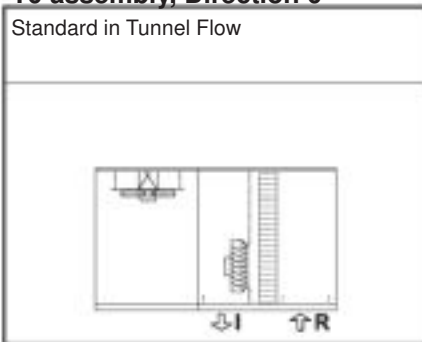
Lower return plug-fan + Rotary heat exchanger (passive recovery)



“Tunnel Flow” assemblies (models 0280 to 0380)

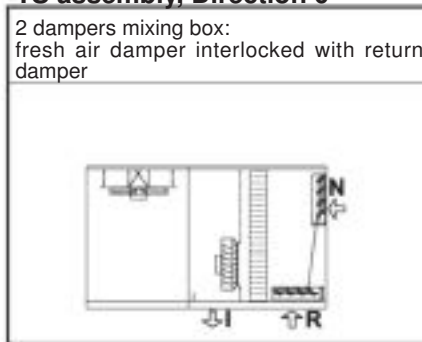
T0 assembly, Direction 0

Standard in Tunnel Flow



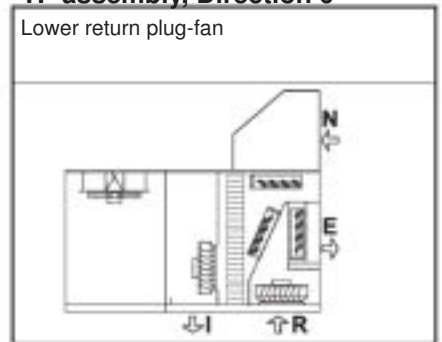
TS assembly, Direction 0

2 dampers mixing box:
fresh air damper interlocked with return damper



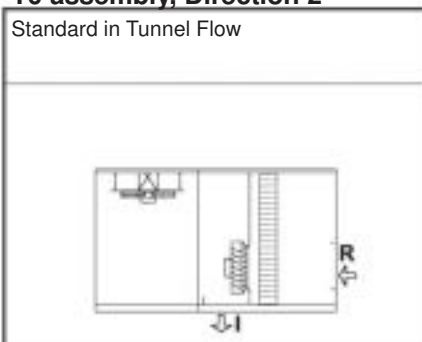
TP assembly, Direction 0

Lower return plug-fan



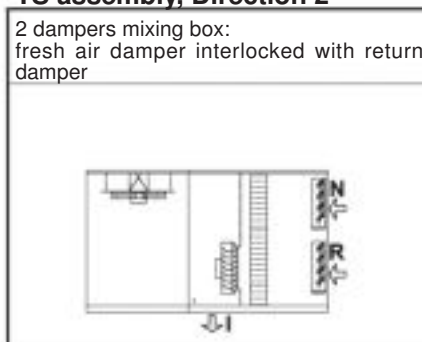
T0 assembly, Direction 2

Standard in Tunnel Flow



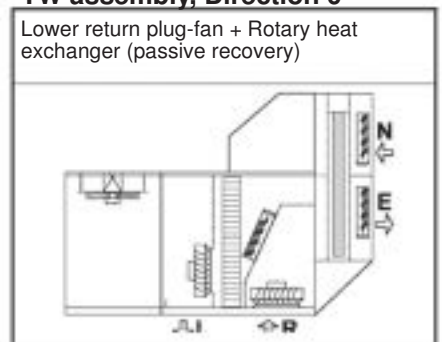
TS assembly, Direction 2

2 dampers mixing box:
fresh air damper interlocked with return damper



TW assembly, Direction 0

Lower return plug-fan + Rotary heat exchanger (passive recovery)



Indoor airflow direction (Group 25)

| | |
|---|---------------------------------|
| 0 | Lower supply and lower return |
| 2 | Lower supply and lateral return |

Legend

| | | | | | |
|----|--------------------|----|--------------------|---|--------------------|
| I | Lower air supply | R | Lower air return | N | Fresh air intake |
| I' | Lateral air supply | R' | Lateral air return | E | Exhaust air outlet |

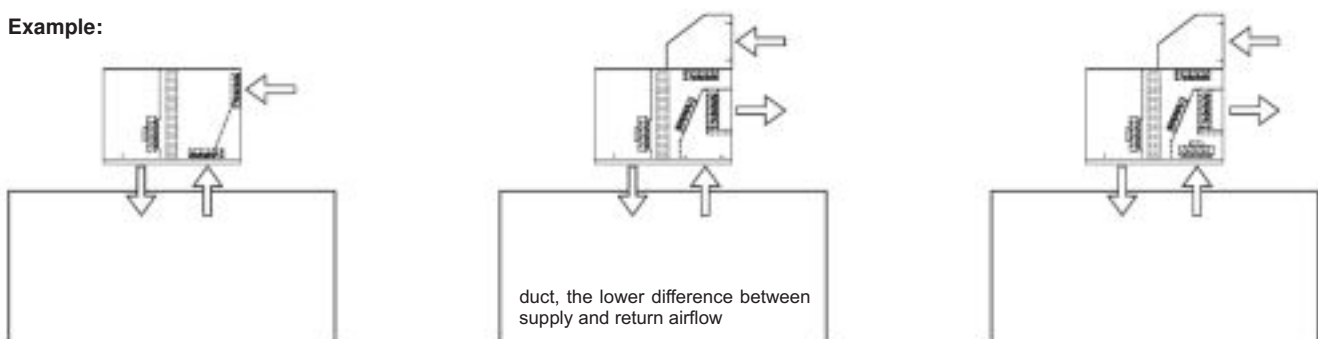
FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Air pressure control in different assemblies

this overpressure can be completely avoided (pressure balance), or even controlled with a certain value to prevent infiltrations. **Vectios™** is the rooftop with the largest offer in airflow configurations to be able to adapt the unit to any kind of application or request. Please, find below comments and recommendations for each assembly.

| Assembly | Fresh air and free-cooling | Return fans | Energy recovery (extraction) | Pressure control | Comments and recommendations |
|----------|----------------------------|-------------|------------------------------|------------------|---|
| | | | | | no need of fresh air. and supply airflow. |
| | | | | | air tightness |
| | | | | | |
| | | | | | low pressure drop in the return ductwork |
| | | | | | adjust the airflow. |
| | | | | | pressure balance return are configured with same airflow. |
| | | | | | overpressure (to avoid infiltration), the return airflow need to be lower than the supply. Differences up to 10% can be always being configured. |
| | | | | | differences up to 20% adding the option "overpressure control" |
| | | | | | configured. |

Example:



FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Electrical power (Group 4)

These units can be supplied for the following power supply voltages:

- 400 V / 3 ph + N / 50 Hz (standard)
- 400 V / 3 ph / 50 Hz (optional)

Coils coating (Group 7)

- Coils with copper pipes and copper fins. Upon request.
- Coils with copper pipes and fins of an aluminium alloy (INERA®), of high performance and great resistance to the corrosion.
- Coils with copper pipes and aluminium fins with polyurethane coating.
- Blygold® coating.

Note: These coating can be applied to various coils (outdoor, indoor and hot water coil) according to the combinations available in our "Selection Software".

Heating (Group 8)

The unit only can incorporate one of these heating elements:

- **Auxiliary electrical heaters**, with two power stages and on/off control, for assembly and connection inside the unit. Up to 3 values of total power available for each model:

| Vectios™ PJ | E0L (Low) | E0N (Nominal) | E0H (High) |
|--------------|-----------|---------------|-------------|
| 0090 to 0120 | 12 kW | 18 kW | unavailable |
| 0140 to 0190 | 12 kW | 18 kW | 27 kW |
| 0200 to 0380 | 18 kW | 27 kW | 36 kW |

- **Auxiliary hot water coil**, with three-way valve and proportional control, for assembly inside the unit.

The unit incorporates an anti-freeze thermostat as safety system.

There are two configuration types available:

- Standard (B0S), the only safety system is the anti-freeze thermostat.
- Great Cold (B0C), with anti-freeze technology based on the water temperature. This protection is made up of a circulation pump and two sensors inserted in the input and the output of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.

Note: on units with the "Great Cold" option, air supply only may be lateral (factory-configured).

Note: the active dehumidification is not compatible with the hot water coil.

- **Gas boiler + Auxiliary hot water coil**. Natural or propane gas boiler with modulating actuator, in accordance with the Gas Directive 2009/142/EC, mounted on the side of the unit. The boiler is connected to the water circuit of the auxiliary coil.

Up to 3 values of total power available for each model:

| Vectios™ PJ | G1L (Low) | G1N (Nominal) | G1H (High) |
|--------------|------------------------------|------------------------------|-----------------|
| 0090 to 0190 | unavailable | Condexa PRO 40 (coming soon) | Condexa PRO 70 |
| 0200 to 0380 | Condexa PRO 50 (coming soon) | Condexa PRO 70 | Condexa PRO 100 |

Note: the active dehumidification is not compatible with the gas boiler.



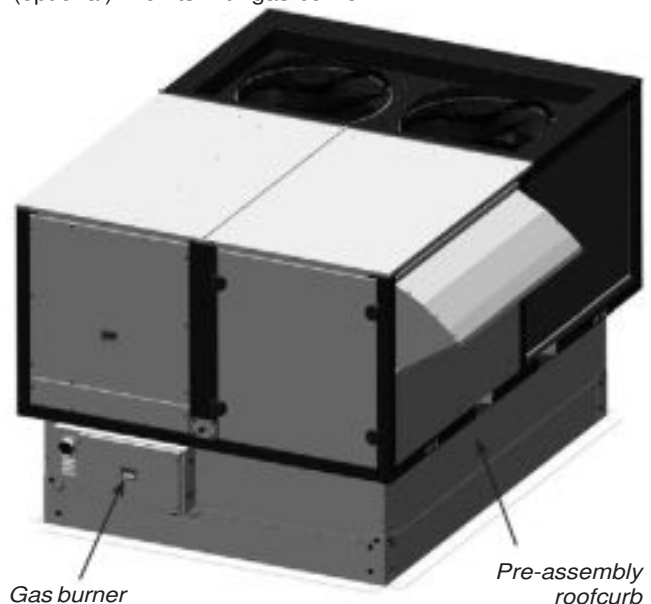
- Natural or propane **gas burner** with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb.

The PJ unit with lower air supply will be placed on this roofcurb.

Up to 3 values of total power available for each model:

| Vectios™ PJ | G0L (Low) | G0N (Nominal) | G0H (High) |
|--------------|-------------|---------------|------------|
| 0090 to 0190 | PCH020 | PCH034 | PCH045 |
| 0200 to 0240 | unavailable | PCH065 | PCH080 |
| 0280 to 0380 | unavailable | PCH080 | PCH105 |

Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.



Protection for low outdoor T (Group 9)

- Kit 1: Antifreeze protective kit (<-10°C). Mandatory for an outdoor temperature lower than -10°C WB. This kit includes:
 - Electrical heater for protection of the components of the electrical cabinet.
 - Compressor with protection for low temperature.
- Kit 2: Antifreeze protective kit (<-14°C). Mandatory for an outdoor temperature lower than -14°C WB.

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

In addition to the options of -10°C, this includes:

- Reinforced electrical heater for protection of the components of the electrical cabinet.
- Electrical heater for anti-freeze protection of dampers of the mixing box (if applicable).
- Protective kit of the gas burner for low temperature (if applicable).
- Kit 3: Kit 1 + Dampers of the mixing box with spring for automatic closing in case of a power failure.
- Kit 4: Kit 2 + Dampers of the mixing box with spring for automatic closing in case of a power failure.

Available pressure of the indoor fan (Group 10)

- There are 3 optional fans depending on the available pressure:
 - Low pressure (L): all models except for 0140, 0160, 0180, 0190, 0280 and 0320.
 - Nominal pressure (N): all models.
 - High pressure (H): all models.

Important: our "Selection Software" will choose the supply fan with lower consumption for the available pressure required.

Air filtration + stop-drop (Group 11)

Options to improve indoor air quality:

- Different combinations of filters are available:
 - G4 gravimetric filters with low pressure drop.
 - G4 gravimetric filters standard type + M6, F7 or F9 folded opacimetric filters.
 - G4 gravimetric filters with low pressure drop + F7 or F9 folded opacimetric filters.
 - Dual-stage of folded opacimetric filters (M6+F7, M6+F9, F7+F9 or F9+F9).

Classification of the filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
- M6 → ISO ePM10 70%
- F7 → ISO ePM1 50%
- F9 → ISO ePM1 80%
- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.

Note: with hot water coil it is not possible to assemble the stop-drop.

Type of outdoor fan (Group 12)

- Axial 2-speed outdoor fan(s) directly coupled to the motor. Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille. Not recommended with the optional active dehumidification and outdoor temperatures below 12°C.

External insulation (Group 13)

- Ceramic panel for thermal and acoustic insulation, with Euroclass fire classification A2-s1, d0 (M0) in panels not removable in contact with the indoor air (top, bottom panel).

Note: the other panels and registers of the indoor unit always include thermal and acoustic insulation, with Euroclass fire classification A2-s1, d0 (M0).

Indoor unit configuration (Group 14)

- Condensate drain pan in stainless steel for corrosion protection.
- Control of the overpressure. Assemblies that include a return fan allow the management of airflow differences between supply air and return air of up to 10%, setting up flow setpoints. Optionally, **upon request**, the fresh air damper and the exhaust damper can be managed independently for greater airflow differences. This option may be necessary to prevent the entry of outside air (CP, CQ, CW, TP and TW assemblies).

Note: This option is not available on CT and CR assemblies because this type of control of the dampers penalizes cooling recovery.

- Differential pressure switch to detect clogged filters as safety protection.

Outdoor unit configuration (Group 15)

- Fresh air intake protection grid (mesh of 9 x 9 mm).
- Outdoor coil protective grille.
- Antivibration mounts made of rubber.
- Stop-drop at the fresh air intake. This stop-drop and the thermoenthalpic free-cooling are necessary in cases where a high moisture content in the air is foreseen.

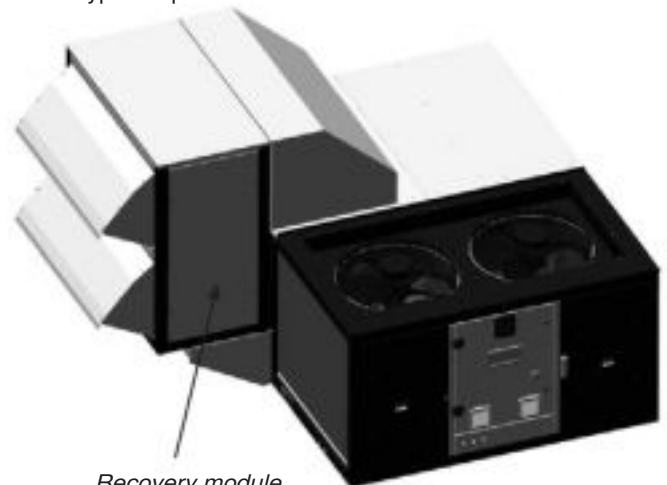
Passive recovery (Group 16)

- The rotary heat exchanger is fitted into a module placed on one side of the unit. This module is supplied disassembled with the unit, for installation on site.

Available with CW and TW assemblies, and upon request, with CL assembly.

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors. This option reduces the compressors runtime, ensuring energy saving and benefiting the environment.

The efficiency of energy recovery depend on the wheel selected: material, wheel diameters, channel cross section and type of speed control.



Note: It's recommended to use a CO₂ air quality sensor (optional) in units with rotary heat exchanger.

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Extra heating (Group 17)

■ **Heat recovery coil (HRC).** The coil function is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation.

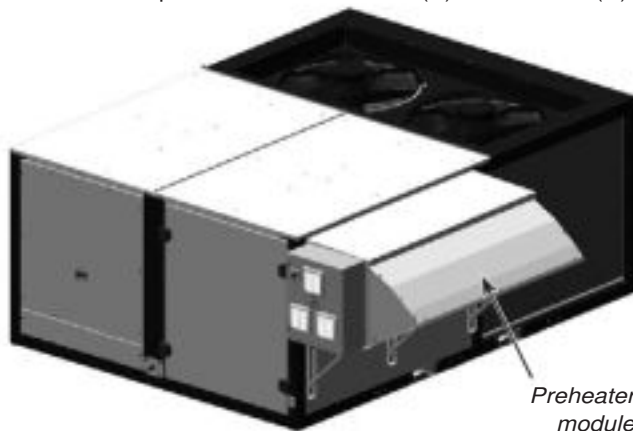
The coil is supplied with a 3-way valve for installation outside the unit but manages by the electronic control.

This option is compatible with C0, CS, CF, CQ, CT, T0 and TS assemblies.

■ With CF assembly, 100% fresh air, it is possible to incorporate a **preheater module** (electrical heater) coupled to the fresh air intake. This module is supplied in kit for installation on site.

The electrical heater with proportional control will modulate capacity to get the condenser inlet conditions within the operating limits of the cooling circuit in case of very low outdoor temperatures.

Two values of power are available: low (B) and nominal (N).



Note: The electrical connection of the kit is the responsibility of the installer.

Special applications (Group 18)

■ **Active dehumidification.** The PJ unit can incorporate an extra condensation coil for dehumidification applications in high relative humidity ambients. This new option is the solution for applications which require the highest degree of indoor comfort and humidity control.

It could be of particular interest to the supermarkets, restaurants, museums and in cases of high latent cooling load and/or in humid climates. It's used in low temperature stock applications to avoid condensation over goods or refrigeration cabinets glass doors.

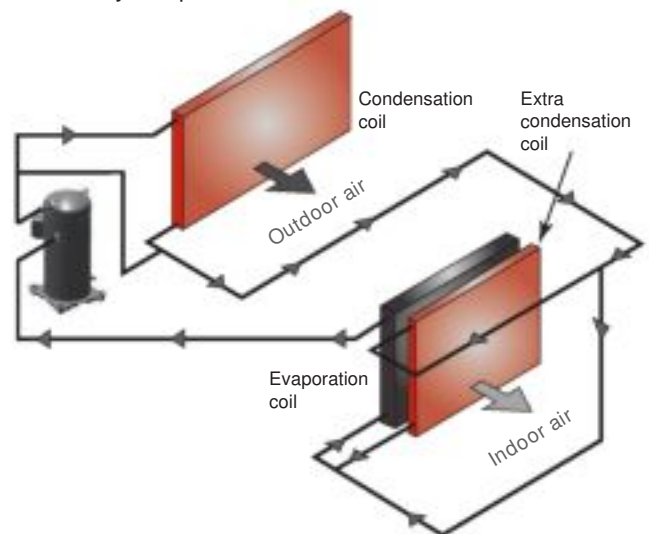


It allows controlling the maximum levels of humidity in the room in the most efficient way, and independently of the location and the part-load of the unit.

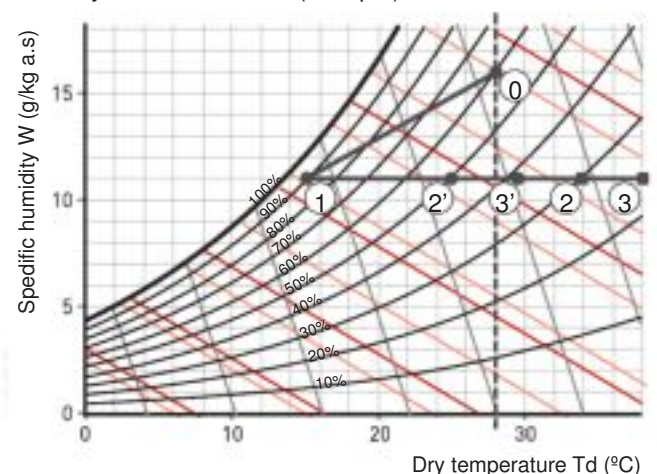
Operation of dehumidification

The dehumidification process is done by the main refrigerant coil. Hot gas recovered is injected in the additional condensation coil to reheat the air.

The use of the extra condensation coil to reheat the air after the evaporator provides a flexible and efficient operation to accurately compensate for the room demand.



This option also allows an additional reheating using the auxiliary electrical heaters (Group 8).



- 0 → 1: Normal evolution in the evaporator without using extra condensation coil
- 1 → 2: Reheating using extra condensation coil in units of 1 circuit
- 1 → 2': Reheating using extra condensation coil in units of 2 circuits
- 2 → 3: Additional reheating using the auxiliary electrical heaters in units of 1 circuit
- 2' → 3': Additional reheating using the auxiliary electrical heaters in units of 2 circuits

The "Selection software" allows to obtain the value of the supply air temperature for the point 2 (or 2') according to the extra condensation coil. It will also calculate point 3 (or 3') according to the power selected for the auxiliary electrical heaters.

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

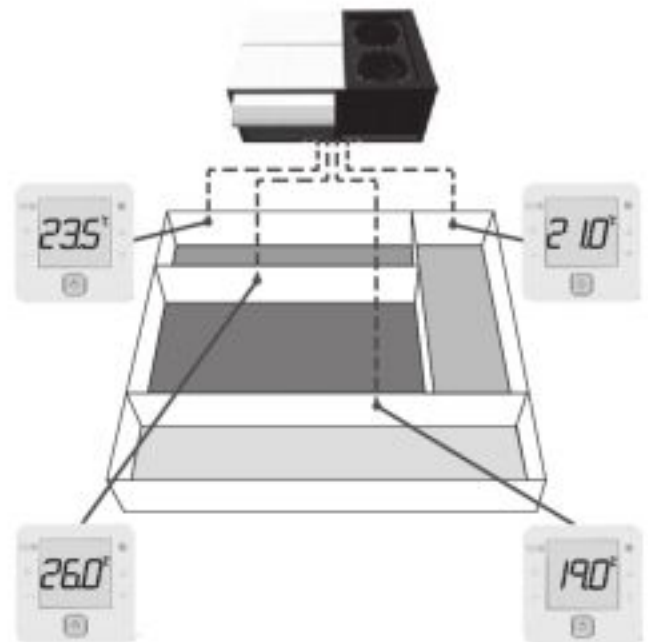
Operational modes

| Indoor conditions | Operational modes | |
|-------------------|-------------------|------------------|
| | | |
| | | |
| | | Dehumidification |
| | | Dehumidification |
| | | Dehumidification |
| | | Dehumidification |



■ Zoning of the air flow up to 4 different zones.

This option allows the management of the air flow of the unit to condition up to 4 different zones with a minimum air flow of 35% (all of them in same operating mode: heating or cooling). This function allows to adapt the indoor air flow to



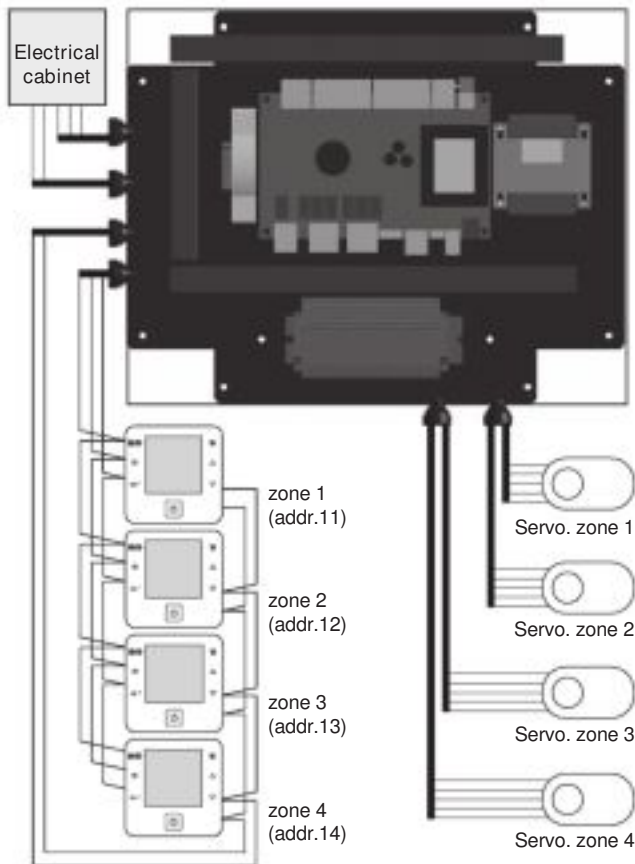
Note: the active dehumidification is not compatible with the

not supplied). The unit modifies the air flow and capacity

■ Low return temperature application

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

In following picture, electronic PCB and 4 zone terminals are detailed. Connections can be found in the Vectic control manual.



Note: In case the unit includes enthalpy or thermoentapic free cooling (T+H control) an extra return T+H sensor in the offer is required. If the unit additionally includes CO₂ probe, it must be a return probe and not an ambient probe.

Note: the active dehumidification is not compatible with the air zoning.

- The mounting **100% fresh air** with no return or extraction air flow (CF assembly) will address special requests where return air flow cannot be used, in order to avoid contamination (kitchens, and some other places with indoor odours or other pollutants).

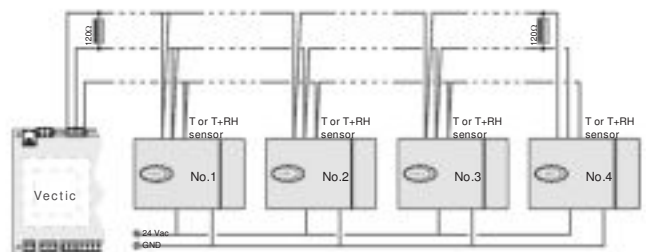


In order to keep the cooling circuit working inside operation limits, and depending on design conditions, the unit could be selected with lower air flow than minimum used for the same size in the rest of assemblies.

Depending on the heating design conditions, it is also necessary to select an additional electrical heating in the fresh air intake (preheater module, Group 17).

Sensors (Group 19)

- Sensor(s) of **ambient temperature**. There are 3 options:
 - One NTC sensor connected to the control board.
Note: An ambient sensor with RS485 communication is required for installation at more than 30 meters.
 - One to four sensors with RS485 communication.
 - Sensor(s) installed on the master unit of the local network (pLAN).
- One to four sensors of **ambient temperature + humidity**, with RS485 communication or installed on the pLAN network.
This sensor is compulsory in units with enthalpic or thermoentapic free-cooling (optional). In this case, the outdoor air humidity sensor is also added.



- **Smoke detecting sensor**. Smoke detecting station in accordance with the NF S 61-961 standard, 961, that uses a LED to indicate the installation status, and if the probe detects the presence of smoke in the installation, it stops the operation of the unit and gives the order to open or close the outdoor damper (configured by parameter).

To ensure compliance with the French regulations on Fire safety (ERP), it's possible to configure the opening of the fresh air damper and the exhaust air damper to 100% (return air damper closed).

- **Air quality sensor** to enable measuring CO₂.

There are different options:

- Ambient air quality sensor.
- Return air quality sensor (duct-mounted) (attached picture).
- Sensor installed on the master unit of the local network (pLAN).
- Double quality sensor:
 - two ambient air sensors;
 - one ambient air sensor and one outdoor air sensor;
 - one return air sensor (duct-mounted) and one outdoor air sensor.



FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Free-cooling + outdoor humidity (Group 20)



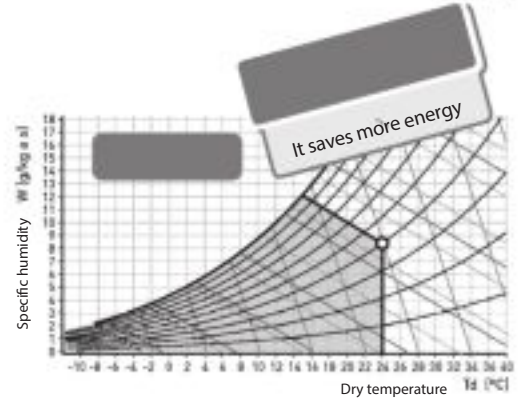
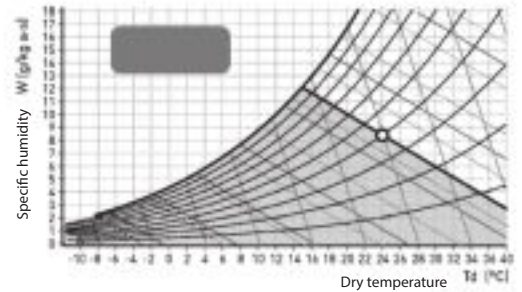
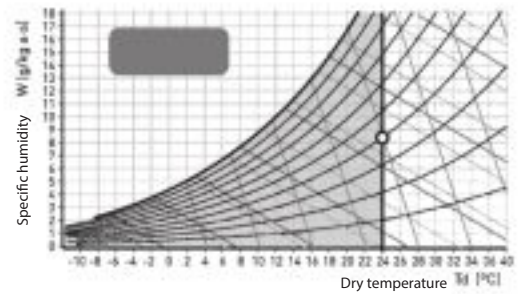
2

| | | |
|--|--|--|
| | | |
| | | Constant fresh air (fresh air % fixed) |
| | | 2 |
| | | 2 |

The categories of indoor air quality (IEQ) are defined in

can affect to comfort level.

| | | |
|--|--|--|
| | | |
| | | |
| | | |
| | | |
| | | |



significantly early in the day.



FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Terminal + unit communication (Group 21)

■ By default, the electronic control Vectic is supplied with a graphic terminal installed in the electrical cabinet of the unit, but these other configurations also are available:

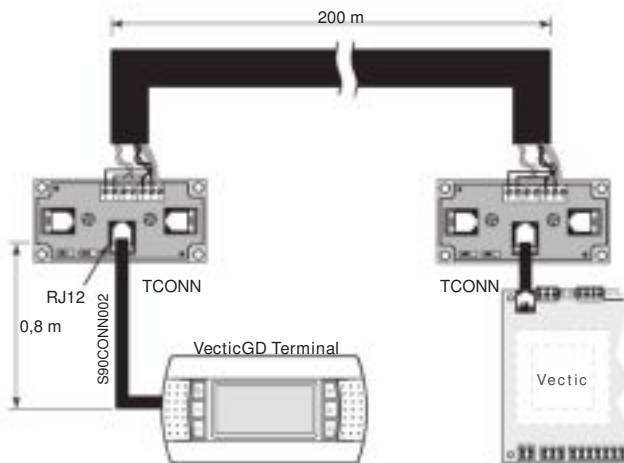


VectigGD graphic terminal



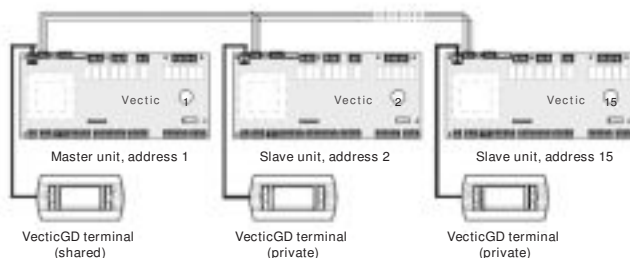
TCO user terminal

- TCO user terminal installed in the electrical cabinet, instead of the VectigGD graphic terminal.
- VectigGD graphic terminal installed in the electrical cabinet and TCO user terminal remote up to 100 meters.
- TCO user terminal installed in the electrical cabinet and VectigGD graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- VectigGD terminal installed in the electrical cabinet and VectigGD terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).



• Control without terminal (for units with shared terminal in a pLAN network).

■ By default, the electronic control is configured for a stand-alone unit, but it is also possible to place it in a pLAN network (µPC MEDIUM Local Area Network) as Master, Slave or Back-up. The maximum number of units that can be configured on a Master/Slave pLAN network is 15, and in case of Back-up units is 2.



Important: to use any of the following functionalities it is necessary to configure in the "Selection software" one unit as Master and the others as Slaves (including the back-up unit). The specific functionality will be configured on site (according to the Vectic regulation manual).

The pLAN network allows to have the following functionalities depending on the parametrized configuration:

• **Master/Slave:**

It allows to share the VectigGD terminal, as well as some of the probes installed in the master unit: ambient temperature or ambient temperature + humidity, outdoor temperature, outdoor humidity and CO₂ air quality.

• **Extended Master/Slave:**

It includes "Master/Slave" functionalities and the master unit provides ambient temperature setpoints to the other units.

• **Master/Slave with the same operating mode:**

It includes the "Extended Master/Slave" functionalities and the master unit also provides the status (Cooling- Heating - Ventilation) to the other units.

• **Back-up in case of alarm:**

One unit is configured as a backup unit, in case of malfunction of the other pLAN network unit.

• **Extended Back-up:**

It includes the "Back-up in case of alarm" functionalities and also, the control manages the automatic switching between the two units weekly, to compensate the operation times of both units.

Note: In the case of installations with Back-up units, it is not possible to share the probes, nor the terminal, since both units must be fully autonomous in their operation. If both units are connected to the same supply duct network, it is imperative that the installation consists of non-return dampers (installer responsibility).

■ This control allows the connection to a **centralised technical management system** by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.



RS485 Carel/Modbus card

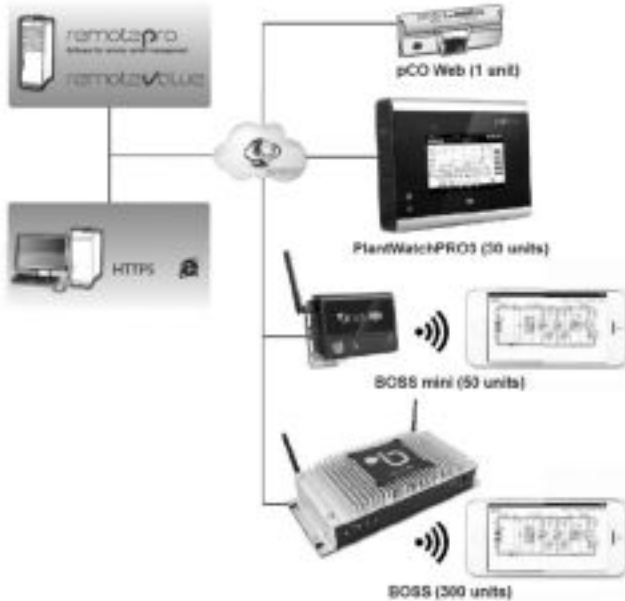


Ethernet pCO Web card

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Local supervision solutions

Different solutions of supervision are available bases on the dimensions of the installation for unit fitted with Ethernet pCO Web and RS485 Carel / Modbus cards.



- **pCO Web:**

It is the solution for the management and supervision of a single unit if this incorporates the Ethernet pCO Web card.

- **PlantWatchPRO3:**

This is a solution designed for the monitoring of small and medium-size installations, capable of manage up to 30 units. Suitable for technical environments, no parts are in movement. It's available in two versions: panel and wall.

Includes: 7 " touch display, buzzer for notifications, 1 USB port and 1 SD card slot for downloading reports, charge devices models and applying service packs.

For this option, each unit needs one RS485 Carel / Modbus board.

- **BOSS:**

This is the solution for the management and supervision of air-conditioning installations with up to 300 units. Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation. It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, keyboard and screen.

For this option, each unit needs one RS485 Carel / Modbus board.

- **BOSS mini (New):**

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

- CPU device, mouse and keyboard.
- CPU device, monitor, mouse and keyboard.

These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

To control multiple sites remotely, there are special tools dedicated to centralized management, such as **RemotePRO** and **RemoteValue**.

Remote supervision solution BluEdge® Digital

BluEdge® Digital is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.



Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

BluEdge® Digital will send data in real time to the supervision website.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can configured to trigger a mail alert.

Parameters monitored:

- Overview.
- Control panel for the controllers.
- Events.
- Temperature curves.

Monthly and annual reports are available to analyse :

- The performance and operation of the machine.

Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other are immediately detected, and the corrective actions put in place.



Equipment

This kit can be used on both machines which are already in use (existing inventory), and on new machines which do not have sufficient space in their electrical cabinets.

- 1 transportable cabinet.
- 1 wall-mounted antenna.

BluEdge®Digital kit contents

- 1 GPRS/3G modem.
- 1 SIM card.
- 1 power supply (24 VDC).
- 1 power protection device.
- 1 GSM antenna.
- Rail mounting.
- Enclosed casing to protect the equipment during transport.
- Packing box for cable routing (bus, power supply, Ethernet).

Compatibility

Up to three machines per BluEdge®Digital kit.

Miscellaneous item 1 (Group 22)

- Management of an humidifier with proportional or on/off control.
- Energy meter for monitoring of the power consumption of the installation.
- Energy meter and calculation of the cooling and heating capacities. In addition to the energy meter, the unit incorporates mixing and supply enthalpic sensors with RS485 communication that enable cooling and heating capacities to be calculated.
- Refrigerant leak detector (in ppm). This allows prompt identification of gas leaks, guaranteeing the safety of any people in the vicinity. This detector allows the number of periodic revisions to the unit to be reduced.

Miscellaneous item 2 (Group 23)

- Compressor soft starter.
- Tropicalization: tropicalised components on the electrical cabinet with protective varnish: control board, cards and terminals.

Return fan (Group 24)

- Centrifugal return fan, coupled by pulleys and belts. Electric motor with tensioner, class F, IP55 and internal thermal protection. Turbine with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required.

Available in CQ and CT assemblies.

There are 9 fan options depending on:

- The air flow: low, nominal and high.
- The available pressure: low, nominal and high.

Pre-assembly roofcurbs

- The "Cross flow" assemblies can rest on standardised pre-assembly roofcurbs with adjustable height, built in galvanised steel panelling with polyester paint and thermal insulation.

The levelling system uses angle pieces that allow adjustments in the X and Y axes.



- The "Tunnel flow" assemblies have a wide range of adaptation roofcurbs which are ready for the replacement on site of existing units from different manufacturers (upon request).

FACTORY OPTIONS AND ACCESSORIES (SUMMARY)

| Family | Group | Description | Models | Installation in factory | Installation on site |
|-------------------------------|-------|---|--------------|-------------------------|----------------------|
| Electrical power | 4 | 400 V / 3 ph / 50 (without neutral) | All | ✓ | |
| Air flow + Assembly | 6 | CS: Cross flow with 2 dampers | All | ✓ | |
| | | CK: Cross flow with 3 dampers | All | ✓ | |
| | | CF: Cross flow 100% fresh air | All | ✓ (*) | |
| | | CA: Cross flow with axial return fan | All | ✓ (*) | |
| | | CP: Cross flow with lower return plug-fan | All | ✓ (*) | |
| | | CR: Cross flow with lower return plug-fan and cooling recovery circuit (active recovery) | All | ✓ (*) | |
| | | CQ: Cross flow with upper return plug-fan or centrifugal fan | All | ✓ | |
| | | CT: Cross flow with upper return plug-fan and centrifugal fan and cooling recovery circuit (active recovery) | All | ✓ | |
| | | CW: Cross flow with rotary heat exchanger (passive recovery) | All | ✓ (*) | |
| | | TS: Tunnel flow with 2 dampers | 0200 to 0380 | ✓ | |
| | | TP: Tunnel flow with return plug-fan | 0200 to 0380 | ✓ (*) | |
| | | TW: Tunnel flow with rotary heat exchanger (passive recovery) | 0200 to 0380 | ✓ (*) | |
| Coil coating | 7 | Coil with copper pipes and copper fins | All | ✓ | |
| | | Coil with copper pipes and fins of an aluminium alloy (INERA®) | All | ✓ | |
| | | Coil with copper pipes and aluminium fins with polyurethane coating | All | ✓ | |
| | | Blygold® coating | All | ✓ | |
| Heating | 8 | Auxiliary hot water coil : Standard or Great cold | All | ✓ | |
| | | Auxiliary electrical heaters | All | ✓ | |
| | | Natural or propane gas burner (supplied installed into a pre-assembly roofcurb) | All | | ✓ |
| | | Gas boiler + Auxiliary hot water coil | All | ✓ (*) | |
| Protection low temperature | 9 | Kit 1: Antifreeze protection kit for low temperature (<-10°C) | All | ✓ | |
| | | Kit 2: Antifreeze protection kit for low temperature (<-14°C) | All | ✓ | |
| | | Kit 3: Kit 1 + Dampers with spring | All | ✓ | |
| | | Kit 4: Kit 2 + Dampers with spring | All | ✓ | |
| Indoor fan | 10 | Indoor plug-fan with high available pressure or low available pressure | All | ✓ | |
| Air filtration + stop-drop | 11 | Stop-drop in the indoor air coil | All | ✓ | ✓ |
| | | Gravimetric filters G4 with low pressure drop | All | ✓ | ✓ |
| | | Gravimetric filters G4 + folded opacimetric filters M6, F7 or F9 | All | ✓ | ✓ |
| | | Gravimetric filters G4 low pressure drop + folded opacimetric filters F7 or F9 | All | ✓ | ✓ |
| | | Double stage of folded opacimetric filters (M6+F7, M6+F9, F7+F9 or F9+F9) | All | ✓ | ✓ |
| Outdoor fan | 12 | Axial 2-speed outdoor fan(s) directly coupled to the motor | All | ✓ | |
| Insulation | 13 | Ceramic fibre for thermal and acoustic insulation, Euroclass A2-s1, d0 (M0) | All | ✓ | |
| Indoor unit | 14 | Condensate drain pan in stainless steel | All | ✓ | ✓ |
| | | Management of the overpressure | All | ✓ | |
| | | Differential pressure switch to detect clogged filters | All | ✓ | |
| Outdoor unit | 15 | Fresh air intake protection grid | All | ✓ | ✓ |
| | | Outdoor coil protective grille | All | ✓ | ✓ |
| | | Stop-drop at the fresh air intake | All | ✓ | ✓ |
| | | Antivibration mounts made of rubber | All | ✓ | ✓ |
| Passive recov. | 16 | Rotary heat exchanger characteristics: diameter, channel cross section and wheel material, type of speed control | All | ✓ | |
| Extra heating | 17 | Heat recovery coil | All | ✓ (*) | |
| | | Preheater (electrical heater) in fresh air, low or nominal power | All | | ✓ |
| Special applications | 18 | Active dehumidification with condensation coil | All | ✓ | |
| | | Air zoning | All | ✓ (*) | |
| | | Low return temperature application | All | ✓ | |
| | | Low return temperature application + Air zoning | All | ✓ (*) | |
| | | Low return temperature application + Active dehumidification | All | ✓ | |
| Sensors | 19 | 100% fresh air (without or with air zoning) | All | ✓ | |
| Free-cooling + Outd. humidity | 20 | Ambient temperature sensor: one NTC sensor connected to the control board or 1 to 4 RS485 sensors | All | ✓ | ✓ |
| | | Ambient temperature + humidity sensor: one to four sensors with RS485 communication | All | ✓ | ✓ |
| | | Air quality sensor environment installed, duct-mounted, on a pLAN local network or double sensor (environment + environment; environment + outdoor; duct-mounted + outdoor) | All | ✓ | ✓ |
| | | Smoke detecting station in accordance with the NF S 61-961 standard | All | ✓ | ✓ |
| Terminal + Unit communication | 21 | Type of free-cooling: thermal, enthalpic or thermoenthalpic | All | ✓ | ✓ |
| | | Outdoor air humidity sensor: supplied with the unit or installed on a pLAN local network | All | ✓ | ✓ |
| | | TCO terminal installed in the electrical cabinet | All | ✓ | ✓ |
| | | VectiGD terminal installed in the electrical cabinet + TCO terminal remote up to 100m | All | ✓ | ✓ |
| | | TCO terminal installed in the electrical cabinet + VectiGD terminal remote up to 200m | All | ✓ | ✓ |
| Miscellaneous item 1 | 22 | VectiGD terminal installed in the electrical cabinet + VectiGD terminal remote up to 200m | All | ✓ | ✓ |
| | | Unit configuration: stand-alone, master or slave | All | ✓ | ✓ |
| | | Communication cards: RS485 Modbus/Carrel; Ethernet PCoWeb; RS485 LonWorks®; Ethernet BACnet™; RS485 BACnet™; RS485 Konnex | All | ✓ | ✓ |
| | | Management of an humidifier with proportional or on/off control | All | ✓ | |
| | | Energy meter | All | ✓ | |
| Miscellaneous item 2 | 23 | Energy meter and calculation of the cooling and heating capacities | All | ✓ | |
| | | Refrigerant leak detector | All | ✓ | |
| | | Compressor soft starter | All | ✓ | |
| Return fan | 24 | Tropicalised components on the electrical cabinet: control board, cards and terminals | All | ✓ | |
| Air direction | 25 | Centrifugal return fan (CQ and CT assemblies). 9 combinations of air flow and available pressure | All | ✓ | |
| | | There are 9 combinations in the direction of air with: - Supply: lower, lateral and upper - Return: lower, lateral and upper | All | ✓ | |
| Roofcurb | -- | Standardised pre-assembly roofcurbs with adjustable height | Cross flow | | ✓ |
| | | Adaptation roofcurbs for replacing units on site | Tunnel flow | | ✓ |

(*) Part of this option must be installed on-site.

ECODESIGN REGULATIONS

The publication of **regulation 2016/2281** establishes the requirements for Seasonal Energy Efficiency and brings together all the information concerning applicable equipment, including compact ROOFTOP enclosure units.

The challenge of seasonal efficiency: the new ecodesign regulations stipulate that seasonal efficiency must be measured in cooling mode (SEER) and heating mode (SCOP). These coefficients guarantee a standardised assessment of the energy consumption of equipment by including seasonal variations in the measurements. Both these coefficients are calculated according to technical standard EN-14825 and compliance is mandatory for a product to obtain CE marking.

Regulation 2016/2281 established **minimum values for seasonal energy efficiency** in $\eta_{s,c}$ cooling ($\eta_{s,c}$) y $\eta_{s,h}$ heating ($\eta_{s,h}$). SEER and SCOP are therefore expressed in terms of primary energy and these make it possible to compare the energy efficiency of units which use different energy sources. These requirements apply in 2 phases, with an initial phase starting 1 January 2018, and a second phase with a higher efficiency requirement that have come into force on 1 January 2021.

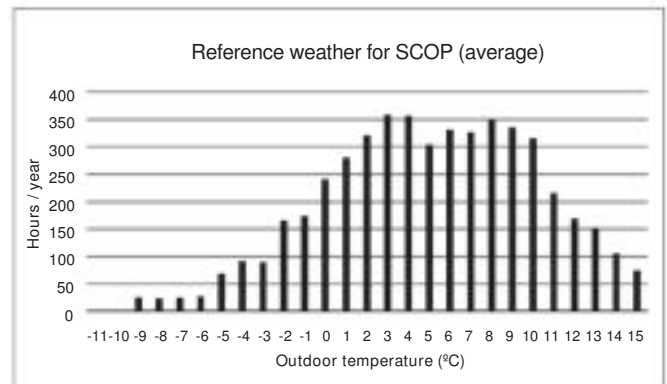
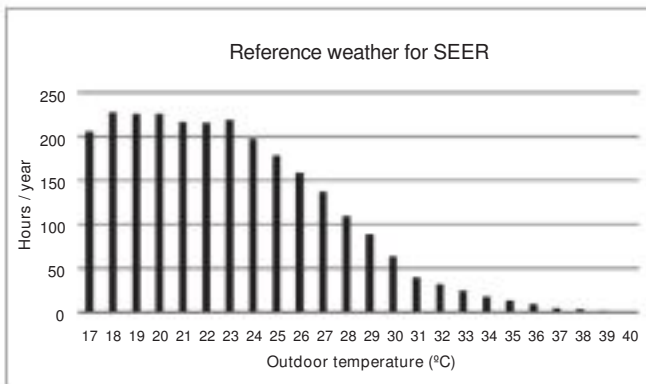


| ROOFTOPS | SEER | $\eta_{s,c}$ (%) | SCOP | $\eta_{s,h}$ (%) |
|----------------------|------|------------------|------|------------------|
| Tier 1 - 2018 | 3,00 | 117 | 2,95 | 115 |
| Tier 2 - 2021 | 3,53 | 138 | 3,20 | 125 |

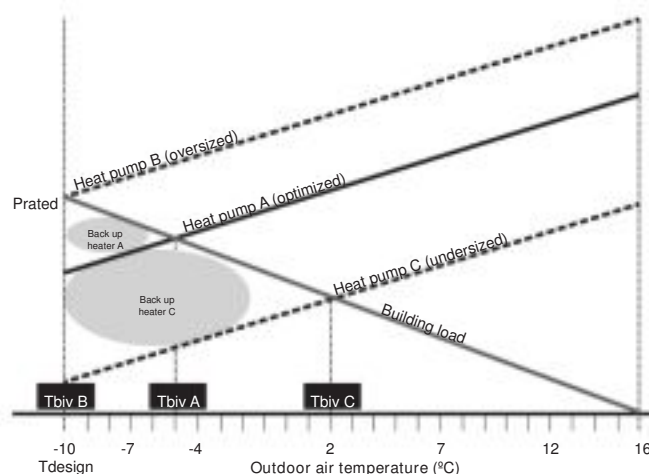


As stipulated in Annex II paragraph 5 of Regulation 2016/2281, the technical data sheets (TDS) for CIAT units are available at www.ciat.com

According to technical standard EN 14825, a reference weather for assessment of the seasonal efficiency is defined in cooling, as well as a partial load depending on the outdoor temperature. It is also establishes for heating, but in this case the standard defines three weathers (the average weather is used to compare with the minimum seasonal efficiency requirements of ecodesign regulations).



In addition, the bivalent temperature is defined in heating. This is the lowest outdoor temperature at which it is declared that the unit provides a capacity that allows to satisfy 100% of the heating load. Below this point, in the calculation of the SCOP, it is considered that the unit can still supply the capacity, but additional heating is required.



TECHNICAL CHARACTERISTICS (

| | ① | | | | | | | | | | | | | | | | | |
|--|---------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | ② | | | | | | | | | | | | | | | | | |
| | ηs | | | | | | | | | | | | | | | | | |
| | Nominal air flow (m | | | | | | | | | | | | | | | | | |
| | Nominal air flow (m | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | |
| | ③ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | dehumidification (kg) | | | | | | | | | | | | | | | | | |
| | dehumidification (tCO2eq) | | | | | | | | | | | | | | | | | |

①
 ②
 ③ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.



Eurovent certified values

TECHNICAL CHARACTERISTICS (EN-14511-2018)

| IPJ series | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|--|--|--|--------|--------|---------|--------|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Cooling capacities | Cooling capacity ① (kW) | 22,51 | 28,04 | 33,83 | 37,32 | 41,97 | 44,42 | 53,71 | 58,34 | 60,95 | 69,04 | 73,04 | 81,58 | 91,20 |
| | Power input ③ (kW) | 7,04 | 9,03 | 10,30 | 11,84 | 13,47 | 14,33 | 16,62 | 18,47 | 19,47 | 21,36 | 23,00 | 25,89 | 29,08 |
| | EER performance | 3,20 | 3,11 | 3,28 | 3,15 | 3,12 | 3,10 | 3,23 | 3,16 | 3,13 | 3,23 | 3,18 | 3,15 | 3,14 |
| | SEER | 4,91 | 4,89 | 4,60 | 4,46 | 4,35 | 4,40 | 4,83 | 4,85 | 4,90 | 4,66 | 4,57 | 4,47 | 4,47 |
| | ηs | 193% | 193% | 181% | 175% | 171% | 173% | 190% | 191% | 193% | 183% | 180% | 176% | 176% |
| Heating capacities | Heating capacity ② (kW) | 21,99 | 27,86 | 33,21 | 36,79 | 42,03 | 44,78 | 50,96 | 56,07 | 58,86 | 68,01 | 72,12 | 80,77 | 90,10 |
| | Power input ③ (kW) | 5,80 | 7,96 | 9,06 | 10,17 | 11,95 | 12,90 | 14,38 | 15,95 | 16,82 | 18,90 | 20,19 | 22,82 | 25,79 |
| | COP performance | 3,79 | 3,50 | 3,67 | 3,62 | 3,52 | 3,47 | 3,54 | 3,51 | 3,50 | 3,60 | 3,57 | 3,54 | 3,49 |
| | SCOP | 3,48 | 3,45 | 3,45 | 3,45 | 3,47 | 3,45 | 3,60 | 3,68 | 3,50 | 3,43 | 3,59 | 3,56 | 3,58 |
| | ηs | 136% | 135% | 135% | 135% | 136% | 135% | 141% | 144% | 137% | 134% | 140% | 140% | 140% |
| Outdoor circuit fan | Nominal air flow (m³/h) | 9.000 | 14.500 | 17.000 | 17.000 | 17.000 | 17.750 | 31.000 | 31.000 | 31.000 | 33.000 | 33.000 | 34.500 | 35.000 |
| | Available static pressure (mm.w.c) | 5 | | | | | | | | | | | | |
| | Type | Electronic axial fan | | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 630 | | | 1 / 800 | | | | 2 / 800 | | | | | |
| | Ingress protection rating | IP54 | | | IP55 | | | | IP55 | | | | | |
| | Motor output (kW) | 0,9 | | | 2,6 | | | | 2 x 2,6 | | | | | |
| | Maximum speed (r.p.m.) | 1.140 | | | 1.020 | | | | 1.020 | | | | | |
| Maximum absorbed current (A) | 1,6 | | | 3,9 | | | | 7,8 | | | | | | |
| Indoor circuit supply fan | Nominal air flow (m³/h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| | Available static pressure (mm.w.c) | 12 | 12 | 12 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 25 |
| | Type | Electronic plug-fan | | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 500 | | | 1 / 500 | | | | 2 / 500 | | | | 2 / 500 | |
| | Motor output (kW) | 1 x 2,6 | | | 1 x 2,6 | | | | 2 x 2,6 | | | | 2 x 2,6 | |
| | Power input (kW) | 0,59 | 0,96 | 1,58 | 1,85 | 1,93 | 1,93 | 1,93 | 2,08 | 2,08 | 3,53 | 3,53 | 3,29 | 3,61 |
| | Speed (r.p.m.) | 1.700 | | | 1.750 | | | | 1.700 | | | | 1.750 | |
| Maximum absorbed current (A) | 4,0 | | | 4,0 | | | | 8,0 | | | | 8,0 | | |
| Compressor | Type | Scroll | | | | | | | | | | | | |
| | No. compressors / stages / circuits | 2 / 2 / 1 | | | | | | 4 / 4 / 2 | | | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | | | | |
| | Volume of oil (l) | 2,5 | 2,5 | 3,3 | 3,5 | 3,5 | 3,5 | 2,5 + 2,5 | 2,5 + 2,5 | 2,5 + 3,3 | 3,3 + 3,3 | 3,3 + 3,5 | 3,5 + 3,5 | 3,5 + 3,5 |
| Electrical characteristics | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | | | | |
| | Power supply | 3 Wires + Ground + Neutral | | | | | | | | | | | | |
| | Maximum absorbed current (A) | 18,9 | 26,5 | 26,4 | 29,9 | 33,6 | 34,0 | 48,1 | 53,5 | 53,2 | 56,3 | 60,2 | 68,8 | 73,8 |
| Refrigerant | Type | R-410A | | | | | | | | | | | | |
| | Global warming potential (GWP) ④ | 2.088 | | | | | | | | | | | | |
| | Charge (kg) | 8,0 | 8,3 | 11,0 | 11,0 | 11,3 | 11,6 | 2 x 6,3 | 2 x 6,4 | 2 x 6,5 | 2 x 10,0 | 2 x 10,2 | 2 x 10,2 | 2 x 10,3 |
| | Environment impact (tCO2eq) | 16,7 | 17,3 | 23,0 | 23,0 | 23,6 | 24,2 | 26,1 | 26,7 | 27,1 | 41,8 | 42,4 | 42,4 | 42,8 |
| | Additional charge of optional active dehumidification (kg) ⑤ | 4,9 | 4,9 | 4,6 | 4,6 | 4,6 | 4,6 | 11,2 | 11,2 | 11,2 | 11,5 | 11,5 | 11,5 | 11,5 |
| Environment impact of active dehumidification (tCO2eq) | 10,2 | 10,2 | 9,6 | 9,6 | 9,6 | 9,6 | 23,4 | 23,4 | 23,4 | 24,0 | 24,0 | 24,0 | 24,0 | |
| Weight | C0 assembly (kg) | 585 | 610 | 675 | 680 | 685 | 690 | 990 | 995 | 1.040 | 1.155 | 1.160 | 1.165 | 1.170 |

- ① Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.
 ② Heating capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.
 ③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.
 ④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.
 ⑤ In two-circuit models, additional charge on circuit 2.



Eurovent certified values

OVERALL DIMENSIONS OF THE DIFFERENT ASSEMBLIES

Cross flow

| Vectios™ PJ | C0, CS and CF assemblies | | | CK, CA, CP and CR assemblies | | | CW assembly | | | CQ and CT assemblies | | |
|-------------|--------------------------|------------|-------------|------------------------------|------------|-------------|-------------|------------|-------------|----------------------|------------|-------------|
| | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) |
| 0090 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.565 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0120 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.565 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0140 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.565 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0160 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.565 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0180 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.565 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0190 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.565 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0200 | 3.000 | 2.200 | 1.230 | 3.000 | 2.205 | 1.905 | 3.000 | 3.015 | 1.905 | 3.000 | 2.210 | 1.995 |
| 0220 | 3.000 | 2.200 | 1.230 | 3.000 | 2.205 | 1.905 | 3.000 | 3.015 | 1.905 | 3.000 | 2.210 | 1.995 |
| 0240 | 3.000 | 2.200 | 1.230 | 3.000 | 2.205 | 1.905 | 3.000 | 3.015 | 1.905 | 3.000 | 2.210 | 1.995 |
| 0280 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |
| 0320 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |
| 0360 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |
| 0380 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |

Tunnel flow

| Vectios™ PJ | T0 and TS assemblies | | | TP assembly | | | TW assembly | | |
|-------------|----------------------|------------|-------------|-------------|------------|-------------|-------------|------------|-------------|
| | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) |
| 0200 | 3.000 | 2.200 | 1.230 | 3.865 | 2.200 | 1.230 | 4.675 | 2.210 | 1.905 |
| 0220 | 3.000 | 2.200 | 1.230 | 3.865 | 2.200 | 1.230 | 4.675 | 2.210 | 1.905 |
| 0240 | 3.000 | 2.200 | 1.230 | 3.865 | 2.200 | 1.230 | 4.675 | 2.210 | 1.905 |
| 0280 | 3.650 | 2.200 | 1.230 | 3.655 | 2.210 | 1.905 | 4.465 | 2.210 | 1.905 |
| 0320 | 3.650 | 2.200 | 1.230 | 3.655 | 2.210 | 1.905 | 4.465 | 2.210 | 1.905 |
| 0360 | 3.650 | 2.200 | 1.230 | 3.655 | 2.210 | 1.905 | 4.465 | 2.210 | 1.905 |
| 0380 | 3.650 | 2.200 | 1.230 | 3.655 | 2.210 | 1.905 | 4.465 | 2.210 | 1.905 |



Cross flow (all models)



Tunnel flow (models 0200 to 0380)

OPERATION LIMITS

| Inlet air conditions | | Cooling | | Heating |
|----------------------|---------|----------|------|------------|
| | | RPJ | IPJ | IPJ |
| Indoor coil | Minimum | 9,7°C WB | | 10°C |
| | Maximum | 24°C WB | | 27°C |
| Outdoor coil | Minimum | 12°C ① | | -15°C WB ② |
| | Maximum | 52°C | 48°C | 15°C WB |

- ① With a condensation pressure control operating down to -10°C.
 ② When the outdoor temperature is usually below 5°C WB, the installation of a support element is recommended.

SOUND LEVELS dB(A)

Sound power level (LW)

| Vectios™ PJ | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 63 Hz | 55,2 | 60,8 | 61,4 | 60,9 | 61,3 | 63,1 | 64,3 | 64,5 | 64,9 | 64,8 | 64,6 | 64,6 | 65,3 |
| 125 Hz | 64,2 | 66,7 | 68,9 | 66,1 | 70,0 | 71,1 | 69,6 | 69,9 | 71,5 | 72,4 | 71,3 | 71,4 | 74,0 |
| 250 Hz | 71,8 | 74,8 | 76,1 | 72,9 | 76,3 | 76,4 | 77,0 | 77,7 | 78,9 | 79,7 | 78,4 | 77,9 | 79,3 |
| 500 Hz | 70,2 | 76,7 | 76,4 | 76,8 | 77,1 | 78,3 | 79,5 | 80,1 | 80,4 | 79,9 | 80,1 | 80,2 | 80,9 |
| 1000 Hz | 72,0 | 76,2 | 76,3 | 77,5 | 77,3 | 78,2 | 79,4 | 79,9 | 80,2 | 79,8 | 80,4 | 80,6 | 80,7 |
| 2000 Hz | 69,7 | 73,5 | 74,3 | 75,3 | 74,1 | 75,5 | 77,0 | 77,4 | 77,8 | 77,7 | 78,3 | 78,1 | 77,7 |
| 4000 Hz | 62,6 | 69,2 | 70,3 | 70,6 | 70,4 | 72,2 | 73,1 | 73,4 | 73,7 | 73,8 | 73,9 | 74,2 | 74,4 |
| 8000 Hz | 59,0 | 63,7 | 65,5 | 65,8 | 65,6 | 67,5 | 67,9 | 68,2 | 68,6 | 68,9 | 69,1 | 69,4 | 69,6 |
| Total dB(A) | 77,5 | 82,0 | 82,5 | 82,5 | 83,0 | 84,0 | 85,0 | 85,5 | 86,0 | 86,0 | 86,0 | 86,0 | 86,5 |

Sound pressure level (LP)

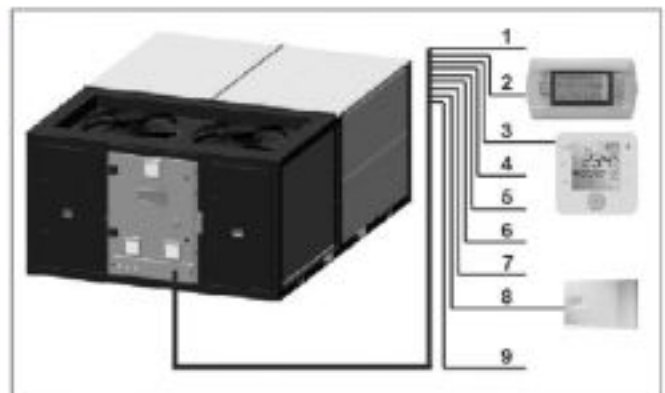
Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| Vectios™ PJ | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A) | 51,0 | 55,5 | 56,0 | 56,0 | 56,5 | 57,5 | 58,3 | 58,8 | 59,3 | 59,3 | 59,1 | 59,1 | 59,6 |

Note: The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

ELECTRICAL CONNECTIONS

| No. | Vectios™ PJ | 0090 to 0380 | |
|-----|--|----------------|---|
| 1 | Main power supply | 400 III (±10%) | 3 wires + ground + neutral |
| 2 | Remote connection of graphic terminal (by default installed on the electrical cabinet) ① | | telephone cable 6 wires standard (RJ12 connector) |
| 3 | Connection of TCO user terminal (optional) ② | | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) |
| 4 | Remote off/on (optional) | | 2 wires |
| 5 | General alarm signal (optional) ③ | | 2 wires |
| 6 | Remote Cooling/Heating (opt.) | | 2 wires |
| 7 | Circulation pump signal for HWC (antifreeze sec.) (opt.) | | 1 wire |
| 8 | Ambient probe | NTC | 2 wires |
| | | RS485 | 5 wires ④ |
| 9 | Air quality probe (optional) | | 3 wires |



- ① In this case, it's possible to install the user terminal on the electrical cabinet.
 ② It's necessary that the terminal uses the same power supply that the control board.
 ③ The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, gas boiler, rotary heat exchanger and on/off signal for external humidifier. With these options, possibility of general alarm upon request.
 ④ Up to four RS485 ambient sensors can be connected in series on the field-bus of the control board.

COOLING CAPACITY (kW)

Outdoor temperature 35°C

| RPJ series | Flow (m ³ /h) | Indoor air temperature | | | | | | | | | | | | | | | | | | | | | | | |
|------------|--------------------------|------------------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|--|--|--|
| | | 15°C / 50% HR | | | 20°C / 50% HR | | | 23°C / 50% HR | | | 25°C / 50% HR | | | 27°C / 50% HR | | | 29°C / 50% HR | | | 31°C / 50% HR | | | | | |
| | | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | | | |
| 0090 | 4.080 | 16,4 | 15,1 | 5,9 | 19,0 | 16,0 | 6,0 | 20,5 | 16,5 | 6,1 | 21,5 | 16,8 | 6,2 | 22,6 | 17,2 | 6,2 | 23,7 | 17,4 | 6,3 | 24,9 | 17,7 | 6,4 | | | |
| | 5.100 | 17,0 | 16,8 | 5,9 | 19,6 | 17,9 | 6,1 | 21,1 | 18,5 | 6,2 | 22,2 | 19,0 | 6,2 | 23,3 | 19,3 | 6,3 | 24,5 | 19,7 | 6,4 | 25,6 | 20,0 | 6,4 | | | |
| | 6.120 | 17,5 | 18,3 | 5,9 | 20,1 | 19,6 | 6,1 | 21,6 | 20,4 | 6,2 | 22,7 | 20,9 | 6,3 | 23,8 | 21,4 | 6,3 | 25,0 | 21,8 | 6,4 | 26,1 | 22,3 | 6,5 | | | |
| 0120 | 5.200 | 21,0 | 19,3 | 7,3 | 24,2 | 20,4 | 7,4 | 26,1 | 21,1 | 7,5 | 27,4 | 21,5 | 7,6 | 28,7 | 21,9 | 7,7 | 30,1 | 22,2 | 7,7 | 31,6 | 22,6 | 7,8 | | | |
| | 6.500 | 21,7 | 21,5 | 7,3 | 25,0 | 22,8 | 7,5 | 27,0 | 23,6 | 7,6 | 28,3 | 24,1 | 7,6 | 29,6 | 24,6 | 7,7 | 31,1 | 25,1 | 7,8 | 32,5 | 25,5 | 7,8 | | | |
| | 7.800 | 22,4 | 23,3 | 7,3 | 25,7 | 24,9 | 7,5 | 27,6 | 25,9 | 7,6 | 28,9 | 26,6 | 7,7 | 30,3 | 27,2 | 7,7 | 31,7 | 27,7 | 7,8 | 33,1 | 28,3 | 7,9 | | | |
| 0140 | 6.800 | 25,2 | 23,8 | 8,3 | 29,3 | 25,3 | 8,3 | 31,7 | 26,2 | 8,3 | 33,3 | 26,8 | 8,3 | 35,1 | 27,3 | 8,3 | 36,9 | 27,8 | 8,3 | 38,8 | 28,3 | 8,3 | | | |
| | 8.500 | 26,1 | 26,4 | 8,3 | 30,3 | 28,2 | 8,3 | 32,7 | 29,4 | 8,3 | 34,4 | 30,1 | 8,3 | 36,2 | 30,8 | 8,3 | 38,0 | 31,5 | 8,3 | 40,0 | 32,1 | 8,3 | | | |
| | 10.200 | 26,8 | 28,2 | 8,3 | 31,1 | 30,6 | 8,3 | 33,5 | 32,2 | 8,3 | 35,2 | 33,1 | 8,3 | 37,0 | 34,0 | 8,3 | 38,8 | 34,8 | 8,3 | 40,8 | 35,6 | 8,3 | | | |
| 0160 | 7.000 | 28,4 | 25,9 | 9,1 | 32,8 | 27,3 | 9,3 | 35,4 | 28,2 | 9,5 | 37,2 | 28,8 | 9,6 | 39,0 | 29,3 | 9,7 | 41,0 | 29,8 | 9,8 | 42,9 | 30,2 | 9,9 | | | |
| | 8.750 | 29,4 | 28,7 | 9,2 | 33,9 | 30,5 | 9,4 | 36,5 | 31,6 | 9,5 | 38,3 | 32,3 | 9,6 | 40,2 | 33,0 | 9,7 | 42,2 | 33,6 | 9,8 | 44,2 | 34,2 | 10,0 | | | |
| | 10.500 | 30,3 | 31,0 | 9,2 | 34,8 | 33,2 | 9,4 | 37,4 | 34,6 | 9,6 | 39,2 | 35,5 | 9,7 | 41,1 | 36,3 | 9,8 | 43,1 | 37,1 | 9,9 | 45,1 | 37,8 | 10,0 | | | |
| 0180 | 7.200 | 31,6 | 28,1 | 10,3 | 36,6 | 29,6 | 10,7 | 39,4 | 30,5 | 10,9 | 41,4 | 31,1 | 11,1 | 43,5 | 31,6 | 11,2 | 45,6 | 32,0 | 11,4 | 48,0 | 32,5 | 11,6 | | | |
| | 9.000 | 32,8 | 31,0 | 10,4 | 37,8 | 32,8 | 10,8 | 40,8 | 34,0 | 11,0 | 42,8 | 34,7 | 11,2 | 44,9 | 35,4 | 11,4 | 47,1 | 36,0 | 11,5 | 49,5 | 36,6 | 11,7 | | | |
| | 10.800 | 33,7 | 33,7 | 10,5 | 38,8 | 35,9 | 10,9 | 41,8 | 37,3 | 11,1 | 43,8 | 38,0 | 11,3 | 46,0 | 38,9 | 11,4 | 48,3 | 39,7 | 11,6 | 50,6 | 40,4 | 11,8 | | | |
| 0190 | 7.200 | 32,9 | 28,7 | 11,0 | 38,0 | 30,1 | 11,3 | 41,0 | 31,0 | 11,5 | 43,0 | 31,5 | 11,7 | 45,1 | 32,0 | 11,8 | 47,3 | 32,5 | 11,9 | 49,6 | 32,9 | 12,1 | | | |
| | 9.000 | 34,3 | 31,7 | 11,1 | 39,4 | 33,4 | 11,4 | 42,4 | 34,5 | 11,6 | 44,5 | 35,1 | 11,8 | 46,6 | 35,8 | 11,9 | 48,9 | 36,4 | 12,0 | 51,2 | 36,9 | 12,2 | | | |
| | 10.800 | 35,2 | 34,4 | 11,2 | 40,5 | 36,4 | 11,5 | 43,5 | 37,7 | 11,7 | 45,6 | 38,5 | 11,8 | 47,8 | 39,3 | 12,0 | 50,0 | 40,0 | 12,1 | 52,4 | 40,7 | 12,2 | | | |
| 0200 | 9.600 | 35,7 | 33,1 | 11,3 | 41,4 | 35,1 | 11,6 | 44,6 | 36,4 | 11,8 | 46,9 | 37,2 | 11,9 | 49,3 | 38,0 | 12,0 | 51,8 | 38,7 | 12,1 | 54,4 | 39,4 | 12,3 | | | |
| | 12.000 | 37,0 | 36,3 | 11,4 | 42,8 | 39,0 | 11,7 | 46,1 | 40,7 | 11,9 | 48,5 | 41,7 | 12,0 | 51,0 | 42,8 | 12,1 | 53,5 | 43,7 | 12,2 | 56,1 | 44,6 | 12,4 | | | |
| | 14.400 | 38,0 | 39,1 | 11,5 | 43,9 | 42,4 | 11,8 | 47,3 | 44,6 | 11,9 | 49,7 | 45,8 | 12,1 | 52,1 | 47,1 | 12,2 | 54,7 | 48,2 | 12,3 | 57,3 | 49,2 | 12,4 | | | |
| 0220 | 10.000 | 38,8 | 34,9 | 12,6 | 45,0 | 37,0 | 13,0 | 48,5 | 38,3 | 13,2 | 51,0 | 39,1 | 13,4 | 53,6 | 39,9 | 13,6 | 56,3 | 40,7 | 13,7 | 59,1 | 41,3 | 13,9 | | | |
| | 12.500 | 40,4 | 38,7 | 12,7 | 46,7 | 41,2 | 13,1 | 50,3 | 42,9 | 13,4 | 52,9 | 43,9 | 13,5 | 55,5 | 44,8 | 13,7 | 58,2 | 45,7 | 13,9 | 61,1 | 46,5 | 14,1 | | | |
| | 15.000 | 41,5 | 41,7 | 12,8 | 47,9 | 44,8 | 13,2 | 51,6 | 46,9 | 13,4 | 54,1 | 48,0 | 13,6 | 56,8 | 49,2 | 13,8 | 59,6 | 50,4 | 14,0 | 62,5 | 51,5 | 14,2 | | | |
| 0240 | 10.000 | 42,9 | 37,4 | 14,8 | 49,5 | 39,4 | 15,3 | 53,4 | 40,7 | 15,6 | 56,1 | 41,5 | 15,8 | 58,9 | 42,2 | 16,0 | 61,9 | 42,9 | 16,3 | 64,9 | 43,5 | 16,5 | | | |
| | 12.500 | 44,8 | 41,2 | 14,9 | 51,6 | 43,7 | 15,4 | 55,6 | 45,3 | 15,8 | 58,3 | 46,2 | 16,0 | 61,2 | 47,2 | 16,2 | 64,2 | 48,0 | 16,4 | 67,3 | 48,9 | 16,7 | | | |
| | 15.000 | 46,1 | 44,7 | 15,0 | 53,1 | 47,7 | 15,6 | 57,0 | 49,5 | 15,9 | 59,9 | 50,8 | 16,1 | 62,9 | 51,9 | 16,3 | 65,9 | 52,9 | 16,6 | 69,0 | 54,0 | 16,8 | | | |
| 0280 | 12.400 | 50,3 | 46,4 | 15,4 | 58,1 | 49,0 | 15,9 | 62,6 | 50,6 | 16,2 | 65,8 | 51,7 | 16,3 | 69,0 | 52,6 | 16,5 | 72,4 | 53,5 | 16,8 | 76,0 | 54,4 | 17,0 | | | |
| | 15.500 | 52,0 | 51,3 | 15,5 | 60,0 | 54,5 | 16,0 | 64,6 | 56,6 | 16,3 | 67,9 | 57,9 | 16,5 | 71,1 | 59,0 | 16,7 | 74,6 | 60,2 | 16,9 | 78,2 | 61,3 | 17,1 | | | |
| | 18.600 | 53,6 | 55,5 | 15,6 | 61,5 | 59,5 | 16,1 | 66,1 | 62,1 | 16,4 | 69,3 | 63,6 | 16,6 | 72,6 | 65,1 | 16,8 | 76,1 | 66,6 | 17,0 | 79,8 | 67,7 | 17,2 | | | |
| 0320 | 12.400 | 53,2 | 47,9 | 16,7 | 61,3 | 50,4 | 17,2 | 66,0 | 52,1 | 17,5 | 69,3 | 53,0 | 17,7 | 72,7 | 53,9 | 17,9 | 76,4 | 54,8 | 18,2 | 80,2 | 55,6 | 18,4 | | | |
| | 15.500 | 55,1 | 52,8 | 16,8 | 63,5 | 56,0 | 17,4 | 68,3 | 58,0 | 17,7 | 71,7 | 59,3 | 17,9 | 75,2 | 60,4 | 18,1 | 78,9 | 61,6 | 18,3 | 82,6 | 62,6 | 18,6 | | | |
| | 18.600 | 56,5 | 57,2 | 16,9 | 65,0 | 61,1 | 17,4 | 69,9 | 63,5 | 17,8 | 73,3 | 65,1 | 18,0 | 76,9 | 66,6 | 18,2 | 80,6 | 68,0 | 18,5 | 84,6 | 69,4 | 18,7 | | | |
| 0360 | 12.800 | 59,1 | 52,0 | 19,2 | 68,0 | 54,5 | 19,9 | 73,1 | 56,1 | 20,3 | 76,7 | 57,1 | 20,6 | 80,5 | 58,0 | 20,9 | 84,4 | 58,9 | 21,2 | 88,4 | 59,6 | 21,5 | | | |
| | 16.000 | 61,5 | 57,3 | 19,4 | 70,6 | 60,4 | 20,1 | 75,7 | 62,4 | 20,5 | 79,4 | 63,7 | 20,8 | 83,2 | 64,8 | 21,1 | 87,2 | 65,9 | 21,4 | 91,3 | 66,9 | 21,8 | | | |
| | 19.200 | 63,1 | 62,0 | 19,5 | 72,3 | 65,8 | 20,2 | 77,7 | 68,3 | 20,7 | 81,4 | 69,7 | 21,0 | 85,2 | 71,2 | 21,2 | 89,2 | 72,5 | 21,6 | 93,4 | 73,8 | 21,9 | | | |
| 0380 | 12.800 | 65,7 | 56,0 | 22,7 | 75,5 | 58,4 | 23,5 | 81,1 | 59,9 | 24,0 | 85,0 | 60,9 | 24,4 | 89,2 | 61,8 | 24,7 | 93,5 | 62,6 | 25,0 | 98,1 | 63,3 | 25,4 | | | |
| | 16.000 | 68,3 | 61,3 | 22,9 | 78,5 | 64,4 | 23,8 | 84,4 | 66,4 | 24,3 | 88,3 | 67,6 | 24,6 | 92,7 | 68,7 | 24,9 | 97,0 | 69,7 | 25,3 | 101,6 | 70,7 | 25,7 | | | |
| | 19.200 | 70,6 | 66,5 | 23,1 | 80,8 | 70,1 | 24,0 | 86,7 | 72,4 | 24,4 | 90,7 | 73,8 | 24,8 | 95,0 | 75,2 | 25,2 | 99,4 | 76,5 | 25,5 | 104,1 | 77,7 | 26,0 | | | |

Pft: Total gross cooling capacity in kW

Pfs: Sensitive cooling capacity in kW

Pa: Compressor power input in kW

Correction coefficients: variation of outdoor temperature and humidity

| Outdoor temp. | 20°C | 25°C | 30°C | 35°C | 40°C | 45°C | 48°C | 50°C | 52°C | Relative humidity | 40% | 50% | 60% | 70% | 80% | 90% | Correction |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------|----------------------------|
| Coefficient K1 | 1,161 | 1,111 | 1,045 | 1,000 | 0,939 | 0,874 | 0,845 | 0,815 | 0,797 | Coefficient K4 | 0,962 | 1,000 | 1,045 | 1,089 | 1,133 | 1,176 | PFT = Pft x K1 x K4 |
| Coefficient K2 | 1,085 | 1,058 | 1,030 | 1,000 | 0,968 | 0,934 | 0,910 | 0,909 | 0,894 | Coefficient K5 | 1,108 | 1,000 | 0,929 | 0,760 | 0,684 | 0,532 | PFS = Pfs x K2 x K5 |
| Coefficient K3 | 0,711 | 0,797 | 0,893 | 1,000 | 1,119 | 1,249 | 1,332 | 1,393 | 1,415 | Coefficient K6 | 0,992 | 1,000 | 1,010 | 1,020 | 1,031 | 1,040 | PA = Pa x K3 x K6 |

COOLING CAPACITY (kW)

Outdoor temperature 35°C

| IPJ series | Flow (m³/h) | Indoor air temperature | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-------------|------------------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|---------------|------|------|--|--|--|
| | | 15°C / 50% HR | | | 20°C / 50% HR | | | 23°C / 50% HR | | | 25°C / 50% HR | | | 27°C / 50% HR | | | 29°C / 50% HR | | | 31°C / 50% HR | | | | | |
| | | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | | | |
| 0090 | 4.080 | 15,9 | 14,7 | 5,7 | 18,5 | 15,8 | 5,9 | 20,1 | 16,5 | 6,0 | 21,1 | 16,9 | 6,1 | 22,2 | 17,3 | 6,1 | 23,3 | 17,7 | 6,2 | 24,4 | 18,0 | 6,3 | | | |
| | 5.100 | 16,6 | 16,4 | 5,8 | 19,2 | 17,7 | 5,9 | 20,7 | 18,6 | 6,0 | 21,8 | 19,1 | 6,1 | 22,9 | 19,6 | 6,2 | 24,0 | 20,0 | 6,2 | 25,1 | 20,5 | 6,3 | | | |
| | 6.120 | 17,0 | 17,7 | 5,8 | 19,7 | 19,4 | 6,0 | 21,2 | 20,4 | 6,1 | 22,2 | 21,0 | 6,1 | 23,4 | 21,7 | 6,2 | 24,5 | 22,2 | 6,3 | 25,5 | 22,8 | 6,3 | | | |
| 0120 | 5.200 | 20,5 | 19,5 | 7,0 | 23,6 | 20,4 | 7,2 | 25,4 | 21,0 | 7,2 | 26,6 | 21,4 | 7,3 | 27,9 | 21,7 | 7,4 | 29,2 | 22,0 | 7,4 | 30,5 | 22,1 | 7,5 | | | |
| | 6.500 | 21,3 | 21,7 | 7,1 | 24,4 | 22,8 | 7,2 | 26,2 | 23,5 | 7,3 | 27,4 | 24,0 | 7,3 | 28,7 | 24,4 | 7,4 | 30,0 | 24,8 | 7,4 | 31,3 | 25,0 | 7,5 | | | |
| | 7.800 | 21,8 | 23,3 | 7,1 | 24,9 | 24,8 | 7,2 | 26,7 | 25,9 | 7,3 | 28,0 | 26,4 | 7,4 | 29,3 | 27,0 | 7,4 | 30,6 | 27,5 | 7,5 | 31,9 | 27,8 | 7,5 | | | |
| 0140 | 6.800 | 24,4 | 24,0 | 7,7 | 28,4 | 25,4 | 7,8 | 30,7 | 26,2 | 7,9 | 32,3 | 26,8 | 7,9 | 34,0 | 27,3 | 7,9 | 35,7 | 27,7 | 8,0 | 37,5 | 28,0 | 8,0 | | | |
| | 8.500 | 25,4 | 26,6 | 7,8 | 29,4 | 28,3 | 7,9 | 31,7 | 29,5 | 7,9 | 33,3 | 30,1 | 8,0 | 35,0 | 30,8 | 8,0 | 36,8 | 31,4 | 8,0 | 38,5 | 31,7 | 8,1 | | | |
| | 10.200 | 26,3 | 27,7 | 7,8 | 30,2 | 30,3 | 7,9 | 32,5 | 31,8 | 7,9 | 34,1 | 33,0 | 8,0 | 35,8 | 33,9 | 8,0 | 37,6 | 34,7 | 8,1 | 39,3 | 35,2 | 8,1 | | | |
| 0160 | 7.000 | 27,5 | 26,1 | 8,9 | 31,7 | 27,3 | 9,1 | 34,1 | 28,0 | 9,2 | 35,7 | 28,5 | 9,3 | 37,5 | 29,0 | 9,4 | 39,3 | 29,3 | 9,5 | 41,1 | 29,6 | 9,6 | | | |
| | 8.750 | 28,4 | 28,7 | 9,0 | 32,7 | 30,4 | 9,2 | 35,1 | 31,4 | 9,3 | 36,8 | 32,0 | 9,4 | 38,6 | 32,6 | 9,4 | 40,4 | 33,2 | 9,5 | 42,3 | 33,5 | 9,6 | | | |
| | 10.500 | 29,2 | 30,8 | 9,0 | 33,5 | 32,9 | 9,2 | 36,0 | 34,4 | 9,3 | 37,7 | 35,1 | 9,4 | 39,5 | 36,0 | 9,5 | 41,3 | 36,6 | 9,6 | 43,1 | 37,1 | 9,7 | | | |
| 0180 | 7.200 | 30,8 | 28,3 | 9,8 | 35,5 | 29,6 | 10,2 | 38,2 | 30,4 | 10,3 | 40,1 | 30,9 | 10,4 | 42,0 | 31,4 | 10,6 | 44,0 | 31,7 | 10,7 | 46,1 | 32,0 | 10,9 | | | |
| | 9.000 | 31,9 | 31,3 | 9,9 | 36,7 | 32,9 | 10,2 | 39,4 | 33,9 | 10,4 | 41,4 | 34,6 | 10,5 | 43,4 | 35,2 | 10,7 | 45,4 | 35,7 | 10,8 | 47,5 | 36,0 | 11,0 | | | |
| | 10.800 | 32,7 | 33,8 | 9,9 | 37,6 | 35,9 | 10,3 | 40,4 | 37,2 | 10,5 | 42,3 | 38,0 | 10,6 | 44,4 | 38,8 | 10,8 | 46,4 | 39,4 | 10,9 | 48,5 | 39,8 | 11,1 | | | |
| 0190 | 7.200 | 32,7 | 29,4 | 10,5 | 37,6 | 30,6 | 10,8 | 40,4 | 31,4 | 11,0 | 42,3 | 31,8 | 11,1 | 44,4 | 32,3 | 11,3 | 46,5 | 32,6 | 11,4 | 48,5 | 32,8 | 11,5 | | | |
| | 9.000 | 33,9 | 32,4 | 10,6 | 38,9 | 34,0 | 10,9 | 41,7 | 35,0 | 11,1 | 43,7 | 35,6 | 11,2 | 45,8 | 36,1 | 11,3 | 47,9 | 36,6 | 11,5 | 50,0 | 36,9 | 11,6 | | | |
| | 10.800 | 34,9 | 35,1 | 10,7 | 39,9 | 37,0 | 11,0 | 42,8 | 38,3 | 11,2 | 44,8 | 39,0 | 11,3 | 46,9 | 39,7 | 11,4 | 49,0 | 40,4 | 11,5 | 51,1 | 40,7 | 11,7 | | | |
| 0200 | 9.600 | 38,7 | 37,0 | 12,8 | 44,7 | 38,8 | 13,0 | 48,2 | 40,0 | 13,1 | 50,5 | 40,7 | 13,2 | 53,0 | 41,3 | 13,3 | 55,6 | 41,9 | 13,4 | 58,1 | 42,2 | 13,5 | | | |
| | 12.000 | 40,1 | 40,9 | 12,8 | 46,2 | 43,2 | 13,1 | 49,7 | 44,8 | 13,2 | 52,1 | 45,6 | 13,3 | 54,6 | 46,5 | 13,4 | 57,2 | 47,2 | 13,5 | 59,7 | 47,6 | 13,6 | | | |
| | 14.400 | 41,5 | 43,4 | 12,9 | 47,4 | 46,7 | 13,1 | 50,8 | 48,9 | 13,2 | 53,3 | 50,2 | 13,3 | 55,8 | 51,3 | 13,4 | 58,3 | 52,3 | 13,5 | 60,7 | 52,9 | 13,7 | | | |
| 0220 | 10.000 | 42,4 | 39,7 | 14,4 | 48,7 | 41,4 | 14,7 | 52,4 | 42,6 | 14,8 | 55,0 | 43,3 | 14,9 | 57,6 | 44,0 | 15,0 | 60,3 | 44,5 | 15,1 | 63,0 | 44,8 | 15,3 | | | |
| | 12.500 | 43,9 | 43,9 | 14,5 | 50,3 | 46,2 | 14,7 | 54,1 | 47,7 | 14,9 | 56,7 | 48,6 | 15,0 | 59,3 | 49,4 | 15,1 | 62,1 | 50,1 | 15,2 | 64,8 | 50,6 | 15,3 | | | |
| | 15.000 | 45,1 | 47,7 | 14,5 | 51,5 | 50,5 | 14,8 | 55,3 | 52,4 | 14,9 | 57,9 | 53,5 | 15,1 | 60,6 | 54,4 | 15,2 | 63,4 | 55,5 | 15,3 | 66,1 | 56,1 | 15,4 | | | |
| 0240 | 10.000 | 43,9 | 40,6 | 15,5 | 50,6 | 42,4 | 15,7 | 54,5 | 43,7 | 15,9 | 57,2 | 44,3 | 16,0 | 60,0 | 45,0 | 16,1 | 62,9 | 45,6 | 16,1 | 65,8 | 45,9 | 16,2 | | | |
| | 12.500 | 45,6 | 45,0 | 15,6 | 52,4 | 47,3 | 15,8 | 56,4 | 48,8 | 15,9 | 59,1 | 49,6 | 16,0 | 61,9 | 50,5 | 16,1 | 64,9 | 51,3 | 16,2 | 67,8 | 51,7 | 16,3 | | | |
| | 15.000 | 46,8 | 48,8 | 15,6 | 53,7 | 51,6 | 15,9 | 57,7 | 53,5 | 16,0 | 60,5 | 54,6 | 16,1 | 63,4 | 55,6 | 16,2 | 66,3 | 56,6 | 16,3 | 69,2 | 57,3 | 16,3 | | | |
| 0280 | 12.400 | 48,7 | 45,4 | 15,8 | 57,2 | 48,7 | 16,0 | 62,0 | 50,9 | 16,1 | 65,4 | 52,2 | 16,1 | 68,9 | 53,4 | 16,2 | 72,6 | 54,7 | 16,3 | 76,5 | 55,8 | 16,4 | | | |
| | 15.500 | 50,4 | 50,1 | 15,9 | 59,0 | 54,3 | 16,1 | 64,0 | 57,0 | 16,1 | 67,5 | 58,7 | 16,2 | 71,1 | 60,2 | 16,3 | 74,9 | 61,8 | 16,4 | 78,8 | 63,2 | 16,5 | | | |
| | 18.600 | 51,9 | 53,6 | 16,0 | 60,6 | 58,9 | 16,1 | 65,6 | 62,5 | 16,2 | 69,1 | 64,5 | 16,3 | 72,7 | 66,5 | 16,4 | 76,5 | 68,3 | 16,5 | 80,4 | 70,1 | 16,5 | | | |
| 0320 | 12.400 | 51,9 | 47,2 | 17,3 | 60,6 | 50,5 | 17,5 | 65,6 | 52,7 | 17,7 | 69,1 | 54,0 | 17,7 | 72,8 | 55,2 | 17,9 | 76,6 | 56,4 | 18,0 | 80,6 | 57,5 | 18,1 | | | |
| | 15.500 | 53,8 | 52,1 | 17,4 | 62,7 | 56,3 | 17,6 | 67,8 | 58,9 | 17,7 | 71,4 | 60,5 | 17,8 | 75,1 | 62,0 | 17,9 | 79,0 | 63,5 | 18,0 | 83,0 | 64,9 | 18,1 | | | |
| | 18.600 | 55,4 | 56,2 | 17,4 | 64,3 | 61,3 | 17,6 | 69,5 | 64,6 | 17,8 | 73,1 | 66,5 | 17,9 | 76,8 | 68,4 | 18,0 | 80,7 | 70,1 | 18,1 | 84,8 | 71,9 | 18,2 | | | |
| 0360 | 12.800 | 59,0 | 53,5 | 19,1 | 68,1 | 55,9 | 19,6 | 73,3 | 57,4 | 19,9 | 77,0 | 58,3 | 20,1 | 80,8 | 59,1 | 20,3 | 84,7 | 59,9 | 20,6 | 88,7 | 60,3 | 20,8 | | | |
| | 16.000 | 61,3 | 59,1 | 19,2 | 70,6 | 62,1 | 19,7 | 75,9 | 64,0 | 20,0 | 79,6 | 65,2 | 20,3 | 83,5 | 66,2 | 20,5 | 87,5 | 67,2 | 20,8 | 91,5 | 67,8 | 21,0 | | | |
| | 19.200 | 63,0 | 64,0 | 19,3 | 72,4 | 67,7 | 19,8 | 77,8 | 70,1 | 20,1 | 81,6 | 71,5 | 20,4 | 85,5 | 72,8 | 20,6 | 89,6 | 74,1 | 20,9 | 93,6 | 74,9 | 21,1 | | | |
| 0380 | 12.800 | 64,8 | 55,4 | 22,0 | 75,2 | 58,6 | 22,6 | 81,3 | 60,7 | 23,0 | 85,5 | 62,0 | 23,3 | 89,8 | 63,1 | 23,5 | 94,3 | 64,3 | 23,8 | 99,0 | 65,3 | 24,1 | | | |
| | 16.000 | 67,6 | 60,8 | 22,1 | 78,2 | 64,8 | 22,8 | 84,4 | 67,5 | 23,2 | 88,6 | 69,0 | 23,4 | 93,0 | 70,5 | 23,7 | 97,6 | 71,8 | 24,0 | 102,3 | 73,2 | 24,3 | | | |
| | 19.200 | 69,7 | 65,9 | 22,3 | 80,4 | 70,6 | 22,9 | 86,7 | 73,7 | 23,3 | 91,0 | 75,5 | 23,6 | 95,4 | 77,2 | 23,9 | 100,0 | 78,9 | 24,2 | 104,7 | 80,6 | 24,5 | | | |

Pft: Total gross cooling capacity in kW
Pfs: Sensitive cooling capacity in kW
Pa: Compressor power input in kW

Correction coefficients: variation of outdoor temperature and humidity

| Outdoor temp. | 20°C | 25°C | 30°C | 35°C | 40°C | 45°C | 48°C | Relative humidity | 40% | 50% | 60% | 70% | 80% | 90% | Correction |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------|---------------------|
| Coefficient K1 | 1,161 | 1,111 | 1,045 | 1,000 | 0,939 | 0,874 | 0,845 | Coefficient K4 | 0,962 | 1,000 | 1,045 | 1,089 | 1,133 | 1,176 | PFT = Pft x K1 x K4 |
| Coefficient K2 | 1,085 | 1,058 | 1,030 | 1,000 | 0,968 | 0,934 | 0,910 | Coefficient K5 | 1,108 | 1,000 | 0,929 | 0,760 | 0,684 | 0,532 | PFS = Pfs x K2 x K5 |
| Coefficient K3 | 0,711 | 0,797 | 0,893 | 1,000 | 1,119 | 1,249 | 1,332 | Coefficient K6 | 0,992 | 1,000 | 1,010 | 1,020 | 1,031 | 1,040 | PA = Pa x K3 x K6 |

HEATING CAPACITY (kW)

Indoor temperature 20°C

| IPJ series | Flow (m³/h) | Outdoor air temperature | | | | | | | | | | | | | | | | | |
|------------|-------------|-------------------------|------|----------|------|---------|------|---------|------|--------|------|--------|------|--------|------|---------|------|---------|------|
| | | -15°C WB | | -10°C WB | | -5°C WB | | -3°C WB | | 0°C WB | | 3°C WB | | 6°C WB | | 10°C WB | | 15°C WB | |
| | | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa |
| 0090 | 4.080 | 11,6 | 4,3 | 13,4 | 4,5 | 15,7 | 4,6 | 16,6 | 4,7 | 18,2 | 4,8 | 19,7 | 4,9 | 21,3 | 5,1 | 23,6 | 5,3 | 26,7 | 5,6 |
| | 5.100 | 12,0 | 4,2 | 13,7 | 4,3 | 15,8 | 4,4 | 16,9 | 4,5 | 18,4 | 4,5 | 19,9 | 4,6 | 21,6 | 4,7 | 23,9 | 4,9 | 27,2 | 5,1 |
| | 6.120 | 12,1 | 4,0 | 13,8 | 4,2 | 15,9 | 4,2 | 17,1 | 4,3 | 18,6 | 4,4 | 20,1 | 4,4 | 21,9 | 4,5 | 24,1 | 4,7 | 27,6 | 4,8 |
| 0120 | 5.200 | 14,5 | 5,4 | 16,9 | 5,6 | 19,4 | 5,8 | 21,2 | 6,0 | 23,0 | 6,1 | 24,8 | 6,3 | 26,9 | 6,5 | 29,5 | 6,7 | 33,2 | 7,1 |
| | 6.500 | 14,6 | 4,1 | 16,9 | 5,4 | 19,5 | 5,5 | 21,4 | 5,6 | 23,3 | 5,8 | 25,1 | 5,9 | 27,2 | 6,0 | 30,0 | 6,2 | 33,9 | 6,5 |
| | 7.800 | 14,7 | 5,1 | 17,0 | 5,2 | 19,6 | 5,3 | 21,4 | 5,4 | 23,4 | 5,5 | 25,3 | 5,6 | 27,5 | 5,7 | 30,2 | 5,9 | 34,3 | 6,1 |
| 0140 | 6.800 | 18,4 | 6,4 | 20,6 | 6,6 | 23,5 | 6,7 | 24,8 | 6,9 | 27,0 | 7,0 | 29,2 | 7,1 | 31,6 | 7,3 | 34,7 | 7,4 | 39,3 | 7,7 |
| | 8.500 | 18,5 | 6,3 | 20,8 | 6,3 | 23,6 | 6,5 | 25,0 | 6,5 | 27,3 | 6,6 | 29,5 | 6,7 | 32,0 | 6,9 | 35,2 | 7,0 | 40,0 | 7,2 |
| | 10.200 | 18,7 | 6,1 | 21,0 | 6,1 | 23,8 | 6,2 | 25,2 | 6,3 | 27,5 | 6,4 | 29,7 | 6,5 | 32,3 | 6,6 | 35,5 | 6,7 | 40,5 | 6,8 |
| 0160 | 7.000 | 19,8 | 7,0 | 22,7 | 7,2 | 26,3 | 7,5 | 27,7 | 7,6 | 30,1 | 7,8 | 32,4 | 8,1 | 35,1 | 8,4 | 38,4 | 8,8 | 43,4 | 9,4 |
| | 8.750 | 19,8 | 6,6 | 22,9 | 6,8 | 26,4 | 7,0 | 27,9 | 7,2 | 30,3 | 7,4 | 32,7 | 7,6 | 35,5 | 7,9 | 39,0 | 8,2 | 44,3 | 8,7 |
| | 10.500 | 20,0 | 6,4 | 23,1 | 6,6 | 26,6 | 6,8 | 28,1 | 6,9 | 30,6 | 7,1 | 33,0 | 7,3 | 35,8 | 7,5 | 39,5 | 7,8 | 44,9 | 8,2 |
| 0180 | 7.200 | 22,6 | 7,8 | 26,2 | 8,2 | 30,0 | 8,6 | 31,7 | 8,8 | 34,4 | 9,1 | 37,0 | 9,6 | 40,1 | 9,9 | 44,0 | 10,4 | 49,6 | 11,2 |
| | 9.000 | 22,7 | 7,4 | 26,3 | 7,7 | 30,3 | 8,1 | 32,0 | 8,2 | 34,8 | 8,5 | 37,5 | 8,9 | 40,6 | 9,2 | 44,7 | 9,6 | 50,6 | 10,3 |
| | 10.800 | 22,8 | 7,1 | 26,4 | 7,4 | 30,4 | 7,7 | 32,2 | 7,9 | 35,0 | 8,1 | 37,9 | 8,4 | 41,0 | 8,7 | 45,2 | 9,1 | 51,3 | 9,7 |
| 0190 | 7.200 | 24,3 | 8,7 | 28,0 | 8,9 | 32,1 | 9,3 | 33,8 | 9,6 | 36,7 | 9,9 | 39,6 | 10,3 | 42,7 | 10,7 | 46,9 | 11,3 | 52,6 | 12,1 |
| | 9.000 | 24,4 | 8,1 | 28,2 | 8,5 | 32,3 | 8,9 | 34,2 | 9,1 | 37,1 | 9,4 | 40,1 | 9,7 | 43,4 | 10,0 | 47,6 | 10,5 | 53,7 | 11,1 |
| | 10.800 | 24,5 | 7,9 | 28,3 | 8,2 | 32,5 | 8,5 | 34,4 | 8,7 | 37,4 | 9,0 | 40,4 | 9,2 | 43,9 | 9,5 | 48,2 | 9,9 | 54,6 | 10,5 |
| 0200 | 9.600 | 26,7 | 9,7 | 30,9 | 10,0 | 36,3 | 10,5 | 38,5 | 10,6 | 42,0 | 10,9 | 45,4 | 11,2 | 49,4 | 11,6 | 54,2 | 12,0 | 61,2 | 12,7 |
| | 12.000 | 26,7 | 9,3 | 31,1 | 9,6 | 36,5 | 9,9 | 38,8 | 10,0 | 42,4 | 10,3 | 45,9 | 10,5 | 50,0 | 10,8 | 55,1 | 11,1 | 62,4 | 11,7 |
| | 14.400 | 26,9 | 8,9 | 31,4 | 9,2 | 36,7 | 9,5 | 39,0 | 9,7 | 42,7 | 9,8 | 46,3 | 10,0 | 50,5 | 10,2 | 55,7 | 10,5 | 63,3 | 11,0 |
| 0220 | 10.000 | 30,1 | 11,0 | 35,1 | 11,4 | 40,5 | 11,9 | 42,8 | 12,1 | 46,5 | 12,5 | 50,2 | 12,8 | 54,3 | 13,2 | 59,5 | 13,7 | 66,9 | 14,5 |
| | 12.500 | 30,3 | 10,5 | 35,3 | 10,8 | 40,8 | 11,2 | 43,2 | 11,4 | 47,0 | 11,7 | 50,7 | 11,9 | 55,1 | 12,3 | 60,5 | 12,6 | 68,3 | 13,3 |
| | 15.000 | 30,3 | 10,1 | 35,4 | 10,4 | 41,0 | 10,8 | 43,4 | 10,9 | 47,3 | 11,1 | 51,1 | 11,4 | 55,6 | 11,6 | 61,2 | 11,9 | 69,3 | 12,4 |
| 0240 | 10.000 | 32,0 | 11,9 | 37,0 | 12,4 | 42,7 | 12,8 | 45,1 | 13,1 | 48,9 | 13,4 | 52,7 | 13,8 | 57,0 | 14,1 | 62,3 | 14,6 | 70,1 | 15,4 |
| | 12.500 | 31,9 | 11,4 | 37,3 | 11,7 | 43,1 | 12,1 | 45,5 | 12,3 | 49,5 | 12,5 | 53,3 | 12,8 | 57,9 | 13,1 | 63,4 | 13,5 | 71,6 | 14,1 |
| | 15.000 | 32,3 | 11,1 | 37,5 | 11,3 | 43,3 | 11,6 | 45,8 | 11,8 | 49,8 | 12,0 | 53,8 | 12,2 | 58,4 | 12,5 | 64,2 | 12,8 | 72,7 | 13,2 |
| 0280 | 12.400 | 35,1 | 13,5 | 41,7 | 13,9 | 48,4 | 14,3 | 51,1 | 14,5 | 55,6 | 14,8 | 60,0 | 15,1 | 65,1 | 15,4 | 71,3 | 15,8 | 80,7 | 16,4 |
| | 15.500 | 35,4 | 13,0 | 42,0 | 13,3 | 48,8 | 13,6 | 51,6 | 13,7 | 56,2 | 14,0 | 60,7 | 14,2 | 66,0 | 14,4 | 72,5 | 14,7 | 82,4 | 15,2 |
| | 18.600 | 35,7 | 12,4 | 42,3 | 12,7 | 49,0 | 13,1 | 51,9 | 13,2 | 56,6 | 13,4 | 61,2 | 13,6 | 66,6 | 13,8 | 73,3 | 14,0 | 83,5 | 14,4 |
| 0320 | 12.400 | 38,9 | 14,2 | 44,8 | 14,6 | 51,6 | 15,2 | 54,5 | 15,5 | 59,1 | 15,9 | 63,7 | 16,4 | 69,1 | 16,9 | 75,7 | 17,5 | 85,4 | 18,5 |
| | 15.500 | 39,2 | 13,6 | 45,1 | 14,0 | 52,1 | 14,4 | 55,0 | 14,6 | 59,8 | 15,0 | 64,6 | 15,3 | 70,1 | 15,7 | 77,0 | 16,3 | 87,3 | 17,0 |
| | 18.600 | 39,5 | 13,0 | 45,4 | 13,3 | 52,3 | 13,9 | 55,3 | 14,0 | 60,2 | 14,3 | 65,1 | 14,6 | 70,8 | 15,0 | 77,9 | 15,4 | 88,5 | 16,1 |
| 0360 | 12.800 | 43,8 | 15,7 | 50,7 | 16,4 | 58,3 | 17,1 | 61,5 | 17,6 | 66,7 | 18,2 | 71,8 | 18,9 | 77,6 | 19,7 | 85,1 | 20,7 | 95,9 | 22,3 |
| | 16.000 | 44,3 | 14,8 | 51,2 | 15,4 | 58,8 | 16,1 | 62,1 | 16,5 | 67,4 | 17,0 | 72,7 | 17,6 | 78,9 | 18,2 | 86,6 | 19,1 | 98,1 | 20,4 |
| | 19.200 | 44,8 | 13,9 | 51,6 | 14,6 | 59,1 | 15,5 | 62,5 | 15,7 | 67,9 | 16,2 | 73,4 | 16,7 | 79,7 | 17,3 | 87,7 | 18,0 | 99,7 | 19,2 |
| 0380 | 12.800 | 49,7 | 17,9 | 57,1 | 18,8 | 65,4 | 19,8 | 68,9 | 20,4 | 74,7 | 21,1 | 80,4 | 21,9 | 86,8 | 22,9 | 95,0 | 24,1 | 106,6 | 26,0 |
| | 16.000 | 49,9 | 17,1 | 57,5 | 17,8 | 66,0 | 18,7 | 69,6 | 19,2 | 75,6 | 19,8 | 81,5 | 20,5 | 88,3 | 21,3 | 96,8 | 22,3 | 109,2 | 23,8 |
| | 19.200 | 50,3 | 16,4 | 57,9 | 17,2 | 66,4 | 18,0 | 70,1 | 18,3 | 76,2 | 18,9 | 82,4 | 19,5 | 89,4 | 20,1 | 98,2 | 21,0 | 111,2 | 22,3 |

Pc: Total gross heating capacity in kW

Pa: Compressor power input in kW

Correction coefficients: variation of indoor temperature

| Indoor temperature | 10°C | 12°C | 14°C | 16°C | 18°C | 20°C | 21°C | 22°C | 23°C | 24°C | 25°C | 26°C | 27°C | Correction |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------------|
| Coefficient K1 | 1,042 | 1,033 | 1,026 | 1,017 | 1,009 | 1,000 | 0,995 | 0,991 | 0,986 | 0,982 | 0,977 | 0,972 | 0,969 | PC = Pc x K1 |
| Coefficient K2 | 0,790 | 0,836 | 0,869 | 0,911 | 0,954 | 1,000 | 1,024 | 1,047 | 1,072 | 1,098 | 1,123 | 1,150 | 1,178 | PA = Pa x K2 |

OPTIONS FOR THE OUTDOOR UNIT

Axial 2-speed outdoor fan

| Vectios™ PJ | | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|---------------------------|-----|-----------|-----------|--------|--------|-----------|--------|--------|-----------------|--------|--------|--------|--------|--------|--------|
| Cooling | RPJ | SEER | 4,05 | 3,70 | 3,75 | 3,68 | 3,65 | 3,70 | 3,62 | 3,67 | 3,72 | 3,71 | 3,74 | 3,73 | 3,70 |
| | | ηs | 159% | 145% | 147% | 144% | 143% | 145% | 142% | 144% | 146% | 145% | 147% | 146% | 145% |
| | IPJ | SEER | 4,13 | 3,77 | 3,76 | 3,72 | 3,65 | 3,68 | 3,57 | 3,65 | 3,70 | 3,72 | 3,69 | 3,57 | 3,56 |
| | | ηs | 162% | 148% | 147% | 146% | 143% | 144% | 140% | 143% | 145% | 146% | 145% | 140% | 140% |
| Heating | IPJ | SCOP | 3,24 | 3,22 | 3,20 | 3,22 | 3,24 | 3,26 | 3,20 | 3,23 | 3,21 | 3,22 | 3,27 | 3,28 | 3,21 |
| | | ηs | 127% | 126% | 125% | 126% | 126% | 127% | 125% | 126% | 125% | 126% | 128% | 128% | 126% |
| Nominal air flow | | (m³/h) | 9.000 | 14.500 | 17.000 | 17.000 | 17.000 | 17.750 | 31.000 | 31.000 | 31.000 | 33.000 | 33.000 | 34.500 | 35.000 |
| Available static pressure | | (mm.w.c.) | 4 | | | | | | | | | | | | |
| Number / Diameter | | (mm) | 1 / 630 | | | 1 / 800 | | | 2 / 800 | | | | | | |
| Maximum speed | | (r.p.m.) | 690 / 840 | | | 670 / 880 | | | 670 / 880 | | | | | | |
| Output | | (kW) | 0,4 / 0,6 | | | 1,2 / 1,9 | | | 2 x (1,2 / 1,9) | | | | | | |
| Maximum absorbed current | | (A) | 1,2 | | | 3,9 | | | 2 x 3,9 | | | | | | |

OPTIONS FOR THE INDOOR UNIT

Stop-drop in the indoor air coil

Air flow at which it is recommended to install a stop-drop in the indoor coil.

| Vectios™ PJ | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-----------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Air flow (m³/h) | 7.776 | 7.776 | 10.206 | 10.206 | 10.206 | 10.206 | 14.580 | 14.580 | 14.580 | 18.468 | 18.468 | 18.468 | 18.468 |

Note: for operating conditions with high dehumidification in the indoor coil (e.g. in installations close to the coast) it may be necessary to install a separator even if the flow is less than the previous one.

Note: the stop-drop in the indoor coil is not compatible with the hot water coil or the gas boiler.

Supply plug-fan EC with high (H) or low (L) available pressure

| Vectios™ PJ | | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-----------------------------------|--------------------------|-----------|---------|-------|-------|---------|-------|-------|-------------|--------|--------|---------|--------|---------|--------|
| Nominal air flow | | (m³/h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| Nominal available static pressure | | (mm.w.c.) | 12 | 12 | 12 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 25 |
| Low pressure (L) | Number / Diameter | | 1 / 500 | | | -- | | | 1 / 500 (*) | | | -- | | 2 / 500 | |
| | Speed | | 1.350 | | | -- | | | 2.100 (*) | | | -- | | 1.700 | |
| | Output | | 1,3 | | | -- | | | 4,5 (*) | | | -- | | 2 x 2,6 | |
| | Maximum absorbed current | | 2,1 | | | -- | | | 7,2 (*) | | | -- | | 2 x 4,0 | |
| High pressure (H) | Number / Diameter | | 1 / 500 | | | 2 / 500 | | | -- | | | 2 / 500 | | | |
| | Speed | | 1.750 | | | 1.700 | | | -- | | | 2.100 | | | |
| | Output | | 2,6 | | | 2 x 2,6 | | | -- | | | 2 x 4,5 | | | |
| | Maximum absorbed current | | 4,0 | | | 2 x 4,0 | | | -- | | | 2 x 7,2 | | | |

(*) Not available for Tunnel Flow models.

Note: the value of power input according to the selected flow can be found at our "Selection Software".

Axial return fan (CA assembly)

| Vectios™ PJ | | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 | | |
|---------------------------|--|-----------|---------|-------|-------|---------|-------|-------|--------|--------|--------|---------|--------|--------|---------|--|--|
| Maximum air flow | | (m³/h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 | | |
| Available static pressure | | (mm.w.c.) | 5 | | | | | | | | | | | | | | |
| Number / Diameter | | (mm) | 1 / 500 | | | 2 / 450 | | | -- | | | 2 / 500 | | | 3 / 500 | | |
| Speed | | (r.p.m.) | 1.390 | | | 1.360 | | | -- | | | 1.390 | | | 1.390 | | |
| Output | | (kW) | 0,7 | | | 2 x 0,5 | | | -- | | | 2 x 0,7 | | | 3 x 0,7 | | |
| Maximum absorbed current | | (A) | 1,4 | | | 2 x 1,0 | | | -- | | | 2 x 1,4 | | | 3 x 1,4 | | |

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Centrifugal return fan (CQ / CT assemblies)

| Vectios™ PJ | | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|--|---|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|-------------|-------------|-------------|-------------|
| Option 1: Low flow + nominal pressure | Available pressure (mm.w.c.) | | 20 | | | | | | | | | | | | |
| | Air flow (m³/h) | | 4.080 | 5.200 | 6.800 | 7.000 | 7.200 | 7.200 | 9.600 | 10.000 | 10.000 | 12.400 | 12.400 | 12.800 | 12.800 |
| | Motor output (kW) | | 0,75 | 1,10 | 1,50 | 2,20 | 2,20 | 2,20 | 2,20 | 2,20 | 2,20 | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 |
| | Power input (kW) | | 0,73 | 1,20 | 1,46 | 1,65 | 1,73 | 1,73 | 1,88 | 2,06 | 2,06 | 2 x 1,22 | 2 x 1,22 | 2 x 1,30 | 2 x 1,30 |
| | Max. abs. current (A) | | 2,10 | 3,20 | 4,10 | 6,90 | 6,90 | 6,90 | 6,90 | 6,90 | 6,90 | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 |
| | Speed (r.p.m.) | | 888 | 976 | 806 | 830 | 839 | 839 | 683 | 696 | 696 | 779 | 779 | 788 | 788 |
| | Code | | OPK0671 | OPK0673 | OPK0677 | OPK0684 | OPK0684 | OPK0684 | OPK0682 | OPK0682 | OPK0682 | 2 x OPK0677 | 2 x OPK0677 | 2 x OPK0677 | 2 x OPK0677 |
| | Option 2: Low flow + high pressure | Available pressure (mm.w.c.) | | 50 | | | | | | | | | | | |
| Air flow (m³/h) | | 4.080 | 5.200 | 6.800 | 7.000 | 7.200 | 7.200 | 9.600 | 10.000 | 10.000 | 12.400 | 12.400 | 12.800 | 12.800 | |
| Motor output (kW) | | 1,50 | 2,20 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 4,00 | 4,00 | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 | |
| Power input (kW) | | 1,26 | 1,78 | 2,26 | 2,50 | 2,59 | 2,59 | 2,96 | 3,12 | 3,12 | 2 x 2,02 | 2 x 2,02 | 2 x 2,11 | 2 x 2,11 | |
| Max. abs. current (A) | | 4,10 | 6,90 | 7,20 | 7,20 | 7,20 | 7,20 | 7,20 | 9,00 | 9,00 | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 | |
| Speed (r.p.m.) | | 1.326 | 1.341 | 1.133 | 1.139 | 1.142 | 1.142 | 954 | 958 | 958 | 1.130 | 1.130 | 1.131 | 1.131 | |
| Code | | OPK0672 | OPK0674 | OPK0680 | OPK0680 | OPK0680 | OPK0680 | OPK0681 | OPK0683 | OPK0683 | 2 x OPK0676 | 2 x OPK0676 | 2 x OPK0676 | 2 x OPK0676 | |
| Option 3: Nominal flow + nominal pressure | Available pressure (mm.w.c.) | | 20 | | | | | | | | | | | | |
| | Air flow (m³/h) | | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| | Motor output (kW) | | 1,10 | 1,50 | 1,50 | 2,20 | 2,20 | 2,20 | 2,20 | 2,20 | 2,20 | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 |
| | Power input (kW) | | 1,15 | 1,26 | 1,55 | 1,73 | 1,81 | 1,81 | 2,00 | 2,18 | 2,18 | 2 x 1,30 | 2 x 1,30 | 2 x 1,38 | 2 x 1,38 |
| | Max. abs. current (A) | | 3,20 | 4,10 | 4,10 | 6,90 | 6,90 | 6,90 | 6,90 | 6,90 | 6,90 | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 |
| | Speed (r.p.m.) | | 967 | 783 | 656 | 672 | 679 | 679 | 545 | 553 | 553 | 637 | 637 | 644 | 644 |
| | Code | | OPK0673 | OPK0677 | OPK0678 | OPK0682 | OPK0682 | OPK0682 | OPK0685 | OPK0685 | OPK0685 | 2 x OPK0678 | 2 x OPK0678 | 2 x OPK0678 | 2 x OPK0678 |
| | Option 4: Nominal flow + high pressure | Available pressure (mm.w.c.) | | 50 | | | | | | | | | | | |
| Air flow (m³/h) | | | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| Motor output (kW) | | | 2,20 | 2,20 | 3,00 | 3,00 | 3,00 | 3,00 | 4,00 | 4,00 | 4,00 | 2 x 3,00 | 2 x 3,00 | 2 x 3,00 | 2 x 3,00 |
| Power input (kW) | | | 1,72 | 2,07 | 2,56 | 2,79 | 2,88 | 2,88 | 3,46 | 3,67 | 3,67 | 2 x 2,30 | 2 x 2,30 | 2 x 2,39 | 2 x 2,39 |
| Max. abs. current (A) | | | 6,90 | 6,90 | 7,20 | 7,20 | 7,20 | 7,20 | 9,00 | 9,00 | 9,00 | 2 x 7,20 | 2 x 7,20 | 2 x 7,20 | 2 x 7,20 |
| Speed (r.p.m.) | | | 1.338 | 1.130 | 949 | 951 | 953 | 953 | 797 | 799 | 799 | 949 | 949 | 949 | 949 |
| Code | | | OPK0674 | OPK0676 | OPK0681 | OPK0681 | OPK0681 | OPK0681 | OPK0686 | OPK0686 | OPK0686 | 2 x OPK0681 | 2 x OPK0681 | 2 x OPK0681 | 2 x OPK0681 |
| Option 5: High flow + nominal pressure | | Available pressure (mm.w.c.) | | 20 | | | | | | | | | | | |
| | Air flow (m³/h) | | 6.120 | 7.800 | 10.200 | 10.500 | 10.800 | 10.800 | 14.400 | 15.000 | 15.000 | 18.600 | 18.600 | 19.200 | 19.200 |
| | Motor output (kW) | | 1,10 | 1,50 | 2,20 | 2,20 | 2,20 | 2,20 | 3,00 | 4,00 | 4,00 | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 |
| | Power input (kW) | | 1,13 | 1,24 | 2,28 | 1,72 | 1,79 | 1,79 | 2,90 | 3,14 | 3,14 | 2 x 1,88 | 2 x 1,88 | 2 x 2,01 | 2 x 2,01 |
| | Max. abs. current (A) | | 3,20 | 4,10 | 6,90 | 6,90 | 6,90 | 6,90 | 7,20 | 9,00 | 9,00 | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 |
| | Speed (r.p.m.) | | 766 | 633 | 711 | 533 | 536 | 536 | 585 | 597 | 597 | 683 | 683 | 693 | 693 |
| | Code | | OPK0675 | OPK0678 | OPK0682 | OPK0685 | OPK0685 | OPK0685 | OPK0687 | OPK0689 | OPK0689 | 2 x OPK0682 | 2 x OPK0682 | 2 x OPK0682 | 2 x OPK0682 |
| | Option 6: High flow + high pressure | Available pressure (mm.w.c.) | | 50 | | | | | | | | | | | |
| Air flow (m³/h) | | | 6.120 | 7.800 | 10.200 | 10.500 | 10.800 | 10.800 | 14.400 | 15.000 | 15.000 | 18.600 | 18.600 | 19.200 | 19.200 |
| Motor output (kW) | | | 2,20 | 2,20 | 4,00 | 4,00 | 4,00 | 4,00 | 5,50 | 5,50 | 5,50 | 2 x 3,00 | 2 x 3,00 | 2 x 4,00 | 2 x 4,00 |
| Power input (kW) | | | 1,90 | 2,26 | 3,35 | 3,12 | 3,21 | 3,21 | 4,51 | 4,83 | 4,83 | 2 x 2,96 | 2 x 2,96 | 2 x 3,07 | 2 x 3,07 |
| Max. abs. current (A) | | | 6,90 | 6,90 | 9,00 | 9,00 | 9,00 | 9,00 | 11,60 | 11,60 | 11,60 | 2 x 7,20 | 2 x 7,20 | 2 x 9,00 | 2 x 9,00 |
| Speed (r.p.m.) | | | 1.131 | 950 | 964 | 796 | 796 | 796 | 809 | 814 | 814 | 954 | 954 | 957 | 957 |
| Code | | | OPK0676 | OPK0679 | OPK0683 | OPK0686 | OPK0683 | OPK0683 | OPK0688 | OPK0688 | OPK0688 | 2 x OPK0681 | 2 x OPK0681 | 2 x OPK0683 | 2 x OPK0683 |
| Option 7: Low flow + low pressure | | Available pressure (mm.w.c.) | | 8 | | | | | | | | | | | |
| | Air flow (m³/h) | | 4.080 | 5.200 | 6.800 | 7.000 | 7.200 | 7.200 | 9.600 | 10.000 | 10.000 | 12.400 | 12.400 | 12.800 | 12.800 |
| | Motor output (kW) | | 0,55 | 0,55 | 1,10 | 1,50 | 1,50 | 1,50 | 1,10 | 1,10 | 1,10 | 2 x 0,55 | 2 x 0,55 | 2 x 1,10 | 2 x 1,10 |
| | Power input (kW) | | 0,42 | 0,41 | 0,89 | 1,05 | 1,11 | 1,11 | 0,56 | 0,56 | 0,56 | 2 x 0,40 | 2 x 0,40 | 2 x 0,78 | 2 x 0,78 |
| | Max. abs. current (A) | | 1,60 | 1,60 | 3,20 | 4,10 | 4,10 | 4,10 | 3,20 | 3,20 | 3,20 | 2 x 1,60 | 2 x 1,60 | 2 x 3,20 | 2 x 3,20 |
| | Speed (r.p.m.) | | 710 | 549 | 670 | 701 | 712 | 712 | 358 | 358 | 358 | 431 | 431 | 646 | 646 |
| | Code | | OPK0690 | OPK0691 | OPK0694 | OPK0677 | OPK0677 | OPK0677 | OPK0699 | OPK0699 | OPK0699 | 2 x OPK0693 | 2 x OPK0693 | 2 x OPK0694 | 2 x OPK0694 |
| | Option 8: Nominal flow + low pressure | Available pressure (mm.w.c.) | | 8 | | | | | | | | | | | |
| Air flow (m³/h) | | | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| Motor output (kW) | | | 0,55 | 0,55 | 1,10 | 0,75 | 1,10 | 1,10 | 1,50 | 1,50 | 1,50 | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 |
| Power input (kW) | | | 0,41 | 0,40 | 0,80 | 0,66 | 0,56 | 0,56 | 1,16 | 0,95 | 0,95 | 2 x 0,74 | 2 x 0,74 | 2 x 0,80 | 2 x 0,80 |
| Max. abs. current (A) | | | 1,60 | 1,60 | 3,20 | 2,10 | 3,20 | 3,20 | 4,10 | 4,10 | 4,10 | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 |
| Speed (r.p.m.) | | | 549 | 431 | 504 | 380 | 358 | 358 | 430 | 410 | 410 | 500 | 500 | 510 | 510 |
| Code | | | OPK0691 | OPK0693 | OPK0695 | OPK0697 | OPK0699 | OPK0699 | OPK0699 | OPK0698 | OPK0698 | 2 x OPK0695 | 2 x OPK0695 | 2 x OPK0695 | 2 x OPK0695 |
| Option 9: High flow + low pressure | | Available pressure (mm.w.c.) | | 8 | | | | | | | | | | | |
| | Air flow (m³/h) | | 6.120 | 7.800 | 10.200 | 10.500 | 10.800 | 10.800 | 14.400 | 15.000 | 15.000 | 18.600 | 18.600 | 19.200 | 19.200 |
| | Motor output (kW) | | 0,75 | 1,50 | 1,10 | 1,50 | 1,50 | 1,50 | 3,00 | 3,00 | 3,00 | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 |
| | Power input (kW) | | 0,64 | 1,33 | 0,86 | 0,95 | 1,01 | 1,01 | 1,85 | 2,06 | 2,06 | 2 x 0,56 | 2 x 0,56 | 2 x 0,56 | 2 x 0,56 |
| | Max. abs. current (A) | | 2,10 | 4,10 | 3,20 | 4,10 | 4,10 | 4,10 | 7,20 | 7,20 | 7,20 | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 |
| | Speed (r.p.m.) | | 613 | 752 | 403 | 410 | 416 | 416 | 486 | 501 | 501 | 358 | 358 | 358 | 358 |
| | Code | | OPK0692 | OPK0677 | OPK0696 | OPK0698 | OPK0698 | OPK0698 | OPK0700 | OPK0700 | OPK0700 | 2 x OPK0699 | 2 x OPK0699 | 2 x OPK0699 | 2 x OPK0699 |

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Return plug-fan EC (CP / CR / CQ / CT / TP assemblies)

| Vectios™ PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-----------------------------------|-----------|---------|-------|-------|-------|-------|-------|---------|--------|--------|--------|--------|--------|--------|
| Nominal air flow | (m³/h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| Nominal available static pressure | (mm.w.c.) | 12 | 12 | 12 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 25 |
| Number / Diameter | (mm) | 1 / 500 | | | | | | 2 / 500 | | | | | | |
| Speed | (r.p.m.) | 1.700 | | | | | | 1.700 | | | | | | |
| Output | (kW) | 2,6 | | | | | | 2 x 2,6 | | | | | | |
| Maximum absorbed current | (A) | 4,0 | | | | | | 2 x 4,0 | | | | | | |

Note: the value of power input according to the selected flow can be found at our "Selection Software".

Return plug-fan EC (CW / TW assemblies)

| Vectios™ PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-----------------------------------|-----------|---------|-------|---------|-------|-------|---------|--------|--------|---------|--------|--------|--------|--------|
| Nominal air flow | (m³/h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| Nominal available static pressure | (mm.w.c.) | 12 | 12 | 12 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 25 |
| Number / Diameter | (mm) | 1 / 500 | | 1 / 500 | | | 2 / 500 | | | 2 / 500 | | | | |
| Speed | (r.p.m.) | 1.700 | | 1.750 | | | 1.700 | | | 1.750 | | | | |
| Output | (kW) | 2,6 | | 2,6 | | | 2 x 2,6 | | | 2 x 2,6 | | | | |
| Maximum absorbed current | (A) | 4,0 | | 4,0 | | | 2 x 4,0 | | | 2 x 4,0 | | | | |

Note: the value of power input according to the selected flow can be found at our "Selection Software".

Rotary heat exchanger (CW / TW assemblies)

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors.

The return air circulates in half of the heat recovery unit and the ventilation air circulates in the other half, in the opposite direction. As the rotor rotates, very fine channels of air which form the matrix come into contact with the fresh air and the return air in turn, thereby transferring heat and humidity from one to the other.

The efficiency of the recovery depends on the following factors:

■ Wheel diameters:

- 800 mm: models 0090 to 0190
- 1300 mm: models 0200 to 0240
- 1600 mm: models 0280 to 0380

■ Matrix materials:

- Aluminum: sensible heat recovery.
- Epoxy coated aluminium: sensible heat recovery in aggressive environments.
- Hybrid wheel: enthalpic recovery.
- Silicagel coated aluminium: enthalpic recovery with high efficiency in the recovery of latent heat.

■ Channel cross section:

The wheel is formed of two panels of aluminium, one smooth and one fluted. The fluted panel can be provided in two different configurations:

- 2.0 mm cross section: the commonly-used cross section due to its high efficiency and moderate pressure drops.
- 2.5 mm cross section: low pressure drop. Designed for high frontal speeds with low pressure drops.

The rotary heat exchanger is fitted into a module placed on one side of the unit.

This module features gravimetric filters G4 on the fresh air intake which, optionally, can be replaced by G4 with low pressure drop or G4 + M6. It also features filters G4 with low pressure drop on the exhaust air outlet.

This assembly can be supplied, in option, with a speed drive for the wheel which avoids the risk of ice forming on the wheel during the defrost operation.



Note: It's recommended to use a CO₂ air quality sensor (optional) in units with rotary heat exchanger.

Important: the calculations for the selection of a rotary heat exchanger according to the parameters described above should be done using our "Selection Software".

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

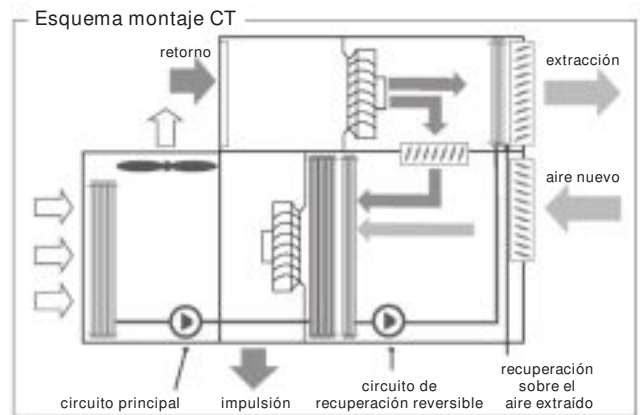
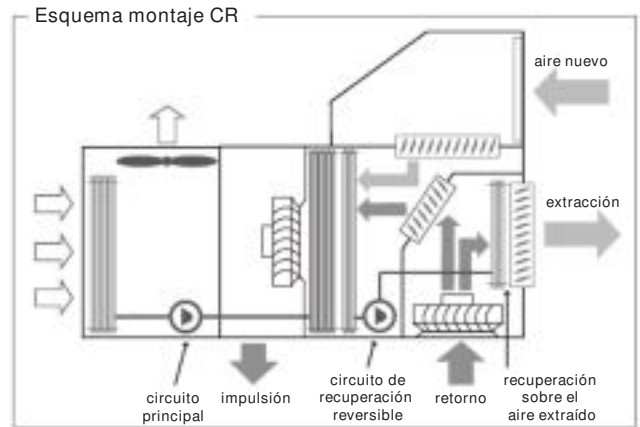
Cooling recovery circuit (CR / CT assemblies)

Thermodynamic circuit dedicated to the recovery of the extracted air energy, with independent and proportional control, adapted to the air renewal requirements in order to raise COP, EER and seasonal efficiency of the unit set.

The circuit is composed of:

- Return EC plug-fan.
- Air circuit comprised of coils with copper pipes and aluminium fins.
- Electronic expansion valve.
- Hermetic scroll-type compressor with sound insulation, assembled over antivibration mounts.
- Crankcase heater.
- Four-way cycle reversing valve.
- Anti-acid dehydrator filter.
- High and low pressure transducers.
- Condensates drain pan.

| Vectios™ PJ | | 0090 to 0120 | 0140 to 0190 | 0200 to 0240 | 0280 to 0380 |
|-------------------------------|-----------------------|--|--------------|--------------|--------------|
| Compressor type | | Scroll | | | |
| No. of compressors / circuits | | 1 / 1 | | | |
| Max. absorbed current | (A) | 5,4 | 7,2 | 10,1 | 12,1 |
| Oil type | | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | |
| Volume of oil | (l) | 0,7 | 1,2 | 1,7 | 1,8 |
| Charge of R-410A | (kg) | 1,7 | 2,5 | 3,0 | 3,4 |
| Environment impact | (tCO ₂ eq) | 3,5 | 5,2 | 6,3 | 7,1 |



Total cooling capacity with recovery circuit

| Vectios™ PJ | | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|---|---------------|---------------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Nominal air flow | | (m ³ /h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| Outdoor temperature 35°C / 40% HR Indoor temperature 27°C / 50% HR | 20% fresh air | Pft (kW) | 29,6 | 36,2 | 45,7 | 49,5 | 54,3 | 56,7 | 70,4 | 75,4 | 77,9 | 90,7 | 94,7 | 103,5 | 112,8 |
| | | Pfs (kW) | 23,7 | 29,6 | 38,1 | 40,2 | 42,5 | 43,4 | 55,9 | 59,0 | 59,9 | 72,1 | 73,6 | 78,2 | 81,7 |
| | | Pa (kW) | 8,5 | 9,6 | 11,5 | 12,8 | 14,0 | 14,7 | 17,8 | 19,5 | 20,5 | 21,7 | 23,3 | 25,8 | 29,0 |
| | 40% fresh air | Pft (kW) | 31,3 | 37,9 | 48,3 | 52,0 | 56,9 | 59,4 | 73,7 | 78,8 | 81,4 | 95,2 | 99,3 | 108,1 | 117,7 |
| | | Pfs (kW) | 25,0 | 31,1 | 39,7 | 41,8 | 44,3 | 45,3 | 58,8 | 62,0 | 62,9 | 76,0 | 77,4 | 82,0 | 85,6 |
| | | Pa (kW) | 8,1 | 9,3 | 10,9 | 12,3 | 13,5 | 14,2 | 17,1 | 18,9 | 19,9 | 20,9 | 22,6 | 25,1 | 28,3 |
| | 80% fresh air | Pft (kW) | 33,6 | 40,3 | 51,9 | 55,7 | 60,8 | 63,3 | 78,7 | 84,0 | 86,8 | 102,3 | 106,4 | 115,2 | 125,4 |
| | | Pfs (kW) | 27,4 | 33,6 | 42,4 | 44,4 | 47,0 | 47,9 | 62,4 | 65,8 | 66,9 | 82,3 | 84,1 | 88,0 | 92,7 |
| | | Pa (kW) | 8,0 | 9,1 | 10,6 | 12,1 | 13,4 | 14,0 | 16,8 | 18,5 | 19,6 | 20,6 | 22,2 | 25,0 | 28,2 |

Pft: Total gross cooling capacity (sum of the power of the main circuit and the recovery circuit)

Total heating capacity with recovery circuit

| Vectios™ PJ | | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|---|---------------|---------------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Nominal air flow | | (m ³ /h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 |
| Outdoor temperature 6°C WB Indoor temperature 20°C | 20% fresh air | Pct (kW) | 29,6 | 35,7 | 44,1 | 47,7 | 52,8 | 55,5 | 68,0 | 73,2 | 75,9 | 87,5 | 91,6 | 100,6 | 110,0 |
| | | Pa (kW) | 6,6 | 7,8 | 9,2 | 10,2 | 11,5 | 12,3 | 14,6 | 16,1 | 16,9 | 18,6 | 19,9 | 22,5 | 25,6 |
| | 40% fresh air | Pct (kW) | 30,9 | 37,0 | 45,9 | 49,6 | 54,8 | 64,2 | 70,6 | 75,9 | 78,7 | 90,7 | 94,8 | 103,9 | 113,4 |
| | | Pa (kW) | 6,4 | 7,5 | 8,8 | 9,8 | 11,0 | 11,8 | 14,0 | 15,4 | 16,3 | 17,9 | 19,1 | 21,5 | 24,5 |
| | 80% fresh air | Pct (kW) | 32,6 | 38,8 | 47,5 | 52,0 | 57,4 | 60,2 | 74,4 | 79,7 | 82,6 | 95,1 | 99,3 | 108,5 | 118,3 |
| | | Pa (kW) | 5,9 | 6,8 | 8,1 | 8,9 | 10,0 | 10,8 | 12,8 | 14,0 | 14,8 | 16,3 | 17,4 | 19,6 | 22,3 |

Pct: Total gross heating capacity (sum of the power of the main circuit and the recovery circuit)

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Auxiliary electrical heaters

Auxiliary electrical heaters, with two power stages and on/off control, for assembly and connection inside the unit.

■ Up to 3 values of total power available for each model:

| Vectios™ PJ | E0L (Low) | E0N (Nominal) | E0H (High) |
|--------------|-----------|---------------|-------------|
| 0090 to 0120 | 12 kW | 18 kW | unavailable |
| 0140 to 0190 | 12 kW | 18 kW | 27 kW |
| 0200 to 0380 | 18 kW | 27 kW | 36 kW |

■ Characteristics:

| | | | | |
|--------------------------|----------------|-------|--------|---------|
| Total power (kW) | 12 | 18 | 27 | 36 |
| Stages power (kW) | 6 + 6 | 9 + 9 | 9 + 18 | 18 + 18 |
| Current (A) | 17,3 | 26,0 | 39,0 | 52,0 |
| Power supply | 400 V / III ph | | | |

Auxiliary hot water coil

Auxiliary hot water coil, with three-way valve and proportional control, for assembly and connection inside the unit.

This option always incorporates an anti-freeze thermostat as safety system.

| Vectios™ PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|--|-----------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| Air pressure drop | (mm.w.c.) | 2,4 | 3,5 | 3,5 | 3,6 | 4,3 | 4,3 | 3,4 | 3,6 | 3,6 | 3,5 | 3,7 | 3,7 | 3,7 |
| Water 80/60°C and inlet air 20°C | Heating capacity (kW) | 27,6 | 32,0 | 47,6 | 48,4 | 49,2 | 49,2 | 95,8 | 98,3 | 98,3 | 129,0 | 129,0 | 131,5 | 131,5 |
| | Water flow (m³/h) | 1,4 | 1,6 | 2,1 | 2,1 | 2,1 | 2,1 | 2,7 | 2,8 | 2,8 | 3,6 | 3,6 | 3,7 | 3,7 |
| | Water pressure drop (m.w.c) | 0,2 | 0,3 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 | 0,9 | 0,9 | 1,0 | 0,9 |
| Water 90/70°C and inlet air 20°C | Heating capacity (kW) | 34,2 | 39,8 | 58,7 | 59,8 | 90,8 | 90,8 | 118,5 | 121,5 | 121,5 | 158,7 | 158,7 | 161,9 | 161,9 |
| | Water flow (m³/h) | 1,7 | 2,0 | 2,6 | 2,6 | 2,6 | 2,6 | 3,4 | 3,4 | 3,4 | 4,5 | 4,5 | 4,6 | 4,6 |
| | Water pressure drop (m.w.c) | 0,3 | 0,4 | 0,7 | 0,7 | 0,8 | 0,8 | 0,7 | 0,7 | 0,7 | 1,3 | 1,4 | 1,4 | 1,4 |

Note: Maximum water inlet temperature 95°C, maximum pressure 4 bar.

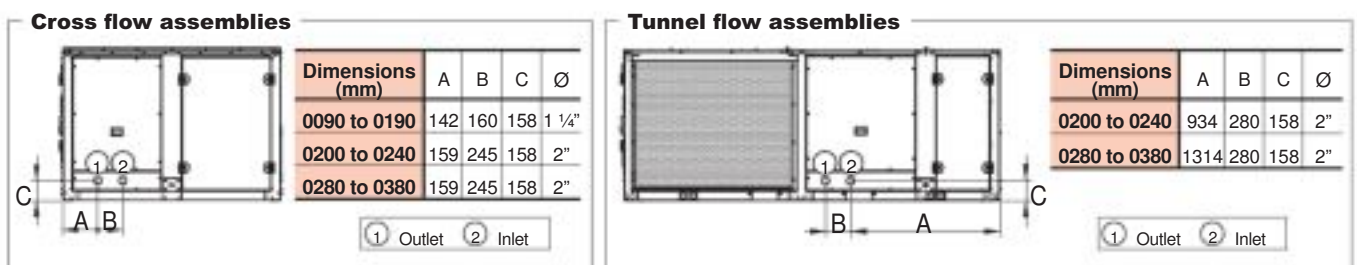
Note: the hot water coil is not compatible with the stop-drop in the indoor coil, the heat recovery coil or the active dehumidification.

Position of the hydraulic connections of the hot water coil

The inlet/outlet connections of the hot water coil are located inside the unit and the connection is made via the side panel.

In models 0200 to 0380 it can also be made via the base of the unit using flexible piping (only available for units without pre-assembly roofcurb).

The position of the sheet metal precuts on the side panel are shown in the following diagrams.



“Great Cold” option (B0C)

Note: on units with the “Great Cold” option, air supply only may be lateral (factory-configured).

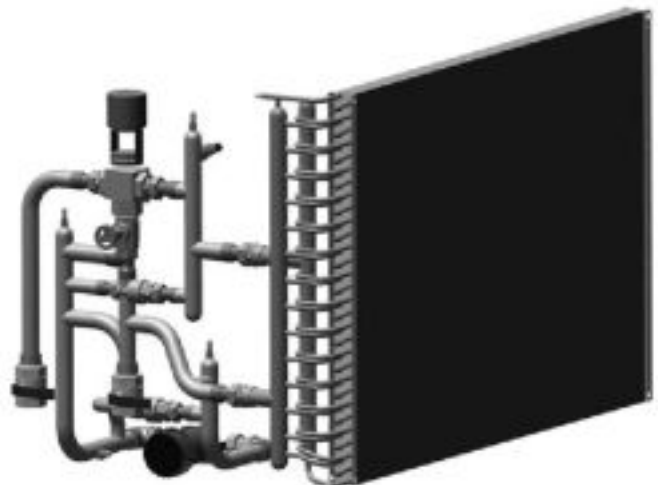
■ This anti-freeze safety incorporates:

- Circulation pump.
- Water temperature sensors located in the inlet and the outlet of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.

■ Characteristics of the water circuit:

| Vectios™ PJ | | 0090 to 0200 | 0220 to 0380 |
|------------------|---------------------------|--------------|--------------|
| Circulation pump | Motor output (W) | 90 | 140 |
| | Max. absorbed current (A) | 0,75 | 1,15 |



OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Gas boiler + Auxiliary hot water coil

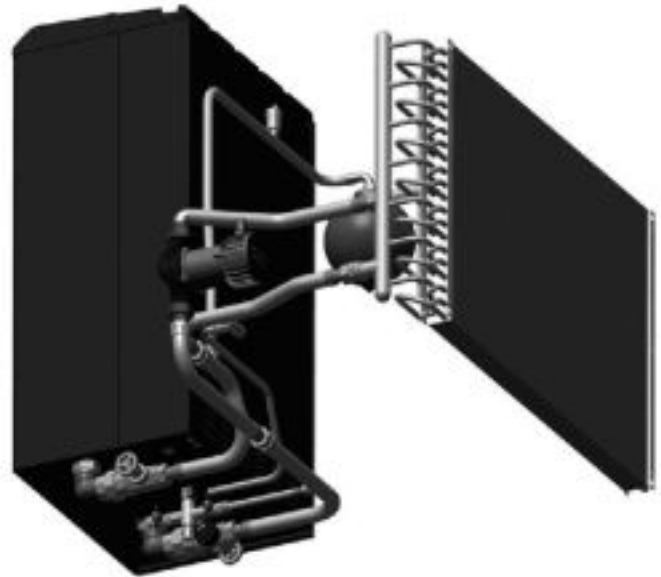
Natural or propane gas boiler with modulating actuator, in accordance with the Gas Directive 2009/142/EC, mounted on the side of the unit.

EC certification: 0085CP0214.

■ Up to 3 values of total power available for each model:

| Vectios™ PJ | G1L (Low) | G1N (Nominal) | G1H (High) |
|--------------|------------------------------|------------------------------|-----------------|
| 0090 to 0190 | unavailable | Condexa PRO 40 (coming soon) | Condexa PRO 70 |
| 0200 to 0380 | Condexa PRO 50 (coming soon) | Condexa PRO 70 | Condexa PRO 100 |

Note: the gas boiler is not compatible with the stop-drop in the indoor coil, the heat recovery coil or the active dehumidification.



■ Characteristics of the water circuit:

| Vectios™ PJ | | 0090 to 0200 | 0220 to 0380 |
|------------------|--|--------------|--------------|
| Expansion vessel | Volume (l) | 5 | 5 |
| | Filling pressure (kg/cm ²) | 1,5 | 1,5 |
| Circulation pump | Motor output (W) | 90 | 140 |
| | Max. absorbed current (A) | 0,75 | 1,15 |

■ The key features of the boiler are:

- Type of equipment: B23 - B53 - B53P
- NOx Class (according to standard EN 297): 5
- Burner with premixing and modulation technology that allows outputs close to 109% (Hi performance).
- Heat exchanger made of stainless steel with a low carbon content.
- Proportional air / gas valve. Low NOx emissions (class 5, according to standard EN 297).
- Condensate drain with siphon.
- Forced draught.
- Electronic ignition.
- Safety devices: safety thermostat, low water pressure safety switch, flowmeter, Delta-T control, smoke temperature sensor.
- NTC sensor for boiler water temperature regulation.
- Working temperature of water from -7°C to 100°C. Consult for percentages of glycol water above 20%.
- Electronic controller with microprocessor and Multifunction LCD display for boiler's control, configuration and diagnostics. Possibility of ModBus communication.
- The electronic control of the unit will only manage the boiler connection as heating support depending on the ambient conditions.

■ The boiler is connected to the hydraulic circuit of the auxiliary hot water coil. The water circuit, installed inside the unit, is composed of:

- Water coil.
- Circulation pump.
- Expansion vessel.
- Gate valves.
- Safety valve with a tare value of 4 bar.
- Automatic air bleeder valve.

■ Type of gas used depending on the destination country:

| Country | Category | Gas | Pressure (mbar) | Gas | Pressure (mbar) |
|---|------------|---------|-----------------|---------|-----------------|
| Italy, Ireland, Great Britain, Portugal, Slovenia, Slovakia, Greece | I12H3+ | G20 | 20 | G30/G31 | 28-30/37 |
| Spain | I12H3+ | G20 | 18 | G30/G31 | 28-30/37 |
| Romania, Bulgaria, Turkey, Denmark, Estonia, Sweden, Norway, Latvia, Lithuania, Finland, Russia | I12H3B/P | G20 | 20 | G30 | 30 |
| Hungary | I12H3B/P | G20 | 25 | G30 | 30 |
| Poland | I12H3B/P | G20 | 25 | G30 | 37 |
| Croatia | I12H3B/P | G20 | 20 | G30/G31 | 30 |
| Holland | I12H3B/P | G25 | 25 | G30 | 30 |
| Czech Republic, Austria, Switzerland | I12H3B/P | G20 | 20 | G30 | 50 |
| Luxembourg | I12H3B/P | G20 | 20 | G30 | 50 |
| | I12E3P | G20 | 20 | G31 | 37 |
| Belgium | I2E(S) | G20/G25 | 20/25 | -- | -- |
| | I3+ | -- | -- | G30/G31 | 28-30/37 |
| France | I12E+3+, | G20/G25 | 20/25 | G30/G31 | 28-30/37 |
| Malta, Cyprus, Iceland | I3B/P | -- | -- | G30 | 30 |
| Germany | I12ELL3B/P | G20/G25 | 25 | G30 | 50 |

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

■ Technical characteristics of the boiler:

| Model | | Condexa PRO 40 (coming soon) | Condexa PRO 50 (coming soon) | Condexa PRO 70 | Condexa PRO 100 |
|--------------------|--|---------------------------------|---------------------------------|----------------|-----------------|
| Boiler performance | Total thermal power (Hs) | kW | | 76/15 | 108/21,6 |
| | Total thermal power (Hi) | kW | | 68/14 | 97/19,4 |
| | Nominal power supplied to the water 100% (80°C - 60°C) | kW | | 66,7 | 95,2 |
| | Nominal power supplied to the water 100% (50°C - 30°C) | kW | | 73,5 | 105 |
| | Nominal power supplied to the water 100% (60°C - 40°C) | kW | | 71 | 101 |
| | Condensate hourly production 100% (50°C - 30°C) with gas G20 | kg/h | | 8,5 | 12,3 |
| | Performance with nominal power (80°C - 60°C) | % | | 98,1 | 98,1 |
| | Performance with nominal power (50°C - 30°C) | % | | 108,1 | 108,2 |
| | Performance with nominal power Tm = 50 °C (60°C - 40°C) | % | | 104,4 | 104,1 |
| | Performance with reduced load 30% (80°C - 60°C) | % | | 98,5 | 98,3 |
| | Performance with reduced load 30% (50°C - 30°C) | % | | 109 | 109 |
| | Performance with reduced load 30% Tm = 50 °C (60°C - 40°C) | % | | 105,3 | 105 |
| | Losses in enclosure (Tm = 70 °C) | % | | 0,1 | |
| | Energy efficiency marking (Directive 92/42 EC) | | | ★★★★ | |
| Energy efficiency | Seasonal energy efficiency class in heating | | | A | A |
| | Seasonal energy efficiency in heating | % | | 92,7 | 92,7 |
| Gas supply | Gas category | | II2H3+ | | |
| | Natural Gas consumption (G20) (nominal / minimum) | m³/h | | 7,2/1,4 | 10,3/2,1 |
| Electrical data | Power supply | | 230 Vac - 50 Hz | | |
| | Power input at 100% | W | | 77 | 203 |
| | Power input at 30% | W | | 30 | 31 |
| | Power input in stand-by | W | | 13 | 6 |
| Connections | Ingress protection rating | | IP X5D | | |
| | Operating temperatures | | de -15 °C to +70 °C | | |
| | Ø Gas supply | | | G1" | G1" |
| | Ø Flue outlet | mm | | DN80 | DN110 |
| | Ø Condensate drain | mm | | 25 | 25 |
| Heating circuit | Control of heating temperature (min. / max.) | °C | 20 / 80 | | |
| | Working pressure (max. / min.) | bar | 6 / 0,7 | | |

Heat recovery coil

The function of the heat recovery coil is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation. This function is managed by the unit's electronic control.

The coil is supplied with a 3-way valve for installation outside the unit but manages by the unit's electronic control.

This option is compatible with C0, CS, CF, CQ, CT, T0 and TS assemblies.

| Vectios™ PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|--|---------------------|--------|--------|-------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Air pressure drop | mm.w.c. | 2,6 | 3,9 | 5,0 | 5,5 | 5,7 | 5,7 | 4,3 | 4,6 | 4,6 | 4,5 | 4,5 | 4,7 | 4,7 |
| Water 35/30°C (30% MEG) and inlet air 20°C | Heating capacity | kW | 11,20 | 13,00 | 17,02 | 17,52 | 17,76 | 23,67 | 24,62 | 24,62 | 32,77 | 32,77 | 33,37 | 33,37 |
| | Water flow | m³/h | 2,08 | 2,42 | 3,16 | 3,26 | 3,30 | 3,30 | 4,40 | 4,57 | 4,57 | 6,08 | 6,08 | 6,20 |
| Water 35/30°C (30% MEG) and inlet air 15°C | Water pressure drop | m.w.c. | 2,7 | 3,1 | 4,4 | 4,5 | 4,6 | 4,6 | 3,4 | 3,5 | 3,5 | 5,5 | 5,5 | 5,6 |
| | Heating capacity | kW | 16,89 | 19,64 | 25,26 | 26,19 | 26,52 | 26,52 | 35,62 | 36,50 | 36,50 | 48,54 | 48,54 | 49,42 |
| | Water flow | m³/h | 3,14 | 3,65 | 4,69 | 4,87 | 4,93 | 4,93 | 6,61 | 6,77 | 6,77 | 9,01 | 9,01 | 9,17 |
| | Water pressure drop | m.w.c. | 4,1 | 4,8 | 7,3 | 7,7 | 7,8 | 7,8 | 5,4 | 5,6 | 5,6 | 9,7 | 9,7 | 9,9 |
| Water (inlet air 20°C) | 30/35°C | */40°C | */45°C | | % of MEG | | | | | 10% | 20% | 30% | | |
| Correction coefficients | 1,00 | 1,35 | 1,70 | Correction coefficients | | | | | 1,06 | 1,03 | 1,00 | | | |

Note: the heat recovery coil is not compatible with the hot water coil, the gas boiler or the gas burner.

Position of the hydraulic connections of the heat recovery coil

| Cross flow assemblies | | Tunnel flow assemblies | | | | | | | | | |
|-----------------------|-----------------|------------------------|-----|------|------|--|-----------------|-----|-----|-----|------|
| | Dimensions (mm) | A | B | C | Ø | | Dimensions (mm) | A | B | C | Ø |
| | 0090 to 0190 | 872 | 721 | 443 | 1/2" | | 0200 to 0240 | 534 | 721 | 443 | 1/2" |
| | 0200 to 0240 | 1099 | 721 | 443 | 1/2" | | 0280 to 0380 | 914 | 721 | 443 | 3/4" |
| 0280 to 0380 | 1099 | 721 | 443 | 3/4" | | | | | | | |

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Gas burner

Natural or propane gas burner with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb. The PJ unit with lower air supply will be placed on this roofcurb.

EC certification: 0476CQ0451.

■ Up to 3 values of total power available for each model:

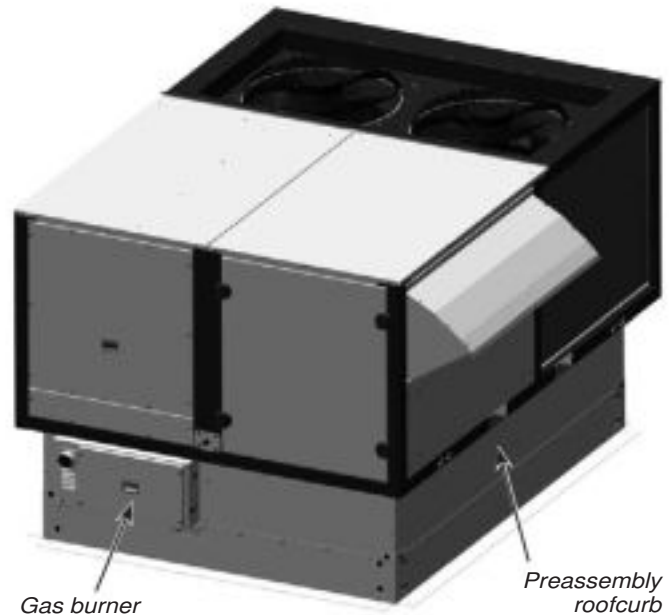
| Vectios™ PJ | G0L (Low) | G0N (Nominal) | G0H (High) |
|--------------|-------------|---------------|------------|
| 0090 to 0190 | PCH020 | PCH034 | PCH045 |
| 0200 to 0240 | unavailable | PCH065 | PCH080 |
| 0280 to 0380 | unavailable | PCH080 | PCH105 |

Note: the gas burner is not compatible with the heat recovery coil or the active dehumidification.

■ The key features of the boiler are:

- Condensation boiler with premixing and modulation technology that allows outputs close to 109% (Hi performance).
- The premixed burner, in combination with the air/gas valve, ensures a “clean” combustion. Low NO_x emissions < 70 mg/kWh HCV (class 5, according to standard EN 297).
Note: Burners must not exceed NO_x:70mg/kWh HCV emission values from January 1st, 2021 (according to European Regulations 2016/2281).
- The combustion chamber and the burner are entirely made of stainless steel.
- Electronic controller with microprocessor and multifunction LCD display, located inside the burner, for burner’s control, configuration and diagnostics.

- The electronic control of the unit will only manage the burner connection as heating support depending on the ambient conditions.



Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.

① Enclosure losses match those of the machine housing the PCH.
 ② Max. condensation produced acquired from testing 30%Qn.
 ③ Value referenced to cat. H (G20)
 ④ Weighted value to EN1020:2009 ref. to class H (G20), referred to Hi (L.C.V.).
 ⑤ Weighted value to EN1020:2009 ref. to class H (G20), referred to Hs (H.C.V.).

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

■ Gas setting:

| Gas type | Gas settings | PCH020 | | PCH034 | | PCH045 | | PCH065 | | PCH080 | | PCH105 | |
|------------------|--|--|------|--------|------|--------|------|---------------|------|---------------|------|---------------|-------|
| | | min. | max. | min. | max. | min. | max. | min. | max. | min. | max. | min. | max. |
| G20 Cat. E-H | Air supply pressure | 20 [min 17-max 25] | | | | | | | | | | | |
| | Ø pilot nozzle | 0,7 | | | | | | | | | | | |
| | Gas consumption (15°C-1013mbar) | 0,51 | 2,01 | 0,80 | 3,69 | 0,90 | 4,44 | 1,31 | 6,88 | 1,74 | 8,68 | 2,22 | 10,58 |
| | Carbon dioxide - CO ₂ content | 8,8 | 9,1 | 8,7 | 9,1 | 8,7 | 9,1 | 8,7 | 9,1 | 8,7 | 9,1 | 8,5 | 9,1 |
| | Fumes temperature | 39 | 113 | 31 | 94 | 30 | 94 | 31 | 86 | 26,5 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | 31 | | 57 | | 72 | | 107 | | 135 | | 165 | |
| | Gas butterfly valve | 5,8 | | 7,4 | | 7,5 | | 11,0 | | 12,2 | | 15,8 | |
| G25 Cat. L-LL | Air supply pressure | 25 [min 17-max 30] (20 for Germany) | | | | | | | | | | | |
| | Ø pilot nozzle | 0,7 (0,75 for Germany) | | | | | | | | | | | |
| | Gas consumption (15°C-1013mbar) | 0,59 | 2,34 | 0,93 | 4,29 | 1,05 | 5,17 | 1,53 | 8,00 | 2,02 | 10,1 | 2,21 | 12,30 |
| | Carbon dioxide - CO ₂ content | 8,8 | 9,0 | 8,6 | 9,0 | 8,8 | 8,9 | 8,8 | 9,2 | 8,6 | 8,9 | 8,8 | 9,0 |
| | Fumes temperature | 39 | 113 | 31 | 94 | 30 | 94 | 31 | 86 | 26 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | -- | | | | | | | | | | | |
| | Gas butterfly valve | 7,4 | | 8,9 | | 8,9 | | Not necessary | | Not necessary | | Not necessary | |
| G30 Cat. 3B-P | Air supply pressure | 30 [min 25-max 35] - 50 [min 42,5-max 57,5] | | | | | | | | | | | |
| | Ø pilot nozzle | 0,51 | | | | | | | | | | | |
| | Gas consumption (15°C-1013mbar) | 0,40 | 1,58 | 0,63 | 2,90 | 0,71 | 3,49 | 1,03 | 5,39 | 1,49 | 6,80 | 1,70 | 8,30 |
| | Carbon dioxide - CO ₂ content | 10,8 | 11,4 | 10,8 | 11,5 | 10,8 | 10,9 | 10,7 | 11,3 | 10,1 | 10,3 | 10,4 | 10,6 |
| | Fumes temperature | 39 | 113 | 31 | 94 | 30 | 94 | 31 | 86 | 26,5 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | -- | | | | | | | | | | | |
| | Gas butterfly valve | 3,7 | | 5,0 | | 5,2 | | 6,5 | | 7,0 | | 9,3 | |
| G31 Cat. 3P | Air supply pressure | 30 [min 25-max 35] - 37 [min 25-max 45] - 50 [min 42,5-max 57,5] | | | | | | | | | | | |
| | Ø pilot nozzle | 0,51 | | | | | | | | | | | |
| | Gas consumption (15°C-1013mbar) | 0,39 | 1,55 | 0,62 | 2,85 | 0,70 | 3,43 | 1,01 | 5,31 | 1,34 | 6,70 | 1,47 | 8,18 |
| | Carbon dioxide - CO ₂ content | 9,3 | 9,8 | 9,2 | 9,7 | 9,3 | 9,4 | 9,4 | 9,6 | 9,3 | 9,6 | 9,5 | 9,8 |
| | Fumes temperature | 39 | 113 | 31 | 94 | 30 | 94 | 31 | 86 | 26,5 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | 24 | | 45 | | 58 | | 84 | | 107 | | 130 | |
| | Gas butterfly valve | 3,7 | | 5,0 | | 5,2 | | 6,5 | | 7,0 | | 9,3 | |

■ Type of gas used depending on the destination country:

| Country | Category | Gas | Pressure (mbar) | Gas | Pressure (mbar) |
|---|---------------|--------------------|-----------------|---------|-----------------|
| Austria, Switzerland | I12H3B/P | G20 | 20 | G30/G31 | 50 |
| Belgium < 70kW | I2E(S)B,I3P | G20/G25 | 20/25 | G31 | 37 |
| Belgium > 70kW | I2E(R)B,I3P | G20/G25 | 20/25 | G31 | 37 |
| Germany | I12ELL3B/P | G20/G25 | 20 | G30/G31 | 50 |
| Denmark, Finland, Greece, Sweden, Norway, Italy, Czech Republic, Estonia, Lithuania, Slovenia, Albania, Macedonia, Bulgaria, Romania, Croatia, Turkey, Azerbaijan | I12H3B/P | G20 | 20 | G30/G31 | 30 |
| Spain, United Kingdom, Ireland, Portugal, Slovakia | I12H3P | G20 | 20 | G31 | 37 |
| France | I12Esi3P | G20/G25 | 20/25 | G31 | 37 |
| Luxembourg | I12E3P | G20/G25 | 20 | G31 | 37/50 |
| Netherlands | I12EK3B/P | G20/G25.3 | 20/25 | G30/G31 | 30 |
| Hungary | I12HS3B/P | G20/G25.1 | 25 | G30/G31 | 30 |
| Cyprus, Malta | I3B/P | -- | -- | G30/G31 | 30 |
| Latvia | I2H | G20 | 20 | | |
| Iceland | I3P | -- | -- | G31 | 37 |
| Poland | I12ELwLs-3B/P | G20/G27/G2.350 (*) | 20/13 | G30/G31 | 37 |
| Russia | I12H3B/P | G20 | 20 | G30/G31 | 30 |

(*) Consult the available burners with G2.350.

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Preheater in fresh air (CF assembly)

With CF assembly, 100% fresh air, it is possible to incorporate a preheater module (electrical heater) coupled to the fresh air intake. This module is supplied in kit for installation on site.

The electrical heater with proportional control will modulate capacity to get the condenser inlet conditions within the operating limits of the cooling circuit in case of very low outdoor temperatures.

■ Two values of total power available for each model:

| Vectios™ PJ | 0090 to 0190 | 0200 to 0240 | 0280 to 0380 |
|---------------|--------------|--------------|--------------|
| Low power | 18 kW | 27 kW | 36 kW |
| Nominal power | 36 kW | 54 kW | 72 kW |

■ Characteristics:

| Total power | 18 kW | 27 kW | 36 kW | 54 kW | 72 kW |
|--------------|----------------|-------|-------|-------|-------|
| Current (A) | 26,0 | 39,0 | 52,0 | 78,0 | 104,0 |
| Power supply | 400 V / III ph | | | | |

Operating limits with 100% fresh air unit (CF assembly)

■ **COOLING mode:** The maximum outdoor temperature depends on the air flow. The lower air flow, the higher temperature: 33°C DB with nominal air flow, 35°C DB with minimum air flow and 43°C DB with the minimum air flow of the CF assembly (50% lower than in rest of assemblies).

■ **HEATING mode:**

- Without electrical preheater: minimum outdoor temperature: 7°C with minimum air flow.
- With electrical preheater: the minimum outdoor temperature depends on the model, the air flow and the selected preheater. Refer to the attached table for reference although, depending on the model, this temperature may be lower.

| Minimum outdoor temperature with preheater option | Electrical preheater | |
|---|----------------------|---------------|
| | Low power | Nominal power |
| Nominal air flow | > 2°C | > -3°C |
| Minimum air flow of CF assembly | > -6°C | > -15°C |

Active dehumidification

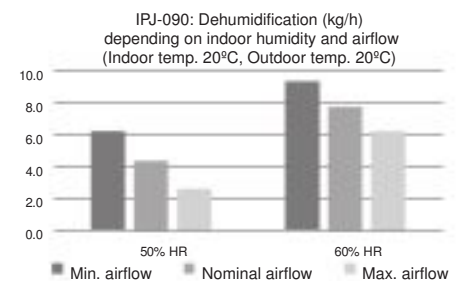
Active dehumidification with extra condensation coil for dehumidification applications in high relative humidity ambients.

The dehumidification process is done by the main refrigerant coil, the activation of compressors in cooling mode allows humidity to be removed from the evaporation coil. Depending on temperature conditions in comparison with set-point conditions, the control will adapt the amount of energy recovered in the additional condensation coil to reheat the air flow. This option also allows an additional reheating using the auxiliary electrical heaters (Group 8).

Influence of selection conditions

Dehumidification capacity of the unit is strongly influence by different factors:

- **Supply air flow:** The lower air flow, the higher dehumidification capacity.
- **Relative humidity setpoint:** The influence of humidity setpoint is key. The higher setpoint, the higher dehumidification capacity.



Technical performance

Calculations performed for the minimum supply air flow of the unit.

| Vectios™ PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Dehumidification capacity ① | kg/h | 7,0 | 8,9 | 9,7 | 12,4 | 15,4 | 17,5 | 16,9 | 19,6 | 21,6 | 22,3 | 25,3 | 31,2 | 38,4 |
| Energy recovery capacity ① ④ | kW | 28,3 | 35,2 | 42,0 | 46,9 | 52,6 | 55,7 | 33,2 | 36,3 | 38,0 | 42,6 | 45,3 | 50,6 | 56,7 |
| Dehumidification capacity ② | kg/h | 12,3 | 15,5 | 17,7 | 21,1 | 25,2 | 27,7 | 29,3 | 33,2 | 35,6 | 38,5 | 42,5 | 50,0 | 59,4 |
| Energy recovery capacity ② ④ | kW | 30,0 | 37,5 | 44,9 | 50,0 | 56,1 | 59,3 | 35,4 | 38,7 | 40,4 | 45,5 | 48,3 | 53,9 | 60,2 |
| Dehumidification capacity ③ | kg/h | 6,2 | 7,5 | 7,9 | 10,4 | 13,1 | 15,0 | 14,1 | 16,7 | 18,4 | 19,4 | 22,4 | 26,6 | 34,2 |
| Energy recovery capacity ③ ④ | kW | 25,7 | 32,5 | 38,5 | 43,3 | 48,4 | 51,3 | 30,6 | 33,5 | 35,0 | 38,9 | 41,4 | 46,5 | 51,7 |

① Indoor coil conditions: 27°C and 50%HR. Outdoor temperature 35°C.

② Indoor coil conditions: 25°C and 60%HR. Outdoor temperature 20°C.

③ Indoor coil conditions: 20°C and 50%HR. Outdoor temperature 20°C.

④ Maximum energy recovery capacity in the additional condensation coil.

Note: Axial 2-speed outdoor fans (optional) are not recommended with active dehumidification and outdoor temperatures below 12°C.

Note: The active dehumidification is not compatible with the hot water coil, the gas boiler, the gas burner, the air zoning and the CF assembly.

PRESSURE DROPS DUE TO THE INDOOR UNIT OPTIONS

| PJ | Flow (m ³ /h) | Pressure drops (mm.w.c) | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----------------------------|-------------------------|------------|------------|------------|-------------------|-------------------|------------|------------|------------|------------|--------------|--------------------|-----|-----------|-----|-----|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | Filters ① | | | | | | | | | | | | | Stop-drop | | | | PFH | | Gas burner | | | | |
| | | G4 lpd | G4 + M6 | G4 + F7 | G4 + F9 | G4 lpd + F7 | G4 lpd + F9 | M6 + F7 | M6 + F9 | F7 + F9 | F9 + F9 | Ind. coil | Air intake ② | HWC | EH | HRC | Deh | Nom (N) | Low (L) | PCH -020 | PCH -034 | PCH -045 | PCH -065 | PCH -080 | PCH -105 |
| 0090 | 4.080 | -1,8 | 3,2 | 4,7 | 11,0 | 2,9 | 9,2 | 4,0 | 10,3 | 11,8 | 18,1 | 1,9 | 0,7 | 1,7 | 2,0 | 1,6 | 1,7 | 2,6 | 1,8 | 2,6 | 2,8 | 2,1 | -- | -- | -- |
| | 5.100 | -1,7 | 4,4 | 6,2 | 14,1 | 4,5 | 12,3 | 5,1 | 13,0 | 14,8 | 22,6 | 2,6 | 1,0 | 2,4 | 3,1 | 2,6 | 2,4 | 3,7 | 2,8 | 4,0 | 4,4 | 3,3 | -- | -- | -- |
| | 6.120 | -2,1 | 5,8 | 7,9 | 17,4 | 5,8 | 15,3 | 6,2 | 15,7 | 17,7 | 27,2 | 3,4 | 1,4 | 3,2 | 4,4 | 3,7 | 3,2 | 5,3 | 4,1 | 5,8 | 6,3 | 4,8 | -- | -- | -- |
| 0120 | 5.200 | -1,8 | 4,6 | 6,4 | 14,4 | 4,6 | 12,6 | 5,2 | 13,3 | 15,0 | 23,1 | 2,6 | 1,1 | 2,5 | 3,2 | 2,7 | 2,5 | 3,8 | 2,9 | 4,0 | 3,9 | 3,2 | -- | -- | -- |
| | 6.500 | -2,3 | 6,4 | 8,6 | 18,6 | 6,3 | 16,4 | 6,6 | 16,7 | 18,8 | 28,9 | 3,7 | 1,5 | 3,5 | 5,0 | 4,2 | 3,5 | 6,0 | 4,7 | 6,3 | 6,1 | 5,0 | -- | -- | -- |
| | 7.800 | -3,3 | 8,6 | 11,0 | 23,2 | 7,7 | 19,8 | 8,0 | 20,1 | 22,6 | 34,7 | 5,1 | 2,0 | 4,7 | 7,2 | 6,0 | 4,7 | 9,2 | 7,2 | 9,0 | 8,8 | 7,2 | -- | -- | -- |
| 0140 | 6.800 | -1,8 | 4,5 | 6,3 | 14,3 | 4,6 | 12,6 | 5,2 | 13,2 | 15,0 | 23,0 | 2,6 | 1,7 | 2,5 | 2,6 | 2,4 | 2,5 | 6,7 | 5,3 | 6,6 | 6,8 | 5,6 | -- | -- | -- |
| | 8.500 | -2,2 | 6,4 | 8,5 | 18,6 | 6,3 | 16,3 | 6,6 | 16,6 | 18,8 | 28,8 | 3,7 | 2,4 | 3,6 | 4,0 | 3,7 | 3,6 | 11,2 | 8,9 | 10,3 | 10,6 | 8,7 | -- | -- | -- |
| | 10.200 | -3,3 | 8,5 | 11,0 | 23,1 | 7,7 | 19,8 | 7,9 | 20,0 | 22,5 | 34,6 | 5,0 | 3,2 | 4,8 | 5,8 | 5,4 | 4,8 | 17,3 | 13,6 | 14,8 | 15,2 | 12,5 | -- | -- | -- |
| 0160 | 7.000 | -1,8 | 4,7 | 6,6 | 14,8 | 4,8 | 13,0 | 5,4 | 13,6 | 15,4 | 23,7 | 2,7 | 1,8 | 2,8 | 2,7 | 2,5 | 2,8 | 7,1 | 5,6 | 7,8 | 7,6 | 6,3 | -- | -- | -- |
| | 8.750 | -2,4 | 6,7 | 8,9 | 19,2 | 6,5 | 16,8 | 6,8 | 17,1 | 19,3 | 29,6 | 3,9 | 2,6 | 4,0 | 4,3 | 3,9 | 4,0 | 12,0 | 9,5 | 12,2 | 11,8 | 9,9 | -- | -- | -- |
| | 10.500 | -3,5 | 8,9 | 11,4 | 23,9 | 7,9 | 20,3 | 8,2 | 20,6 | 23,1 | 35,6 | 5,3 | 3,5 | 5,3 | 6,2 | 5,7 | 5,3 | 18,5 | 14,5 | 17,5 | 17,0 | 14,2 | -- | -- | -- |
| 0180 | 7.200 | -1,8 | 5,0 | 6,8 | 15,3 | 5,0 | 13,5 | 5,5 | 14,0 | 15,9 | 24,4 | 2,9 | 1,9 | 2,9 | 2,9 | 2,7 | 2,9 | 7,6 | 6,0 | 8,0 | 7,8 | 6,8 | -- | -- | -- |
| | 9.000 | -2,5 | 7,0 | 9,2 | 19,9 | 6,7 | 17,4 | 7,0 | 17,6 | 19,9 | 30,5 | 4,1 | 2,7 | 4,1 | 4,5 | 4,2 | 4,1 | 12,8 | 10,1 | 12,5 | 12,2 | 10,6 | -- | -- | -- |
| | 10.800 | -3,8 | 9,3 | 11,9 | 24,7 | 8,1 | 20,9 | 8,4 | 21,2 | 23,8 | 36,7 | 5,5 | 3,6 | 5,5 | 6,5 | 6,0 | 5,5 | 19,8 | 15,5 | 18,0 | 17,5 | 15,2 | -- | -- | -- |
| 0190 | 7.200 | -1,8 | 5,0 | 6,8 | 15,3 | 5,0 | 13,5 | 5,5 | 14,0 | 15,9 | 24,4 | 2,9 | 1,9 | 2,9 | 2,9 | 2,7 | 2,9 | 7,6 | 6,0 | 8,0 | 7,8 | 6,8 | -- | -- | -- |
| | 9.000 | -2,5 | 7,0 | 9,2 | 19,9 | 6,7 | 17,4 | 7,0 | 17,6 | 19,9 | 30,5 | 4,1 | 2,7 | 4,1 | 4,5 | 4,2 | 4,1 | 12,8 | 10,1 | 12,5 | 12,2 | 10,6 | -- | -- | -- |
| | 10.800 | -3,8 | 9,3 | 11,9 | 24,7 | 8,1 | 20,9 | 8,4 | 21,2 | 23,8 | 36,7 | 5,5 | 3,6 | 5,5 | 6,5 | 6,0 | 5,5 | 19,8 | 15,5 | 18,0 | 17,5 | 15,2 | -- | -- | -- |
| 0200 | 9.600 | -1,7 | 4,5 | 6,2 | 14,1 | 4,5 | 12,4 | 5,1 | 13,0 | 14,8 | 22,7 | 2,6 | 1,2 | 2,4 | 3,1 | 2,5 | 2,4 | 7,0 | 5,5 | -- | -- | -- | 6,4 | 6,2 | -- |
| | 12.000 | -2,2 | 6,3 | 8,4 | 18,3 | 6,2 | 16,1 | 6,5 | 16,4 | 18,5 | 28,4 | 3,7 | 1,6 | 3,4 | 4,8 | 3,8 | 3,4 | 11,7 | 9,2 | -- | -- | -- | 10,1 | 9,7 | -- |
| | 14.400 | -3,2 | 8,3 | 10,8 | 22,7 | 7,6 | 19,5 | 7,8 | 19,8 | 22,2 | 34,2 | 4,9 | 2,2 | 4,6 | 6,9 | 5,5 | 4,6 | 18,0 | 14,1 | -- | -- | -- | 14,5 | 13,9 | -- |
| 0220 | 10.000 | -1,8 | 4,7 | 6,6 | 14,8 | 4,8 | 13,0 | 5,4 | 13,6 | 15,4 | 23,7 | 2,7 | 1,2 | 2,5 | 3,3 | 2,7 | 2,5 | 7,6 | 6,0 | -- | -- | -- | 7,1 | 6,4 | -- |
| | 12.500 | -2,4 | 6,7 | 8,9 | 19,2 | 6,5 | 16,8 | 6,8 | 17,1 | 19,3 | 29,6 | 3,9 | 1,7 | 3,6 | 5,2 | 4,2 | 3,6 | 12,9 | 10,1 | -- | -- | -- | 11,1 | 10,1 | -- |
| | 15.000 | -3,5 | 8,9 | 11,4 | 23,9 | 7,9 | 20,3 | 8,2 | 20,6 | 23,1 | 35,6 | 5,3 | 2,3 | 4,9 | 7,5 | 6,0 | 4,9 | 19,8 | 15,5 | -- | -- | -- | 16,0 | 14,5 | -- |
| 0240 | 10.000 | -1,8 | 4,7 | 6,6 | 14,8 | 4,8 | 13,0 | 5,4 | 13,6 | 15,4 | 23,7 | 2,7 | 1,2 | 2,5 | 3,3 | 2,7 | 2,5 | 7,6 | 6,0 | -- | -- | -- | 7,1 | 6,4 | -- |
| | 12.500 | -2,4 | 6,7 | 8,9 | 19,2 | 6,5 | 16,8 | 6,8 | 17,1 | 19,3 | 29,6 | 3,9 | 1,7 | 3,6 | 5,2 | 4,2 | 3,6 | 12,9 | 10,1 | -- | -- | -- | 11,1 | 10,1 | -- |
| | 15.000 | -3,5 | 8,9 | 11,4 | 23,9 | 7,9 | 20,3 | 8,2 | 20,6 | 23,1 | 35,6 | 5,3 | 2,3 | 4,9 | 7,5 | 6,0 | 4,9 | 19,8 | 15,5 | -- | -- | -- | 16,0 | 14,5 | -- |
| 0280 | 12.400 | -1,8 | 4,6 | 6,4 | 14,5 | 4,6 | 12,7 | 5,3 | 13,3 | 15,1 | 23,2 | 2,7 | 1,2 | 2,6 | 3,1 | 2,5 | 2,6 | 6,7 | 5,2 | -- | -- | -- | -- | 4,6 | 6,7 |
| | 15.500 | -2,3 | 6,5 | 8,6 | 18,7 | 6,3 | 16,5 | 6,6 | 16,7 | 18,9 | 29,0 | 3,8 | 1,7 | 3,7 | 4,9 | 3,9 | 3,7 | 11,5 | 9,2 | -- | -- | -- | -- | 7,2 | 10,5 |
| | 18.600 | -3,4 | 8,6 | 11,1 | 23,3 | 7,7 | 19,9 | 8,0 | 20,2 | 22,7 | 34,9 | 5,1 | 2,3 | 5,0 | 7,0 | 5,6 | 5,0 | 17,9 | 14,4 | -- | -- | -- | -- | 10,4 | 15,1 |
| 0320 | 12.400 | -1,8 | 4,6 | 6,4 | 14,5 | 4,6 | 12,7 | 5,3 | 13,3 | 15,1 | 23,2 | 2,7 | 1,2 | 2,6 | 3,1 | 2,5 | 2,6 | 6,7 | 5,2 | -- | -- | -- | -- | 4,6 | 6,7 |
| | 15.500 | -2,3 | 6,5 | 8,6 | 18,7 | 6,3 | 16,5 | 6,6 | 16,7 | 18,9 | 29,0 | 3,8 | 1,7 | 3,7 | 4,9 | 3,9 | 3,7 | 11,5 | 9,2 | -- | -- | -- | -- | 7,2 | 10,5 |
| | 18.600 | -3,4 | 8,6 | 11,1 | 23,3 | 7,7 | 19,9 | 8,0 | 20,2 | 22,7 | 34,9 | 5,1 | 2,3 | 5,0 | 7,0 | 5,6 | 5,0 | 17,9 | 14,4 | -- | -- | -- | -- | 10,4 | 15,1 |
| 0360 | 12.800 | -1,8 | 4,8 | 6,7 | 15,0 | 4,9 | 13,2 | 5,4 | 13,7 | 15,6 | 23,9 | 2,8 | 1,3 | 2,7 | 3,3 | 2,7 | 2,7 | 7,2 | 5,7 | -- | -- | -- | -- | 4,9 | 7,1 |
| | 16.000 | -2,4 | 6,8 | 9,0 | 19,4 | 6,6 | 17,0 | 6,9 | 17,3 | 19,5 | 30,0 | 4,0 | 1,8 | 3,9 | 5,2 | 4,2 | 3,9 | 12,4 | 9,9 | -- | -- | -- | -- | 7,6 | 11,1 |
| | 19.200 | -3,6 | 9,1 | 11,6 | 24,2 | 7,9 | 20,6 | 8,2 | 20,9 | 23,4 | 36,0 | 5,4 | 2,4 | 5,2 | 7,5 | 6,0 | 5,2 | 19,3 | 15,5 | -- | -- | -- | -- | 11,0 | 15,9 |
| 0380 | 12.800 | -1,8 | 4,8 | 6,7 | 15,0 | 4,9 | 13,2 | 5,4 | 13,7 | 15,6 | 23,9 | 2,8 | 1,3 | 3,0 | 3,3 | 2,7 | 3,0 | 7,2 | 5,7 | -- | -- | -- | -- | 4,9 | 7,1 |
| | 16.000 | -2,4 | 6,8 | 9,0 | 19,4 | 6,6 | 17,0 | 6,9 | 17,3 | 19,5 | 30,0 | 4,0 | 1,8 | 4,3 | 5,2 | 4,2 | 4,3 | 12,4 | 9,9 | -- | -- | -- | -- | 7,6 | 11,1 |
| | 19.200 | -3,6 | 9,1 | 11,6 | 24,2 | 7,9 | 20,6 | 8,2 | 20,9 | 23,4 | 36,0 | 5,4 | 2,4 | 5,8 | 7,5 | 6,0 | 5,8 | 19,3 | 15,5 | -- | -- | -- | -- | 11,0 | 15,9 |

① The pressure drops in the filters are based on clean filters. Data refer to the difference with regard to the standard G4 pressure drops, considered as part of the machine pressure drops.

② The pressure drops in the stop-drops of the fresh air intake are based on 20% of flow.

Abbreviations:

lpd = low pressure drop

HWC = hot water coil

EH = electrical heaters

HRC = heat recovery coil

Deh = dehumidification

PFH = preheater (electrical heater) in fresh air

WEIGHT OVERVIEW OF THE VARIOUS ASSEMBLIES AND THE MAIN OPTIONS (kg)

| RPJ series | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|--------------------|-----------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C0 assembly | | 594 | 617 | 699 | 698 | 704 | 701 | 914 | 929 | 936 | 1.035 | 1.059 | 1.057 | 1.078 |
| CS / CF assemblies | | 609 | 632 | 718 | 718 | 718 | 720 | 946 | 967 | 969 | 1.070 | 1.094 | 1.112 | 1.113 |
| CK assembly | | 682 | 705 | 796 | 796 | 796 | 798 | 1.047 | 1.062 | 1.070 | 1.197 | 1.221 | 1.230 | 1.231 |
| CA assembly | | 713 | 736 | 815 | 815 | 815 | 817 | 1.090 | 1.111 | 1.112 | 1.248 | 1.272 | 1.290 | 1.291 |
| CP assembly | | 723 | 746 | 831 | 831 | 828 | 833 | 1.120 | 1.141 | 1.142 | 1.276 | 1.300 | 1.309 | 1.310 |
| CR assembly | | 781 | 804 | 900 | 900 | 897 | 902 | 1.211 | 1.232 | 1.233 | 1.379 | 1.403 | 1.412 | 1.413 |
| CQ assembly | | 774 | 797 | 882 | 882 | 882 | 884 | 1.213 | 1.228 | 1.236 | 1.371 | 1.395 | 1.413 | 1.414 |
| CT assembly | | 832 | 855 | 951 | 951 | 951 | 953 | 1.304 | 1.319 | 1.327 | 1.474 | 1.498 | 1.516 | 1.517 |
| CW assembly | Machine | 722 | 745 | 834 | 834 | 834 | 837 | 1.122 | 1.143 | 1.145 | 1.206 | 1.230 | 1.248 | 1.249 |
| | Recovery module | 254 | 254 | 254 | 254 | 254 | 254 | 348 | 348 | 348 | 454 | 454 | 454 | 454 |
| | Total weight | 976 | 999 | 1.088 | 1.088 | 1.088 | 1.091 | 1.470 | 1.491 | 1.493 | 1.660 | 1.684 | 1.702 | 1.703 |
| T0 assembly | | -- | -- | -- | -- | -- | -- | 972 | 993 | 994 | 1.068 | 1.092 | 1.111 | 1.111 |
| TS assembly | | -- | -- | -- | -- | -- | -- | 1.010 | 1.031 | 1.033 | 1.105 | 1.129 | 1.147 | 1.148 |
| TP assembly | | -- | -- | -- | -- | -- | -- | 1.180 | 1.201 | 1.202 | 1.294 | 1.318 | 1.336 | 1.337 |
| TW assembly | Machine | -- | -- | -- | -- | -- | -- | 957 | 978 | 980 | 1.247 | 1.271 | 1.289 | 1.290 |
| | Recovery module | -- | -- | -- | -- | -- | -- | 719 | 719 | 719 | 454 | 454 | 454 | 454 |
| | Total weight | -- | -- | -- | -- | -- | -- | 1.676 | 1.697 | 1.699 | 1.701 | 1.725 | 1.743 | 1.744 |

| IPJ series | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|--------------------|-----------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C0 assembly | | 594 | 617 | 699 | 698 | 704 | 701 | 986 | 986 | 1.004 | 1.146 | 1.146 | 1.135 | 1.160 |
| CS / CF assemblies | | 609 | 632 | 718 | 718 | 718 | 720 | 1.018 | 1.024 | 1.037 | 1.181 | 1.181 | 1.190 | 1.195 |
| CK assembly | | 682 | 705 | 796 | 796 | 796 | 798 | 1.119 | 1.119 | 1.138 | 1.308 | 1.308 | 1.308 | 1.313 |
| CA assembly | | 713 | 736 | 815 | 815 | 815 | 817 | 1.162 | 1.168 | 1.180 | 1.359 | 1.359 | 1.368 | 1.373 |
| CP assembly | | 723 | 746 | 831 | 831 | 828 | 833 | 1.192 | 1.198 | 1.210 | 1.387 | 1.387 | 1.387 | 1.392 |
| CR assembly | | 781 | 804 | 900 | 900 | 897 | 902 | 1.283 | 1.289 | 1.301 | 1.490 | 1.490 | 1.490 | 1.495 |
| CQ assembly | | 774 | 797 | 882 | 882 | 882 | 884 | 1.285 | 1.285 | 1.304 | 1.482 | 1.482 | 1.491 | 1.496 |
| CT assembly | | 832 | 855 | 951 | 951 | 951 | 953 | 1.376 | 1.376 | 1.395 | 1.585 | 1.585 | 1.594 | 1.599 |
| CW assembly | Machine | 722 | 745 | 834 | 834 | 834 | 837 | 1.194 | 1.200 | 1.213 | 1.317 | 1.317 | 1.326 | 1.331 |
| | Recovery module | 254 | 254 | 254 | 254 | 254 | 254 | 348 | 348 | 348 | 454 | 454 | 454 | 454 |
| | Total weight | 976 | 999 | 1.088 | 1.088 | 1.088 | 1.091 | 1.542 | 1.548 | 1.561 | 1.771 | 1.771 | 1.780 | 1.785 |
| T0 assembly | | -- | -- | -- | -- | -- | -- | 1.044 | 1.050 | 1.062 | 1.179 | 1.179 | 1.189 | 1.193 |
| TS assembly | | -- | -- | -- | -- | -- | -- | 1.082 | 1.088 | 1.101 | 1.216 | 1.216 | 1.225 | 1.230 |
| TP assembly | | -- | -- | -- | -- | -- | -- | 1.252 | 1.258 | 1.270 | 1.405 | 1.405 | 1.414 | 1.419 |
| TW assembly | Machine | -- | -- | -- | -- | -- | -- | 1029 | 1035 | 1048 | 1358 | 1358 | 1367 | 1372 |
| | Recovery module | -- | -- | -- | -- | -- | -- | 719 | 719 | 719 | 454 | 454 | 454 | 454 |
| | Total weight | -- | -- | -- | -- | -- | -- | 1.749 | 1.755 | 1.767 | 1.812 | 1.812 | 1.822 | 1.826 |

WEIGHT OVERVIEW OF THE VARIOUS ASSEMBLIES AND THE MAIN OPTIONS (kg)

Weight supplement from the main options (kg)

| Vectios™ PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 | |
|---|------------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Pre-assembly roofcurb (without gas burner) | | 145 | 145 | 145 | 145 | 145 | 145 | 205 | 205 | 205 | 237 | 237 | 237 | 237 | |
| Pre-assembly roofcurb (with gas burner) | G0L (Low) | 265 | 265 | 265 | 265 | 265 | 265 | -- | -- | -- | -- | -- | -- | -- | |
| | G0N (Nominal) | 274 | 274 | 274 | 274 | 274 | 274 | 385 | 385 | 385 | 463 | 463 | 463 | 463 | |
| | G0H (High) | 284 | 284 | 284 | 284 | 284 | 284 | 411 | 411 | 411 | 483 | 483 | 483 | 483 | |
| Electrical heaters | E0L (Low) | | 20 | 20 | 20 | 20 | 20 | 20 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| | E0N (Nominal) | | 17 | 17 | 17 | 17 | 17 | 17 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| | E0H (High) | | -- | -- | 21 | 21 | 21 | 21 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Hot water coil | Standard | Empty | 33 | 33 | 37 | 37 | 37 | 37 | 51 | 51 | 51 | 58 | 58 | 58 | 58 |
| | | Service | 40 | 40 | 46 | 46 | 46 | 46 | 67 | 67 | 67 | 78 | 78 | 78 | 78 |
| | Great cold | Empty | 41 | 41 | 45 | 45 | 45 | 45 | 71 | 71 | 71 | 78 | 78 | 78 | 78 |
| | | Service | 49 | 49 | 55 | 55 | 55 | 55 | 89 | 89 | 89 | 100 | 100 | 100 | 100 |
| Boiler + Hot water coil | Boiler | | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| | Water circuit | Empty | 47 | 47 | 52 | 52 | 52 | 52 | 79 | 79 | 79 | 87 | 87 | 87 | 87 |
| | | Service | 55 | 55 | 62 | 62 | 62 | 62 | 98 | 98 | 98 | 109 | 109 | 109 | 109 |
| | Total service weight | | 124 | 124 | 131 | 131 | 131 | 131 | 167 | 167 | 167 | 178 | 178 | 178 | 178 |
| Heat recovery coil | Empty | | 22 | 22 | 21 | 21 | 21 | 21 | 30 | 30 | 30 | 36 | 36 | 36 | 36 |
| | Service | | 31 | 31 | 31 | 31 | 31 | 31 | 44 | 44 | 44 | 53 | 53 | 53 | 53 |
| Preheater in fresh air | Low power | | 93 | 93 | 93 | 93 | 93 | 93 | 121 | 121 | 121 | 144 | 144 | 144 | 144 |
| | Nominal power | | 105 | 105 | 105 | 105 | 105 | 105 | 138 | 138 | 138 | 165 | 165 | 165 | 165 |
| Supply fan | Low pressure (L) | | -7 | -7 | -- | -- | -- | -- | -21 | -21 | -21 | -9 | -9 | -9 | -9 |
| | High pressure (H) | | 4 | 4 | 28 | 28 | 28 | 28 | 38 | 38 | 38 | 29 | 29 | 29 | 29 |
| Stop-drop | Indoor coil | | 24 | 24 | 25 | 25 | 25 | 25 | 34 | 34 | 34 | 43 | 43 | 43 | 43 |
| | Fresh air intake | | 8 | 8 | 8 | 8 | 8 | 8 | 11 | 11 | 11 | 14 | 14 | 14 | 14 |
| Centrifugal return fan (CQ and CT assemblies) | 1: Low flow + nominal pressure | | -8 | -7 | 7 | 10 | 10 | 10 | -21 | -21 | -21 | 20 | 20 | 20 | 20 |
| | 2: Low flow + high pressure | | -1 | 3 | 31 | 31 | 31 | 31 | 0 | 10 | 10 | 30 | 30 | 30 | 30 |
| | 3: Nominal flow + nominal pressure | | -7 | 7 | 13 | 17 | 17 | 17 | -1 | -1 | -1 | 47 | 47 | 47 | 47 |
| | 4: Nominal flow + high pressure | | 3 | 9 | 38 | 38 | 38 | 38 | 26 | 26 | 26 | 145 | 145 | 145 | 145 |
| | 5: High flow + nominal pressure | | 0 | 13 | 17 | 36 | 36 | 36 | 20 | 27 | 27 | 60 | 60 | 60 | 60 |
| | 6: High flow + high pressure | | 9 | 15 | 48 | 63 | 48 | 48 | 44 | 44 | 44 | 145 | 145 | 185 | 185 |
| | 7: Low flow + low pressure | | -10 | -2 | 1 | 7 | 7 | 7 | -2 | -2 | -2 | 10 | 10 | -2 | -2 |
| | 8: Nominal flow + low pressure | | -2 | 7 | 8 | 34 | 35 | 35 | 3 | 3 | 3 | 14 | 14 | 14 | 14 |
| | 9: High flow + low pressure | | 1 | 7 | 34 | 40 | 40 | 40 | 21 | 21 | 21 | 56 | 56 | 56 | 56 |
| Active dehumidification | RPJ | | 27 | 27 | 34 | 34 | 34 | 34 | 52 | 52 | 52 | 59 | 59 | 59 | 59 |
| | IPJ | | 38 | 38 | 45 | 45 | 45 | 45 | 59 | 59 | 59 | 70 | 70 | 70 | 70 |

VECTIOS^{POWER}™ PJ R-454B **NEW**

Compact air-air rooftop units



Integrated **“plug&play”** system
 Eco-Design: **high seasonal efficiency**
Reliability with superior quality
Compact and quiet
Advanced system control
 Packaged system **flexibility**
Extensive scope

Cooling capacity: 97.7 to 273.2 kW
 Heating capacity: 97.4 to 299.5 kW



(*) Version with R-410A is also available

DESCRIPTION

The **VECTIOS^{POWER}™ range** consists of autonomous and compact air-air units of horizontal construction, rooftop-type design. The units are equipped with all the components required for the correct air conditioning to the installation. Now with R-454B refrigerant.

■ **IPJ series:** Units for **reversible heat pump** operation.

The unit is connected directly to an air distribution ductwork without additional elements or equipment, pipes, cables, etc. taking up no floor space at all. This design reduces the cost of installation, facilities connections and ensures reliable operation.

The range of capacities of these units allows for the air conditioning of large surface areas used for business or industry. A vast number of options meet many operating requirements, such as:

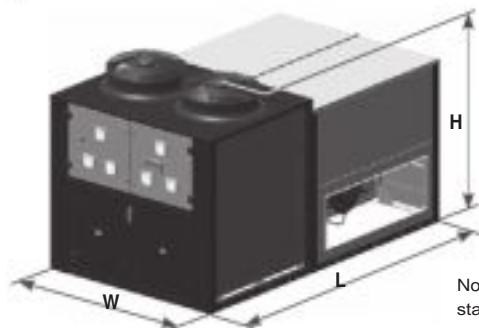
- Recovery of the extracted air energy
- Free-cooling
- Air renewal
- Zoning with variation of air flow
- Indoor air quality control
- Air filtration
- Auxiliary devices for heating
- Heat recovery coil
- Extension of operating limits for adaptation to extreme temperatures
- Available static pressure up to 80 mm.w.c.

These units are equipped with electronic axial fans in the outdoor circuit, electronic plug-fans in the indoor circuit, air coils, hermetic scroll-type compressors in tandem and electronic control with microprocessor.

All of the units are tested and checked in the factory.

RANGE

| VECTIOS ^{POWER} ™ models | Dimensions: L x W x H (mm) |
|-----------------------------------|----------------------------|
| 0420 - 0450 - 0500 | 3.820 x 2.257 x 2.293 |
| 0560 - 0620 - 0680 - 0720 | 4.224 x 2.257 x 2.340 |
| 0760 - 0840 - 0960 | 5.300 x 2.257 x 2.421 |
| 1050 - 1200 | 6.350 x 2.257 x 2.494 |



Note: Dimensions for the standard configuration.

COMPLIANCE

- Machinery Directive 2006/42/EC (MD)
- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Pressure Equipment Directive 2014/68/EU (Category 3) (PED)
- RoHS Directive 2011/65/EU (RoHS)
- Eco-design Directive 2009/125/EC (ECO-DESIGN)
- Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
- Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).

COSTUMER BENEFITS

High energy efficiency & environmental responsibility

CIAT concentrates its efforts on achieving the lowest environmental impact selecting the best low GWP refrigerant for each application.

A combination of lower refrigerant charge and much lower GWP leads to an 80% reduction on direct carbon footprint.

The increase on efficiencies with R-454B over the already outstanding energy performance of VECTIOS^{POWER} leads to an additional 3% reduction on the indirect emissions. It means up to 42% savings in cooling and up to 10% savings in heating versus Ecodesign requirements.

VECTIOS^{POWER} goes beyond 2021 Ecodesign rooftop requirements.

SEER up to 5,04

SCOP up to 3,53

R-454B



We have designed the VECTIOS^{POWER} R-454B range with specific features to reduce energy consumption to the minimum for each application: variable ventilation, free-cooling, low pressure drop filters and energy recovery systems.

Packaged system flexibility

VECTIOS^{POWER} R-454B offers a wide range of options to address the most specific requirements to be the **perfect solution for every application** with maximum comfort, energy efficiency and indoor air quality in mind



SHOPPING CENTERS



CINEMAS



LOGISTICS



INDUSTRIES



OFFICES



ADMINISTRATION

- Free-cooling
- Energy recovery
- Fresh air
- Quality sensors
- Filtration
- Overpressure control
- Heating back-up
- Humidity control
- All season operations
- Multi zone control
- Heat recovery coil
- Low temperature applications
- Master/slave and back-up
- Energy meter
- Smoke detector
- Anti-corrosion options
- Supervision
- Communication

Weight and dimensions optimized, including **aluminium panels and registers**

Advanced system control

VECTIC control is dedicated to optimizing the performance at part load conditions, increases the seasonal efficiency and operational limits in all seasons.

Simplicity

We guarantee an easy installation and integration in the building management system.

- **Plug & play solution** fully programmed and set-up from factory.
- **Communication** with all building management system protocols through Modbus, Ethernet, LonWorks, BACnet and KNX.
- **Wide supervision** offer from 1 to 300 units
- **Remote supervision** solution BluEdge[®]Digital.

Extensive scope

More applications in a wider temperature range:

- **Air zoning** to control up to 4 zones or in case of large surfaces with high thermal dispersion.
- **Heat recovery coil** using energy rejected by food refrigeration system or industrial process.
- **Airflow extension** to provide the proper solution when larger airflow in comparison with capacity is required.
- **Low return temperature 15°C** in cooling mode operation which allows to answer the request of certain application as food conservation in large store facilities.

Double panel with 50mm insulation in all indoor parts to fit the higher standard on air quality, and/or when Euro class A2-s1, d0 (M0) fire classification is required.

Acoustic comfort

VECTIOS^{POWER} R-454B guarantee **low noise level** during operation to meet the highest requirements thanks to the design optimization and the use of latest technology for fans and compressors.

Full reliability

CIAT designs and manufactures reliable products to meet the highest expectations and facilitate maintenance.

VECTIOS^{POWER} R-454B offers **Eurovent certified** performance.



(up to 200kW)

The robust qualification process guarantees the highest standards.

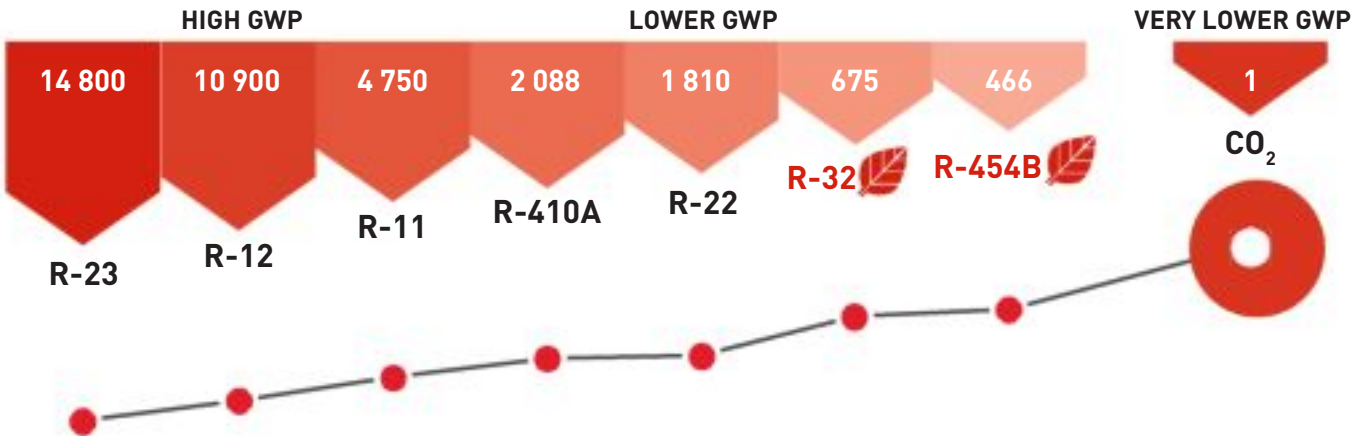
ENVIRONMENTAL RESPONSIBILITY



VECTIOS^{POWER} R-454B leads the transition to the lowest environmental impact contributing to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

The impact of an air conditioning system on global warming of the planet is in large part caused by CO₂ emissions released into the atmosphere when the electricity required to power the unit is produced (**indirect effect**) and in small part by CO₂ emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (**direct effect**).

CIAT offers the best refrigerant choice according to applications, conditions and technologies. Taking into account the energy consumption reduction without losing its energy efficiency



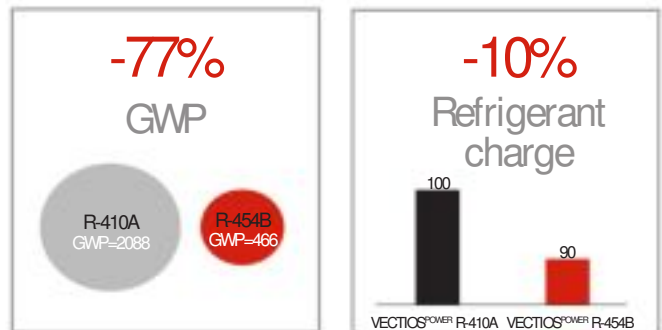
■ 80% reduction in the direct environmental impact, and therefore in the taxes

This performance is the result of the high-quality components used, which have all been rigorously selected:

- ✓ R-454B refrigerant with the lowest environmental impact (Ozone depletion potential = 0, Global warming potential = 466).
- ✓ R-454B is the best alternative for rooftops, with the lowest GWP (77% lower than R-410A, 31% lower than R-32).
- ✓ 10% reduction in refrigerant charge compared to previous version with R-410A.
- ✓ Systematic tightness check of units in leak detection cabinets at end of line production.

To conclude, the potential direct impact of **VECTIOS^{POWER} R-454B** on the environment is reduced by 80% compared to **VECTIOS^{POWER} R-410A**.

Note: Units with R-410A can benefit from a retrofit kit to use R-454B.

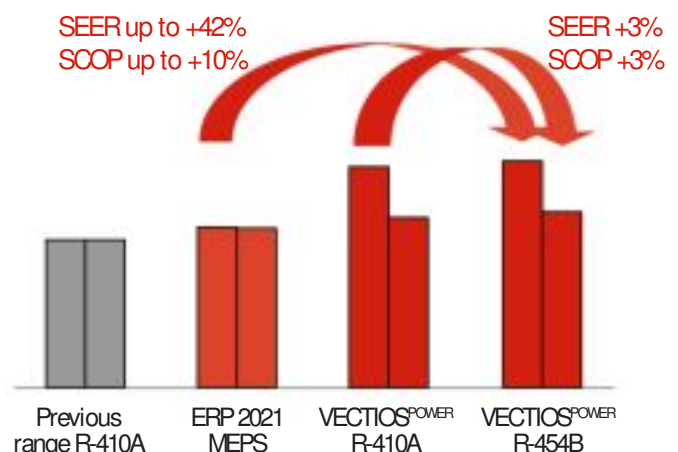


80% LESS CO₂ EQUIVALENT THAN R-410A

■ Reduced indirect environmental impact (Energy)

The new **VECTIOS^{POWER} R-454B** range also reduces the indirect environmental impact to the minimum thanks to the additional increase on the efficiency over the already **outstanding performance** in the legacy range with R-410A, getting savings versus Ecodesign regulation up to 42% in cooling and 10% in heating.

The high energy performance offered by **VECTIOS^{POWER} R-454B** enables energy consumption to be greatly reduced, therefore reducing energy bills for the user whilst reducing the unit's carbon footprint.





ENVIRONMENTAL RESPONSIBILITY

This performance is the result of the high-quality components used, which have all been rigorously selected:

- ✓ New generation of scroll compressors optimized for R-410A and R-454B refrigerants (bivalent compressors) in tandem configuration with 2 frigorific circuits and 4 compressors for high performance in partial load.
- ✓ R-454B refrigerant with high energy performance,
- ✓ Electronic expansion valves.
- ✓ VECTIC electronic control optimizing performance and energy consumption.
- ✓ EC outdoor fans for high efficiency and low noise level.
- ✓ EC indoor plug-fan with pressure transducer.

In addition, the **VECTIOS^{POWER} R-454B** range can be equipped with additional specific features to reduce energy consumption to the minimum for each application: variable ventilation, free-cooling, low pressure drop filters and energy recovery systems.

To conclude, **VECTIOS^{POWER} R-454B** reduces the indirect environmental impact leading the transition to the lowest environmental impact, not only in direct effect, but also in the indirect effect.

■ EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to communicate the environmental specifications of their products in the form of an eco-declaration, known as the Product Environmental Profile (PEP).



The PEP ecopassport® programme guarantees that PEPs are created, checked and communicated correctly according to the requirements of standard ISO 14025 and standard IEC/PAS 62545.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle

Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM or LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

CIAT is the first HVAC manufacturer to provide PEPs for rooftops, not only the 8 mandatory indicators, but all 27 indicators.

The PEP of **VECTIOS^{POWER} R-454B** can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org>



MODEL NUMBER NOMENCLATURE

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|------|---|---|---|----|----|-----|---|----|----|----|----|-----|------|------|----|----|------|----|-----|-----|------|------|------|
| IPJ | 0420 | A | 3 | G | C0 | AA | 000 | 0 | N | B | E | 0 | 000 | 0000 | 0000 | 0 | 0 | T100 | 00 | P00 | 000 | C100 | 0000 | 0000 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

Group 1: Unit type

- IPJ_: air/air heat pump

Group 2: Unit model

- 2 circuits: 0420 / 0450 / 0500 / 0560 / 0620 / 0680 / 0720 / 0760 / 0840 / 0960 / 1050 / 1200

Group 3: Version of the series

Group 4: Electrical power

- 3: 400V / 3ph + N / 50Hz
- 4: 400V / 3ph / 50Hz

Group 5: Type of refrigerant

- G: R-454B

Group 6: Air flow + Assembly

- C0: Standard assembly
- CS: 2 dampers
- CP: Lower return plug-fan
- CR: Lower return plug-fan and active recovery
- CQ: Return plug-fan or centrifugal fan in top box
- CT: Return plug-fan or centrifugal fan in top box and active recovery
- CW: Passive recovery

Group 7: Coil coating : Indoor - Outdoor

- AA: Aluminium - Aluminium
- AB: Aluminium - Polyurethane
- AC: Aluminium - Inera®
- BB: Polyurethane - Polyurethane
- BC: Polyurethane - Inera®
- CC: Inera® - Inera®

Group 8: Heating

- 000: Without auxiliary heating
- G0x: Gas burner, 2 power outputs:
x = Nominal (N) / High (H)
- E0x: Electrical heaters, 3 power outputs:
x = Low (L) / Nominal (N) / High (H)
- B0x: Hot water coil:
x = Standard (S)

Group 9: Protection for low outdoor temperature

- 0: Without protection
- 1: Kit 1: Kit for outdoor temperature <-10°C
- 2: Kit 2: Kit for outdoor temperature <-14°C
- 3: Kit 3 : Kit 1 + Dampers with spring
- 4: Kit 4 : Kit 2 + Dampers with spring

Group 10: Available pressure of the indoor fan

- L: Low available pressure (Aluminium)
- N: Nominal available pressure (Polypropylene)
- A: Nominal available pressure (Aluminium)
- H: High available pressure (Aluminium)

Group 11: Air filtration + stop-drop

- A: G4
- B: G4 + stop-drop
- C: G4 low pressure drop
- D: G4 low pressure drop + stop-drop
- G: G4 + F7
- H: G4 + F7 + stop-drop
- K: G4 low pressure drop + F7
- L: G4 low pressure drop + F7 + stop-drop
- O: M6 + F7
- P: M6 + F7 + stop-drop
- S: F7 + F9
- T: F7 + F9 + stop-drop

Group 12: Type of outdoor fan

- A: AC (2-speed)
- E: EC (electronic)

Group 13: Insulation

- 0: Standard insulation
- 1: Insulation M0 with double wall (50mm)

Group 14: Indoor unit configuration

- 000 Without optional accessories
- A: Condensate drain pan in stainless steel
- 1: Management of the overpressure
- A: Clogged filters pressostat

Group 15: Outdoor unit configuration

- 0000 Without optional accessories
- A: Fresh air intake protection grid
- 1: Outdoor coil protective grille
- A: Antivibration mounts
- 1: Stop-drop at the fresh air intake

Group 16: Passive recovery

- 0000 Without optional accessories
- 4: Wheel diameter: 1500 mm
- 5: Wheel diameter: 1800 mm
- 6: Wheel diameter: 2000 mm
- 7: Wheel diameter: 2200 mm
- A: Wheel speed with on/off control
- B: Wheel speed with variable control
- 1: Channel cross section of 2,0 mm
- 2: Channel cross section of 2,5 mm
- A: Material: Aluminium
- C: Material: Hybrid wheel

Group 17: Extra heating

- 0: Without extra heating
- C: Heat recovery coil

Group 18: Special applications

- 0: Without special applications
- Z: Air zoning
- I: Low return temperature application
- K: Low T application + Air zoning

Group 19: Sensors

- 0000 Without optional accessories
- H: Smoke detector sensor
- A: Air quality sensor for environment
- C: Air quality sensor for return (duct-mounted)
- D: Double quality sensor: ambient + ambient
- E: Double quality sensor: ambient + outdoor
- F: Double quality sensor: return + outdoor
- P: Air quality sensor on the pLAN network
- 1: 1 sensor RS485
- 2: 2 sensors RS485
- 3: 3 sensors RS485
- 4: 4 sensors RS485
- 5: 1 sensor NTC
- T: Ambient temperature sensor
- H: Ambient temperature+humidity sensor
- P: Ambient sensor on the pLAN network

Group 20: Free-cooling + Outdoor humidity

- 00 Without free-cooling + without sensor
- 1: Outdoor humidity sensor on the unit
- 2: Outdoor humidity sensor on pLAN network
- T: Thermal free-cooling
- M: Thermoenthalpic free-cooling
- E: Enthalpic free-cooling

Group 21: Terminal + Unit communication

- 000 Without terminal + stand-alone + without card
- M: Communication card RS485 Modbus/Carel
- E: Communication card Ethernet PCoWeb
- L: Communication card RS485 LonWorks®
- B: Communication card Ethernet BACnet™
- C: Communication card RS485 BACnet™
- K: Communication card RS485 Konnex
- 0: Free-standing unit
- 1: Master unit
- 2: Slave unit
- P: VectioGD terminal in electrical cabinet
- T: TCO user terminal in electrical cabinet
- R: VectioGD terminal in electrical cabinet + TCO terminal remote up to 100 m
- S: TCO terminal in electrical cabinet + VectioGD terminal remote up to 200 m
- N: VectioGD terminal in electrical cabinet + VectioGD terminal remote up to 200 m

Group 22: Miscellaneous item 1

- 000 Without optional accessories
- 1: Management of an on/off humidifier
- 2: Management of a proportional humidifier
- E: Energy meter
- M: Energy meter and calculation of cooling and heating capacities
- Unused

Group 23: Miscellaneous item 2

- C100 Without optional accessories
- Unused
- T: Tropicalization
- Unused
- Unused

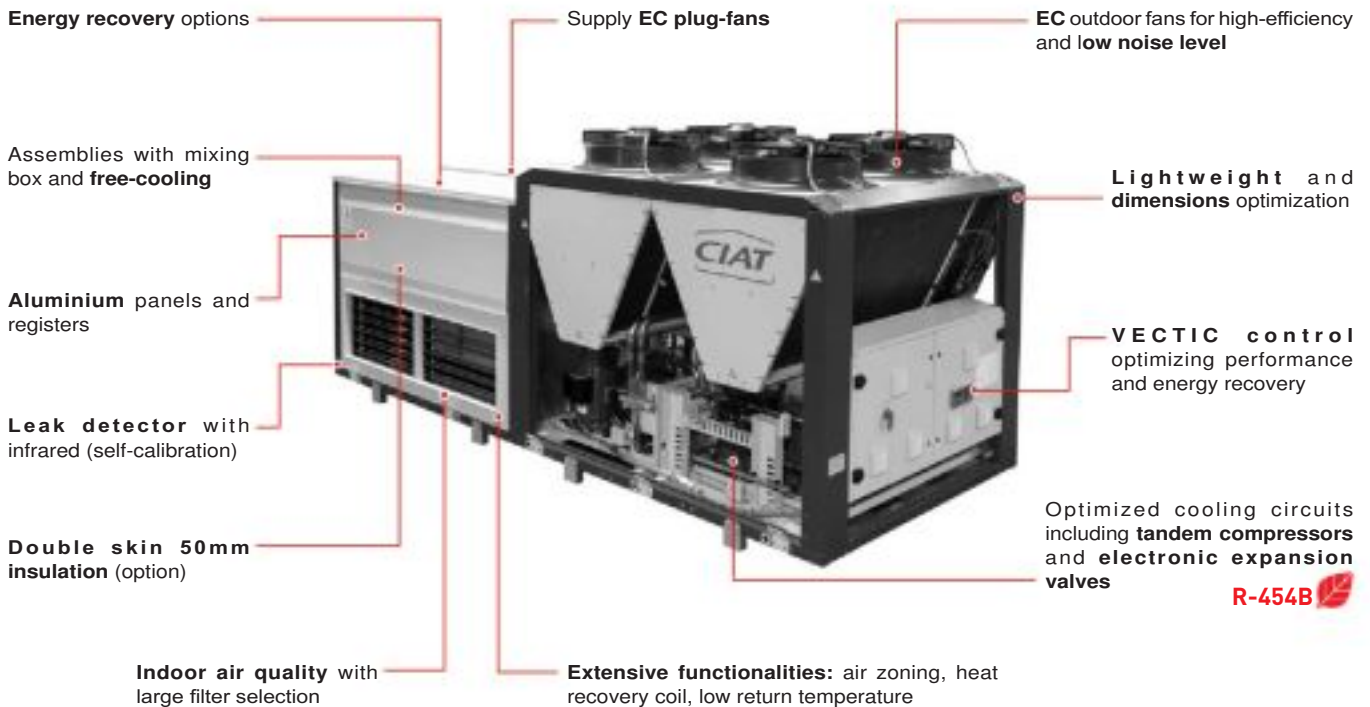
Group 24: Return fan

- 0000 Without return fan
- 1: Centrifugal, low flow
- 3: Centrifugal, nominal flow
- 5: Centrifugal, high flow
- N: Plug-fan, nominal pressure (Polypropyl.)
- A: Plug-fan, nominal pressure (Aluminium)
- H: Plug-fan, high pressure (Aluminium)
- Unused

Group 25: Indoor airflow direction

- 0000 Lower direction
- 0: Lower supply and lower return (C0, CS, CP, CR and CW assemblies)
- 1: Lateral supply and lower return (C0, CS, CP, CR and CW assemblies)
- 2: Lower supply and lateral return (C0, CS, CQ and CT assemblies)
- 3: Lateral supply and lateral return (C0, CS, CQ and CT assemblies)
- 4: Upper supply and lower return (C0 and CS assemblies)
- 5: Lateral supply and lateral return (C0 and CS assemblies)
- 6: Upper supply and lateral return (C0 and CS assemblies)
- 7: Lower supply and upper return (C0 and CS assemblies)
- 8: Upper supply and upper return (C0 and CS assemblies)
- Unused

MAIN FEATURES



UNIT COMPONENTS

Casing

- Structure made of galvanised steel metal. Panels and registers in aluminium. Finished with polyester paint, white colour RAL 7035 and graphite grey colour RAL 7024.
- Removable panels for easy access to all components: electrical cabinet, compressors, fans, filters, etc.
- Skids for easy transport in a container. The dimensions of this range allow all models and assemblies to be transported in a container, so that the special SE14C maritime packaging is not necessary under any circumstances.

Outdoor unit

- Coils with copper pipes and aluminium fins.
- EC electronic axial fans which adapt the rotation speed to the installation's requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the unit's average seasonal efficiency. IP55 protection.

Indoor unit

- Thermal and acoustic insulation in panels and registers with M1 fire classification.
- Coils with copper pipes and aluminium fins.
- EC electronic supply plug-fans with variable control speed and flow rate controller.

In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption. Plug-fans with direct drive and variable speed offer the following advantages:

- Elimination of friction losses during transmission thanks to the direct drive.

- Greater aeraulic efficiency of the rotor (reactive blades with an optimized profile), running at very high operating pressures.
- Greatly increased motor efficiency. Permanent magnets DC motors activated using electronic switching integrated into the motor itself.
- Variable speed to ensure a constant supply air flow rate, independent of the filters clogging level.
- Measuring the flow rate through a calibrated section at the fan intake and a differential pressure sensor allows the control to handle the flow rate reliably and precisely in both on CAV and VAV systems.

- Reusable gravimetric air filters G4, mounted on a frame. Dual locking system mounted on the access panel to filters.
- Isolated pan of condensates drainage sloping down towards the drain. This pan is removable for easy cleaning in models 0420 to 0720.

Cooling circuit

- Hermetic scroll-type compressors in tandem design that improves the management of stages and the part load efficiencies, assembled over antivibration mounts. Relay for phase-sequence monitoring and phase loss protection.
- Crankcase heater.
- Electronic expansion valves.
- Four-way cycle reversing valves.
- Acid-resistant filters dryer.
- Cooling design in 2-air volumes.



UNIT COMPONENTS

Protections

- High pressure pressostats.
- High and low pressure transducers.
- Refrigerant leak control (by low-pressure alarm).
- Due to the A2L category of refrigerant R-454B (lightly flammable), it requires the installation of a refrigerant leak detector. This detector uses infrared instead of semiconductor technology with no need of calibration (self-calibration), with very fast time response, and high lifetime.
- Compressor discharge temperature control.
- Main door switch.
- Protection for power lines of compressors with manual motor starters and power lines of fan motors with magnetothermic switches. These devices provide protection against overload, short circuit, phase failure and undervoltage.
- Automatic switch in the control circuit.

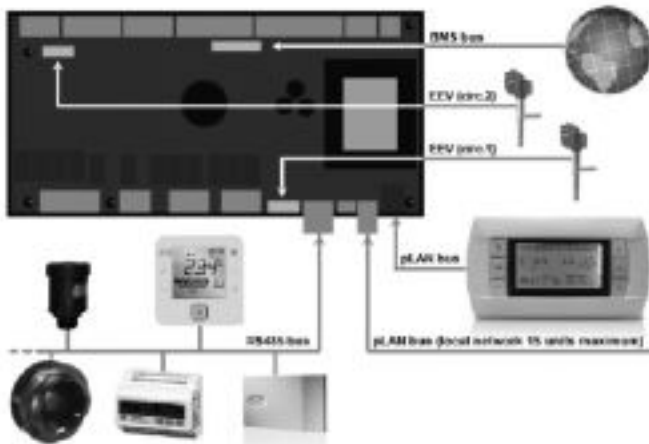
Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Forced ventilation of the electrical cabinet. Protection IP54.
- Numeration of wired and identification of components in the electrical cabinet. It permits easy tracing and diagnostics.
- Hinges + quarter-turn latches on the removable access doors.
- Electrical power supply with neutral.
- Main ground connection.
- Compressor and fan motor contacts.

Vectic electronic control

The Vectic control consist of a control board, sensors, a graphic terminal, an user terminal (optional).

This system uses a RS485 field-bus to manage additional components such as: expansion modules and boards, plug-fans, probes of temperature or relative humidity of the ambient air, leak detectors, energy meters, etc.



Using a BMS communication card (optional) the unit can be connected to a centralised technical management system with the following communication protocols: Carel, Modbus RTU, LonWorks®, BACnet™ MSTP, Konnex, Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.

Vectic control enables unit integration with our local supervision solutions: **pCO Web** (1 unit), **BOSS mini** (50 units) and **BOSS** (300 units), as well as with the remote solution: **BluEdge®Digital**

With this control it is also possible to connect to a local pLAN (Vectic Local Area Network) for a maximum of 15 units, with one unit configured as “Master” and the others as “Slaves”. This network allows the exchange of data and information between the units, and depending on the conditions of the installation, share the reading of some probes installed on the unit configured as “Master”, temperature setpoints and operating mode. It is also possible to configure one unit as “Back-up” just in case for failure of the another unit on the pLAN network.

Main functionalities:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors time delays.
- Defrosting management.
- Control of the supply air temperature.
- All-seasons operation via the condensation and evaporation pressure control.

The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.

- Setpoint compensation based on the outdoor temperature.
- Hourly and weekly schedule.
- Fire protection.
- Diagnosis of faults and general alarm.
- Management of all the optional components available for the unit: dampers and mixing boxes, back-up heating, air quality sensors, air zoning, energy recovery,...

VecticGD graphic terminal:

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

This terminal is used to:

- Carry out initial programming of the unit.
- Modify operating parameters.
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the variables controlled and sensor values measured.
- Display the current alarms and their historical record.

TCO user terminal (optional):

This terminal can be installed on the electrical cabinet, instead of the VecticGD graphic terminal. In this case, the remote connection of the VecticGD terminal is possible. Please consult the chapter “Options”.

This terminal is used to:

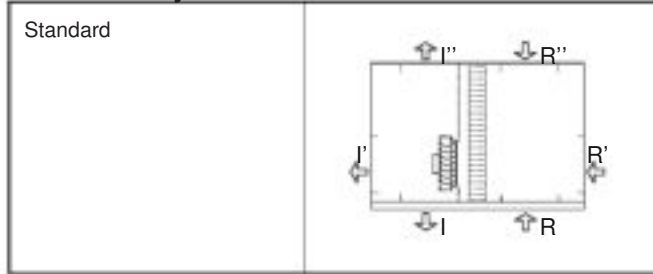
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the installation’s temperatures and humidity, outdoor temperature, supply air temperature, CO₂ sensor and opening of the outdoor damper.
- Display alarms codes.



FACTORY OPTIONS AND ACCESSORIES

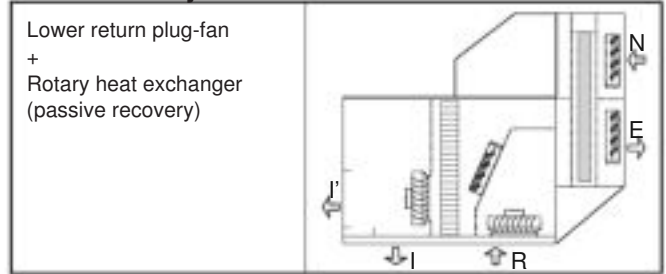
Assembly (Group 6) + Indoor air direction (Group 25)

C0 assembly



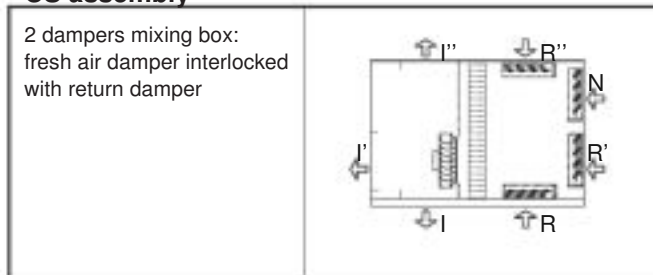
CW assembly

Lower return plug-fan + Rotary heat exchanger (passive recovery)



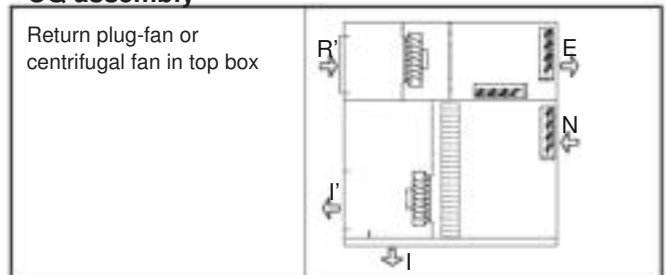
CS assembly

2 dampers mixing box: fresh air damper interlocked with return damper



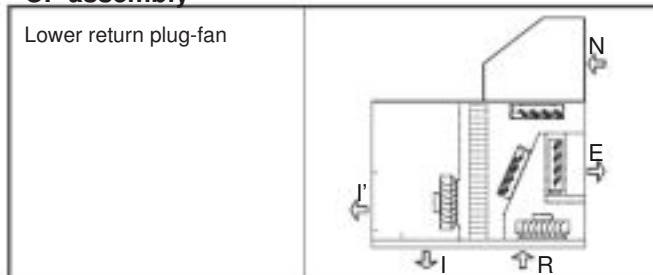
CQ assembly

Return plug-fan or centrifugal fan in top box



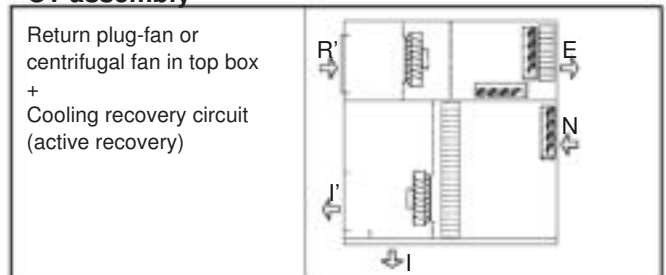
CP assembly

Lower return plug-fan



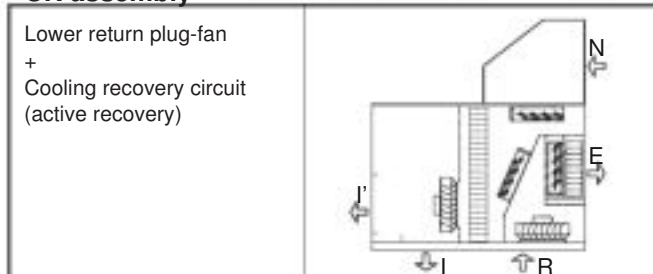
CT assembly

Return plug-fan or centrifugal fan in top box + Cooling recovery circuit (active recovery)



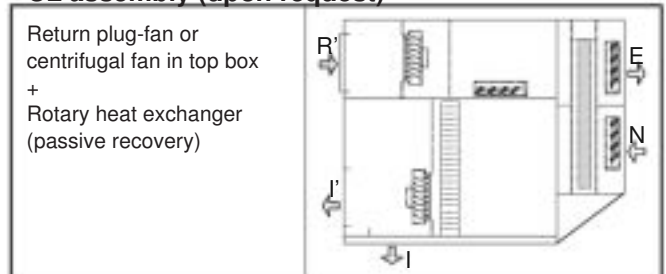
CR assembly

Lower return plug-fan + Cooling recovery circuit (active recovery)



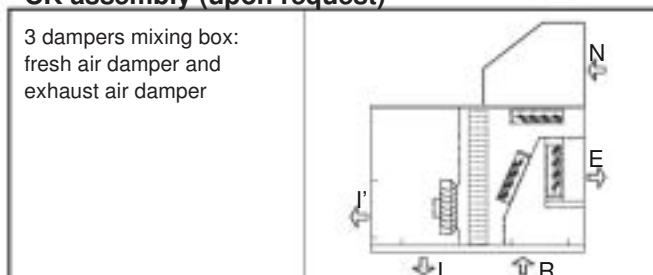
CL assembly (upon request)

Return plug-fan or centrifugal fan in top box + Rotary heat exchanger (passive recovery)



CK assembly (upon request)

3 dampers mixing box: fresh air damper and exhaust air damper



Legend

| | | | |
|------------|--------------------|------------|--------------------|
| I | Lower air supply | R | Lower air return |
| I' | Lateral air supply | R' | Lateral air return |
| I'' | Upper air supply | R'' | Upper air return |
| N | Fresh air intake | E | Exhaust air outlet |

Note: only one of the three possible options (lower, lateral or upper) can be selected for both, supply and return.

The airflow direction selected for supply and return (lower or lateral) is easily interchangeable on site.

Indoor airflow direction (Group 25)

| | | | | | |
|----------|---------------------------------|----------|-----------------------------------|----------|---------------------------------|
| 0 | Lower supply and lower return | 3 | Lateral supply and lateral return | 6 | Upper supply and lateral return |
| 1 | Lateral supply and lower return | 4 | Upper supply and lower return | 7 | Lower supply and upper return |
| 2 | Lower supply and lateral return | 5 | Lateral supply and upper return | 8 | Upper supply and upper return |

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Air pressure control in different assemblies

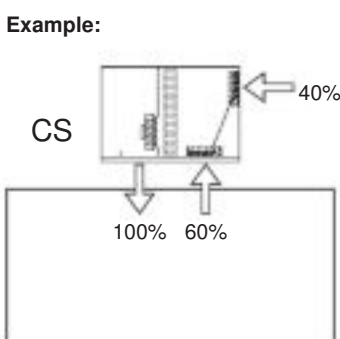
In case of assemblies with fresh air (ventilation) but without extraction air, overpressure will be generated in the building, higher with higher fresh air ratios or in free-cooling mode. It will not generate any issue in buildings with low air tightness and/or with doors frequently opened, but we should prevent in other applications. In assemblies with extraction damper and return fans, this overpressure can be completely avoided (pressure balance), or even controlled with a certain value to prevent infiltrations.

VECTIOS^{POWER} is the rooftop with the largest offer in airflow configurations to be able to adapt the unit to any kind of application or request. Please, find below comments and recommendations for each assembly.

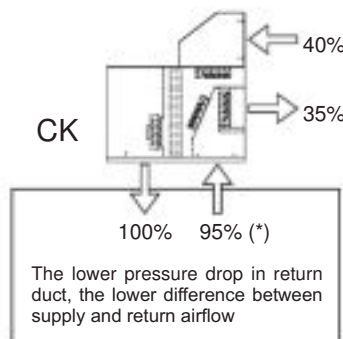
| Assembly | Fresh air and free-cooling | Return fans | Energy recovery (extraction) | Pressure control | Comments and recommendations | |
|--------------------------------------|----------------------------|-------------|------------------------------|-------------------------------|------------------------------|--|
| C0 | | No | No | No | No control required | Only for building with no need of fresh air . Pressure balance by default. Same return and supply airflow. |
| CS | | Yes | No | No | No control | Adequate just for buildings with medium or low air tightness and/or doors frequently opened. |
| CS + gravity dampers in the building | | Yes | No | No | High control | Building overpressure is maintained at the same level than pressure drop before the gravity damper. No limitations in the return pressure drop. |
| CK (upon request) | | Yes | No | No | Medium control | Recommended only with low pressure drop in the return ductwork (maximum 50 Pa). The maximum building overpressure is at the same level than pressure drop in the return ductwork. |
| CR, CT CL (upon request) | | Yes | Yes | Yes, Active recovery | High control | Return and supply EC plug-fan(s) are always supplied with pressure sensor to adjust the airflow. To manage pressure balance , supply and return are configured with same airflow. In case overpressure want to be managed (to avoid infiltration), the return airflow need to be lower than the supply. Differences up to 10% can be always being configured. |
| CP, CQ | | Yes | Yes | No | Total control | Additional overpressure with airflow differences up to 20% are possible adding the option "overpressure control" (*) which manages fresh and exhaust dampers independently. |
| CW | | Yes | Yes | Yes, Passive recovery (wheel) | Total control | To maintain overpressure in case of variable fresh air management (with CO ₂ sensor(s) option), minimum fresh air ratio need to be configured. |

(*) This overpressure option is not available on CR, CT and CL assemblies because this type of control of the dampers penalizes cooling recovery.

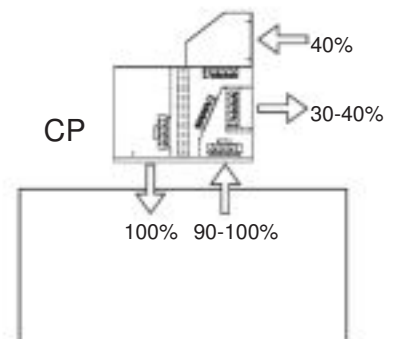
Example:



Pressure is not controlled



Near of pressure balance



Pressure balance or overpressure control

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Electrical power (Group 4)

These units can be supplied for the following power supply voltages:

- 400 V / 3 ph + N / 50 Hz (standard)
- 400 V / 3 ph / 50 Hz (optional)

Coils coating (Group 7)

- Coils with copper pipes and fins of an aluminium alloy (INERA®), of high performance and great resistance to the corrosion.
- Coils with copper pipes and aluminium fins with polyurethane coating.
- Coils with copper pipes and copper fins (**upon request**).
- Blygold® coating (**upon request**).

Note: These coating can be applied to various coils (outdoor, indoor and hot water coil) according to the combinations available in the "Selection Software".

Heating (Group 8)

The unit only can incorporate one of these heating elements:

- **Auxiliary electrical heaters**, with two power stages and on/off control, for assembly and connection inside the unit. Up to 3 values of total power available for each model:

| IPJ | E0L (Low) | E0N (Nominal) | E0H (High) |
|--------------|-----------|---------------|------------|
| 0420 to 0500 | 27 kW | 36 kW | 54 kW |
| 0560 to 0720 | 36 kW | 54 kW | 72 kW |
| 0760 to 0960 | 45 kW | 72 kW | 90 kW |
| 1050 to 1200 | 54 kW | 72 kW | 108 kW |

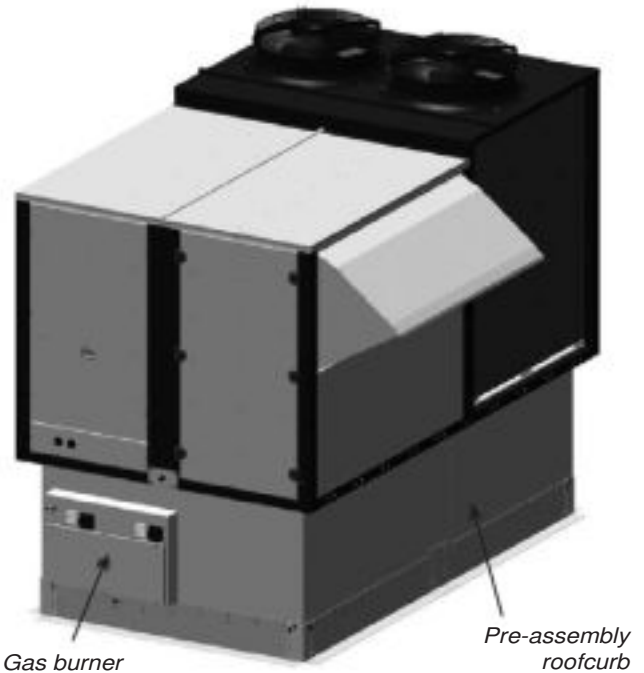
- Electrical heater with proportional control (**upon request**).
- **Auxiliary hot water coil**, with three-way valve and proportional control, for assembly inside the unit. The unit incorporates an anti-freeze thermostat as safety system.
 - Great Cold option (**upon request**):
Anti-freeze technology based on the water temperature. This protection is made up of a circulation pump and two sensors inserted in the input and the output of the coil.
Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.
- Natural or propane **gas burner** with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb.

The IPJ unit with lower air supply will be placed on this roofcurb.

Two values of power available for each model:

| IPJ | 0420 to 0500 | 0560 to 0720 | 0760 to 1200 |
|---------------|--------------|--------------|--------------|
| G0N (Nominal) | PCH080 | PCH130 | PCH160 |
| G0H (High) | PCH130 | PCH160 | PCH210 |

Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.



Protection for low outdoor T (Group 9)

- Kit 1: Antifreeze protective kit (<-10°C). Mandatory for an outdoor temperature lower than -10°C WB. This kit includes:
 - Electrical heater for protection of the components of the electrical cabinet.
 - Compressor with protection for low temperature.
- Kit 2: Antifreeze protective kit (<-14°C). Mandatory for an outdoor temperature lower than -14°C WB. In addition to the options of -10°C, this includes:
 - Reinforced electrical heater for protection of the components of the electrical cabinet.
 - Electrical heater for anti-freeze protection of dampers of the mixing box (if applicable).
 - Protective kit of the gas burner for low temperature (if applicable).
- Kit 3: Kit 1 + Dampers of the mixing box with spring for automatic closing in case of a power failure.
- Kit 4: Kit 2 + Dampers of the mixing box with spring for automatic closing in case of a power failure.

Available pressure of the indoor fan (Group 10)

- By default, these units are fitted with plug-fans for a nominal available pressure (N), in Polypropylene. The following fans can optionally be supplied:
 - L: Low available pressure (Aluminum).
 - A: Nominal available pressure (Aluminum).
 - H: High available pressure (Aluminum).

Note: Aluminum fans are rated A2-s1, d0 (M0) and comply with regulations for public promises in France.

Important: the "Selection Software" will choose the supply fan with lower consumption for the available pressure required.

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Air filtration + stop-drop (Group 11)

Options to improve indoor air quality:

- Different combinations of filters are available:
 - Gravimetric filters G4 with low pressure drop.
 - Gravimetric filters G4 standard type + folded opacimetric filters F7.
 - Gravimetric filters G4 with low pressure drop + folded opacimetric filters F7.
 - Dual-stage of folded opacimetric filters: M6+F7 or F7+F9.

Classification of the filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
 - M6 → ISO ePM10 70%
 - F7 → ISO ePM1 50%
 - F9 → ISO ePM1 80%
- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.
- Note: with hot water coil it is not possible to assemble the stop-drop.

Type of outdoor fan (Group 12)

- Axial 2-speed outdoor fan(s) directly coupled to the motor. Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille.

Insulation (Group 13)

- Thermal and acoustic insulation A2-s1,d0 (M0) with sandwich panels with double wall, 50 mm thick, in all indoor section in contact with airflow.



Indoor unit configuration (Group 14)

- Condensate drain pan in stainless steel for corrosion protection.
- Differential pressure switch to detect clogged filters as safety protection.
- Control of the overpressure. Assemblies that include a return fan allow the management of airflow differences between supply air and return air of up to 10%, setting up flow setpoints. Optionally, the fresh air damper and the exhaust damper can be managed independently for greater airflow differences. This option may be necessary to prevent the entry of outside air (CP, CQ and CW assemblies).

Note: This option is not available on CT and CR assemblies because this type of control of the dampers penalizes cooling recovery.

Outdoor unit configuration (Group 15)

- Fresh air intake protection grid (mesh of 9 x 9 mm).

- Outdoor coil protective grille.
- Antivibration mounts made of rubber.
- Stop-drop at the fresh air intake. This stop-drop and the thermoenthalpic free-cooling are necessary in cases where a high moisture content in the air is foreseen.

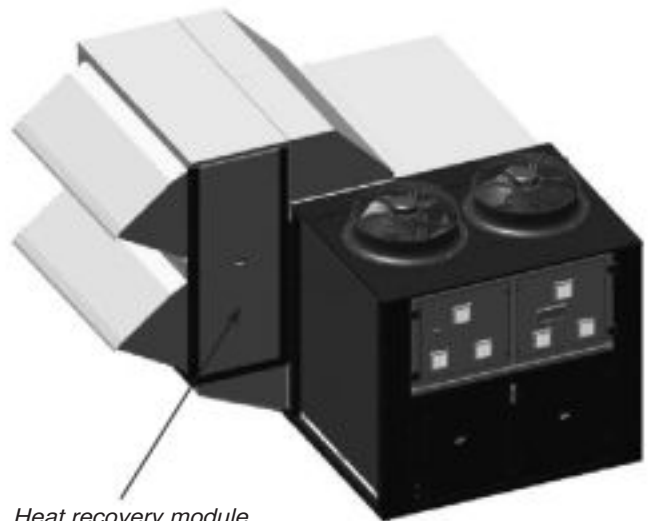
Passive recovery (Group 16)

- The rotary heat exchanger is fitted into a module placed on one side of the unit. This module is supplied disassembled with the unit, for installation on site.

Available with CW assembly, and upon request, with CL assembly.

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors. This option reduces the compressors runtime, ensuring energy saving and benefiting the environment.

The efficiency of energy recovery depend on the wheel selected: material, wheel diameters, channel cross section and type of speed control.



Heat recovery module

Extra heating (Group 17)

- Heat recovery coil (HRC). The coil function is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation.

The coil is supplied with a 3-way valve for installation outside the unit but managed by the electronic control.

This option is compatible with C0, CS, CQ and CT assemblies.

Special applications (Group 18)

- Low return temperature application.

This option is mainly focused to food storage, and can be applied to large warehouses installations.

With this option, the unit adapts all its devices to manage low return temperature (15°C) in cooling mode. This is possible due to some changes in the control operation parameters.

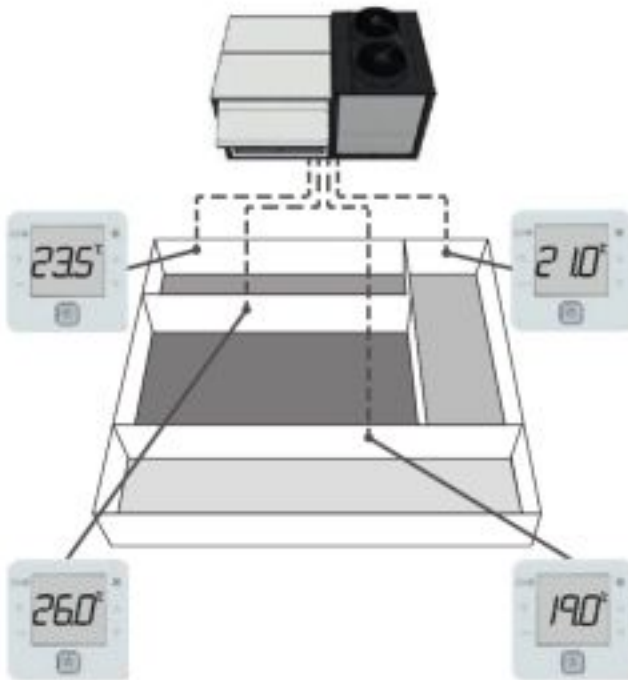
FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

The "Selection Software" includes the option as mandatory when return temperature is lower than 20°C (with 15°C as the minimum allowed value).



■ Zoning of the air flow up to 4 different zones.

This option allows the management of the air flow of the unit to condition up to 4 different zones with a minimum air flow of 35% (all of them in same operating mode: heating or cooling). This function allows to adapt the indoor air flow to the installation requirements.

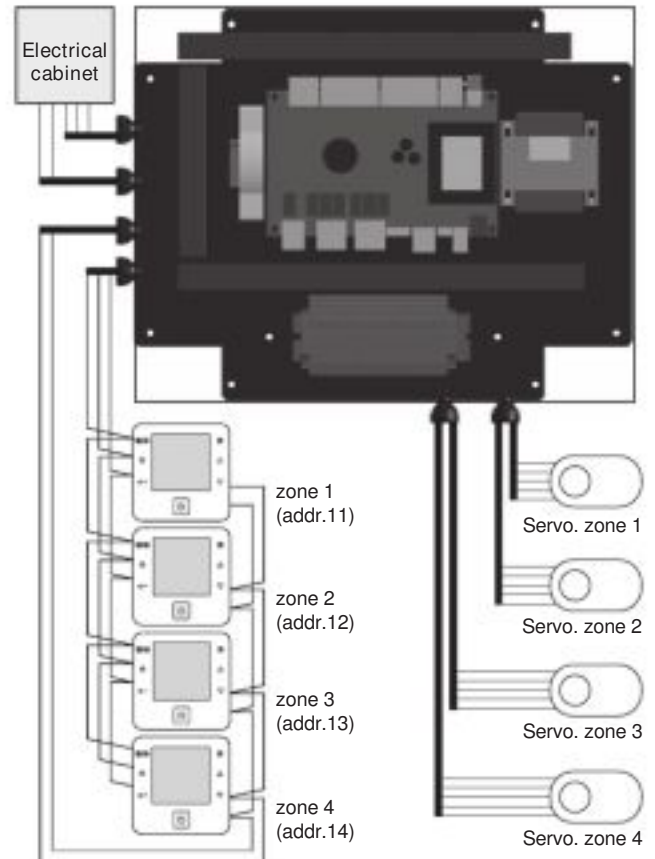


Regulation gives the control signal to the dampers installed in each zone (dampers and servomotors for those dampers not supplied). The unit modifies the air flow and capacity depending on information coming from sensors in each zone and considering active zones in each moment.

The option includes 4 zone terminals (one for each zone) and a control board supplied in an independent box. The 4 terminals, the PJ unit main board and also the servomotors that control dampers in each zone are connected on this board (dampers and servos not supplied).

The temperature information for each zone is coming from temperature sensor integrated inside each zone terminal. It is not needed to install any extra ambient sensor.

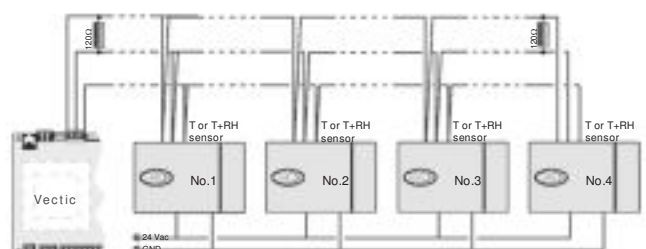
In following picture, electronic PCB and 4 zone terminals are detailed. Connections can be found in the Vectic control manual.



Note: In case the unit includes enthalpy or thermoenthalpic free cooling (T+H control) an extra return T+H sensor in the offer is required. If the unit additionally includes CO₂ probe, it must be a return probe and not an ambient probe.

Sensors (Group 19)

- Sensor(s) of **ambient temperature**. There are 3 options:
 - One NTC sensor connected to the control board.
Note: An ambient sensor with RS485 communication is required for installation at more than 30 meters.
 - One to four sensors with RS485 communication.
 - Sensor(s) installed on the master unit of the local network (pLAN).
- One to four sensors of **ambient temperature + humidity**, with RS485 communication or installed on the pLAN network. This sensor is compulsory in units with enthalpic or thermoenthalpic free-cooling (optional). In this case, the outdoor air humidity sensor is also added.



FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

■ **Smoke detecting sensor.** Smoke detecting station in accordance with the NF S 61-961 standard, 961, that uses a LED to indicate the installation status, and if the probe detects the presence of smoke in the installation, it stops the operation of the unit and gives the order to open or close the outdoor damper (configured by parameter).

To ensure compliance with the French regulations on Fire safety (ERP), it's possible to configure the opening of the fresh air damper and the exhaust air damper to 100% (return air damper closed).

■ **Air quality sensor** to enable measuring CO₂.

There are different options:

- Ambient air quality sensor.
- Return air quality sensor (duct-mounted) (attached picture).
- Sensor installed on the master unit of the local network (pLAN).
- Double quality sensor:
 - two ambient air sensors;
 - one ambient air sensor and one outdoor air sensor;
 - one return air sensor (duct-mounted) and one outdoor air sensor.



Advantages of installing two ambient air quality sensor:

This installation is interesting in large premises, so that ventilation can be done based on the maximum, minimum or average value measured by the two sensors.

Advantages of installing an outdoor CO₂ air quality sensor:

This sensor gives the option to manage fresh air depending on real difference of CO₂ concentration indoor and outdoor⁽¹⁾. It gives the chance to really answer to the request of indirect method for ventilation, without need of estimating outdoor air quality, but measuring it.

⁽¹⁾ Outdoor sensor will be supplied not mounted. It has to be located outdoor, but protected from rain and external agents. For any doubt, please ask.

Options recommended for fresh air management:

| Room | Outdoor | Recommendation |
|---------------------|---|--|
| Constant occupation | Applied to all locations | Constant fresh air (fresh air % fixed by regulation). No additional option required. |
| Variable occupation | Locations where outdoor CO ₂ is well known | Variable fresh air (considering indoor CO ₂ concentration): • Ambient air quality sensor • Return air quality sensor • Double ambient sensor (in large scale premises) |
| | Locations where outdoor CO ₂ is not well known or variable | Variable fresh air (considering indoor and outdoor CO ₂ concentration): • Double air quality sensor: ambient and outdoor • Double air quality sensor: return and outdoor |

Methodologies fresh air ratio calculation:

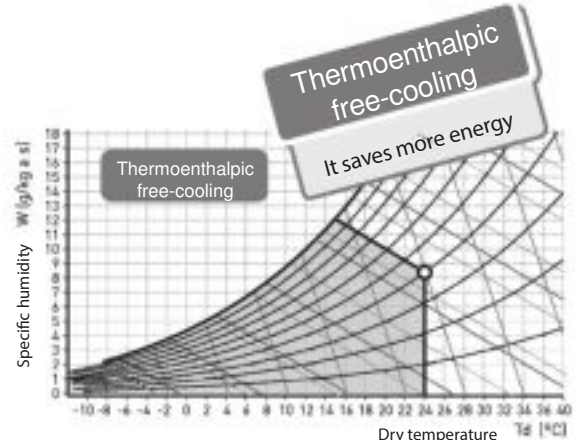
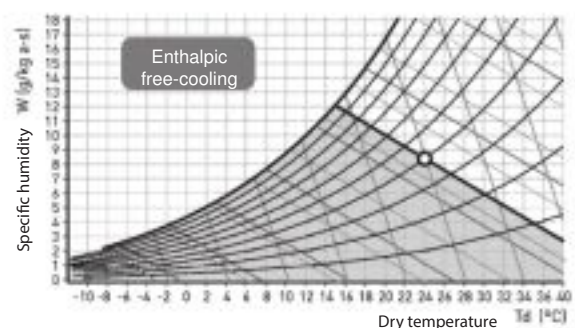
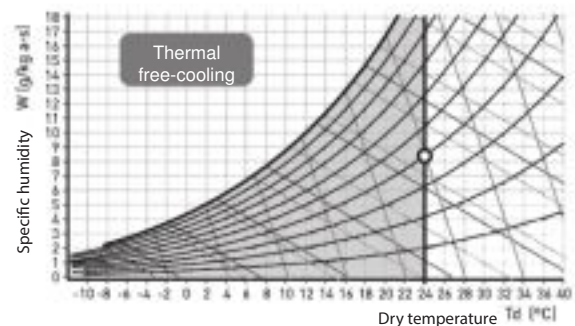
The categories of indoor air quality (IEQ) are defined in EN16798:1 based on the level of expectation that the occupants may have. A normal level would be a "medium" level. A higher level can be selected by occupants with special needs (children, elderly, people with disabilities, etc). A lower level does not mean any risk for health, but it can affect to comfort level.

| Category IEQ | DIRECT METHOD: Fresh air ratio by person | INDIRECT METHOD: CO ₂ concentration above outdoor CO ₂ concentration |
|------------------------------------|---|---|
| | dm ³ /s by person | ppm |
| I: High level of expectation | 20 | 550 |
| II: Medium level of expectation | 12,5 | 800 |
| III: Moderate level of expectation | 8 | 1.350 |
| IV: Low level of expectation | 5 | 1.350 |

References: EN 16798-3:2017 and EN 16798-1:2019: Energy performance of buildings - Ventilation for buildings, replacing EN 13779:2007.

Free-cooling + outdoor humidity (Group 20)

■ **Free-cooling management:** Running the unit in free-cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. The percentage of outdoor air can vary between 0% and 100%.



FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

There are three options for free-cooling management:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.

One function that helps improve energy management is **nocturnal free-cooling**. This feature allows the compressors to be disabled in summer with programming, the unit works providing free-cooling at night, when the outdoor conditions are favorable. This allows the cooling demand to decrease significantly early in the day.

- **Outdoor air humidity** sensor (compulsory in units with optional enthalpic or thermoenthalpic free-cooling).

There are 2 options:

- Sensor supplied with the unit.
- Sensor installed on another unit of the local network (pLAN).

Terminal + unit communication (Group 21)

- By default, the electronic control Vectic is supplied with a graphic terminal installed in the electrical cabinet of the unit, but these other configurations also are available:



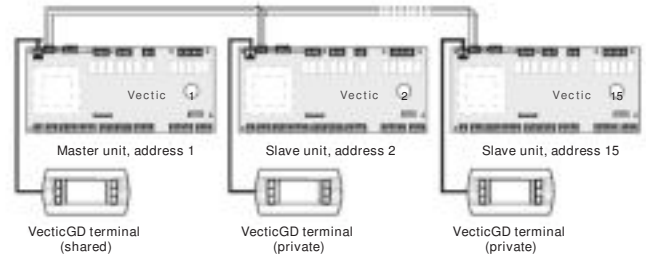
VecticGD graphic terminal

TCO user terminal

- TCO user terminal installed in the electrical cabinet, instead of the VecticGD graphic terminal.
- VecticGD graphic terminal installed in the electrical cabinet and TCO user terminal remote up to 100 meters.
- TCO user terminal installed in the electrical cabinet and VecticGD graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- VecticGD terminal installed in the electrical cabinet and VecticGD terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- Control without terminal (for units with shared terminal in a pLAN network).
- By default, the electronic control is configured for a stand-alone unit, but it is also possible to place it in a pLAN network (µPC MEDIUM Local Area Network) as Master, Slave or Back-up. The maximum number of units that can be configured on a Master/Slave pLAN network is 15, and in case of Back-up units is 2.

Important: to use any of the following functionalities it is necessary to configure in the "Selection software" one unit as Master and the others as Slaves (including the back-up unit).

The specific functionality will be configured on site (according to the Vectic regulation manual).



The pLAN network allows to have the following functionalities depending on the parametrized configuration:

- **Master/Slave:**

It allows to share the VecticGD terminal, as well as some of the probes installed in the master unit: ambient temperature or ambient temperature + humidity, outdoor temperature, outdoor humidity and CO₂ air quality.

- **Extended Master/Slave:**

It includes "Master/Slave" functionalities and the master unit provides ambient temperature setpoints to the other units.

- **Master/Slave with the same operating mode:**

It includes the "Extended Master/Slave" functionalities and the master unit also provides the status (Cooling- Heating - Ventilation) to the other units.

- **Back-up in case of alarm:**

One unit is configured as a backup unit, in case of malfunction of the other pLAN network unit.

- **Extended Back-up:**

It includes the "Back-up in case of alarm" functionalities and also, the control manages the automatic switching between the two units weekly, to compensate the operation times of both units.

Note: In the case of installations with Back-up units, it is not possible to share the probes, nor the terminal, since both units must be fully autonomous in their operation. If both units are connected to the same supply duct network, it is imperative that the installation consists of non-return dampers (installer responsibility).

- This control allows the connection to a **centralised technical management system** by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.



RS485 Carel/Modbus card

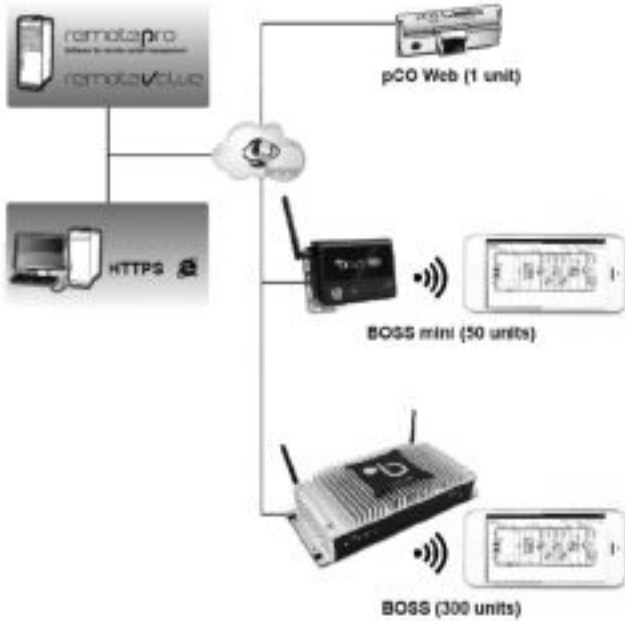


Ethernet pCO Web card

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)

Local supervision solutions

Different solutions of supervision are available bases on the dimensions of the installation for unit fitted with Ethernet pCO Web and RS485 Carel / Modbus cards.



- **pCO Web:**
It is the solution for the management and supervision of a single unit if this incorporates the Ethernet pCO Web card.

- **BOSS:**
This is the solution for the management and supervision of air-conditioning installations with up to 300 units. Its main advantages are:
 - Integrated WIFI Hotspot for direct access without any extra infrastructure.
 - Smartphone compatibility.
 - Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation. It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, keyboard and screen.

For this option, each unit needs one RS485 Carel / Modbus board.

- **BOSS mini (New):**
This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.
BOSS mini is available in two versions:
 - CPU device, mouse and keyboard.
 - CPU device, monitor, mouse and keyboard.

These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

To control multiple sites remotely, there are special tools dedicated to centralized management, such as **RemotePRO** and **RemoteValue**.

Remote supervision solution BluEdge®Digital

BluEdge®Digital is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.



Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

BluEdge®Digital will send data in real time to the supervision website.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can configured to trigger a mail alert.

Parameters monitored:

- Overview.
- Control panel for the controllers.
- Events.
- Temperature curves.

Monthly and annual reports are available to analyse :

- The performance and operation of the machine.

Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other are immediately detected, and the corrective actions put in place.

FACTORY OPTIONS AND ACCESSORIES (...CONTINUATION)



Equipment

This kit can be used on both machines which are already in use (existing inventory), and on new machines which do not have sufficient space in their electrical cabinets.

- 1 transportable cabinet.
- 1 wall-mounted antenna.

BluEdge® Digital kit contents

- 1 GPRS/3G modem
- 1 SIM card
- 1 power supply (24 VDC)
- 1 power protection device
- 1 GSM antenna
- Rail mounting
- Enclosed casing to protect the equipment during transport
- Packing box for cable routing (bus, power supply, Ethernet)

Compatibility

Up to three machines per BluEdge® Digital kit.

Miscellaneous item 1 (Group 22)

- Management of an humidifier with proportional or on/off control.
- Energy meter for monitoring of the power consumption of the installation.
- Energy meter and calculation of the cooling and heating capacities. In addition to the energy meter, the unit incorporates mixing and supply enthalpic sensors with RS485 communication that enable cooling and heating capacities to be calculated.

Miscellaneous item 2 (Group 23)

- Tropicalization: tropicalized components on the electrical cabinet with protective varnish: control board, cards and terminals.

Return fan (Group 24)

- Centrifugal return fan, coupled by pulleys and belts. Electric motor with tensioner, class F, IP55 and internal thermal protection. Turbine with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required. Available in CQ and CT assemblies.

There are 3 fan options depending on the air flow: low, nominal and high.

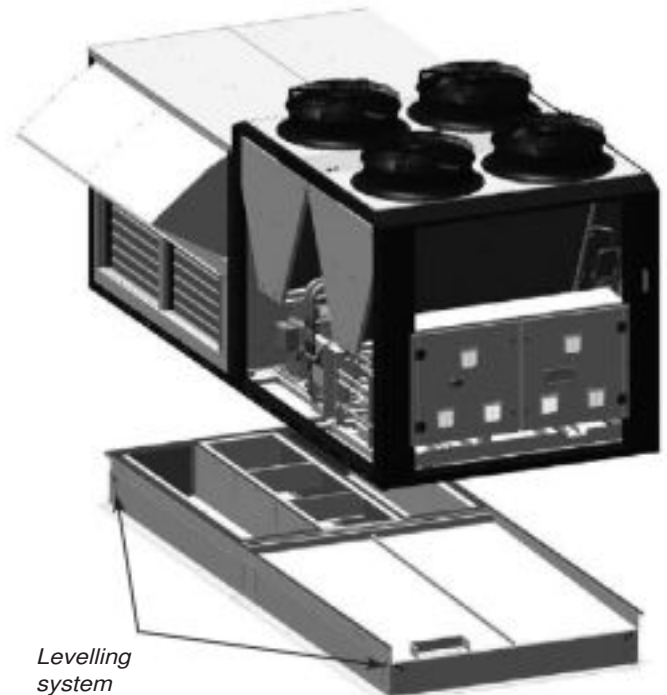
- Return plug-fan. There are 3 fan options depending on the available pressure:
 - N: Nominal available pressure (Polypropylene).
 - A: Nominal available pressure (Aluminium).
 - H: High available pressure (Aluminium).

Important: the "Selection Software" will choose the fan with lower consumption for the available pressure required.

Pre-assembly roofcurbs

- The units can rest on standardised pre-assembly roofcurbs with adjustable height, built in galvanised steel panelling with polyester paint and thermal insulation.

The levelling system uses angle pieces that allow adjustments in the X and Y axes.



Levelling system

- Adaptation roofcurbs ready for direct replacement on site of units from different manufacturers (**upon request**).

FACTORY OPTIONS AND ACCESSORIES (SUMMARY)

| Family | Group | Description | Upon request | Installation in factory | Installation on site | |
|--------------------------------------|-------|---|----------------------|-------------------------|----------------------|--|
| Electrical power | 4 | 400 V / 3 ph / 50 (without neutral) | | ✓ | | |
| Air flow + Assembly | 6 | CS: 2 dampers mixing box | | ✓ | | |
| | | CP: Lower return plug-fan | | ✓ | | |
| | | CR: Lower return plug-fan and cooling recovery circuit (active recovery) | | ✓ | | |
| | | CQ: Return plug-fan or centrifugal fan in top box | | ✓ | | |
| | | CT: Return plug-fan or centrifugal fan in top box and cooling recovery circuit (active recovery) | | ✓ | | |
| | | CW: Lower return plug-fan and rotary heat exchanger (passive recovery) | | | ✓ (*) | |
| | | CK: 3 dampers mixing box | ✓ | ✓ | | |
| | | CL: Return plug-fan or centrifugal fan in top box and rotary heat exchanger (passive recovery) | ✓ | ✓ (*) | | |
| Coil coating | 7 | Coil with copper pipes and fins of an aluminium alloy (INERA®) | | ✓ | | |
| | | Coil with copper pipes and aluminium fins with polyurethane coating | | ✓ | | |
| | | Coil with copper pipes and copper fins | ✓ | ✓ | | |
| Heating | 8 | Auxiliary hot water coil | Standard | ✓ | | |
| | | | Great cold | ✓ | | |
| | | Auxiliary electrical heaters | On-off control | ✓ | | |
| | | | Proportional control | ✓ | | |
| Protection low temperature | 9 | Natural or propane gas burner (supplied installed into a pre-assembly roofcurb) | | | ✓ | |
| | | Kit 1: Antifreeze protection kit for low temperature (<-10°C) | | ✓ | | |
| | | Kit 2: Antifreeze protection kit for low temperature (<-14°C) | | ✓ | | |
| | | Kit 3: Kit 1 + Dampers with spring | | ✓ | | |
| Indoor fan | 10 | Kit 4: Kit 2 + Dampers with spring | | ✓ | | |
| | | Indoor plug-fan with nominal available pressure (Aluminium), low pressure (Aluminium) or high pressure (Aluminium) | | ✓ | | |
| Air filtration + stop-drop | 11 | Stop-drop in the indoor air coil | | ✓ | ✓ | |
| | | Gravimetric filters G4 with low pressure drop | | ✓ | ✓ | |
| | | Gravimetric filters G4 + folded opacimetric filters F7 | | ✓ | ✓ | |
| | | Gravimetric filters G4 with low pressure drop + folded opacimetric filters F7 | | ✓ | ✓ | |
| | | Double stage of folded opacimetric filters: M6+F7; F7+F9 | | ✓ | ✓ | |
| Outdoor fan | 12 | Axial 2-speed outdoor fan directly coupled to the motor | | ✓ | | |
| Insulation | 13 | Thermal and acoustic insulation, Euroclass A2-s1, d0 (M0), with double wall (50mm) | | ✓ | | |
| Indoor unit | 14 | Condensate drain pan in stainless steel | | ✓ | ✓ | |
| | | Differential pressure switch to detect clogged filters | | ✓ | | |
| | | Management of the overpressure | | ✓ | | |
| Outdoor unit | 15 | Fresh air intake protection grid | | ✓ | ✓ | |
| | | Outdoor coil protective grille | | ✓ | ✓ | |
| | | Stop-drop at the fresh air intake | | ✓ | ✓ | |
| | | Antivibration mounts made of rubber | | ✓ | ✓ | |
| Passive recov. | 16 | Rotary heat exchanger characteristics: diameter, channel cross section and wheel material, type of speed control | | ✓ | | |
| Extra heating | 17 | Heat recovery coil | | ✓ (*) | | |
| Special applications | 18 | Air zoning | | ✓ (*) | | |
| | | Low return temperature application | | ✓ | | |
| | | Low return temperature application + Air zoning | | ✓ (*) | | |
| Sensors | 19 | Ambient temperature sensor: one NTC sensor connected to the control board or 1 to 4 RS485 sensors | | ✓ | ✓ | |
| | | Ambient temperature + humidity sensor: one to four sensors with RS485 communication | | ✓ | ✓ | |
| | | Air quality sensor: ambient installed, return (duct-mounted), on a pLAN local network or double sensor (ambient + ambient; ambient + outdoor; return + outdoor) | | ✓ | ✓ | |
| | | Smoke detecting station in accordance with the NF S 61-961 standard | | ✓ | ✓ | |
| | | | | ✓ | ✓ | |
| Free-cooling + Outd. humidity | 20 | Type of free-cooling: thermal, enthalpic or thermoenthalpic | | ✓ | ✓ | |
| | | Outdoor air humidity sensor: supplied with the unit or installed on a pLAN local network | | ✓ | ✓ | |
| Terminal + Unit communication | 21 | TCO terminal installed in the electrical cabinet | | ✓ | ✓ | |
| | | VectiGD terminal installed in the electrical cabinet + TCO terminal remote up to 100m | | ✓ | ✓ | |
| | | TCO terminal installed in the electrical cabinet + VectiGD terminal remote up to 200m | | ✓ | ✓ | |
| | | VectiGD terminal installed in the electrical cabinet + VectiGD terminal remote up to 200m | | ✓ | ✓ | |
| | | Unit configuration: stand-alone, master or slave | | ✓ | ✓ | |
| | | Communication cards: RS485 Modbus/Carel; Ethernet PCoWeb; RS485 LonWorks®; Ethernet BACnet™; RS485 BACnet™; RS485 Konnex | | ✓ | ✓ | |
| Miscellaneous item 1 | 22 | Management of an humidifier with proportional or on/off control | | ✓ | | |
| | | Energy meter | | ✓ | | |
| | | Energy meter and calculation of the cooling and heating capacities | | ✓ | | |
| Miscellaneous item 2 | 23 | Tropicalized components on the electrical cabinet: control board, cards and terminals | | ✓ | | |
| Return fan | 24 | Centrifugal return fan: 3 airflow options: low, nominal and high | | ✓ | | |
| | | Return plug-fan: 3 options depending on the available pressure: nominal pressure (Polypropylene), nominal pressure (Aluminium) or high pressure (Aluminium) | | ✓ | | |
| Airflow direction | 25 | There are 9 combinations in the direction of air with: - Supply: lower, lateral and upper - Return: lower, lateral and upper | | ✓ | | |
| Roofcurb | -- | Standardised pre-assembly roofcurbs with adjustable height | | | ✓ | |
| | | Adaptation roofcurbs for replacing units on site | ✓ | | ✓ | |

(*) Part of this option must be intalled on-site.

ECODESIGN REGULATIONS

The publication of **regulation 2016/2281** establishes the requirements for Seasonal Energy Efficiency and brings together all the information concerning applicable equipment, including compact ROOFTOP enclosure units.

The challenge of seasonal efficiency: the new ecodesign regulations stipulate that seasonal efficiency must be measured in cooling mode (SEER) and heating mode (SCOP). These coefficients guarantee a standardised assessment of the energy consumption of equipment by including seasonal variations in the measurements. Both these coefficients are calculated according to technical standard EN-14825 and compliance is mandatory for a product to obtain CE marking.

Regulation 2016/2281 established **minimum values for seasonal energy efficiency** in $\eta_{s,c}$ cooling ($\eta_{s,c}$) y $\eta_{s,h}$ heating ($\eta_{s,h}$). SEER and SCOP are therefore expressed in terms of primary energy and these make it possible to compare the energy efficiency of units which use different energy sources. These requirements apply in 2 phases, with an initial phase starting on 1 January 2018, and a second phase with a higher efficiency requirement starting on 1 January 2021.

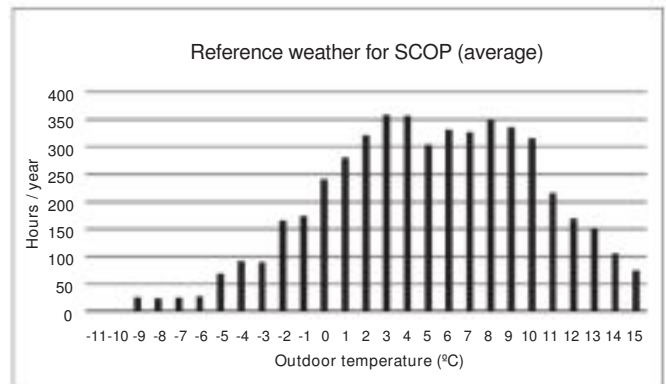
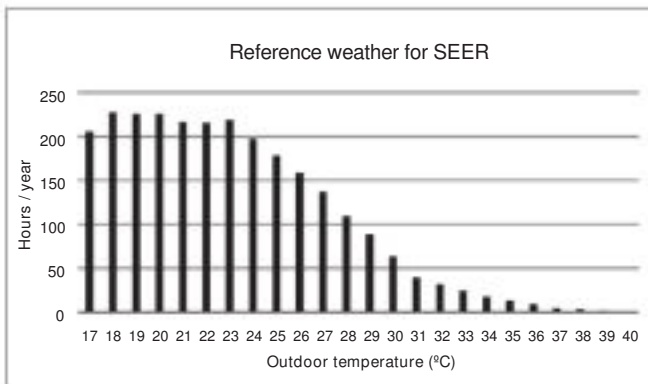


| ROOFTOPS | SEER | $\eta_{s,c}$ (%) | SCOP | $\eta_{s,h}$ (%) |
|----------------------|------|------------------|------|------------------|
| Tier 1 - 2018 | 3,00 | 117 | 2,95 | 115 |
| Tier 2 - 2021 | 3,53 | 138 | 3,20 | 125 |

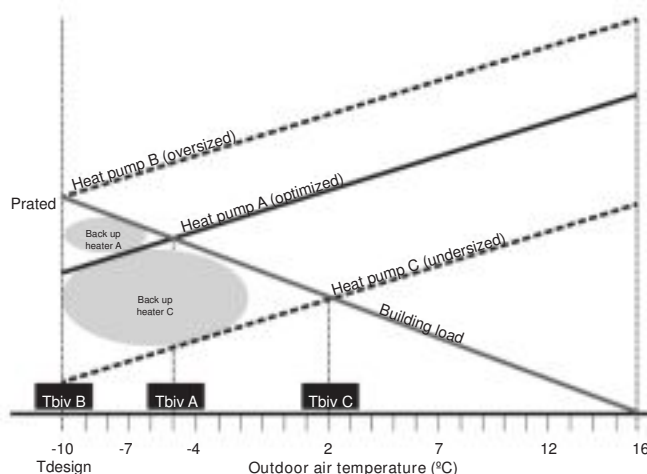


As stipulated in Annex II paragraph 5 of Regulation 2016/2281, the technical data sheets (TDS) for CIAT units are available at www.ciat.com

According to technical standard EN 14825, a reference weather for assessment of the seasonal efficiency is defined in cooling, as well as a partial load depending on the outdoor temperature. It is also establishes for heating, but in this case the standard defines three weathers (the average weather is used to compare with the minimum seasonal efficiency requirements of ecodesign regulations).



In addition, the bivalent temperature is defined in heating. This is the lowest outdoor temperature at which it is declared that the unit provides a capacity that allows to satisfy 100% of the heating load. Below this point, in the calculation of the SCOP, it is considered that the unit can still supply the capacity, but additional heating is required.



TECHNICAL CHARACTERISTICS WITH R-454B REFRIGERANT (EN-14511-2018)

| IPJ series | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|------------------------------|---|--|-------------------|---------|---------|---------|---------|-------------------|---------|-------------------|-------------------|---------|---------|
| Cooling capacities | Cooling capacity ① (kW) | 97,69 | 107,24 | 116,39 | 126,34 | 140,87 | 154,91 | 162,90 | 175,42 | 195,19 | 214,57 | 246,84 | 273,16 |
| | Power input ③ (kW) | 30,16 | 34,27 | 37,91 | 40,16 | 45,82 | 52,48 | 56,76 | 53,91 | 63,58 | 74,07 | 79,24 | 92,22 |
| | EER performance | 3,24 | 3,13 | 3,07 | 3,15 | 3,07 | 2,95 | 2,87 | 3,25 | 3,07 | 2,90 | 3,12 | 2,96 |
| | SEER | 4,91 | 4,79 | 4,69 | 4,91 | 4,76 | 4,71 | 4,72 | 5,04 | 4,86 | 4,84 | 4,75 | 4,70 |
| | ηs | 193% | 188% | 185% | 193% | 187% | 185% | 186% | 198% | 191% | 191% | 187% | 185% |
| Heating capacities | Heating capacity ② (kW) | 97,38 | 106,88 | 117,73 | 127,58 | 144,18 | 158,24 | 166,20 | 184,21 | 203,88 | 228,01 | 272,05 | 299,51 |
| | Power input ③ (kW) | 26,61 | 29,87 | 33,85 | 34,94 | 40,26 | 45,47 | 48,31 | 48,73 | 56,18 | 64,63 | 75,12 | 86,06 |
| | COP performance | 3,66 | 3,58 | 3,48 | 3,65 | 3,58 | 3,48 | 3,44 | 3,78 | 3,63 | 3,53 | 3,62 | 3,48 |
| | SCOP | 3,53 | 3,53 | 3,51 | 3,51 | 3,49 | 3,44 | 3,45 | 3,47 | 3,46 | 3,47 | 3,46 | 3,44 |
| | ηs | 138% | 138% | 137% | 137% | 137% | 135% | 135% | 136% | 135% | 136% | 135% | 135% |
| Outdoor circuit fan | Nominal air flow (m³/h) | 44.000 | 44.000 | 44.000 | 58.000 | 58.000 | 64.000 | 64.000 | 80.000 | 86.000 | 86.000 | 120.000 | 120.000 |
| | Available static pressure (mm.w.c) | 5 | | | | | | | | | | | |
| | Type | Electronic axial fan | | | | | | | | | | | |
| | Number / Diameter (mm) | 2 / 800 | | | 2 / 910 | | | | 4 / 800 | | | 4 / 910 | |
| | Maximum speed (r.p.m.) | 1.100 | | | 1.070 | | | | 1.100 | | | 1.070 | |
| | Motor output (kW) | 2 x 3,0 | | | 2 x 3,3 | | | | 4 x 3,0 | | | 4 x 3,3 | |
| | Maximum absorbed current (A) | 2 x 4,6 | | | 2 x 5,0 | | | | 4 x 4,6 | | | 4 x 5,0 | |
| Indoor circuit supply fan | Nominal air flow (m³/h) | 18.000 | 19.800 | 21.600 | 23.400 | 26.100 | 28.800 | 30.600 | 32.400 | 36.000 | 39.000 | 40.500 | 45.000 |
| | Nominal avail. static pressure (mm.w.c) | 25 | 25 | 25 | 30 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 |
| | Minimum air flow (m³/h) | 10.800 | | | 14.040 | | | | 19.440 | | | 24.300 | |
| | Maximum air flow (m³/h) | 25.920 | | | 36.720 | | | | 46.800 | | | 54.000 | |
| | Type / Material | Electronic plug-fan (Polypropylene) | | | | | | | | | | | |
| | Number / Diameter (mm) | 3 / 500 | | | 4 / 500 | | | | 5 / 500 | | | 6 / 500 | |
| | Speed (r.p.m.) | 1.800 | | | | | | | | | | | |
| | Motor output (kW) | 3 x 2,6 | | | 4 x 2,6 | | | | 5 x 2,6 | | | 6 x 2,6 | |
| Maximum absorbed current (A) | 3 x 4,0 | | | 4 x 4,0 | | | | 5 x 4,0 | | | 6 x 4,0 | | |
| Compressor | Type | Scroll | | | | | | | | | | | |
| | No. compressors / stages / circuits | 4 / 4 / 2 | | | | | | | | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | | | |
| | Volume of oil (l) | 4 x 3,0 | 2 x 3,0 + 2 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 2 x 3,3 + 2 x 3,3 | 2 x 3,6 | 3 x 3,6 + 1 x 3,6 | 1 x 3,6 + 3 x 6,1 | 4 x 6,1 | 4 x 6,1 |
| Electrical characteristics | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | | | |
| | Power supply | 3 Wires + Ground + Neutral | | | | | | | | | | | |
| | Maximum absorbed current (A) | 85,6 | 90,9 | 99,4 | 107,4 | 120,0 | 129,9 | 137,5 | 149,9 | 166,7 | 185,3 | 207,7 | 230,3 |
| Refrigerant | Type | R-454B | | | | | | | | | | | |
| | Global warming potential (GWP) ④ | 466 | | | | | | | | | | | |
| | Charge (kg) | 31,0 | 31,0 | 31,0 | 34,0 | 34,0 | 34,5 | 35,0 | 49,0 | 51,0 | 51,0 | 61,0 | 62,0 |
| | Environment impact (tCO2eq) | 14,4 | 14,4 | 14,4 | 15,8 | 15,8 | 16,1 | 16,3 | 22,8 | 23,8 | 23,8 | 28,4 | 28,9 |
| Weight | C0 assembly (kg) | 1.430 | 1.450 | 1.470 | 1.640 | 1.680 | 1.690 | 1.700 | 2.265 | 2.370 | 2.475 | 2.795 | 2.860 |

- ① Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.
 ② Heating capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.
 ③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.
 ④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.



Eurovent certified values

OPERATION LIMITS

| Inlet air conditions | | Cooling | Heating |
|----------------------|---------|----------|------------|
| Indoor coil | Minimum | 9,7°C WB | 10°C |
| | Maximum | 24°C WB | 27°C |
| Outdoor coil | Minimum | -10°C ① | -15°C WB ② |
| | Maximum | 48°C | 15°C WB |

- ① With the condensation pressure control disabled, operation up to 12°C
- ② When the outdoor temperature is usually below 5°C WB, the installation of a support element is recommended.

SOUND LEVELS dB(A)

Sound power level (LW)

| IPJ | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 63 Hz | 64,6 | 65,1 | 65,6 | 66,1 | 66,6 | 66,9 | 67,1 | 67,1 | 67,9 | 69,1 | 70,6 | 71,6 |
| 125 Hz | 71,4 | 71,9 | 72,4 | 72,9 | 73,4 | 73,7 | 73,9 | 73,9 | 74,7 | 75,9 | 77,4 | 78,4 |
| 250 Hz | 77,9 | 78,4 | 78,9 | 79,4 | 79,9 | 80,2 | 80,4 | 80,4 | 81,2 | 82,4 | 83,9 | 84,9 |
| 500 Hz | 80,2 | 80,7 | 81,2 | 81,7 | 82,2 | 82,5 | 82,7 | 82,7 | 83,5 | 84,7 | 86,2 | 87,2 |
| 1000 Hz | 80,6 | 81,1 | 81,6 | 82,1 | 82,6 | 82,9 | 83,1 | 83,1 | 83,9 | 85,1 | 86,6 | 87,6 |
| 2000 Hz | 78,1 | 78,6 | 79,1 | 79,6 | 80,1 | 80,4 | 80,6 | 80,6 | 81,4 | 82,6 | 84,1 | 85,1 |
| 4000 Hz | 74,2 | 74,7 | 75,2 | 75,7 | 76,2 | 76,5 | 76,7 | 76,7 | 77,5 | 78,7 | 80,2 | 81,2 |
| 8000 Hz | 69,4 | 69,9 | 70,4 | 70,9 | 71,4 | 71,7 | 71,9 | 71,9 | 72,7 | 73,9 | 75,4 | 76,4 |
| Total dB(A) | 86,0 | 86,5 | 87,0 | 87,5 | 88,0 | 88,3 | 88,5 | 88,5 | 89,3 | 90,5 | 92,0 | 93,0 |

Sound pressure level (LP)

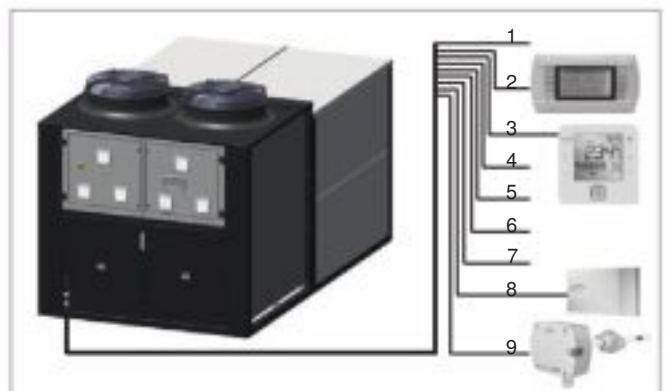
Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| IPJ | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A) | 58,6 | 59,1 | 59,6 | 60,0 | 60,5 | 60,8 | 61,0 | 60,7 | 61,5 | 62,7 | 64,0 | 65,0 |

Note: The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

ELECTRICAL CONNECTIONS

| No. | IPJ | 0420 to 1200 |
|-----|--|---|
| 1 | Main power supply | 400 III (±10%) |
| 2 | Remote connection of graphic terminal (by default installed on the electrical cabinet) ① | 3 wires + ground + neutral |
| 3 | Connection of TCO user terminal (optional) ② | telephone cable 6 wires standard (RJ12 connector) |
| 4 | Remote off/on (optional) | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) |
| 5 | General alarm signal (optional) ③ | 2 wires |
| 6 | Remote Cooling/Heating (opt.) | 2 wires |
| 7 | Circulation pump signal for HWC (antifreeze sec.) (opt.) | 1 wire |
| 8 | Ambient probe | NTC |
| | | RS485 |
| 9 | Air quality probe (optional) | 2 wires |
| | | 5 wires ④ |
| | | 3 wires |



- ① In this case, it's possible to install the user terminal on the electrical cabinet.
- ② It's necessary that the terminal uses the same power supply that the control board.
- ③ The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier. With these options, possibility of general alarm upon request.
- ④ Up to four RS485 ambient sensors can be connected in series on the field-bus of the control board.



VECTIOS^{POWER}™ PJ R-454B

Compact air-air rooftop units

COOLING CAPACITY (kW) WITH R-454B REFRIGERANT

Outdoor temperature 35°C

| IPJ series | Flow (m³/h) | Indoor air temperature | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-------------|------------------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|------|--|--|--|
| | | 15°C / 50% RH | | | 20°C / 50% RH | | | 23°C / 50% RH | | | 25°C / 50% RH | | | 27°C / 50% RH | | | 29°C / 50% RH | | | 31°C / 50% RH | | | | | |
| | | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | Pft | Pfs | Pa | | | |
| 0420 | 10.800 | 64,3 | 51,3 | 23,3 | 75,1 | 57,3 | 23,8 | 81,7 | 59,4 | 24,2 | 86,3 | 60,7 | 24,5 | 93,7 | 59,4 | 24,9 | 96,3 | 63,1 | 25,0 | 101,7 | 64,3 | 25,3 | | | |
| | 14.400 | 69,7 | 60,8 | 23,4 | 79,9 | 65,2 | 24,1 | 86,7 | 67,8 | 24,5 | 91,5 | 69,4 | 24,7 | 98,4 | 68,6 | 25,1 | 101,8 | 72,6 | 25,3 | 107,4 | 74,2 | 25,5 | | | |
| | 18.000 | 72,3 | 66,9 | 23,5 | 82,5 | 72,3 | 24,2 | 89,4 | 75,5 | 24,6 | 94,2 | 77,5 | 24,8 | 100,2 | 78,0 | 25,2 | 104,6 | 81,4 | 25,4 | 110,1 | 83,3 | 25,6 | | | |
| | 25.920 | 76,3 | 78,7 | 23,8 | 86,8 | 85,9 | 24,4 | 93,8 | 90,3 | 24,8 | 98,7 | 93,1 | 25,1 | 104,5 | 94,7 | 25,4 | 109,3 | 98,7 | 25,6 | 114,8 | 101,5 | 25,9 | | | |
| 0450 | 10.800 | 69,5 | 55,6 | 26,4 | 81,1 | 60,6 | 27,0 | 88,2 | 62,7 | 27,5 | 93,1 | 64,0 | 27,8 | 101,0 | 62,6 | 28,4 | 103,7 | 66,4 | 28,5 | 109,5 | 67,7 | 28,9 | | | |
| | 14.400 | 75,6 | 64,2 | 26,6 | 86,6 | 68,9 | 27,4 | 93,9 | 71,5 | 27,9 | 99,0 | 73,1 | 28,2 | 106,5 | 72,2 | 28,8 | 110,0 | 76,3 | 29,0 | 115,9 | 77,7 | 29,4 | | | |
| | 19.800 | 79,9 | 73,7 | 26,9 | 91,0 | 79,6 | 27,7 | 98,5 | 83,1 | 28,2 | 103,7 | 85,3 | 28,5 | 110,1 | 85,8 | 29,0 | 114,8 | 89,5 | 29,2 | 120,8 | 91,6 | 29,6 | | | |
| 0500 | 25.920 | 83,1 | 83,0 | 27,1 | 94,5 | 90,3 | 27,9 | 102,0 | 94,6 | 28,4 | 107,2 | 97,3 | 28,8 | 113,4 | 98,9 | 29,2 | 118,4 | 102,8 | 29,5 | 124,4 | 105,6 | 29,9 | | | |
| | 10.800 | 73,7 | 59,4 | 28,8 | 86,2 | 64,8 | 29,6 | 93,8 | 67,1 | 30,1 | 98,9 | 68,4 | 30,5 | 107,3 | 66,8 | 31,2 | 110,2 | 70,9 | 31,4 | 116,2 | 72,0 | 31,8 | | | |
| | 14.400 | 81,0 | 68,8 | 29,1 | 92,7 | 73,5 | 30,1 | 100,4 | 76,2 | 30,7 | 105,8 | 77,8 | 31,1 | 113,7 | 76,6 | 31,7 | 117,5 | 80,9 | 32,0 | 123,7 | 82,4 | 32,4 | | | |
| | 21.600 | 87,4 | 81,8 | 29,6 | 99,4 | 88,2 | 30,6 | 107,4 | 91,9 | 31,2 | 113,0 | 94,2 | 31,6 | 119,9 | 94,6 | 32,1 | 124,8 | 98,7 | 32,5 | 131,2 | 100,9 | 32,9 | | | |
| 0560 | 25.920 | 89,7 | 88,4 | 29,8 | 101,9 | 95,8 | 30,8 | 109,9 | 100,1 | 31,4 | 115,5 | 102,8 | 31,8 | 122,1 | 104,1 | 32,3 | 127,4 | 108,2 | 32,7 | 133,8 | 110,8 | 33,1 | | | |
| | 14.040 | 83,5 | 67,9 | 31,2 | 97,5 | 74,1 | 31,9 | 105,9 | 76,7 | 32,5 | 111,8 | 78,3 | 32,9 | 121,3 | 76,6 | 33,5 | 124,5 | 81,4 | 33,7 | 131,4 | 82,8 | 34,1 | | | |
| | 18.720 | 90,6 | 78,5 | 31,4 | 103,7 | 84,2 | 32,3 | 112,4 | 87,5 | 32,9 | 118,5 | 89,5 | 33,3 | 127,3 | 88,4 | 33,9 | 131,6 | 93,5 | 34,1 | 138,7 | 95,4 | 34,5 | | | |
| | 23.400 | 94,0 | 86,4 | 31,6 | 107,1 | 93,2 | 32,5 | 115,9 | 97,3 | 33,1 | 122,0 | 99,7 | 33,5 | 129,6 | 100,3 | 33,9 | 135,2 | 104,6 | 34,2 | 142,3 | 107,0 | 34,6 | | | |
| 0620 | 36.720 | 100,3 | 105,1 | 32,0 | 113,9 | 114,9 | 33,0 | 122,9 | 121,1 | 33,6 | 129,1 | 124,9 | 34,0 | 136,6 | 127,0 | 34,4 | 142,7 | 132,6 | 34,7 | 149,9 | 136,5 | 35,1 | | | |
| | 14.040 | 91,2 | 72,9 | 35,9 | 106,3 | 79,4 | 36,8 | 115,3 | 82,1 | 37,4 | 121,5 | 83,6 | 37,9 | 131,7 | 81,7 | 38,6 | 135,2 | 86,7 | 38,8 | 142,6 | 88,1 | 39,3 | | | |
| | 18.720 | 99,5 | 84,2 | 36,2 | 113,6 | 90,0 | 37,3 | 122,9 | 93,2 | 38,0 | 129,5 | 95,2 | 38,4 | 139,1 | 93,8 | 39,1 | 143,7 | 99,1 | 39,4 | 151,4 | 101,0 | 39,8 | | | |
| | 26.100 | 105,5 | 96,9 | 36,6 | 119,9 | 104,4 | 37,7 | 129,4 | 108,7 | 38,4 | 136,1 | 111,4 | 38,9 | 144,6 | 111,9 | 39,4 | 150,6 | 116,8 | 39,7 | 158,4 | 119,4 | 40,2 | | | |
| 0680 | 36.720 | 110,6 | 112,4 | 37,0 | 125,5 | 122,2 | 38,1 | 135,3 | 128,0 | 38,8 | 142,2 | 131,8 | 39,3 | 150,3 | 134,0 | 39,8 | 156,9 | 139,3 | 40,2 | 165,1 | 143,2 | 40,6 | | | |
| | 14.040 | 97,6 | 77,2 | 40,9 | 113,9 | 84,1 | 41,8 | 123,6 | 86,8 | 42,5 | 130,4 | 88,4 | 43,0 | 141,4 | 86,4 | 43,8 | 145,2 | 91,6 | 44,0 | 153,2 | 93,0 | 44,5 | | | |
| | 18.720 | 107,2 | 89,0 | 41,3 | 122,5 | 95,1 | 42,4 | 132,6 | 98,3 | 43,1 | 139,7 | 100,4 | 43,6 | 150,1 | 98,9 | 44,3 | 155,2 | 104,4 | 44,6 | 163,4 | 106,2 | 45,1 | | | |
| | 28.800 | 116,3 | 106,9 | 42,0 | 132,2 | 115,1 | 43,1 | 142,8 | 119,8 | 43,8 | 150,2 | 122,8 | 44,3 | 159,4 | 123,4 | 44,9 | 166,0 | 128,6 | 45,3 | 174,5 | 131,5 | 45,8 | | | |
| 0720 | 36.720 | 120,3 | 118,5 | 42,2 | 136,7 | 128,5 | 43,4 | 147,4 | 134,4 | 44,1 | 154,9 | 138,1 | 44,6 | 163,8 | 140,0 | 45,2 | 170,9 | 145,4 | 45,6 | 179,4 | 149,1 | 46,1 | | | |
| | 14.040 | 101,9 | 80,3 | 43,5 | 118,7 | 87,3 | 44,6 | 128,6 | 90,0 | 45,5 | 135,6 | 91,7 | 46,1 | 147,0 | 89,4 | 47,0 | 150,9 | 94,8 | 47,3 | 159,1 | 96,2 | 47,9 | | | |
| | 18.720 | 112,0 | 92,4 | 44,1 | 127,8 | 98,5 | 45,4 | 138,2 | 101,8 | 46,3 | 145,6 | 103,9 | 46,9 | 156,4 | 102,2 | 47,7 | 161,6 | 107,8 | 48,1 | 170,1 | 109,6 | 48,8 | | | |
| | 30.600 | 123,1 | 113,6 | 45,0 | 139,8 | 122,2 | 46,4 | 150,8 | 127,1 | 47,3 | 158,5 | 130,3 | 47,9 | 168,1 | 130,9 | 48,7 | 175,0 | 136,4 | 49,2 | 183,7 | 139,3 | 49,9 | | | |
| 0760 | 36.720 | 126,3 | 122,4 | 45,3 | 143,2 | 132,5 | 46,7 | 154,3 | 138,3 | 47,6 | 162,0 | 142,1 | 48,2 | 171,1 | 143,9 | 48,9 | 178,5 | 149,3 | 49,5 | 187,3 | 152,8 | 50,2 | | | |
| | 19.440 | 116,8 | 93,9 | 41,5 | 136,2 | 102,5 | 42,5 | 147,8 | 106,0 | 43,1 | 156,0 | 108,1 | 43,6 | 169,1 | 105,7 | 44,3 | 173,7 | 112,2 | 44,6 | 183,2 | 114,2 | 45,2 | | | |
| | 25.920 | 126,5 | 109,6 | 41,8 | 144,8 | 117,5 | 42,9 | 156,8 | 121,9 | 43,7 | 165,3 | 124,8 | 44,1 | 177,4 | 123,0 | 44,9 | 183,3 | 130,0 | 45,2 | 192,9 | 132,5 | 45,8 | | | |
| | 32.400 | 131,4 | 121,7 | 41,9 | 149,4 | 131,0 | 43,1 | 161,4 | 136,5 | 43,8 | 169,9 | 139,9 | 44,3 | 180,5 | 140,6 | 45,0 | 188,0 | 146,4 | 45,3 | 197,7 | 149,6 | 45,9 | | | |
| 0840 | 46.800 | 138,3 | 145,2 | 42,3 | 156,9 | 158,2 | 43,6 | 169,2 | 166,1 | 44,3 | 177,7 | 171,0 | 44,9 | 187,8 | 173,6 | 45,4 | 196,0 | 180,7 | 45,9 | 205,7 | 185,5 | 46,4 | | | |
| | 19.440 | 127,4 | 100,1 | 47,6 | 148,5 | 109,4 | 48,8 | 161,0 | 113,3 | 49,6 | 169,8 | 115,4 | 50,2 | 184,1 | 112,8 | 51,2 | 189,1 | 119,6 | 51,6 | 199,5 | 121,4 | 52,3 | | | |
| | 25.920 | 139,1 | 117,5 | 48,1 | 158,8 | 125,4 | 49,4 | 171,6 | 129,6 | 50,3 | 181,0 | 132,6 | 51,0 | 194,3 | 130,6 | 51,9 | 200,7 | 137,8 | 52,4 | 211,5 | 140,4 | 53,1 | | | |
| | 36.000 | 147,4 | 136,4 | 48,5 | 167,4 | 146,8 | 50,0 | 180,6 | 152,8 | 51,0 | 190,0 | 156,5 | 51,6 | 201,6 | 157,1 | 52,4 | 210,1 | 163,8 | 52,9 | 220,9 | 167,5 | 53,6 | | | |
| 960 | 46.800 | 152,7 | 154,9 | 49,0 | 173,2 | 167,8 | 50,5 | 186,7 | 175,1 | 51,4 | 196,0 | 179,9 | 52,1 | 207,5 | 182,4 | 52,8 | 216,5 | 189,6 | 53,3 | 227,4 | 194,2 | 54,0 | | | |
| | 19.440 | 137,2 | 108,2 | 56,0 | 159,9 | 117,5 | 57,3 | 173,4 | 121,1 | 58,2 | 182,7 | 123,3 | 58,9 | 198,4 | 120,3 | 60,1 | 203,5 | 127,4 | 60,5 | 214,6 | 129,4 | 61,2 | | | |
| | 25.920 | 150,3 | 125,2 | 56,4 | 171,9 | 133,7 | 58,1 | 186,2 | 138,3 | 59,2 | 195,9 | 141,0 | 60,0 | 210,4 | 138,8 | 61,0 | 217,3 | 146,2 | 61,5 | 229,2 | 149,0 | 62,3 | | | |
| | 39.000 | 163,0 | 150,9 | 57,3 | 185,0 | 162,3 | 59,1 | 199,5 | 168,8 | 60,2 | 209,6 | 172,7 | 60,9 | 222,3 | 173,4 | 61,8 | 231,6 | 180,5 | 62,3 | 243,3 | 184,4 | 63,1 | | | |
| 1050 | 46.800 | 167,6 | 164,5 | 57,6 | 189,5 | 177,6 | 59,5 | 203,7 | 184,7 | 60,6 | 214,2 | 189,6 | 61,2 | 226,6 | 192,0 | 62,1 | 236,4 | 199,2 | 62,7 | 248,1 | 203,9 | 63,5 | | | |
| | 24.300 | 162,8 | 127,7 | 59,2 | 190,6 | 139,3 | 60,4 | 207,5 | 144,2 | 61,1 | 219,4 | 147,2 | 61,6 | 238,0 | 143,8 | 62,7 | 244,6 | 152,5 | 62,8 | 258,3 | 155,0 | 63,4 | | | |
| | 32.400 | 178,4 | 148,5 | 59,5 | 204,8 | 159,1 | 60,9 | 222,4 | 165,1 | 61,8 | 234,8 | 168,8 | 62,3 | 252,4 | 166,5 | 63,2 | 261,0 | 175,8 | 63,5 | 275,2 | 179,1 | 64,1 | | | |
| | 40.500 | 186,8 | 164,3 | 59,7 | 213,0 | 176,9 | 61,2 | 230,6 | 184,1 | 62,0 | 243,0 | 188,5 | 62,5 | 254,4 | 195,7 | 63,3 | 269,3 | 197,1 | 63,7 | 283,7 | 201,4 | 64,4 | | | |
| 1200 | 54.000 | 195,6 | 187,3 | 60,1 | 222,8 | 203,3 | 61,7 | 240,8 | 212,7 | 62,6 | 253,3 | 218,3 | 63,1 | 268,2 | 221,3 | 63,7 | 280,4 | 229,9 | 64,3 | 294,8 | 235,4 | 64,9 | | | |
| | 24.300 | 173,3 | 140,7 | 68,7 | 202,7 | 153,3 | 70,2 | 220,5 | 158,5 | 71,2 | 232,8 | 161,5 | 71,9 | 252,7 | 157,7 | 73,0 | 259,7 | 167,2 | 73,4 | 274,2 | 169,8 | 74,2 | | | |
| | 32.400 | 191,4 | 163,6 | 69,3 | 219,3 | 174,9 | 71,1 | 237,8 | 181,0 | 72,1 | 250,7 | 184,8 | 72,8 | 269,5 | 182,0 | 73,9 | 278,8 | 192,0 | 74,5 | 293,8 | 195,4 | 75,3 | | | |
| | 45.000 | 203,6 | 188,6 | 70,0 | 233,3 | 203,7 | 71,8 | 253,7 | 212,6 | 72,8 | 265,9 | 217,0 | 73,7 | 282,6 | 217,7 | 74,6 | 294,5 | 226,7 | 75,3 | 309,9 | 231,4 | 76,1 | | | |
| 54.000 | 211,1 | 205,5 | 70,4 | 240,1 | 222,2 | 72,2 | 259,4 | 231,5 | 73,2 | 272,7 | 237,1 | 74,3 | 289,0 | 240,4 | 75,0 | 301,9 | 249,2 | 75,8 | 317,2 | 255,1 | 76,6 | | | | |

Pft: Total gross cooling capacity in kW
 Pfs: Sensitive cooling capacity in kW
 Pa: Compressor power input in kW

Correction coefficients: variation of outdoor temperature and humidity

| Outdoor temp. |
|---------------|
|---------------|

HEATING CAPACITY (kW) WITH R-454B REFRIGERANT

Indoor temperature 20°C

| IPJ series | Flow (m³/h) | Outdoor air temperature | | | | | | | | | | | | | | | | | |
|------------|-------------|-------------------------|-------|----------|-------|---------|-------|---------|-------|--------|-------|--------|-------|--------|-------|---------|-------|---------|-------|
| | | -15°C WB | | -10°C WB | | -5°C WB | | -3°C WB | | 0°C WB | | 3°C WB | | 6°C WB | | 10°C WB | | 15°C WB | |
| | | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa | Pc | Pa |
| 0420 | 10.800 | 51,4 | 19,3 | 59,4 | 20,7 | 69,6 | 22,7 | 75,4 | 23,9 | 81,5 | 25,2 | 87,3 | 26,4 | 94,1 | 27,9 | 103,5 | 29,8 | 115,7 | 32,6 |
| | 14.400 | 50,8 | 17,7 | 59,0 | 18,7 | 69,7 | 20,5 | 75,8 | 21,5 | 82,3 | 22,4 | 88,4 | 23,4 | 95,6 | 24,5 | 105,5 | 26,2 | 119,1 | 28,5 |
| | 18.000 | 50,6 | 17,3 | 58,8 | 17,9 | 69,7 | 19,2 | 75,9 | 19,9 | 82,3 | 20,7 | 88,9 | 21,6 | 96,0 | 22,5 | 106,4 | 23,8 | 120,6 | 25,5 |
| | 25.920 | 50,7 | 16,5 | 59,0 | 16,9 | 70,2 | 18,0 | 76,7 | 18,5 | 83,5 | 19,2 | 90,4 | 19,9 | 97,7 | 20,6 | 108,5 | 21,6 | 124,0 | 22,9 |
| 0450 | 10.800 | 55,9 | 22,1 | 65,3 | 23,6 | 76,6 | 25,7 | 82,8 | 27,2 | 89,5 | 28,7 | 96,0 | 30,2 | 103,1 | 31,8 | 113,3 | 34,1 | 126,1 | 37,3 |
| | 14.400 | 55,7 | 20,0 | 64,9 | 21,2 | 76,5 | 23,2 | 83,1 | 24,2 | 90,1 | 25,4 | 97,0 | 26,6 | 104,7 | 27,9 | 115,4 | 29,9 | 130,0 | 32,6 |
| | 19.800 | 55,1 | 19,4 | 64,4 | 19,8 | 76,3 | 21,2 | 83,2 | 22,0 | 90,4 | 22,9 | 97,8 | 23,8 | 105,2 | 24,9 | 117,3 | 26,3 | 133,1 | 28,4 |
| 0500 | 25.920 | 55,4 | 19,0 | 64,4 | 19,0 | 76,6 | 20,1 | 83,3 | 20,8 | 91,2 | 21,6 | 98,6 | 22,4 | 106,9 | 23,3 | 118,9 | 24,5 | 135,7 | 26,1 |
| | 10.800 | 62,8 | 25,8 | 71,1 | 27,3 | 83,6 | 29,9 | 90,5 | 31,8 | 97,4 | 33,6 | 103,9 | 35,3 | 111,6 | 37,3 | 121,8 | 40,0 | 134,8 | 43,9 |
| | 14.400 | 62,4 | 23,1 | 70,9 | 24,2 | 83,5 | 26,5 | 90,5 | 27,9 | 98,0 | 29,3 | 105,2 | 30,8 | 113,4 | 32,4 | 124,8 | 34,8 | 139,7 | 38,1 |
| 0560 | 21.600 | 62,1 | 21,7 | 71,6 | 22,5 | 83,8 | 23,6 | 91,2 | 24,5 | 99,1 | 25,6 | 106,8 | 26,7 | 115,6 | 27,8 | 127,8 | 29,5 | 144,7 | 31,8 |
| | 25.920 | 62,2 | 21,1 | 72,0 | 21,5 | 84,0 | 22,7 | 91,7 | 23,6 | 99,7 | 24,5 | 107,6 | 25,4 | 116,4 | 26,4 | 129,3 | 27,9 | 146,7 | 29,9 |
| | 14.040 | 70,5 | 25,9 | 78,2 | 27,5 | 91,5 | 29,8 | 99,0 | 31,4 | 106,9 | 33,2 | 114,5 | 34,8 | 123,4 | 36,6 | 135,5 | 39,2 | 151,4 | 42,9 |
| 0620 | 18.720 | 69,9 | 23,4 | 77,8 | 24,6 | 91,7 | 26,8 | 99,3 | 28,1 | 107,8 | 29,4 | 115,9 | 30,8 | 125,2 | 32,3 | 138,2 | 34,5 | 155,9 | 37,6 |
| | 23.400 | 69,3 | 23,0 | 77,8 | 23,7 | 91,4 | 25,1 | 99,5 | 26,1 | 108,0 | 27,2 | 116,5 | 28,3 | 125,8 | 29,5 | 139,4 | 31,3 | 158,0 | 33,7 |
| | 36.720 | 70,8 | 21,8 | 79,2 | 22,0 | 92,3 | 23,1 | 101,1 | 23,9 | 109,7 | 24,8 | 118,6 | 25,6 | 128,6 | 26,5 | 143,0 | 27,8 | 163,3 | 29,6 |
| 0680 | 14.040 | 82,2 | 30,8 | 91,5 | 33,0 | 104,0 | 35,7 | 112,0 | 37,7 | 120,4 | 39,8 | 128,6 | 41,7 | 138,1 | 44,0 | 151,0 | 47,2 | 167,9 | 51,8 |
| | 18.720 | 81,7 | 27,9 | 91,1 | 29,6 | 104,2 | 31,9 | 112,6 | 33,4 | 121,5 | 35,1 | 130,3 | 36,6 | 140,3 | 38,5 | 154,3 | 41,1 | 173,2 | 44,9 |
| | 26.100 | 82,2 | 26,4 | 91,2 | 27,5 | 104,4 | 29,0 | 113,3 | 30,1 | 122,5 | 31,3 | 131,8 | 32,5 | 142,1 | 33,8 | 157,1 | 35,7 | 177,5 | 38,5 |
| | 36.720 | 83,5 | 25,0 | 92,5 | 26,0 | 105,0 | 27,2 | 114,5 | 28,1 | 124,0 | 29,0 | 133,6 | 30,0 | 144,3 | 31,0 | 159,9 | 32,5 | 181,9 | 34,6 |
| 0720 | 14.040 | 90,7 | 37,5 | 101,5 | 39,7 | 113,9 | 42,5 | 122,7 | 44,9 | 131,6 | 47,4 | 140,2 | 49,8 | 150,1 | 52,6 | 163,4 | 56,3 | 180,8 | 61,7 |
| | 18.720 | 90,5 | 33,2 | 101,3 | 35,0 | 113,9 | 37,4 | 123,0 | 39,1 | 132,6 | 41,0 | 142,0 | 42,9 | 152,6 | 45,1 | 167,4 | 48,3 | 186,9 | 52,7 |
| | 28.800 | 90,1 | 29,9 | 102,1 | 31,0 | 114,2 | 32,5 | 123,9 | 33,7 | 134,1 | 35,0 | 144,4 | 36,3 | 155,5 | 37,8 | 171,8 | 39,9 | 194,0 | 43,0 |
| | 36.720 | 90,7 | 28,7 | 103,0 | 29,3 | 114,6 | 30,8 | 124,6 | 31,8 | 135,0 | 32,9 | 145,5 | 34,0 | 157,1 | 35,2 | 174,0 | 37,0 | 197,5 | 39,5 |
| 0760 | 14.040 | 94,5 | 39,3 | 104,9 | 41,6 | 118,8 | 45,2 | 127,8 | 47,8 | 137,1 | 50,6 | 146,0 | 53,3 | 156,1 | 56,3 | 170,0 | 60,4 | 187,5 | 66,3 |
| | 18.720 | 93,7 | 35,2 | 104,4 | 37,0 | 119,0 | 39,8 | 128,5 | 41,8 | 138,4 | 43,9 | 148,0 | 46,0 | 158,8 | 48,5 | 174,1 | 52,1 | 194,1 | 57,0 |
| | 30.600 | 93,3 | 31,1 | 104,4 | 32,3 | 119,8 | 34,2 | 130,0 | 35,6 | 140,7 | 37,1 | 151,3 | 38,5 | 163,0 | 40,1 | 180,1 | 42,5 | 203,2 | 45,8 |
| 0840 | 36.720 | 93,3 | 30,1 | 104,4 | 31,2 | 120,1 | 32,9 | 130,5 | 34,1 | 141,4 | 35,4 | 152,4 | 36,7 | 164,2 | 38,1 | 181,9 | 40,1 | 205,8 | 43,0 |
| | 19.440 | 99,1 | 36,3 | 112,4 | 38,7 | 131,6 | 41,7 | 142,2 | 43,9 | 152,9 | 46,1 | 163,5 | 48,3 | 175,6 | 50,9 | 191,7 | 54,4 | 213,4 | 59,9 |
| | 25.920 | 99,2 | 32,4 | 112,3 | 34,2 | 132,3 | 37,1 | 143,4 | 38,6 | 155,1 | 40,4 | 166,4 | 42,0 | 179,8 | 44,1 | 197,8 | 47,1 | 222,2 | 51,3 |
| | 32.400 | 98,7 | 31,4 | 112,6 | 32,3 | 132,3 | 34,4 | 143,8 | 35,7 | 155,7 | 37,1 | 167,9 | 38,5 | 181,1 | 40,1 | 200,4 | 42,4 | 226,4 | 45,6 |
| 960 | 46.800 | 100,0 | 30,8 | 114,1 | 30,9 | 133,6 | 31,8 | 145,5 | 32,8 | 158,6 | 33,9 | 171,0 | 35,0 | 184,9 | 36,2 | 205,2 | 38,0 | 234,5 | 40,5 |
| | 19.440 | 110,2 | 41,8 | 124,9 | 44,3 | 145,0 | 48,4 | 156,2 | 51,1 | 167,8 | 53,9 | 178,9 | 56,6 | 191,9 | 59,7 | 209,2 | 64,1 | 231,5 | 70,6 |
| | 25.920 | 110,0 | 37,4 | 124,8 | 39,2 | 145,7 | 42,5 | 157,6 | 44,5 | 170,3 | 46,6 | 182,6 | 48,7 | 196,6 | 51,1 | 215,8 | 54,7 | 241,7 | 59,9 |
| | 36.000 | 110,6 | 35,2 | 126,0 | 36,0 | 146,4 | 38,1 | 159,1 | 39,6 | 172,2 | 41,2 | 185,6 | 42,8 | 199,8 | 44,5 | 221,0 | 47,1 | 250,0 | 50,7 |
| 1050 | 46.800 | 112,0 | 34,1 | 127,5 | 34,2 | 147,4 | 35,9 | 160,4 | 37,1 | 174,0 | 38,4 | 187,8 | 39,7 | 203,3 | 41,2 | 225,0 | 43,2 | 256,0 | 46,2 |
| | 19.440 | 126,0 | 52,0 | 141,8 | 55,5 | 162,4 | 59,9 | 174,7 | 63,5 | 187,0 | 67,1 | 199,0 | 70,6 | 212,6 | 74,6 | 230,8 | 80,1 | 251,9 | 86,3 |
| | 25.920 | 125,5 | 45,6 | 141,7 | 47,9 | 162,9 | 51,7 | 176,0 | 54,1 | 189,8 | 56,9 | 202,9 | 59,5 | 217,7 | 62,6 | 238,4 | 67,2 | 265,7 | 73,6 |
| | 39.000 | 126,4 | 41,6 | 143,2 | 43,0 | 164,0 | 44,5 | 177,9 | 46,2 | 192,7 | 48,0 | 207,0 | 49,8 | 222,8 | 51,8 | 246,2 | 54,8 | 277,8 | 58,9 |
| 1200 | 46.800 | 127,6 | 40,3 | 143,7 | 40,7 | 164,5 | 42,4 | 178,8 | 43,8 | 193,7 | 45,3 | 208,5 | 46,9 | 225,1 | 48,6 | 248,8 | 51,1 | 282,4 | 54,7 |
| | 24.300 | 157,3 | 53,8 | 175,9 | 57,6 | 196,1 | 62,0 | 211,3 | 65,4 | 227,0 | 68,9 | 242,4 | 72,3 | 259,9 | 76,1 | 283,9 | 81,4 | 313,8 | 89,2 |
| | 32.400 | 156,3 | 48,3 | 174,3 | 51,1 | 196,4 | 54,6 | 212,8 | 57,1 | 229,6 | 59,7 | 246,5 | 62,4 | 265,0 | 65,5 | 291,2 | 70,0 | 326,4 | 76,3 |
| | 40.500 | 156,8 | 46,7 | 174,0 | 48,5 | 196,2 | 50,4 | 212,9 | 52,3 | 230,5 | 54,5 | 247,8 | 56,5 | 267,0 | 58,9 | 294,8 | 62,5 | 332,2 | 67,3 |
| 1200 | 54.000 | 157,0 | 44,5 | 174,2 | 45,1 | 197,6 | 47,0 | 215,1 | 48,5 | 233,3 | 50,1 | 251,5 | 51,8 | 271,7 | 53,7 | 300,6 | 56,4 | 341,3 | 60,2 |
| | 24.300 | 177,2 | 65,4 | 196,4 | 69,3 | 214,3 | 73,5 | 230,6 | 77,7 | 247,3 | 82,2 | 263,4 | 86,4 | 281,9 | 91,2 | 306,8 | 97,7 | 336,7 | 105,3 |
| | 32.400 | 178,5 | 59,7 | 197,3 | 62,0 | 215,2 | 64,4 | 232,2 | 67,5 | 250,3 | 70,8 | 267,9 | 74,2 | 287,9 | 78,1 | 316,1 | 83,8 | 352,7 | 91,5 |
| | 45.000 | 181,3 | 53,7 | 199,2 | 55,5 | 215,7 | 57,4 | 233,9 | 59,6 | 252,9 | 62,1 | 272,4 | 64,6 | 292,8 | 67,4 | 323,7 | 71,5 | 365,2 | 77,2 |
| 54.000 | 183,1 | 52,7 | 201,4 | 53,2 | 216,7 | 54,8 | 235,3 | 56,7 | 254,8 | 58,7 | 274,2 | 60,9 | 295,9 | 63,3 | 328,4 | 66,7 | 370,2 | 71,6 | |

Pc: Total gross heating capacity in kW

Pa: Compressor power input in kW

Correction coefficients: variation of indoor temperature

| Indoor temperature | 10°C | 12°C | 14°C | 16°C | 18°C | 20°C | 21°C | 22°C | 23°C | 24°C | 25°C | 26°C | 27°C | Correction |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|
| Coefficient K1 | 1,042 | 1,033 | 1,026 | 1,017 | 1,009 | 1,000 | 0,995 | 0,991 | 0,986 | 0,982 | 0,977 | 0,972 | 0,969 | PC = Pc x K1 |
| Coefficient K2 | 0,790 | 0,836 | 0,869 | 0,911 | 0,954 | 1,000 | 1,024 | 1,047 | 1,072 | 1,098 | 1,123 | 1,150 | 1,178 | PA = Pa x K2 |

OPTIONS FOR THE OUTDOOR UNIT

Axial 2-speed outdoor fan

| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|------------------------------------|-----------|-----------------|--------|--------|-----------------|--------|--------|-----------------|--------|--------|-----------------|---------|---------|
| Cooling: efficiency with R-454B | SEER | 4,21 | 4,19 | 4,11 | 4,22 | 4,17 | 3,98 | 3,99 | 4,36 | 4,25 | 4,26 | 4,13 | 3,99 |
| | ηs | 165% | 164% | 161% | 166% | 164% | 156% | 156% | 171% | 167% | 167% | 162% | 157% |
| Heating: efficiency with R-454B | SCOP | 3,38 | 3,36 | 3,35 | 3,36 | 3,36 | 3,29 | 3,30 | 3,36 | 3,30 | 3,32 | 3,31 | 3,30 |
| | ηs | 132% | 131% | 131% | 131% | 132% | 129% | 129% | 132% | 129% | 130% | 130% | 129% |
| Nominal air flow | (m³/h) | 44.000 | 44.000 | 44.000 | 58.000 | 58.000 | 64.000 | 64.000 | 80.000 | 86.000 | 86.000 | 120.000 | 120.000 |
| Available static pressure | (mm.w.c.) | 4 | | | | | | | | | | | |
| Number / Diameter | (mm) | 2 / 800 | | | 2 / 910 | | | 4 / 800 | | | 4 / 910 | | |
| Speed | (r.p.m.) | 880 / 670 | | | 885 / 685 | | | 880 / 670 | | | 885 / 685 | | |
| Output | (kW) | 2 x (1,9 / 1,2) | | | 2 x (2,5 / 1,6) | | | 4 x (1,9 / 1,2) | | | 4 x (2,5 / 1,6) | | |
| Maximum absorbed current | (A) | 2 x 3,9 | | | 2 x 5,2 | | | 4 x 3,9 | | | 4 x 5,2 | | |

OPTIONS FOR THE INDOOR UNIT

Supply plug-fan with different available pressure options

| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|--|-------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|--------|--------|
| Nominal air flow | (m³/h) | 18.000 | 19.800 | 21.600 | 23.400 | 26.100 | 28.800 | 30.600 | 32.400 | 36.000 | 39.000 | 40.500 | 45.000 |
| Nominal pressure (Aluminium) (A) | Number / Diameter | 3 / 500 | | 3 / 500 | | 4 / 500 | | 5 / 500 | | 6 / 500 | | | |
| | Speed | 1.855 | | 1.855 | | 1.855 | | 1.855 | | 1.855 | | | |
| | Output | 3 x 2,6 | | 3 x 2,6 | | 4 x 2,6 | | 5 x 2,6 | | 6 x 2,6 | | | |
| | Max. abs. current | 3 x 4,0 | | 3 x 4,0 | | 4 x 4,0 | | 5 x 4,0 | | 6 x 4,0 | | | |
| Low pressure (Aluminium) (L) | Number / Diameter | 2 / 500 | | 3 / 500 | | 3 / 500 | | 4 / 500 | | 5 / 500 | | | |
| | Speed | 1.855 | | 1.855 | | 1.855 | | 1.855 | | 1.855 | | | |
| | Output | 2 x 2,6 | | 3 x 2,6 | | 3 x 2,6 | | 4 x 2,6 | | 5 x 2,6 | | | |
| | Max. abs. current | 2 x 4,0 | | 3 x 4,0 | | 3 x 4,0 | | 4 x 4,0 | | 5 x 4,0 | | | |
| High pressure (Aluminium) (H) | Number / Diameter | 3 / 500 | | 3 / 500 | | 4 / 500 | | 5 / 500 | | 6 / 500 | | | |
| | Speed | 2.100 | | 2.100 | | 2.100 | | 2.100 | | 2.100 | | | |
| | Output | 3 x 4,6 | | 3 x 4,6 | | 4 x 4,6 | | 5 x 4,6 | | 6 x 4,6 | | | |
| | Max. abs. current | 3 x 7,2 | | 3 x 7,2 | | 4 x 7,2 | | 5 x 7,2 | | 6 x 7,2 | | | |

Note: the value of power input according to the selected flow can be found at the "Selection Software".

Return plug-fan (CP / CR / CQ / CT / CW assemblies)

| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|--|-------------------|---------|--------|---------|---------|---------|--------|---------|--------|---------|--------|---------|--------|
| Nominal air flow | (m³/h) | 18.000 | 19.800 | 21.600 | 23.400 | 26.100 | 28.800 | 30.600 | 32.400 | 36.000 | 39.000 | 40.500 | 45.000 |
| Nominal pressure (Polypropyl.) (N) | Number / Diameter | 2 / 500 | | | 3 / 500 | | | 3 / 500 | | 3 / 500 | | 4 / 500 | |
| | Speed | 1.800 | | | 1.800 | | | 1.750 | | 2.100 | | 1.800 | |
| | Output | 2 x 2,6 | | | 3 x 2,6 | | | 3 x 2,6 | | 3 x 4,6 | | 4 x 2,6 | |
| | Max. abs. current | 2 x 4,0 | | | 3 x 4,0 | | | 3 x 4,0 | | 3 x 7,2 | | 4 x 4,0 | |
| Nominal pressure (Aluminium) (A) | Number / Diameter | 2 / 500 | | 2 / 500 | | 3 / 500 | | 3 / 500 | | 3 / 500 | | 4 / 500 | |
| | Speed | 1.855 | | 2.100 | | 1.855 | | 1.855 | | 2.100 | | 1.855 | |
| | Output | 2 x 2,6 | | 2 x 4,6 | | 3 x 2,6 | | 3 x 2,6 | | 3 x 4,6 | | 4 x 2,6 | |
| | Max. abs. current | 2 x 4,0 | | 2 x 7,2 | | 3 x 4,0 | | 3 x 4,0 | | 3 x 7,2 | | 4 x 4,0 | |
| High pressure (Aluminium) (H) | Number / Diameter | 2 / 500 | | 3 / 500 | | 3 / 500 | | 3 / 500 | | 3 / 500 | | 4 / 500 | |
| | Speed | 2.100 | | 2.100 | | 2.100 | | 2.100 | | 2.100 | | 2.100 | |
| | Output | 2 x 4,6 | | 3 x 4,6 | | 3 x 4,6 | | 3 x 4,6 | | 3 x 4,6 | | 4 x 4,6 | |
| | Max. abs. current | 2 x 7,2 | | 3 x 7,2 | | 3 x 7,2 | | 3 x 7,2 | | 3 x 7,2 | | 4 x 7,2 | |

Note: the value of power input according to the selected flow can be found at the "Selection Software".

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Rotary heat exchanger (CW assembly)

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors.

The return air circulates in half of the heat recovery unit and the ventilation air circulates in the other half, in the opposite direction. As the rotor rotates, very fine channels of air which form the matrix come into contact with the fresh air and the return air in turn, thereby transferring heat and humidity from one to the other.

The efficiency of the recovery depends on the following factors:

■ **Wheel diameters:**

- Models 0420 to 0500: 1500 mm and 1800 mm
- Models 0560 to 0720: 1800 mm and 2000 mm
- Models 0760 to 1200: 2000 mm and 2200 mm

■ **Matrix materials:**

- Aluminium: sensible heat recovery.
- Hybrid wheel: enthalpic recovery.
- Epoxy coated aluminium (**upon request**): sensible heat recovery in aggressive environments.
- Aluminium with silica gel (**upon request**): enthalpic recovery with high efficiency in the recovery of latent heat.

■ **Channel cross section:**

The wheel is formed of two panels of aluminium, one smooth and one fluted. The fluted panel can be provided in two different configurations:

- 2.0 mm cross section: the commonly-used cross section due to its high efficiency and moderate pressure drops.
- 2.5 mm cross section: low pressure drop. Designed for high frontal speeds with low pressure drops.

The rotary heat exchanger is fitted into a module placed on one side of the unit.

This module features gravimetric filters G4 with low pressure drop, both on the fresh air intake and on the exhaust air outlet.

This assembly can be supplied, in option, with a speed drive for the wheel which avoids the risk of ice forming on the wheel during the defrost operation.



Important: the calculations for the selection of a rotary heat exchanger according to the parameters described above should be done using the "Selection Software".

Centrifugal return fan (CQ / CT assemblies)

| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|---------------------------|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Option 1: Low flow | Air flow (m ³ /h) | 14.400 | 15.840 | 17.280 | 18.720 | 20.880 | 23.040 | 24.480 | 25.920 | 28.800 | 31.200 | 32.400 | 36.000 |
| | Available pressure (mm.w.c.) | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | Motor output (kW) | 2 x 1,5 | 2 x 1,1 | 2 x 1,5 | 3 x 1,5 | 3 x 1,5 | 3 x 1,5 | 3 x 1,1 | 3 x 1,5 | 3 x 2,2 | 3 x 2,2 | 4 x 1,1 | 4 x 1,5 |
| | Power input (kW) | 2 x 0,78 | 2 x 0,98 | 2 x 1,25 | 3 x 0,56 | 3 x 0,72 | 3 x 0,92 | 3 x 1,07 | 3 x 1,25 | 3 x 1,65 | 3 x 2,12 | 4 x 1,05 | 4 x 1,39 |
| | Max. abs. current (A) | 2 x 3,6 | 2 x 2,7 | 2 x 3,6 | 3 x 3,6 | 3 x 3,6 | 3 x 3,6 | 3 x 2,7 | 3 x 3,6 | 3 x 5,0 | 3 x 5,0 | 4 x 2,7 | 4 x 3,6 |
| | Speed (r.p.m.) | 490 | 490 | 548 | 439 | 459 | 490 | 516 | 584 | 610 | 490 | 514 | 581 |
| | Code | 2 x OPK0719 | 2 x OPK0721 | 2 x OPK0722 | 3 x OPK0720 | 3 x OPK0724 | 3 x OPK0719 | 3 x OPK0725 | 3 x OPK0723 | 3 x OPK0726 | 3 x OPK0727 | 4 x OPK0725 | 4 x OPK0723 |
| Option 3: Nominal flow | Air flow (m ³ /h) | 18.000 | 19.800 | 21.600 | 23.400 | 26.100 | 28.800 | 30.600 | 32.400 | 36.000 | 39.000 | 40.500 | 45.000 |
| | Available pressure (mm.w.c.) | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | Motor output (kW) | 3 x 1,5 | 3 x 1,5 | 3 x 1,5 | 3 x 1,1 | 3 x 1,5 | 3 x 2,2 | 3 x 2,2 | 3 x 3,0 | 3 x 3,0 | 3 x 3,0 | 4 x 2,2 | 4 x 3,0 |
| | Power input (kW) | 3 x 0,51 | 3 x 0,64 | 3 x 0,78 | 3 x 0,94 | 3 x 1,27 | 3 x 1,65 | 3 x 1,99 | 3 x 2,33 | 3 x 2,98 | 3 x 2,98 | 4 x 1,95 | 4 x 2,60 |
| | Max. abs. current (A) | 3 x 3,6 | 3 x 3,6 | 3 x 3,6 | 3 x 2,7 | 3 x 3,6 | 3 x 5,0 | 3 x 5,0 | 3 x 6,9 | 3 x 6,9 | 3 x 6,9 | 4 x 5,0 | 4 x 6,9 |
| | Speed (r.p.m.) | 439 | 439 | 490 | 490 | 581 | 623 | 659 | 718 | 757 | 769 | 659 | 718 |
| | Code | 3 x OPK0720 | 3 x OPK0720 | 3 x OPK0719 | 3 x OPK0721 | 3 x OPK0723 | 3 x OPK0726 | 3 x OPK0727 | 3 x OPK0729 | 3 x OPK0728 | 3 x OPK0730 | 4 x OPK0727 | 4 x OPK0729 |
| Option 5: High flow | Air flow (m ³ /h) | 21.600 | 23.760 | 25.920 | 28.080 | 30.015 | 31.680 | 35.190 | 35.640 | -- | -- | 48.600 | 49.500 |
| | Available pressure (mm.w.c.) | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | -- | -- | 15 | 15 |
| | Motor output (kW) | 3 x 1,5 | 3 x 1,1 | 3 x 1,5 | 3 x 1,5 | 3 x 2,2 | 3 x 2,2 | 3 x 3,0 | 3 x 3,0 | -- | -- | 4 x 3,0 | 4 x 3,0 |
| | Power input (kW) | 3 x 0,78 | 3 x 0,98 | 3 x 1,25 | 3 x 1,47 | 3 x 1,88 | 3 x 2,2 | 3 x 2,96 | 3 x 2,98 | -- | -- | 4 x 2,98 | 4 x 2,98 |
| | Max. abs. current (A) | 3 x 3,6 | 3 x 2,7 | 3 x 3,6 | 3 x 3,6 | 3 x 5,0 | 3 x 5,0 | 3 x 6,9 | 3 x 6,9 | -- | -- | 4 x 6,9 | 4 x 6,9 |
| | Speed (r.p.m.) | 490 | 490 | 548 | 581 | 659 | 659 | 757 | 757 | -- | -- | 376 | 769 |
| | Code | 3 x OPK0719 | 3 x OPK0721 | 3 x OPK0722 | 3 x OPK0723 | 3 x OPK0727 | 3 x OPK0727 | 3 x OPK0728 | 3 x OPK0728 | -- | -- | 4 x OPK0728 | 4 x OPK0730 |

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

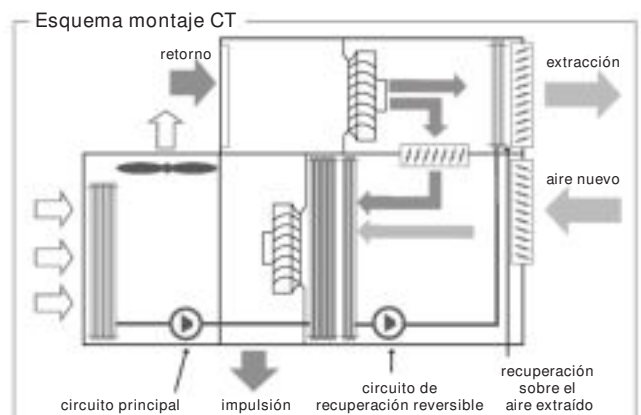
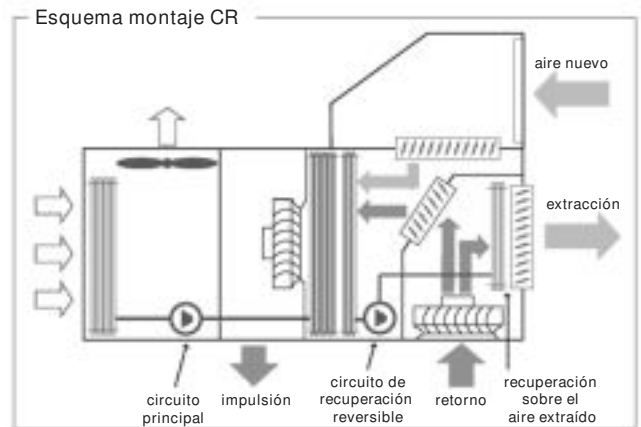
Cooling recovery circuit (CR / CT assemblies)

Thermodynamic circuit dedicated to the recovery of the extracted air energy, with independent and proportional control, adapted to the air renewal requirements in order to raise COP, EER and seasonal efficiency of the unit set.

The circuit is composed of:

- Return EC plug-fan.
- Air circuit comprised of coils with copper pipes and aluminium fins.
- Electronic expansion valve.
- Hermetic scroll-type compressor assembled over antivibration mounts.
- Crankcase heater.
- Four-way cycle reversing valve.
- Anti-acid dehydrator filter.
- High and low pressure transducers.
- Condensates drain pan.

| IPJ | 0420 to 0500 | 0560 to 0620 | 0680 to 0720 | 0760 to 0960 | 1050 to 1200 |
|--|--|--------------|--------------|--------------|--------------|
| Compressor type | Scroll | | | | |
| No. of compressors / circuits | 1 / 1 | | | | |
| Max. absorbed current (A) | 13,7 | 18,7 | 21,7 | 24,0 | 27,5 |
| Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | |
| Volume of oil (l) | 3,0 | 3,3 | 3,3 | 3,3 | 3,6 |
| Charge of R-454B (kg) | 4,8 | 5,8 | 5,8 | 6,8 | 10,7 |
| Environment impact (tCO ₂ eq) | 2,2 | 2,7 | 2,7 | 3,2 | 5,0 |



Heat recovery coil

The function of the heat recovery coil is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation. This function is managed by the unit's electronic control.

The coil is supplied with a 3-way valve for installation outside the unit but manages by the unit's electronic control.

This option is compatible with C0, CS, CQ and CT assemblies.

Note: the heat recovery coil is not compatible with the hot water coil or the gas burner.

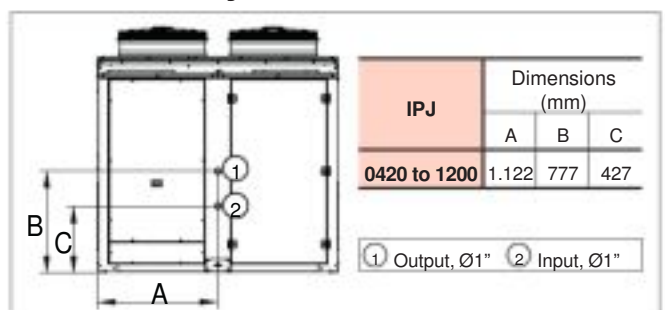
| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 | |
|--|-----------------------|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Air pressure drop | mm.w.c. | 2,3 | 2,7 | 3,1 | 2,9 | 3,6 | 4,2 | 4,6 | 4,6 | 5,5 | 6,2 | 5,8 | 6,0 | |
| Water 35/30°C (30% MEG) and inlet air 20°C | Heating capacity | kW | 39,4 | 41,9 | 44,3 | 49,9 | 53,4 | 56,9 | 59,0 | 58,5 | 62,6 | 64,8 | 81,6 | 82,8 |
| | Water flow | m ³ /h | 7,3 | 7,8 | 8,2 | 9,3 | 9,9 | 10,5 | 10,9 | 10,9 | 11,6 | 12,1 | 15,2 | 15,4 |
| | Water pressure drop ① | m.w.c | 3,1 | 3,2 | 3,3 | 5,1 | 5,3 | 5,6 | 5,7 | 4,4 | 4,5 | 4,5 | 7,0 | 7,0 |

① Pressure drop in the coil and in the internal circuit of the unit.

Correction coefficients

| Water (inlet air 20°C) | 30/35°C | */40°C | */45°C |
|-------------------------|---------|--------|--------|
| Correction coefficients | 1,00 | 1,35 | 1,70 |
| % of MEG | 10% | 20% | 30% |
| Correction coefficients | 1,06 | 1,03 | 1,00 |

Position of the hydraulic connections



OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Stop-drop in the indoor air coil

Air flow at which it is recommended to install a stop-drop in the indoor coil.

| IPJ | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Air flow (m ³ /h) | 25.920 | 25.920 | 25.920 | 34.700 | 34.700 | 34.700 | 34.700 | 39.658 | 39.658 | 39.658 | 46.675 | 46.675 |

Note: for operating conditions with high dehumidification in the indoor coil (e.g. in installations close to the coast) it may be necessary to install a separator even if the flow is less than the previous one.

Note: the stop-drop in the indoor coil is not compatible with the hot water coil.

Auxiliary electrical heaters

Auxiliary electrical heaters, with two power stages and on/off control, for assembly and connection inside the unit.

■ Up to 3 values of total power available for each model:

| IPJ | E0L (Low) | E0N (Nominal) | E0H (High) |
|--------------|-----------|---------------|------------|
| 0420 to 0500 | 27 kW | 36 kW | 54 kW |
| 0560 to 0720 | 36 kW | 54 kW | 72 kW |
| 0760 to 0960 | 45 kW | 72 kW | 90 kW |
| 1050 to 1200 | 54 kW | 72 kW | 108 kW |

■ Characteristics:

| Total power (kW) | 27 | 36 | 45 | 54 | 72 | 90 | 108 |
|-------------------|----------------|------|------|------|-------|-------|-------|
| Stages power (kW) | 9 | 18 | 18 | 27 | 36 | 45 | 54 |
| | + 18 | + 18 | + 27 | + 27 | + 36 | + 45 | + 54 |
| Current (A) | 39,0 | 52,0 | 65,0 | 78,0 | 104,0 | 130,0 | 156,0 |
| Power supply | 400 V / III ph | | | | | | |

Auxiliary hot water coil

Auxiliary hot water coil, with three-way valve and proportional control, for assembly and connection inside the unit.

This option always incorporates an anti-freeze thermostat as safety system.

| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|----------------------------------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Air pressure drop (mm.w.c.) | | 2,2 | 2,6 | 3,0 | 2,9 | 3,5 | 4,1 | 4,5 | 3,9 | 4,7 | 5,4 | 4,2 | 5,0 |
| Water 80/60°C and inlet air 20°C | Heating capacity (kW) | 181,0 | 192,4 | 203,2 | 226,4 | 242,3 | 257,3 | 266,8 | 278,2 | 295,8 | 309,5 | 336,8 | 358,5 |
| | Water flow (m ³ /h) | 8,0 | 8,5 | 9,0 | 10,0 | 10,7 | 11,4 | 11,8 | 12,3 | 13,1 | 13,7 | 14,9 | 15,9 |
| | Water pressure drop (m.w.c.) | 3,3 | 3,4 | 3,5 | 4,0 | 4,2 | 4,3 | 4,4 | 4,3 | 4,3 | 4,3 | 5,9 | 6,0 |
| Water 90/70°C and inlet air 20°C | Heating capacity (kW) | 222,5 | 236,6 | 250,0 | 278,1 | 297,9 | 316,6 | 328,3 | 346,2 | 368,2 | 385,7 | 416,9 | 443,9 |
| | Water flow (m ³ /h) | 9,9 | 10,5 | 11,1 | 12,4 | 13,3 | 14,1 | 14,6 | 15,4 | 16,4 | 17,1 | 18,5 | 19,7 |
| | Water pressure drop (m.w.c.) | 3,6 | 3,7 | 3,8 | 4,5 | 4,6 | 4,8 | 5,0 | 4,4 | 4,4 | 4,5 | 6,1 | 6,2 |

Note: Maximum water inlet temperature 95°C, maximum pressure 4 bar.

Note: the hot water coil is not compatible with the stop-drop in the indoor coil or the heat recovery coil.

Position of the hydraulic connections of the hot water coil

The inlet/outlet connections of the hot water coil are located inside the unit and the connection is made via the side panel.

It can also be made via the base of the unit using flexible piping (for installation with pre-assembly roofcurb).

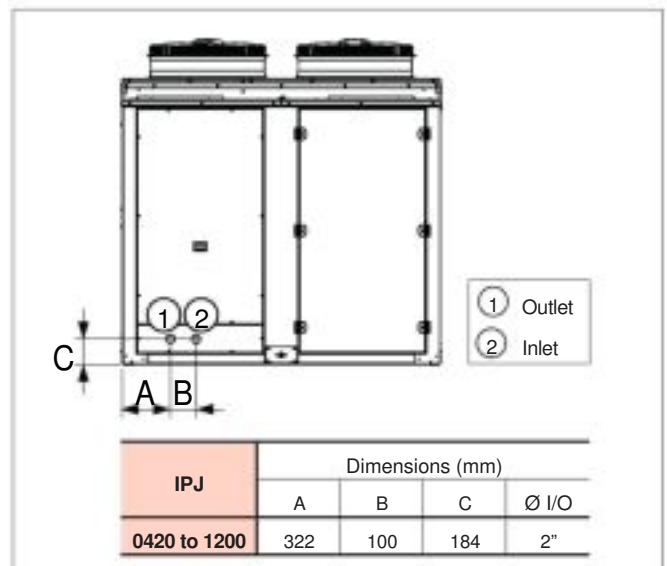
The position of the sheet metal precuts on the side panel are shown in the following diagrams.

“Great Cold” option (upon request)

■ This anti-freeze safety incorporates:

- Circulation pump.
- Water temperature sensors located in the inlet and the outlet of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.



OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

Gas burner

Natural or propane gas burner with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb. The IPJ unit with lower air supply will be placed on this roofcurb.

EC certification: 0476CQ0451.

■ Two powers available for each model:

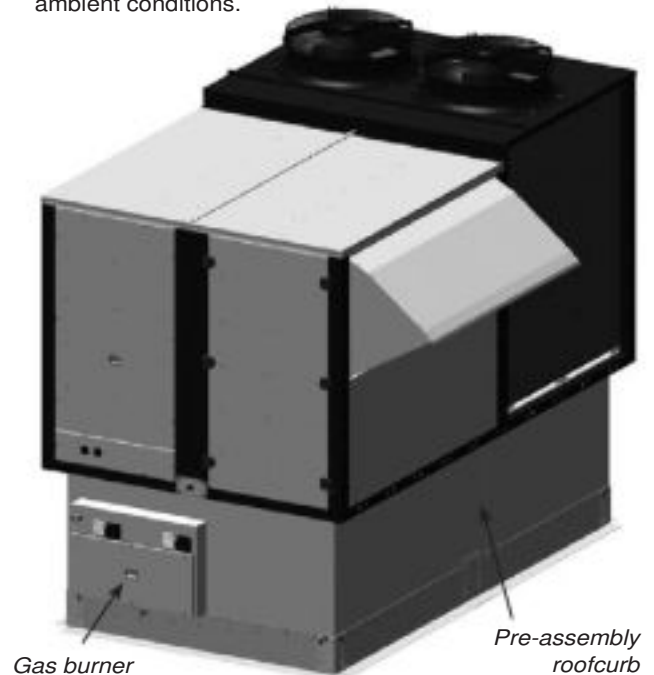
| IPJ | 0420 to 0500 | 0560 to 0720 | 0760 to 1200 |
|---------------|--------------|--------------|--------------|
| G0N (Nominal) | PCH080 | PCH130 | PCH160 |
| G0H (High) | PCH130 | PCH160 | PCH210 |

Note: the gas burner is not compatible with the heat recovery coil.

■ The key features of the boiler are:

- Condensation boiler with premixing and modulation technology that allows outputs close to 109% (Hi performance).
- The premixed burner, in combination with the air/gas valve, ensures a "clean" combustion. Low NOx emissions < 70 mg/kWh HCV (class 5, according to standard EN 297).
Note: Burners must not exceed NOx:70mg/kWh HCV emission values from January 1st, 2021 (according to European Regulations 2016/2281).
- The combustion chamber and the burner are entirely made of stainless steel.
- Electronic controller with microprocessor and multifunction LCD display, located inside the burner, for burner's control, configuration and diagnostics.

- The electronic control of the unit will only manage the burner connection as heating support depending on the ambient conditions.



Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.

| Model | | PCH080 | PCH130 (2 x PCH065) | PCH160 (2 x PCH080) | PCH210 (2 x PCH105) | | | | | |
|-------------------------------------|--|---|------------------------|------------------------|------------------------|--------------------|--------|--------|--------|--------|
| Type of equipment | | B23P - B53P - C13 - C43 - C53 - C63 - C83 | | | | | | | | |
| EC certification | | PIN. 0476CQ0451 | | | | | | | | |
| NOx Class | | Val 5 | | | | | | | | |
| Heater performance | Range | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | |
| | Thermal output (Hi) | kW | 16,40 | 82,00 | 12,40 | 130,00 | 16,40 | 164,00 | 21,00 | 200,00 |
| | Useful thermal output | kW | 17,77 | 80,03 | 13,40 | 125,86 | 17,77 | 160,06 | 22,77 | 194,30 |
| | Hi performance (L.C.V.) | % | 108,35 | 97,60 | 108,06 | 96,82 | 108,35 | 97,60 | 108,40 | 97,15 |
| | Hs performance (H.C.V.) | % | 97,62 | 87,93 | 97,36 | 87,22 | 97,62 | 87,93 | 97,68 | 87,52 |
| | Flue losses with burner on (Hi) | % | 0,3 | 2,4 | 0,2 | 3,2 | 0,3 | 2,4 | 0,2 | 2,8 |
| | Flue losses with burner off (Hi) | % | <0,1 | | | | | | | |
| | Losses in enclosure ① | % | 0% | | | | | | | |
| Exhaust gases - Polluting emissions | Max. condensation ② | l/h | 3,3 | 4,2 | 6,6 | 5,4 | | | | |
| | Carbon monoxide - CO - (0% of O ₂) ③ | ppm | < 5 | | | | | | | |
| | Nitrogen oxides - NOx - (0% of O ₂) (Hi) ④ | ppm | 41 mg/kWh - 23 ppm | 39 mg/kWh - 22 ppm | 41 mg/kWh - 23 ppm | 39 mg/kWh - 22 ppm | | | | |
| Electrical data | Nitrogen oxides - NOx - (0% of O ₂) (Hs) ⑤ | ppm | 37 mg/kWh - 21 ppm | 35 mg/kWh - 20 ppm | 37 mg/kWh - 21 ppm | 35 mg/kWh - 20 ppm | | | | |
| | Available pressure at flue | Pa | 120 | | | | | | | |
| Connections | Power supply | 230 Vac - 50 Hz single-phase | | | | | | | | |
| | Power input | 20 | 123 | 30 | 194 | 40 | 246 | 40 | 260 | |
| | Power input in stand-by | <5 | | | | | | | | |
| | Ingress protection rating | IP X5D | | | | | | | | |
| | Operating Temperatures | from -15°C to +40°C | | | | | | | | |
| Connections | Ø gas connection | GAS | 3/4" M | | 1 1/2" M | | | | | |
| | Ø intake/exhaust pipes | mm | 80/80 | | 2 x 80/80 | | | | | |

① Enclosure losses match those of the machine housing the PCH.

② Max. condensation produced acquired from testing 30%Qn.

③ Value referenced to cat. H (G20)

④ Weighted value to EN1020:2009 ref. to class H (G20), referred to Hi (L.C.V.).

⑤ Weighted value to EN1020:2009 ref. to class H (G20), referred to Hs (H.C.V.).

OPTIONS FOR THE INDOOR UNIT (...CONTINUATION)

■ Gas setting:

| Gas type | Gas settings | | PCH080 | | PCH130 (2 x PCH65) | | PCH160 (2 x PCH80) | | PCH210 (2 x PCH105) | |
|------------------|--|-------------------|--|------|-----------------------|----------|-----------------------|----------|------------------------|-----------|
| | | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| G20 Cat. E-H | Air supply pressure | mbar | 20 [min 17-max 25] | | | | | | | |
| | Ø pilot nozzle | mm | 0,7 | | | | | | | |
| | Gas consumption (15°C-1013mbar) | m ³ /h | 1,74 | 8,68 | 2 x 1,31 | 2 x 6,88 | 2 x 1,74 | 2 x 8,68 | 2 x 2,22 | 2 x 10,58 |
| | Carbon dioxide - CO ₂ content | % | 8,7 | 9,1 | 8,7 | 9,1 | 8,7 | 9,1 | 8,5 | 9,1 |
| | Fumes temperature | °C | 26,5 | 70 | 31 | 86 | 26,5 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | kg/h | 135 | | 2 x 107 | | 2 x 135 | | 2 x 165 | |
| | Gas butterfly valve | mm | 12,2 | | 11,0 | | 12,2 | | 15,8 | |
| G25 Cat. L-LL | Air supply pressure | mbar | 25 [min 17-max 30] (20 for Germany) | | | | | | | |
| | Ø pilot nozzle | mm | 0,7 (0,75 for Germany) | | | | | | | |
| | Gas consumption (15°C-1013mbar) | m ³ /h | 2,02 | 10,1 | 2 x 1,53 | 2 x 8,00 | 2 x 2,02 | 2 x 10,1 | 2 x 2,21 | 2 x 12,30 |
| | Carbon dioxide - CO ₂ content | % | 8,6 | 8,9 | 8,8 | 9,2 | 8,6 | 8,9 | 8,8 | 9,0 |
| | Fumes temperature | °C | 26 | 70 | 31 | 86 | 26 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | kg/h | -- | | | | | | | |
| | Gas butterfly valve | mm | Not necessary | | | | | | | |
| G30 Cat. 3B-P | Air supply pressure | mbar | 30 [min 25-max 35] - 50 [min 42,5-max 57,5] | | | | | | | |
| | Ø pilot nozzle | mm | 0,51 | | | | | | | |
| | Gas consumption (15°C-1013mbar) | m ³ /h | 1,49 | 6,80 | 2 x 1,03 | 2 x 5,39 | 2 x 1,49 | 2 x 6,80 | 2 x 1,70 | 2 x 8,30 |
| | Carbon dioxide - CO ₂ content | % | 10,1 | 10,3 | 10,7 | 11,3 | 10,1 | 10,3 | 10,4 | 10,6 |
| | Fumes temperature | °C | 26,5 | 70 | 31 | 86 | 26,5 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | kg/h | -- | | | | | | | |
| | Gas butterfly valve | mm | 7,0 | | 6,5 | | 7,0 | | 9,3 | |
| G31 Cat. 3P | Air supply pressure | mbar | 30 [min 25-max 35] - 37 [min 25-max 45] - 50 [min 42,5-max 57,5] | | | | | | | |
| | Ø pilot nozzle | mm | 0,51 | | | | | | | |
| | Gas consumption (15°C-1013mbar) | m ³ /h | 1,34 | 6,70 | 2 x 1,01 | 2 x 5,31 | 2 x 1,34 | 2 x 6,70 | 2 x 1,47 | 2 x 8,18 |
| | Carbon dioxide - CO ₂ content | % | 9,3 | 9,6 | 9,4 | 9,6 | 9,3 | 9,6 | 9,5 | 9,8 |
| | Fumes temperature | °C | 26,5 | 70 | 31 | 86 | 26,5 | 70 | 28 | 80 |
| | Fume mass flow rate (max.) | kg/h | 107 | | 2 x 84 | | 2 x 107 | | 2 x 130 | |
| | Gas butterfly valve | mm | 7,0 | | 6,5 | | 7,0 | | 9,3 | |

■ Type of gas used depending on the destination country:

| Country | Category | Gas | Pressure (mbar) | Gas | Pressure (mbar) |
|---|---------------|--------------------|-----------------|---------|-----------------|
| Austria, Switzerland | II2H3B/P | G20 | 20 | G30/G31 | 50 |
| Belgium < 70kW | I2E(S)B,I3P | G20/G25 | 20/25 | G31 | 37 |
| Belgium > 70kW | I2E(R)B,I3P | G20/G25 | 20/25 | G31 | 37 |
| Germany | II2ELL3B/P | G20/G25 | 20 | G30/G31 | 50 |
| Denmark, Finland, Greece, Sweden, Norway, Italy, Czech Republic, Estonia, Lithuania, Slovenia, Albania, Macedonia, Bulgaria, Romania, Croatia, Turkey, Azerbaijan | II2H3B/P | G20 | 20 | G30/G31 | 30 |
| Spain, United Kingdom, Ireland, Portugal, Slovakia | II2H3P | G20 | 20 | G31 | 37 |
| France | II2Esi3P | G20/G25 | 20/25 | G31 | 37 |
| Luxembourg | II2E3P | G20/G25 | 20 | G31 | 37/50 |
| Netherlands | II2EK3B/P | G20/G25.3 | 20/25 | G30/G31 | 30 |
| Hungary | II2HS3B/P | G20/G25.1 | 25 | G30/G31 | 30 |
| Cyprus, Malta | I3B/P | -- | -- | G30/G31 | 30 |
| Latvia | I2H | G20 | 20 | | |
| Iceland | I3P | -- | -- | G31 | 37 |
| Poland | II2ELwLs-3B/P | G20/G27/G2.350 (*) | 20/13 | G30/G31 | 37 |
| Russia | II2H3B/P | G20 | 20 | G30/G31 | 30 |

(*) Consult the available burners with G2.350.

PRESSURE DROPS DUE TO THE INDOOR UNIT OPTIONS

| IPJ | Flow (m³/h) | Pressure drops (mm.w.c) | | | | | | | | | | | | | | |
|------|----------------|-------------------------|---------------|-------------------|---------------|---------------|--------------|--------------------|-----|-----|-----|------------------------|-------------|-------------|-------------|-------------|
| | | Filters ① | | | | | Stop-drop | | HWC | EH | HRC | Adjustable roofcurb | Gas burner | | | |
| | | G4 lpd | G4 + F7 | G4 lpd + F7 | M6 + F7 | F7 + F9 | Ind. coil | Air intake ② | | | | | PCH -080 | PCH -130 | PCH -160 | PCH -210 |
| 0420 | 10.800 | -0,6 | 3,5 | 3,0 | 4,2 | 6,5 | 1,0 | 0,6 | 0,6 | 1,0 | 0,7 | 1,4 | 2,8 | 1,2 | -- | -- |
| | 14.400 | -0,7 | 5,0 | 4,2 | 5,8 | 9,1 | 1,4 | 0,8 | 1,4 | 1,7 | 1,5 | 2,5 | 4,9 | 2,2 | -- | -- |
| | 18.000 | -0,9 | 6,5 | 5,6 | 7,4 | 11,8 | 1,8 | 1,1 | 2,2 | 2,7 | 2,3 | 3,9 | 7,7 | 3,4 | -- | -- |
| | 25.920 | -1,2 | 10,4 | 9,2 | 11,3 | 18,5 | 3,0 | 1,6 | 4,0 | 5,6 | 4,1 | 8,1 | 16 | 7,0 | -- | -- |
| 0450 | 10.800 | -0,6 | 3,5 | 3,0 | 4,2 | 6,5 | 1,0 | 0,6 | 0,6 | 1,0 | 0,7 | 1,4 | 2,8 | 1,2 | -- | -- |
| | 14.400 | -0,7 | 5,0 | 4,2 | 5,8 | 9,1 | 1,4 | 0,8 | 1,4 | 1,7 | 1,5 | 2,5 | 4,9 | 2,2 | -- | -- |
| | 19.800 | -1,0 | 7,3 | 6,3 | 8,3 | 13,3 | 2,1 | 1,2 | 2,6 | 3,3 | 2,7 | 4,7 | 9,3 | 4,1 | -- | -- |
| | 25.920 | -1,2 | 10,4 | 9,2 | 11,3 | 18,5 | 3,0 | 1,6 | 4,0 | 5,6 | 4,1 | 8,1 | 16 | 7,0 | -- | -- |
| 0500 | 10.800 | -0,6 | 3,5 | 3,0 | 4,2 | 6,5 | 1,0 | 0,6 | 0,6 | 1,0 | 0,7 | 1,4 | 2,8 | 1,2 | -- | -- |
| | 14.400 | -0,7 | 5,0 | 4,2 | 5,8 | 9,1 | 1,4 | 0,8 | 1,4 | 1,7 | 1,5 | 2,5 | 4,9 | 2,2 | -- | -- |
| | 21.600 | -1,0 | 8,2 | 7,1 | 9,1 | 14,8 | 2,3 | 1,3 | 3,0 | 3,9 | 3,1 | 5,6 | 11,1 | 4,9 | -- | -- |
| | 25.920 | -1,2 | 10,4 | 9,2 | 11,3 | 18,5 | 3,0 | 1,6 | 4,0 | 5,6 | 4,1 | 8,1 | 16,0 | 7,0 | -- | -- |
| 0560 | 14.040 | -0,7 | 4,3 | 3,6 | 5,0 | 7,9 | 1,2 | 0,7 | 1,6 | 1,2 | 0,8 | 2,4 | -- | 1,2 | 1,3 | -- |
| | 18.720 | -0,9 | 6,0 | 5,2 | 6,9 | 11,0 | 1,7 | 0,9 | 2,2 | 2,0 | 1,9 | 4,2 | -- | 2,1 | 2,3 | -- |
| | 23.400 | -1,0 | 8,0 | 6,9 | 8,9 | 14,4 | 2,3 | 1,2 | 2,9 | 3,2 | 2,9 | 6,6 | -- | 3,2 | 3,7 | -- |
| | 36.720 | -1,4 | 14,5 | 13,1 | 15,2 | 25,5 | 4,2 | 2,1 | 6,4 | 7,9 | 6,0 | 16,2 | -- | 8,0 | 9,0 | -- |
| 0620 | 14.040 | -0,7 | 4,3 | 3,6 | 5,0 | 7,9 | 1,2 | 0,7 | 1,6 | 1,2 | 0,8 | 2,4 | -- | 1,2 | 1,3 | -- |
| | 18.720 | -0,9 | 6,0 | 5,2 | 6,9 | 11,0 | 1,7 | 0,9 | 2,2 | 2,0 | 1,9 | 4,2 | -- | 2,1 | 2,3 | -- |
| | 26.100 | -1,1 | 9,2 | 8,0 | 10,1 | 16,5 | 2,6 | 1,4 | 3,5 | 4,0 | 3,6 | 8,2 | -- | 4,0 | 4,5 | -- |
| | 36.720 | -1,4 | 14,5 | 13,1 | 15,2 | 25,5 | 4,2 | 2,1 | 6,4 | 7,9 | 6,0 | 16,2 | -- | 8,0 | 9,0 | -- |
| 0680 | 14.040 | -0,7 | 4,3 | 3,6 | 5,0 | 7,9 | 1,2 | 0,7 | 1,6 | 1,2 | 0,8 | 2,4 | -- | 1,2 | 1,3 | -- |
| | 18.720 | -0,9 | 6,0 | 5,2 | 6,9 | 11,0 | 1,7 | 0,9 | 2,2 | 2,0 | 1,9 | 4,2 | -- | 2,1 | 2,3 | -- |
| | 28.800 | -1,2 | 10,4 | 9,2 | 11,4 | 18,7 | 3,0 | 1,5 | 4,1 | 4,8 | 4,2 | 10,0 | -- | 4,9 | 5,5 | -- |
| | 36.720 | -1,4 | 14,5 | 13,1 | 15,2 | 25,5 | 4,2 | 2,1 | 6,4 | 7,9 | 6,0 | 16,2 | -- | 8,0 | 9,0 | -- |
| 0720 | 14.040 | -0,7 | 4,3 | 3,6 | 5,0 | 7,9 | 1,2 | 0,7 | 1,6 | 1,2 | 0,8 | 2,4 | -- | 1,2 | 1,3 | -- |
| | 18.720 | -0,9 | 6,0 | 5,2 | 6,9 | 11,0 | 1,7 | 0,9 | 2,2 | 2,0 | 1,9 | 4,2 | -- | 2,1 | 2,3 | -- |
| | 30.600 | -1,2 | 11,3 | 10,1 | 12,2 | 20,1 | 3,2 | 1,6 | 4,5 | 5,5 | 4,6 | 11,2 | -- | 5,6 | 6,3 | -- |
| | 36.720 | -1,4 | 14,5 | 13,1 | 15,2 | 25,5 | 4,2 | 2,1 | 6,4 | 7,9 | 6,0 | 16,2 | -- | 8,0 | 9,0 | -- |
| 0760 | 19.440 | -0,8 | 5,4 | 4,6 | 6,2 | 9,8 | 1,5 | 0,9 | 1,5 | 1,5 | 1,5 | 3,5 | -- | -- | 2,1 | 2,4 |
| | 25.920 | -1,0 | 7,7 | 6,6 | 8,6 | 13,9 | 2,2 | 1,2 | 2,7 | 2,7 | 3,1 | 6,1 | -- | -- | 3,7 | 4,3 |
| | 32.400 | -1,2 | 10,2 | 9,0 | 11,2 | 18,3 | 2,9 | 1,6 | 3,9 | 4,2 | 4,6 | 9,6 | -- | -- | 5,8 | 6,7 |
| | 46.800 | -1,4 | 16,9 | 15,5 | 17,4 | 29,5 | 4,9 | 2,5 | 7,2 | 8,8 | 8,1 | 20,0 | -- | -- | 12,0 | 14,0 |
| 0840 | 19.440 | -0,8 | 5,4 | 4,6 | 6,2 | 9,8 | 1,5 | 0,9 | 1,5 | 1,5 | 1,5 | 3,5 | -- | -- | 2,1 | 2,4 |
| | 25.920 | -1,0 | 7,7 | 6,6 | 8,6 | 13,9 | 2,2 | 1,2 | 2,7 | 2,7 | 3,1 | 6,1 | -- | -- | 3,7 | 4,3 |
| | 36.000 | -1,3 | 11,8 | 10,5 | 12,6 | 20,9 | 3,4 | 1,8 | 4,7 | 5,2 | 5,5 | 11,8 | -- | -- | 7,1 | 8,3 |
| | 46.800 | -1,4 | 16,9 | 15,5 | 17,4 | 29,5 | 4,9 | 2,5 | 7,2 | 8,8 | 8,1 | 20,0 | -- | -- | 12,0 | 14,0 |
| 960 | 19.440 | -0,8 | 5,4 | 4,6 | 6,2 | 9,8 | 1,5 | 0,9 | 1,5 | 1,5 | 1,5 | 3,5 | -- | -- | 2,1 | 2,4 |
| | 25.920 | -1,0 | 7,7 | 6,6 | 8,6 | 13,9 | 2,2 | 1,2 | 2,7 | 2,7 | 3,1 | 6,1 | -- | -- | 3,7 | 4,3 |
| | 39.000 | -1,3 | 13,1 | 11,8 | 13,9 | 23,2 | 3,8 | 2,0 | 5,4 | 6,1 | 6,2 | 13,9 | -- | -- | 8,3 | 9,7 |
| | 46.800 | -1,4 | 16,9 | 15,5 | 17,4 | 29,5 | 4,9 | 2,5 | 7,2 | 8,8 | 8,1 | 20,0 | -- | -- | 12,0 | 14,0 |
| 1050 | 24.300 | -0,8 | 5,8 | 4,9 | 6,6 | 10,5 | 1,6 | 0,9 | 1,5 | 1,8 | 5,1 | 5,4 | -- | -- | 2,0 | 2,4 |
| | 32.400 | -1,1 | 8,3 | 7,2 | 9,2 | 14,9 | 2,4 | 1,3 | 2,8 | 3,1 | 5,4 | 9,6 | -- | -- | 3,6 | 4,3 |
| | 40.500 | -1,2 | 11,1 | 9,8 | 12,0 | 19,7 | 3,2 | 1,7 | 4,2 | 4,9 | 5,8 | 15,0 | -- | -- | 5,6 | 6,8 |
| | 54.000 | -1,4 | 16,4 | 15,0 | 17,0 | 28,7 | 4,8 | 2,4 | 6,5 | 8,7 | 6,4 | 26,7 | -- | -- | 10,0 | 12,0 |
| 1200 | 24.300 | -0,8 | 5,8 | 4,9 | 6,6 | 10,5 | 1,6 | 0,9 | 1,5 | 1,8 | 5,1 | 5,4 | -- | -- | 2,0 | 2,4 |
| | 32.400 | -1,1 | 8,3 | 7,2 | 9,2 | 14,9 | 2,4 | 1,3 | 2,8 | 3,1 | 5,4 | 9,6 | -- | -- | 3,6 | 4,3 |
| | 45.000 | -1,3 | 12,8 | 11,5 | 13,6 | 22,6 | 3,7 | 1,9 | 5,0 | 6,0 | 6,0 | 18,5 | -- | -- | 6,9 | 8,3 |
| | 54.000 | -1,4 | 16,4 | 15,0 | 17,0 | 28,7 | 4,8 | 2,4 | 6,5 | 8,7 | 6,4 | 26,7 | -- | -- | 10,0 | 12,0 |

① The pressure drops in the filters are based on clean filters. Data refer to the difference with regard to the standard G4 pressure drops, considered as part of the machine pressure drops.

② The pressure drops in the stop-drops of the fresh air intake are based on 20% of flow.

Abbreviations:

- lpd = low pressure drop
- HWC = hot water coil
- EH = electrical heaters
- HRC = heat recovery coil

WEIGHT OVERVIEW

Weight overview of the various assemblies (kg)

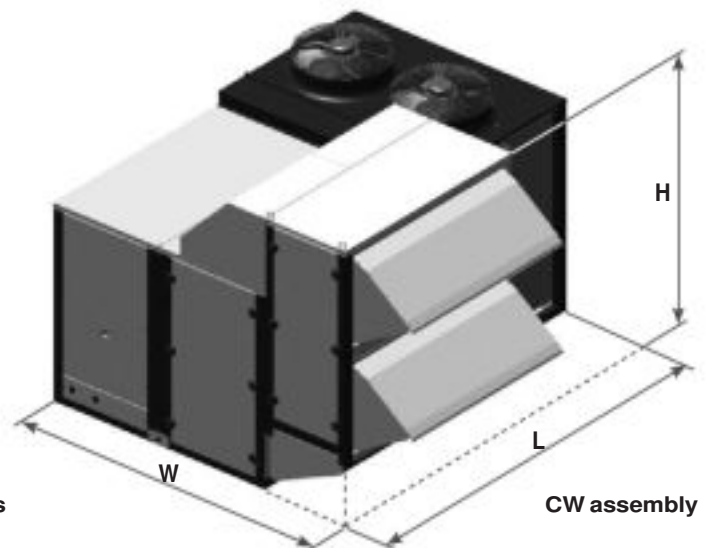
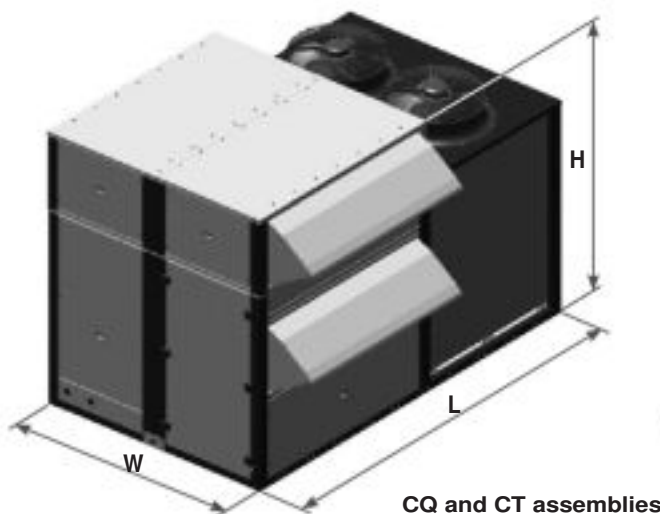
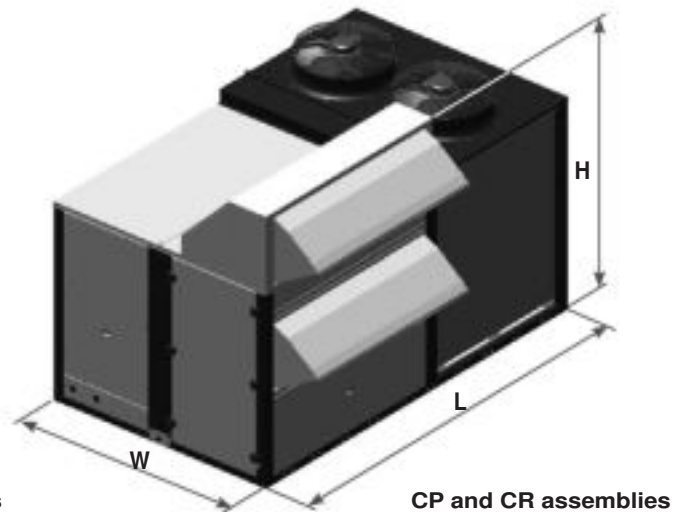
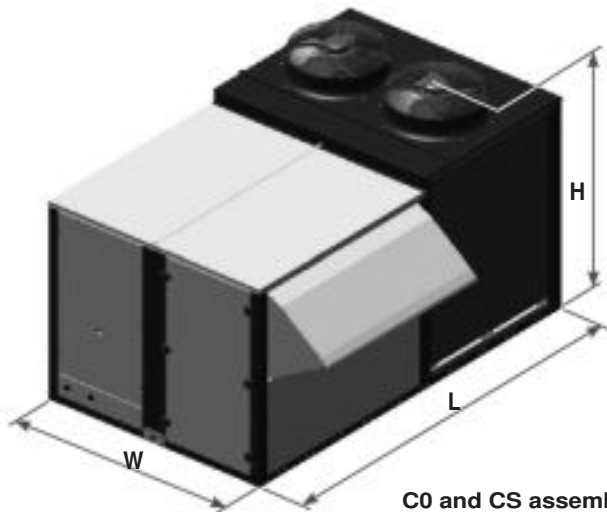
| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 | |
|---------------------|-------------|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Standard insulation | C0 assembly | 1430 | 1450 | 1470 | 1640 | 1680 | 1690 | 1700 | 2265 | 2370 | 2475 | 2795 | 2860 | |
| | CS assembly | 1505 | 1525 | 1545 | 1713 | 1753 | 1763 | 1773 | 2402 | 2477 | 2582 | 2946 | 3011 | |
| | CP assembly | 1713 | 1733 | 1753 | 1982 | 2022 | 2032 | 2042 | 2797 | 2872 | 2977 | 3291 | 3356 | |
| | CR assembly | 1824 | 1844 | 1864 | 2132 | 2172 | 2182 | 2192 | 2987 | 3062 | 3167 | 3491 | 3556 | |
| | CQ assembly | 1809 | 1829 | 1849 | 2072 | 2082 | 2092 | 2102 | 2907 | 2982 | 3087 | 3341 | 3406 | |
| | CT assembly | 1919 | 1939 | 1959 | 2222 | 2232 | 2242 | 2252 | 3057 | 3132 | 3237 | 3541 | 3606 | |
| | CW assembly | Machine | 1677 | 1697 | 1717 | 1868 | 1908 | 1918 | 1928 | 2806 | 2881 | 2986 | 3234 | 3299 |
| | | Wheel module (largest diam.) | 560 | 560 | 560 | 650 | 650 | 650 | 650 | 685 | 685 | 685 | 705 | 705 |
| | | Total weight | 2237 | 2257 | 2277 | 2518 | 2558 | 2568 | 2578 | 3491 | 3566 | 3671 | 3939 | 4004 |
| M0 insulation | C0 assembly | 1550 | 1570 | 1590 | 1735 | 1775 | 1785 | 1795 | 2415 | 2520 | 2625 | 2995 | 3060 | |
| | CS assembly | 1630 | 1650 | 1670 | 1808 | 1848 | 1858 | 1868 | 2552 | 2627 | 2732 | 3146 | 3211 | |
| | CP assembly | 1834 | 1854 | 1874 | 2097 | 2137 | 2147 | 2157 | 2992 | 3067 | 3172 | 3516 | 3581 | |
| | CR assembly | 1949 | 1969 | 1989 | 2267 | 2307 | 2317 | 2327 | 3182 | 3257 | 3362 | 3716 | 3781 | |
| | CQ assembly | 1919 | 1939 | 1959 | 2197 | 2237 | 2247 | 2257 | 3102 | 3177 | 3282 | 3566 | 3631 | |
| | CT assembly | 2049 | 2069 | 2089 | 2367 | 2407 | 2417 | 2427 | 3252 | 3327 | 3432 | 3766 | 3831 | |
| | CW assembly | Machine | 1787 | 1807 | 1827 | 2113 | 2153 | 2163 | 2173 | 3001 | 3076 | 3181 | 3459 | 3524 |
| | | Wheel module (largest diam.) | 590 | 590 | 590 | 685 | 685 | 685 | 685 | 725 | 725 | 725 | 745 | 745 |
| | | Total weight | 2377 | 2397 | 2417 | 2798 | 2838 | 2848 | 2858 | 3726 | 3801 | 3906 | 4204 | 4269 |

Weight supplement from the main options (kg)

| IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|---|---|------|------|------|------|------|------|------|------|------|------|------|------|
| Larger diameter wheel (recovery module) | | 10 | 10 | 10 | 20 | 20 | 20 | 20 | 10 | 10 | 10 | 10 | 10 |
| Outer security base (only with pre-assembly roofcurb) | | -- | -- | -- | -- | -- | -- | -- | 67 | 67 | 67 | 95 | 95 |
| Pre-assembly roofcurb (without gas burner) | | 374 | 374 | 374 | 402 | 402 | 402 | 402 | 467 | 467 | 467 | 534 | 534 |
| Pre-assembly roofcurb (with gas burner) | G0N (Nominal) | 804 | 804 | 804 | 925 | 925 | 925 | 925 | 1084 | 1084 | 1084 | 1204 | 1204 |
| | G0H (High) | 867 | 867 | 867 | 974 | 974 | 974 | 974 | 1127 | 1127 | 1127 | 1250 | 1250 |
| Electrical heaters | E0L (Low) | 29 | 29 | 29 | 34 | 34 | 34 | 34 | 40 | 40 | 40 | 45 | 45 |
| | E0N (Nominal) | 32 | 32 | 32 | 41 | 41 | 41 | 41 | 57 | 57 | 57 | 58 | 58 |
| | E0H (High) | 39 | 39 | 39 | 55 | 55 | 55 | 55 | 64 | 64 | 64 | 73 | 73 |
| Hot water coil | Empty | 94 | 94 | 94 | 102 | 102 | 102 | 102 | 113 | 113 | 113 | 128 | 128 |
| | Service | 143 | 143 | 143 | 155 | 155 | 155 | 155 | 181 | 181 | 181 | 201 | 201 |
| Heat recovery coil | Empty | 77 | 77 | 77 | 84 | 84 | 84 | 84 | 90 | 90 | 90 | 109 | 109 |
| | Service | 123 | 123 | 123 | 132 | 132 | 132 | 132 | 153 | 153 | 153 | 181 | 181 |
| Supply fan | Low pressure, Aluminium (L) | -28 | -28 | -28 | 7 | -25 | -25 | -25 | -32 | -32 | -32 | -21 | -21 |
| | Nominal pressure, Aluminium (A) | 7 | 7 | 7 | 41 | 9 | 9 | 9 | 11 | 11 | 11 | 14 | 14 |
| | High pressure, Aluminium (H) | 65 | 65 | 65 | 65 | 33 | 86 | 86 | 108 | 108 | 108 | 129 | 129 |
| Stop-drop | Indoor coil | 67 | 67 | 67 | 78 | 78 | 78 | 78 | 84 | 84 | 84 | 97 | 97 |
| | Fresh air intake: CS, CW assemblies | 23 | 23 | 23 | 26 | 26 | 26 | 26 | 29 | 29 | 29 | 33 | 33 |
| | Fresh air intake: CP, CR, CQ, CT assemblies | 18 | 18 | 18 | 21 | 21 | 21 | 21 | 23 | 23 | 23 | 26 | 26 |
| Outdoor coil protective grille | | 40 | 40 | 40 | 50 | 50 | 50 | 50 | 17 | 17 | 17 | 20 | 20 |
| Filters | G4 low pressure drop | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 5 | 5 |
| | G4 + F7 | 16 | 16 | 16 | 19 | 19 | 19 | 19 | 22 | 22 | 22 | 24 | 24 |
| | G4 low pressure drop + F7 | 17 | 17 | 17 | 30 | 30 | 30 | 30 | 23 | 23 | 23 | 26 | 26 |
| | M6 + F7 | 25 | 25 | 25 | 29 | 29 | 29 | 29 | 34 | 34 | 34 | 35 | 35 |
| | F7 + F9 | 26 | 26 | 26 | 30 | 30 | 30 | 30 | 35 | 35 | 35 | 39 | 39 |
| Centrifugal return fan (CQ and CT assemblies) | Low air flow | 45 | 33 | 41 | 78 | 50 | 46 | 29 | 58 | 62 | 3 | 58 | 69 |
| | Nominal air flow | 102 | 102 | 102 | 61 | 37 | 47 | 48 | 132 | 126 | 83 | 83 | 167 |
| | High air flow | 102 | 84 | 97 | 70 | 48 | 48 | 111 | 132 | -- | -- | 168 | 188 |
| Return plug-fan (CP, CR, CQ, CT, CW assemblies) | Nominal pressure, Aluminium (A) | 4 | 4 | 4 | 43 | 10 | 6 | 6 | 9 | 0 | 0 | 0 | 0 |
| | High pressure, Aluminium (H) | 43 | 43 | 43 | 97 | 65 | 65 | 65 | 65 | 59 | 0 | 78 | 78 |

OVERALL DIMENSIONS OF THE DIFFERENT ASSEMBLIES

| IPJ | C0 and CS assemblies | | | CP and CR assemblies CK assembly (upon request) | | | CW assembly | | | CQ and CT assemblies | | | CL assembly (upon request) | | |
|------|----------------------|---------------|----------------|--|---------------|----------------|----------------|---------------|----------------|----------------------|---------------|----------------|-------------------------------|---------------|----------------|
| | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) |
| 0420 | 3820 | 2257 | 2293 | 3820 | 2257 | 2555 | 3820 | 3112 | 2255 | 3825 | 2268 | 2555 | 3825 | 3112 | 2255 |
| 0450 | 3820 | 2257 | 2293 | 3820 | 2257 | 2555 | 3820 | 3112 | 2255 | 3825 | 2268 | 2555 | 3825 | 3112 | 2255 |
| 0500 | 3820 | 2257 | 2293 | 3820 | 2257 | 2555 | 3820 | 3112 | 2255 | 3825 | 2268 | 2555 | 3825 | 3112 | 2255 |
| 0560 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0620 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0680 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0720 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0760 | 5300 | 2257 | 2421 | 5300 | 2257 | 2555 | 5300 | 3112 | 2555 | 5306 | 2268 | 2555 | 5300 | 3112 | 2555 |
| 0840 | 5300 | 2257 | 2421 | 5300 | 2257 | 2555 | 5300 | 3112 | 2555 | 5306 | 2268 | 2555 | 5300 | 3112 | 2555 |
| 0960 | 5300 | 2257 | 2421 | 5300 | 2257 | 2555 | 5300 | 3112 | 2555 | 5306 | 2268 | 2555 | 5300 | 3112 | 2555 |
| 1050 | 6350 | 2257 | 2494 | 6350 | 2257 | 2555 | 6350 | 3112 | 2555 | 6356 | 2268 | 2555 | 6350 | 3112 | 2555 |
| 1200 | 6350 | 2257 | 2494 | 6350 | 2257 | 2555 | 6350 | 3112 | 2555 | 6356 | 2268 | 2555 | 6350 | 3112 | 2555 |



ISPK

Modular compact heat pumps



ISPK compact

Scroll compressors *in tandem*

Refrigerant *R-410A*

Flexibility of configuration

Outdoor *plug-fan* with EC HEE motor

Cooling capacity: 19,1 to 114,9 kW

Heating capacity: 19,3 to 121,4 kW



Cooling & heating



Air filtration



Free cooling

R-410A



DESCRIPTION

Air to air compact units with vertical construction for indoor use only.

■ **ISPK series:** Air-air reversible heat pump units.

Ten models are available:

- 90, 120, 160 and 180:
1 circuit and 2 compressors
- 200, 240, 280, 320, 360, 420 and 485:
2 circuits and 4 compressors

These units are equipped with hermetic scroll compressors and tandem configuration, as well as plug-fan EC for indoor and outdoor circuits. This allows to get a high seasonal performance.

The units are supplied in 2 modules, **outdoor module** and **indoor module** for building work installation as compact version or split version, according to the choice.

A vast number of options meet numerous operating demands.

All of the units are tested and checked in the factory.

OPERATING LIMITS

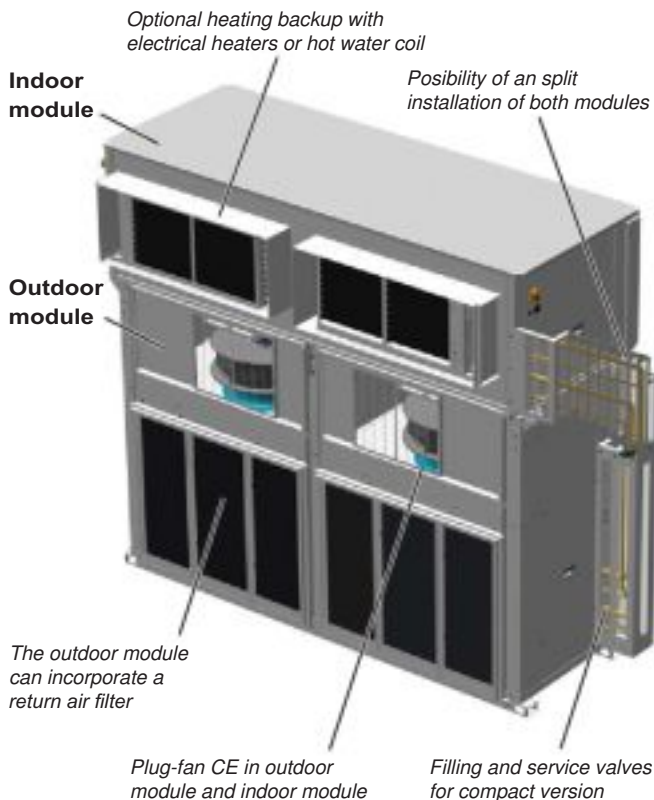
| Inlet air conditions | | Cooling | Heating |
|----------------------|---------|----------|-----------|
| Indoor coil | Minimum | 14 °C BH | 10 °C |
| | Maximum | 22 °C BH | 27 °C |
| Outdoor coil | Minimum | 12 °C ① | -10 °C BH |
| | Maximum | 45 °C | 15 °C BH |

① With a condensation pressure control operating down to -10°C.

COMPLIANCE

Machinery Directive 2006/42/EC (MD)
 Electromagnetic Compatibility Directive 2014/30/EU (EMC)
 Low Voltage Directive 2014/35/EU (LVD)
 Pressure Equipment Directive 2014/68/EU (Category 2) (PED)
 RoHS Directive 2011/65/EU (RoHS)
 Eco-design Directive 2009/125/EC (ECO-DESIGN)
 Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
 Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).

UNIT COMPONENTS



Outdoor module

- Casing made of galvanised steel metal with polyester paint, white colour RAL 7035. Self-supporting frame.

Outdoor air circuit

- EC electronic supply plug-fans directly coupled with variable control speed and flow rate controller. In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption.
- Coil(s) with copper pipes and aluminium fins.
- Condensate drain pan.

Cooling circuit

- Hermetic scroll-type compressors in tandem design that improves the management of stages and the part load efficiencies. Sound insulation, assembled over antivibration mounts. Control of phase equilibrium and the direction of rotation.
 - Crankcase heater.
 - Thermostatic expansion valve(s) with external equalisation.
 - Four-way cycle reversing valve(s).
 - Suction accumulator, anti-acid dehydrating filter(s), liquid receiver(s).
 - Service valves for cooling connections and refrigerant charge, when the unit is supplied in Compact version.
- Possibility of installation in split version, with optional service valves.

- Cooling connections for welding

Electric panel

- Complete and fully wired electric panel. Insulated panel cover to prevent condensation. Protection IP55.
- Transformer for power supply without neutral included in the electrical panel.
- Main ground connection.
- Compressor(s) and fan(s) motor contacts.

Protections

- High and low pressure pressostats.
- Compressor discharge temperature control.
- Non-return valve built into the compressor.
- Main door switch.
- Magnetothermic protection switches for the compressors power line and fans motor.
- Automatic switch in the control circuit.

Indoor module

- Casing made of galvanised steel metal with polyester paint, white colour RAL 7035. Self-supporting frame.

Indoor air circuit

- Coil(s) with copper pipes and aluminium fins.
- EC electronic supply plug-fans directly coupled with variable control speed and flow rate controller. In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption.

Plug-fans with direct drive and variable speed offer the following advantages:

- Elimination of friction losses during transmission thanks to the direct drive.
- Greater aerodynamic efficiency of the rotor (reactive blades with an optimized profile), running at very high operating pressures.
- Greatly increased motor efficiency. Permanent magnets DC motors activated using electronic switching integrated into the motor itself.
- Variable speed to ensure a constant supply air flow rate, independent of the filters clogging level.
- Measuring the flow rate through a calibrated section at the fan intake and a differential pressure sensor allows the control to handle the flow rate reliably and precisely in both on CAV and VAV systems.

- Reusable air filters, assembled on a frame.
- Condensate drain pan.

Cooling circuit

- Thermostatic expansion valve(s) with external equalisation

Protections

- Main door switch.

ELECTRONIC CONTROL

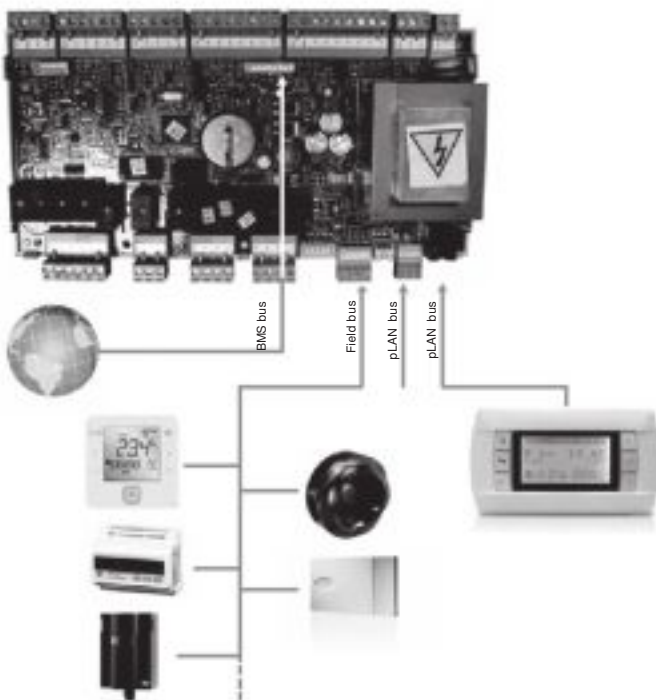
CIATrtc control

The **CIATrtc** control consist of a μ PC MEDIUM control board, sensors, a pGD1 graphic terminal and a TCO user terminal (optional).

This system uses a RS485 field-bus to manage additional components.

A BMS card (optional) allows the control board to be connected to a centralised technical management system.

It also manages a local connection between units through a pLAN network (μ PC MEDIUM Local Area Network), allowing data and information to be exchanged between units, for a maximum of 15 units.



Main functions:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors time delays.
- Defrosting management (in heat pump units).
- Control of the supply air temperature.
- All-seasons operation via the condensation and evaporation pressure control.

The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.

- Setpoint compensation based on the outdoor temperature.
- Hourly and weekly schedule.
- Fire protection.
- Diagnosis of faults and general alarm.

Optional function:

This control is used to manage addition components such as:

- External air damper for the renewal of fresh air, depending on the temperature of the mixed air or depending on the air quality sensor.
- Mixing box for thermal, enthalpic or thermoenthalpic free-cooling.
- Auxiliary electrical heaters: two-stage with on/off control or single-stage with proportional control.
- Hot water coil with 3-way valve, with proportional or on/off control.
- Humidifier with proportional or on/off control.
- Clogged filter pressostat.
- Refrigerant leak detector.
- Air quality sensor for measuring CO₂.
- Energy meter and calculation of the cooling and heating capacities.

pGD1 terminal:

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

This terminal is used to:

- Carry out initial programming of the unit.
- Modify operating parameters.
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the variables controlled and sensor values measured.
- Display the current alarms and their historical record.

TCO user terminal (optional):

This terminal can be installed on the electrical cabinet, instead of pGD1 terminal. In this case, the remote connection of the pGD1 terminal is possible. Please consult "Control options".



TCO terminal is used to:

- Switch the unit ON / OFF.
- Select the operating mode.
- Adjust the setpoints.
- Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO₂ sensor and opening of the outdoor damper.
- Display alarms codes.

OPTIONS

Options for the outdoor module

Outdoor environment

Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating.

Humidity

- Tropicalised electric panel.
- Tropicalised motors and fans (please consult).

Installation

- Antivibration mounts made of rubber.
- Service valves for cooling connections and refrigerant charge, when the unit is supplied for installation as split version.
- Oil separator for cooling connections with maximum equivalent length of the cooling line greater than 50 metres, optional only available when the units are supplied in 2 modules, **outdoor module** and **indoor module** for installation as split version.
- Position of air supply of the outdoor unit:
 - Lateral: by default
 - Upper: only available when the units are supplied for installation as split version.
- Gravimetric filters in the return air. The filters frame is removable, and upon request, it is possible to supply the frame separately with the unit SP, to be joined on site (width = 53 mm)

Acoustic

- Acoustic insulating cover for compressor.

Electric panel

- Electrical power supply with neutral.
- Energy meter for monitoring of the power consumption of the installation. Available if the unit does not incorporate electrical heaters (optional upon request).



Options for the indoor module

Outdoor environment

Humidity

- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.
- Stop-drop in the outdoor air intake.

Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating (indoor unit and/or hot water coil).
- Condensates drain pan in stainless steel.

Comfort / heating options

- Hot water auxiliary coil, with three-way valve and proportional control.

If the unit includes hot water coil and free-cooling, and works with negative temperatures of outdoor air, an anti-freeze thermostat as safety system is mandatory.

- Electrical heaters with assembly in two stages and proportional control.

Comfort / indoor air quality options

- Filtration of the supply air:
 - Gravimetric filter G4.
 - Gravimetric filter G4 + creased opacimetric filters M6 to F9.

Classification of the filters according to the new **ISO 16890 Standard:**

- G4 → ISO Coarse 60%
- M6 → ISO ePM10 60%
- F7 → ISO ePM1 50%
- F8 → ISO ePM1 65%
- F9 → ISO ePM1 80%

- Air quality sensor to enable measuring CO₂ for installation in the environment or duct-mounted (attached picture)



Security

- Differential pressostat for the detection of clogged filters.
- Smoke detecting station in accordance with the NF S 61-961 standard.
- Refrigerant leak detector (in ppm). This allows prompt identification of gas leaks, guaranteeing the safety of any people in the vicinity. This detector allows the number of periodic revisions to the unit to be reduced.

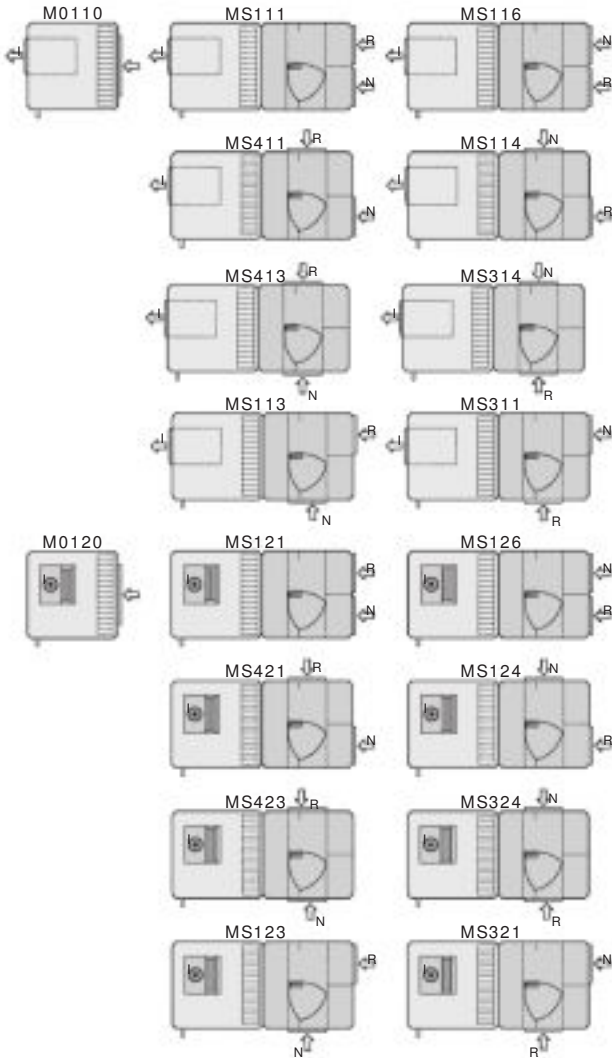


Installation

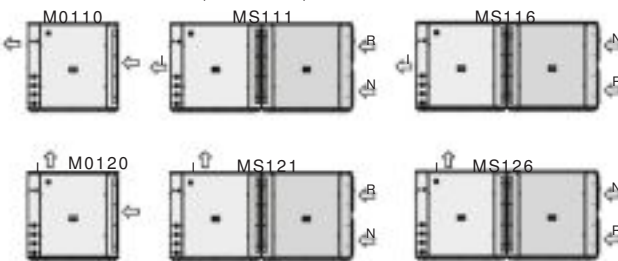
- Antivibration mounts made of rubber
- Position of supply and/or return of the indoor unit air.

- Assemblies with mixing box with 2 motorised damper for air renewal and free-cooling:

Assemblies with mixing box
Models 90 to 360 (plan view)



Models 420 and 485 (raised view)



Air circulation

I = Supply N = Fresh air inlet ● = Air inlet
R = Return E = Air extraction ○ = Air outlet

Designation

Mwxyz

| | | | |
|---|---|---------------------------------|---|
| Assembly: 0 = Standard S = Outdoor air intake with damper | Return: 1 = Rear 2 = Top 3 = Right-hand side (*) 4 = Left-hand side (*) | Supply: 1 = Front 2 = Top | Fresh air: 1,6 = Rear 3 = Right-hand side (*) 4 = Left-hand side (*) |
|---|---|---------------------------------|---|

(*) Seen in the direction of airflow

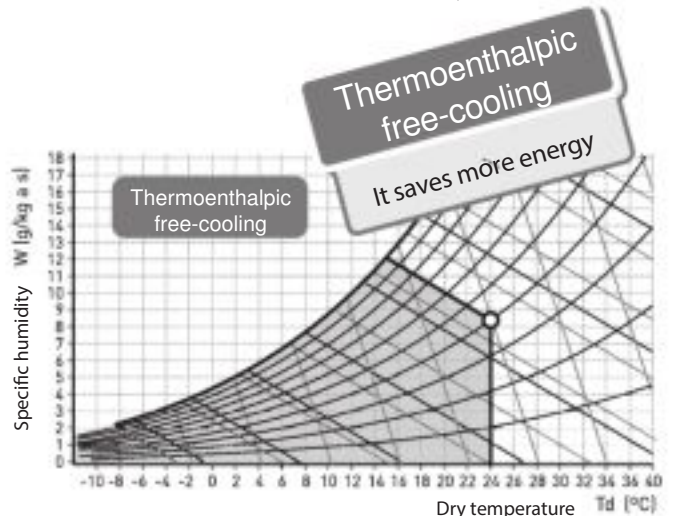
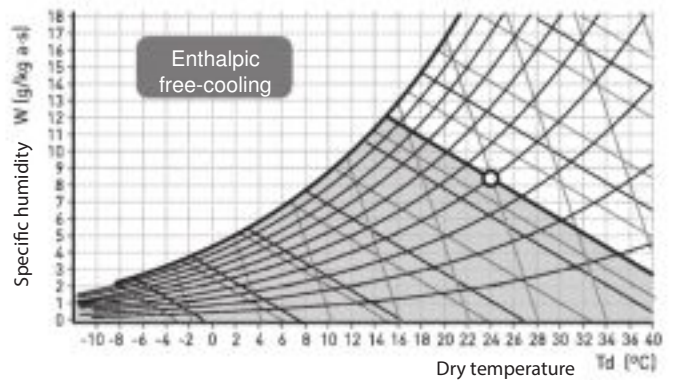
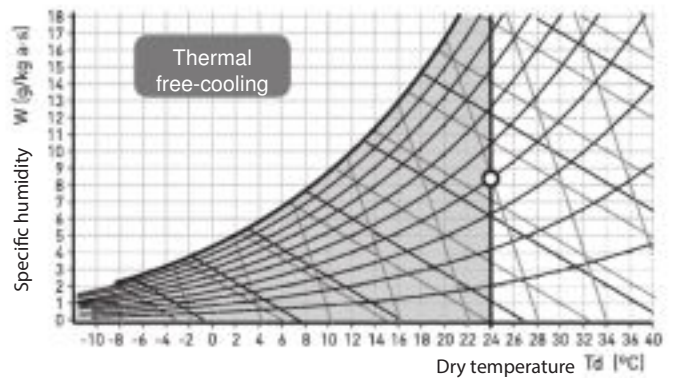
Important: In compact version, the connection of the mixing box with its structural support is under the responsibility of the installer.

- Free-cooling management:**

Running the unit in free-cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. The percentage of outdoor air can vary between 0% and 100%.

There are three options for free-cooling management:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.



Options for the electronic control

CIATrtc options

- TCO user terminal, for installation on the electric panel, instead of pGD1 terminal.
- Control without pGD1 terminal (for units with shared terminal).
- Kit remote control to 200 meters with pGD1 terminal (pGD1 terminal + 2 TCONN bypass cards). In this case it's possible to install the TCO terminal on the electric panel.
- Ambient temperature probe with RS485 communication. By default the control incorporates a NTC probe.
Note: An ambient probe with RS485 communication is required for installation to more than 30 m.
- Two to four ambient temperature probe with RS485 communication.
- Ambient T+RH probe with RS485 (compulsory in units with enthalpic or thermoenthalpic free-cooling as optional). In this case also added outdoor air humidity probe.
- Air quality probe for installation in the environment or in duct to enable measuring CO₂.

Communication options

CIATrtc control allows the connection to a centralised technical management system by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.



Carel and Modbus



Ethernet pCO Web

Supervision solutions

Different solutions of supervision are available according to the dimensions of the installation.

■ pCO Web

It is the solution for the management and supervision of a single unit if it incorporates the Ethernet pCO Web card.

■ PlantWatchPRO3

It is a solution designed for the monitoring of installations of medium - small dimensions, with ability to manage up to 30 units. Suitable for technical environments, it has no parts in movement. It's available in two versions: panel and wall.

Includes: 7 " touch display, buzzer for notifications, 1 USB port and 1 SD card slot for downloading reports, charge devices models and applying service packs.

In this case, each unit needs one RS485 Carel / Modbus board.

■ BOSS

This is the solution for the management and supervision of air-conditioning installations with up to 300 units. Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation. It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, keyboard and screen.

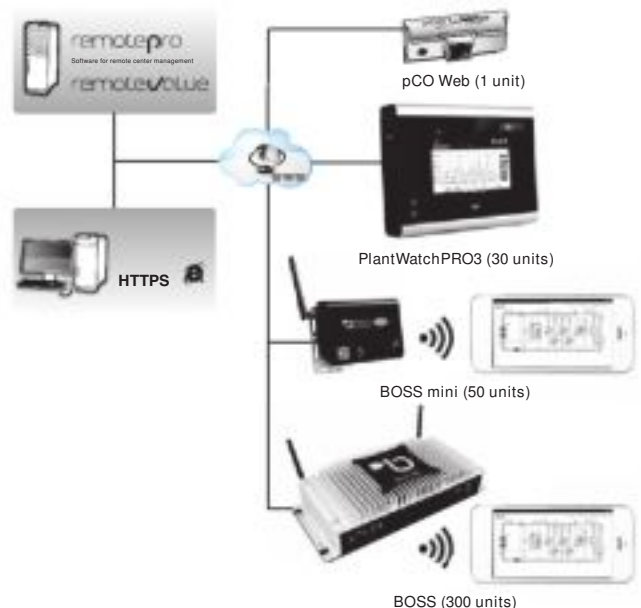
For this option, each unit needs one RS485 Carel / Modbus board.

■ BOSS mini (New)

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

- CPU device, mouse and keyboard.
- CPU device, monitor, mouse and keyboard.



These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

To control multiple sites remotely, there are special tools dedicated to centralized management, such as **RemotePRO** and **RemoteValue**.

TECHNICAL CHARACTERISTICS (EN-14511-2018)

| Outdoor module ISPK | | 90 | 120 | 160 | 180 | 200 | 240 | 280 | 320 | 360 | 420 | 485 | |
|---------------------------|--|--|---------|---------|---------|-----------|----------|----------|----------|----------|----------|----------|--|
| Cooling capacities | Cooling capacity ① (kW) | 19,10 | 25,33 | 33,94 | 39,74 | 47,23 | 52,07 | 60,59 | 69,66 | 81,52 | 104,61 | 114,90 | |
| | Power input ③ (kW) | 7,72 | 9,97 | 14,26 | 16,03 | 20,10 | 18,75 | 22,00 | 25,97 | 32,28 | 37,70 | 41,20 | |
| | EER performance | 2,47 | 2,54 | 2,38 | 2,48 | 2,35 | 2,78 | 2,75 | 2,68 | 2,53 | 2,77 | 2,78 | |
| | SEER | 3,64 | 3,55 | 3,53 | 3,54 | 3,53 | 3,93 | 3,89 | 3,85 | 3,78 | 4,01 | 3,98 | |
| | η_s | 143% | 139% | 138% | 139% | 138% | 154% | 153% | 151% | 148% | 157% | 155% | |
| Heating capacities | Heating capacity ② (kW) | 19,27 | 27,63 | 37,16 | 44,64 | 51,99 | 57,49 | 64,65 | 74,07 | 84,77 | 108,00 | 121,40 | |
| | Power input ③ (kW) | 6,43 | 9,74 | 13,05 | 15,68 | 18,42 | 17,77 | 20,07 | 23,75 | 29,41 | 36,20 | 41,10 | |
| | COP performance | 3,00 | 2,84 | 2,84 | 2,85 | 2,82 | 3,23 | 3,22 | 3,12 | 2,88 | 2,98 | 2,95 | |
| | SCOP | 3,25 | 3,29 | 3,33 | 3,31 | 3,21 | 3,25 | 3,21 | 3,25 | 3,21 | 3,22 | 3,20 | |
| | η_s | 127% | 129% | 130% | 129% | 125% | 127% | 125% | 127% | 126% | 126% | 125% | |
| Outdoor fan | Nominal air flow (m³/h) | 7.000 | 10.000 | 13.000 | 13.000 | 19.000 | 23.000 | 23.000 | 24.400 | 24.400 | 30.000 | 35.000 | |
| | Available static pressure (mm.w.c) | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Compressor | Type | Electronic plug-fan | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 500 | 1 / 500 | 1 / 560 | 1 / 560 | 2 / 500 | 2 / 560 | 2 / 560 | 2 / 560 | 2 / 560 | 2 / 500 | 4 / 500 | |
| | Motor output (kW) | 2,6 | 2,6 | 3,0 | 3,0 | 2 x 2,6 | 2 x 3,0 | 2 x 3,0 | 2 x 3,0 | 2 x 3,0 | 2 x 4,6 | 4 x 2,6 | |
| | Power input (kW) | 1,35 | 2,24 | 2,90 | 2,90 | 2 x 2,37 | 2 x 2,06 | 2 x 2,06 | 2 x 2,38 | 2 x 2,38 | 2 x 3,61 | 4 x 1,88 | |
| | Speed (r.p.m.) | 1.700 | 1.700 | 1.495 | 1.495 | 1.700 | 1.495 | 1.495 | 1.495 | 1.495 | 2.100 | 1.700 | |
| Cooling connections | Type | Scroll | | | | | | | | | | | |
| | No. compress. / circuits / stages | 2 / 1 / 2 | | | | 4 / 2 / 4 | | | | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | | | |
| | Volume of oil (l) | 2,5 | 2,5 | 3,5 | 3,5 | 5,0 | 4,8 | 6,8 | 7,1 | 7,2 | 13,2 | 13,2 | |
| Refrigerant | Circuit 1: Liquid line | 1/2" | 5/8" | 5/8" | 5/8" | 1/2" | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | |
| | Circuit 1: Gas line | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 3/8" | 1 3/8" | |
| | Circuit 2: Liquid line | - | - | - | - | 1/2" | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | |
| | Circuit 2: Gas line | - | - | - | - | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 3/8" | 1 3/8" | |
| Electrical features | Type | R-410A | | | | | | | | | | | |
| | Global warming potential (GWP) ④ | 2.088 | | | | | | | | | | | |
| | Load up to 7,5 m in split version (kg) | 9,0 | 11,1 | 13,0 | 14,2 | 17,3 | 19,1 | 24,9 | 25,9 | 26,4 | 38,7 | 39,3 | |
| | Environment impact (tCO2 e) | 18,8 | 23,2 | 27,1 | 29,6 | 36,1 | 39,9 | 52,0 | 54,1 | 55,1 | 80,8 | 82,1 | |
| | Load in compact version (kg) | 8,4 | 10,5 | 12,0 | 13,2 | 15,3 | 17,1 | 22,9 | 23,9 | 24,4 | 36,7 | 37,3 | |
| Dimensions | Environment impact (tCO2 e) | 17,5 | 21,9 | 25,1 | 27,6 | 31,9 | 35,7 | 47,8 | 49,9 | 50,9 | 76,6 | 77,9 | |
| | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | | | |
| | Power supply | 3 wires + gnd | | | | | | | | | | | |
| | Maximum absorbed current (A) | 18,7 | 21,8 | 29,6 | 34,5 | 43,5 | 44,7 | 52,0 | 59,3 | 69,0 | 89,3 | 97,4 | |
| Weight | Length (mm) | 1.191 | 1.471 | 1.471 | 1.471 | 2.186 | 2.746 | 2.746 | 2.746 | 2.746 | 3.484 | 3.484 | |
| | Width (mm) | 860 | 860 | 860 | 860 | 860 | 860 | 860 | 860 | 860 | 860 | 860 | |
| | Height (mm) | 1.437 | 1.717 | 1.717 | 1.717 | 1.437 | 1.717 | 1.717 | 1.717 | 1.717 | 1.717 | 1.717 | |
| Indoor supply circuit fan | (kg) | 300 | 364 | 378 | 383 | 588 | 737 | 782 | 789 | 793 | 1.043 | 1.052 | |
| | Indoor module ISPK | | | | | | | | | | | | |
| Max. absorbed current | Nominal air flow (m³/h) | 4.000 | 5.200 | 7.000 | 8.000 | 9.200 | 10.300 | 12.500 | 14.000 | 15.500 | 21.000 | 21.000 | |
| | Available static pressure (mm.w.c) | 15 | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | |
| | Type | Electronic plug-fan | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 500 | 1 / 500 | 1 / 500 | 1 / 500 | 2 / 500 | 2 / 500 | 2 / 500 | 2 / 500 | 2 / 500 | 3 / 500 | 3 / 500 | |
| | Motor output (kW) | 2,7 | 2,7 | 2,7 | 2,7 | 2 x 2,7 | 2 x 2,7 | 2 x 2,7 | 2 x 2,7 | 2 x 2,7 | 3 x 2,6 | 3 x 2,6 | |
| Dimensions | Power input (kW) | 0,63 | 0,86 | 1,32 | 1,38 | 2 x 0,71 | 2 x 0,95 | 2 x 1,10 | 2 x 1,32 | 2 x 1,58 | 3 x 1,40 | 3 x 1,40 | |
| | Speed (r.p.m.) | 1.700 | 1.700 | 1.700 | 1.700 | 1.700 | 1.700 | 1.700 | 1.700 | 1.700 | 1.700 | 1.700 | |
| | Fan (A) | 4,2 | 4,2 | 4,2 | 4,2 | 8,2 | 8,2 | 8,2 | 8,2 | 8,2 | 12,0 | 12,0 | |
| Weight | Length (mm) | 1.190 | 1.190 | 1.520 | 1.520 | 2.183 | 2.144 | 2.804 | 2.804 | 2.804 | 2.974 | 2.974 | |
| | Width (mm) | 950 | 950 | 1.028 | 1.028 | 950 | 950 | 1.028 | 1.028 | 1.028 | 1.209 | 1.209 | |
| | Height (mm) | 731 | 731 | 731 | 731 | 731 | 731 | 800 | 800 | 800 | 1.091 | 1.091 | |
| (kg) | 175 | 175 | 204 | 204 | 303 | 303 | 389 | 389 | 389 | 536 | 536 | | |

① Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27°C, (19°C WB) and 35°C outdoor temperature.
 ② Heating capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.
 ③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.
 ④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

RECOMMENDATIONS FOR THE COOLING CONNECTION, FOR SPLIT VERSION

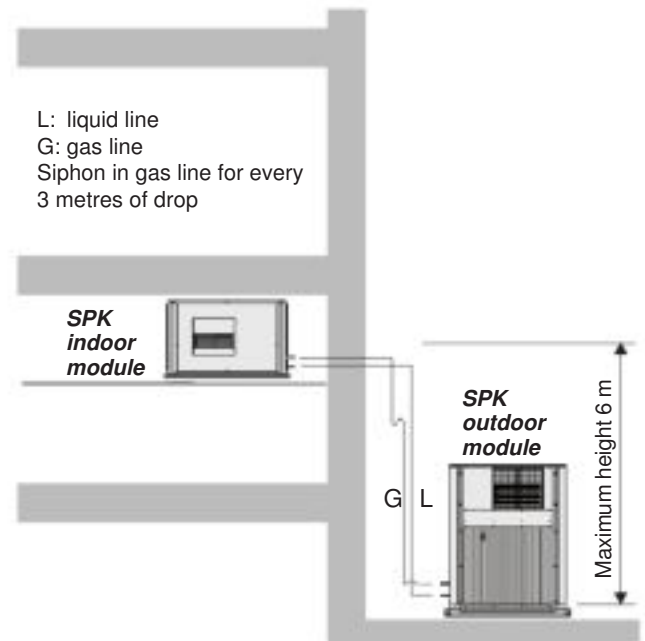
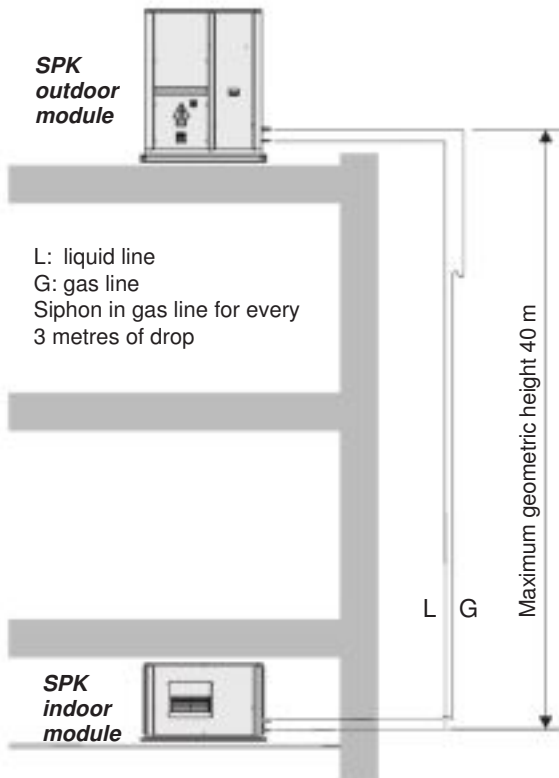
In split version, the outdoor module and indoor module must follow some recommendations

Outdoor unit top

Maximum equivalent length of the cooling line: 50 metres
For longer lengths an oil separator must be user

Outdoor unit bottom

Maximum equivalent length of the cooling line: 30 metres



Note: when the unit is supplied for split version with the outdoor and indoor modules, can include optionally filling and service valves for the circuit connections and the charge of refrigerant until 7 m of distance.

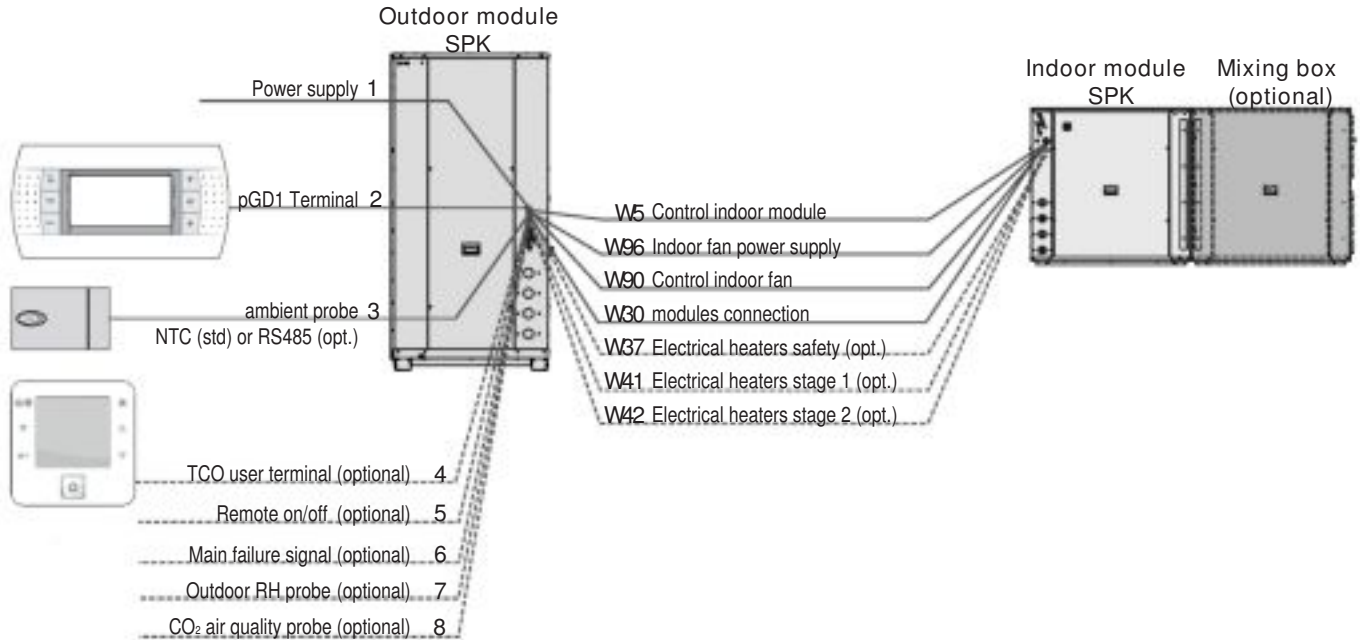
ADDITIONAL LOAD OF R-410A REFRIGERANT

Additional load per linear metre of piping for equivalent maximum lengths exceeding 7 metres:

| Nominal diameter (inches) | 1/4" | 3/8" | 1/2" | 5/8" | 3/4" | 7/8" | 1" | 1 1/8" |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| Interior section (cm ²) | 0,149 | 0,444 | 0,900 | 1,505 | 2,282 | 3,120 | 4,290 | 5,346 |
| Liquid line charge (g/m) | 19,3 | 57,0 | 115,0 | 193,5 | 292,3 | 404,1 | 550,3 | 685,7 |
| Gas line charge (g/m) | -- | 0,2 | 0,4 | 0,7 | 1,0 | 1,4 | 2,0 | 2,5 |

ELECTRICAL CONNECTIONS BETWEEN THE MODULES

CIATrhc control



| No. | ISPK | 90 | 120 | 160 | 180 | 200 | 240 | 280 | 320 | 360 | 420 | 485 |
|-------|---|----------------------------|---|---------|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | Power supply | 400 III ($\pm 10\%$) | | 3 + GND | | | | | | | | |
| 2 | pGD1 terminal connection (standard in electrical panel) | | Telephone cable 6 wires standard (RJ12 connector) (until 50 m) | | | | | | | | | |
| 3 | Ambient probe ① | NTC | | 2 wires | | | | | | | | |
| | | RS485 ② | | 5 wires | | | | | | | | |
| 4 | TCO user terminal connection ③ | | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) | | | | | | | | | |
| 5 | Remote on/off (optional) | | 2 wires | | | | | | | | | |
| 6 | Main failure signal (optional) | | 2 wires | | | | | | | | | |
| 7 | Outdoor RH probe (optional) ① | | 3 wires | | | | | | | | | |
| 8 | CO ₂ air quality probe (optional) ① | | 3 wires | | | | | | | | | |
| W5 ⑤ | Control indoor module | | 5 wires | | | | | | | | | |
| W96 ⑤ | Indoor fan power supply | | 4 wires | | | | | | | | | |
| W90 ⑤ | Control indoor fan | | 7 wires | | | | | | | | | |
| W30 ⑤ | Modules connection | without free-cooling (std) | | 2 wires | | | | | | | | |
| | | free-cooling (opt.) | | 7 wires | | | | | | | | |
| W37 ⑤ | Safety thermistors of electrical heaters (optional) | | 2 wires | | | | | | | | | |
| W41 ⑤ | Electrical heaters. stage 1 (optional) ④ | | 4 wires | | | | | | | | | |
| W42 ⑤ | Electrical heaters. stage 2 (optional) ④ | | 4 wires | | | | | | | | | |

① Connection of probes by client

② It is possible connect from 1 to 4 ambient probes RS485 in series in the Field-bus of the control board

③ If the unit is going to be installed in an industrial environment with a high level of electromagnetic interference, it is recommended to shield the cables of the thermostat control.

④ The power supply for the electrical heater must be protected by an automatic switch and/or fuses to be foreseen by the installer.

⑤ Connection hose to connect the modules supplied to work in compact version.

SC

Air-cooled condensing units

Scroll compressors
R-410A refrigerant
Flexible configuration
Silent operation



Cooling capacity: 20 to 135 kW
 Heating capacity: 20 to 145 kW



Cooling
& heating



Air
filtration



Free
cooling



R410A

DESCRIPTION

The SC range are air-cooled condensing units designed for installation outdoors.

They can be connected on-site with one direct expansion exchanger (or two in case of models 200 to 360).

Two options are available:

- **RSC range: non reversible** units;
- **ISC range: reversible** units.

They are equipped axial fan(s) with free vertical discharge, hermetic scroll-type compressor(s) and electric panel with electronic control with optimized components for the refrigerant R-410A:

A vast number of options meet numerous operating demands. All of the units are tested and checked in the factory.

RANGE

- **1 refrigerant circuit, 1 compressor:**
Models: 90/100/120/160/180/182.
- **2 refrigerant circuits, 2 compressors:**
Models: 200/240/320/360/420/485/540/600.

OPERATING LIMITS

| Temperature conditions | | Cooling | Heating |
|----------------------------------|---------|----------------------|-----------|
| Refrigerant fluid ⁽¹⁾ | Minimum | -6 °C | 40 °C |
| | Maximum | 10 °C | 52 °C |
| Inlet air | Minimum | 12 °C ⁽²⁾ | -10 °C WB |
| | Maximum | 48 °C | 15 °C WB |

(1) For connection with a direct expansion exchanger.

(2) With operation condensation pressure control activated to -10 °C.

COMPLIANCE

- Machinery Directive 2006/42/EC (MD).
- Electromagnetic Compatibility Directive 2014/30/EU (EMC).
- Low Voltage Directive 2014/35/EU (LVD).
- Pressure Equipment Directive 2014/68/EU (Category 2) (PED).
- RoHS Directive 2011/65/EU (RoHS).
- Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).

UNIT COMPONENTS

- Casing made of galvanised steel metal with polyester paint, grey graphite colour RAL 7024 and white RAL 7035. Self-supporting frame.

■ Air circuit

- Axial 2-speed fan(s) directly coupled to the motor (models 90 to 182 wired to high speed). Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille.

- Coil(s) with copper pipes and aluminium fins. Two designs:

- Models 90 to 320: U coil
- Models 360 to 600: V coils

- Condensates drain pan (on models 360 to 600).

■ Refrigerant circuit

- Hermetic scroll-type compressor(s) with sound insulation, fitted on anti-vibration mounts. Control of phase balance and the direction of rotation.

- Crankcase heater.

- Thermostatic expansion valve(s) with external balancing (heat pump units).

- Four-way cycle reversing valve(s) (heat pump units).

- Particle separator(s), anti-acid dehydrating filter(s) and liquid tank(s).

- Cooling connections for welding.

- Maximum equivalent length of the cooling line 50 metres (for longer distances, it is necessary to use an oil separator).

■ Safety devices

- High- and low-pressure pressostats.

- Compressor discharge temperature control.

- Non-return valve built into the compressor.

- Main door switch.

- Thermal-magnetic protection switches for the compressor(s) and fan(s) motor power line.

- Automatic switch in the control circuit.

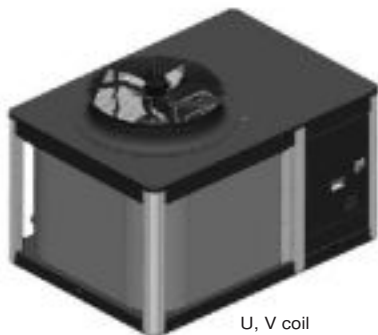
■ Electrical cabinet

- Complete and fully wired electrical panel. Insulated panel cover to prevent condensation. Protection IP55.

- Transformer for power supply without neutral included in the electrical panel.

- Main ground connection.

- Compressor(s) and fan(s) motor contacts.



U, V coil

OPTIONS

■ Outdoor environment

Temperature

- Electrical heater for protection of the components of the electric panel. This is compulsory if the outdoor temperature is below -8 °C WB. For outdoor temperatures below -16 °C WB, a reinforced heater will be compulsory.

- Compressor with protection against low temperatures (supplementary crankcase heater). This is compulsory if the outdoor temperature is below -8 °C WB.

Corrosion

- Coil with copper pipes and copper fins.

- INERA® coil with copper pipes and fins made from an aluminium alloy, offering high performance and great resistance to corrosion.

- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating.

Humidity

- Tropicalised electrical panel.

- Tropicalised motors and fans (contact us).

■ Installation

- Rubber anti-vibration mounts.

- Service valves and refrigerant load for refrigerant connections (up to 7.5 metres long).

- Oil separator for refrigerant connections with maximum equivalent length of the cooling line over 50 metres.

- Air coil protection grille (models 90 to 320).

- Condensate drain pan (on models 90 to 320).

■ Electrical cabinet

- Electrical power supply with neutral.

- Energy meter for monitoring the power consumption of the installation (with CIATrct control).

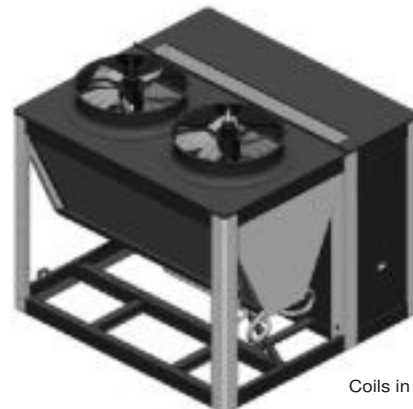
- Models 90 to 182: available if the unit does not incorporate electrical heaters.

- Models 200 to 600: available with all options.



■ Energy saving

Electronic EC axial fans that adjust their rotation speed to the installation requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the average seasonal output of the unit.



Coils in V

ELECTRONIC CONTROLS

■ AVANT/AVANT+ electronic control (standard)

Available in two versions:

- **AVANT: models 90 to 182**
- **AVANT+: models 200 to 600**

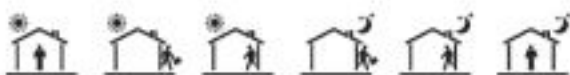
Note: Models 90 to 182 can incorporate the AVANT+ version as an option.

AVANT / AVANT+ control is an electronic module with microprocessor comprised of a control board and a TCO user terminal that ensures the following functions:

- Selecting the operating mode:
 - HEATING
 - COOLING
 - AUTO *Auto*
 - DEHUMIDIFICATION
 - FAN (no icon).
- Changing the setpoint.
- Permanent control of the operating parameters.
- Display the values measured by the sensors.
- View the codes relating to the alarms triggered.
- Compressor runtime balancing.
- Control the compressor discharge temperature using a probe.
- Control the ambient temperature using the probe incorporated into TCO terminal. This probe can be replaced by a return or ambient air probe installed in the control board.
- All-seasons operation via the condensation and evaporation pressure control.
- Control the supply air outlet temperature to improve the thermal comfort level of the installation.
 - In cooling mode, this control prevents excessive drops in the ambient temperature.
 - In heating mode, it prevents stratification of the hot air masses.
- The following features improve the energy management of the installation:



- Defrosting management (in heat pump units). A smart defrosting option that reduces the energy consumption of the heat pump, by adjusting the time between defrosting operations to the actual needs of the unit.
 - Setpoint compensation based on the outdoor temperature. This function prevents thermal "shock" between the inside and outside of the premises whilst providing significant energy savings
 - Time schedule that reduces energy consumption, adjusting the air conditioning requirements of the building throughout the day.
- TCO terminal has a schedule programmer with an intuitive graphic interface that allows 6 time slots to be chosen for each day of the week. A change in the setpoint temperature or the disconnection of the unit can be scheduled in these time slots (according to the building occupancy).



Optional functions:

If the indoor unit connected to the SC unit has these options:

- Control of the auxiliary electrical heaters.
- Proportional control of an auxiliary hot water coil.
- Humidity control.
- Fire protection.
- Control the opening of the outdoor air damper.
- Management of free cooling.
- Detection of clogged filters and air flow control.
- Connection to a centralised technical management system (BMS) for supervision (please see "Options" chapter).

pGD1 Terminal (optional):

Optionally, this control can have a terminal for pGD1 maintenance that facilitates the initial scheduling of the unit, the modification of the operating parameters and the description of the alarms produced.



■ CIATrtc electronic control (optional)

Electronic module with microprocessor comprised of a control board and a pGD1 graphic terminal installed over the unit electric panel and accessed using a polycarbonate collapsible window.

Optionally this terminal can be replaced by a TCO user terminal for installation inside of the premises. In this case the TCO terminal are not allowed to access parameters control and time schedule.

The management of the ambient temperature is controlled via a NTC ambient probe. This probe can be replaced by 1 or 2 RS485 probes.

In addition to the functions described in AVANT/ AVANT+ control, depending on the indoor unit connected to the SC unit, this control is used to manage optional components such as:

- Electronic plug-fans.
- Enthalpic or thermo-enthalpic free cooling.
- Smoke detection unit.
- Air quality probe for measuring CO₂ and/or volatile organic compounds.
- Energy meter.
- Refrigerant leak detector.

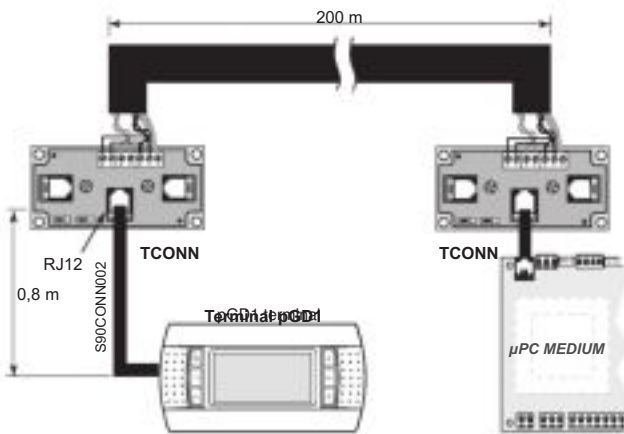
It also manages a local connection between units through a pLAN network (µPC MEDIUM Local Area Network), thus allowing communication of data and information for a maximum of 15 units. This enables the reduction of the number of pGD1 terminals, since a single shared terminal can monitor all control boards. It also allows to share the reading of some probes.



OPTIONAL FOR ELECTRONIC CONTROLS

AVANT / AVANT+ control (standard)

- pGD1 terminal for maintenance of the unit.
- 200-m remote control kit for pGD1 terminal (pGD1 terminal + 2 TCONN bypass cards).



- Return or ambient air temperature sensor connected to the board which replaces the ambient air temperature sensor on the TCO thermostat. A return probe is required for the fire protection safety device.
- Mixing temperature probe: compulsory for free cooling management.

CIATrtc control (optional)

- TCO user terminal, instead of pGD1 terminal.
 - Control without pGD1 terminal (for units with shared terminal).
 - 200-m remote control kit for pGD1 terminal (pGD1 terminal + 2 TCONN bypass cards).
 - Ambient temperature sensor with RS485 communication. By default, the control incorporates an NTC probe.
- Note: An ambient probe with RS485 communication is required for installation to more than 30 m.
- Double ambient temperature sensor with RS485 communication.
 - Ambient T+RH probe with RS485 (compulsory in units with enthalpic or thermo-enthalpic free cooling as an option). In this case, an outdoor air humidity sensor is also added.
 - Air quality sensor to be installed in the room or in the duct to enable measurement of CO₂ and/or volatile compounds.

Communication

The **AVANT/AVANT+** and **CIATrtc** controls enable connection to a centralised technical management system by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.

Supervision solutions

Different solutions of supervision are available according to the dimensions of the installation.

• pCO Web

It is the solution for the management and supervision of a single unit if it incorporates the Ethernet pCO Web card.

• PlantWatchPRO3

This solution is designed for monitoring small to medium-sized installations and can manage up to 30 units. Suitable for technical environments, it has no moving parts. It is available in two versions: panel and wall-mounted.

Includes: 7" touch screen, buzzer for notifications, 1 USB port and 1 SD card slot for downloading reports, charging peripherals for the models and service pack applications.

In this case, each unit needs one RS485 Carel / Modbus board.

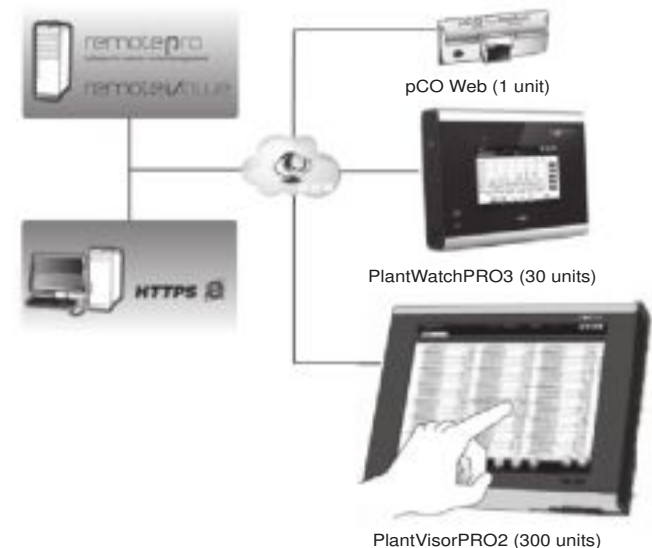
• PlantVisorPRO2

This solution is designed to manage and monitor air-conditioning installations with up to 300 units. It performs advanced monitoring and maintenance functions and enables areas and groups to be created which simplify management of the installation. It can also incorporate energy meters for monitoring the power consumption of the installation.

PlantVisorPRO2 is available in two versions:

- **Box:** comprises the CPU unit and, as an option, a screen and a keypad.
- **Touch:** includes the CPU and the touch screen in the one device.

In this case, each unit needs one RS485 Carel / Modbus board.



These systems allow the installation in remote management. Through a single connection to the Internet is accessed the information system. The Web interface, which is available for the local user, allows the monitoring and the complete configuration of the installation: from the office or any other user's current location.

For remote control of multiple sites, there are dedicated tools for centralised management such as **RemotePRO** and **RemoteValue**.

TECHNICAL CHARACTERISTICS

| SC | | 90 | 100 | 120 | 160 | 180 | 182 | 200 | |
|--------------------------------|---|---|--------|-----------|--------|--------|-----------|---------|--|
| Cooling capacities | Cooling capacity ⁽¹⁾ (kW) | 20,8 | 24,4 | 28,5 | 36,2 | 39,2 | 42,5 | 50,4 | |
| | Power input ⁽³⁾ (kW) | 6,3 | 7,7 | 8,3 | 11,8 | 14,2 | 11,8 | 14,7 | |
| | Energy efficiency rating (EER) | 3,31 | 3,15 | 3,44 | 3,06 | 2,76 | 3,62 | 3,42 | |
| Heating capacities | Heating capacity ⁽²⁾ (kW) | 22,6 | 26,6 | 31,0 | 39,2 | 43,1 | 46,6 | 58,1 | |
| | Power input ⁽³⁾ (kW) | 6,4 | 7,1 | 8,4 | 10,1 | 12,4 | 11,6 | 14,7 | |
| | Coefficient of performance (COP) | 3,55 | 3,76 | 3,68 | 3,87 | 3,48 | 4,01 | 3,94 | |
| Outdoor circuit axial flow fan | Nominal air flow (m ³ /h) | 10.000 | | 14.200 | | | 20.000 | | |
| | Available static pressure (mm.w.c) | -- | | | | | | | |
| | Quantity | 1 | | | | | | | |
| | Diameter (mm) | 630 | | | 800 | | | | |
| | Power (kW) | 0,7 / 0,4 | | 0,8 / 0,5 | | | 2,0 / 1,3 | | |
| | Speed (r.p.m.) | 875 / 650 | | 680 / 540 | | | 895 / 705 | | |
| Compressor | Type | Scroll | | | | | | | |
| | No. compressors/circuits/stages | 1 / 1 / 1 | | | | | 2 / 2 / 2 | | |
| | Oil type | Copeland 3MAF 32 cST, Danfoss POE 160 SZ, ICI Emkarate RL32 CF, Mobil EAL Artic 22 CC | | | | | | | |
| | Volume of oil (l) | 3,0 | 3,3 | 3,3 | 3,3 | 6,2 | 6,2 | 2 x 3,3 | |
| Refrigerant connections | Circuit 1: Liquid line | 1/2" | 1/2" | 5/8" | 5/8" | 5/8" | 5/8" | 1/2" | |
| | Circuit 1: Gas line | 7/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | |
| | Circuit 2: Liquid line | -- | -- | -- | -- | -- | -- | 1/2" | |
| | Circuit 2: Gas line | -- | -- | -- | -- | -- | -- | 1 1/8" | |
| Refrigerant | Type | R-410A | | | | | | | |
| | Global Warming Potential (GWP) ⁽⁴⁾ | 2.088 | | | | | | | |
| | Load up to 7,5 m (kg) | 6,3 | 6,4 | 8,6 | 8,2 | 9,2 | 12,8 | 17,3 | |
| | Environment impact (tCO ₂ e) | 13,2 | 13,4 | 18,0 | 17,1 | 19,2 | 26,7 | 36,1 | |
| Electrical features | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | |
| | Electric power supply | 3 wires + GND | | | | | | | |
| Maximum absorbed current | Compressor(s) (A) | 15,3 | 18,5 | 20,1 | 25,1 | 29,1 | 29,1 | 37,0 | |
| | Fan (A) | 1,3 | 1,3 | 2,2 | 2,2 | 2,2 | 4,3 | 4,3 | |
| | Control (A) | 0,9 | 0,9 | 0,9 | 0,9 | 0,9 | 0,9 | 1,8 | |
| | Total (A) | 17,5 | 20,7 | 23,2 | 28,2 | 32,2 | 34,3 | 43,1 | |
| Dimensions | Length (mm) | 1.511 | | 1.511 | | | 1.811 | | |
| | Width (mm) | 1.066 | | 1.066 | | | 1.066 | | |
| | Height (mm) | 1.088 | | 1.413 | | | 1.763 | | |
| Weight | (kg) | 275 | 281 | 317 | 326 | 368 | 388 | 490 | |

(1) Rated conditions: Evaporation temperature = 5 °C, outdoor operating temperature = 35 °C, overheating = 5 °C

(2) Rated conditions: Condensing temperature = 49 °C, outdoor operating temperature = 7 °C, overheating = 0 °C

(3) Total input power by compressors and fan motor assemblies under these conditions.

(4) Global Warming Potential of one kilogram of fluorinated greenhouse gas relative to one kilogram of carbon dioxide over a period of 100 years.

TECHNICAL CHARACTERISTICS

| SC | | 240 | 320 | 360 | 420 | 485 | 540 | 600 |
|---------------------------|---|---|---------|---------|---------|---------|---------|---------|
| Cooling capacities | Cooling capacity ⁽¹⁾ (kW) | 55,5 | 70,0 | 86,4 | 103,6 | 115,5 | 124,6 | 138,4 |
| | Power input ⁽³⁾ (kW) | 16,8 | 24,8 | 24,4 | 28,0 | 32,9 | 39,1 | 44,9 |
| | Energy efficiency rating (EER) | 3,31 | 2,82 | 3,55 | 3,70 | 3,51 | 3,19 | 3,08 |
| Heating capacities | Heating capacity ⁽²⁾ (kW) | 64,9 | 81,8 | 94,2 | 108,9 | 123,5 | 134,3 | 148,2 |
| | Power input ⁽³⁾ (kW) | 15,6 | 20,9 | 23,0 | 28,8 | 30,9 | 36,8 | 38,8 |
| | Coefficient of performance (COP) | 4,15 | 3,91 | 4,10 | 3,79 | 4,00 | 3,65 | 3,82 |
| Outdoor circuit axial fan | Nominal air flow (m ³ /h) | 20.000 | | 39.000 | | 37.000 | | |
| | Available static pressure (mm.w.c) | -- | | | | | | |
| | Quantity | 1 | | 2 | | | | |
| | Diameter (mm) | 800 | | | | | | |
| | Power (kW) | 2,0 / 1,3 | | | | | | |
| | Speed (r.p.m.) | 895 / 705 | | | | | | |
| Compressor | Type | Scroll | | | | | | |
| | No. compressors/circuits/stages | 2 / 2 / 2 | | | | | | |
| | Oil type | Copeland 3MAF 32 cST, Danfoss POE 160 SZ, ICI Emkarate RL32 CF, Mobil EAL Artic 22 CC | | | | | | |
| | Volume of oil (l) | 2 x 3.3 | 2 x 3.3 | 2 x 6.2 | 2 x 6.2 | 2 x 6.2 | 2 x 6.2 | 2 x 6.2 |
| Refrigerant connections | Circuit 1: Liquid line | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | 7/8" | 7/8" |
| | Circuit 1: Gas line | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" |
| | Circuit 2: Liquid line | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | 7/8" |
| | Circuit 2: Gas line | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" |
| Refrigerant | Type | R-410A | | | | | | |
| | Global Warming Potential (GWP) ⁽⁴⁾ | 1.720 | | | | | | |
| | Load up to 7,5 m (kg) | 17,4 | 22,2 | 22,7 | 31,4 | 31,4 | 33,4 | 33,6 |
| | Environment impact (tCO ₂ e) | 36,3 | 46,4 | 47,4 | 65,6 | 65,6 | 69,7 | 70,2 |
| Electrical features | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | |
| | Electric power supply | 3 wires + GND | | | | | | |
| Maximum absorbed current | Compressor(s) (A) | 40,2 | 50,2 | 58,2 | 68,9 | 79,6 | 91,1 | 102,6 |
| | Fan (A) | 4,3 | 4,3 | 8,6 | 8,6 | 8,6 | 8,6 | 8,6 |
| | Control (A) | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 |
| | Total (A) | 46,3 | 56,3 | 68,6 | 79,3 | 90,0 | 101,5 | 113,0 |
| Dimensions | Length (mm) | 1.811 | 1.811 | 2.201 | | | | |
| | Width (mm) | 1.066 | 1.066 | 2.069 | | | | |
| | Height (mm) | 1.763 | 2.063 | 1.966 | | | | |
| Weight | (kg) | 492 | 544 | 974 | 1.024 | 1.029 | 1.078 | 1.127 |

(1) Rated conditions: Evaporation temperature = 5 °C, outdoor operating temperature = 35 °C, overheating = 5 °C

(2) Rated conditions: Condensing temperature = 49 °C, outdoor operating temperature = 7 °C, overheating = 0 °C

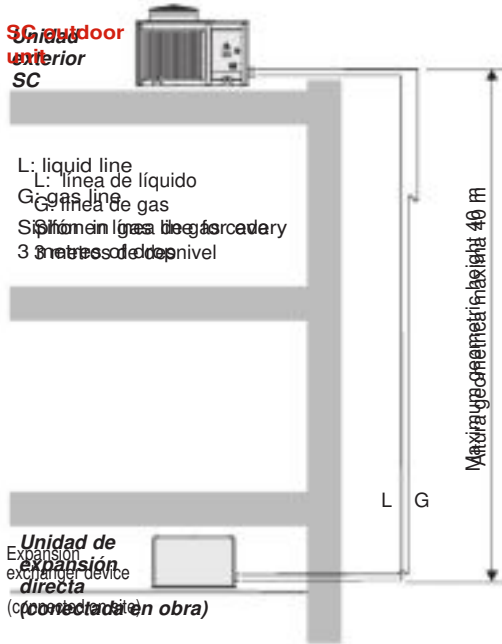
(3) Total input power by compressors and fan motor assemblies under these conditions.

(4) Global Warming Potential of one kilogram of fluorinated greenhouse gas relative to one kilogram of carbon dioxide over a period of 100 years.

RECOMMENDATIONS FOR THE REFRIGERANT CONNECTION

Outdoor module at the top

Maximum equivalent length of the cooling line: 50 metres
 For longer lengths, an oil separator must be used.
 Para longitudes superiores se necesita utilizar separador de aceite (opcional)



Outdoor module at the bottom

Maximum equivalent length of the cooling line: 7 metres
 Límite máximo equivalente de la línea frigorífica 7 metros



ADDITIONAL LOAD OF R-410A REFRIGERANT

Additional load per linear metre of piping for equivalent maximum lengths exceeding 7 metres:

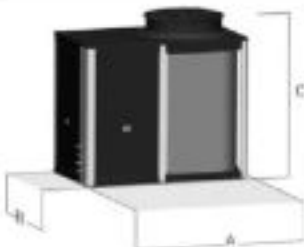
| Nominal diameter (inches) | 1/4" | 3/8" | 1/2" | 5/8" | 3/4" | 7/8" | 1" | 1 1/8" |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| Interior section (cm ²) | 0,149 | 0,444 | 0,900 | 1,505 | 2,282 | 3,120 | 4,290 | 5,346 |
| Liquid line charge (g/m) | 19,3 | 57,0 | 115,0 | 193,5 | 292,3 | 404,1 | 550,3 | 685,7 |
| Gas line charge (g/m) | -- | 0,2 | 0,4 | 0,7 | 1,0 | 1,4 | 2,0 | 2,5 |

OPTIONS

Electronic axial fan

| SC | | 90 | 100 | 120 | 160 | 180 | 182 | 200 | 240 | 320 | 360 | 420 | 485 | 540 | 600 |
|--------------------------------|----------|---------|-----|---------|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|
| Max. available static pressure | (mm.w.c) | 15 | | 12,5 | | | | | | | | | | | |
| Number / diameter | (mm) | 1 / 630 | | 1 / 800 | | | | 2 / 800 | | | | | | | |
| Motor output | (kW) | 1 x 0,9 | | 1 x 2,1 | | | | 2 x 2,1 | | | | | | | |
| Maximum speed | (r.p.m.) | 1.000 | | 1.100 | | | | | | | | | | | |
| Maximum absorbed current | (A) | 2,0 | | 3,4 | | | | 6,8 | | | | | | | |

SC OUTDOOR UNIT DIMENSIONS

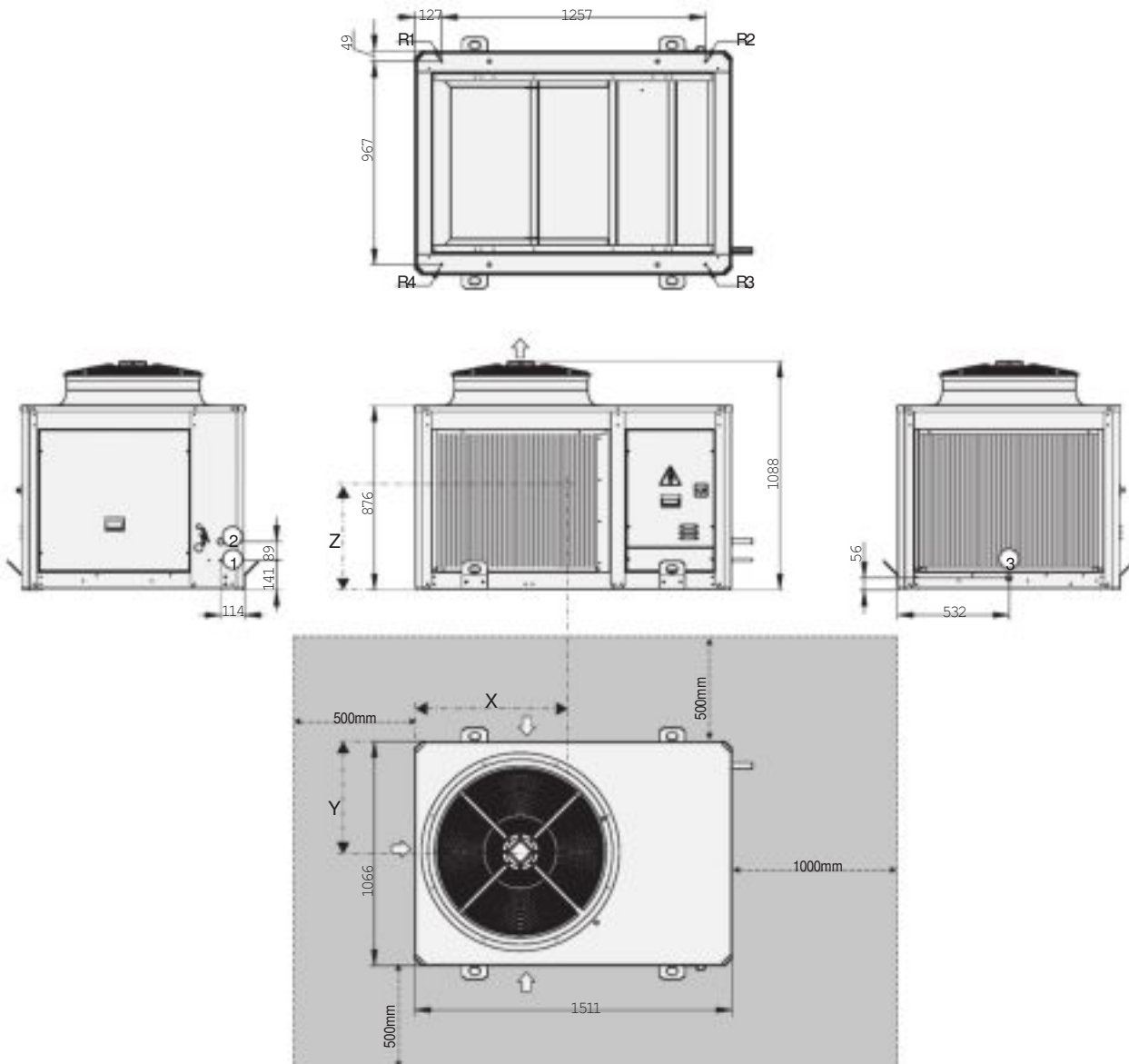


NOTE: Dimensions for indoor units (refer to the technical manual)

| Outdoor unit model | Dimensions (mm) | | | Weight (kg) | Outdoor unit model | Dimensions (mm) | | | Weight (kg) |
|--------------------|-----------------|-------|-------|-------------|--------------------|-----------------|-------|-------|-------------|
| | A | B | C | | | A | B | C | |
| RSC/ISC 90 U | 1 511 | 1 066 | 1 088 | 275 | RSC/ISC 240 U | 1 811 | 1 066 | 1 763 | 492 |
| RSC/ISC 100 U | 1 511 | 1 066 | 1 088 | 281 | RSC/ISC 320 U | 1 811 | 1 066 | 2 063 | 544 |
| RSC/ISC 120 U | 1 511 | 1 066 | 1 413 | 317 | RSC/ISC 360 U | 2 201 | 2 069 | 1 966 | 974 |
| RSC/ISC 160 U | 1 511 | 1 066 | 1 413 | 326 | RSC/ISC 420 U | 2 201 | 2 069 | 1 966 | 1 024 |
| RSC/ISC 180 U | 1 511 | 1 066 | 1 413 | 368 | RSC/ISC 485 U | 2 201 | 2 069 | 1 966 | 1 029 |
| RSC/ISC 182 U | 1 511 | 1 066 | 1 413 | 388 | RSC/ISC 540 U | 2 201 | 2 069 | 1 966 | 1 078 |
| RSC/ISC 200 U | 1 811 | 1 066 | 1 763 | 490 | RSC/ISC 600 U | 2 201 | 2 069 | 1 966 | 1 127 |

DIMENSION DRAWINGS

SC - 90 and 100 (mm)



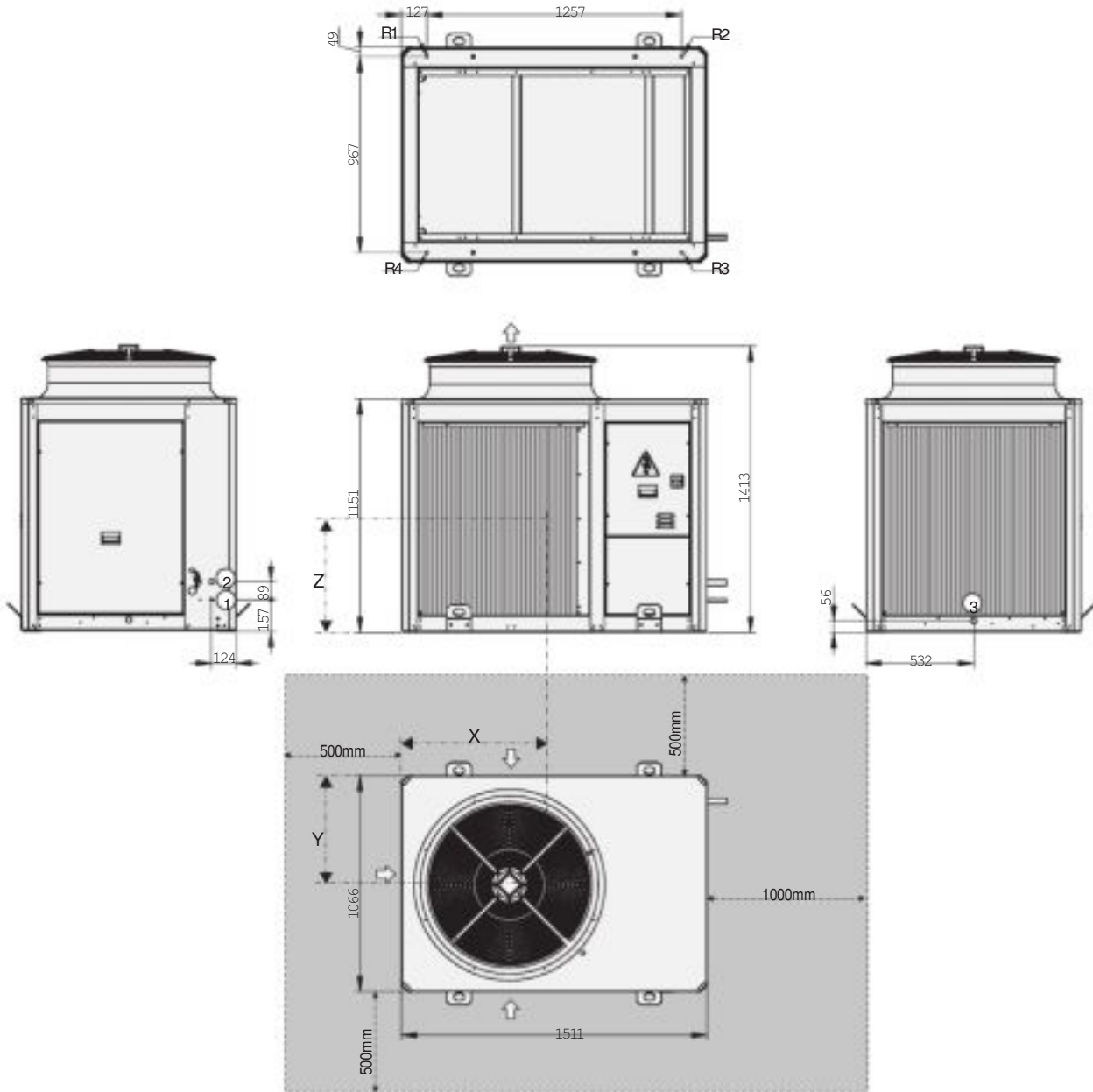
LEGEND

- Outdoor air circulation
- Electric panel
- Electric power supply
- Door switch
- Liquid line
- Gas line
- Condensate outlet: pipe 22 mm (optional)

Antivibration anchoring: rivet nut M10

Clear space to be observed for maintenance operations and unit start-up

| SC | Centre of gravity (mm) | | | Reactions in the supports (kg) | | | | |
|-----|------------------------|-----|-----|--------------------------------|----|-----|----|----|
| | X | Y | Z | Weight | R1 | R2 | R3 | R4 |
| 90 | 945 | 602 | 440 | 275 | 58 | 99 | 80 | 38 |
| 100 | 945 | 602 | 440 | 281 | 59 | 102 | 81 | 39 |

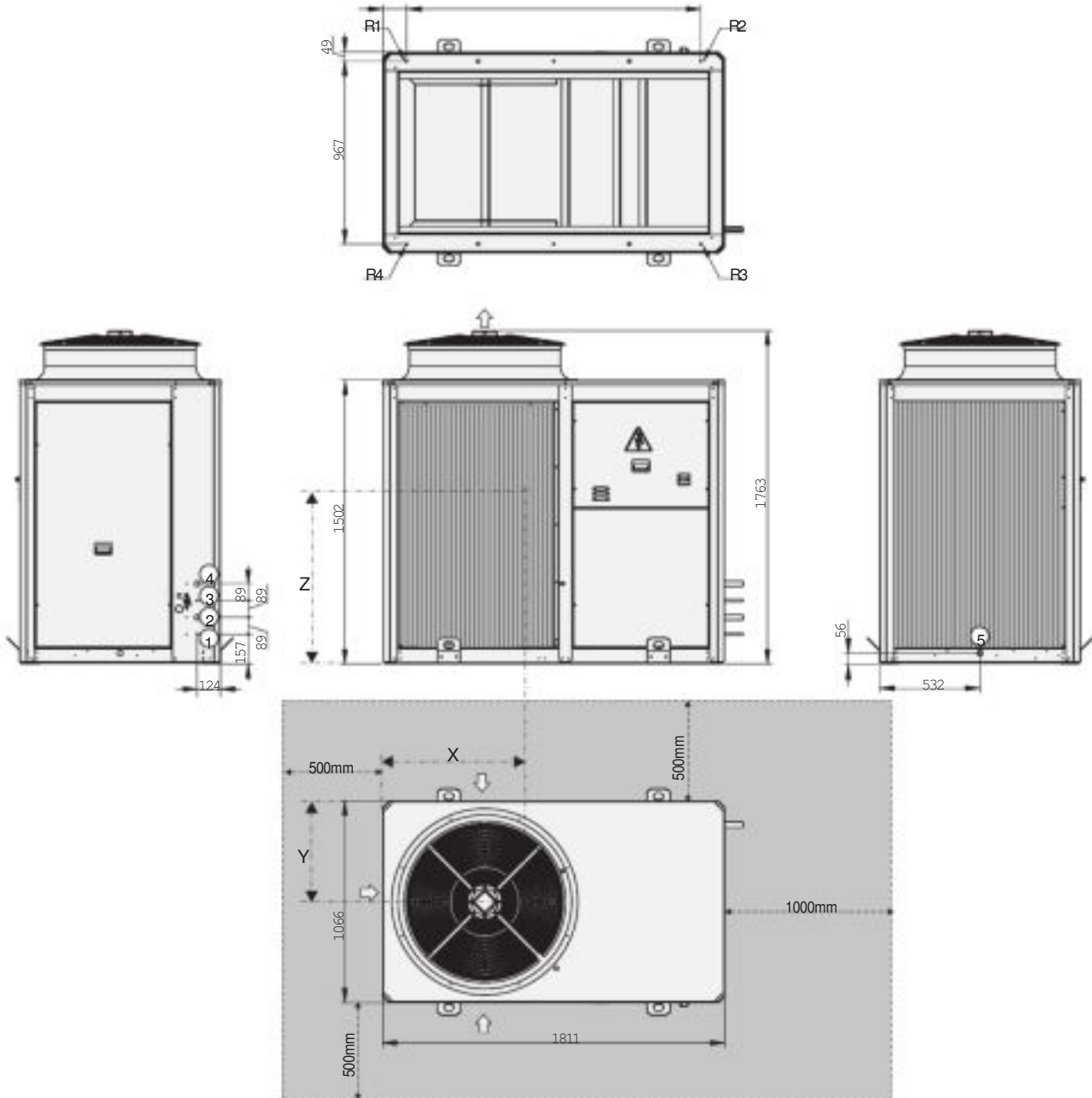
SC - 120, 160, 180 and 182 (mm)


3

LEGEND

- Outdoor air circulation
 - Electric panel
 - Electric power supply
 - Door switch
 - Liquid line
 - Gas line
 - Condensate outlet: pipe 22 mm (optional)
- Antivibration anchoring: rivet nut M10
- Clear space to be observed for maintenance operations and unit start-up

| SC | Centre of gravity (mm) | | | Reactions in the supports (kg) | | | | |
|-----|------------------------|-----|-----|--------------------------------|----|-----|-----|----|
| | X | Y | Z | Weight | R1 | R2 | R3 | R4 |
| 120 | 908 | 595 | 589 | 317 | 70 | 109 | 88 | 50 |
| 160 | 913 | 595 | 593 | 326 | 72 | 112 | 91 | 51 |
| 180 | 909 | 584 | 512 | 368 | 79 | 124 | 105 | 60 |
| 182 | 909 | 584 | 512 | 388 | 84 | 131 | 110 | 63 |

SC - 200 and 240 (mm)

LEGEND

- Outdoor air circulation
- Electric panel
- Electric power supply
- Door switch
- Liquid line circuit 1
- Gas line circuit 1
- Liquid line circuit 2
- Gas line circuit 2
- Condensate outlet: pipe 22 mm (optional)

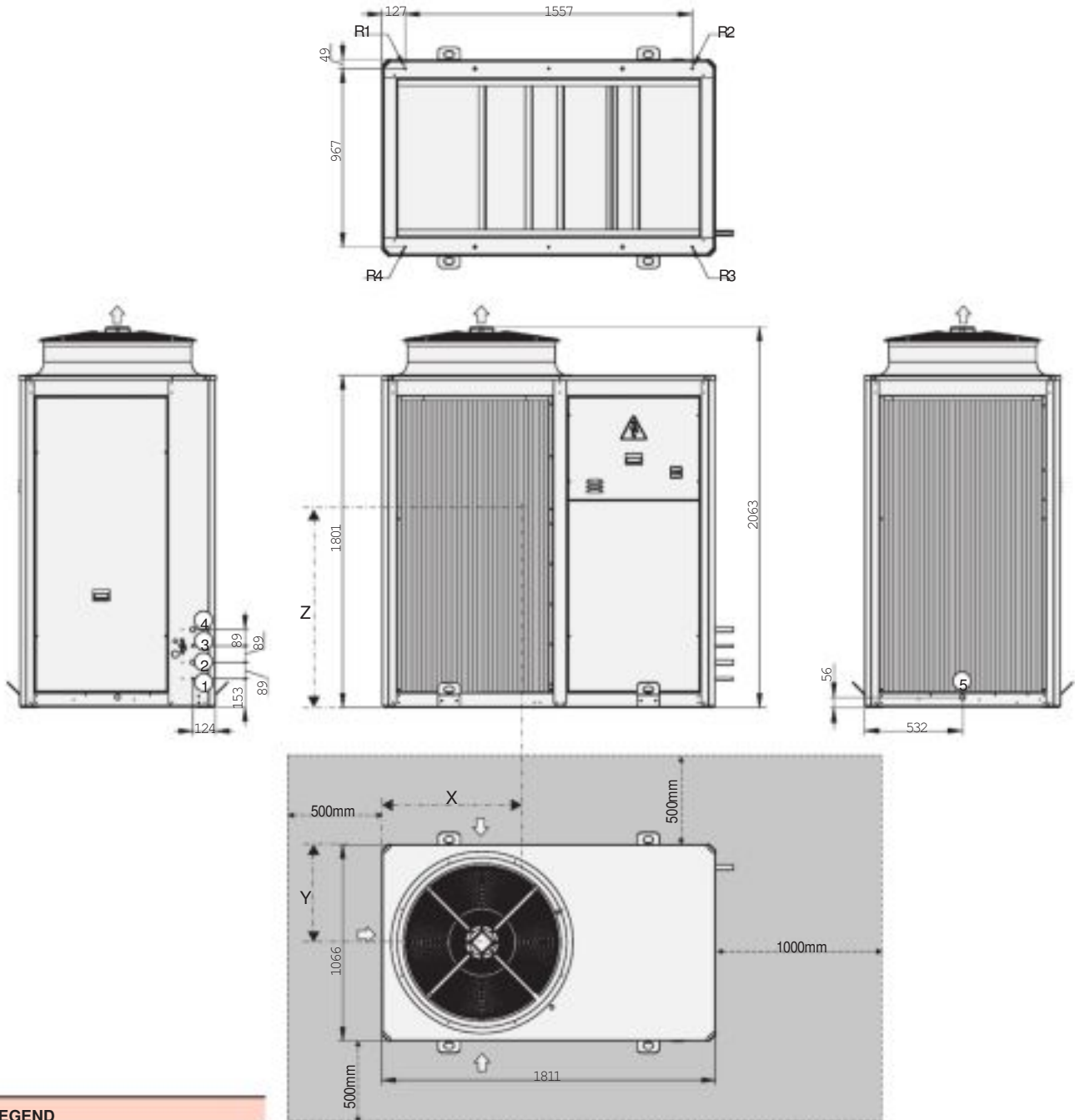
Antivibration anchoring: rivet nut M10

Clear space to be observed for maintenance operations and unit start-up

| SC | Centre of gravity (mm) | | | Reactions in the supports (kg) | | | | |
|-----|------------------------|-----|-----|--------------------------------|-----|-----|-----|----|
| | X | Y | Z | Weight | R1 | R2 | R3 | R4 |
| 200 | 1.029 | 610 | 658 | 490 | 118 | 166 | 127 | 79 |
| 240 | 1.030 | 609 | 657 | 492 | 123 | 162 | 123 | 84 |

DIMENSION DRAWING

SC - 320 (mm)



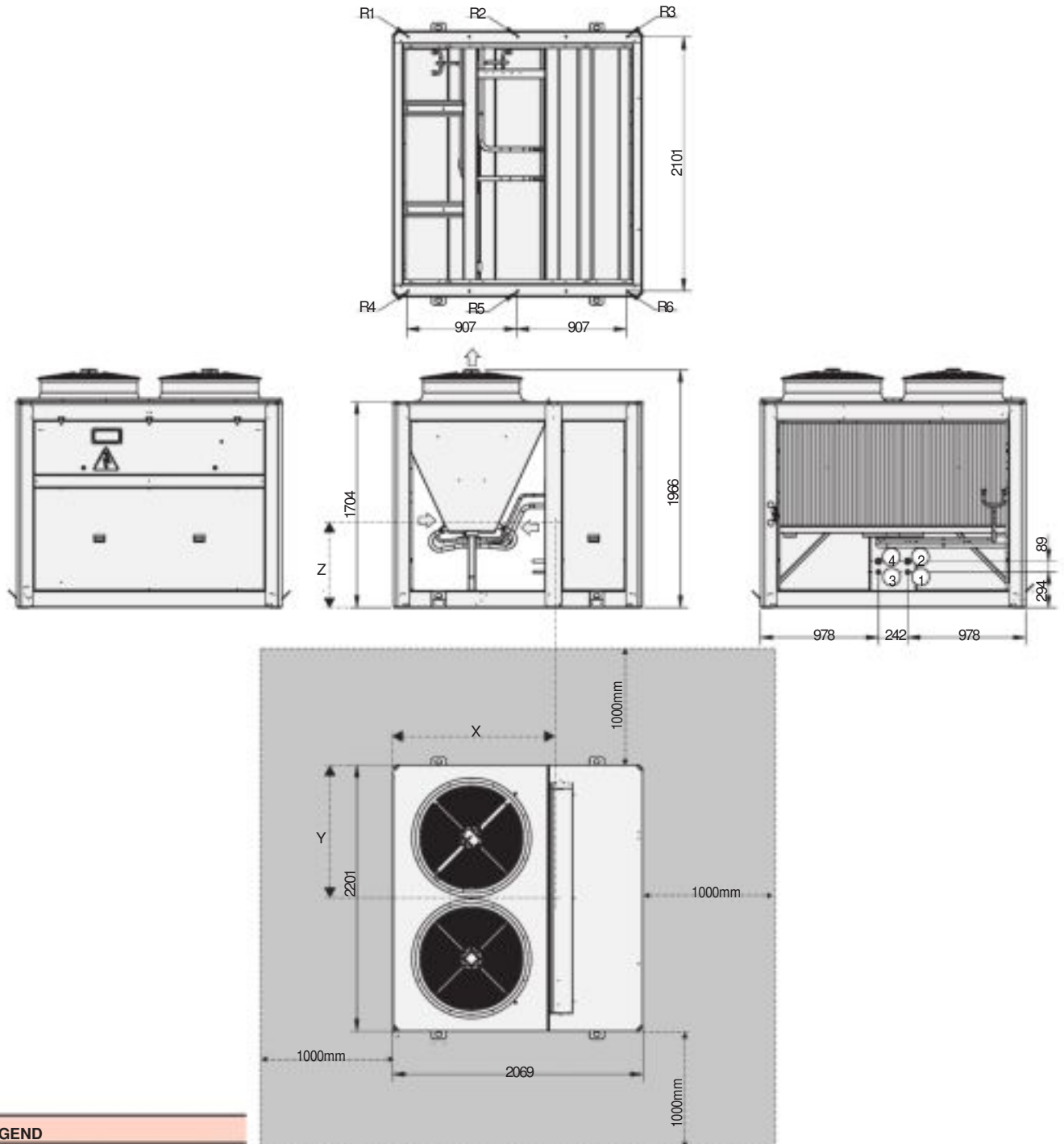
LEGEND

- Outdoor air circulation
- Electric panel
- Electric power supply
- Door switch
- Liquid line circuit 1
- Gas line circuit 1
- Liquid line circuit 2
- Gas line circuit 2
- Condensate outlet: pipe 22 mm (optional)

Antivibration anchoring: rivet nut M10

Clear space to be observed for maintenance operations and unit start-up

| SC | Centre of gravity (mm) | | | Reactions in the supports (kg) | | | | |
|-----|------------------------|-----|-----|--------------------------------|-----|-----|-----|----|
| | X | Y | Z | Weight | R1 | R2 | R3 | R4 |
| 320 | 1.019 | 605 | 777 | 544 | 136 | 176 | 136 | 96 |

SC - 360, 420, 485, 540 and 600 (mm)

LEGEND

- Outdoor air circulation
- Electric panel
- Electric power supply
- Door switch
- Liquid line circuit 1
- Gas line circuit 1
- Liquid line circuit 2
- Gas line circuit 2

Antivibration anchoring: rivet nut M12

Clear space to be observed for maintenance operations and unit start-up

| SC | Centre of gravity (mm) | | | Reactions in the supports (kg) | | | | | | |
|------------|------------------------|-------|-----|--------------------------------|----|-----|-----|----|-----|-----|
| | X | Y | Z | Weight | R1 | R2 | R3 | R4 | R5 | R6 |
| 360 | 1.280 | 1.110 | 795 | 974 | 62 | 235 | 194 | 59 | 232 | 191 |
| 420 | 1.254 | 1.111 | 807 | 1.024 | 73 | 247 | 197 | 70 | 244 | 194 |
| 485 | 1.256 | 1.108 | 805 | 1.029 | 72 | 248 | 198 | 70 | 245 | 196 |
| 540 | 1.278 | 1.129 | 780 | 1.078 | 73 | 263 | 218 | 63 | 253 | 208 |
| 600 | 1.297 | 1.104 | 757 | 1.127 | 66 | 271 | 229 | 65 | 269 | 228 |

CZ

Indoor units



Configuration flexibility
Silent operation



Cooling & heating



Air filtration



Free cooling



R410A

Cooling capacity: 20 to 135 kW

Heating capacity: 20 to 145 kW

DESCRIPTION

Indoor units with horizontal construction designed for installation indoors, connected to a network of ducts. They are equipped with centrifugal fan (EC plug-fan also available in models 90 to 360), and expansion valve. A vast number of options meet numerous operating demands. All of the units are tested and checked in the factory.

RANGE

- **1 circuit** : Models : 90 / 100 / 120 / 160 / 180 / 182.
- **2 circuits** : Models : 200 / 240 / 320 / 360 / 420 / 485 / 540 / 600.

UNIT COMPONENTS

- Casing made of galvanised steel metal with polyester paint, white colour RAL 7035. Self-supporting frame.

■ Indoor air circuit

- Coil(s) with copper pipes and aluminium fins.
- Centrifugal fan(s) coupling by pulleys and belts. Electric motor(s) with tensioner, class F, IP55 and internal thermal protection. Double-intake turbines, with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required.
- Reusable air filters, assembled on a frame.
- Condensate drain pan.

■ Cooling circuit

- Thermostatic expansion valve(s) with external equalisation (check valve in ICZ series).

■ Protections

- Main door switch.

OPTIONAL

■ Outdoor environment

Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating (indoor unit and/or hot water coil).
- Condensates drain pan in stainless steel.

Humidity

- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.
- Stop-drop in the outdoor air intake.

■ Comfort / heating options

- Hot water auxiliary coil, with three-way valve. Two options: Deux possibilités :
 - Nominal coil for heating in cooling-only units.
 - Auxiliary coil for heating in heat pump units.
- If the unit includes hot water coil and free-cooling, and works with negative temperatures of outdoor air, an anti-freeze thermostat as safety system is mandatory.
- Auxiliary electrical heaters. With this option, the air flow controller is included.

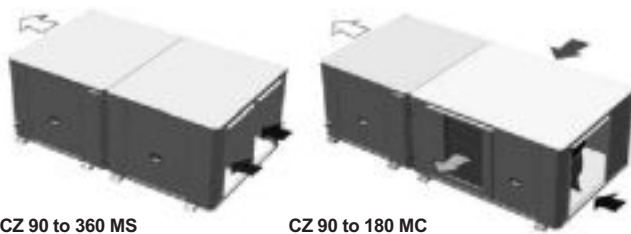
■ Comfort / indoor air quality options

- Filtration of the supply air:
 - Gravimetric filter G4.
 - Gravimetric filter G4 + creased opacimetric filters F6 to F9.
- Filtration of the return air (with centrifugal return fan):
 - Gravimetric filter G4.
 - Gravimetric filter G4 + creased opacimetric filters F6.

■ Installation

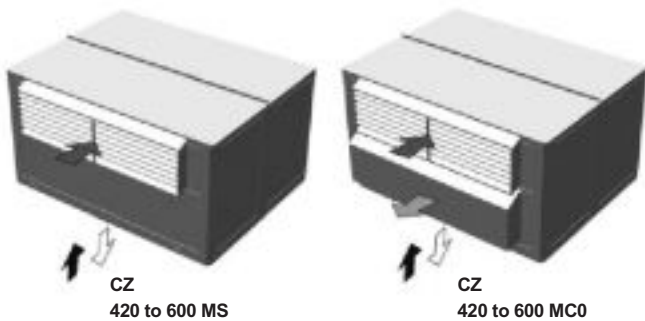
- Antivibration mounts made of rubber.
 - Position of supply and/or return of the indoor unit air.
 - Supply and/or return fan with high available pressure.
 - Electronic plug-fan(s) in air supply (upon request).
 - Assemblies with **mixing box** for air renewal and free-cooling:
 - 2 motorised dampers:
 - * MS assembly: outdoor air intake.
 - 3 motorised dampers:
 - * MC assembly: outdoor air intake, air extraction and centrifugal return (models 90 to 180 and 420 to 600) or plug-fan (models 420 to 600 with MC0 assembly).
- Note: Plug-fan in models 420 to 600 with MC0 assembly: upon request.

Toutes les combinaisons possibles de montage avec boîtes de mélange sont représentées sur la page suivante.



CZ 90 to 360 MS

CZ 90 to 180 MC


 CZ
420 to 600 MS

 CZ
420 to 600 MC0


CZ 420 to 600 MC1

Free-cooling

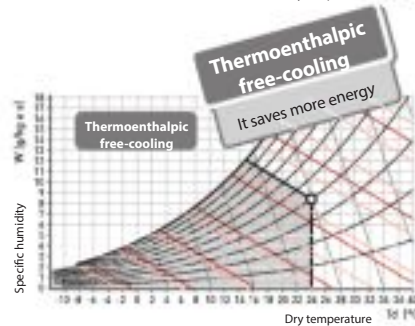
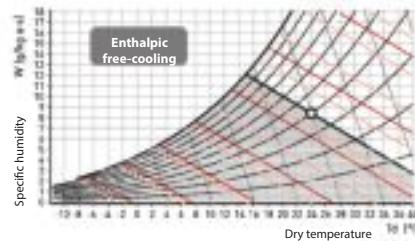
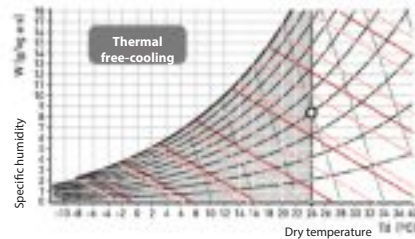


On units with mixing box, the free-cooling can be managed by the electronic control. This function allows the outdoor air conditions to be taken advantage of when these are more favourable than those of the return (or ambient) air.

As such, this allows the cooling capacity to be reduced under these circumstances. The percentage of air renewal will range from 0% to 100%.

There are three options for the free-cooling management:

- Thermal, with comparison of temperatures.
- Enthalpic, with comparison of enthalpies.
- Thermoenthalpic, with comparison of enthalpies and a correction for temperature.



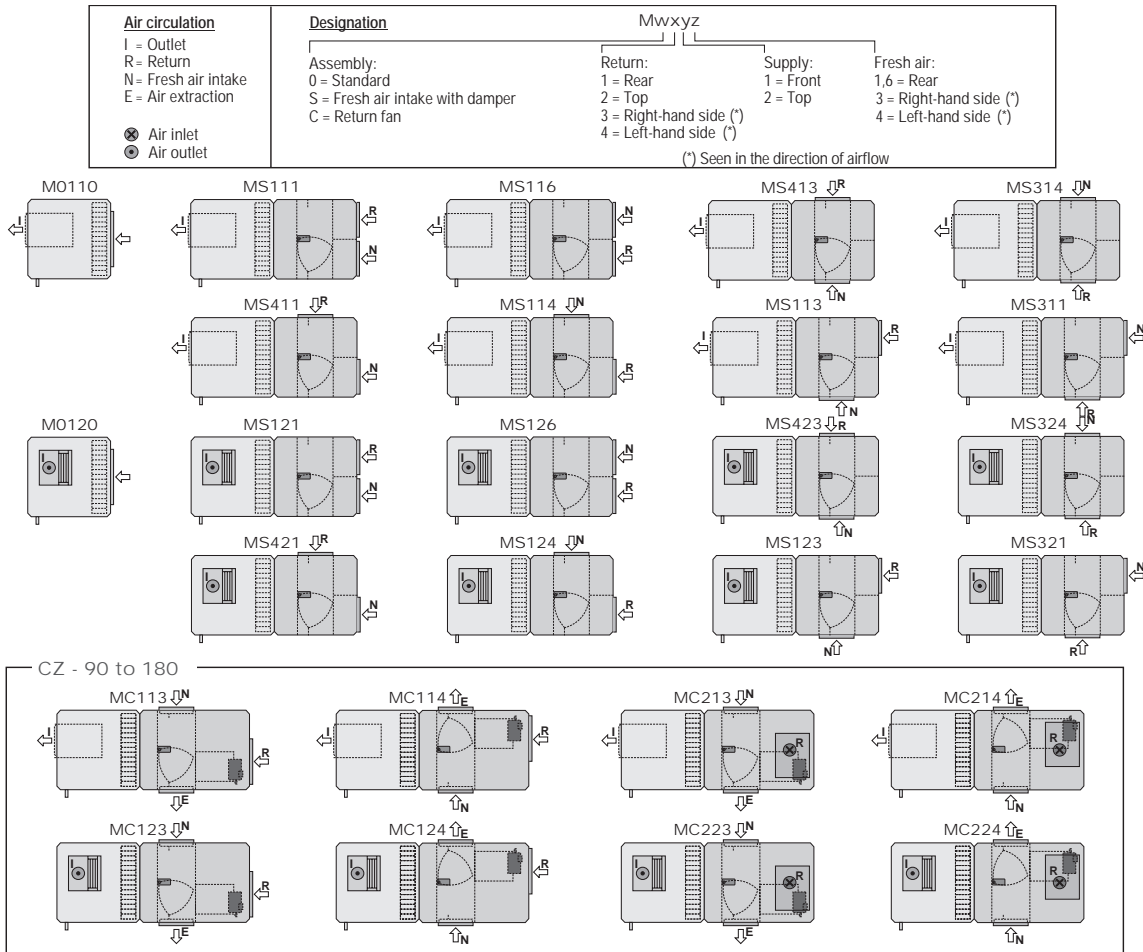
Note: With enthalpic or thermoenthalpic free-cooling change to the CIATrtc electronic control is obligatory

■ Safety

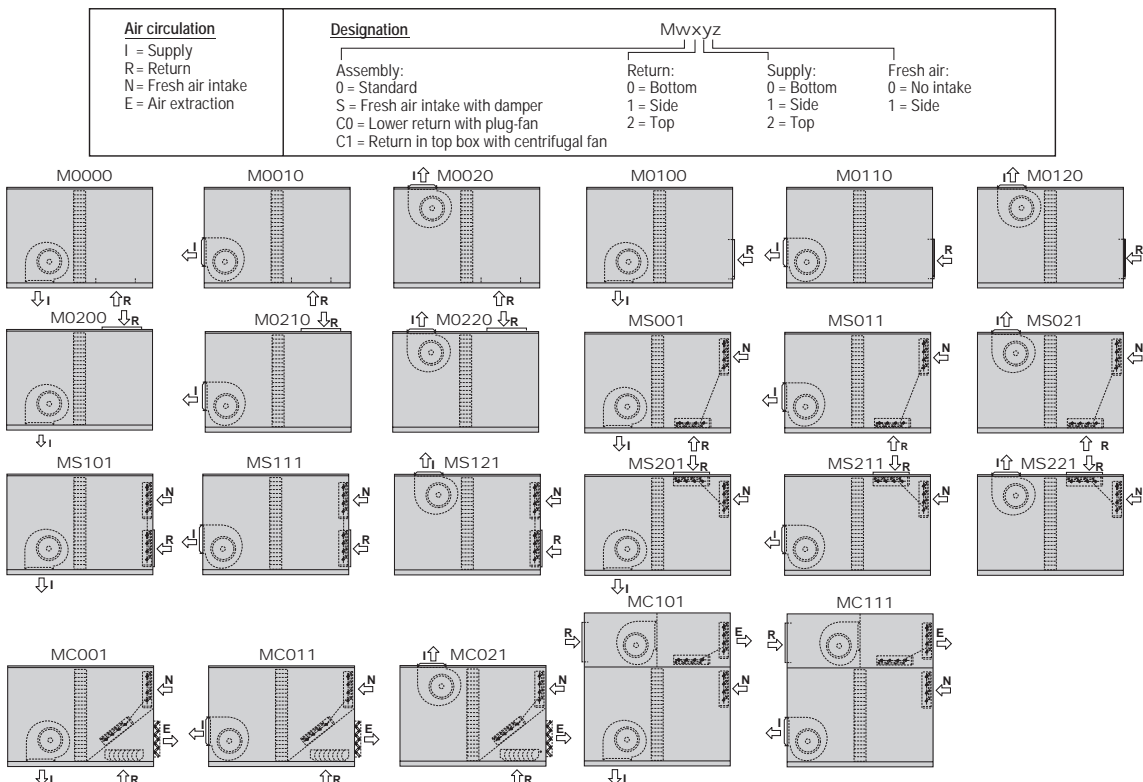
- Soft starter of the supply and/or return centrifugal fans which prolongs the set time mainly aimed at installations with cloth ducts. Compulsory for motors with an output of 15 kW and above.
- Differential pressostat for the detection of clogged filters.
- Differential pressostat for control of air flow.
- Smoke detecting station in accordance with the NF S 61-961 standard.
- Refrigerant leak detector (with CIATrtc control). This allows prompt identification of gas leaks, guaranteeing the safety of any people in the vicinity. Installation of the device ensures compliance with European standards F-GAS and EN378 as well as ASHRAE 15.



CZ - 90 to 360 : assemblies with mixing box (plan view)



CZ - 420 to 600 : assemblies with mixing box (raised view)



TECHNICAL CHARACTERISTICS

| CZ | | 90 | 100 | 120 | 160 | 180 | 182 | 200 | |
|-----------------------|--------------------------------------|-------|-------|-------|-------|-------|----------|----------|--|
| Centrifugal fan | Nominal air flow (m ³ /h) | 4.000 | 4.600 | 5.200 | 7.000 | 7.000 | 8.000 | 9.200 | |
| | Available static pressure (mm.w.c) | 15 | 15 | 15 | 15 | 15 | 15 | 20 | |
| | Number / turbines | 1 / 1 | | | | 2 / 2 | | | |
| | Motor output (kW) | 1,1 | 1,1 | 1,1 | 1,5 | 1,5 | 2 x 0,75 | 2 x 1,1 | |
| | Power input (kW) | 0,61 | 0,83 | 0,88 | 1,08 | 1,08 | 2 x 0,59 | 2 x 0,91 | |
| | Speed (r.p.m.) | 985 | 1049 | 916 | 761 | 761 | 963 | 1126 | |
| Max. absorbed current | Fan (A) | 2,7 | 2,7 | 2,7 | 3,6 | 3,6 | 4,2 | 5,4 | |
| Dimensions | Length (mm) | 1.190 | | | 1.520 | | 2.144 | | |
| | Width (mm) | 950 | | | 1.028 | | 950 | | |
| | Height (mm) | 731 | | | 731 | | 731 | | |
| Weight | (kg) | 147 | 147 | 190 | 199 | 199 | 262 | 262 | |

| CZ | | 240 | 320 | 360 | 420 | 485 | 540 | 600 | |
|-----------------------|--------------------------------------|----------|----------|----------|--------|--------|--------|--------|--|
| Centrifugal fan | Nominal air flow (m ³ /h) | 10.300 | 14.000 | 15.500 | 18.000 | 18.200 | 20.400 | 24.000 | |
| | Available static pressure (mm.w.c) | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| | Number / turbines | 2 / 2 | | | 1 / 3 | | | | |
| | Motor output (kW) | 2 x 1,5 | 2 x 1,5 | 2 x 2,2 | 4 | 4 | 4 | 5,5 | |
| | Power input (kW) | 2 x 0,94 | 2 x 1,15 | 2 x 1,39 | 2,52 | 2,82 | 2,96 | 3,40 | |
| | Speed (r.p.m.) | 974 | 789 | 816 | 677 | 677 | 643 | 681 | |
| Max. absorbed current | Fan (A) | 7,2 | 7,2 | 10,0 | 9,0 | 9,0 | 9,0 | 11,6 | |
| Dimensions | Length (mm) | 2.144 | 2.804 | | 2.853 | | | | |
| | Width (mm) | 950 | 1.028 | | 2.160 | | | | |
| | Height (mm) | 731 | 800 | | 1.524 | | | | |
| Weight | (kg) | 262 | 365 | 365 | 920 | 920 | 963 | 964 | |

SOUND LEVELS DB(A)

- Sound power level on the indoor unit

Sound power level in the indoor fan supply to be taken into account for the silencer calculation:

| CZ | 90 | 100 | 120 | 160 | 180 | 182 | 200 | 240 | 320 | 360 | 420 | 485 | 540 | 600 |
|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Total dB(A) | 79 | 82 | 80 | 80 | 80 | 82 | 85 | 82 | 83 | 85 | 86 | 87 | 89 | 92 |

OPTIONAL

- Lower radial centrifugal return fan (MC0 assembly)

| CZ | | 420 | 485 | 540 | 600 |
|---------------------------|---------------------|-----------------------|--------|--------|--------|
| Nominal air flow | (m ³ /h) | 18.000 | 18.200 | 20.400 | 24.000 |
| Available static pressure | (mm.w.c) | 21 | 21 | 19 | 17 |
| Number / diameter | | 4 / 500 | | | |
| Motor output | (kW) | 2 x (2,7 + 1,4) | | | |
| Speed | (r.p.m.) | 2 x 1,700 / 2 x 1,375 | | | |
| Maximum absorbed current | (A) | 14,6 | | | |

■ Centrifugal return fan (MC1 and MC2 assembly)

| CZ | | 90 | 100 | 120 | 160 | 180 | 420 | 485 | 540 | 600 | |
|---------------------------|---------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--|
| Nominal air flow | (m ³ /h) | 4.000 | 4.600 | 5.200 | 7.000 | 7.000 | 18.000 | 18.200 | 20.400 | 24.000 | |
| Available static pressure | (mm.w.c) | 15 | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | |
| Number / turbines | | 1 / 1 | | | | | 1 / 2 | | | | |
| Motor output | (kW) | 0,75 | 1,1 | 0,75 | 1,1 | 1,1 | 4 | 4 | 5,5 | 5,5 | |
| Power input | (kW) | 0,48 | 0,65 | 0,58 | 0,72 | 0,72 | 2,73 | 2,85 | 3,57 | 3,86 | |
| Speed | (r.p.m.) | 834 | 882 | 689 | 578 | 578 | 602 | 616 | 644 | 619 | |
| Maximum absorbed current | (A) | 2,1 | 2,7 | 2,1 | 2,7 | 2,7 | 9,0 | 9,0 | 11,6 | 11,6 | |

■ Nominal hot water coil

Hot water coil assembled inside the unit with a three-way valve managed by the unit control for heating in cooling-only unit.

| CZ | | 90 | 100 | 120 | 160 | 180 | 182 | 200 | 240 | 320 | 360 | 420 | 485 | 540 | 600 | |
|-----------------------------------|---------------------|---------------------|------|------|--------|------|------|------|------|--------|-------|-------|-------|-------|-------|-------|
| Air pressure drop | (mm.w.c) | 3,0 | 3,8 | 4,7 | 4,4 | 4,4 | 2,8 | 3,5 | 4,1 | 3,6 | 4,2 | 2,0 | 2,1 | 2,5 | 3,2 | |
| Water 80/60°C and inlet air 20°C | Heating capacity | (kW) | 29,1 | 31,7 | 34,2 | 57,9 | 57,9 | 71,2 | 77,6 | 83,0 | 121,2 | 128,9 | 172,3 | 173,5 | 186,3 | 205,5 |
| | Water flow | (m ³ /h) | 1,3 | 1,4 | 1,5 | 2,6 | 2,6 | 3,2 | 3,4 | 3,7 | 5,4 | 5,7 | 7,4 | 7,5 | 8,0 | 8,8 |
| | Water pressure drop | (m.w.c) | 0,3 | 0,4 | 0,4 | 1,4 | 1,4 | 0,7 | 0,9 | 1,0 | 2,1 | 2,3 | 0,3 | 0,3 | 0,3 | 0,4 |
| Water 90/70°C and inlet air 20°C | Heating capacity | (kW) | 36,2 | 39,5 | 42,7 | 71,4 | 71,4 | 87,8 | 95,9 | 102,6 | 148,9 | 158,4 | 212,9 | 214,5 | 230,5 | 254,7 |
| | Water flow | (m ³ /h) | 1,6 | 1,8 | 1,9 | 3,2 | 3,2 | 3,9 | 4,3 | 4,6 | 6,6 | 7,0 | 9,2 | 9,2 | 9,9 | 11,0 |
| | Water pressure drop | (m.w.c) | 0,5 | 0,6 | 0,6 | 2,1 | 2,1 | 1,1 | 1,2 | 1,4 | 3,0 | 3,3 | 0,4 | 0,4 | 0,4 | 0,4 |
| Weight (empty) | (kg) | 10,4 | 10,4 | 10,4 | 16,3 | 16,3 | 23,4 | 23,4 | 34,4 | 34,4 | 34,4 | 34,4 | 62,5 | 62,5 | 62,5 | 62,5 |
| Diameter of hydraulic connections | | 1" | | | 1 1/4" | | | | | 1 1/2" | | | 2" | | | |

Note: with stop-drop in the indoor air coil it is not possible to assemble the hot water coil.

■ Auxiliary hot water coil

Hot water coil assembled inside the unit with a three-way valve managed by the unit control for back-up during heating in heat pump units. In this case the air inlet temperature matches the air supply temperature of the indoor coil.

| CZ | | 90 | 100 | 120 | 160 | 180 | 182 | 200 | 240 | 320 | 360 | 420 | 485 | 540 | 600 | |
|-----------------------------------|---------------------|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Air pressure drop | (mm.w.c) | 2,9 | 3,6 | 4,5 | 4,2 | 4,2 | 2,7 | 3,4 | 4,0 | 6,6 | 7,8 | 1,9 | 2,0 | 2,4 | 3,2 | |
| Water 80/60°C | Heating capacity | (kW) | 12,9 | 13,7 | 14,9 | 23,0 | 23,0 | 30,2 | 31,6 | 33,6 | 40,9 | 43,7 | 66,1 | 60,8 | 63,6 | 76,9 |
| | Water flow | (m ³ /h) | 0,6 | 0,6 | 0,7 | 1,0 | 1,0 | 1,3 | 1,4 | 1,5 | 1,8 | 1,9 | 2,9 | 2,7 | 2,8 | 3,4 |
| | Water pressure drop | (m.w.c) | 0,1 | 0,1 | 0,2 | 0,5 | 0,5 | 0,4 | 0,5 | 0,5 | 0,8 | 0,9 | 0,6 | 0,5 | 0,6 | 0,8 |
| Water 90/70°C | Heating capacity | (kW) | 17,9 | 19,2 | 20,8 | 31,5 | 31,5 | 41,2 | 43,5 | 46,5 | 56,3 | 60,1 | 90,1 | 85,0 | 89,8 | 106,1 |
| | Water flow | (m ³ /h) | 0,8 | 0,9 | 0,9 | 1,4 | 1,4 | 1,8 | 1,9 | 2,0 | 2,5 | 2,6 | 4,0 | 3,8 | 3,9 | 4,6 |
| | Water pressure drop | (m.w.c) | 0,2 | 0,3 | 0,3 | 0,8 | 0,8 | 0,8 | 0,9 | 1,0 | 1,4 | 1,6 | 1,1 | 1,0 | 1,1 | 1,5 |
| Weight (empty) | (kg) | 7,8 | 7,8 | 7,8 | 11,0 | 11,0 | 16,3 | 16,3 | 16,3 | 16,3 | 16,3 | 38,4 | 38,4 | 38,4 | 38,4 | |
| Diameter of hydraulic connections | | 3/4" | | | | | 1" | | | | | | | | | |

Note: with stop-drop in the indoor air coil it is not possible to assemble the hot water coil.

ELECTRICAL HEATERS

- Important: with this option, the air flow controller is included.
- Standard assembly in two stages (optional assembly in one stage with no over price).
- In the case of two indoor units with the one outdoor unit the assembly of the support is not possible in two stages (each indoor unit is equivalent to 1 stage).

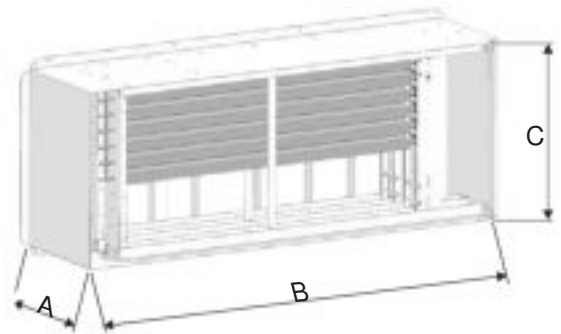
■ Models 90 to 360 (assembled in the fan outlet): available capacities

| CZ | Total output (kW) | 6 | 9 | 12 | 15 | 18 | 24 | 30 | 36 | |
|---|-----------------------------|-------------|-------|-------|-------------|-------|-------------|---------|---------|--|
| | Stage power (kW) | 3 + 3 | 3 + 6 | 6 + 6 | 6 + 9 | 9 + 9 | 12 + 12 | 15 + 15 | 18 + 18 | |
| Current (A) (400V / IIIph / 50Hz) | 90 / 100 / 120 | 8,7 | 13,0 | 17,3 | unavailable | | | | | |
| | 160 / 180 | unavailable | | 17,3 | 21,7 | 26,0 | unavailable | | | |
| | 182 / 200 / 240 / 320 / 360 | unavailable | | | 21,7 | 26,0 | 34,6 | 53,4 | 52,0 | |

Note: in models with centrifugal return fan it is not possible to assemble electrical heaters with outputs of 30 and 36 kW..

■ Frame for assembly of the auxiliary heater in the supply fan outlet:

| CZ | Puissance totale (kW) | Dimensions (mm) | | |
|---------------------------------------|---------------------------------------|-----------------|-------|-----|
| | | A | B | C |
| 90 / 100 / 120 (1 supply outlet) | 6 / 9 kW (1 rang) | 150 | 482 | 443 |
| | 12 kW (2 rangs) | 262 | 482 | 443 |
| 160 / 180 (1 supply outlet) | 12 / 15 / 18 kW (1 rang) | 189 | 1.142 | 443 |
| 182 / 200 / 240 (2 supply outlets) | 15 / 18 kW (1 rang) | 189 | 1.142 | 443 |
| | 24 / 30 / 36 kW (2 rangs) | 297 | 1.142 | 443 |
| 320 / 360 (2 supply outlets) | 15 / 18 / 24 / 30 / 36 kW (1 rang) | 189 | 1.142 | 443 |



This frame is designed with side access for maintenance purposes.

In models 90 to 120 each of the rows of electrical heaters has an output of 1 kW. As from model 160, the output of each row will be 2 or 3 kW according to the total output.

In models with two supply fan outlets (two frames), as well as in the case of 1 supply outlet with 2 rails, the electrical heaters are distributed as symmetrically as possible between both frames.

■ Models 420 to 600 (assembled inside the unit): available capacities

| CZ | Total output (kW) | 36 | 45 | 54 | 72 |
|---|-------------------|-------------|---------|---------|----------------|
| | Stage power (kW) | 18 + 18 | 18 + 27 | 27 + 27 | 36 + 36 |
| Current (A) (400V / IIIph / 50Hz) | 420 / 485 | 52,0 | 65,0 | 78,0 | non disponible |
| | 540 / 600 | unavailable | 65,0 | 78,0 | 104,0 |

■ Stop-drop in the indoor air coil

Débit d'air à partir duquel il est recommandé d'installer un séparateur de gouttes après la batterie intérieure.

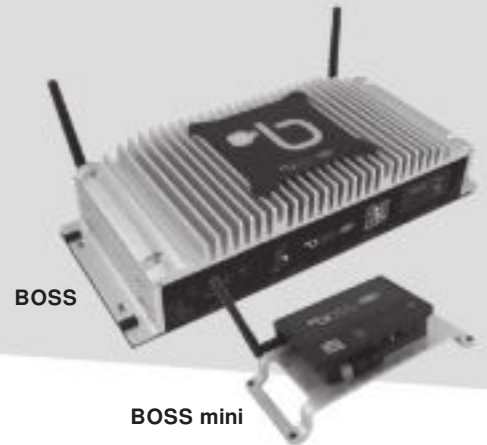
| CZ | | 90 | 100 | 120 | 160 | 180 | 182 | 200 | 240 | 320 | 630 | 420 | 485 | 540 | 600 |
|----------|---------------------|-------|-----|-------|-----|--------|-----|-----|--------|-----|--------|-----|-----|-----|-----|
| Air flow | (m ³ /h) | 5.246 | | 7.283 | | 11.110 | | | 16.566 | | 30.089 | | | | |

Note: for operating conditions with high dehumidification in the indoor coil (e.g. in installations close to the coast) it may be necessary to install a separator even if the flow is less than the previous one.

Note: with hot water coil (nominal or auxiliary) it is not possible to assemble the stop-drop.

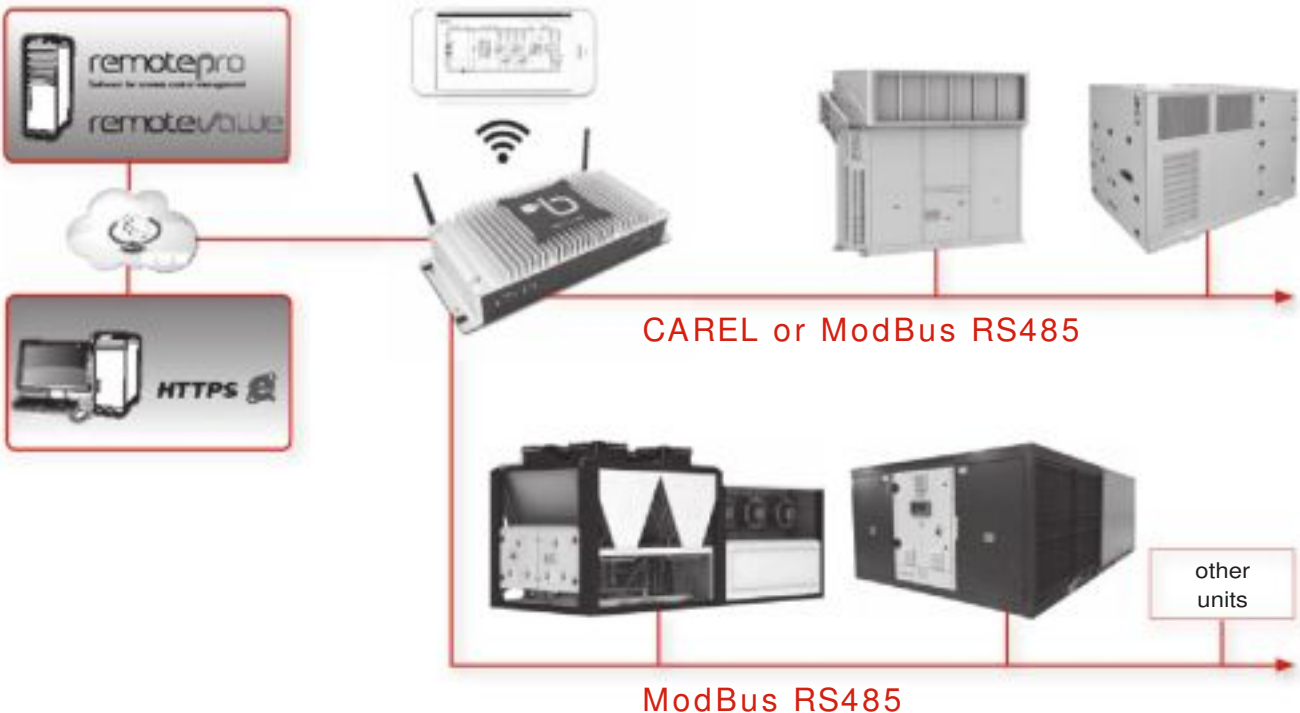
BOSS AND BOSS MINI SUPERVISION

System of connectivity, monitoring and remote management



The complete range for mobile-ready local supervision for medium and large sites

- Hotspot Wi-Fi integrated.
- Remote control.
- Supervisor BOSS: management of up to 300 units (with a total of 3500 variables).
- Supervisor BOSS mini: management of up to 50 units (with a total of 500 variables).
- Management of alarms.
- Creation of diagrams and reports.
- Scheduling and managing of events and operating scenarios.
- Installation drawing with location of machines.
- Energy management.
- Analysis of risks and critical monitoring points.
- Notes.



USE

CIAT BOSS SUPERVISION is a pre-installed PC-based solution for the management and supervision of large air conditioning facilities of up to:

- BOSS: 300 units (3500 variables in total);
- BOSS mini: 50 units (500 variables in total).

It implements advanced monitoring and maintenance functions and enables creating areas and groups which simplify the management of the installation. It integrates an installation drawing and the list of units.

Completely browsable from mobile devices, from

commissioning to daily access for system maintenance.

Built-in Wi-Fi to create a network and allow the supervisor to be accessed from the user's devices without requiring other network infrastructure.

The following controls can be managed:

- CIATrtc / AVANT / AVANT+ / CIATpool: CAREL or ModBus protocol.
- Vetic: ModBus protocol only .
- Other units (please consult us): ModBus protocol.

MAIN FEATURES



■ **BOSS always in your pocket**

Responsive web pages offer the possibility to access all BOSS pages for both programming and everyday operations using mobile devices. The graphics automatically to the device they are displayed on (computers with different screen resolutions, tablets, smartphones), minimising the need for the user to resize the pages and scroll the contents.

■ **Centralised management**

BOSS permits automatic data and alarm synchronisation with RemotePRO, so as to keep the situation on all connected systems under control from just one interface. Centralised system management also increases reliability, through alarm analysis and scheduling of service. It also allows increased energy efficiency by comparing energy consumption and performance between the different sites and identifying possible cost reduction actions.

■ **Remote service**

Access to typical operating system functions, such as printer driver installation, copying files, etc. is also available via a web interface, another first for a supervisory system. This means that remote service operations can be performed by authorised personnel without needing to travel on site, as is required with other supervisory systems.

PROTOCOLS AND CONNECTIVITY

For the first time ever on a CAREL supervisor, BOSS introduces the BACnet protocol, the leading protocol in HVAC supervision applications.

■ Integration of third party devices

This new feature significantly increases the possibility to integrate third party devices. The BACnet Master protocol is available in both MS/TP (RS485) and TCP/IP modes, and together with the Modbus RS485 and Modbus TCP/IP protocols, these too available on BOSS, offers the possibility to interact with the widest range of devices in the HVAC/R sector.

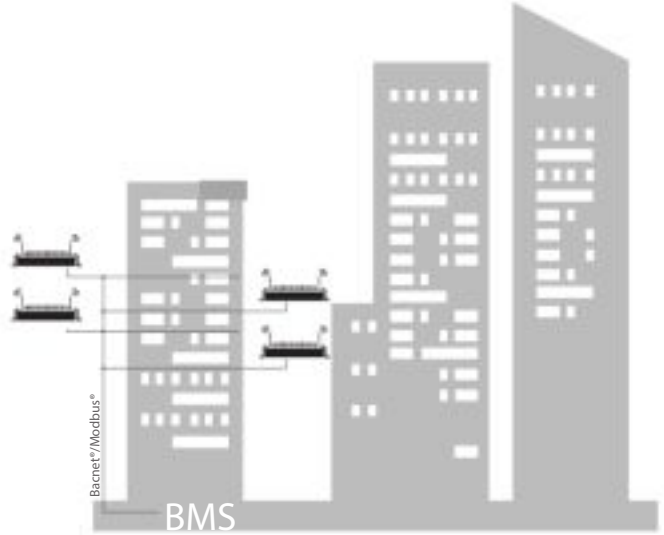
■ BMS integration

In addition to Master mode, the BACnet protocol is also available on BOSS in TCP/IP Slave mode, allowing BOSS to be integrated into a higher-level BMS, sharing the values of interest for overall building management (e.g. unit status, alarm status, ON/OFF controls,...)

■ Wireless field connectivity

If Modbus RTU devices cannot be connected directly to the BOSS / BOSS-mini RS485 network due to installation constraints, these can be integrated into the boss system via

its Wi-Fi network, using the WiFi-Modbus gateways. Nonetheless, when a wired connection is available, this is the preferred option due to its reliability.



SYSTEM OPTIMISATION FUNCTIONS (OPTIONAL)

■ KPI

Performance index. Allows users to analyse the thermodynamic behaviour of the individual units connected to BOSS.



■ Energy

Consumption control and management. Allows users to monitor system energy consumption using graphs and reports.



■ Floating suction

Optimised suction pressure. This is used to optimise the compressor rack working set point, thus reducing power consumption.



■ Dew point broadcast

Share the dew point. To optimise activation of the anti-sweat heaters on the refrigeration units.



■ Safe restore

Safe compressor rack restart. This is used to manage safe and optimum compressor rack restart following a fault.



■ Parameter control

Supervisor parameter. This is used to monitor all fundamental parameter setting actions on the units connected to the supervisor.



■ Logical device / ground

Logical devices & logical variables. This is used to create new "virtual" variables and devices on BOSS.



■ Algorithm pro

Customised logic. This is used to create additional customised logic using the Java programming language.



■ HVAC smart start

Optimised air-conditioning on/off. To optimise on/off and setpoint based on the ambient information acquired by BOSS.



■ Geo - lighting

Optimised management of lights based on outside light. Optimised switching on/off based on site latitude and longitude.



■ Smart high purge

Optimised free-cooling on HVAC units. The unit can be started before sunrise using calculations based on system enthalpy.



■ Usage balancer

Optimised unit capacity management, by reading the room temperature and humidity probes.



CUSTOMISED GRAPHICS

User interfaces that can be customised according to the way in which information is managed by different users.

With the c.web tool, system status and the main variables relating to each controller can be represented using customised graphics.

Indeed c.web offers several powerful features, such as :

- the creation of vectorial images that can adapt to all screen sizes on both desktop and mobile devices without losing resolution;
- the possibility to develop customised animated widgets in just a few clicks;
- the reusability of graphic libraries developed for one project inside another.



THE SAME HARDWARE IS SUITABLE FOR ALL APPLICATIONS

The absence of an internal fan and heat dissipation ensured by a robust aluminium casing mean BOSS / BOSS-mini can

be installed in many different environments, even industrial environments in which conditions are unfavourable.



TECHNICAL CHARACTERISTICS

■ Hardware characteristics:

- Power supply:
 - BOSS: 100-240 V~, 1,5 A max, 50-60 Hz
 - BOSS mini: 24 Vdc 1,5 A max
- Video output:
 - BOSS: VGA/Display Port
 - BOSS mini: micro HDMI
- Double Ethernet port
- Integrated backup memory expansion:
 - BOSS: YES with μ SD memory
 - BOSS mini: YES with SD memory
- Serial ports RS485 master:
 - BOSS: 2 opto-isolated
 - BOSS mini: 1 opto-isolated - 1 not opto-isolated
- Digital input : BOSS only
- Temporary IP address reset button: BOSS mini.
- Digital outputs:
 - BOSS : 3 relays : 24 V max, 8 A max
 - BOSS mini : 3 voltage outputs, +24 Vdc
- Standard HOST USB ports with type A connector :
 - BOSS : 2 ports on front; 4 ports at rear
 - BOSS mini : 1 port on front
- Buzzer : Max 80 dB at 10 cm, BOSS only
- Dimensions:
 - BOSS: 340 x 145 x 77 mm
 - BOSS mini: 202 x 100 x 53 mm
- Operating conditions: from 5 to 45 °C

- Storage conditions: from -20 to 65 °C
- Compliance: Directive 2014/35/EU (LVD) - Directive 2014/30/EU (EMCD) - Directive 2011/65/EU (RoHS)
- Pollution degree: 2 as per EN60950-1
- Chassis material: chassis made of SEEC (steel, electro-galvanized, cold-rolled), top and lateral casing in anodized aluminium

■ Software characteristics:

Software available in 14 languages with English remaining the second language for support. CIAT machine variables available in 3 languages: Spanish, English and French (please consult us for other languages).

BOSS Supervision system allows CIAT units with the following control systems to be integrated into the supervision network: CIATrtc / AVANT / AVANT+ / CIATpool or Vectic.

The Vectic control can only be installed on a line with the ModBus protocol. The other control systems can be configured with the CAREL or ModBus protocols.

The devices included in the system have a factory configuration for alarm priorities, recording frequency and the main page presentation.

The units can be connected to two RS485 ports on the BOSS system. It is possible to have additional lines by using RS232 RS485 converters on the USB ports.

Four secure access levels are available:

- Administrator (highest level).
- Installer (level 3).
- Maintenance (level 2).
- End user (level 1).

The highest level gives access to all the available functions.

CIAT CLEAN LINE™

Air scrubber



Portable solution

Multi purpose

Recirculation or negative air machine

HEPA filters with M5 pre-filter

Provides safety conditions for locals without fresh air entry

Multiple applications : commercial, healthcare, retail, education, hotel

*3 models :
Nominal airflow 1000 - 1800 - 2500 m³/h*

DESCRIPTION

- 3 models
- Pre-filter pleated synthetic material, M5
- High efficient long-life HEPA filters
- Nominal airflow 1000 – 1800 – 2500 m³/h
- Vertical design for smaller footprint compared to many competitors
- Portable and adaptable to nearly any installation
- Heavy duty locking casters for easy and smooth transport
- Red lighted indicator to alert user when filters are overloaded (generally means maintenance is required)
- 2.5 meters long power cord with strain relief
- Power cable access from rear of the unit
- Plug F / G / J type
- 230V / 50hz / 1Ph Power
- Chassis is made from galvanized steel, pre-painted and fully insulated
- Exhaust transition plate as an option
- Diffusion acoustic plenum



STANDARD FEATURES

The CIAT CLEAN LINE™ air scrubber machine is currently designed for commercial, healthcare and administrative applications.

Negative air operation mode

The CIAT CLEAN LINE™ negative air machine is a portable solution primarily designed to help convert normal hospital rooms into Airborne Infectious Isolation (AII) rooms. Designed to improve indoor air quality for those installations that have no possibility of fresh air inlet, CIAT CLEAN LINE™ uses highly efficient filters and a heavy duty, yet quiet, motor to remove contaminated air from the room. The resulting negative air pressure, or “vacuum effect,” helps limit the spread of air-based contaminants into surrounding areas.

Recirculation operation mode

If negative pressure is not required, such as in an open-air, temporary hospital, the machine can be used as an air “scrubber,” pulling air in, removing many contaminants, and discharging cleaner air back into the room. In the event of rooms with difficulties in obtaining satisfactory ventilation or to support existing ventilation, placing the equipment in the area to be treated mitigates the contaminant load. They must maintain a significant hourly air movement rate to support the RETENTION and INACTIVATION strategy.



CUSTOMER BENEFITS

At CIAT, we continue to innovate, seeking new solutions that will improve the quality of HVAC and air conditioning installations. Our experts will advise you on your path towards buildings with healthier, safer and more productive environments, through increasingly efficient and environmentally responsible solutions.



PLUG & PLAY DESIGN

The design of the equipment is made to simplify your installation as much as possible, making it easier to use for any application.



100% CONFIGURABLE

The equipment has different filtration HEPA stages and the possibility to include activated char-coal or germicide system (UV) as an option.



ACOUSTIC COMFORT

With low sound levels, this unit is ideal for use in spaces with permanent human occupation.



SELF CLEANING AND EASY MAINTENANCE

Smooth, screwless finishes and easy access to all parts of the unit make the CIAT CLEAN LINE™ easy to clean and maintain.



HIGH ENERGY EFFICIENCY

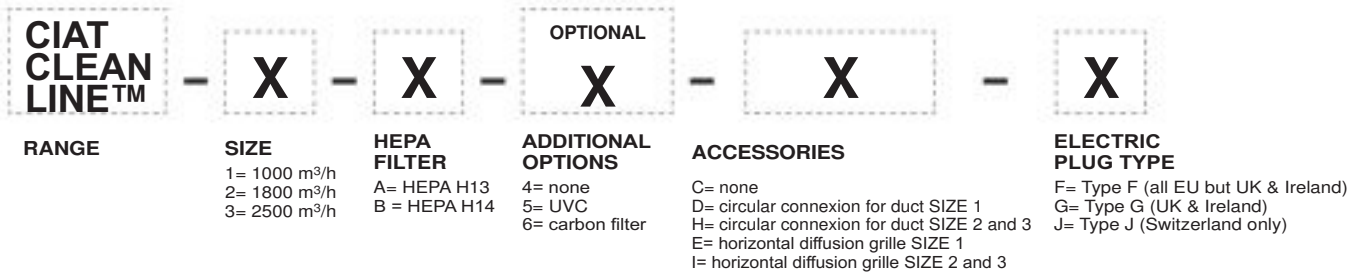
The high performance EC motor (with electronic switching) reduces power consumption.



GREAT VERSATILITY

The CIAT CLEAN LINE™ can be used in 2 different operating modes including negative air pressure and recirculation.

MODEL NUMBER NOMENCLATURE



AVAILABLE FEATURES

| FEATURES | BASIC | OPTIONS | FEATURES | BASIC | OPTIONS |
|--|-------|---------|---------------------------------------|-------|---------|
| Casing coated RAL 9010 (White) | X | | Start and Stop Switch | X | |
| Prefilter M5 | X | | Electrical connexion - 230V 1Ph 50 hz | X | |
| Absolute Filter H13 | X | | Power cable 2,5 m | X | |
| Absolute Filter H14 | | X | Filter clogging indicator | X | |
| EC Motor fan | X | | Adjustment potentiometer air flow | X | |
| Vertical Air diffusion grill | X | | Caster (wheels) 360 ° (2 lockable) | X | |
| Circular connexion for Duct (dimensions depending on size) | | X | Solution 1 Additional UV lamps device | | X |
| Additional plenum with horizontal diffusion grille | | X | Solution 2 Additional Carbon Filter | | X |

M5 PREFILTER

The M5 prefilter is installed as machine protection, extending the working life of the HEPA filters and improving the efficiency of the UV lamps.



M5 Prefilter

HEPA FILTERS: HIGH EFFICIENCY FILTRATION

Those filters have high filtration efficiency and are tested under Standard EN-1822 with MPPS (particle size more difficult to filter or particle size with the least total filtration efficiency). Viruses are normally transmitted through integration into two types of droplets or bioaerosols of human origin (sneezing, coughing, speech, breathing, etc.): “droplet” (droplets>5microns) and “droplet nuclei” (<5microns). The smaller the size, the longer they stay in the atmosphere. HEPA filters actively participate in the bioaerosol RETENTION strategy, mitigating the droplet transmission mechanism. Large filtrating area cell filters (depth 296 mm) have a much higher particle retention capacity than low-depth filters, significantly reducing their maintenance requirements and improving their amortisation. H13 HEPA filters efficiency is 99.95% regarding MPPS. H14 HEPA filters efficiency is 99.95% regarding MPPS.



HEPA filters

ACTIVATED CHARCOAL FILTRATION

As an air purifying complement, carbon filters with chemical adsorbent are able to eliminate odours by adsorbing gases such as hydrogen sulphide, dimethyl sulphide, mercaptans, nitrogen oxides, formaldehydes, VOCs, formol, ethylene, chlorine, ammonia, mercury, etc.



Charcoal filter

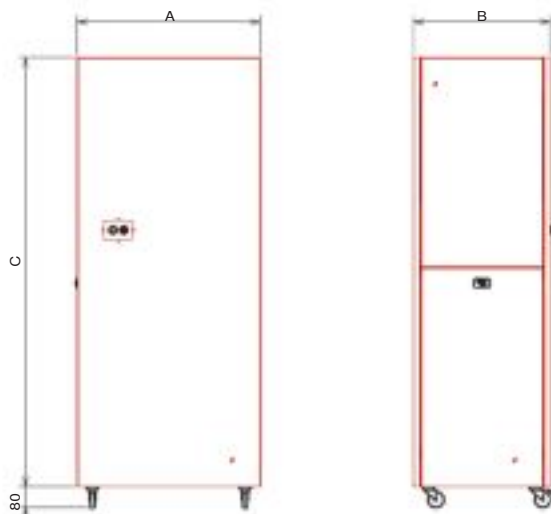
ULTRAVIOLET LAMPS

UV lamps are involved in the strategy of air cleaning, reducing the concentration pathogenic pollutants. UVC radiation inactivates and inhibits the replication of the nucleic acids (DNA and RNA) in micro-organisms (viruses, bacteria, etc.). Absorption of very high energy over a wavelength of 253 nm results in irreversible damage to the structure of nucleic acids and proteins at a molecular level (Ashrae Fundamentals, Ch. 62, Ultraviolet and surface treatment).

■ Technical features of the UV lamps option in CIAT CLEAN LINE™

| Model | Number of lamps | Power consumption in Watts | Total power consumption | Amperes (A) | Voltage(V) | Maximum intensity (A) |
|-----------------------|-----------------|----------------------------|-------------------------|-------------|------------|-----------------------|
| CIAT CLEAN LINE™ 1000 | 2 | 60 | 120 | 0,66 | 230 | 1,1 |
| CIAT CLEAN LINE™ 1800 | 4 | 60 | 240 | 1,32 | 230 | 2,2 |
| CIAT CLEAN LINE™ 2500 | 4 | 60 | 240 | 1,32 | 230 | 2,2 |

DIMENSIONS AND TECHNICAL DATA



| Dimensions (mm) | A | B | C |
|-----------------------|-----|-----|------|
| CIAT CLEAN LINE™ 1000 | 675 | 505 | 1580 |
| CIAT CLEAN LINE™ 1800 | 675 | 810 | 1710 |
| CIAT CLEAN LINE™ 2500 | 675 | 810 | 1710 |

■ Noise level acoustic spectrums (Lw = noise power level)

CIAT CLEAN LINE™ 1000

| Proportional potentiometer signal | RPM | Airflow (m³/h) | W | 125 | 250 | 500 | 1000 | 2000 | 4000 | Lw |
|-----------------------------------|------|----------------|-----|------|------|------|------|------|------|------|
| 2,5 V | 768 | 240 | 8 | 38,5 | 32,9 | 26,9 | 35,2 | 10,2 | 9,2 | 39,9 |
| 5 V | 1448 | 520 | 36 | 52,1 | 45,5 | 40,7 | 37,6 | 34,0 | 24,1 | 49,3 |
| 7,5 V | 2138 | 840 | 106 | 57,8 | 60,1 | 50,4 | 45,5 | 44,9 | 37,4 | 58,1 |
| 10 V | 2498 | 1000 | 169 | 61,3 | 59,8 | 52,8 | 49,5 | 48,7 | 42,2 | 62,1 |

CIAT CLEAN LINE™ 1800

| Proportional potentiometer signal | RPM | Airflow (m³/h) | W | 125 | 250 | 500 | 1000 | 2000 | 4000 | Lw |
|-----------------------------------|------|----------------|-----|------|------|------|------|------|------|------|
| 2,5V | 813 | 490 | 24 | 53,4 | 43,3 | 33,9 | 28,3 | 22,6 | 15,1 | 39,6 |
| 5V | 1653 | 1170 | 95 | 70,9 | 64,2 | 54,6 | 49,5 | 43,2 | 38,3 | 60,4 |
| 7,5V | 2526 | 1920 | 274 | 67,3 | 76,5 | 66,7 | 61,3 | 55,9 | 51,4 | 70,3 |
| 10V | 3219 | 2500 | 535 | 72,9 | 81,3 | 73,4 | 67,8 | 62,7 | 58,7 | 76,9 |

CIAT CLEAN LINE™ 2500

| Proportional potentiometer signal | RPM | Airflow (m³/h) | W | 125 | 250 | 500 | 1000 | 2000 | 4000 | Lw |
|-----------------------------------|------|----------------|-----|------|------|------|------|------|------|------|
| 2,5V | 573 | 600 | 29 | 54,6 | 40,6 | 34,9 | 29,0 | 21,2 | 15,4 | 40,3 |
| 5V | 1144 | 1550 | 139 | 72,0 | 60,6 | 53,5 | 47,3 | 39,6 | 35,1 | 58,3 |
| 7,5V | 1702 | 2560 | 420 | 76,8 | 73,6 | 65,1 | 58,9 | 51,9 | 47,2 | 68,4 |
| 10V | 2049 | 3110 | 741 | 73,7 | 80,1 | 69,8 | 64,4 | 57,8 | 53,0 | 72,6 |

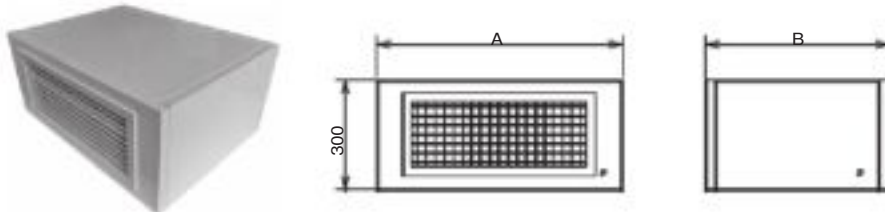
DIMENSIONS AND TECHNICAL DATA

- Duct connections for negative pressure



| Airflow | D |
|------------------------|-----|
| 2500 m ³ /h | 355 |
| 1800 m ³ /h | 355 |
| 1000 m ³ /h | 250 |

- Additional acoustic horizontal diffusor*



| Airflow | A | B | C |
|------------------------|-----|-----|------|
| 2500 m ³ /h | 675 | 810 | 1710 |
| 1800 m ³ /h | 675 | 810 | 1710 |
| 1000 m ³ /h | 675 | 505 | 1580 |

* 2 dba noise reduction of sound pressure level (Lp) at 1.5 m

OTHER INDOOR AIR QUALITY SOLUTIONS

CIAT has developed a comprehensive suite of innovative solutions aimed at ensuring healthier, safer, more efficient and productive indoor environments in key applications, such as commercial offices, healthcare, hospitality, education and retail. From products to improve indoor air quality and remote services to ventilation management of buildings, and comprehensive solutions in public spaces, CIAT is redefining the spaces of the future, today.

- A wide range of AHU's can be customised to each of the solutions, thanks to the wide variety of configurations available to meet the technical requirements of your project.
- Our control solutions optimise air quality at all times, improving comfort and efficiency.
- CIAT offers a wide range of services to monitor your buildings to make them safer and more efficient.





CIAT

HEAT PUMPS & WATER CHILLERS

AIR-COOLED UNITS

EREBAT[™] 04R-16R P.347

4 to 14kW 4 to 16kW

EREBAT[™] 17-21 P.363

15.2 to 19kW 16.9 to 20.7kW

AQUACIAT[™] LD/ILD R-32 P.375

LD 40 to 160kW ILD 40 to 150kW ILD 40 to 150kW

AQUACIAT^{CALEO™} TD P.399

20 to 101kW

AQUACIAT^{POWER™} LD/ILD R-32 P.413

170 to 940kW 160 to 520kW

POWERCIAT[™] LX P.443

277 to 1512kW

DYNACIAT[™] LGN P.471

23 to 175kW

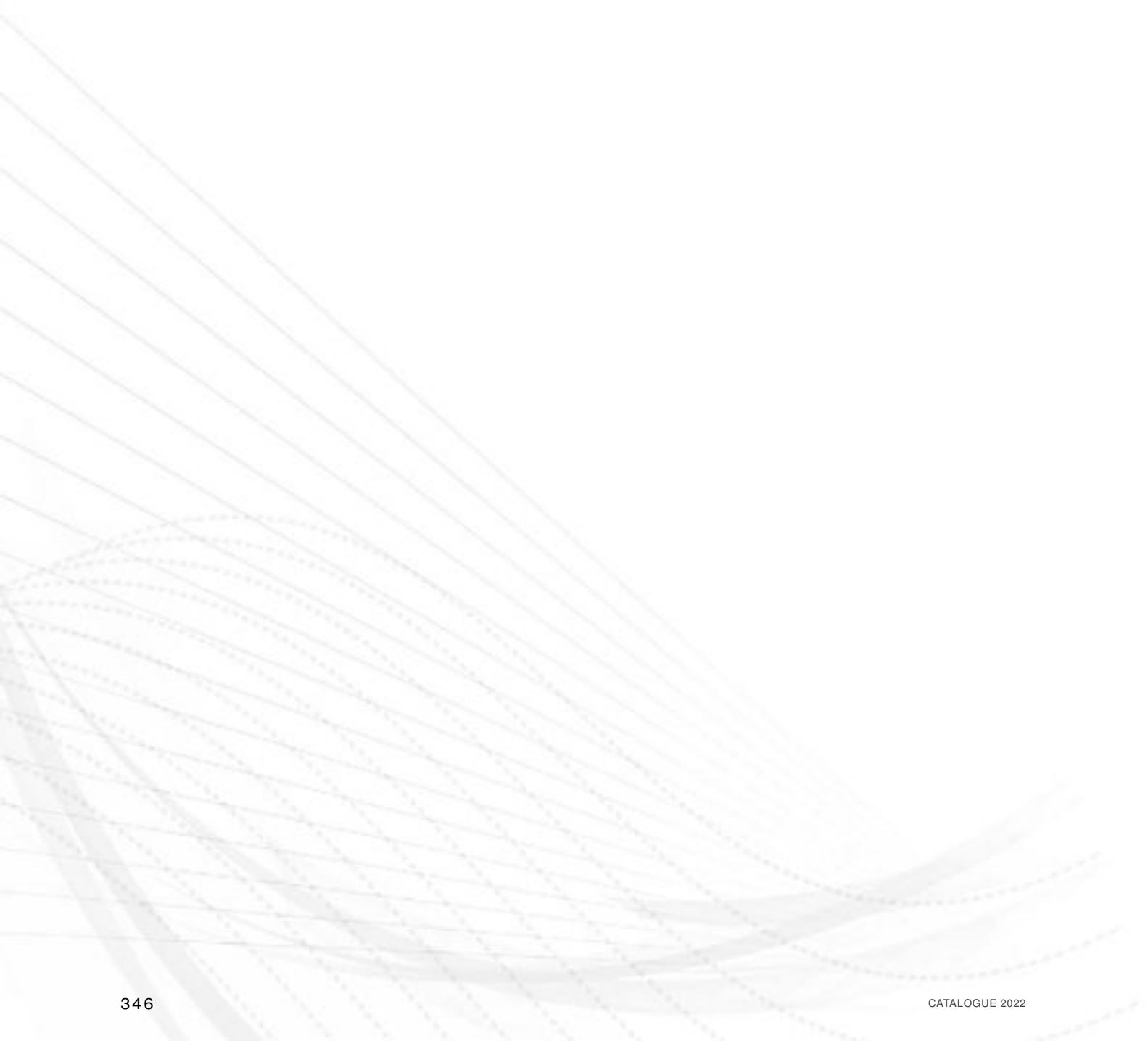
CONTROL AND SUPERVISION

POWER'CONTROL P.485

BluEdge[®] Digital P.487

BluEdge[®] digital is the new name for CIATM2M. Technology remains the same.

 Cooling  Heating



EREBA™ 04R-16R

Reversible air-to-water heat pump

NEW



Simple, reliable
High efficiency heat pump
Built-in hydraulic module

Nominal heating capacity: 4 to 16 kW
 Nominal cooling capacity: 4 to 14 kW



Cooling
and
heating



Hydraulic
module



Inverter



USE

The EREBA™ 04R-16R air-to-water heat pump is designed for heating and cooling applications in new and existing individual homes and small businesses.

When installed alone, the EREBA™ 04R-16R is compatible with low to medium temperature emitters (underfloor heating, fan coil units, water cassettes, radiators, mixed installations, etc.).

The EREBA™ 04R-16R heat pump is also compatible with medium to high temperature emitters for boiler back up operation.

The EREBA™ 04R-16R heat pump is installed outdoors in an open area.

Each device is tested in the factory and delivered ready for operation.

RANGES

The EREBA™ 04R-16R range of reversible heat pumps comprises 7 single-phase models and 3 three-phase models.

Operation in heating mode with an outdoor temperature of -25°C to 43 °C.

Operation in cooling mode with an outdoor temperature of -5°C to 50 °C.

If the heat pump is the only source of heat:

Below the equilibrium temperature, heating must be provided by another heating source or using an additional electrical supply actuated by the EREBA™ 04R-16R heat pump.

If the heat pump is used with back up operation: it operates down to the equilibrium point (temperature below which the heat pump can no longer keep up with heating requirements); below this point, the heat pump and boiler run together.

Compliance

EMC: Electromagnetic Compatibility directive 2014/30/EU
 RoHS: Restriction of Hazardous Substances directive 2011/65/EU
 Ecodesign 2009/125/EC
 Machinery 2006/42/EC

The new EREBAT[™] 04R-16R air-to-water reversible heat pumps, with Inverter technology, have been designed for residential applications and for light commercial installations. They offer excellent energy efficiency and quiet operation.

These units integrate : R32 refrigerant fluid, Twin Rotary DC Inverter compressors, a low-noise fan with an electronic control.

ErP READY Ecodesign is the European environmental design directive, aimed at improving the energy efficiency of energy-related products (ErP) through regulation. Ciat supports initiatives to reduce the environmental impact of its products.

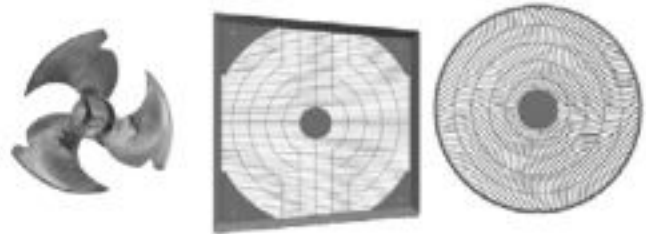
Specifications

- A vast operating range, both in cooling and heating mode, offering great performance across a broad range of temperatures.
- Twin Rotary DC Inverter compressors with pulse amplitude modulation (PAM) and pulse wave modulation (PWM) for increased reliability, reduced energy consumption and operation without vibrations, whatever the operating conditions.
- Variable speed fans with a low air-resistance blade design, ensuring better distribution of air at exceptionally low sound levels.
- Pre-configured or customisable water laws, for stable power levels which correspond to the losses.
- The option to connect and integrate the unit into existing heat sources or into an auxiliary heating source (approach with a single or dual energy source), which allows for increased savings and optimal comfort, no matter the weather conditions.
- Inlet and outlet connections to the three-way valve, to enable connection to a domestic hot water buffer tank, increase the flexibility of use, regardless of the application.
- A water outlet temperature of up to 62 °C for heating and domestic hot water in residential applications.
- For enhanced safety, an incoming alarm signal can force the unit to shut down, and is compatible with external safety devices or control systems.
- Outgoing signal making it possible to control the operation of a customer's accelerator pump or additional pump to increase the versatility of the installation.

Advanced technology

- Electronic system management: several sensors placed in key positions within the refrigerant circuit detect the operating status of the system. The micro-controls receive signals sent by the sensors; these are managed using advanced control algorithms and optimise the refrigerant flow rate and the operation of all the main components – the compressor, the fan motors, and the electronic expansion valve.
- The electronic expansion valve is an electronic dual-flow expansion device, which optimises the volume of refrigerant fluid present in the circuit and overheating, preventing the fluid from returning to the compressor. This device further improves system performance and reliability.
- The air management system, which comprises the axial flow fan, the orifice and the air discharge grille, guarantees minimised sound levels.

For single fan units For dual fan units



Axial fan blade and low pressure drop grille

- The coil has a blue hydrophilic coating which allows water to migrate more easily to the exchanger using gravity.

In particular, this innovation enables:

- the frosting time to be increased by reducing the accumulation of frost on the coil
 - better defrosting by improving the flow of water over the fins
- Operation in heating mode is thereby improved.

Advanced performances

- The EREBAT[™] 04R-16R heat pump offers extremely high energy efficiency, both in heating mode and in cooling mode, thereby guaranteeing significant energy savings.
 - Year-round comfort – the advanced technology used in the EREBAT[™] 04R-16R heat pump provides users with optimised levels of comfort, in terms of water temperature regulation and the low sound level.
- The required temperature is obtained rapidly, and kept constant, without any fluctuations. The EREBAT[™] 04R-16R heat pump offers optimised levels of comfort in both winter and summer.
- The EREBAT[™] 04R-16R heat pump can operate at low ambient temperatures in cooling mode (from outdoor temperatures of -5 °C to 50 °C).

To ensure the comfort of users, the units operate down to an outdoor temperature of -25 °C in heating mode, while in summer, they can produce hot water up to 62 °C for domestic hot water applications.

Environmental care

- R32 refrigerant with low GWP.
- R32: low environmental impact (ozone depletion potential =0, and Global Warming Potential = 675)
- Highly efficient, it enables a high energy efficiency ratio (EER) to be obtained.
- The components of the EREBA™ 04R-16R heat pumps are free from hazardous substances.
- The packaging offers increased protection during transport and handling, and is recyclable.

Quick and simple to install and maintain

- Easy access to all internal components: simply to remove the entire front panel, in order to access all of the components.
- 6 bar safety valve fitted as standard.
- Internal five-litre expansion vessel.
- Protection against high refrigerant temperatures.
- Water flow controller to ensure that the circuits contain enough water to operate correctly.
- Several options for the electrical cable outlets: prepunched holes in the casing panels enable the cable to be fed via the plate.
- The built-in hydraulic module reduces the space required and simplifies installation. Simply connect up all the connections: electrical, water supply, and return pipes.
- The mounting brackets have a specially designed shape to ensure that the unit is safely and securely attached to its base.

Twin Rotary DC Inverter compressors

- Advanced technology, which offers maximum energy efficiency, with high capacity available under peak conditions, and optimised efficiency at low and moderate compressor speeds. The EREBA™ 04R-16R heat pump uses IPDU (intelligent power drive unit) hybrid inverter technology, which combines two electronic control logics: pulse amplitude modulation (PAM) and pulse width modulation (PWM) to ensure the compressor provides optimised operation under all conditions, to minimise temperature fluctuations, and ensure perfect control of individual comfort, whilst significantly reducing energy consumption.
- PAM: the pulse amplitude modulation of the direct current controls the compressor under maximum load conditions (start-up and peak load), which increases the voltage at a fixed frequency. The compressor runs at a high speed to quickly reach the desired temperature.
- PWM: the pulse width modulation of the direct current controls the compressor at partial load conditions, adjusting the frequency at fixed voltage. The compressor speed is adjusted with precision, and the system offers an enhanced level of comfort (no fluctuations in temperature) in operating conditions with exceptional efficiency.
- The compressor frequency is increased continuously up to the maximum level. This ensures there are no current peaks during the start-up phase, and provides a secure connection to a single-phase current supply, even for large capacity systems.
- The two rotating compression cylinders, offset from one another by 180°, and the brushless DC motor with a perfectly balanced shaft, ensure that vibrations and noise are reduced to a minimum, even at very low operating speeds. This gives a very wide operating range between the minimum capacity and the maximum capacity in continuous operation, which guarantees that the system is always optimised and provides maximum comfort at exceptionally high levels of energy efficiency.
- The two rotating compression cylinders, the low vibrations and the low load imposed on the shaft ensure the compressor offers the best possible reliability and a long and trouble-free service life.
- All two-cylinder rotary compressors with a brushless DC inverter motor are equipped with crankcase heaters as standard.
- A double protective screen soundproofs the compressor, further reducing the sound levels.

Absolute reliability

- Exceptional endurance tests:
 - All the units undergo tests at various stages of their manufacture to ensure tightness of the circuits, electrical conformity, and to check the water and refrigerant pressure.
 - At the end of production, the unit's operating parameters are thoroughly tested.
 - Corrosion resistance test.
 - Accelerated ageing test on the critical components and on the fully-assembled units, simulating thousands of hours of continuous operation.
 - Impact testing on the packaging, to ensure that the units are suitably protected against accidental impacts.
 - Numerous, comprehensive test on-site.

Economical operation

- High energy efficiency:
 - The exceptionally high energy efficiency of EREBA™ 04R-16R heat pumps is the result of a long selection and optimisation process.
 - The use of ambient air as the main energy source in residential heating applications considerably reduces energy consumption and CO2 emissions.
 - Sleep mode, with reduced compressor speed at night, provides a low operating sound level, and significant reductions in energy consumption.

Inverter module board with embedded refrigerant cooling.

- EREBA™ 04R-16R is equipped with refrigerant cooling solution to protect PCB from overheating. This function is highly reliable thanks to enhanced and built-in refrigerant solution.

System Control

System control associate with compressor and fan variable frequency driver combines intelligence with operating simplicity.

The control constantly monitors all machine parameters and precisely manages the operation of compressor, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

■ Ease-of-use

- System control can be associated with a new User interface (WUI) which allow an easy access to the configuration parameters (frequency compressor, refrigerant circuit temperature, sets points, air temp, entering water temp, alarm report...).
- This user interface is also very intuitive in its use. It allows reading and easy selection of the operating mode. The functions are represented by icons on the LCD backlit screen.

To facilitate the use of this interface, 2 levels of access are available: end user, installer.

■ Key features

- Heating and cooling mode
- Predefined climatic curves (12) or customized climatic curve (Water temperature setpoint control)
- Air temperature set point control
- Scheduling mode
- Low noise level or night mode
- Antifreeze protection
- Backup electric heater controlled
- Backup by oil or gas boiler
- Hydraulic module with control of the flow rate
- Managed additional pumps
- Manage domestic hot water with or without
 - Anti-legionella mode
 - Auxiliary heater in the DHW tank
- ModBUS Protocol

■ Choice of control

Three options are available to actuate the EREBA™ 04R-16R heat pump :

- User interface WUI
- Dry contact
- ModBus protocol

User Interface WUI



This interface can be installed up to 10 m away.

The WUI has an internal sensor to measure the room temperature

Regulation can be based on the room air temperature.

■ Modbus

Direct access with Modbus connection to set, configure and monitor the EREBA™ 04R-16R unit.

■ Large choice of input contacts:

- Remote On/Off contact.
- Remote Heat/Cool Contact: This switch is used to select the Cooling Mode (contact opened) or the Heating Mode (contact closed).
- Remote Economic Contact: This switch is used to select the regular Home Mode when contact is opened or the Economic Away Mode when contact is closed.
- Safety Input Contact: This switch is normally closed type, according to configuration it is used either to stop the unit, to ban the Heating Mode or to ban the Cooling Mode when contact is opened.

Several functions can be configured by the installer. They allow to adapt to the environment of the machine:

- Power Limitation / Night Mode: This switch is used to reduce the compressor maximum frequency to avoid noise.
- Loadshed Request: If the General Purpose Contact, configured to "Loadshed Request", is closed then unit shall be loadshed the electrical heater output and gas boiler signal output.
- DHW Priority : When this input is closed, the unit is switching to Domestic Hot Water production regardless of the Space Heating demand and the current DHW schedule (need DHW sensor delivered in accessory).
- Anti-Legionella Cycle Request : When this input is closed, the Domestic Hot Water production is requested with the Anti-Legionella setpoint.

■ Output remote contact available

Two output contacts can be chosen on the board, based on the desired configuration:

Status: Alarm, Standby, Cooling Mode, Heating Mode, DHW Mode, defrost mode, unit under Modbus control.

PHYSICAL DATA

| EREBA™ 04R-16R | | | 4kW | 6kW | 8kW | 10kW | 12kW | 14kW | 16kW | |
|--|--|------------------------------------|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 3,98 | 5,85 | 8,02 | 10,09 | 12,17 | 13,81 | 15,84 |
| | | COP | kW/kW | 4,85 | 4,65 | 4,76 | 4,40 | 4,95 | 4,69 | 4,60 |
| | HA2 | Nominal capacity | kW | 3,99 | 5,92 | 7,95 | 9,81 | 11,93 | 13,90 | 15,86 |
| | | COP | kW/kW | 3,53 | 3,49 | 3,66 | 3,50 | 3,63 | 3,54 | 3,41 |
| | HA3 | Nominal capacity | kW | 4,01 | 5,74 | 7,67 | 9,65 | 11,65 | 12,07 | 13,49 |
| | | COP | kW/kW | 2,59 | 2,75 | 2,86 | 2,68 | 2,86 | 2,75 | 2,78 |
| Standard unit Seasonal energy efficiency** | HA1 | SCOP _{30/35 °C} | kWh/kWh | 4,82 | 4,73 | 4,88 | 4,73 | 4,94 | 4,94 | 4,96 |
| | | η _{s heat 30/35 °C} | % | 190% | 186% | 192% | 186% | 194% | 194% | 195% |
| | | P _{rated} | kW | 4,0 | 6,0 | 8,0 | 9,7 | 12,0 | 14,0 | 15,0 |
| | HA3 | Energy labelling | | A+++ | A+++ | A+++ | A+++ | A+++ | A+++ | A+++ |
| | | SCOP_{47/55 °C} | kWh/kWh | 3,25 | 3,25 | 3,29 | 3,29 | 3,40 | 3,40 | 3,42 |
| | | η_{s heat 47/55 °C} | % | 127% | 127% | 129% | 129% | 133% | 133% | 133% |
| | | P _{rated} | kW | 4,0 | 6,0 | 7,5 | 9,0 | 12,0 | 12,0 | 13,0 |
| | | Energy labelling | | A++ | A++ | A++ | A++ | A++ | A++ | A++ |
| | Cooling | | | | | | | | | |
| | Standard unit Full load performances (*) | CA1 | Nominal capacity | kW | 3,94 | 5,45 | 7,02 | 9,18 | 11,02 | 13,43 |
| EER | | | kW/kW | 3,84 | 4,05 | 4,46 | 4,02 | 4,20 | 4,14 | 4,05 |
| CA2 | | Nominal capacity | kW | 3,97 | 4,97 | 6,41 | 7,91 | 10,78 | 12,03 | 14,12 |
| | | EER | kW/kW | 2,88 | 2,74 | 2,93 | 3,25 | 2,80 | 2,86 | 2,74 |
| Standard unit Seasonal energy efficiency** | SEER _{12/7 °C} Comfort low temp. | | kWh/kWh | | | | | 5,18 | | 5,05 |
| | η _{s cool 12/7 °C} | | % | | | | | | | |
| Sound levels | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Sound power level (2) | | | dB(A) | 65 | 65 | 65 | 65 | 69 | 69 | 70 |
| Sound pressure level at 10 m(3) | | | dB(A) | 53 | 53 | 53 | 54 | 59 | 57 | 58 |
| Dimensions | | | | | | | | | | |
| Length | | | mm | 1335 | 1335 | 1335 | 1335 | 1302 | 1302 | 1302 |
| Width | | | mm | 410 | 410 | 410 | 410 | 370 | 370 | 370 |
| Height | | | mm | 875 | 875 | 875 | 875 | 1517 | 1517 | 1517 |
| Operating weight(1) | | | | | | | | | | |
| Standard unit | | | kg | 109 | 109 | 120 | 126 | 171 | 173 | 173 |
| Compressors | | | DC Twin-rotary | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant | | | | R32 | | | | | | |
| Charge(1) | | | kg | 1 | 1,3 | 1,6 | 1,8 | 2,2 | 2,6 | 2,6 |
| Condenser | | | | | | | | | | |
| Copper | | | Grooved copper tubes | | | | | | | |
| Fin type | | | Hydrophilic aluminum foil | | | | | | | |

* In accordance with standard EN14511-3:2013.
 ** In accordance with standard EN14825:2016, average climate
 HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30 °C/35 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². kW
 HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40 °C/45 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². kW
 HA3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47 °C/55 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². kW
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². kW
 CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². kW
 η_{s heat 30/35 °C} & SCOP_{30/35 °C} Values calculated in accordance with standard EN14825:2016
η_{s heat 47/55 °C} & SCOP_{47/55 °C} **Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for heating application**
 η_{s cool 12/7 °C} & SEER_{12/7 °C} Values calculated in accordance with standard EN14825:2016
 (1) Values are guidelines only. Refer to the unit nameplate
 (2) In dB re.f=10⁻¹² W, (A) weighting. Declared dual number noise emission value in accordance with ISO 4871 (with an associated uncertainty of +/-2dB(A)). Measured in accordance with ISO 9614-1
 (3) In dB ref 20 μPa, (A) weighting. Declared dual number noise emission value in accordance with ISO 4871 (with an associated uncertainty of +/-2dB(A)). For information, calculated from the sound power level Lw(A)
 (4) Min. water-side operating pressure with variable speed hydraulic module is 40 kPa

All specifications listed above are preliminary datas, and are subject to change. Please contact your sales representative to get latest data available.

PHYSICAL DATA

| EREBA™ 04R-16R | | 4kW | 6kW | 8kW | 10kW | 12kW | 14kW | 16kW |
|---|-------------------|--|------|------|------|------|------|------|
| Fans | | | | | | | | |
| Fan type | | Axial type | | | | | | |
| Fan quantity | | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Rated total air flow | m ³ /h | 4000 | 4000 | 4000 | 4000 | 6100 | 6100 | 6100 |
| Rated speed | rpm | 850 | 850 | 850 | 850 | 870 | 870 | 870 |
| Fans | | | | | | | | |
| type | | Braze plate heat exchanger | | | | | | |
| Water volume | L | 0,62 | 0,62 | 1,08 | 1,08 | 1,45 | 1,45 | 1,45 |
| Hydraulic module | | | | | | | | |
| | | Circulator, relief valve, paddle flow switch, expansion tank | | | | | | |
| Circulator | | Centrifugal pump (variable speed) | | | | | | |
| Expansion tank volume | L | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Max. water-side operating pressure with hydraulic module ⁽⁴⁾ | kPa | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Water connections | | | | | | | | |
| Inlet diameter (MPT GAS) | inch | 1 | 1 | 1 | 1 | 1,25 | 1,25 | 1,25 |
| Outlet diameter (MPT GAS) | inch | 1 | 1 | 1 | 1 | 1,25 | 1,25 | 1,25 |

(4) Cooling Eurovent condition

ELECTRICAL DATA

| EREBA™ 04R-16R | | 4 (1Ph) | 6 (1Ph) | 8 (1Ph) | 10 (1Ph) | 12 (1Ph) | 14 (1Ph) | 16 (1Ph) | 12 (3Ph) | 14 (3Ph) | 16 (3Ph) | |
|--|---------|--|---------|---------|----------|----------|----------|-----------|----------|----------|----------|--|
| Nominal power supply | V-ph-Hz | 220-1N-50 | | | | | | 400-3N-50 | | | | |
| Voltage range | V | 220-240 | | | | | | 380-415 | | | | |
| Maximum unit power input (Un) ⁽¹⁾ | kW | 3,6 | 3,84 | 4,8 | 4,8 | 6,6 | 6,6 | 6,6 | | | | |
| Cos Phi unit at maximum power ⁽¹⁾ | | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | | | | |
| Maximum unit current drawn (Un-10%) ⁽²⁾ | A | 15 | 16 | 22 | 22 | 25 | 30 | 30 | | | | |
| Maximum unit current drawn (Un) ⁽³⁾ | A | 15 | 16 | 22 | 22 | 25 | 30 | 30 | | | | |
| Maximum Start-up current, standard unit ⁽⁴⁾ | A | Not Applicable (less than the operating current) | | | | | | | | | | |

Note: the current is not included the electric heater current, current of standard electric heater is 13.6A

(1) Power input, compressors and fans, at the unit operating limits and nominal voltage of 220V-1ph/400V-3ph (data given on the unit nameplate).

(2) Maximum unit operating current at maximum unit power input and at 200V-1ph/360V-3ph.

(3) Maximum unit operating current at maximum unit power input and at 220V-1ph/400V-3ph (values given on the unit nameplate).

(4) Maximum instantaneous start-up current at operating limits (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).

■ Electrical protection selection

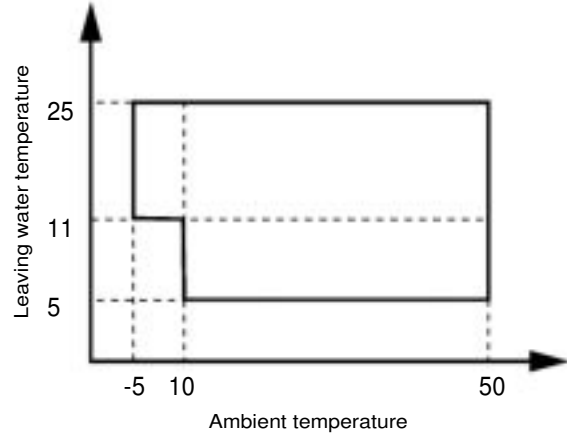
| EREBA™ 04R-16R | | 4kW | 6-10kW | 12-16kW(1Ph) | 12-16kW(3Ph) |
|-----------------|-----------|-----|--------|--------------|--------------|
| Circuit breaker | Type | C | C | C | C |
| | Current A | 32 | 40 | 50 | 40 |
| Fuses | Type | gG | gG | gG | gG |
| | Current A | 32 | 50 | 63 | 50 |

OPERATING LIMITS

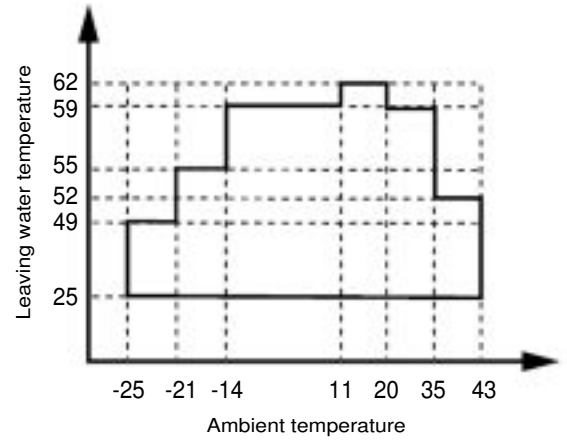
| Cooling Cycle | | | |
|--|----|--------------------|----------------|
| Evaporator Water Temperature | °C | Minimum | Maximum |
| Entering water temperature at start-up | | 7 | 30 |
| Leaving water temperature during operation | | 5 | 25 |
| Condenser Air Temperature | | | |
| | °C | Minimum | Maximum |
| Standard unit | | -5 | 50 |
| Heating Cycle | | | |
| Condenser Water Temperature | | | |
| | °C | Minimum | Maximum |
| Entering water temperature at start-up | | 20 | 59 |
| Leaving water temperature during operation | | 5 | 25 |
| Evaporator Air Temperature | | | |
| | °C | Minimum | Maximum |
| Standard unit | | -25 ⁽¹⁾ | 43 |

(1) For operation at outdoor ambient temperature below 0 °C (heating mode), the antifreeze protection should be applied by the installer.

Operating range, cooling mode



Operating range, heating mode

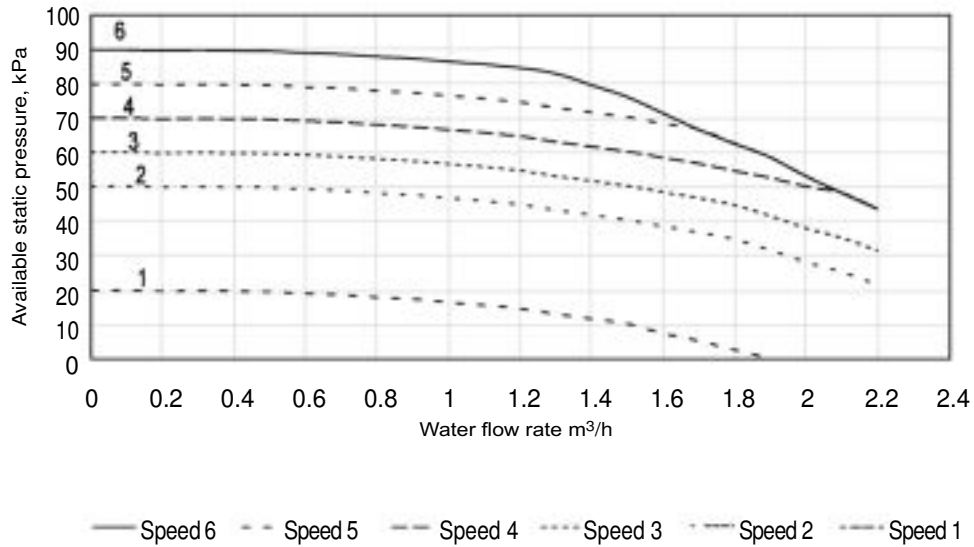


AVAILABLE STATIC PRESSURE

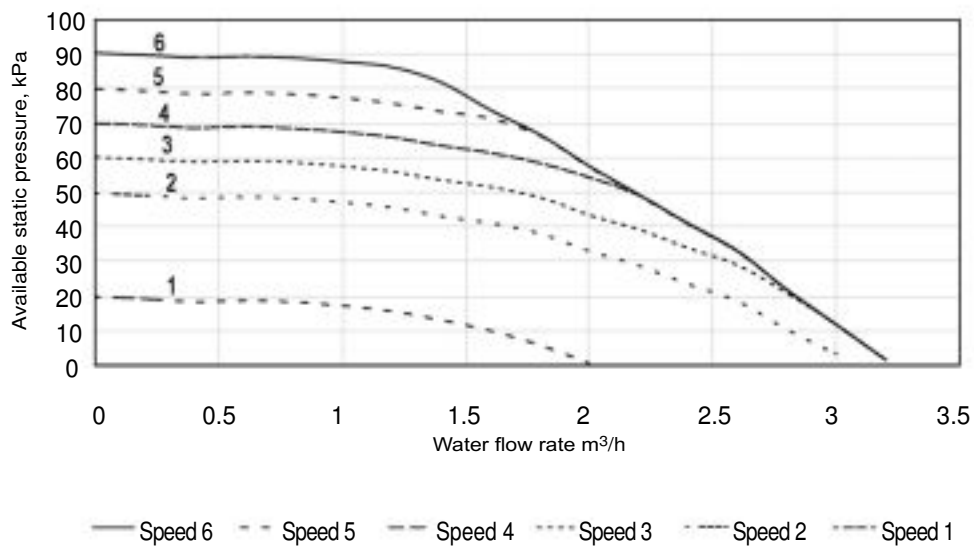
Data applicable for:

- Fresh water 20°C
- If glycol is used, the maximum water flow is reduced

4-10kW



12-16kW



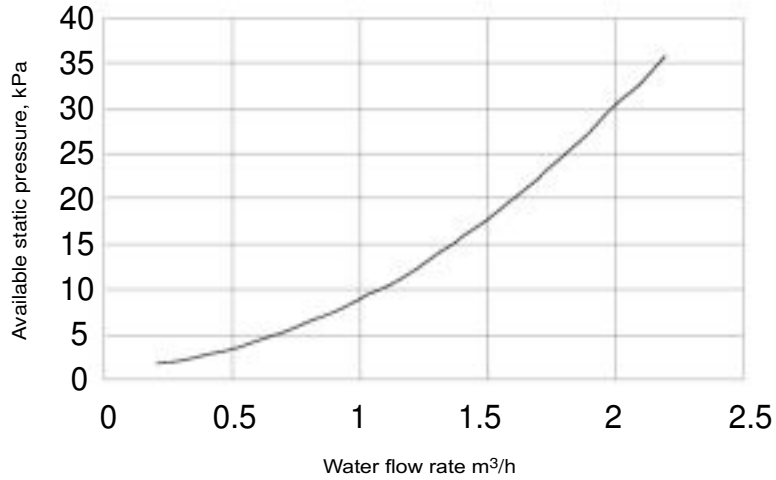
Graphic 1: Available static pressure for 4 to 16kW units with hydraulic module

AVAILABLE STATIC PRESSURE

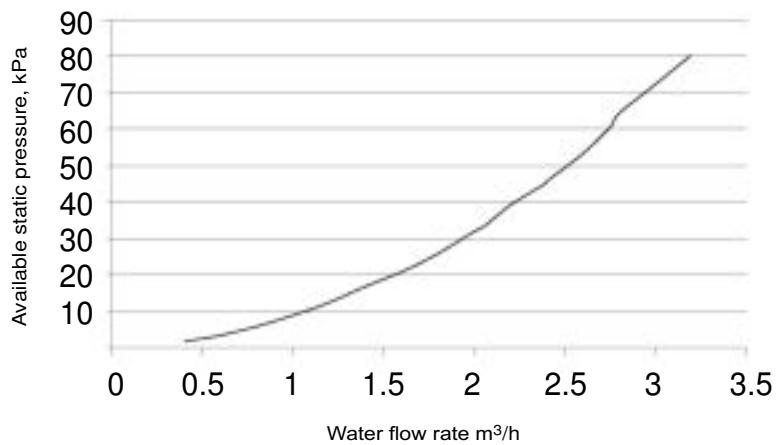
Data applicable for:

- Fresh water 20°C
- If glycol is used, the maximum water flow is reduced

4-10kW



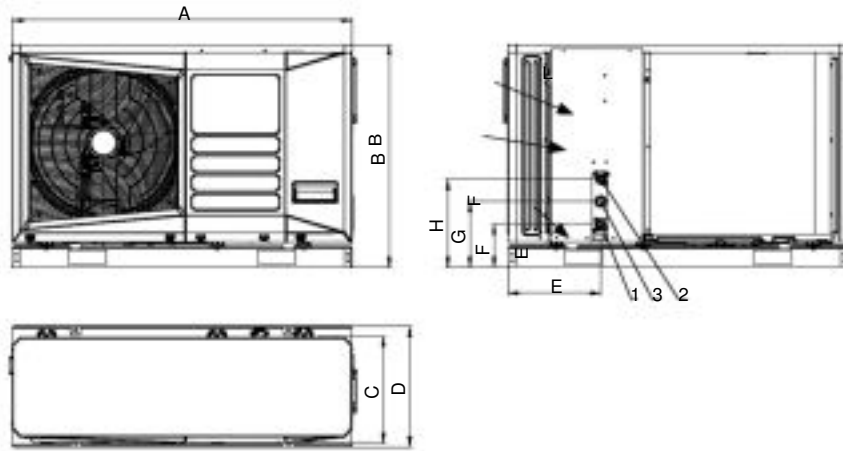
12-16kW



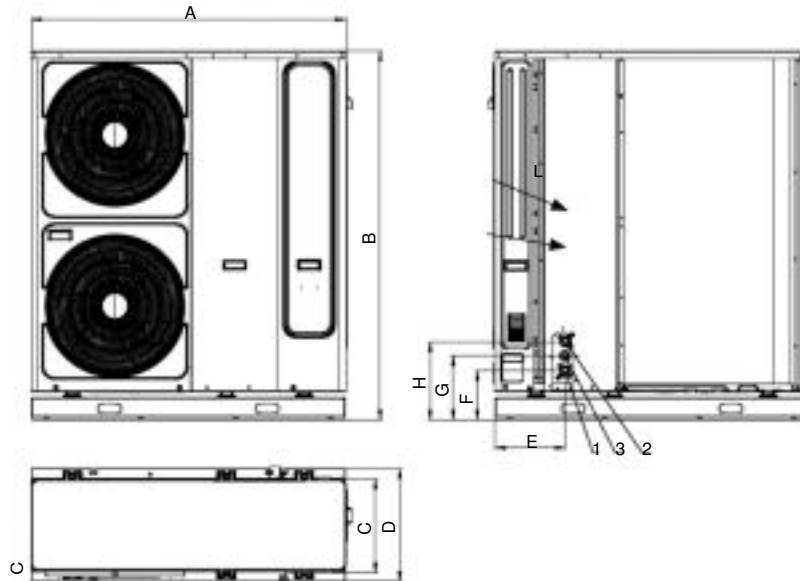
Graphic 2: Pressure drop for 4 to 16kW units with additional main water loop pump

DIMENSIONS (MM)

4-10kW



12-16kW



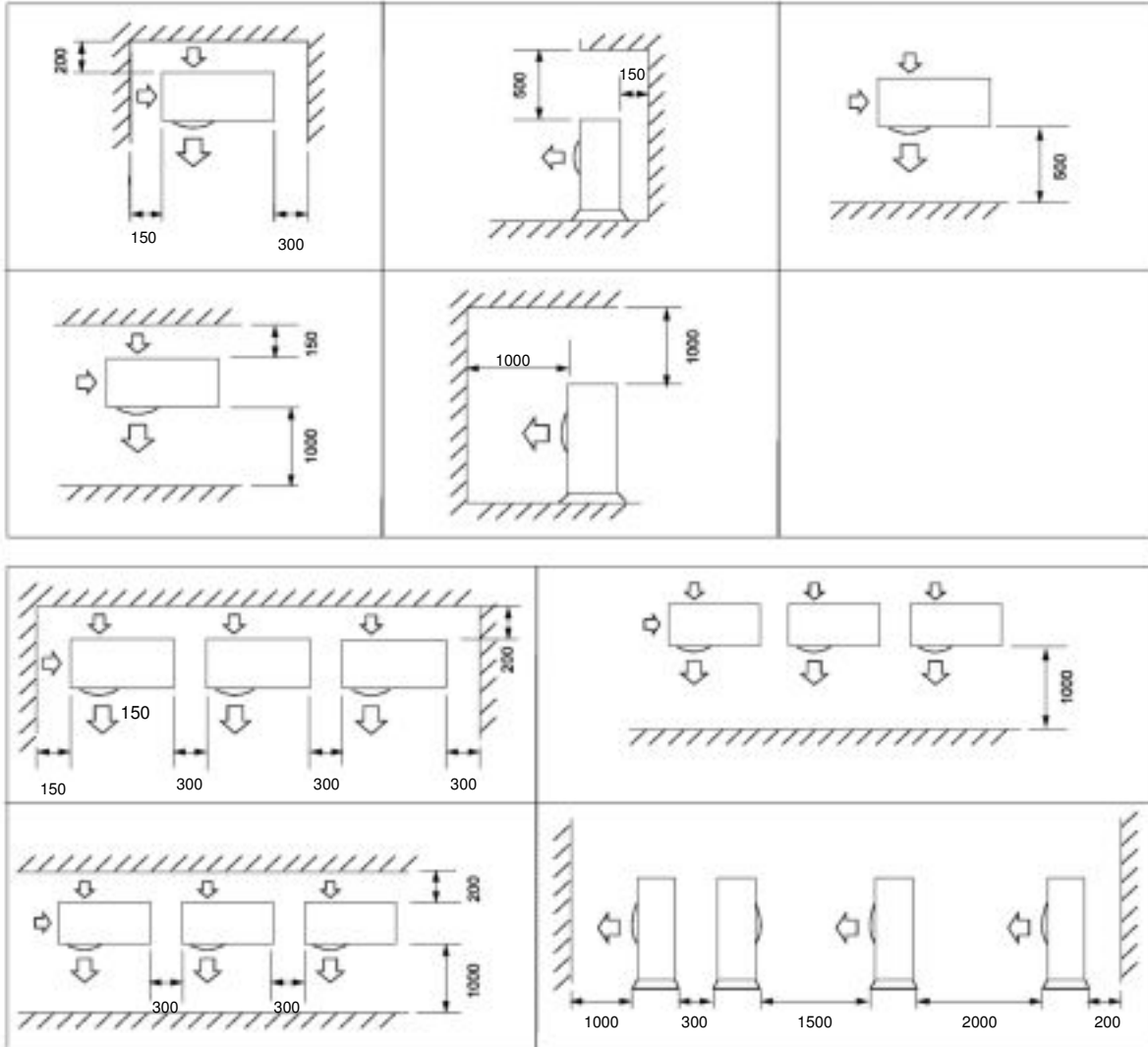
- 1 Water inlet
- 2 Water outlet
- 3 Water drainage

| EREBA™ R | A | B | C | D | E | F | G | H | Weight(kg) |
|-----------|------|------|-----|-----|-----|-----|-----|-----|------------|
| 4-6_1Ph | 1335 | 875 | 410 | 475 | 353 | 170 | 244 | 334 | 109 |
| 8_1Ph | 1335 | 875 | 410 | 475 | 353 | 170 | 244 | 334 | 120 |
| 10_1Ph | 1335 | 875 | 410 | 475 | 353 | 170 | 244 | 334 | 126 |
| 12_1Ph | 1302 | 1517 | 370 | 465 | 289 | 201 | 262 | 332 | 171 |
| 14-16_1Ph | 1302 | 1517 | 370 | 465 | 289 | 201 | 262 | 332 | 173 |
| 12_3Ph | 1302 | 1517 | 370 | 465 | 289 | 201 | 262 | 332 | 171 |
| 14-16_3Ph | 1302 | 1517 | 370 | 465 | 289 | 201 | 262 | 332 | 173 |

NOTE : Dimensions are given in mm

DIMENSIONS (MM)

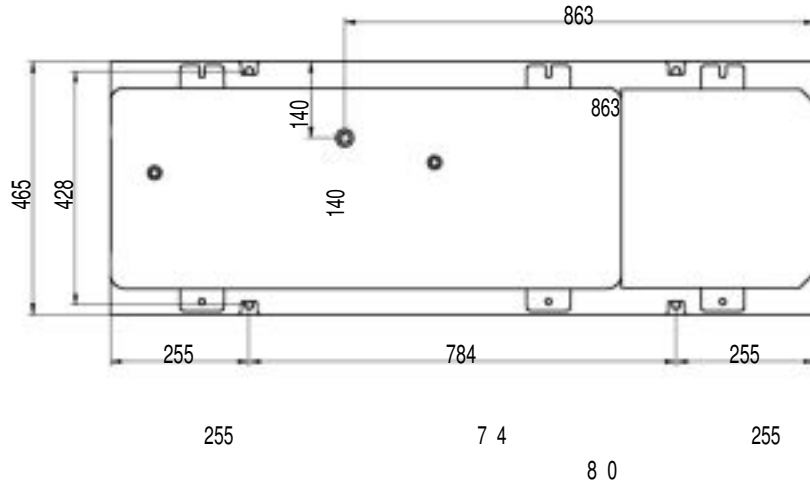
The picture presents the minimal distances of the wall to ensure the correct air volume for air heat exchanger⁽¹⁾



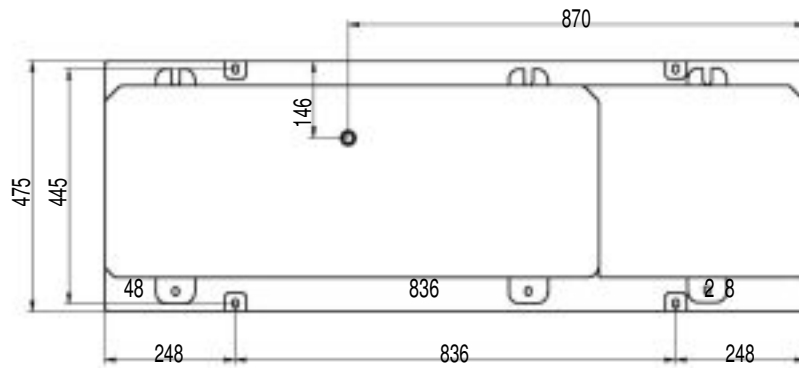
(1) Anticipate different maintenance actions before to place the unit (access of different parts / opening of panel/ part replacement...)

CONDENSATE DRAINING PIPE

4-10kW



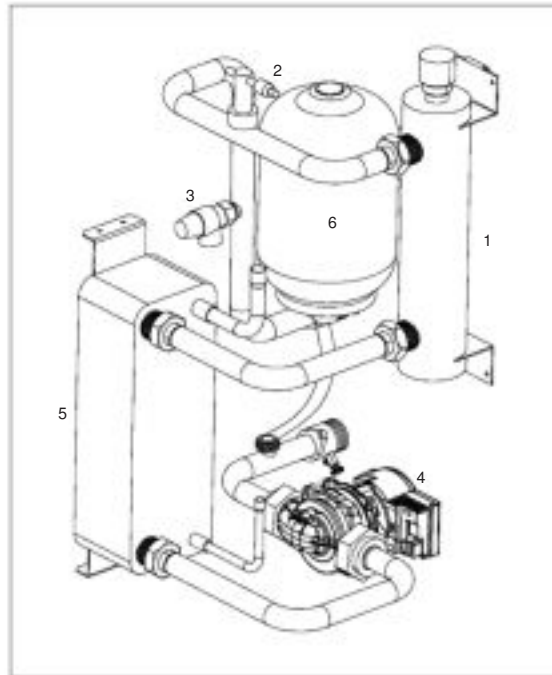
12-16kW



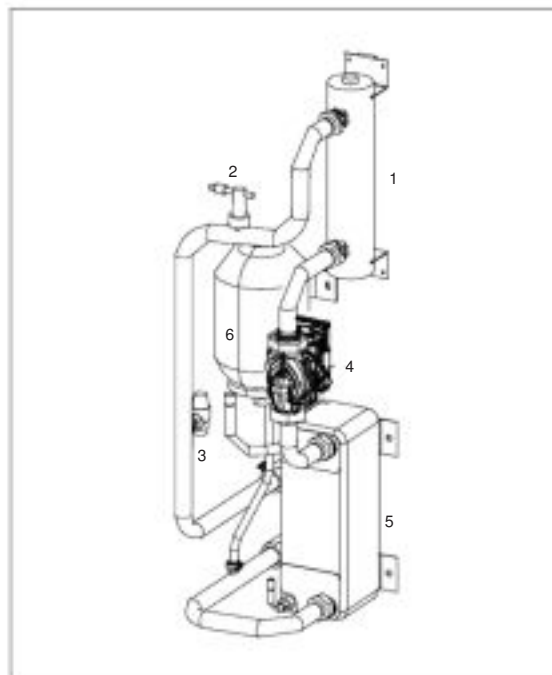
HYDRAULIC MODULE

The hydraulic module enables the installation time to be reduced. The unit is factory-equipped with the main hydraulic components needed for installation: variable speed Circulation pump, expansion vessel and safety valve.

4-10kW



12-16kW



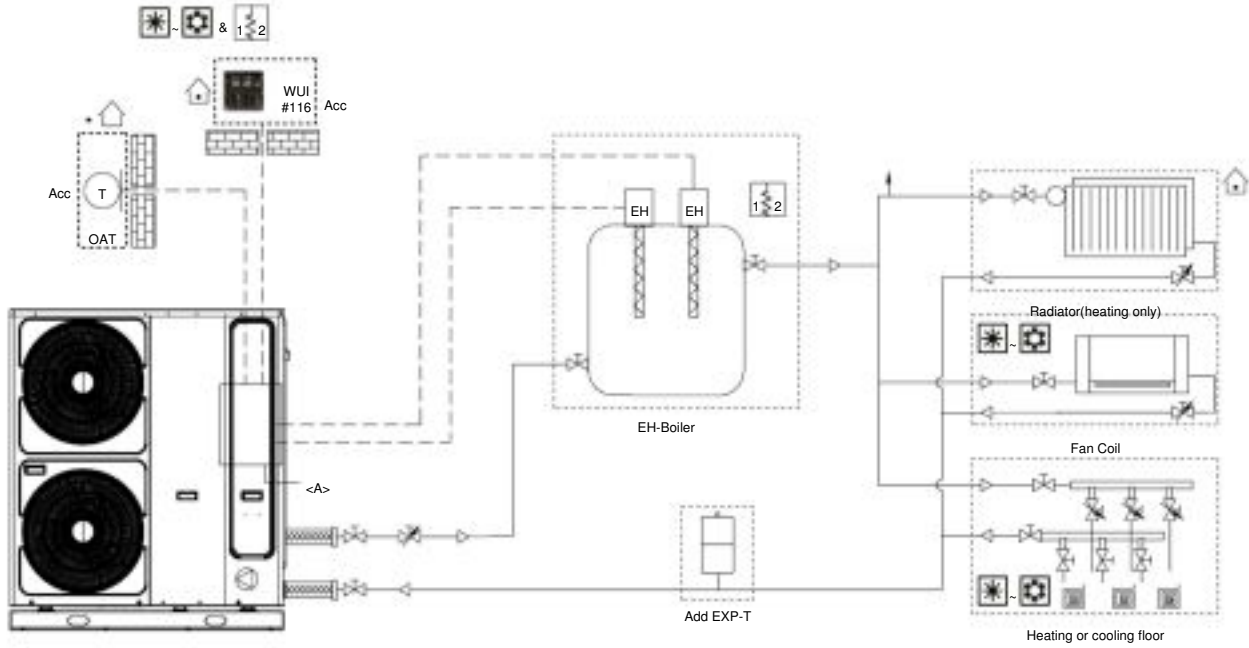
LEGEND:

- 1 Electrical heater component
- 2 Flow switch
- 3 Safety valve outlet
- 4 Circulation pump
- 5 BPHE
- 6 Expansion vessel

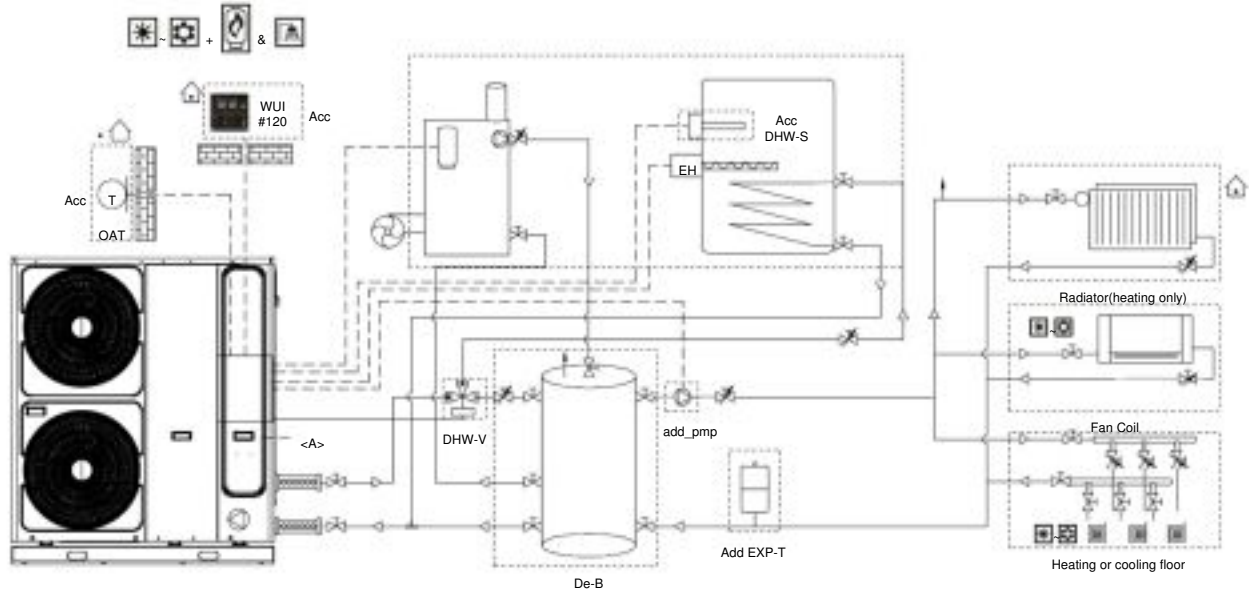
SYSTEM APPLIANCE

Schematic installation diagram

With electrical booster heaters



With DHW production and boiler





EREBA™ 17-21

Inverter Air-Cooled Liquid chillers
& Reversible Air-to-Water Heat Pumps



Easy and fast installation

Hydraulic module available

Inverter technology

compressor and fans

Nominal cooling capacity : 15,2-19 kW
Nominal heating capacity: 16,9-20,7 kW



Cooling or heating

*60°C for 17HT / 57°C for 21HT

USE

The **EREBA™** air-to-water heat pump is designed for heating and cooling applications in new, existing individual homes and small businesses models.

When installed alone, EREBA™ is compatible with low to medium temperature emitters (underfloor heating, fan coil units, water cassettes, radiators, mixed installations, etc.). EREBA™ is also compatible with medium to high temperature emitters for boiler backup operation.

The EREBA™ heat pump is installed outside in an open area, ideally as close as possible to the boiler room.

Each unit is tested in the factory and delivered ready for operation.

RANGE

EREBA™'s range is composed by 2 models in cooling only and 2 models reversible.

Operating range EREBA™ 17-21HT in cooling mode with an outdoor temperature from 0°C to 46°C and in heating from -20°C to +30°C.

If the heat pump is the only source of heat:

Below this temperature, heating must be provided by a separate heating source or an additional electrical supply

If the heat pump is used for backup operation:

Operates down to the equilibrium point (temperature below which the heat pump can no longer keep up with heating needs). Below this point, the heat pump and boiler run alternately (heat pump OR boiler).

COMPLIANCE

Low Voltage Directive 2014/35/EU

EMC : ElectroMagnetic Compatibility 2014/30/EU

PED : Pressure Equipment Directive 2014/6/EU

WEEE : Waste Electrical & Electronic Equipment 2012/19/EU

RoHS : Restriction of Hazardous Substances Directive 2011/65/EU

The **EREBA™** liquid chiller/heat pump range was designed for commercial applications such as the air conditioning of offices, hotels and large residential houses.

The units integrate the latest technological innovations: Non-ozone depleting refrigerant R410A, DC inverter twin-rotary compressors, low-noise variable speed fans and microprocessor control.

With exceptional energy efficiency values the inverter chillers qualify for local tax reductions and incentive plans in all EU countries.

For added flexibility the EREBA™ units are available with hydraulic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply and the water supply and return piping.

Features

The EREBA™ heat pump systems can be used with a wide choice of CIAT terminal fan coil units, and ductable products. Ecodesign is the European Directive that sets mandatory requirements for Energy related Products (ErP) to improve their energy efficiency.

Quiet operation

■ Compressors

- Low-noise INVERTER Twin rotary compressor with low vibration levels
 - Advanced technology providing maximum energy-efficiency with high capacity available at peak conditions and optimised efficiency at low and mid compressor speeds. The EREBA™ heat pump DC inverter uses Intelligent Power Drive Unit (IPDU) hybrid inverter technology. An electronic management logic is used to optimised compressor operation in all conditions, minimised temperature fluctuation to give a perfect individual comfort control with significant reduction of energy consumption:
- PWM: pulse width modulation of the direct current controls the compressor at partial load conditions, adjusting the frequency at fixed voltage. The compressor speed is fine-tuned and the system provides high-level comfort (no temperature fluctuations) at exceptionally efficient working conditions.



Compressor frequency is increased continuously up to the maximum level. This ensures that there are no current draw peaks in the start-up phase. Inverter ramp-up speed makes soft starts unnecessary and ensures immediate maximum power.

- The two rotary compression cylinders, offset from each other by 180°, and the DC brushless motor with the shaft in perfect balance ensure reduced vibration and noise, even at very low operating speeds. This results in an extremely wide range between minimum and maximum capacity with continuous operation, guaranteeing that the system is always optimised and provides maximum comfort at exceptionally high efficiency levels.
- Twin-rotary cylinders, low vibrations and low load to the shaft ensure highest compressor reliability and a long trouble-free operating life.
- All DC brushless twin-rotary compressors are equipped with internal system to secure the motor against oil issues due to colder climate.

■ Air heat exchanger section

- Vertical air heat exchanger coils
- The latest-generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise
- Rigid fan installation for reduced start-up noise.

Easy and fast installation

■ Integrated hydraulic module

- Variable speed circulator
- Water filter protecting the water pump against circulating debris
- High-capacity membrane expansion tank ensures pressurisation of the water circuit
- Overpressure valve, set to 3 bar
- Thermal insulation and frost protection down to -20°C, using an electric resistance heater and pump cycling.

No additional buffer tank required, simplifying and speeding up the installation process (to be checked with the water volume of installation).

■ Physical features

- Advanced circuit design and component selection has resulted in a compact unit with an exceptionally small footprint that is easy to transport even through narrow doors. Reduced operating weight and a handle on the unit panels to facilitate transport.
- The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
- A neutral colour (RAL 7035) to facilitate the integration in residential areas

■ Simplified electrical connections

- Main disconnect switch with high trip capacity
- Transformer for safe 24 V control circuit supply included

■ Fast commissioning

- Systematic factory operation test before shipment
- Quick-test function for step-by-step verification of the instruments, electrical components and motors.

Economical operation

■ Increased seasonal efficiency

- In accordance with EN 14825:2013, Average Climate, energy label reach A+ (see Physical data EREBA™ Reversible units).

■ Reduced maintenance costs

- Maintenance-free twin rotary compressors
- Fast diagnosis of possible incidents and their history via the user interface WUI
- R410A refrigerant is easier to use than other refrigerant blends

Environmental care

■ Ozone-friendly R410A refrigerant

- Chlorine-free refrigerant of the HFC group with zero ozone depletion potential
- Very efficient - gives an increased energy efficiency ratio (EER)

■ Leak-tight refrigerant circuit

- Brazed refrigerant connections for increased leak-tightness
- Verification of pressure transducers and temperature sensors without transferring refrigerant charge

Superior reliability

■ Auto-adaptive control

- Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit.

■ Exceptional endurance tests

- Corrosion resistance tests in salt mist in the laboratory
- Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports
- Transport simulation test in the laboratory on a vibrating table.

NHC Control

NHC control associate with compressor and fan variable frequency driver combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressor, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

■ Ease-of-use

- NHC control can be associated with a new User interface (WUI) which allow an easy access to the configuration parameters (frequency compressor, refrigerant circuit temperature, sets points, air temp, entering water temp, alarm report...).
- This user interface is also very intuitive in its use. It allows reading and easy selection of the operating mode. The functions are represented by icons on the LCD backlit screen. To facilitate the use of this interface, 3 levels of access are available: end user, installer and factory.

■ Key features

- Heating and cooling mode
- Predefined climatic curves (12) or customised climatic curves (water temperature setpoint control)
- Air temperature set point control
- Scheduling mode
- Low noise level or night mode
- Anti-freeze protection
- Floor heating thermal cutoff
- Slab curing mode
- Backup electric heater controlled in 1 /2 /3 heat stage(s)
- Backup by oil or gas boiler in alternating mode
- Hydraulic module with control of the flow rate
- Managed an additional pump
- Management of swimming pool heating during spring and autumn
- Manage domestic hot water with or without
 - Anti-legionella mode
 - DHW backup
 - DHW backup + Boosted by 1 or 2 or 3 electric heat stage(s)
- Master/slave control of 4 units operating in parallel with operating time equalization and automatic changeover in case of a unit fault (sensor in accessory).
- ModBUS Protocol

■ Choice of control product

3 options are available to drive the EREBA™ 17 - 21:

- Dry contact
- User interface WUI
- ModBus protocol

User Interface WUI



This interface can be installed up to 50 m away. It is connected to the NHC board with a 4 wires cable.

2 installation possibilities:

- WUI has an internal sensor to measure the room temperature take with the internal sensor, setpoint selected is air temperature.

■ Modbus

Direct access with Modbus connection to set, configure and monitor the EREBA™.

■ Input remote contact :

- Remote On/Off Contact
- Remote Heat/Cool Contact: This switch is used to select the Cooling Mode (contact opened) or the Heating Mode (contact closed).
- Remote Economic Contact: This switch is used to select the regular Home Mode when contact is opened or the Economic Away Mode when contact is closed.
- Safety Input Contact: This switch is normally closed type, according to configuration it is used either to stop the unit, to ban the Heating Mode or to ban the Cooling Mode when contact is opened.

■ Large choice of Input Contacts

Several functions can be configured by the installer. They allow to adapt to the environment of the machine:

- Power Limitation / Night Mode: This switch is used to reduce the compressor maximum frequency to avoid noise.
- Off Peak: If the General Purpose Contact, configured to "Off Peak", is closed then the Electric Heat Stages are not allowed.
- Loadshed Request: If the General Purpose Contact, configured to "Loadshed Request", is closed then unit shall be stopped as soon as possible.
- Solar Input: If the General Purpose Contact, configured to "Solar Input", is closed then the unit is not allowed to run in Heating or DHW Mode because hot water is produced from a solar source.
- DHW Request Switch from tank : When this input is closed,

the Domestic Hot Water production is requested (need DHW sensor delivered in accessory).

- DHW Priority : When this input is closed, the unit is switching to Domestic Hot Water production regardless of the Space Heating demand and the current DHW schedule (need DHW sensor delivered in accessory).
- Anti-Legionella Cycle Request : When this input is closed, the Domestic Hot Water production is requested with the Anti-Legionella setpoint.
- Summer Switch : This switch is used to select the Winter (contact opened) or the Summer Mode (contact closed).
- Energy Meter Input : This input is used to count the number of pulses received from an external energy meter (not supplied)
- External Alarm Indication Input : When this input is opened, alarm is tripped. This alarm is for information only, it does not affect the unit operation.

■ Output remote contact available

2 Output contacts could be chosen on the NHC board, upon configuration for the following purposes:

alert, alarm , standby, running (Cool, Heat, DHW or Defrost Modes), indoor air temperature reached, electrical heat stage 2, electrical heat stage 3.

HYDRAULIC MODULE

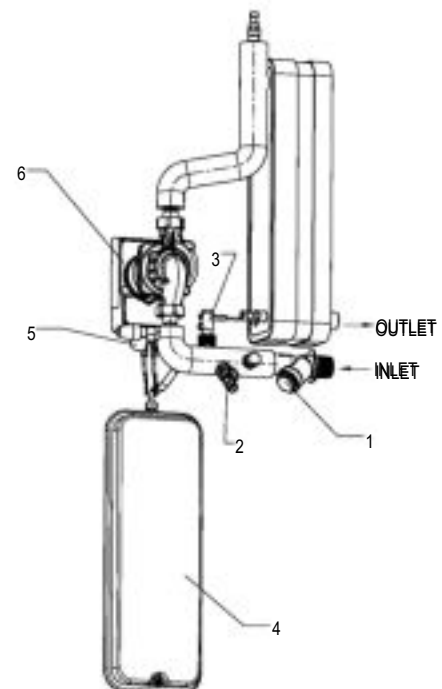
The hydraulic module reduces the installation time. The unit is factory-equipped with the main hydraulic components required for the installation.

The water heat exchanger and the hydraulic module are protected against frost down to -20°C, using an electric resistance heater (standard) and pump cycling. However, the use of MPG (Mono Propylene Glycol) can effectively protect the installation even in case of power failure

| Hydraulic module | | |
|---------------------------------------|-----|------|
| Expansion tank volume | l | 8 |
| Maximum water-side operating pressure | kPa | 300 |
| Water pump | | |
| Power input* | kW | 0.31 |
| Nominal operating current draw* | A | 1.57 |

* Nominal conditions: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor = 0 m² K/kW.

Gross performances, not in accordance with EN14511-3:2013. These performances do not take into account the correction for the proportional heating capacity and power input generated by the water pump to overcome the internal pressure drop in the heat exchanger.



Legend:

- 1 Mesh filter
- 2 Water drain valve
- 3 Paddle flow switch
- 4 Expansion tank
- 5 Safety valve
- 6 Circulator

PHYSICAL DATA, EREBA™ COOLING 17T - 21T

| EREBA™ Cooling only | | | 17T | 21T | |
|---|---|------------------|----------------|--------------------------------------|-------------|
| Cooling | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 16,0 | 19,2 |
| | | EER | kW/kW | 3,46 | 3,30 |
| | | Eurovent class | | A | A |
| | CA2 | Nominal capacity | kW | 22,2 | 25,9 |
| | | EER | kW/kW | 4,29 | 4,10 |
| | | Eurovent class | | A | A |
| Standard unit | SEER_{12/7 °C} Comfort low temp. | | kWh/kWh | 5,56 | 5,48 |
| Seasonal energy efficiency** | η_{s cool} 12/7 °C | | % | 219 | 216 |
| Sound power level ⁽¹⁾ | | | dB(A) | 71 | 74 |
| Sound pressure level at 10 m ⁽²⁾ | | | dB(A) | 40 | 43 |
| Length | | | mm | 1140 | |
| Width | | | mm | 585 | |
| Height | | | mm | 1580 | |
| Operating Weight ⁽³⁾ | | | kg | 169 | 177 |
| Compressors | | | | Rotary compressor | |
| R410A refrigerant charge ⁽³⁾ | | | kg | 6,25 | |
| Minimum capacity control ⁽⁴⁾ | | | % | 33% | 41% |
| Condenser | | | | Grooved copper tubes, aluminium fins | |
| Quantity axial fan | | | | 2 | |
| Maximum total air flow | | | l/s | 2000 | 2400 |
| Maximum rotational speed | | | rpm | 14 | 16 |
| Evaporator | | | | Brazed plate heat exchanger | |
| Water volume | | | L | 1,52 | 1,9 |
| Expansion tank volume | | | l | 8 | |
| Max. water-side operating pressure with hydraulic module ⁽⁵⁾ | | | kPa | 300 | 300 |
| Outlet diameter / with adaptor | | | | 1"G male / 1"1/4 G male | |
| Chassis paint colour | | | | RAL 7035 | |

- * In accordance with standard EN 14511-3:2013
 ** In accordance with standard EN 14825:2016, average climate
 CA1 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 12 °C/7 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.
 CA2 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 23 °C/18 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.
η_{s cool} 12/7 °C & SEER_{12/7 °C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
 (3) Values are guidelines only. Refer to the unit nameplate.
 (4) Cooling Eurovent condition
 (5) Min. water-side operating pressure with variable speed hydraulic module is 40 kPa.



Eurovent certified values

PHYSICAL DATA, EREBA™ 17HT - 21HT

| Reversible EREBA™ | | | | 17HT | 21HT |
|--|-----|---|--------------|--------------------------------------|-------------|
| Heating | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 16,9 | 20,7 |
| | | COP | kW/kW | 4,23 | 4,15 |
| | HA2 | Nominal capacity | kW | 15,8 | 19,5 |
| | | COP | kW/kW | 3,44 | 3,32 |
| | HA3 | Nominal capacity | kW | 15,0 | 18,8 |
| | | COP | kW/kW | 2,68 | 2,50 |
| Standard unit Seasonal energy efficiency** | HA3 | SCOP_{47/55 °C} | kW/kW | 3,03 | 2,85 |
| | | η_{s heat 47/55 °C} | % | 118 | 111 |
| | | P _{rated} | kW | 9 | 15 |
| Cooling | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 15,2 | 19,1 |
| | | EER | kW/kW | 3,14 | 3,18 |
| | | Eurovent class | kW | B | A |
| | CA2 | Nominal capacity | kW/kW | 21,4 | 26,4 |
| | | EER | kW | 3,99 | 3,98 |
| | | Eurovent class | kW/kW | A | A |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7 °C Comfort low temp.} | kW/kW | 4,60 | 4,50 |
| | | η _{s cool 12/7 °C} | kW | 181 | 177 |
| Sound power level (1) | | | dB(A) | 71 | 74 |
| Sound pressure level at 10 m (2) | | | dB(A) | 40 | 43 |
| Length | | | mm | 1140 | |
| Width | | | mm | 585 | |
| Height | | | mm | 1580 | |
| Operating Weight (3) | | | kg | 191 | 199 |
| Compressors | | | | Rotary compressor | |
| R410A refrigerant charge (3) | | | kg | 8 | |
| Minimum capacity control (4) | | | % | 33% | 41% |
| Air heat exchanger | | | | Grooved copper tubes, aluminium fins | |
| Quantity axial fan | | | | 2 | |
| Maximum total air flow | | | l/s | 2000 | 2400 |
| Maximum rotational speed | | | rps | 14 | 16 |
| Water heat exchanger | | | | Brazed plate heat exchanger | |
| Water volume | | | L | 1,52 | 1,9 |
| Expansion tank volume | | | | 8 | |
| Max. water-side operating pressure with hydraulic module (5) | | | | 300 | |
| Outlet diameter / with adaptor | | | | 1"G male / 1"1/4 G male | |
| Chassis paint colour | | | | RAL 7035 | |

* In accordance with standard EN 14511-3:2013

** In accordance with standard EN 14825:2016, average climate

HA1 Heating mode conditions: Temperature of the entering/leaving water to/from the exchanger 30 °C/35 °C, outdoor air temperature tdb/twb at 7 °C/6 °C wb, evaporator fouling factor 0 m² k/W

HA2 Heating mode conditions: Temperature of the entering/leaving water to/from the exchanger 40 °C/45 °C, outdoor air temperature tdb/twb at 7 °C/6 °C wb, evaporator fouling factor 0 m² k/W

HA3 Heating mode conditions: Temperature of the entering/leaving water to/from the exchanger 47 °C/55 °C, outdoor air temperature tdb/twb at 7 °C/6 °C wb, evaporator fouling factor 0 m² k/W

CA1 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 12 °C/7 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.

CA2 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 23 °C/18 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.

η_{s heat 47/55 °C} & SCOP_{47/55 °C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for heating application

η_{s cool 12/7 °C} & SEER_{12/7 °C} Values calculated in accordance with EN 14825:2016

(1) In dB ref=10⁻¹² W, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level L_w(A).

(3) Values are guidelines only. Refer to the unit nameplate.

(4) Cooling Eurovent condition

(5) Min. water-side operating pressure with variable speed hydraulic module is 40 kPa.



Eurovent certified values

ELECTRICAL DATA, EREBA™ 17T-21T/17HT-21HT

| EREBA™ | | 17 | 21 |
|--|---------|---------------------------------|------------|
| Nominal power supply | V-ph-Hz | 400-3+N-50 | 400-3+N-50 |
| Voltage range | V | 360-440 | 360-440 |
| Control circuit supply | | 24V AC via internal transformer | |
| Nominal unit current drawn (Un) * | A | 12,5 | 14,3 |
| Maximum unit power input (Un) ** | kW | 10,8 | 12,4 |
| Cos Phi unit at maximum power ** | | 0,93 | 0,93 |
| Maximum unit current drawn (Un-10%)*** | A | 18,5 | 21,2 |
| Maximum unit current drawn (Un) **** | A | 16,7 | 19,2 |

- * Conditions equivalent to the standardised Eurovent conditions (evaporator water entering/leaving temperature = 12 °C/7 °C, outside air temperature = 35 °C).
 - ** Power input, compressors and fans, at the unit operating limits (saturated suction temperature 15 °C, saturated condensing temperature 68.3 °C) and nominal voltage of 400 V (data given on the unit nameplate).
 - *** Maximum unit operating current at maximum unit power input and at 360 V.
 - **** Maximum unit operating current at maximum unit power input and at 400 V (values given on the unit nameplate).
- Fan motor electrical data: at Eurovent equivalent conditions and motor ambient air temperature of 50 °C at 400 V: 3.8 A, start-up current 20 A, power input 1.75 kW

NEW ENERGY EFFICIENCY METRIC: SCOP

- Because buildings have a thermal load depending on outdoor air temperature

The Seasonal Coefficient of Performance (SCOP) is a new European parameter to evaluate the energy efficiency of heat pumps. It replaces the Coefficient of Performance (COP), which measured the ratio of power consumed to power produced in the heating mode on a single operating point.

Unlike its predecessor, the SCOP is representative of operation during the heating season as it includes seasonal variations by defining several realistic measurement points. Together, these contribute to classification in the correct energy efficiency class.

- SCOP versus COP efficiency (for heat pumps)

| TEMPERATURE | | OUTPUT (kW) | | AUXILIARY MODES (kWh) | | HOURS | |
|-------------------------------|--|-------------|--------------------------|---|--|-------|---|
| COP | SCOP | COP | SCOP | COP | SCOP | COP | SCOP |
| 1 temperature condition: 7 °C | Several rating temperatures: -10 °C to 16 °C (average climate) | Full load | Partial load + Full load | No auxiliary power modes taken into consideration | Includes consumption auxiliary modes: - Standby mode - Off mode - Thermostat off... | N/A | Number of hours occurring at each air temperature (bin hours) |

- SCOP Calculation

SCOP is the ratio between annual heating demand and annual energy input over an entire heating season.

$$\text{SCOP} = \frac{\text{ANNUAL HEATING DEMAND}}{\text{ANNUAL ENERGY INPUT}^*}$$

- η_s : seasonal primary energy efficiency metrics:

In order to compare the energy efficiency of products using different sources of energy, such as boilers (gas, fuel) and electric heat pumps, the Ecodesign regulation introduces a new measurement expressed in primary energy: η_s (eta s).

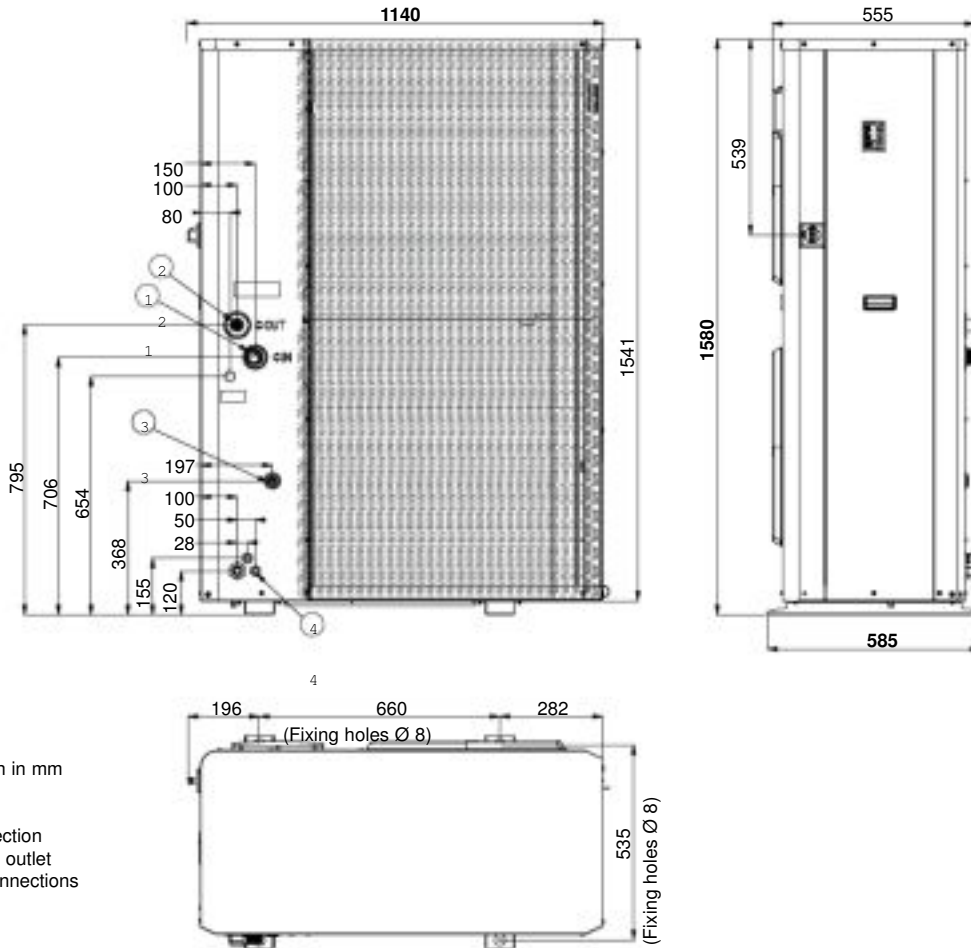
$$\eta_s = \text{SCOP} / 2.5 \times 100 - i^{**}$$

** Air source heat pump $i = 3$

- * Annual energy input:
 - Compressor running (SCOPon)
 - Compressor not running: thermostat OFF, standby, OFF mode & crankcase heater
 - Backup heater to supplement heat pump capacity

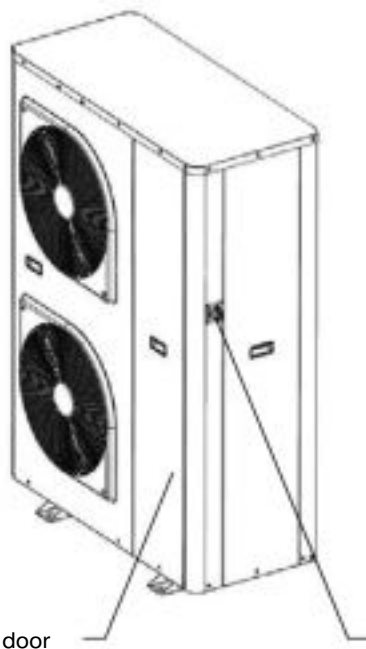
DIMENSIONS (IN MM)

■ EREBATM 17T-21T / 17HT-21HT



Legend

- All dimensions are given in mm
1. Water inlet
 2. Water outlet
 3. Fill kit connection
 4. Safety valve outlet
 5. Electrical connections



Service door

Disconnect switch

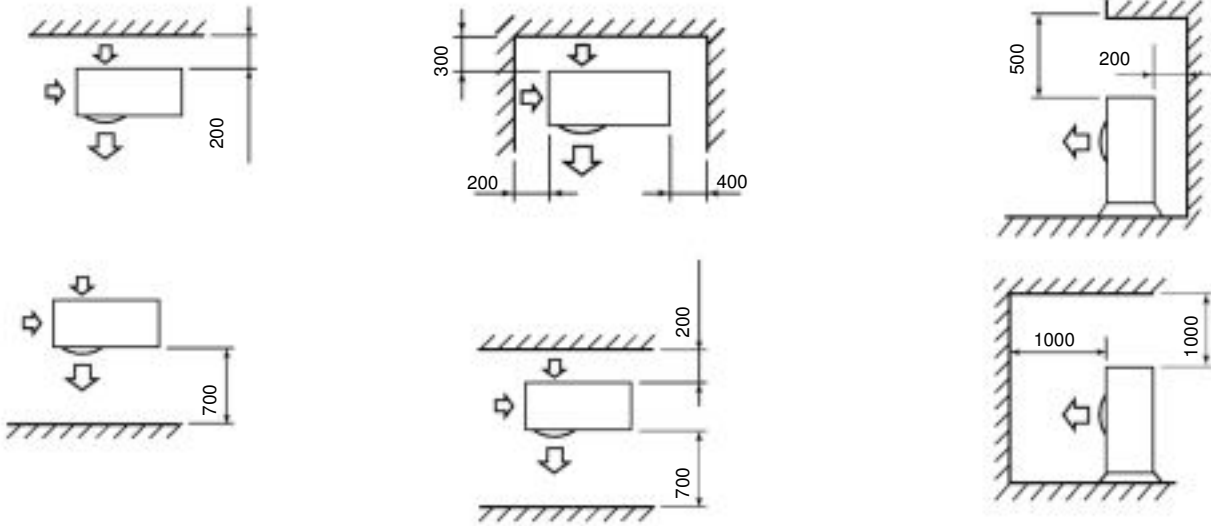
| Weight (in kg) | |
|----------------|-------------------|
| EREBATM | Operating weight* |
| 17T | 169 |
| 21T | 177 |
| 17HT | 191 |
| 21HT | 199 |

* Values are guidelines only.
Refer to the unit nameplate

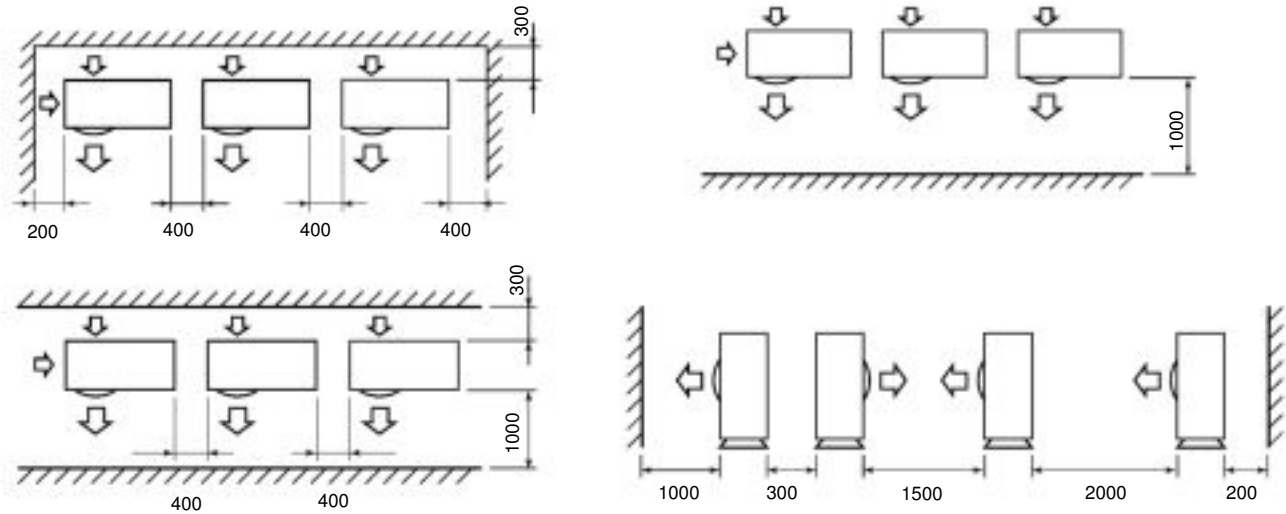
CLEARANCES (IN MM)

■ EREBATTM 17T-21T / 17HT-21HT

Single unit installation



Multiple unit installation



Note: The height of any obstacle at both the front and rear should be less than the outdoor unit height.

HEATING CAPACITIES IN ACCORDANCE WITH EN14511-3

| Outside air temperature in °C | EREBA™ | LEAVING WATER TEMPERATURE °C | | | | | | | | | | | | | | | | | | | |
|-------------------------------|--------|------------------------------|-----|-------------|-------|-----|-----|-----|-----|-----|-------|--------------|-----|-------------|-------|-----|------|-----|-----|-----|-------|
| | | Heating floor | | | | | | | | | | Comfort unit | | | | | | | | | |
| | | 35 | | | | | | | | | | 45 | | | | | | | | | |
| | | Pc kW | | | Pa kW | | | COP | | | Q l/s | Pc kW | | | Pa kW | | | COP | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | | |
| -20 | 17HT | 4,3 | 2,2 | 4,4 | 2,3 | 1,0 | 2,3 | 1,9 | 2,1 | 1,9 | 0,45 | 4,1 | 2,1 | 4,2 | 2,6 | 1,2 | 2,6 | 1,6 | 1,7 | 1,6 | 0,45 |
| | 21HT | 6,2 | 4,0 | 6,3 | 3,2 | 2,0 | 3,2 | 1,9 | 2,0 | 1,9 | 0,58 | 5,7 | 4,7 | 5,7 | 3,7 | 3,1 | 3,7 | 1,6 | 1,5 | 1,6 | 0,58 |
| -15 | 17HT | 5,1 | 2,6 | 5,0 | 2,5 | 1,1 | 2,5 | 2,1 | 2,3 | 2,1 | 0,45 | 4,8 | 2,4 | 4,8 | 2,8 | 1,3 | 2,8 | 1,7 | 1,9 | 1,7 | 0,45 |
| | 21HT | 7,4 | 4,8 | 7,4 | 3,4 | 2,1 | 3,4 | 2,2 | 2,3 | 2,2 | 0,58 | 6,9 | 5,7 | 6,9 | 4,0 | 3,3 | 4,0 | 1,7 | 1,7 | 1,7 | 0,58 |
| -10 | 17HT | 6,6 | 2,4 | 6,7 | 2,9 | 0,9 | 3,0 | 2,2 | 2,6 | 2,2 | 0,52 | 6,3 | 2,8 | 6,5 | 3,3 | 1,3 | 3,5 | 1,9 | 2,1 | 1,9 | 0,50 |
| | 21HT | 9,4 | 5,7 | 10,1 | 3,9 | 2,2 | 4,3 | 2,4 | 2,6 | 2,4 | 0,64 | 8,8 | 6,7 | 9,5 | 4,6 | 3,5 | 5,0 | 1,9 | 1,9 | 1,9 | 0,61 |
| -7 | 17HT | 7,1 | 2,4 | 10,3 | 3,0 | 0,9 | 5,0 | 2,4 | 2,7 | 2,1 | 0,57 | 6,8 | 2,2 | 9,9 | 3,4 | 1,0 | 5,7 | 2,0 | 2,2 | 1,7 | 0,54 |
| | 21HT | 10,2 | 6,4 | 15,0 | 4,0 | 2,3 | 6,7 | 2,5 | 2,8 | 2,2 | 0,69 | 9,5 | 7,4 | 14,4 | 4,7 | 3,6 | 7,9 | 2,0 | 2,0 | 1,8 | 0,66 |
| 2 | 17HT | 12,5 | 5,4 | 18,4 | 4,0 | 1,7 | 7,4 | 3,1 | 3,3 | 2,5 | 0,72 | 11,8 | 5,1 | 17,6 | 4,7 | 1,7 | 8,5 | 2,5 | 3,0 | 2,1 | 0,68 |
| | 21HT | 15,3 | 7,1 | 19,5 | 5,2 | 2,3 | 7,8 | 2,9 | 3,1 | 2,5 | 0,90 | 14,5 | 5,4 | 18,5 | 6,1 | 2,2 | 9,0 | 2,4 | 2,4 | 2,0 | 0,86 |
| 7 | 17HT | 16,9 | 3,3 | 21,3 | 4,0 | 0,8 | 6,9 | 4,2 | 4,0 | 3,1 | 0,83 | 15,8 | 4,4 | 20,0 | 4,6 | 1,5 | 7,9 | 3,4 | 2,9 | 2,5 | 0,78 |
| | 21HT | 20,7 | 7,4 | 21,7 | 5,0 | 1,7 | 7,3 | 4,2 | 4,4 | 3,0 | 1,01 | 19,5 | 6,6 | 21,1 | 5,9 | 2,0 | 8,5 | 3,3 | 3,4 | 2,5 | 0,97 |
| 10 | 17HT | 16,9 | 3,7 | 25,3 | 4,1 | 0,7 | 7,4 | 4,2 | 5,6 | 3,4 | 0,87 | 15,9 | 4,9 | 25,0 | 4,7 | 1,2 | 8,7 | 3,4 | 3,9 | 2,9 | 0,82 |
| | 21HT | 22,4 | 8,6 | 32,1 | 5,0 | 2,2 | 8,8 | 4,5 | 3,8 | 3,7 | 1,09 | 21,3 | 7,6 | 30,9 | 5,9 | 2,6 | 10,2 | 3,6 | 2,9 | 3,0 | 1,04 |

| Outside air temperature in °C | EREBA™ | LEAVING WATER TEMPERATURE °C | | | | | | | | | | | | | | | | | | | |
|-------------------------------|--------|------------------------------|-----|-------------|-------|-----|-----|-----|-----|-----|-------|-------|-----|-------------|-------|-----|-----|-----|-----|-----|-------|
| | | Radiator | | | | | | | | | | | | | | | | | | | |
| | | 55 | | | | | | | | | | 60 | | | | | | | | | |
| | | Pc kW | | | Pa kW | | | COP | | | Q l/s | Pc kW | | | Pa kW | | | COP | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | | |
| -10 | 17HT | 6,5 | 2,8 | 6,7 | 3,6 | 1,6 | 3,7 | 1,8 | 1,7 | 1,8 | 0,48 | 6,3 | 2,9 | 6,4 | 3,8 | 1,7 | 3,9 | 1,7 | 1,6 | 1,6 | 0,47 |
| | 21HT | 8,1 | 6,2 | 8,8 | 5,3 | 4,1 | 5,7 | 1,5 | 1,5 | 1,5 | 0,58 | | | | | | | | | | |
| -7 | 17HT | 7,0 | 2,1 | 8,3 | 3,7 | 1,2 | 4,6 | 1,9 | 1,8 | 1,8 | 0,52 | 6,8 | 2,1 | 6,9 | 3,9 | 1,2 | 4,0 | 1,7 | 1,7 | 1,7 | 0,50 |
| | 21HT | 8,9 | 6,9 | 11,1 | 5,5 | 4,3 | 7,0 | 1,6 | 1,6 | 1,6 | 0,62 | | | | | | | | | | |
| 2 | 17HT | 11,2 | 4,2 | 12,9 | 5,3 | 1,7 | 6,6 | 2,1 | 2,4 | 2,0 | 0,65 | 10,8 | 4,1 | 11,1 | 5,6 | 1,9 | 5,8 | 1,9 | 2,2 | 1,9 | 0,63 |
| | 21HT | 13,4 | 6,2 | 16,7 | 7,0 | 3,2 | 9,0 | 1,9 | 1,9 | 1,8 | 0,79 | | | | | | | | | | |
| 7 | 17HT | 15,0 | 4,1 | 17,7 | 5,5 | 1,9 | 6,6 | 2,7 | 2,2 | 2,7 | 0,74 | 14,4 | 3,8 | 15,0 | 5,5 | 2,1 | 5,8 | 2,6 | 1,8 | 2,6 | 0,72 |
| | 21HT | 18,7 | 6,2 | 22,8 | 6,9 | 2,3 | 8,9 | 2,7 | 2,7 | 2,6 | 0,92 | | | | | | | | | | |
| 10 | 17HT | 15,0 | 4,6 | 18,3 | 5,4 | 1,6 | 6,6 | 2,8 | 2,9 | 2,8 | 0,78 | 14,4 | 4,6 | 15,3 | 5,7 | 1,7 | 6,2 | 2,5 | 2,6 | 2,5 | 0,74 |
| | 21HT | 20,1 | 7,1 | 24,4 | 6,8 | 3,2 | 8,9 | 3,0 | 2,2 | 2,8 | 0,99 | | | | | | | | | | |

Entering/leaving water temperature difference : 5K

Fouling factor: 0 m² K/W

Pure water fluid

Performances in accordance with EN14511-3:2011



COOLING CAPACITIES IN ACCORDANCE WITH EN14511-3

■ EREBA™ reversible

| Leaving Water Temp. in °C | Reversible EREBA™ | OUTSIDE AIR TEMPERATURE IN °C | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------------|-------------------------------|------|-------------|-------|-----|-----|-----|-----|-----|-------|-------|------|-------------|-------|-----|-----|-----|-----|-----|-------|
| | | 5 | | | | | | | | | | 15 | | | | | | | | | |
| | | Pf kW | | | Pa kW | | | EER | | | Q l/s | Pf kW | | | Pa kW | | | EER | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom |
| 5 | 17HT | 15,7 | 13,3 | 15,7 | 3,0 | 2,7 | 3,0 | 5,3 | 5,0 | 5,3 | 0,75 | 15,4 | 9,9 | 15,4 | 3,4 | 1,7 | 3,4 | 4,5 | 5,7 | 4,5 | 0,73 |
| | 21HT | 20,9 | 14,4 | 24,5 | 4,2 | 3,0 | 6,3 | 5,0 | 4,9 | 3,9 | 1,00 | 20,5 | 12,8 | 24,5 | 4,4 | 3,9 | 6,3 | 4,6 | 3,3 | 3,9 | 0,98 |
| 7 | 17HT | 16,6 | 14,1 | 16,6 | 3,0 | 2,7 | 3,0 | 5,5 | 5,2 | 5,5 | 0,79 | 16,3 | 10,5 | 16,3 | 3,5 | 1,7 | 3,5 | 4,6 | 6,4 | 4,6 | 0,78 |
| | 21HT | 22,0 | 15,2 | 26,4 | 4,4 | 3,0 | 6,3 | 5,1 | 5,1 | 4,2 | 1,05 | 21,6 | 13,5 | 26,3 | 4,6 | 4,0 | 6,4 | 4,7 | 3,4 | 4,1 | 1,03 |
| 10 | 17HT | 18,0 | 7,9 | 18,0 | 3,2 | 1,1 | 3,2 | 5,7 | 7,6 | 5,7 | 0,86 | 17,8 | 6,2 | 17,8 | 3,6 | 0,7 | 3,6 | 4,9 | 9,4 | 4,9 | 0,85 |
| | 21HT | 23,8 | 16,5 | 29,0 | 4,6 | 3,1 | 6,4 | 5,2 | 5,4 | 4,6 | 1,14 | 23,3 | 8,1 | 28,7 | 4,8 | 1,7 | 6,5 | 4,9 | 4,8 | 4,4 | 1,12 |
| 15 | 17HT | 20,6 | 8,5 | 20,6 | 3,4 | 1,1 | 3,4 | 6,1 | 7,7 | 6,1 | 0,99 | 20,4 | 7,0 | 20,4 | 3,8 | 0,7 | 3,8 | 5,3 | 9,3 | 5,3 | 0,98 |
| | 21HT | 27,5 | 18,8 | 33,3 | 4,7 | 3,2 | 6,7 | 5,8 | 5,9 | 5,0 | 1,32 | 27,3 | 9,5 | 33,3 | 4,8 | 1,6 | 6,8 | 5,7 | 6,0 | 4,9 | 1,31 |
| 18 | 17HT | 22,2 | 9,1 | 22,2 | 3,5 | 1,2 | 3,5 | 6,3 | 7,9 | 6,3 | 1,06 | 22,0 | 7,1 | 22,0 | 4,0 | 0,8 | 4,0 | 5,5 | 9,3 | 5,5 | 1,06 |
| | 21HT | 29,5 | 20,3 | 36,3 | 5,0 | 3,3 | 6,9 | 6,0 | 6,2 | 5,3 | 1,41 | 29,8 | 9,9 | 36,3 | 4,9 | 1,8 | 7,0 | 6,1 | 5,6 | 5,2 | 1,43 |

| Leaving Water Temp. in °C | Reversible EREBA™ | OUTSIDE AIR TEMPERATURE IN °C | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------------|-------------------------------|------|-------------|-------|-----|-----|-----|-----|-----|-------|-------|------|-------------|-------|-----|-----|-----|-----|-----|-------|
| | | 25 | | | | | | | | | | 35 | | | | | | | | | |
| | | Pf kW | | | Pa kW | | | EER | | | Q l/s | Pf kW | | | Pa kW | | | EER | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom |
| 5 | 17HT | 14,5 | 9,0 | 14,5 | 3,8 | 2,0 | 3,8 | 3,9 | 4,4 | 3,9 | 0,69 | 14,3 | 3,0 | 14,8 | 4,7 | 1,3 | 5,0 | 3,0 | 2,3 | 3,0 | 0,68 |
| | 21HT | 19,9 | 13,8 | 23,8 | 4,9 | 3,2 | 6,9 | 4,1 | 4,3 | 3,5 | 0,95 | 18,1 | 8,3 | 22,3 | 5,8 | 2,5 | 8,3 | 3,1 | 3,3 | 2,7 | 0,86 |
| 7 | 17HT | 15,6 | 9,6 | 15,6 | 3,8 | 2,0 | 3,8 | 4,1 | 4,7 | 4,1 | 0,75 | 15,2 | 3,2 | 15,8 | 4,8 | 1,3 | 5,1 | 3,1 | 2,5 | 3,1 | 0,73 |
| | 21HT | 21,1 | 14,7 | 25,2 | 5,0 | 3,3 | 7,1 | 4,2 | 4,5 | 3,6 | 1,01 | 19,1 | 8,9 | 23,6 | 6,0 | 2,5 | 8,5 | 3,2 | 3,5 | 2,8 | 0,91 |
| 10 | 17HT | 17,1 | 5,2 | 17,1 | 3,9 | 1,2 | 3,9 | 4,4 | 4,6 | 4,4 | 0,82 | 16,6 | 3,6 | 17,3 | 5,0 | 1,3 | 5,3 | 3,4 | 2,8 | 3,3 | 0,79 |
| | 21HT | 22,9 | 8,4 | 27,3 | 5,2 | 1,9 | 7,4 | 4,4 | 4,4 | 3,7 | 1,10 | 20,9 | 9,7 | 25,6 | 6,4 | 2,7 | 8,8 | 3,2 | 3,6 | 2,9 | 1,00 |
| 15 | 17HT | 19,8 | 6,1 | 19,8 | 4,0 | 1,1 | 4,0 | 4,9 | 5,4 | 4,9 | 0,95 | 19,2 | 4,2 | 19,9 | 5,2 | 1,2 | 5,6 | 3,7 | 3,4 | 3,6 | 0,92 |
| | 21HT | 26,2 | 9,8 | 31,0 | 5,4 | 1,9 | 7,9 | 4,8 | 5,2 | 3,9 | 1,26 | 23,9 | 11,2 | 29,1 | 6,8 | 2,7 | 9,4 | 3,5 | 4,1 | 3,1 | 1,15 |
| 18 | 17HT | 21,5 | 7,0 | 21,9 | 4,1 | 0,9 | 4,2 | 5,2 | 7,8 | 5,2 | 1,03 | 21,4 | 4,6 | 21,6 | 5,4 | 1,2 | 5,6 | 4,0 | 3,9 | 3,8 | 1,03 |
| | 21HT | 28,3 | 10,8 | 33,3 | 5,6 | 1,8 | 8,2 | 5,0 | 5,9 | 4,0 | 1,36 | 26,4 | 12,2 | 31,3 | 6,6 | 2,8 | 9,8 | 4,0 | 4,4 | 3,2 | 1,26 |

| Leaving Water Temp. in °C | Reversible EREBA™ | OUTSIDE AIR TEMPERATURE IN °C | | | | | | | | | |
|---------------------------|-------------------|-------------------------------|-----|-------------|-------|-----|-----|-----|-----|-----|-------|
| | | 45 | | | | | | | | | |
| | | Pf kW | | | Pa kW | | | EER | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | | |
| 5 | 17HT | 12,3 | 4,0 | 12,3 | 5,2 | 2,7 | 5,2 | 2,4 | 1,4 | 2,4 | 0,58 |
| | 21HT | 15,2 | 6,5 | 16,4 | 6,4 | 2,8 | 7,1 | 2,4 | 2,3 | 2,3 | 0,72 |
| 7 | 17HT | 13,1 | 4,2 | 13,1 | 5,3 | 2,8 | 5,3 | 2,5 | 1,5 | 2,5 | 0,62 |
| | 21HT | 16,1 | 6,9 | 17,4 | 6,6 | 2,8 | 7,2 | 2,5 | 2,4 | 2,4 | 0,77 |
| 10 | 17HT | 14,3 | 4,7 | 14,4 | 5,5 | 2,8 | 5,5 | 2,6 | 1,7 | 2,6 | 0,69 |
| | 21HT | 17,6 | 7,6 | 19,0 | 6,8 | 2,9 | 7,5 | 2,6 | 2,6 | 2,6 | 0,84 |
| 15 | 17HT | 16,7 | 5,4 | 16,7 | 5,8 | 2,9 | 5,8 | 2,9 | 1,9 | 2,9 | 0,80 |
| | 21HT | 20,2 | 8,8 | 21,8 | 7,1 | 3,0 | 7,9 | 2,8 | 3,0 | 2,8 | 0,97 |
| 18 | 17HT | 18,5 | 5,9 | 18,5 | 5,9 | 2,9 | 5,9 | 3,1 | 2,0 | 3,1 | 0,89 |
| | 21HT | 21,9 | 9,6 | 23,6 | 7,3 | 3,0 | 8,1 | 3,0 | 3,2 | 2,9 | 1,05 |

Entering/leaving water temperature difference : 5K
 Fouling factor: 0 m² K/W
 Pure water fluid
 Performances in accordance with EN14511-3:2011



COOLING CAPACITIES IN ACCORDANCE WITH EN14511-3
■ EREBA™ cooling only

| Leaving water temp. in °C | EREBA™ Cooling only | OUTSIDE AIR TEMPERATURE IN °C | | | | | | | | | | | | | | | | | | | |
|---------------------------|---------------------|-------------------------------|------|-------------|-------|-----|-----|-----|------|-----|-------|-------|------|-------------|-------|-----|-----|-----|------|-----|-------|
| | | 5 | | | | | | | | | | 15 | | | | | | | | | |
| | | Pf kW | | | Pa kW | | | EER | | | Q l/s | Pf kW | | | Pa kW | | | EER | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | | |
| 5 | 17T | 16,3 | 5,4 | 16,3 | 3,1 | 0,5 | 3,1 | 5,3 | 10,8 | 5,3 | 0,78 | 16,1 | 5,3 | 16,1 | 3,2 | 0,6 | 3,2 | 5,1 | 9,2 | 5,1 | 0,77 |
| | 21T | 20,8 | 9,4 | 24,7 | 3,9 | 1,3 | 5,7 | 5,3 | 7,5 | 4,3 | 0,99 | 20,7 | 9,0 | 26,2 | 4,2 | 1,6 | 6,2 | 4,9 | 5,8 | 4,3 | 0,99 |
| 7 | 17T | 17,3 | 5,8 | 17,3 | 3,1 | 0,4 | 3,1 | 5,5 | 13,5 | 5,5 | 0,82 | 17,0 | 5,6 | 17,0 | 3,2 | 0,6 | 3,2 | 5,2 | 10,1 | 5,2 | 0,81 |
| | 21T | 22,0 | 10,0 | 26,4 | 4,0 | 1,3 | 5,7 | 5,4 | 7,8 | 4,6 | 1,05 | 21,8 | 9,6 | 27,9 | 4,3 | 1,6 | 6,3 | 5,1 | 6,0 | 4,4 | 1,04 |
| 10 | 17T | 18,7 | 6,3 | 18,7 | 3,3 | 0,4 | 3,3 | 5,7 | 15,1 | 5,7 | 0,89 | 18,5 | 6,2 | 18,5 | 3,4 | 0,5 | 3,4 | 5,5 | 11,9 | 5,5 | 0,88 |
| | 21T | 23,7 | 10,8 | 29,0 | 4,3 | 1,3 | 5,9 | 5,6 | 8,2 | 4,9 | 1,13 | 24,0 | 10,7 | 30,6 | 4,4 | 1,5 | 6,5 | 5,5 | 7,1 | 4,7 | 1,15 |
| 15 | 17T | 21,2 | 7,3 | 21,2 | 3,5 | 0,4 | 3,5 | 6,1 | 20,5 | 6,1 | 1,02 | 21,4 | 7,0 | 21,4 | 3,4 | 0,5 | 3,4 | 6,2 | 13,7 | 6,2 | 1,03 |
| | 21T | 27,9 | 12,3 | 33,7 | 4,2 | 1,4 | 6,2 | 6,6 | 8,9 | 5,4 | 1,34 | 27,8 | 12,5 | 34,8 | 4,5 | 1,4 | 7,0 | 6,2 | 8,6 | 4,9 | 1,33 |
| 18 | 17T | 23,7 | 7,9 | 23,7 | 3,4 | 0,3 | 3,4 | 7,0 | 25,5 | 7,0 | 1,13 | 23,6 | 7,7 | 23,6 | 3,4 | 0,4 | 3,4 | 6,9 | 19,4 | 6,8 | 1,13 |
| | 21T | 30,5 | 13,3 | 36,1 | 4,3 | 1,4 | 6,6 | 7,1 | 9,3 | 5,5 | 1,46 | 30,3 | 13,2 | 37,5 | 4,6 | 1,6 | 7,4 | 6,5 | 8,4 | 5,1 | 1,45 |

| Leaving water temp. in °C | EREBA™ Cooling only | OUTSIDE AIR TEMPERATURE IN °C | | | | | | | | | | | | | | | | | | | |
|---------------------------|---------------------|-------------------------------|------|-------------|-------|-----|-----|-----|------|-----|-------|-------|------|-------------|-------|-----|------|-----|-----|-----|-------|
| | | 25 | | | | | | | | | | 35 | | | | | | | | | |
| | | Pf kW | | | Pa kW | | | EER | | | Q l/s | Pf kW | | | Pa kW | | | EER | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | | |
| 5 | 17T | 15,4 | 5,6 | 15,4 | 3,6 | 1,1 | 3,6 | 4,3 | 5,1 | 4,3 | 0,73 | 14,7 | 5,8 | 15,8 | 4,5 | 1,6 | 5,0 | 3,2 | 3,6 | 3,1 | 0,70 |
| | 21T | 19,8 | 8,7 | 24,6 | 4,8 | 1,7 | 7,1 | 4,2 | 5,0 | 3,5 | 0,95 | 18,1 | 9,3 | 23,5 | 5,6 | 2,5 | 8,5 | 3,2 | 3,7 | 2,8 | 0,86 |
| 7 | 17T | 16,3 | 6,3 | 16,3 | 3,7 | 1,0 | 3,7 | 4,5 | 6,6 | 4,5 | 0,78 | 16,0 | 6,3 | 16,7 | 4,6 | 1,6 | 5,1 | 3,5 | 3,9 | 3,2 | 0,76 |
| | 21T | 21,0 | 9,3 | 26,0 | 4,9 | 1,8 | 7,3 | 4,3 | 5,3 | 3,6 | 1,00 | 19,2 | 9,9 | 24,9 | 5,8 | 2,5 | 8,7 | 3,3 | 3,9 | 2,8 | 0,91 |
| 10 | 17T | 17,8 | 6,6 | 17,8 | 3,7 | 1,1 | 3,7 | 4,8 | 6,0 | 4,8 | 0,85 | 17,1 | 7,0 | 18,2 | 4,8 | 1,6 | 5,3 | 3,6 | 4,3 | 3,4 | 0,82 |
| | 21T | 22,9 | 10,2 | 28,3 | 5,0 | 1,7 | 7,6 | 4,6 | 5,9 | 3,7 | 1,09 | 21,0 | 10,8 | 27,0 | 5,9 | 2,6 | 9,1 | 3,5 | 4,2 | 3,0 | 1,00 |
| 15 | 17T | 20,5 | 8,1 | 20,5 | 3,9 | 0,9 | 3,9 | 5,3 | 8,7 | 5,3 | 0,98 | 19,6 | 8,2 | 20,9 | 5,0 | 1,6 | 5,6 | 3,9 | 5,2 | 3,7 | 0,94 |
| | 21T | 26,2 | 11,9 | 32,2 | 5,3 | 1,7 | 8,2 | 5,0 | 6,8 | 3,9 | 1,26 | 24,1 | 12,5 | 30,8 | 6,2 | 2,6 | 9,7 | 3,9 | 4,8 | 3,2 | 1,15 |
| 18 | 17T | 22,2 | 8,9 | 22,2 | 4,0 | 0,9 | 4,0 | 5,6 | 10,1 | 5,6 | 1,07 | 22,2 | 9,0 | 22,6 | 5,2 | 1,5 | 5,8 | 4,3 | 5,9 | 3,9 | 1,06 |
| | 21T | 28,3 | 13,0 | 34,7 | 5,5 | 1,7 | 8,5 | 5,2 | 7,5 | 4,1 | 1,36 | 25,9 | 13,6 | 33,3 | 6,3 | 2,6 | 10,1 | 4,1 | 5,2 | 3,3 | 1,24 |

| Leaving water temp. in °C | EREBA™ Cooling only | OUTSIDE AIR TEMPERATURE IN °C | | | | | | | | | |
|---------------------------|---------------------|-------------------------------|------|-------------|-------|-----|-----|-----|-----|-----|-------|
| | | 45 | | | | | | | | | |
| | | Pf kW | | | Pa kW | | | EER | | | Q l/s |
| Nom | Min | Max | Nom | Min | Max | Nom | Min | Max | Nom | | |
| 5 | 17T | 13,2 | 7,8 | 13,2 | 5,2 | 3,0 | 5,2 | 2,5 | 2,6 | 2,5 | 0,63 |
| | 21T | 16,2 | 9,0 | 17,4 | 6,6 | 3,6 | 7,3 | 2,5 | 2,5 | 2,4 | 0,77 |
| 7 | 17T | 14,0 | 8,4 | 14,0 | 5,3 | 3,1 | 5,3 | 2,6 | 2,7 | 2,6 | 0,67 |
| | 21T | 17,2 | 9,6 | 18,5 | 6,7 | 3,6 | 7,4 | 2,6 | 2,6 | 2,5 | 0,82 |
| 10 | 17T | 15,3 | 9,2 | 15,3 | 5,5 | 3,1 | 5,5 | 2,8 | 2,9 | 2,8 | 0,73 |
| | 21T | 18,8 | 10,5 | 20,2 | 6,9 | 3,7 | 7,7 | 2,7 | 2,9 | 2,6 | 0,90 |
| 15 | 17T | 17,6 | 10,7 | 17,6 | 5,7 | 3,2 | 5,8 | 3,1 | 3,4 | 3,1 | 0,84 |
| | 21T | 21,7 | 12,2 | 23,3 | 7,3 | 3,8 | 8,1 | 3,0 | 3,2 | 2,9 | 1,04 |
| 18 | 17T | 19,1 | 11,7 | 19,1 | 5,9 | 3,2 | 5,9 | 3,2 | 3,6 | 3,2 | 0,92 |
| | 21T | 23,5 | 13,3 | 25,2 | 7,5 | 3,9 | 8,4 | 3,1 | 3,4 | 3,0 | 1,13 |

Entering/leaving water temperature difference : 5K

 Fouling factor: 0 m² KW

Pure water fluid

Performances in accordance with EN14511-3:2011



AQUACIAT™ LD ILD

Water chillers
Heat pump



Unit with protection grille option

Compact and silent

Scroll compressors

High-efficiency brazed-plate heat exchanger

All-aluminium micro-channel condenser

Self-adjusting electronic control

Cooling capacity, LD: 40 to 160 kW

Cooling capacity, ILD: 40 to 150 kW

Heating capacity, ILD: 40 to 150 kW



Cooling only



Cooling and heating



Hydronic module



Heat recovery

R-32



Use

The new generation of **AQUACIAT** high-efficiency air-to-water heat pumps and water chillers offers an optimal solution for all heating and cooling applications used for the Healthcare, Office, and Hotel sectors.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

AQUACIAT is optimised for R-32, the environmentally-responsible fluid with the lowest GWP.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

■ Self-regulating operation to adapt to seasonal variations and requirements

With exceptional SEER and SCOP seasonal energy efficiency levels, the **AQUACIAT** range offers the best technology combined with savings throughout the year.

Due to climatic variations and the different air-conditioning needs of tertiary buildings, most of the time water chillers and heat pumps run at partial load.

Equipped with multiple compressors, **AQUACIAT** units automatically adjust cooling capacity, anticipating variations in load and starting only the number of compressors needed to ensure optimum operation and energy efficiency.

Thanks to their exceptional thermodynamic performance, provided by radical selection of components, an electronic expansion valve as standard, and a specific control function, standard **AQUACIAT** units reach a high level of seasonal efficiency in cooling mode (SEER) and in heating mode (SCOP).

■ Acoustic comfort

With different levels of sound equipment available, the **AQUACIAT** range guarantees the acoustic comfort of occupants and meets the most sensitive environmental requirements as is the case in Hotels, Offices and Hospitals.

■ Quick, simple installation

With a wide variety of connection accessories and equipment, the **AQUACIAT** range is quick and simple to install.

The advanced controller functions and different communication protocols enable local control via CMS/BMS or remote control, providing building management with peace of mind.



OFFICES



HOTELS



HEALTHCARE



GLOBAL SYSTEM SOLUTIONS

As an expert on customised HVAC solutions, CIAT works to improve the well-being of individuals in their living areas or places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, CIAT has responded by developing global systems based on an adapted and efficient combination of products. The latest-generation AQUACIAT with a low environmental footprint is part of our sustainable development process.

■ Global energy systems based on the water loop for heating, cooling and indoor air quality

To comply with today's thermal and environmental regulations, CIAT designs optimised water loop energy systems comprised of comfort units, heat pumps such as AQUACIAT and dual-flow air handling units. As a renewable resource and a highly effective heat-transfer fluid, water not only represents an excellent alternative to direct expansion systems, it also meets F-Gas regulations in terms of confinement and limitation of refrigerants within buildings.

■ Benefits of the water loop

- **More competitive:** equipment that is more cost effective and requires less maintenance than direct expansion systems.
- **Greater comfort:** flexible, precise control of occupant comfort.
- **Greater energy efficiency:** the homogeneity and the thermal stability of water reduce the energy requirements for transferring heat.
- **Environmentally sustainable:** no refrigerant is required on the premises and only a small amount is used in the heat pump installed outside the building's occupied spaces.
- **Easy to install:** no refrigerant specialists are required during installation.
- **Flexibility:** a water loop energy system adapts easily to the configuration of buildings and the changes that may be made to spaces over time.



RANGE

■ AQUACIAT LD/ILD series

In the LD water chiller & ILD standard reversible heat pump versions, AQUACIAT units are optimised to meet the most demanding technical and economic requirements.

■ Operation at high outdoor temperatures (options)

In this configuration, the AQUACIAT unit is optimised to operate at outdoor temperatures of +46 °C in cooling mode. In this case, the machine is equipped with high-flow variable-speed fans, enabling a wider range of application while preserving the noise level under nominal outdoor conditions.

■ XtraLow Noise Units (option)

In this configuration, the compressors of the AQUACIAT unit are covered with a soundproofing jacket, the control of the variable-speed fans ensures the lowest noise level in all circumstances while preserving energy performance.

■ All-season operation (options)

In this configuration, the AQUACIAT unit is equipped with variable-speed fans and configured for optimal operation down to outdoor temperatures of -20 °C in cooling mode.

DESCRIPTION

AQUACIAT units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Brazed-plate condenser or evaporator water type heat exchanger
- All-aluminium micro-channel condenser (LD) or evaporator air-cooled exchanger, copper tube coil with aluminium fins (ILD) and axial fan motor assembly
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz (+/-10%) mains power supply + earth
 - Transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for outdoor installation

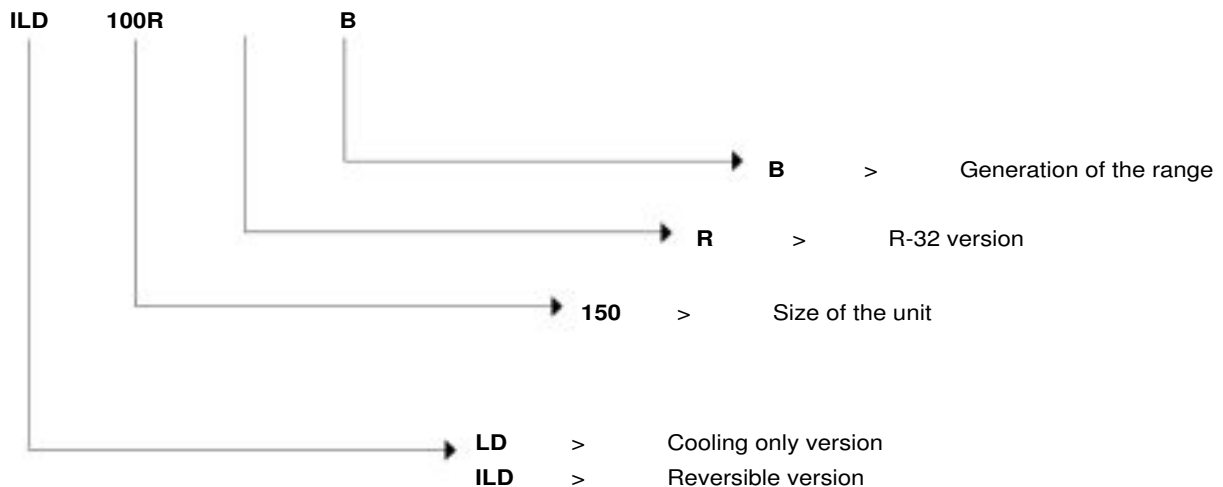
The entire AQUACIAT range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
- Electromagnetic compatibility directive 2014/30/EC
- Safety of machinery: Electrical equipment of machines EN 60204-1
- EMC immunity and emissions EN 61800-3 'C3'
- Regulation (EC) No. 1907/2006 REACH

Pressure equipment directive (PED) 2014/68/EU

- Refrigerating systems and heat pumps EN 378-2
- Regulation (EU) No. 813/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements (Heat pump)
- Regulation (EU) No. 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements (Chiller)

DESCRIPTION



CONFIGURATION

| | |
|--------------------|------------------------|
| LD-ILD | Standard version |
| LD-ILD, XLN option | Xtra Low Noise version |



CUSTOMER BENEFITS

environmental responsibility

We are committed to meeting your strictest environmental requirements.

We focus our energies on making our products ever more efficient and environmentally friendly.

AQUACIAT exceeds the requirements of the 2021 Ecodesign regulations.



R-32



Simplicity

To save you time, we guarantee easy installation and integration in the building management system.

- No machine room required for the pumps and other accessories thanks to the hydronic module option available across the entire range.
- Optimum use of the surface area for easy integration into an existing building.
- Quick, easy installation and commissioning.
- Single-unit solution for quick commissioning and reliable installation.
- Communication with all types of building management system (BMS) via Modbus protocol available as standard, or optional LON or BACNET protocols.



User comfort

We guarantee acoustic comfort for your users.

Thanks to our low-noise fans installed as standard and the noise-reducing technologies integrated in the new Aquaciat range, we guarantee the level of acoustic comfort which meets your user requirements.

Our optional variable-speed fans reduce the noise level at partial load (night, mid-season, etc.).



XTRA LOW NOISE LEVEL



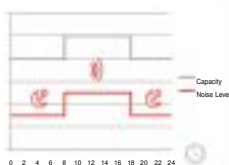
-9dB(A)

compressors and all noise-generating components equipped with reinforced noise insulation

NIGHT MODE



Sound level reduction



Reliability

We use state-of-the-art monitoring solutions to guarantee complete reliability for your equipment.

BluEdge®Digital lets you track and monitor your CIAT equipment.

- Data extraction in real time via customised access to the BluEdge®Digital website (controller dashboard, temperature/event curve, fault memory and alerts and parameter history).
- Email alerts for equipment incidents.
- Monthly and annual reports with analysis and recommendations from CIAT experts



Energy savings

We develop solutions to enable substantial savings while protecting the environment and guaranteeing user comfort.

The partial heat recovery option allows additional hot water to be produced free of charge and at a higher temperature. This hot water can be used to prepare domestic hot water for heating swimming pools, spas and hot tubs.



30%
energy



100% Chilled or hot water production



25% Domestic hot water production

DESCRIPTION OF THE MAIN COMPONENTS

- **Compressors**
 - Hermetic SCROLL type
 - Electronic motor overheating protection
 - Crankcase resistance (AQUACIAT™ ILD)
 - Mounted on anti-vibration mounts
- **Water type heat exchanger**
 - Brazed-plate exchanger
 - Condenser or evaporator mode exchanger on the reversible heat pump version
 - Plate profile for high-performance optimisation
 - 19-mm armaflex thermal insulation
 - Frost protection with heater
- **Air-cooled exchanger**
 - Air-cooled exchanger:
 - All-aluminium micro-channel coil, cooling only version
 - Copper tube coil with aluminium fins, reversible heat pump version
 - Condenser or evaporator mode exchanger on the reversible heat pump version
 - Propeller fans with composite blades offering an optimised profile, fixed-speed as standard or variable-speed as an option
 - Motors – IP 54, class F
- **Refrigerant accessories**
 - Dehumidifier filters
 - Hygroscopic sight glasses
 - Electronic expansion valves
 - Service valves on the liquid line
 - 4-way cycle inversion valves in cooling/heating mode on the reversible heat pump version
- **Regulation and safety instruments**
 - Low and high pressure sensors
 - Relief valves on the refrigerant circuit
 - Water temperature control sensors
 - Evaporator antifreeze sensor
 - Factory-fitted evaporator water flow controller
- **Electrical cabinet**
 - Electrical cabinet with IP 44 protection rating
 - A connection point without neutral
 - Front-mounted main safety switch with handle
 - Control circuit transformer
 - 24 V control circuit
 - Fan and compressor motor circuit breaker
 - Fan and compressor motor contactors
 - Connect Touch microprocessor-controlled electronic control module
 - Wire numbering
 - Marking of the main electrical components
- **Frame**

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

- **Connect Touch control module**

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and runtime balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with runtime balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

DESCRIPTION OF THE MAIN COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webservice, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Heating/cooling operating mode selection
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerant circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Activation control for partial energy recovery using the desuperheater
- Switch control for the customer pump, external to the machine (on/off).
- 0-10V output available for control of a variable flow pump (unit without hydronic module)

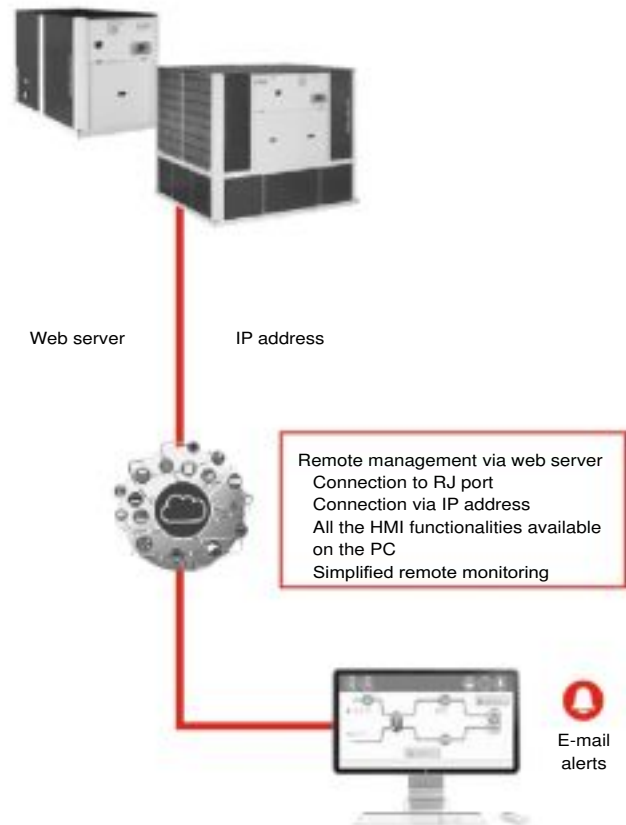
Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- On/off control for a boiler
- 4-stage on/off management for additional heaters.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, based on the unit's refrigerant charge, in compliance with the F-GAS regulations



ENVIRONMENTAL RESPONSIBILITY

The AQUACIAT contributes to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

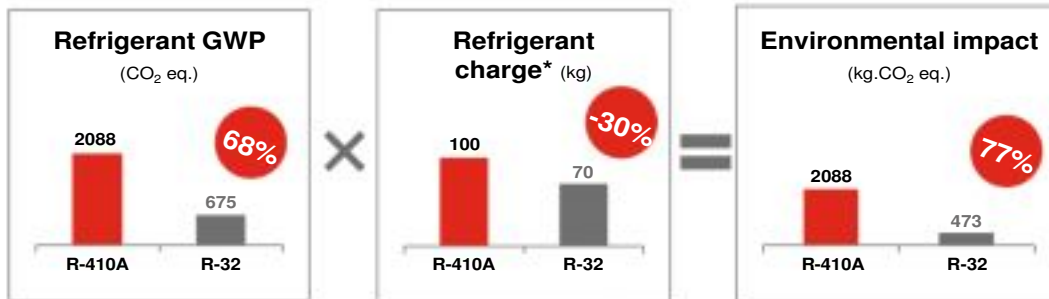
The impact of an air conditioning system on global warming of the planet is in large part caused by CO₂ emissions released into the atmosphere when the electricity required to power the unit is produced (indirect effect) and in small part by CO₂ emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (direct effect).

With AQUACIAT, it's a win-win situation: its low charge of R-32 refrigerant with low GWP reduces the direct environmental impact by 80% while reducing the indirect environmental impact thanks to its high energy performance.

■ 77% reduction in the direct environmental impact (refrigerant)

This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with low environmental impact (Ozone depletion potential =0, Global warming potential =675)
- Aluminium micro-channel coil on LD chiller versions with a 40% reduction in refrigerant charge compared to a conventional coil
- New generation of copper tube coil-aluminium fins on ILD heat pump versions with a 30% reduction in refrigerant charge compared to a conventional coil
- Asymmetrical brazed-plate heat exchanger (BPHE) with a reduction in the refrigerant charge compared to a shell and tube heat exchanger
- Systematic tightness check of units in leak detection cabinets at end of line production



In conclusion, the direct environmental impact potential of the AQUACIAT with R-32 refrigerant is reduced by 77 % compared to the previous R-410A generation.

ENVIRONMENTAL RESPONSIBILITY

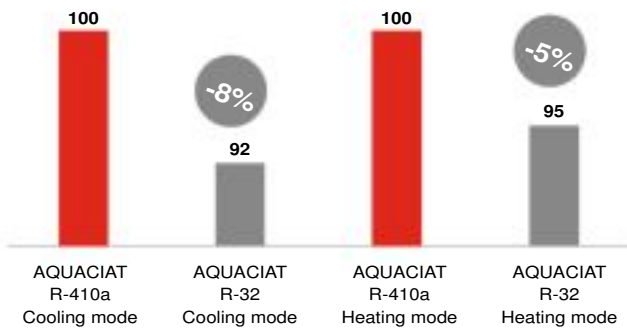
■ Reduced indirect environmental impact (Energy)

The high energy performance offered by AQUACIAT R-32 enables energy consumption to be greatly reduced, thereby cutting energy bills for the user whilst reducing the unit's carbon footprint.

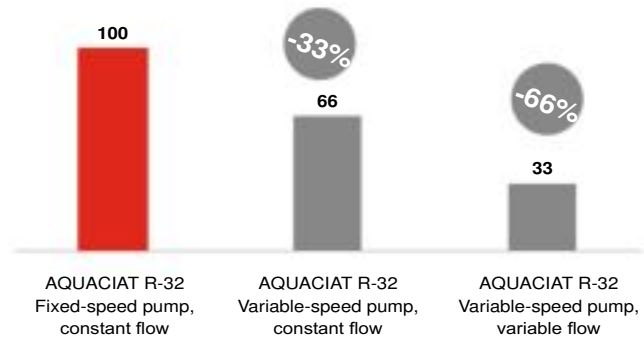
The seasonal efficiency of the AQUACIAT R-32 in cooling mode is 8% greater than that of the previous version with R-410A and 5% greater in heating mode.

In addition, the AQUACIAT unit with R-32 refrigerant can be equipped with a variable-speed pump with constant or variable water flow control to significantly reduce pumping energy costs.

Energy consumption level during operation (kWh index)



Pump energy consumption (kWh index)



This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with high energy performance,
- New generation of scroll compressors optimised for R-32 refrigerant
- Asymmetrical brazed-plate heat exchanger with extremely low water-side pressure drops enabling a reduction in pump electricity consumption
- Optional variable-speed pump enabling automatic adjustment of the rated water flow rate (disposal of the control valve), during operation and during unit shut down periods.

To conclude, the AQUACIAT unit with R-32 refrigerant and variable-speed pump greatly reduces the indirect environmental impact compared to the previous generation R-410A.

■ EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle



Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

CIAT is the first HVAC manufacturer to provide the PEP for liquid chillers and heat pumps including not only the 8 mandatory indicators, but all 27 indicators.

The AQUACIAT PEP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>

AVAILABLE OPTIONS

| Options | Description | Advantages | AQUACIAT™ LD | AQUACIAT™ ILD |
|---|--|--|--------------|---------------|
| Corrosion protection, traditional coils | Fins made of pre-treated aluminium (polyurethane and epoxy) | Improved corrosion resistance, recommended for moderate marine and urban environments | No | • |
| Low-temperature brine solution | Low temperature chilled water production down to -8 °C with ethylene or propylene glycol | Covers specific applications such as ice storage and industrial processes | • | • |
| XtraFan | Unit equipped with specific variable-speed fans: XtraFans (See specific chapter for maximum available static pressure according to size), each fan equipped with a connection flange and flexible sleeves | Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics | • | • |
| Return air connection frame | Unit equipped with a connection frame at the heat exchange coil inlet | Facilitates channelling of the air at the unit inlet. | • | • |
| Xtra Low Noise | Acoustic compressor enclosure and low-speed fans | Noise emission reduction at reduced fan speed | • | • |
| High ambient temperature | Unit equipped with a higher speed fan | Unit operating range extended to higher ambient temperatures | • | • |
| EC fans | Unit equipped with EC fans | Improves the unit's energy efficiency | • | • |
| Protection grilles | Metallic protection grilles | Coil protection against possible impact | • | • |
| Air filter and return air connection frame | Unit equipped with a connection frame at the heat exchange coil inlet and G2 efficiency washable filter in accordance with EN 779 | Facilitates channelling of the air at the unit inlet and protects the air exchanger against pollution | • | • |
| Electronic starter per compressor | Electronic starter on each compressor | Reduced start-up current | • | • |
| All year round cooling operation down to -20 °C | Fanspeed control via frequency converter | Stable unit operation when the outdoor air temperature is between 0 °C and -20 °C | • | • |
| Water exchanger frost protection | Electric heater on the water exchanger and the water piping | Water exchanger module frost protection between 0 °C and -20 °C outside air temperature | • | • |
| Hydronic module antifreeze protection | Electric heater on the hydronic module | Antifreeze protection of the hydronic module for outdoor temperatures down to -20 °C | • | • |
| Exchanger and hydronic module antifreeze protection | Electric heaters on the water heat exchanger, water pipes, hydronic module, optional expansion tank and buffer tank | Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20 °C | • | • |
| Partial heat recovery | Unit equipped with one desuperheater on each refrigerant circuit | Production of free high-temperature hot-water simultaneously with chilled water production (or hot water for heat pump) | • | • |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit to be field installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | • | • |
| Evaporator single HP pump | High pressure fixed-speed water pump, drain valve, air vent and pressure sensors. (optional expansion tank and built-in safety hydraulic components available) | Quick and easy installation (plug & play) | • | • |
| Evaporator dual HP pump | Dual high pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | • | • |
| Variable-speed single HP pump | Single low pressure water pump, water filter, electronic water flow control, pressure sensors. Multiple variable water flow control options (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control. | • | • |
| Variable-speed dual high pressure pump | Dual high pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. For more details, refer to the dedicated section. | Quick and easy installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | • | • |
| Variable-speed single LP pump | Single low pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control. | • | • |

• ALL MODELS

(*) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | AQUACIAT™ LD | AQUACIAT™ ILD |
|---|--|---|--------------|---------------|
| Variable-speed dual LP pump | Evaporator hydronic module equipped with a variable-speed low pressure pump, a drain valve, an air vent and pressure sensors. For more details, refer to the dedicated section (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control. | • | • |
| Evaporator single LP pump | Single low pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | • | • |
| Dual LP pump hydronic module | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components) | Quick and easy installation (plug & play) | • | • |
| Lon gateway | Bidirectional communication board using LonTalk protocol | Connects the unit by communication bus to a centralised building management system | • | • |
| Bacnet over IP | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | • | • |
| Refrigerant leak detector | Unit equipped with refrigerant leak detector | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • | • |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | • | • |
| Insulation of the evap. in/out ref.lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/leaving refrigerant lines | • | • |
| MCHE anti-corrosion protection Protect2 | Coating by conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117) | Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments | • | No |
| MCHE anti-corrosion protection Protect4 | Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in corrosive environments | • | No |
| Evaporator screw connection sleeves (kit) | Evaporator inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | • | • |
| Reinforced ECM filtration for fan VFD | Pump variable frequency drive compliant with IEC 61800-3 class C1 | Allows unit installation in domestic residential environment by reducing electromagnetic interferences | • | • |
| Reinforced ECM filtration for pump VFD | Pump variable frequency drive compliant with IEC 61800-3 class C1 | Allows unit installation in domestic residential environment by reducing electromagnetic interferences | • | • |
| Expansion tank | 6 bar expansion tank integrated in the hydronic module (requires hydronic module option) | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure | • | • |
| Water buffer tank module | Integrate water buffer tank | Avoid short cycle on compressors and ensure a stable water in the loop | • | • |
| Water buffer tank module with 16,31,45 kW electrical backup | Integrates a water buffer tank module with a 16,31,45 kW auxiliary heater | The tank avoids short cycles on the compressors and ensures the water in the loop is stable. The auxiliary heater provides additional or backup heating in heating mode. | No | • |
| Anti-vibration mounts | Elastomer anti-vibration mounts to be placed under the unit (material classified as fire class B2 according to DIN 4102). | Isolate the unit from the building, prevent the transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side | • | • |
| Exchangers flexible coupling connection | Heat exchanger flexible connections, water side | Easy to install. Limits the transmission of vibrations to the water network | • | • |
| Exchanger water filter | Water filter | Prevents dust entering the water network | • | • |

• ALL MODELS

(*) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | AQUACIAT™ LD | AQUACIAT™ ILD |
|--|--|--|--------------|---------------|
| Drycooler management, free cooling mode | Regulation and connections for a 09PE or 09VE free cooling drycooler unit equipped with a control box with FC option | Easy system management, control capacity extended to a drycooler used in free cooling mode | • | • |
| Installation or application process outside Europe | Specific management of option compatibility | Permits non-standard option compatibility for HVAC application in the EU | • | • |
| Compliance with Moroccan regulations | Specific regulatory documentation | Compliance with Moroccan regulations | • | • |
| Plastic cover | Unit wrapped in a plastic cover and strapped onto a wooden pallet. | Protects against dust and external soiling of the unit during storage and transport. | • | • |

• ALL MODELS

(*) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.

TECHNICAL CHARACTERISTICS - COOLING ONLY


| AQUACIAT™ LD | | | 150R | 180R | 200R | 202R | 240R | 260R | |
|--|--|------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 41,7 | 47,3 | 52,9 | 56,1 | 63,6 | 71,2 |
| | | EER | kW/kW | 2,95 | 2,94 | 2,93 | 2,97 | 2,89 | 2,90 |
| | CA2 | Nominal capacity | kW | 54,6 | 62,7 | 69,4 | 74,3 | 84,6 | 93,0 |
| | | EER | kW/kW | 3,60 | 3,60 | 3,51 | 3,61 | 3,63 | 3,49 |
| Seasonal energy efficiency** | SEER_{12/7°C} Comfort low temp. | | kWh/kWh | 4,41 | 4,47 | 4,50 | 4,62 | 4,41 | 4,31 |
| | $\eta_{s\ cool\ 12/7°C}$ | | % | 173 | 176 | 177 | 182 | 174 | 169 |
| | SEER_{23/18°C} Comfort medium temp. | | kWh/kWh | 6,10 | 6,11 | 6,06 | 6,17 | 5,61 | 5,72 |
| | SEPR_{12/7°C} Process high temp. | | kWh/kWh | 6,30 | 6,23 | 6,23 | 6,21 | 5,92 | 5,46 |
| | SEPR_{-2/-8°C} Process medium temp. | | kWh/kWh | 3,59 | 3,65 | 3,79 | 3,89 | 3,65 | 3,61 |
| Part Load integrated values | | IPLV.SI | kW/kW | 4,945 | 5,025 | 5,182 | 5,270 | 5,369 | 4,630 |
| Sound levels | | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 81 | 82,0 | 83,5 | 83,5 | 89,0 | 89,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 49,5 | 50,5 | 52,0 | 52,0 | 57,5 | 57,5 | |
| Unit + Xtra Low Noise option | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 78 | 79,0 | 80,0 | 80,0 | 80,0 | 80,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 47 | 47,5 | 48,5 | 48,5 | 48,0 | 48,5 | |
| Dimensions | | | | | | | | | |
| Length | | mm | 1061 | 1061 | 1061 | 1061 | 1061 | 1061 | |
| Width | | mm | 2050 | 2050 | 2050 | 2050 | 2050 | 2050 | |
| Height | | mm | 1330 | 1330 | 1330 | 1330 | 1330 | 1330 | |
| Unit height (XtraFan option) | | mm | 1341 | 1341 | 1341 | 1341 | 1341 | 1341 | |
| Unit height (optional buffer tank) | | mm | 1930 | 1930 | 1930 | 1930 | 1930 | 1930 | |
| Unit height (XtraFan + buffer tank option) | | mm | 1972 | 1972 | 1972 | 1972 | 1972 | 1972 | |
| Operating weight ⁽³⁾ | | | | | | | | | |
| Standard unit | | kg | 408 | 409 | 428 | 428 | 435 | 446 | |
| Unit + single high pressure pump option | | kg | 428 | 429 | 448 | 448 | 455 | 466 | |
| Unit + dual high pressure pump option | | kg | 455 | 456 | 475 | 475 | 482 | 493 | |
| Unit + single high pressure pump and buffer tank options | | kg | 780 | 781 | 800 | 800 | 807 | 818 | |
| Unit + dual high pressure pump and buffer tank options | | kg | 807 | 808 | 827 | 827 | 834 | 845 | |

* In accordance with standard EN14511-3:2018.

** In accordance with EN14825:2018, average climatic conditions

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

$\eta_{s\ cool\ 12/7°C}$ & SEER_{12/7°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEER_{23/18°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEPR_{-2/-8°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for HT applications**

IPLV.SI Calculated as per standard AHRI 551-591

(1) in dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20 µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

TECHNICAL CHARACTERISTICS - COOLING ONLY


| AQUACIAT™ LD | | 150R | 180R | 200R | 202R | 240R | 260R |
|--|--------------------|---|------|------|------|------|------|
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | |
| Circuit A | | 2 | 2 | 2 | 2 | 2 | 2 |
| Circuit B | | | | | | | |
| No. of control stages | | 2 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant⁽³⁾ | | R32 / A2L / PRG=675 in accordance with AR4 | | | | | |
| Circuit A | kg | 3,72 | 3,92 | 4,15 | 4,60 | 4,70 | 4,87 |
| | tCO ₂ e | 2,5 | 2,6 | 2,8 | 3,1 | 3,2 | 3,3 |
| Circuit B | kg | | | | | | |
| | tCO ₂ e | | | | | | |
| Oil charge | | POE | | | | | |
| Circuit A | l | 6,00 | 6,00 | 6,60 | 6,60 | 6,60 | 7,20 |
| Circuit B | l | | | | | | |
| Capacity control | | Connect'Touch | | | | | |
| Minimum capacity | % | 50 | 50 | 50 | 50 | 50 | 50 |
| PED category | | III | | | | | |
| Condenser | | All-aluminium micro-channel coils (MCHE) | | | | | |
| Fans | | Axial with rotating impeller | | | | | |
| Quantity | | 1 | 1 | 1 | 1 | 1 | 1 |
| Maximum total air flow | l/s | 3882 | 3802 | 4058 | 3900 | 5484 | 5452 |
| Maximum rotation speed | rps | 12 | 12 | 12 | 12 | 18 | 18 |
| Evaporator | | Direct expansion brazed-plate heat exchanger | | | | | |
| Water volume | l | 3,55 | 4 | 4,44 | 4,44 | 5,18 | 6,07 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 18 | 18 | 18 | 18 | 18 | 18 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® type | | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL CHARACTERISTICS - COOLING ONLY


| AQUACIAT™ LD | | | | 300R | 360R | 390R | 450R | 520R | 600R |
|--|--|------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 81,1 | 93,4 | 107 | 124 | 140 | 160 |
| | | EER | kW/kW | 2,78 | 2,97 | 2,83 | 2,85 | 2,87 | 2,76 |
| | CA2 | Nominal capacity | kW | 103 | 126 | 142 | 162 | 183 | 203 |
| | | EER | kW/kW | 3,22 | 3,72 | 3,48 | 3,40 | 3,48 | 3,21 |
| Seasonal energy efficiency** | SEER_{12/7°C} Comfort low temp. | | kWh/kWh | 4,24 | 4,38 | 4,51 | 4,57 | 4,46 | 4,37 |
| | $\eta_{s\ cool\ 12/7°C}$ | | % | 167 | 172 | 177 | 180 | 176 | 172 |
| | SEER_{23/18°C} Comfort medium temp. | | kWh/kWh | 5,46 | 5,54 | 5,78 | 5,73 | 5,61 | 5,34 |
| | SEPR_{12/7°C} Process high temp. | | kWh/kWh | 5,21 | 5,45 | 5,19 | 5,24 | 5,37 | 5,15 |
| | SEPR_{-2/-8°C} Process medium temp. | | kWh/kWh | 3,67 | 3,54 | 3,54 | 3,74 | 3,61 | 3,68 |
| Part Load integrated values | | IPLV.SI | kW/kW | 4,630 | 4,904 | 4,953 | 4,997 | 4,707 | 4,680 |
| Sound levels | | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 89,0 | 91,5 | 91,5 | 92,0 | 92,0 | 92,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 57,0 | 60,0 | 59,5 | 60,0 | 60,0 | 60,0 |
| Unit + Xtra Low Noise option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 80,0 | 83,0 | 83,0 | 83,0 | 83,0 | 83,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 48,0 | 51,0 | 51,0 | 51,5 | 51,0 | 51,0 |
| Dimensions | | | | | | | | | |
| Length | | | mm | 1061 | 2258 | 2258 | 2258 | 2258 | 2258 |
| Width | | | mm | 2050 | 2050 | 2050 | 2050 | 2050 | 2050 |
| Height | | | mm | 1330 | 1330 | 1330 | 1330 | 1330 | 1330 |
| Unit height (XtraFan option) | | | mm | 1341 | 1341 | 1341 | 1341 | 1341 | 1341 |
| Unit height (optional buffer tank) | | | mm | 1930 | 1930 | 1930 | 1930 | 1930 | 1930 |
| Unit height (XtraFan + buffer tank option) | | | mm | 1972 | 1972 | 1972 | 1972 | 1972 | 1972 |
| Operating weight ⁽³⁾ | | | | | | | | | |
| Standard unit | | | kg | 454 | 672 | 734 | 743 | 861 | 877 |
| Unit + single high pressure pump option | | | kg | 474 | 692 | 754 | 768 | 886 | 902 |
| Unit + dual high pressure pump option | | | kg | 501 | 719 | 781 | 790 | 908 | 924 |
| Unit + single high pressure pump and buffer tank options | | | kg | 826 | 1110 | 1172 | 1186 | 1304 | 1320 |
| Unit + dual high pressure pump and buffer tank options | | | kg | 853 | 1137 | 1199 | 1208 | 1326 | 1342 |

* In accordance with standard EN14511-3:2018.

** In accordance with EN14825:2018, average climatic conditions

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

$\eta_{s\ cool\ 12/7°C}$ & SEER_{12/7°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEER_{23/18°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEPR_{-2/-8°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for HT applications**

IPLV.SI Calculated as per standard AHRI 551-591

(1) in dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20 µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

TECHNICAL CHARACTERISTICS - COOLING ONLY


| AQUACIAT™ LD | | 300R | 360R | 390R | 450R | 520R | 600R |
|--|--------------------|---|-------|-------|-------|-------|-------|
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | |
| Circuit A | | 2 | 2 | 3 | 3 | 2 | 2 |
| Circuit B | | | | | | 2 | 2 |
| No. of control stages | | 2 | 2 | 3 | 3 | 4 | 4 |
| Refrigerant⁽³⁾ | | R32 / A2L / PRG=675 in accordance with AR4 | | | | | |
| Circuit A | kg | 4,94 | 7,75 | 7,95 | 9,00 | 4,87 | 4,94 |
| | tCO ₂ e | 3,3 | 5,2 | 5,4 | 6,1 | 3,3 | 3,3 |
| Circuit B | kg | | | | | 4,87 | 4,94 |
| | tCO ₂ e | | | | | 3,3 | 3,3 |
| Oil charge | | POE | | | | | |
| Circuit A | l | 7,20 | 7,20 | 10,80 | 10,80 | 7,20 | 7,20 |
| Circuit B | l | | | | | 7,20 | 7,20 |
| Capacity control | | Connect'Touch | | | | | |
| Minimum capacity | % | 50 | 50 | 33 | 33 | 25 | 25 |
| PED category | | III | | | | | |
| Condenser | | All-aluminium micro-channel coils (MCHE) | | | | | |
| Fans | | Axial with rotating impeller | | | | | |
| Quantity | | 1 | 2 | 2 | 2 | 2 | 2 |
| Maximum total air flow | l/s | 5414 | 10568 | 10512 | 10974 | 10904 | 10827 |
| Maximum rotation speed | rps | 18 | 18 | 18 | 18 | 18 | 18 |
| Evaporator | | Direct expansion brazed-plate heat exchanger | | | | | |
| Water volume | l | 6,96 | 7,4 | 8,44 | 9,92 | 12,69 | 14,31 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 18 | 35 | 35 | 35 | 35 | 35 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® type | | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP


| AQUACIAT™ ILD | | | 150R | 180R | 200R | 240R | 260R | 300R | | |
|--|------------------------------|---|----------------------------|---------|------|------|------|------|------|------|
| Heating | | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 44,1 | 47,9 | 54,3 | 61,6 | 68,2 | 61,8 | |
| | | COP | kW/kW | 3,91 | 3,97 | 3,89 | 3,80 | 3,81 | 3,03 | |
| | HA2 | Nominal capacity | kW | 42,7 | 47,0 | 53,5 | 59,5 | 67,2 | 75,7 | |
| | | COP | kW/kW | 3,07 | 3,16 | 3,12 | 3,01 | 3,08 | 3,01 | |
| | Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,73 | 3,80 | 3,84 | 3,51 | 3,56 | 3,59 |
| | | | ηs heat _{30/35°C} | % | 146 | 149 | 151 | 137 | 139 | 141 |
| P _{rated} | | | kW | 32,2 | 34,9 | 39,5 | 44,4 | 47,8 | 56,1 | |
| Cooling | | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 41,0 | 43,1 | 50,3 | 60,2 | 65,2 | 74,3 | |
| | | EER | kW/kW | 2,89 | 2,69 | 2,66 | 2,97 | 2,90 | 2,66 | |
| Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,07 | 4,13 | 4,05 | 4,33 | 4,25 | 4,04 | |
| | | SEPR _{12/7°C} Process high temp. | % | 5,93 | 5,93 | 5,60 | 6,07 | 5,83 | 5,38 | |
| Sound levels | | | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 82 | 83 | 84 | 89 | 89,5 | 89,5 | |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 50 | 51 | 53 | 58 | 58 | 58 | |
| Unit + Xtra Low Noise option | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 78,5 | 79 | 80,5 | 80,5 | 80,5 | 80,5 | |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 47 | 48 | 49 | 49 | 49 | 49 | |

* In accordance with standard EN14511-3:2018.
 ** In accordance with EN14825:2018, average climatic conditions
 HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
ηs heat_{30/35°C} & SCOP_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
SEER_{12/7°C} & SEPR_{12/7°C} Applicable Ecodesign regulation (EU) No. 2016/2281
 (1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.
 (2) In dB ref 20 μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).



Eurovent certified values


TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIAT™ ILD | | 150R | 180R | 200R | 240R | 260R | 300R |
|---|--------------------|---|------|------|------|------|------|
| Dimensions | | | | | | | |
| Standard unit | | | | | | | |
| Length | mm | 1061 | 1061 | 1061 | 1061 | 1061 | 1061 |
| Width | mm | 2050 | 2050 | 2050 | 2050 | 2050 | 2050 |
| Height | mm | 1330 | 1330 | 1330 | 1330 | 1330 | 1330 |
| Unit height (XtraFan option) | mm | 1341 | 1341 | 1341 | 1341 | 1341 | 1341 |
| Unit height (optional buffer tank) | mm | 1930 | 1930 | 1930 | 1930 | 1930 | 1930 |
| Unit height (XtraFan + buffer tank option) | mm | 1972 | 1972 | 1972 | 1972 | 1972 | 1972 |
| Operating weight ⁽³⁾ | | | | | | | |
| Standard unit | | | | | | | |
| Unit + single high pressure pump option | kg | 444 | 446 | 469 | 496 | 506 | 515 |
| Unit + dual high pressure pump option | kg | 464 | 466 | 489 | 516 | 526 | 535 |
| Unit + single high pressure pump and buffer tank options | kg | 491 | 493 | 516 | 543 | 553 | 562 |
| Unit + dual high pressure pump and buffer tank options | kg | 816 | 818 | 841 | 868 | 878 | 887 |
| Unit + dual high pressure pump and buffer tank options | kg | 843 | 845 | 868 | 895 | 905 | 914 |
| Compressors | | | | | | | |
| Hermetic Scroll 48.3 r/s | | | | | | | |
| Circuit A | | 2 | 2 | 2 | 2 | 2 | 2 |
| Circuit B | | | | | | | |
| No. of control stages | | 2 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant⁽³⁾ | | | | | | | |
| R-32 / A2L/ PRP= 675 in accordance with AR4 | | | | | | | |
| Circuit A | kg | 7,30 | 7,30 | 7,80 | 8,70 | 8,95 | 9,20 |
| | tCO ₂ e | 4,9 | 4,9 | 5,3 | 5,9 | 6,0 | 6,2 |
| Circuit B | kg | | | | | | |
| | tCO ₂ e | | | | | | |
| Oil charge | | | | | | | |
| POE | | | | | | | |
| Circuit A | l | 6,0 | 6,0 | 6,6 | 6,6 | 7,2 | 7,2 |
| Circuit B | l | | | | | | |
| Capacity control | | | | | | | |
| Connect'Touch | | | | | | | |
| Minimum capacity | % | 50 | 50 | 50 | 50 | 50 | 50 |
| PED category | | | | | | | |
| III | | | | | | | |
| Condenser | | | | | | | |
| Grooved copper tubes and aluminium fins | | | | | | | |
| Fans | | | | | | | |
| Axial with rotating impeller | | | | | | | |
| Standard unit | | | | | | | |
| Quantity | | 1 | 1 | 1 | 1 | 1 | 1 |
| Maximum total air flow | l/s | 4034 | 4034 | 4034 | 5613 | 5613 | 5613 |
| Maximum rotation speed | rps | 12 | 12 | 12 | 16 | 16 | 16 |
| Evaporator | | | | | | | |
| Direct expansion brazed-plate heat exchanger | | | | | | | |
| Water volume | l | 3,55 | 4 | 4,44 | 5,18 | 6,07 | 6,96 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | | | | | | |
| Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 18 | 18 | 18 | 18 | 18 | 18 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | | | | | | |
| Victaulic® type | | | | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | | | | | | |
| Colour code RAL 7035 & 7024 | | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.


TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIAT™ ILD | | | 360R | 390R | 450R | 520R | 600R | | |
|--|------------------------------|------------------|--|---------|-------|-------|-------|-------|------|
| Heating | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 93,3 | 106,6 | 119,1 | 136,8 | 123,1 | |
| | | COP | kW/kW | 3,80 | 3,80 | 3,80 | 3,80 | 3,03 | |
| | HA2 | Nominal capacity | kW | 91,7 | 104,5 | 117,6 | 134,9 | 150,2 | |
| | | COP | kW/kW | 3,10 | 3,09 | 3,09 | 3,08 | 3,00 | |
| | Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,36 | 3,45 | 3,58 | 3,61 | 3,67 |
| | | | η _{s heat} _{30/35°C} | % | 132 | 135 | 140 | 141 | 144 |
| P _{rated} | | | kW | 59,9 | 68,4 | 77,2 | 95,7 | 111,6 | |
| Cooling | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 87,0 | 99,9 | 114,2 | 131,6 | 147,2 | |
| | | EER | kW/kW | 2,88 | 2,84 | 2,93 | 2,85 | 2,66 | |
| | Seasonal energy efficiency** | CA1 | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,31 | 4,68 | 4,84 | 4,19 | 4,08 |
| SEPR _{12/7°C} Process high temp. | % | | 5,71 | 5,69 | 5,77 | 5,48 | 5,22 | | |
| Sound levels | | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 92 | 92 | 92 | 92,5 | 92 | |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 61 | 61 | 61 | 61 | 60,5 | |
| Unit + Xtra Low Noise option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 83,5 | 83,5 | 83,5 | 83,5 | 83,5 | |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 52 | 52 | 52 | 52 | 52 | |

* In accordance with standard EN14511-3:2018.
 ** In accordance with EN14825:2018, average climatic conditions
 HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
η_{s heat}_{30/35°C} & SCOP_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
SEER_{12/7°C} & SEPR_{12/7°C} Applicable Ecodesign regulation (EU) No. 2016/2281
 (1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.
 (2) In dB ref 20 μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).



Eurovent certified values


TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIAT™ ILD | | 360R | 390R | 450R | 520R | 600R |
|---|--------------------|---|-------|-------|-------|-------|
| Dimensions | | | | | | |
| Standard unit | | | | | | |
| Length | mm | 2258 | 2258 | 2258 | 2258 | 2258 |
| Width | mm | 2050 | 2050 | 2050 | 2050 | 2050 |
| Height | mm | 1330 | 1330 | 1330 | 1330 | 1330 |
| Unit height (XtraFan option) | mm | 1341 | 1341 | 1341 | 1341 | 1341 |
| Unit height (optional buffer tank) | mm | 1930 | 1930 | 1930 | 1930 | 1930 |
| Unit height (XtraFan + buffer tank option) | mm | 1972 | 1972 | 1972 | 1972 | 1972 |
| Operating weight ⁽³⁾ | | | | | | |
| Standard unit | | | | | | |
| Unit + single high pressure pump option | kg | 779 | 838 | 891 | 1021 | 1025 |
| Unit + dual high pressure pump option | kg | 805 | 864 | 923 | 1054 | 1058 |
| Unit + single high pressure pump and buffer tank options | kg | 1197 | 1256 | 1309 | 1439 | 1443 |
| Unit + dual high pressure pump and buffer tank options | kg | 1223 | 1282 | 1341 | 1472 | 1476 |
| Compressors | | | | | | |
| Hermetic Scroll 48.3 r/s | | | | | | |
| Circuit A | | 2 | 3 | 3 | 2 | 2 |
| Circuit B | | | | | 2 | 2 |
| No. of control stages | | 2 | 3 | 3 | 4 | 4 |
| Refrigerant⁽³⁾ | | | | | | |
| R-32 / A2L/ PRP= 675 in accordance with AR4 | | | | | | |
| Circuit A | kg | 15,20 | 15,70 | 19,63 | 8,95 | 9,15 |
| | tCO ₂ e | 10,3 | 10,6 | 13,3 | 6,0 | 6,2 |
| Circuit B | kg | | | | 8,95 | 9,15 |
| | tCO ₂ e | | | | 6,0 | 6,2 |
| Oil charge | | | | | | |
| Circuit A | l | 7,2 | 10,8 | 10,8 | 7,2 | 7,2 |
| Circuit B | l | | | | 7,2 | 7,2 |
| Capacity control | | | | | | |
| Connect*Touch | | | | | | |
| Minimum capacity | % | 50 | 33 | 33 | 25 | 25 |
| PED category | | | | | | |
| III | | | | | | |
| Condenser | | | | | | |
| Grooved copper tubes and aluminium fins | | | | | | |
| Fans | | | | | | |
| Axial with rotating impeller | | | | | | |
| Standard unit | | | | | | |
| Quantity | | 2 | 2 | 2 | 2 | 2 |
| Maximum total air flow | l/s | 10904 | 10904 | 10904 | 11226 | 11226 |
| Maximum rotation speed | rps | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | | | | | |
| Direct expansion brazed-plate heat exchanger | | | | | | |
| Water volume | l | 7,4 | 8,44 | 9,92 | 12,69 | 14,31 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | | | | | |
| Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high pressure (as required), single or dual (as required) | | | | |
| Expansion tank volume (Option) | l | 35 | 35 | 35 | 35 | 35 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | | | | | |
| Victaulic® type | | | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | | | | | |
| Colour code RAL 7035 & 7024 | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

ELECTRICAL SPECIFICATIONS

| AQUACIAT™ LD / ILD | 150R | 180R | 200R | 202R | 240R | 260R | 300R | 360R | 390R | 450R | 520R | 600R | | |
|--|---------|------|----------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit supply | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | | 400-3-50 | | | | | | | | | | | |
| Voltage range | V | | 360-440 | | | | | | | | | | | |
| Control circuit supply | | | | | | | | | | | | | | |
| 24 V via internal transformer | | | | | | | | | | | | | | |
| Maximum operating input power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | | | | |
| Circuit A&B | kW | | 19 | 21 | 24 | 24 | 28 | 31 | 36 | 41 | 48 | 55 | 63 | 71 |
| Power factor at maximum power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi), standard unit | | | 0,81 | 0,82 | 0,82 | 0,82 | 0,84 | 0,84 | 0,85 | 0,82 | 0,84 | 0,85 | 0,84 | 0,85 |
| Nominal unit current draw⁽⁴⁾ | | | | | | | | | | | | | | |
| Standard unit | A | | 26 | 29 | 35 | 35 | 36 | 46 | 52 | 59 | 71 | 81 | 91 | 104 |
| Maximum operating current draw (Un)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | | | | |
| Standard unit | A | | 34 | 37 | 42 | 42 | 48 | 54 | 60 | 72 | 84 | 93 | 108 | 121 |
| Maximum current (Un-10%)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | | | | |
| Standard unit | A | | 37 | 39 | 44 | 44 | 51 | 58 | 65 | 77 | 89 | 99 | 115 | 129 |
| Maximum start-up current (Un) ⁽²⁾ + ⁽³⁾ | | | | | | | | | | | | | | |
| Standard unit | A | | 116 | 118 | 165 | 165 | 169 | 177 | 191 | 238 | 206 | 223 | 231 | 251 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12 °C/7 °C, outdoor air temperature = 35 °C.

■ Short circuit current withstand capability (TN system⁽¹⁾)

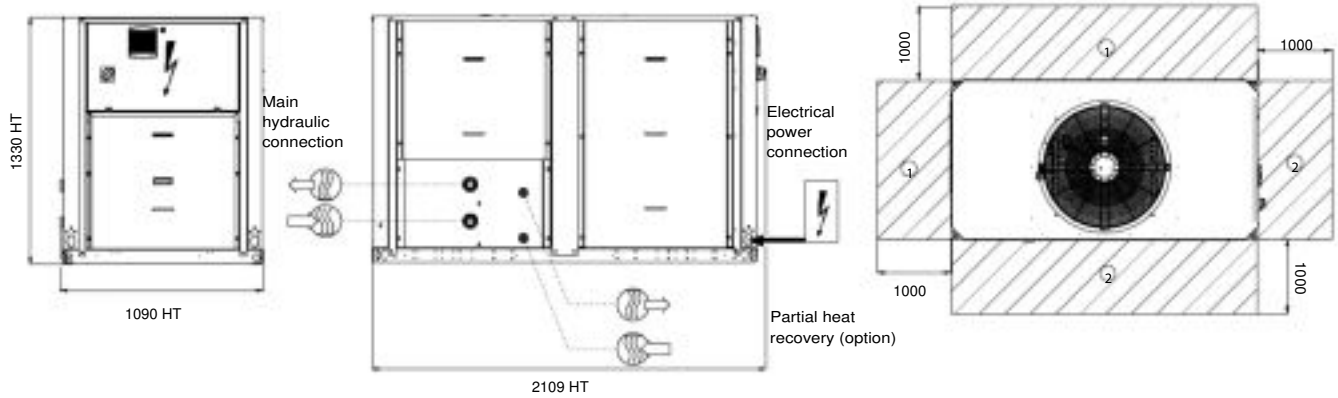
| AQUACIAT™ LD / ILD | 150R | 180R | 200R | 202R | 240R | 260R | 300R | 360R | 390R | 450R | 520R | 600R | | |
|--|---|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Rated short-circuit withstand currents | | | | | | | | | | | | | | |
| Short time (1s) assigned current - I _{cw} | kA eff | | 3,36 | 3,36 | 3,36 | 3,36 | 3,36 | 3,36 | 5,62 | 5,62 | 5,62 | 5,62 | 5,62 | 5,62 |
| Allowable peak assigned current - I _{pk} | kA pk | | 20 | 20 | 20 | 20 | 20 | 20 | 15 | 20 | 20 | 15 | 20 | 15 |
| Value with upstream protection | | | | | | | | | | | | | | |
| Conditional short circuit assigned current I _{cc} | kA eff | | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 30 | 30 | |
| Associated protection | Circuit breaker/Schneider | | | | | | | | | | | | | |
| Associated protection | NS100H NS100H NS100H NS100H NS100H NS100H NS100H NS100H NS100H NS100H NS160H NS160H NS250H NS250H | | | | | | | | | | | | | |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I²t) trip characteristics must be at least equivalent to those of the recommended protection.

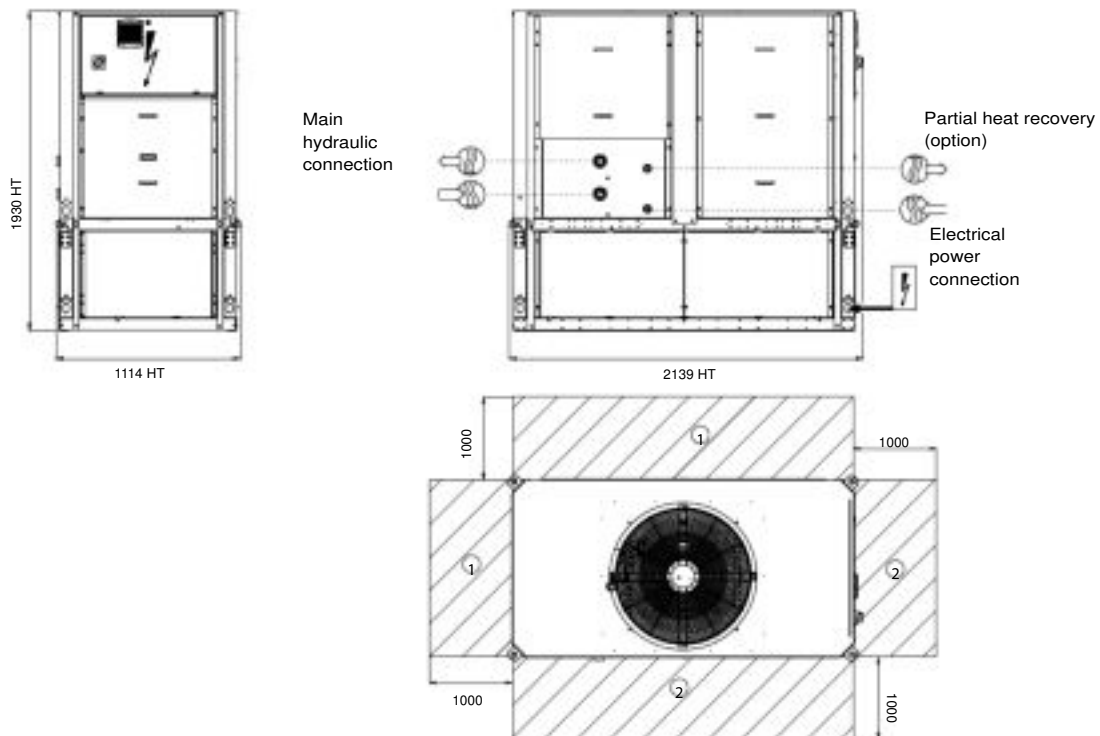
Note: The short-circuit stability current values given above are suitable for the TN system.

DIMENSIONS

■ AQUACIAT™ LD-ILD 150R to 300R without buffer tank



■ AQUACIAT™ LD-ILD 150R to 300R with buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES:

Non-contractual drawings.

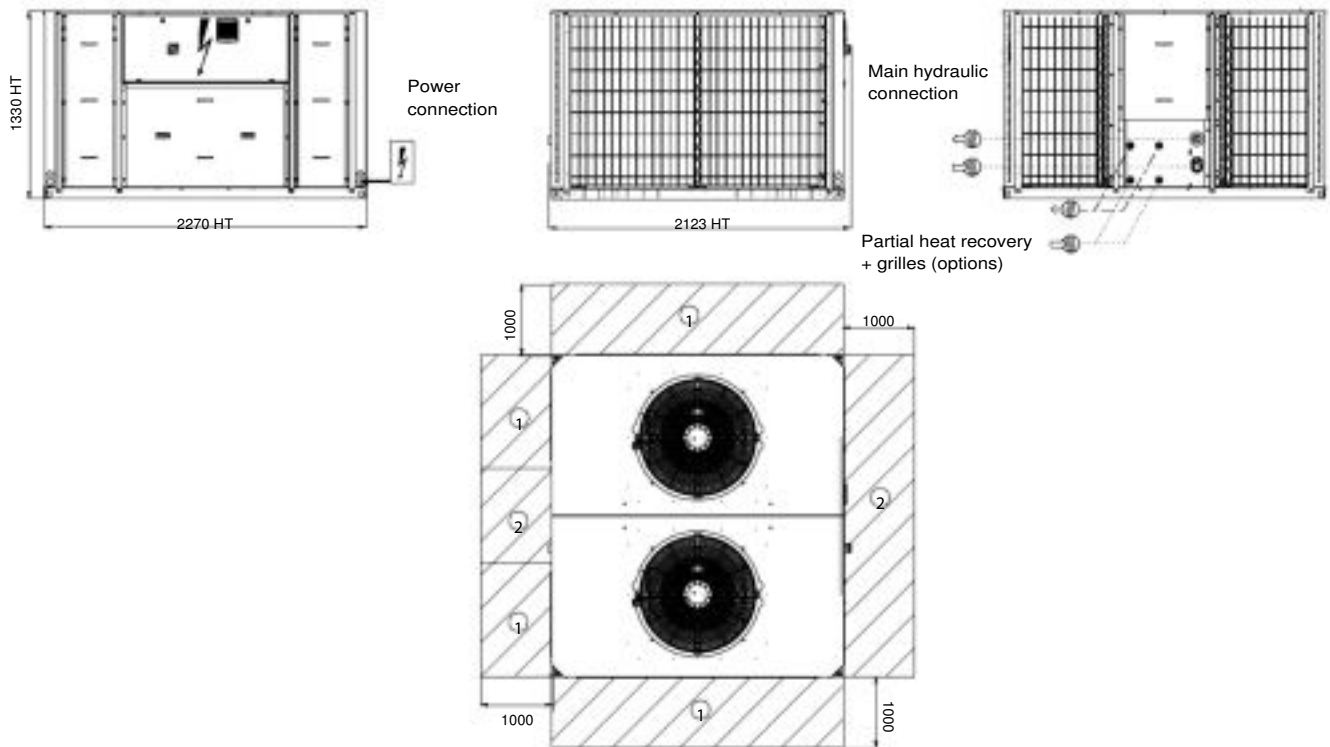
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan and return air frame option connections.

DIMENSIONS

■ AQUACIAT™ LD-ILD 360R to 600R without buffer tank



Key

All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

NOTES:

Non-contractual drawings.

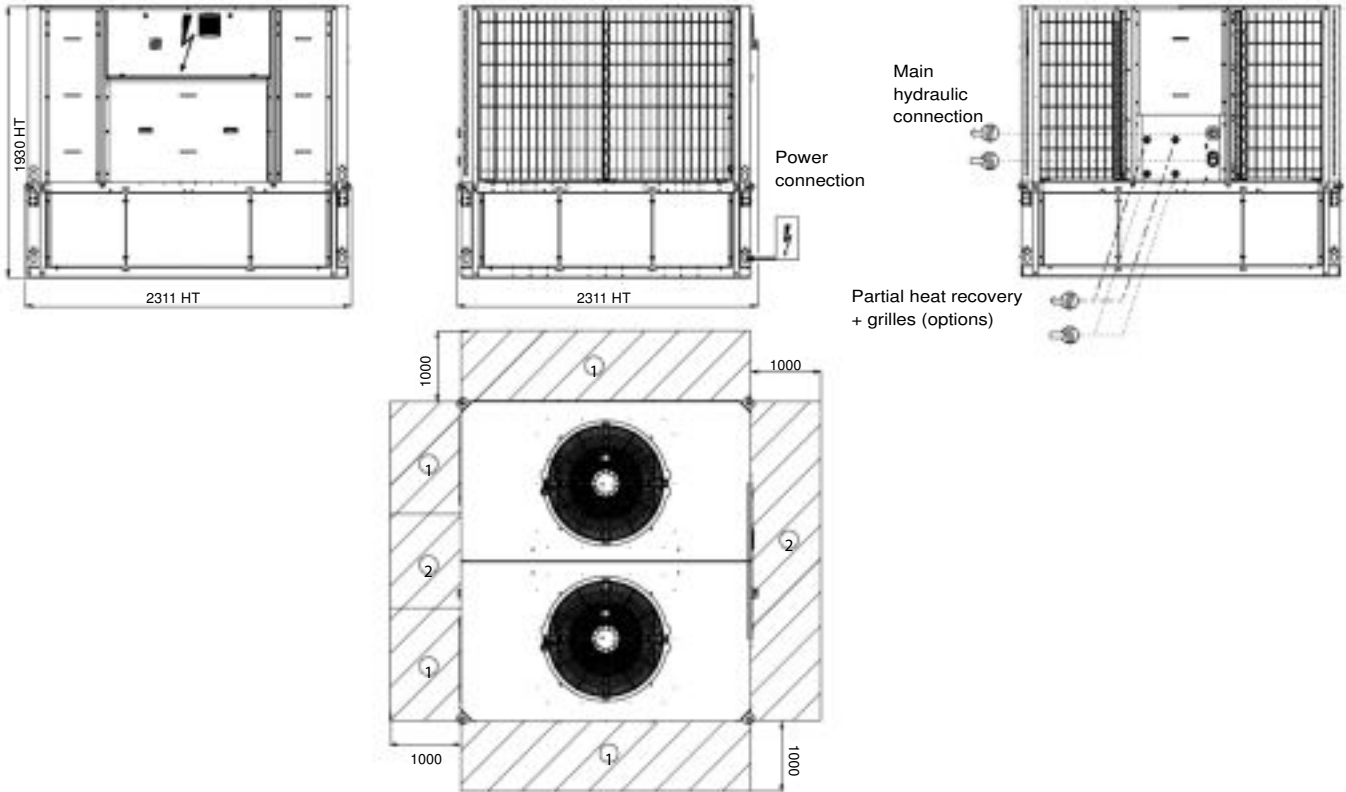
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan option connections.

DIMENSIONS

■ AQUACIAT™ LD-ILD 360R to 600R with buffer tank



Key

All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

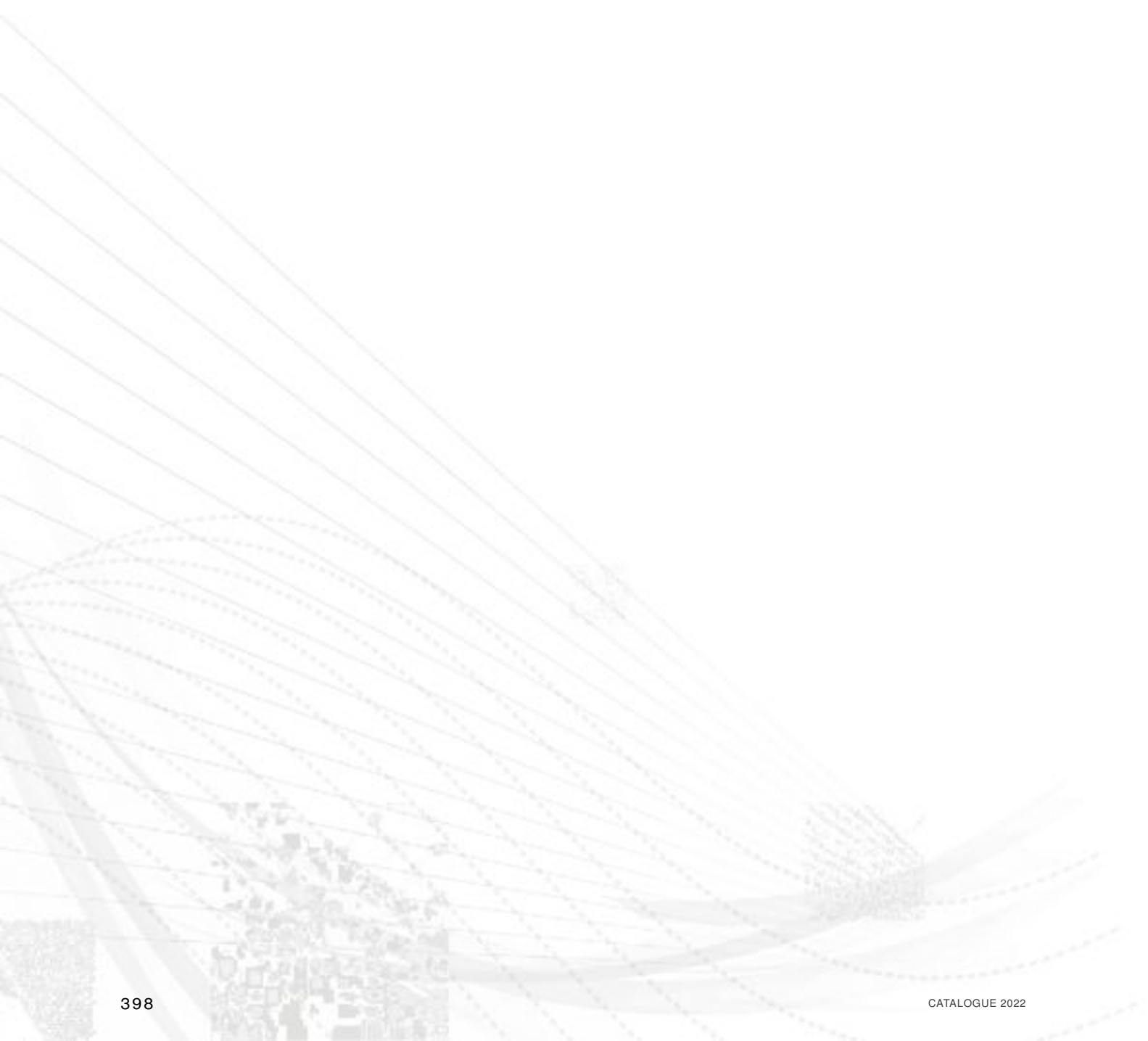
NOTES:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan option connections.



AQUACIAT^{CALEO}™ TD

Heat pump



Compact and silent

Optimised for heating

High energy efficiency

Winter operation down to -20 °C

Hot water production up to +65 °C

Heating capacity : 20 to 101 kW



Heating



Hydraulic
module



USE

The new generation of **AQUACIAT^{CALEO}™** heat pumps offers an optimal solution for all heating applications encountered in the Offices, Healthcare, Hotels, Administration, Shopping Centres and Collective Housing markets.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

The **AQUACIAT^{CALEO}™** uses outdoor air as the sole source of thermal energy for heating during the winter. Connected to high temperature static radiators, an underfloor heating system or comfort units, it produces hot water at +65 °C at an outdoor temperature of -10 °C which allows existing buildings to be heated with the greatest of ease.

Connected to a domestic hot water (DHW) production system with buffer tank capacity, the **AQUACIAT^{CALEO}™** allows for complete autonomy of the domestic hot water and conventional heating system, whilst guaranteeing comfort and considerable energy savings.

The **AQUACIAT^{CALEO}™** is optimised to use ozone-friendly HFC R407C refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

RANGE

AQUACIAT^{CALEO}™ TD series

Heating only version.

DESCRIPTION

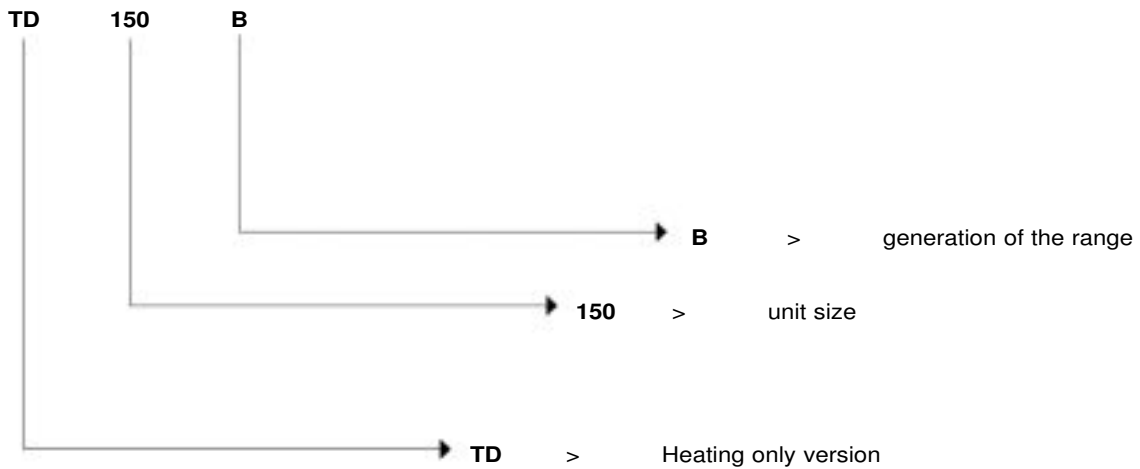
AQUACIAT^{CALEO}™ units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Water-cooled condenser, with brazed plates
- Air-cooled evaporator with axial fan motor assembly
 - copper tube coil, aluminium fins
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+/-10%) general power supply + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24V
- Connect Touch electronic control module
- Hydraulic module with variable speed single pump
- Casing for outdoor installation

The entire AQUACIAT^{CALEO}™ range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC
- Electromagnetic compatibility directive 2014/30/EC
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 -1
- Refrigerating systems and heat pumps EN 378-2

DESIGNATION



CONFIGURATION

| | |
|---------------|-------------------------|
| TD | Standard |
| TD LN option | Standard Low Noise |
| TD XLN Option | Standard Xtra Low Noise |

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Water type heat exchanger

- Brazed-plate exchanger
- Plate patterns optimised for high efficiency
- 19 mm armafex thermal insulation
- Frost protection with heater

■ Air-cooled exchanger

- Coil made of grooved copper tubes with high-performance aluminium fins
- propeller fans with composite blades offering an optimised profile
- motors – IP 54, class F

■ Refrigerant accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line
- Four-way reverse cycle valve for defrosting

■ Regulation and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow rate controller

■ Electrical cabinet

- Electrical cabinet with IP 44 protection rating
- A connection point without neutral
- Front-mounted main safety switch with handle
- Control circuit transformer
- 24V control circuit
- Fan and compressor motor circuit breaker
- Fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Frame

- Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

AVAILABLE OPTIONS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics. Using the integrated Webservice, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (certified BTL) as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second Heating setpoint is activated (unoccupied mode, for example)
- Fault reporting: fault reporting: this contact indicates the presence of a major fault which has caused the machine to stop
- Domestic hot water demand
- On/off control for a boiler
- 4-stage on/off management for additional heaters.

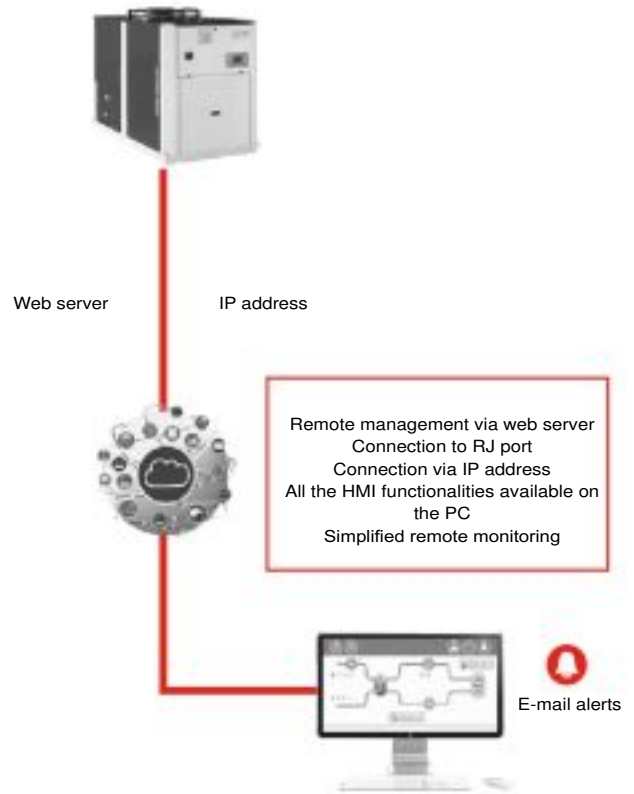
Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: used to adjust the setpoint

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- the scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- the compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the FGAS regulations

AVAILABLE OPTIONS

| Options | Description | Avantages | TD |
|---|---|--|------------------|
| Corrosion protection, traditional coils | Fins made of pre-treated aluminium (polyurethane and epoxy) | Improved corrosion resistance, recommended for moderate marine and urban environments | • |
| XtraFan | Fans with 100 Pa maximum available pressure. Each fan equipped with a connection flange & sleeves allowing the connection to the ducting system. | Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics | TD 100 to 300 |
| Low Noise | Aesthetic and sound absorbing compressor enclosure | Noise level reduction by 1 to 2 dB(A) | • |
| Xtra Low Noise | Acoustic compressor enclosure and low-speed fans | Noise emission reduction at reduced fan speed | TD 100 to 300 |
| Soft Starter | Electronic starter on each compressor | Reduced start-up current | • |
| Hydraulic module frost protection | Electric heater on the hydraulic module | hydraulic module frost protection at low outside temperatures down to -20°C | • |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | • |
| LON gateway | Two-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | • |
| Bacnet over IP | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | • |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | • |
| Condenser screw connection sleeves kit | Condenser inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | • |
| M2M supervision (accessory) | Monitoring solution which allows customers to track and monitor their equipment remotely in real time | Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment. | • |
| Anti-vibration mounts | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the buiding. Must be used in conjunction with a flexible connection on the water side | • |
| Condenser flexible sleeves connection | Flexibles connections on the condenser water side | Easy to install. Limits the transmission of vibrations to the water network | • |
| Set point adjustment by 4-20mA signal | Connections enabling a 4-20 mA signal input | Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal | • |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible. The European Ecodesign directive takes into account the product's environmental impact throughout its life cycle. It defines the mandatory energy efficiency requirements for water chillers and heat pumps.

Products that do not meet the energy efficiency requirements set by the new directive will gradually be phased out of the market, forcing manufacturers to develop and offer more efficient products.

Like the ESEER relating to water chillers, the new seasonal coefficient of performance (SCOP) resulting from this new European directive is used to evaluate the energy efficiency of heat pumps. Until now, only the COP has been used to measure energy efficiency in heating mode.

The COP was exclusively calculated using a single measuring point, and only took into account operation at full load, which did not represent the efficiency of the heat pump over an entire heating season.

The purpose of the SCOP is to characterise the seasonal efficiency of the heat pump by taking into account the efficiency at partial load and full load established for several outdoor temperatures. The SCOP is the ratio between the building's annual heating demand and the annual electricity consumption of the heating system. It is measured in accordance with standard EN14825 based on an average reference climate that takes into account several reference temperatures between -10°C and +16°C

TECHNICAL CHARACTERISTICS


| AQUACIAT ^{CALEO} TM TD | | | 70 | 80 | 100 | 120 | 150 | 200 | 300 | |
|--|-----------------------------------|--------------|-------------|--------------------------|-------------|-------------|-------------|-------------|-------------|------|
| Heating | | | | | | | | | | |
| Standard unit Full load performances* | | | | | | | | | | |
| HA1 | Nominal capacity | kW | 20,6 | 25,9 | 32,3 | 43,4 | 51,5 | 64,7 | 102,0 | |
| | COP | kW/kW | 4,11 | 4,02 | 4,04 | 4,27 | 4,32 | 3,97 | 4,24 | |
| HA2 | Nominal capacity | kW | 20,6 | 25,5 | 32,0 | 43,0 | 51,6 | 66,6 | 102,0 | |
| | COP | kW/kW | 3,46 | 3,37 | 3,35 | 3,56 | 3,64 | 3,42 | 3,58 | |
| HA3 | Nominal capacity | kW | 20,7 | 25,0 | 31,6 | 42,7 | 52,2 | 67,9 | 102,0 | |
| | COP | kW/kW | 2,99 | 2,91 | 2,89 | 3,10 | 3,16 | 3,00 | 3,12 | |
| HA4 | Nominal capacity | kW | 21,0 | 24,6 | 31,3 | 42,6 | 53,3 | 68,0 | 103,0 | |
| | COP | kW/kW | 2,50 | 2,43 | 2,42 | 2,60 | 2,66 | 2,52 | 2,64 | |
| Standard unit Seasonal energy efficiency** | | | | | | | | | | |
| HA1 | SCOP _{30/35°C} | kW/kW | 3,45 | 3,44 | 3,53 | 3,51 | 3,62 | 3,47 | 3,51 | |
| | η _{s heat 30/35°C} | % | 135 | 134 | 138 | 138 | 142 | 136 | 137 | |
| | P _{rated} | kW | 14,8 | 19,2 | 32,8 | 44,5 | 55,9 | 74,1 | 108,7 | |
| HA3 | SCOP_{47/55°C} | kW/kW | 2,92 | 2,94 | 2,97 | 3,00 | 3,08 | 2,99 | 3,15 | |
| | η_{s heat 47/55°C} | % | 114 | 115 | 116 | 117 | 120 | 117 | 123 | |
| | P _{rated} | kW | 15 | 19 | 31 | 43 | 54 | 63 | 94 | |
| Energy labelling | | | A+ | A+ | A+ | A+ | A+ | A+ | - | |
| Operating weight⁽¹⁾ | | | | | | | | | | |
| Unit + hydraulic module option | | | kg | 362 | 418 | 435 | 555 | 579 | 919 | 1039 |
| Sound levels | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Sound power ⁽²⁾ | | | dB(A) | 77 | 78 | 83 | 82 | 84 | 84 | 85 |
| Sound pressure at 10m ⁽³⁾ | | | dB(A) | 46 | 46 | 51 | 51 | 53 | 52 | 53 |
| Unit + Low Noise option | | | | | | | | | | |
| Sound power ⁽²⁾ | | | dB(A) | 75 | 76 | 80 | 80 | 80 | 82 | 82 |
| Sound pressure at 10m ⁽³⁾ | | | dB(A) | 44 | 44 | 49 | 48 | 49 | 50 | 51 |
| Unit + Xtra Low Noise option | | | | | | | | | | |
| Sound power ⁽²⁾ | | | dB(A) | NA | NA | 76 | 76 | 77 | 79 | 79 |
| Sound pressure at 10m ⁽³⁾ | | | dB(A) | NA | NA | 45 | 45 | 45 | 47 | 47 |
| Dimensions | | | | | | | | | | |
| Length | | | mm | 1110 | | 1114 | | 2273 | | |
| Depth | | | mm | 1327 | | 2100 | | 2100 | | |
| Height | | | mm | 1440 | | 1440 | | 1440 | | |
| Compressor | | | | | | | | | | |
| Quantity | | | | Hermetic Scroll 48.3 r/s | | | | | | |
| Number of power stages | | | | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

- * In accordance with standard EN14511-3:2018.
- * In accordance with standard EN14825:2018, average climate.
- HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. k/W
- HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. k/W
- HA3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47°C/55°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. k/W
- HA4 Heating mode conditions: Water heat exchanger water entering/leaving temperature 55°C/65°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. k/W
- η_{s heat 30/35°C} & SCOP_{30/35°C}
 η_{s heat 47/55°C} & SCOP_{47/55°C}
 - Values calculated in accordance with EN 14825:2018
Values in bold comply with Ecodesign Regulation (EU) No. 813/2018 for heating application
 - Not applicable
- (1) Weight given as a guide. Please refer to the unit nameplate.
- (2) In dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-2dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (3) In dB ref 20 μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-2dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

TECHNICAL CHARACTERISTICS


| AQUACIAT ^{CALEO} TM TD | | 70 | 80 | 100 | 120 | 150 | 200 | 300 |
|--|---------------------|--|--------|--------|--------|--------|------|------|
| Refrigerant | | R407C PRG = 1800 following AR4 | | | | | | |
| Charge | kg | 8 | 8,8 | 9,7 | 10 | 13,2 | 22 | 26,5 |
| | tCO ₂ eq | 14,2 | 15,6 | 17,2 | 17,7 | 23,4 | 39,0 | 47,0 |
| Oil | | POE - EMKARATE RL32-3 MAF | | | | | | |
| Charge | l | 1,9 | 4,1 | 4,1 | 4,1 | 4,1 | 8,2 | 8,2 |
| Control | | Connect Touch | | | | | | |
| Minimum capacity | % | 100 | 100 | 100 | 100 | 100 | 50 | 50 |
| Condenser | | Direct expansion, plate heat exchanger | | | | | | |
| Water volume | l | 4,9 | 6,4 | 8,2 | 9,6 | 12,1 | 16,4 | 22,7 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| Fan | | Axial with rotating impeller. Flying-Bird 4 | | | | | | |
| Quantity | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Total air flow (high speed) | l/s | 3770 | 3748 | 3736 | 4035 | 4036 | 7479 | 8072 |
| Standard rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Rotation speed with Xtrafan | r/s | - | - | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | Grooved copper tube and aluminium fins | | | | | | |
| Hydraulic module | | Pump. victaulic screen filter. valve. purge valves (water and air). cavitation pressure sensor | | | | | | |
| Water connections | | Victaulic | | | | | | |
| Connections | inch | 1" 1/4 | 1" 1/4 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 2" | 2" |
| External diameter | mm | 42,4 | 42,4 | 48,3 | 48,3 | 48,3 | 60,3 | 60,3 |
| Chassis paint colour | | Colour code RAL 7035 and RAL7024 | | | | | | |

ELECTRICAL SPECIFICATIONS

| AQUACIAT ^{CALEO} ™ TD | | 70 | 80 | 100 | 120 | 150 | 200 | 300 | |
|--|---------|----------|------|------|------|------|------|------|----|
| Power circuit | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | |
| Control circuit supply | | | | | | | | | |
| 24 V via internal transformer | | | | | | | | | |
| Maximum start-up current (Un)⁽¹⁾ | | | | | | | | | |
| Standard unit | A | 104 | 102 | 130 | 172 | 203 | 158 | 243 | |
| Unit with soft starter option | A | 56 | 54 | 69 | 92 | 103 | 97 | 144 | |
| Unit power factor at maximum capacity⁽²⁾ | | | | | | | | | |
| | | 0,82 | 0,82 | 0,83 | 0,87 | 0,87 | 0,83 | 0,87 | |
| Max. operating input power⁽²⁾ | | | | | | | | | |
| | | kW | 10 | 12 | 16 | 21 | 25 | 32 | 48 |
| Nominal unit current draw⁽³⁾ | | | | | | | | | |
| | | A | 14 | 16 | 20 | 25 | 30 | 42 | 57 |
| Maximum unit current draw (Un)⁽⁴⁾ | | | | | | | | | |
| | | A | 17 | 21 | 27 | 35 | 41 | 56 | 79 |
| Max. current draw (Un-10%)⁽⁵⁾ | | | | | | | | | |
| | | A | 18 | 22 | 29 | 38 | 45 | 60 | 86 |

- (1) Maximum instantaneous starting current (maximum operating current of the smallest compressor + fan current + locked rotor current of the largest compressor).
 (2) Input power, compressors + fans, at the unit operating limits (saturated suction temperature: 10 °C, saturated condensing temperature: 65 °C) and nominal voltage of 400 V (data given on the unit nameplate).
 (3) Standardised EUROVENT conditions: condenser entering/leaving water temperature = 40/45 °C, outside air temperature db/wb = 7 °C/6 °C.
 (4) Maximum unit operating current at maximum unit input power and 400 V (values given on the unit's nameplate).
 (5) Maximum unit operating current at maximum unit input power and 360 V.

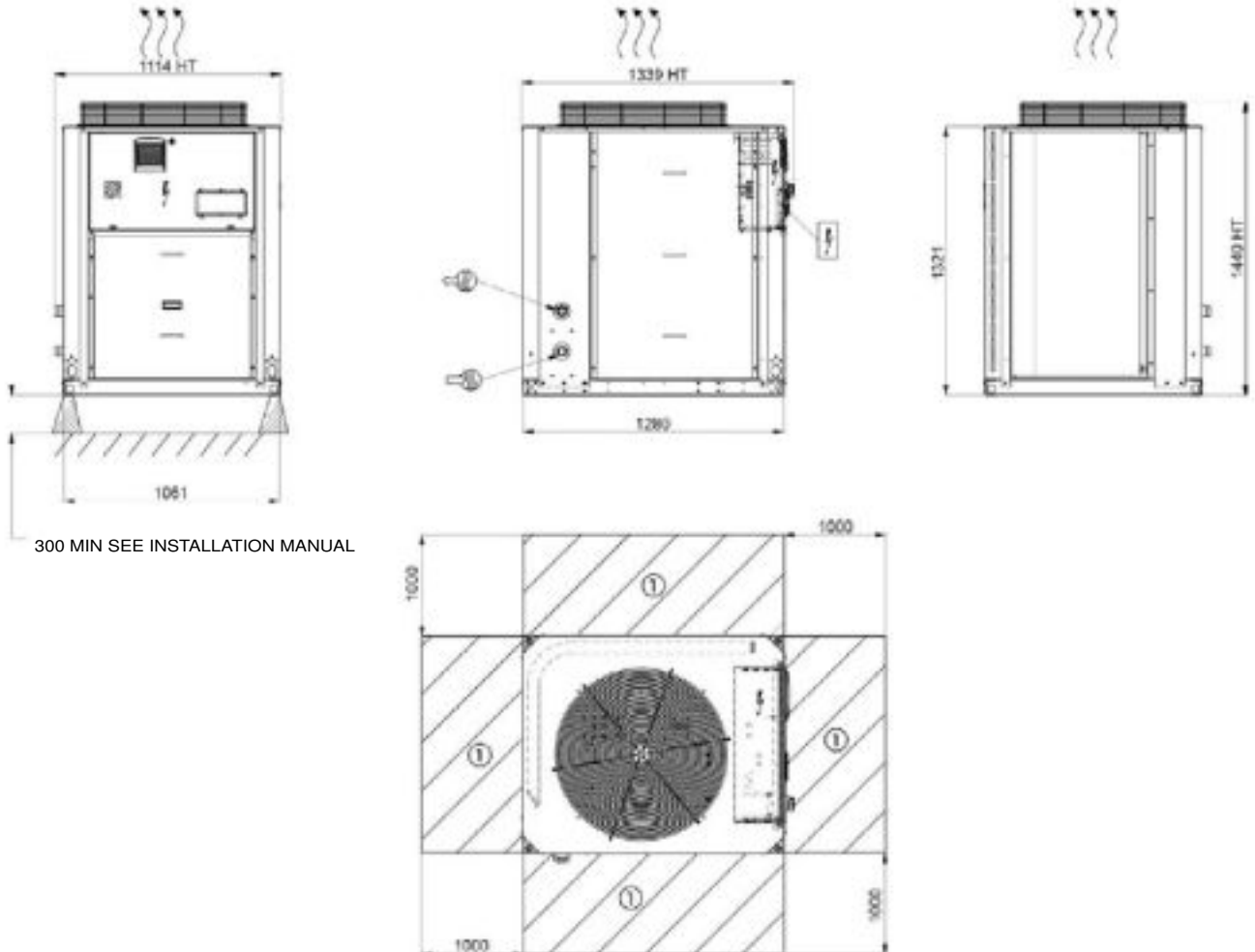
■ Short circuit current withstand capability (TN system⁽¹⁾)

| AQUACIAT ^{CALEO} ™ TD - Standard unit (disconnect switch) | | 70 | 80 | 100 | 120 | 150 | 200 | 300 |
|--|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Value without upstream protection | | | | | | | | |
| Short time (1s) assigned current (I _{cw}) | kA rms | 0,6 | 0,6 | 0,6 | 1,26 | 1,26 | 1,26 | 2 |
| Allowable peak assigned current (I _{pk}) | kA pk | 4,5 | 4,5 | 4,5 | 6 | 6 | 6 | 10 |
| value with upstream protection by circuit breaker | | | | | | | | |
| Conditional short circuit assigned current (I _{cc}) | kA rms | 5,4 | 7 | 7 | 7,7 | 7,7 | 6,1 | 10 |
| Circuit breaker - Compact range type | | 32 | 40 | 40 | 50 | 63 | 80 | 100 |
| Reference number ⁽²⁾ | | 5SY6332-7 | 5SY6340-7 | 5SY6340-7 | 5SY4350-7 | 5SY4363-8 | 5SP4380-7 | 5SP4391-7 |
| Value with upstream protection by fuses | | | | | | | | |
| Conditional short circuit assigned current (I _{cc}) | kA rms | 17 | 50 | 50 | 50 | 50 | 14,5 | 22 |
| Fuse (gL/gG) | | 40 | 40 | 40 | 63 | 63 | 80 | 125 |

- (1) Type of system earthing
 (2) If another current limitation protection system is used, its time-current and thermal constraints (I²t) trip characteristics must be at least equivalent to those of the recommended circuit breaker.
 The short circuit current stability values given above are for the TN system.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 70 to 100



300 MIN SEE INSTALLATION MANUAL

Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES :

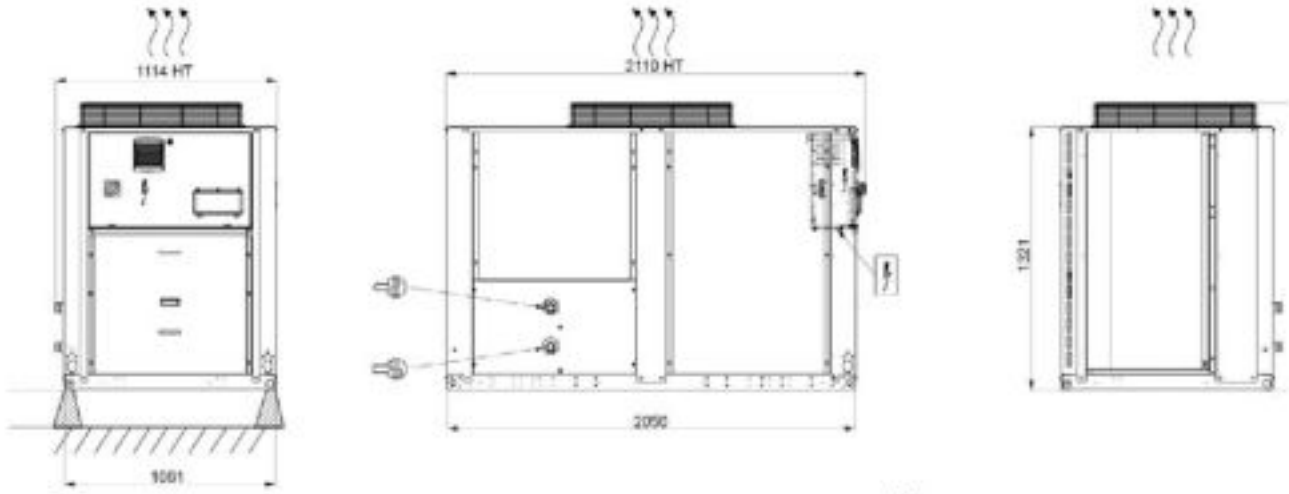
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

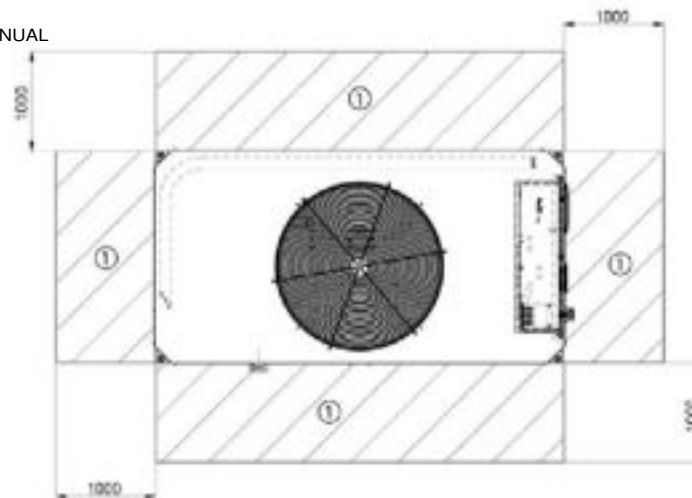
Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 120 to 150



300 MIN SEE INSTALLATION MANUAL



Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- ↙ Water inlet
- ↘ Water outlet
- ☼ Air outlet, do not obstruct
- ⚡ Electrical cabinet

NOTES :

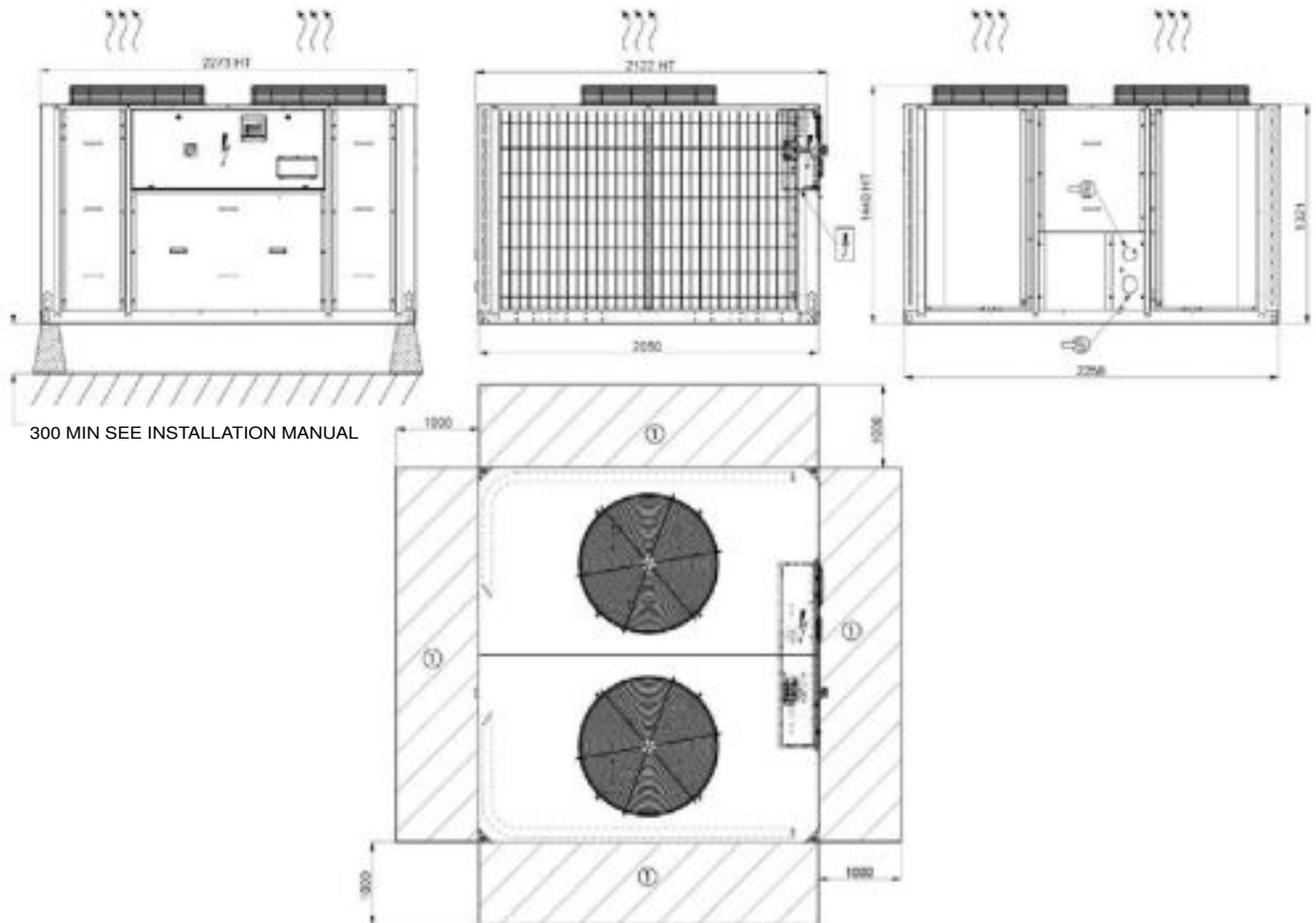
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 200 to 300



Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES :

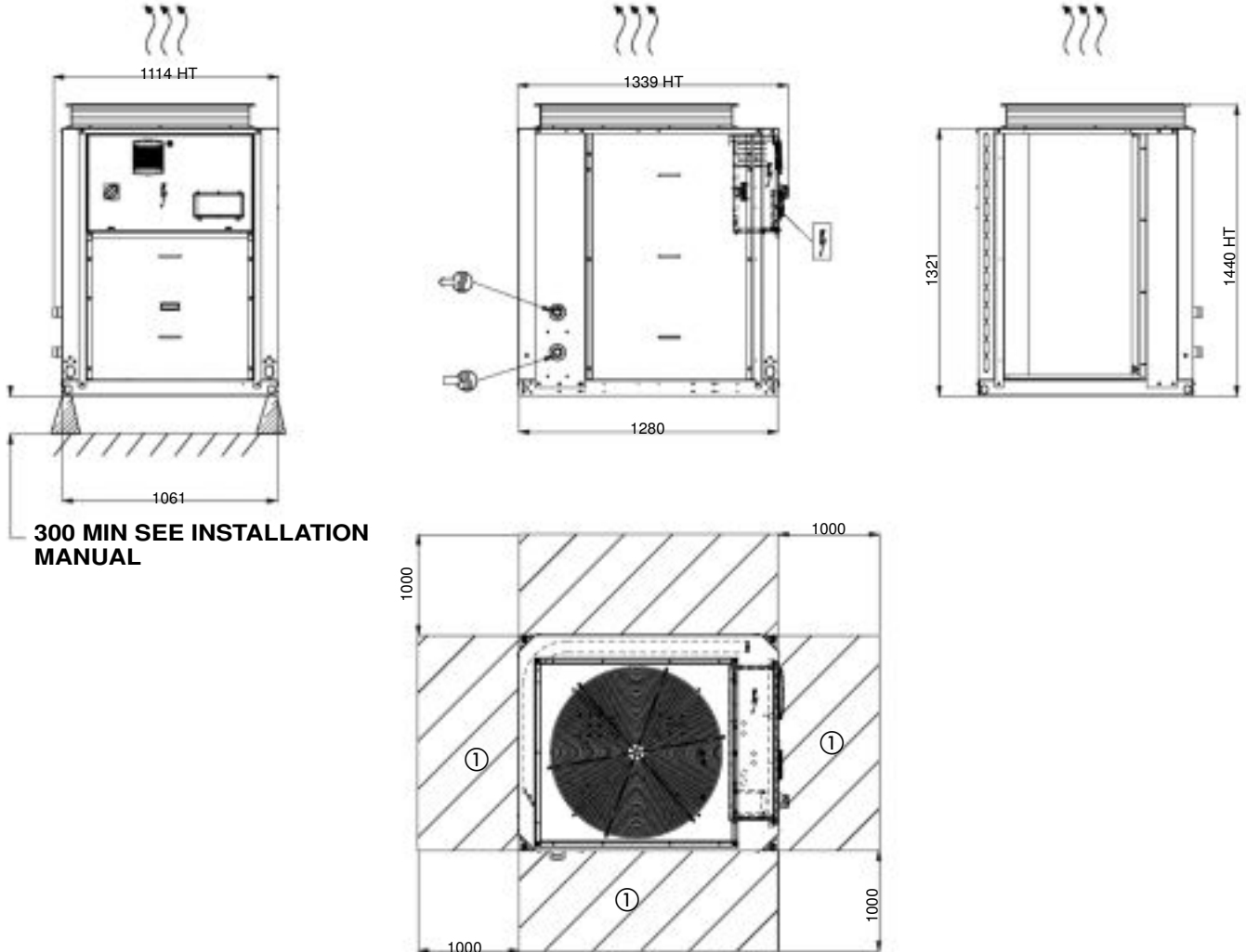
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates..

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 100 XTRA fan option



Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES :

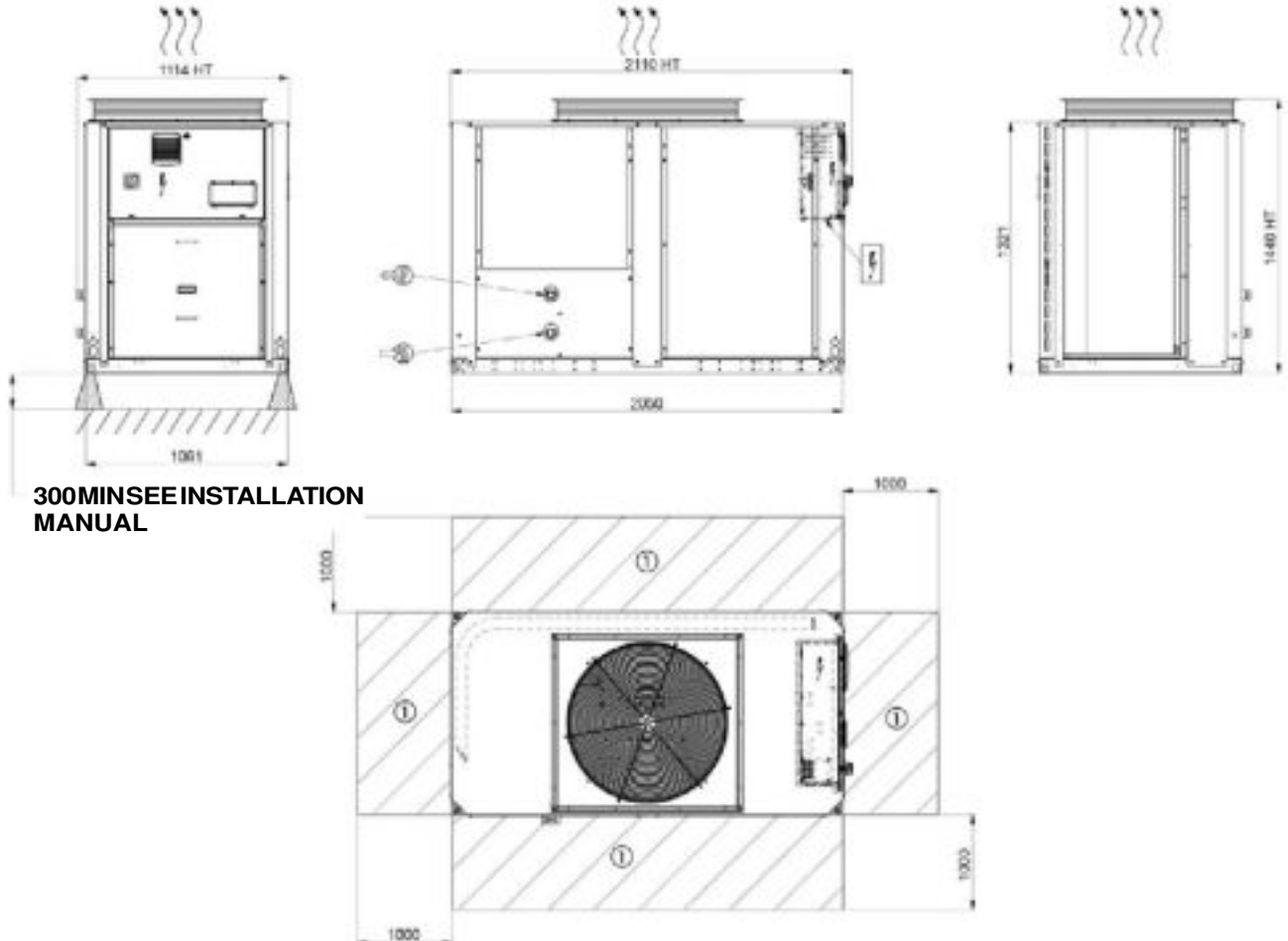
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 120 - 150 XTRA fan option



**300MINSEE INSTALLATION
MANUAL**

Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES :

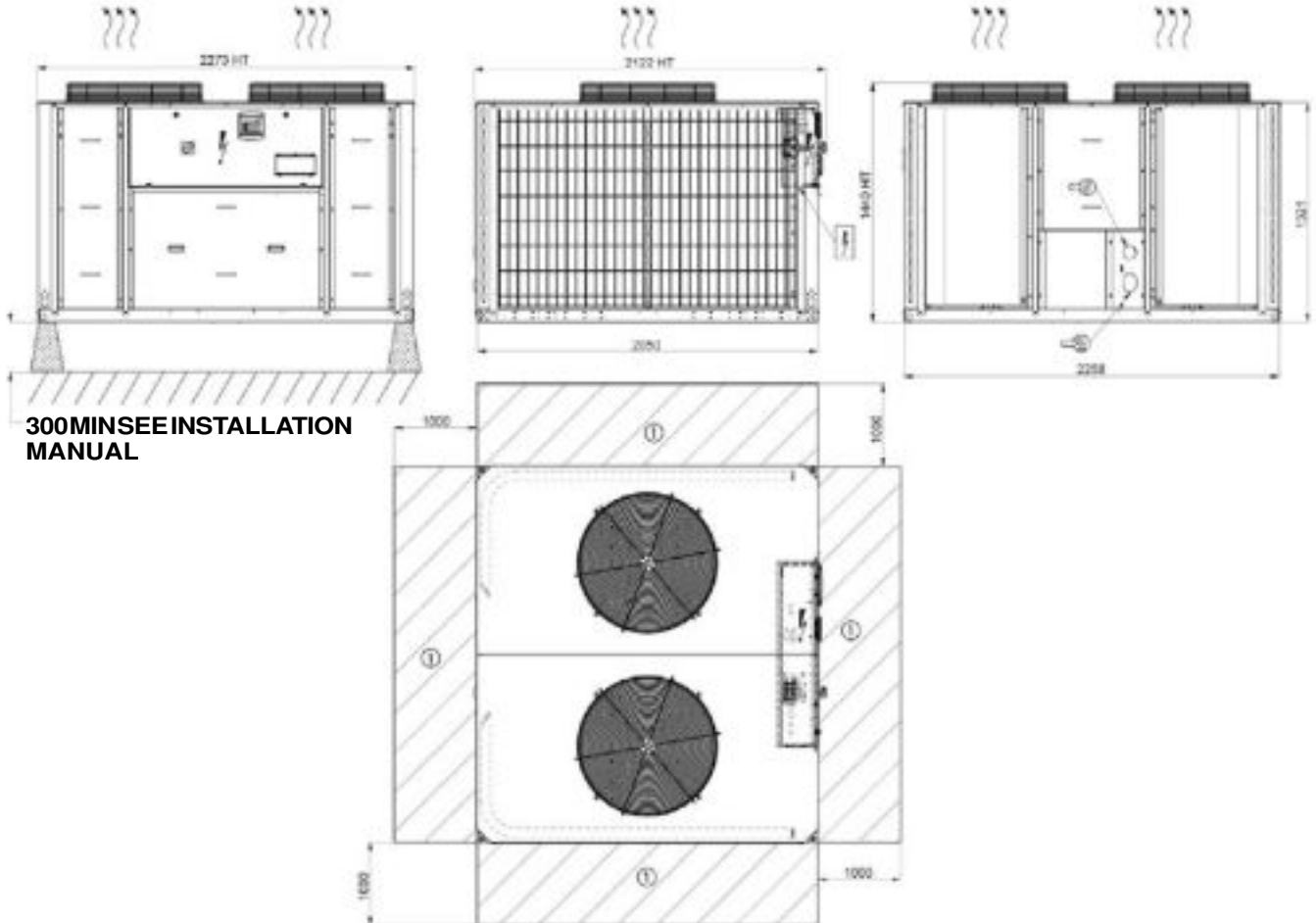
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 200 - 300 XTRA fan option



**300MINSEE INSTALLATION
MANUAL**

Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES :

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

AQUACIAT^{POWER}™ LD/ILD

Water chiller &
heat pump



*The high-performance
single unit solution now
available with R-32*

Compact and silent

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control

Cooling capacity: 170 to 940 kW

Heating capacity: 160 to 520 kW



**Cooling
and
heating**



**Hydraulic
module**



**Heat
recovery**



R-32



USE

The new generation of **AQUACIAT^{POWER}™** high-efficiency air-to-water heat pumps and water chillers offers an optimal solution for all heating and cooling applications used for the Healthcare, Office, and Hotel sectors.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

AQUACIAT^{POWER}™ is optimised for R-32, the environmentally-responsible fluid with the lowest GWP.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

- **Self-regulating operation to adapt to seasonal variations and requirements**

With exceptional SEER and SCOP seasonal energy efficiency levels, the **AQUACIAT^{POWER}™** range offers the best technology combined with savings throughout the year.

Due to climatic variations and the different air-conditioning needs of tertiary buildings, most of the time water chillers and heat pumps run at partial load.

Equipped with multiple compressors, **AQUACIAT^{POWER}™** units automatically adjust cooling capacity, anticipating variations in load and starting only the number of compressors needed to ensure optimum operation and energy efficiency.

The optional variable-speed fan motors guarantee even better results.

Thanks to their exceptional thermodynamic performance, provided by radical selection of components, an electronic expansion valve as standard, and a specific control function, standard **AQUACIAT^{POWER}™** units reach a high level of seasonal efficiency in cooling mode (SEER) and in heating mode (SCOP).

- **Acoustic comfort**

With different levels of sound equipment available, the **AQUACIAT^{POWER}™** range guarantees the acoustic comfort of occupants and meets the needs of the most sensitive environments, including hotels, offices and hospitals.

- **Quick, simple installation**

With a wide variety of connection accessories and equipment, the **AQUACIAT^{POWER}™** range is quick and simple to install.

The advanced controller functions and different communication protocols enable local control via CMS/BMS or remote control, providing building management with peace of mind.



OFFICES



HOTELS



HEALTHCARE



GLOBAL SYSTEM SOLUTIONS

As an expert on customised HVAC solutions, CIAT works to improve the well-being of individuals in their living areas or places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, CIAT has responded by developing global systems based on an adapted and efficient combination of products. The latest-generation AQUACIATPOWER™ with a low environmental footprint is part of our sustainable development process.

■ Global energy systems based on the water loop for heating, cooling and indoor air quality

To comply with today's thermal and environmental regulations, CIAT designs optimised water loop energy systems comprised of comfort units, heat pumps such as AQUACIATPOWER™ and dual-flow air handling units. As a renewable resource and a highly effective heat-transfer fluid, water not only represents an excellent alternative to direct expansion systems, it also meets F-Gas regulations in terms of confinement and limitation of refrigerants within buildings.

■ Benefits of the water loop

- **More competitive:** equipment that is more cost effective and requires less maintenance than direct expansion systems.
- **Greater comfort:** flexible, precise control of occupant comfort.
- **Greater energy efficiency:** the homogeneity and the thermal stability of water reduce the energy requirements for transferring heat.
- **Environmentally sustainable:** no refrigerant is required on the premises and only a small amount is used in the heat pump installed outside the building's occupied spaces.
- **Easy to install:** no refrigerant specialists are required during installation.
- **Flexibility:** a water loop energy system adapts easily to the configuration of buildings and the changes that may be made to spaces over time.



RANGE

■ AQUACIATPOWER™ LD/ILD series

In the LD water chiller & ILD standard reversible heat pump versions, AQUACIATPOWER™ units are optimised to meet the most demanding technical and economic requirements.

■ Units with nominal high energy performance (option)

In this configuration, the AQUACIATPOWER™ unit is optimised for full-load applications for which an optimum EER and COP value is required. In this case, the machine is equipped with high-speed fans enabling nominal efficiency and a broader application range.

■ Units equipped with variable-speed fans (option)

High seasonal energy efficiency version.

In this configuration, the AQUACIATPOWER™ unit is optimised for partial load applications for which an optimum SEER and SCOP value is required. In this case, the machine is equipped with variable-speed fans, optimising the partial load efficiency throughout the year.

DESCRIPTION

AQUACIAT^{POWER}™ units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Brazed-plate condenser or evaporator water type heat exchanger
- All-aluminium micro-channel condenser (LD) or evaporator air-cooled exchanger, copper tube coil with aluminium fins (ILD) and axial fan motor assembly
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz (+/-10%) mains power supply + earth
 - Transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for outdoor installation

The entire AQUACIAT^{POWER}™ range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
 - Electromagnetic compatibility directive 2014/30/EC
 - Safety of machinery: Electrical equipment of machines EN 60204-1
 - EMC immunity and emissions EN 61800-3 'C3'
 - Regulation (EC) No. 1907/2006 REACH
- Pressure equipment directive (PED) 2014/68/EU
- Refrigerating systems and heat pumps EN 378-2
 - Regulation (EU) No. 813/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements (Heat pump)
 - Regulation (EU) No. 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements (Chiller)

CONFIGURATION

| | | Energy versions | |
|-------------------|---|---|--|
| Acoustic versions | High outdoor temperature option | Nominal high performance option | |
| | AQUACIAT^{POWER}™ Standard (AC motor fans) | AQUACIAT^{POWER}™ Seasonal high-performance version (Optional AC motor fans + Inverter or EC motor fans) | |
| | Very Low Noise option | Very Low Noise option | |
| | Ultra Low Noise option | Ultra Low Noise option | |



CUSTOMER BENEFITS

Environmental responsibility

We are committed to helping you meet even your strictest environmental targets.

We strive to make our products more efficient and environmentally friendly.

AQUACIATPOWER™ R-32 exceeds the requirements of Ecodesign 2021.



R-32



Simplicity

To save you time, we guarantee easy installation and integration in the building's management system.

- No machine room required for pumps and other accessories with the hydronic module option available across the entire range.
- Optimum use of the surface area for easy integration into an existing building.
- Quick, easy and economical installation and system start-up.
- Packaged solution for quick start-up and reliable installation.
- Communication with all types of building technical management system (BMS) using the Modbus protocol available as standard or optional LON or BACNET protocols.



User comfort

We care about your users' acoustic comfort.

Thanks to fans with low noise levels installed as standard and the noise reduction technologies integrated into the new AQUACIATPOWER™ range, we can guarantee a level of acoustic comfort which meets the expectations of your users.

The optional variable-speed fans reduce the acoustic level at part load (night, mid-season, etc.).



VERY LOW NOISE



-3 to -4 dB(A)

Compressor noise insulation

ULTRA LOW NOISE



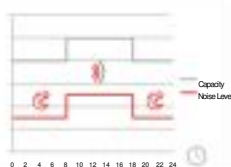
-5 to -6 dB(A)

Reinforced noise insulation on compressors and all noise-generating components

NIGHT MODE



Noise level reduction



Reliability

We guarantee total reliability for your equipment, with state-of-the-art monitoring solutions.

BluEdge@Digital enables you to track and monitor your CIAT equipment.

- Real-time data extraction via customised access to the BluEdge@Digital website (controller control panel, temperature/event curve, fault alerts and memory and parameter history).
- Email alerts for equipment events.
- Monthly and annual reports with analysis and recommendations from CIAT experts



Energy savings

We develop solutions that enable substantial savings while protecting the environment and guaranteeing user comfort.

Heat recovery options can be used to produce free additional hot water at a high temperature. This hot water can be used to prepare domestic hot water or to heat swimming pools, spas or hot tubs



30%
energy



- ❄️❄️ | 100% Chilled or hot water production
- +
🔥🔥 | 25% Domestic hot water production
- or
🔥🔥 | 100% Hot water production

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Water type heat exchanger

- Asymmetrical brazed-plate heat exchanger
- Plate patterns optimised for high efficiency
- 19 mm armaflex thermal insulation

■ Air-cooled exchanger

- Liquid chiller: air-cooled exchanger, all-aluminium, micro-channels
- Heat pump: air-cooled exchanger, copper tube coil, aluminium fins
- Propeller fans with composite blades offering an optimised profile with fixed-speed or variable-speed according to the model, variable-speed option using frequency inverter or EC motor
- Motors – IP 54, class F

■ Refrigerating accessories

- Dehumidifier filters with rechargeable cartridges
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line
- Four-way reverse cycle valve in cooling/heating mode

■ Control and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerant circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 54 protection rating
- A connection point without neutral
- Front-mounted main safety switch with handle
- Control circuit transformer
- 24 V control circuit
- Fan and compressor motor circuit breaker
- Fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components



■ Casing

Frame made from RAL 7035 light grey & RAL 7024 graphite grey painted panels

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 7 languages (FR-EN-DE-ES-I-PT-NL)



The electronic control module performs the following main functions:

- Regulation of the chilled water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short-cycle protection
- Frost protection (exchanger heater option)
- Phase reversal protection
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump operating time balancing
- Management of the machine operating limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnosis of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.
- Innovative smart energy monitoring, providing users with smart data such as real-time electrical energy consumption and heating and cooling capacity, and instantaneous and average energy efficiency rates.

DESCRIPTION OF THE MAIN COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (BTL certified) as an option, enabling most CMS/BMS to be integrated

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Heating/cooling operating mode selection
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerant circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Activation control for partial energy heat recovery unit using the desuperheater.
- Switch control for the customer pump, external to the machine (on/off).

Contacts available as an option:

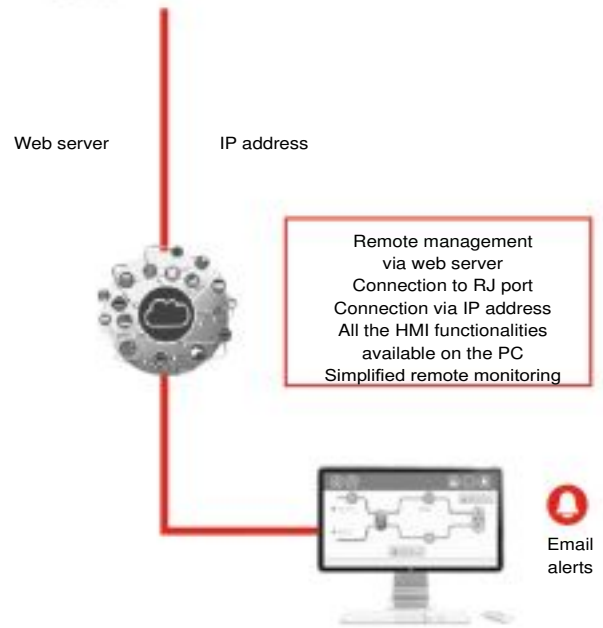
- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- On/off control for a boiler
- 4-stage on/off management for additional heaters
- Power limitation adjustable by 4-20 mA signal
- Second power limitation level
- Power indication: analogue output (0-10 V) providing an indication of the unit's load rate.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.

- User fault reporting, enables integration of a fault in the water loop
- General fault reporting: this contact indicates that the unit has stopped completely
- Alert reporting: this contact indicates the presence of a minor fault which did not cause the refrigerant circuit in question to stop.
- End of storage signal: enables return to the second setpoint at the end of the storage cycle
- Schedule override: closing this contact cancels the time schedule.
- Desuperheater activation control
- Desuperheater pump On/Off control.



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the unit's refrigerant charge, in compliance with the F-GAS regulations.

ENVIRONMENTAL RESPONSIBILITY

The AQUACIATPOWER™ contributes to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

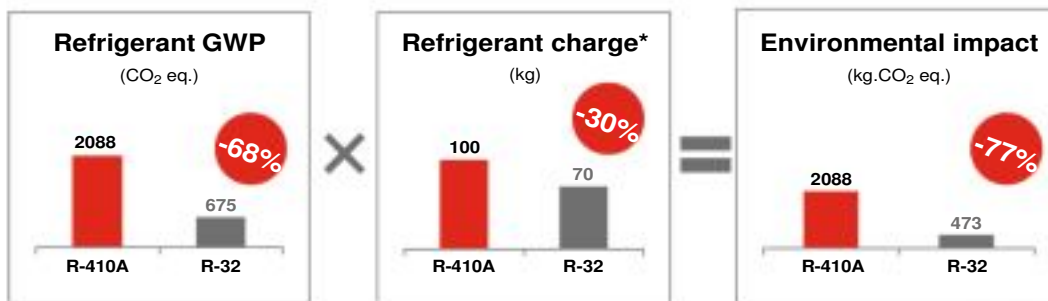
The impact of an air conditioning system on global warming of the planet is in large part caused by CO₂ emissions released into the atmosphere when the electricity required to power the unit is produced (indirect effect) and in small part by CO₂ emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (direct effect).

With AQUACIATPOWER™, it's a win-win situation: its low charge of R-32 refrigerant with low GWP reduces the direct environmental impact by 80% while reducing the indirect environmental impact thanks to its high energy performance.

■ 77% reduction in the direct environmental impact (refrigerant)

This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with low environmental impact (Ozone depletion potential =0, Global warming potential =675)
- Aluminium micro-channel coil on LD chiller versions with a 40% reduction in refrigerant charge compared to a conventional coil
- New generation of copper tube coil-aluminium fins on ILD heat pump versions with a 30% reduction in refrigerant charge compared to a conventional coil
- Asymmetrical brazed-plate heat exchanger (BPHE) with a reduction in the refrigerant charge compared to a shell and tube heat exchanger
- Systematic tightness check of units in leak detection cabinets at end of line production



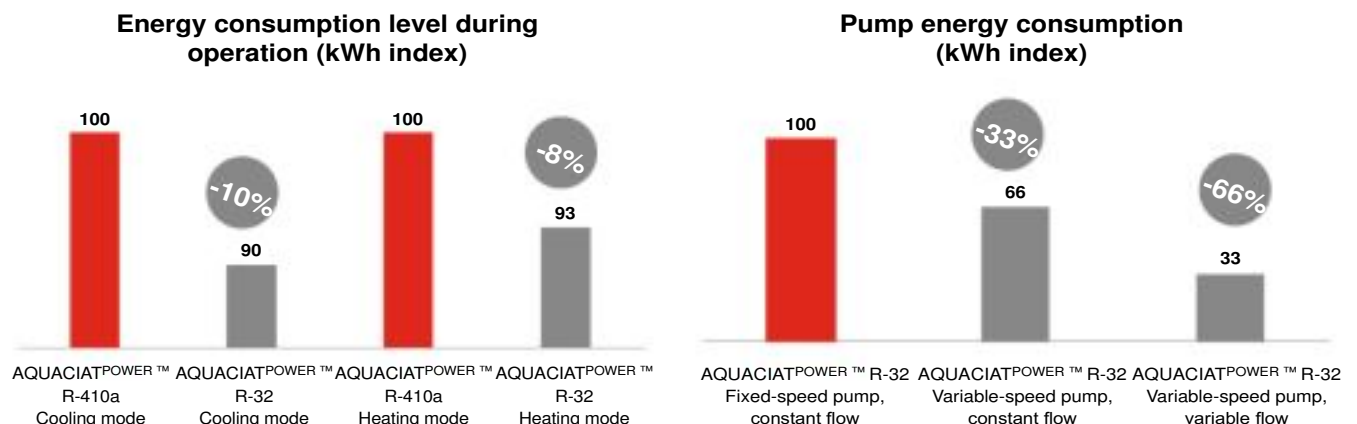
To conclude, the potential direct impact of AQUACIATPOWER™ on the environment with R-32 refrigerant is reduced by 77% compared to the previous generation R-410A.

■ Reduced indirect environmental impact (Energy)

The high energy performance offered by AQUACIATPOWER™ R-32 enables energy consumption to be greatly reduced, therefore reducing energy bills for the user whilst reducing the unit's carbon footprint.

The seasonal efficiency of AQUACIATPOWER™ R-32 in heating mode is 10% greater than the previous R-410A and 6% greater in heating mode.

In addition, the AQUACIATPOWER™ unit with R-32 refrigerant can be equipped with a variable-speed pump with constant or variable water flow control to significantly reduce pumping energy costs.



ENVIRONMENTAL RESPONSIBILITY

This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with high energy performance,
- New generation of scroll compressors optimised for R-32 refrigerant
- Asymmetrical brazed-plate heat exchanger with extremely low water-side pressure drops enabling a reduction in pump electricity consumption
- Optional variable-speed pump enabling automatic adjustment of the rated water flow rate (disposal of the control valve), during operation and during unit shut down periods.

To conclude, the AQUACIAT^{POWER}™ unit with R-32 refrigerant and variable-speed pump greatly reduces the indirect environmental impact compared to the previous generation R-410A.

■ EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to communicate the environmental specifications of their products in the form of an eco-declaration, known as the Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are created, checked and communicated correctly according to the requirements of standard ISO 14025 and standard IEC/PAS 62545.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle

Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

CIAT is the first HVAC manufacturer to provide PEPs for liquid chillers and heat pumps with, not only the 8 mandatory indicators, but all 27 indicators.

The PEP d'AQUACIAT^{POWER}™ LD can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org>



AVAILABLE OPTIONS

| Options | Description | Advantages | LD | ILD |
|---|---|---|-------------|-----|
| Corrosion protection, traditional coils | Fins made of pre-treated aluminium (polyurethane and epoxy) | Improved corrosion resistance, recommended for moderate marine and urban environments | No | ● |
| Low-temperature brine solution | Low temperature chilled water production down to -15 °C with ethylene glycol and down to -12 °C with propylene glycol. | Covers specific applications such as ice storage and industrial processes | ● | No |
| XtraFan | Unit equipped with specific variable-speed fans: XtraFans (See specific chapter for maximum available static pressure according to size), each fan equipped with a connection flange and flexible sleeves | Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics | ● | ● |
| Very Low Noise | Acoustic compressor enclosure and low-speed fans | Noise level reduction for sensitive sites | ● | ● |
| Ultra Low Noise | Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources | Noise level reduction for sensitive sites | ● | ● |
| High ambient temperature | Unit equipped with a higher speed fan | Unit operating range extended to higher ambient temperatures | ● | ● |
| Protection grilles | Metallic protection grilles | Coil protection against possible impact | ● | ● |
| Electronic starter per compressor | Electronic starter on each compressor | Reduced start-up current | ● | ● |
| Electronic starter per circuit | Electronic starter on each circuit | Economical solution for reduced start-up current | ● | ● |
| All year round cooling operation down to -20 °C | Fanspeed control via frequency converter | Stable unit operation when the outdoor air temperature is between 0 °C and -20 °C | ● | ● |
| Water exchanger frost protection | Electric heater on the water exchanger and the water piping | Water exchanger module frost protection between 0 °C and -20 °C outside air temperature | ● | ● |
| Exchanger & hydraulic frost protection | Electrical heaters on the water type heat exchanger, water pipes, hydronic module and expansion tank | Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20 °C | ● | ● |
| Exchanger & hydraulic frost protection | Electrical heater on the water exchanger, water pipes, hydronic module and optional expansion tank & buffer tank | Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20 °C | ● | ● |
| Partial heat recovery | Unit equipped with one desuperheater on each refrigerant circuit | Production of free high-temperature hot-water simultaneously with chilled water production (or hot water for Heat pump) | ● | ● |
| Total heat recovery | Unit equipped with an additional heat exchanger in series with the condenser coils | Production of free hot water, adjustable on demand | ● | No |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit to be field installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with runtime balancing | ● | ● |
| Compressor suction and discharge valves | Shut-off valves on the common compressor suction and discharge pipes | Simplified maintenance. Possibility to store the refrigerant charge in the cooler or condenser side during servicing | ● | ● |
| HP evap. single-pump | Evaporator hydronic module equipped with high pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play) | 0602R-1400R | ● |
| HP dual-pump hydronic module | Dual high pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play) | 0602R-1400R | ● |
| LP single-pump hydronic module | Single low pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components) | Quick and easy installation (plug & play) | 0602R-1400R | ● |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | LD | ILD |
|--|---|--|-------------|-----|
| LP dual-pump hydronic module | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components) | Quick and easy installation (plug & play) | 0602R-1400R | ● |
| HP evap. variable-speed single-pump | Evaporator hydronic module equipped with a high pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated section (expansion tank not included; option with built-in hydraulic safety components available.) | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | ● | ● |
| HP VSD dual-pump hydraulic mod. | Dual high pressure water pump with speed regulator, pressure sensors. Multiple variable water flow control options. For more details, refer to the relevant section. | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | ● | ● |
| High nominal energy efficiency | Higher air flow through the condenser coils improving heat exchange efficiency on the condenser | Energy cost reduction and extended operating envelope (full load operation at higher air temperature) | ● | ● |
| High seasonal energy efficiency (VSD) | Unit equipped with variable-speed fans (VSD) | Enhances the unit seasonal energy efficiency performance and reduces the noise emission thanks to a smooth fan speed variation. | 0602R-1400R | ● |
| High seasonal energy efficiency (EC) | Variable-speed fans with EC motors | Enhances the unit seasonal energy efficiency performance and reduces the noise emission thanks to a smooth fan speed variation. | ● | ● |
| High energy efficiency underfloor heating/cooling system application | Optimisation of the refrigerant circuit for the underfloor heating/cooling system application | Improvement of performances and reduction of energy costs for the underfloor heating/cooling system application | No | ● |
| Lon gateway | Two-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | ● | ● |
| Bacnet over IP | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy, high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | ● | ● |
| Energy Management Module | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter | Extended remote control capabilities (Setpoint reset, ice storage end, demand limits, boiler on/off command...) | ● | ● |
| Contact for refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | ● | ● |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | ● | ● |
| Coil defrost resistance heaters | Electric heaters under the coils and the condensate pans | Prevents frost formation on the coils; compulsory in heating mode if the outdoor temperature is below 0 °C | No | ● |
| Insulation of the evap. in/out ref. lines | Thermal insulation of the evaporator inlet/outlet refrigerant lines, with flexible and UV-resistant insulation | Prevents condensation on the evaporator entering/leaving refrigerant lines | ● | ● |
| MCHE anti-corrosion protection Protect2 | Coating by conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117) | Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments | ● | No |
| MCHE anti-corrosion protection Protect4 | Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal thermal transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in corrosive environments | ● | No |
| Flanged evaporator water connection kit | Victaulic piping connections with flanged joints | Easy installation | ● | ● |

● ALL MODELS
Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | LD | ILD |
|--|---|---|----|-----|
| Compressor enclosure | Compressor enclosure | Improved aesthetics, compressor protection against external elements (dust, sand, water...) | ● | ● |
| 230 V electrical plug | 230 V AC power source provided with plug socket and transformer (180 VA, 0.8 A) | Enables connection of a laptop or an electrical device during unit start-up or servicing | ● | ● |
| Expansion tank | 6-bar expansion tank integrated in the hydronic module (requires hydronic module option) | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure | ● | ● |
| Screwed water connection sleeve kit | DSH connections with screw connection sleeves | Easy installation. Allows unit connection to a screw connector | ● | ● |
| Water buffer tank module | Integrate water buffer tank | Avoid short cycle on compressors and ensure a stable water in the loop | ● | ● |
| Anti-vibration mounts | Elastomer anti-vibration mounts to be placed under the unit (material classified as fire class B2 according to DIN 4102). | Isolate the unit from the building, prevent the transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side | ● | ● |
| Exchangers flexible sleeves connection | Flexible connections on the exchanger water side | Easy to install. Limits the transmission of vibrations to the water network | ● | ● |
| Exchanger water filter | Water filter | Prevents dust entering the water network | ● | ● |
| Free cooling mode drycooler management | Control and connections to a free cooling drycooler Opera or Vextra fitted with optional FC control box | Easy system management, control capabilities extended to a drycooler used in free cooling mode | ● | ● |
| Desuperheater flexible couplings | Flexible connections on the desuperheater water side | Easy to install. Limits the transmission of vibrations to the water network | ● | ● |
| Installation or application process outside Europe | Specific management of option compatibility | Permits non-standard option compatibility for HVAC application in the EU | ● | No |
| Compliance with Moroccan regulations | Specific regulatory documentation | Compliance with Moroccan regulations | ● | ● |
| Plastic sheeting | Plastic sheeting covering the unit, with strapping securing it on the wooden pallet. | Protects the machine from dust and dirt from outside while the unit is being transported and stored. | ● | ● |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible.



TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIATPOWER™ LD | | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R | |
|--|--|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | | | |
| Standard unit Full load performances* CA1 | Nominal capacity | kW | 165 | 180 | 198 | 217 | 256 | 296 | 328 | 361 | 394 |
| | EER | kW/kW | 3,05 | 3,24 | 3,04 | 3,02 | 2,81 | 2,96 | 2,86 | 2,94 | 2,86 |
| | SEER_{12/7°C} Comfort low temp. | kWh/kWh | 4,49 | 4,64 | 4,45 | 4,47 | 4,35 | 4,70 | 4,67 | 4,62 | 5,09 |
| | η_{s cool} 12/7°C | % | 169 | 181 | 178 | 176 | 171 | 185 | 183 | 183 | 201 |
| Seasonal energy efficiency** | SEER_{23/18°C} Comfort medium temp. | kWh/kWh | 5,27 | 5,52 | 5,22 | 5,26 | 4,99 | 5,66 | 5,55 | 5,43 | 5,95 |
| | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,27 | 5,42 | 5,34 | 5,19 | 5,14 | 5,44 | 5,47 | 5,60 | 6,34 |
| | SEPR _{-2/-8°C} Process medium temp. | kWh/kWh | 3,06 | 3,11 | 3,08 | 3,00 | 3,04 | 3,09 | 3,14 | 3,09 | 3,44 |
| Unit + Rated & Seasonal high performance options Full load performances* CA1 | Nominal capacity | kW | 172 | 187 | 206 | 227 | 270 | 311 | 346 | 380 | 416 |
| | EER | kW/kW | 3,20 | 3,36 | 3,21 | 3,16 | 3,03 | 3,15 | 3,09 | 3,14 | 3,09 |
| | SEER_{12/7°C} Comfort low temp. | kWh/kWh | 4,82 | 5,02 | 4,84 | 4,94 | 4,79 | 5,25 | 5,15 | 5,09 | 5,11 |
| | η_{s cool} 12/7°C | % | 190 | 198 | 191 | 195 | 189 | 207 | 203 | 201 | 201 |
| Seasonal energy efficiency** | SEER_{23/18°C} Comfort medium temp. | kWh/kWh | 5,98 | 6,23 | 5,93 | 5,99 | 5,69 | 6,35 | 6,17 | 6,13 | 6,07 |
| | SEPR _{12/7°C} Process high temp. | kWh/kWh | 6,30 | 6,61 | 6,42 | 6,13 | 5,97 | 6,30 | 6,24 | 6,36 | 6,30 |
| | SEPR _{-2/-8°C} Process medium temp. | kWh/kWh | 3,48 | 3,60 | 3,54 | 3,41 | 3,41 | 3,51 | 3,56 | 3,50 | 3,57 |
| Part Load integrated values | IPLV.SI | kW/kW | 5,06 | 5,16 | 5,04 | 5,16 | 5,08 | 5,25 | 5,23 | 5,21 | 5,52 |
| Sound levels | | | | | | | | | | | |
| Unit + High temperature option/Nominal high performance | | | | | | | | | | | |
| Sound power ⁽¹⁾ | dB(A) | 91,0 | 91,5 | 91,5 | 92,0 | 92,0 | 93,0 | 93,0 | 93,5 | 93,5 | |
| Sound pressure at 10 m ⁽²⁾ | dB(A) | 58,5 | 59,5 | 59,5 | 60,0 | 60,0 | 60,5 | 60,5 | 61,0 | 61,5 | |
| Standard unit | | | | | | | | | | | |
| Sound power ⁽¹⁾ | dB(A) | 88,5 | 89,0 | 89,0 | 89,5 | 89,5 | 90,5 | 90,5 | 91,0 | 91,0 | |
| Sound pressure at 10 m ⁽²⁾ | dB(A) | 56,5 | 57,0 | 57,0 | 57,5 | 57,5 | 58,5 | 58,5 | 59,0 | 58,5 | |
| Unit + Very Low Noise option | | | | | | | | | | | |
| Sound power ⁽¹⁾ | dB(A) | 85,5 | 85,5 | 85,5 | 86,5 | 86,5 | 87,5 | 87,5 | 88,0 | 88,0 | |
| Sound pressure at 10 m ⁽²⁾ | dB(A) | 53,0 | 53,5 | 53,5 | 54,5 | 54,5 | 55,5 | 55,5 | 55,5 | 56,0 | |
| Unit + Ultra Low Noise option | | | | | | | | | | | |
| Sound power ⁽¹⁾ | dB(A) | 83,5 | 83,5 | 83,5 | 84,5 | 84,5 | 85,5 | 85,5 | 86,0 | 86,0 | |
| Sound pressure at 10 m ⁽²⁾ | dB(A) | 51,5 | 51,5 | 51,5 | 52,5 | 52,5 | 53,5 | 53,5 | 53,5 | 53,5 | |

* In accordance with standard EN14511-3:2018.
 ** In accordance with EN14825:2018, average climate conditions
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m², k/W
η_{s cool} 12/7°C & SEER_{12/7°C} Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications
SEER_{23/18°C} Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications
 SEPR_{12/7°C} Values calculated in accordance with EN14825:2016
 SEPR_{-2/-8°C} Values calculated in accordance with EN14825:2016
 IPLV.SI Calculated as per AHRI standard 551-591.
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIATPOWER™ LD | | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R | |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Dimensions | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | |
| Length | mm | 2410 | 2410 | 2410 | 2410 | 2410 | 3604 | 3604 | 3604 | 3604 | |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | |
| Unit + water buffer tank module option | | | | | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 | 4798 | |
| Operating weight (3) | | | | | | | | | | | |
| Standard unit | kg | 1349 | 1397 | 1397 | 1521 | 1556 | 1995 | 2049 | 2211 | 2269 | |
| Unit + Ultra Low Noise option | kg | 1453 | 1501 | 1501 | 1656 | 1690 | 2153 | 2208 | 2394 | 2452 | |
| Unit + Ultra Low Noise + HP dual-pump hydronic module option | kg | 1588 | 1636 | 1636 | 1791 | 1837 | 2302 | 2403 | 2589 | 2646 | |
| Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option | kg | 2571 | 2619 | 2619 | 2774 | 2819 | 3288 | 3389 | 3575 | 3632 | |
| Compressors | | Hermetic Scroll 48,3 r/s | | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | |
| Circuit B | | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | |
| No. of power stages | | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | |
| Unit PED category | | III | | | | | | | | | |
| Refrigerant(3) | | R-32 / A2L/ GWP= 675 following ARI4 | | | | | | | | | |
| Circuit A | kg | 6,40 | 9,70 | 9,70 | 11,40 | 11,80 | 12,50 | 13,30 | 18,10 | 18,90 | |
| | tCO ₂ e | 4,3 | 6,5 | 6,5 | 7,7 | 8,0 | 8,4 | 9,0 | 12,2 | 12,8 | |
| Circuit B | kg | 11,40 | 11,40 | 11,40 | 11,40 | 11,80 | 17,50 | 18,30 | 18,10 | 18,90 | |
| | tCO ₂ e | 7,7 | 7,7 | 7,7 | 7,7 | 8,0 | 11,8 | 12,4 | 12,2 | 12,8 | |
| Oil | | | | | | | | | | | |
| Circuit A | l | 6,6 | 6,6 | 6,6 | 13,2 | 13,2 | 13,2 | 13,2 | 19,8 | 19,8 | |
| Circuit B | l | 13,2 | 13,2 | 13,2 | 13,2 | 13,2 | 19,8 | 19,8 | 19,8 | 19,8 | |
| Capacity control | | Connect'Touch | | | | | | | | | |
| Minimum capacity | % | 33 | 33 | 25 | 25 | 25 | 20 | 20 | 17 | 17 | |
| Condenser | | All-aluminium micro-channel coils (MCHE) | | | | | | | | | |
| Fans | | Axial with rotating impeller | | | | | | | | | |
| Standard unit | | | | | | | | | | | |
| Quantity | | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | |
| Maximum total air flow | l/s | 11790 | 15720 | 15720 | 15720 | 15720 | 19650 | 19650 | 23580 | 23580 | |
| Maximum rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | |
| Evaporator | | Dual-circuit plate heat exchanger | | | | | | | | | |
| Water volume | l | 15 | 15 | 15 | 19 | 27 | 27 | 35 | 44 | 44 | |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | |
| Hydraulic module (option) | | Pump, victaulic screen filter, relief valve, drain valve (water and air), pressure sensors | | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48,3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | | |
| Expansion tank volume (option) | l | 50 | 50 | 50 | 50 | 50 | 80 | 80 | 80 | 80 | |
| Buffer tank volume (option) | l | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 | |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | |
| Hydraulic connections with/without hydronic module | | Victaulic® type | | | | | | | | | |
| Connections | inches | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | |
| External diameter | mm | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 114,3 | 114,3 | 114,3 | 114,3 | |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | | | | | |

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
(3) Values are guidelines only. Refer to the unit name plate.





TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIATPOWER™ LD | | 1750R | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R | | | |
|--|-----|--|----------------|-------|-------------|-------------|-------------|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | | 428 | 458 | 523 | 586 | 645 | 688 | 743 | 765 | 836 | 890 |
| | | EER | kW/kW | | 2,93 | 2,85 | 2,85 | 2,94 | 2,93 | 2,83 | 2,85 | 2,81 | 2,77 | 2,66 |
| Seasonal energy efficiency** | | SEER_{12/7°C} Comfort low temp. | kWh/kWh | | 5,37 | 5,30 | 5,21 | 5,24 | 5,35 | 5,20 | 5,43 | 5,38 | 5,22 | 5,07 |
| | | η_{s cool} 12/7°C | % | | 212 | 209 | 205 | 207 | 211 | 205 | 214 | 212 | 206 | 200 |
| | | SEER_{23/18°C} Comfort medium temp. | kWh/kWh | | 6,25 | 6,12 | 6,25 | 6,41 | 6,59 | 6,33 | 6,69 | 6,60 | 6,34 | 6,06 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | | 6,38 | 6,29 | 6,24 | 6,26 | 6,32 | 6,11 | 6,17 | 6,10 | 6,03 | 5,79 |
| | | SEPR _{-2/-8°C} Process medium temp. | kWh/kWh | | 3,43 | 3,44 | 3,43 | See selection from the electronic catalogue offer | | | | | | |
| Unit + Rated & Seasonal high performance options | CA1 | Nominal capacity | kW | | 451 | 484 | 553 | 616 | 677 | 726 | 782 | 807 | 882 | 944 |
| | | EER | kW/kW | | 3,14 | 3,09 | 3,08 | 3,15 | 3,14 | 3,06 | 3,07 | 3,04 | 3,00 | 2,92 |
| Seasonal energy efficiency** | | SEER_{12/7°C} Comfort low temp. | kWh/kWh | | 5,28 | 5,24 | 5,29 | 5,32 | 5,32 | 5,20 | 5,33 | 5,30 | 5,31 | 5,18 |
| | | η_{s cool} 12/7°C | % | | 208 | 207 | 209 | 210 | 210 | 205 | 210 | 209 | 209 | 204 |
| | | SEER_{23/18°C} Comfort medium temp. | kWh/kWh | | 6,33 | 6,23 | 6,32 | 6,56 | 6,51 | 6,28 | 6,54 | 6,47 | 6,56 | 6,32 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | | 6,41 | 6,32 | 6,27 | 6,27 | 6,33 | 6,14 | 6,25 | 6,18 | 6,07 | 5,86 |
| | | SEPR _{-2/-8°C} Process medium temp. | kWh/kWh | | 3,55 | 3,55 | 3,55 | See selection from the electronic catalogue offer | | | | | | |
| Part Load integrated values | | IPLV.SI | kW/kW | | 5,68 | 5,63 | 5,60 | 5,75 | 5,71 | 5,60 | 5,74 | 5,71 | 5,63 | 5,51 |
| Sound levels | | | | | | | | | | | | | | |
| Unit + High temperature option/Nominal high performance | | | | | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | | 94,0 | 94,0 | 94,5 | 97,5 | 97,5 | 98,0 | 98,0 | 98,5 | 98,5 | 99,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | | 61,5 | 61,5 | 62,0 | 65,0 | 65,0 | 66,0 | 65,0 | 66,0 | 66,0 | 66,5 |
| Standard unit | | | | | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | | 91,5 | 91,5 | 92,0 | 96,5 | 96,5 | 97,0 | 97,0 | 97,5 | 97,5 | 98,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | | 59,5 | 59,0 | 60,0 | 64,0 | 64,0 | 64,5 | 65,0 | 65,0 | 65,0 | 65,5 |
| Unit + Very Low Noise option | | | | | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | | 88,5 | 88,5 | 89,0 | 92,5 | 92,5 | 93,0 | 93,0 | 93,5 | 93,5 | 94,5 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | | 56,0 | 56,5 | 57,0 | 60,5 | 60,0 | 60,5 | 60,0 | 61,0 | 60,5 | 61,5 |
| Unit + Ultra Low Noise option | | | | | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | | 86,5 | 86,5 | 87,0 | 90,0 | 90,0 | 90,5 | 90,5 | 90,5 | 90,5 | 91,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | | 54,5 | 54,0 | 55,0 | 57,5 | 57,5 | 58,0 | 58,0 | 57,5 | 58,0 | 58,5 |

* In accordance with standard EN14511-3:2018.
 ** In accordance with EN14825:2018, average climate conditions
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². kW
η_{s cool} 12/7°C & SEER_{12/7°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
SEER_{23/18°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
 SEPR_{12/7°C} Values calculated in accordance with EN14825:2016
 SEPR_{-2/-8°C} Values calculated in accordance with EN14825:2016
 IPLV.SI Calculated as per AHRI standard 551-591.
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIATPOWER™ LD | | 1750R | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R |
|--|-------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Dimensions | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | |
| Length | mm | 4798 | 4798 | 4798 | 5992 | 5992 | 5992 | 7186 | 7186 | 7186 | 7186 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option | | | | | | | | | | | |
| Length | mm | 5992 | 5992 | 5992 | 7186 | 7186 | 7186 | 8380 | 8380 | 8380 | 8380 |
| Operating weight ⁽³⁾ | | | | | | | | | | | |
| Standard unit | kg | 2697 | 2722 | 2927 | 3265 | 3511 | 3511 | 4042 | 4042 | 4291 | 4291 |
| Unit + Ultra Low Noise option | kg | 2904 | 2930 | 3158 | 3434 | 3703 | 3703 | 4260 | 4260 | 4535 | 4535 |
| Unit + Ultra Low Noise + HP dual-pump hydronic module option | kg | 3138 | 3164 | 3430 | 3743 | 4013 | 4013 | 4650 | 4650 | 4925 | 4925 |
| Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option | kg | 4131 | 4156 | 4421 | 4750 | 5020 | 5020 | 5671 | 5671 | 5946 | 5946 |
| Compressors | | | | | | | | | | | |
| Hermetic Scroll 48,3 r/s | | | | | | | | | | | |
| Circuit A | | 3 | 3 | 4 | 2 | 3 | 3 | 3 | 3 | 4 | 4 |
| Circuit B | | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 | 4 |
| No. of power stages | | 7 | 7 | 8 | 5 | 6 | 6 | 7 | 7 | 8 | 8 |
| Unit PED category | | | | | | | | | | | |
| | | IV | IV | IV | III | III | III | IV | IV | IV | IV |
| Refrigerant⁽³⁾ | | | | | | | | | | | |
| R-32 / A2L/ GWP= 675 following ARI4 | | | | | | | | | | | |
| Circuit A | kg | 19,20 | 19,50 | 25,00 | 24 | 25,50 | 25,50 | 27,40 | 27,40 | 32,40 | 32,40 |
| | tCO _{2e} | 13,0 | 13,2 | 16,9 | 15,9 | 17,2 | 17,2 | 18,5 | 18,5 | 21,9 | 21,9 |
| Circuit B | kg | 24,10 | 24,50 | 25,00 | 25,50 | 25,50 | 25,50 | 32,40 | 32,40 | 32,40 | 32,40 |
| | tCO _{2e} | 16,3 | 16,5 | 16,9 | 17,2 | 17,2 | 17,2 | 21,9 | 21,9 | 21,9 | 21,9 |
| Oil | | | | | | | | | | | |
| Circuit A | l | 19,8 | 19,8 | 26,4 | 13,2 | 19,8 | 19,8 | 19,8 | 19,8 | 26,4 | 26,4 |
| Circuit B | l | 26,4 | 26,4 | 26,4 | 19,8 | 19,8 | 19,8 | 26,4 | 26,4 | 26,4 | 26,4 |
| Capacity control | | | | | | | | | | | |
| Connect'Touch | | | | | | | | | | | |
| Minimum capacity | % | 14 | 14 | 13 | 20 | 17 | 17 | 14 | 14 | 13 | 13 |
| Condenser | | | | | | | | | | | |
| All-aluminium micro-channel coils (MCHE) | | | | | | | | | | | |
| Fans | | | | | | | | | | | |
| Axial with rotating impeller | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | |
| Quantity | | 7 | 7 | 8 | 9 | 10 | 10 | 11 | 11 | 12 | 12 |
| Maximum total air flow | l/s | 27510 | 27510 | 31440 | 35370 | 39300 | 39300 | 43230 | 43230 | 47160 | 47160 |
| Maximum rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Evaporator | | | | | | | | | | | |
| Dual-circuit plate heat exchanger | | | | | | | | | | | |
| Water volume | l | 44 | 47 | 53 | 73 | 73 | 73 | 84 | 84 | 84 | 84 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | | | | | | | | | | |
| Pump, victaulic screen filter, relief valve, drain valve (water and air), pressure sensors | | | | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48,3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | | |
| Expansion tank volume (option) | l | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Buffer tank volume (option) | l | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| Hydraulic connections with/without hydronic module | | | | | | | | | | | |
| Victaulic® type | | | | | | | | | | | |
| Connections | inches | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| External diameter | mm | 114,3 | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| Casing paint colour | | | | | | | | | | | |
| Colour code RAL 7035 & 7024 | | | | | | | | | | | |

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIATPOWER™ ILD | | | 0602R | 0700R | 0800R | 0900R | 1000R | 1150R | |
|--|-----|---|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 178 | 197 | 237 | 256 | 275 | 317 |
| | | COP | kW/kW | 3,88 | 3,80 | 3,84 | 3,84 | 3,82 | 3,82 |
| | HA2 | Nominal capacity | kW | 173 | 192 | 231 | 250 | 269 | 310 |
| | | COP | kW/kW | 3,16 | 3,09 | 3,14 | 3,12 | 3,11 | 3,10 |
| Seasonal energy efficiency** | HA1 | SCOP_{30/35°C} | kWh/kWh | 3,44 | 3,45 | 3,39 | 3,47 | 3,48 | 3,57 |
| | | η_{s heat 30/35°C} | % | 135 | 135 | 133 | 136 | 136 | 140 |
| | | Prated | kW | 139 | 155 | 186 | 200 | 217 | 250 |
| Unit + Rated & Seasonal high performance options Full load performances* | HA1 | Nominal capacity | kW | 178 | 197 | 237 | 256 | 275 | 317 |
| | | COP | kW/kW | 3,88 | 3,80 | 3,84 | 3,84 | 3,82 | 3,82 |
| | HA1 | SCOP_{30/35°C} | kWh/kWh | 3,67 | 3,66 | 3,74 | 3,77 | 3,80 | 3,87 |
| | | η_{s heat 30/35°C} | % | 144 | 143 | 147 | 148 | 149 | 152 |
| | HA1 | Prated | kW | 138 | 155 | 185 | 200 | 216 | 250 |
| Cooling | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 155 | 171 | 204 | 223 | 239 | 285 |
| | | EER | | 2,73 | 2,55 | 2,73 | 2,63 | 2,56 | 2,66 |
| Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,17 | 4,01 | 4,18 | 4,08 | 4,04 | 4,48 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 4,68 | 4,51 | 4,64 | 4,52 | 4,50 | 4,83 |
| Unit + Rated & Seasonal high performance options Full load performances* | CA1 | Nominal capacity | kW | 164 | 181 | 215 | 236 | 254 | 302 |
| | | EER | kW/kW | 2,87 | 2,72 | 2,86 | 2,80 | 2,76 | 2,85 |
| Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,41 | 4,23 | 4,48 | 4,41 | 4,34 | 4,78 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,47 | 5,23 | 5,41 | 5,23 | 5,15 | 5,49 |
| Sound levels | | | | | | | | | |
| Unit + High temperature option/Nominal high performance | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 90,5 | 91,0 | 91,5 | 92,0 | 92,0 | 93,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 58,5 | 59,0 | 59,5 | 60,0 | 60,0 | 61,0 |
| Standard unit | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 88,0 | 88,5 | 89,0 | 89,5 | 89,5 | 90,5 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 55,5 | 56,0 | 56,5 | 57,0 | 57,0 | 58,0 |
| Unit + Very Low Noise option⁽³⁾ | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 85,0 | 86,0 | 86,5 | 87,0 | 87,0 | 88,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 53,0 | 53,5 | 54,0 | 54,5 | 54,5 | 55,5 |
| Unit + Ultra Low Noise option⁽³⁾ | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 83,0 | 84,0 | 84,5 | 85,0 | 85,0 | 86,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 51,0 | 52,0 | 52,5 | 53,0 | 53,0 | 54,0 |

* In accordance with standard EN14511-3:2018.
 ** In accordance with EN14825:2018, average climate conditions
 HA1 Heating mode conditions: water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 HA2 Heating mode conditions: water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
η_{s heat 30/35°C} & SCOP_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
 SEER_{12/7°C} & SEPR_{12/7°C} Applicable Ecodesign regulation (EU) No. 2016/2281
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
 (3) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIATPOWER™ ILD | | 0602R | 0700R | 0800R | 0900R | 1000R | 1150R |
|---|--------------------|-------|-------|-------|-------|-------|-------|
| Dimensions | | | | | | | |
| Standard unit | | | | | | | |
| Length | mm | 2410 | 2410 | 2410 | 2410 | 2410 | 3604 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option⁽³⁾ | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 3604 | 3604 | 4798 |
| Operating weight ⁽³⁾ | | | | | | | |
| Standard unit | kg | 1569 | 1575 | 1784 | 1811 | 1817 | 2394 |
| Unit + Ultra Low Noise option | kg | 1672 | 1678 | 1918 | 1946 | 1952 | 2552 |
| Unit + Ultra Low Noise + HP dual-pump hydronic module option | kg | 1808 | 1814 | 2065 | 2092 | 2098 | 2747 |
| Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option | kg | 2791 | 2797 | 3048 | 3075 | 3081 | 3756 |
| Compressors | | | | | | | |
| Hermetic Scroll 48,3 r/s | | | | | | | |
| Circuit A | | 1 | 1 | 2 | 2 | 2 | 2 |
| Circuit B | | 2 | 2 | 2 | 2 | 2 | 3 |
| No. of power stages | | 3 | 3 | 4 | 4 | 4 | 5 |
| Unit PED category | | | | | | | |
| III | | | | | | | |
| Refrigerant⁽³⁾ | | | | | | | |
| R-32 / A2L/ GWP= 675 following ARI4 | | | | | | | |
| Circuit A | kg | 10,50 | 10,50 | 16,00 | 16,00 | 16,00 | 16,00 |
| | tCO ₂ e | 7,1 | 7,1 | 10,8 | 10,8 | 10,8 | 10,8 |
| Circuit B | kg | 16,00 | 16,00 | 16,00 | 16,00 | 16,00 | 28,50 |
| | tCO ₂ e | 10,8 | 10,8 | 10,8 | 10,8 | 10,8 | 19,2 |
| Oil | | | | | | | |
| Circuit A | l | 6,6 | 6,6 | 13,2 | 13,2 | 13,2 | 13,2 |
| Circuit B | l | 13,2 | 13,2 | 13,2 | 13,2 | 13,2 | 22,8 |
| Capacity control | | | | | | | |
| Connect'Touch | | | | | | | |
| Minimum capacity | % | 33 | 33 | 25 | 25 | 25 | 20 |
| Condenser | | | | | | | |
| Grooved copper tubes and aluminium fins | | | | | | | |
| Fans | | | | | | | |
| Axial with rotating impeller | | | | | | | |
| Standard unit | | | | | | | |
| Quantity | | 3 | 3 | 4 | 4 | 4 | 5 |
| Maximum total air flow (cooling mode) | l/s | 11790 | 11790 | 15720 | 15720 | 15720 | 19650 |
| Maximum rotation speed (heating mode) | r/s | 12 | 12 | 12 | 12 | 12 | 12 |
| Maximum total air flow (heating mode) | l/s | 14460 | 14460 | 19280 | 19280 | 19280 | 24100 |
| Maximum rotation speed (heating mode) | r/s | 16 | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | | | | | | |
| Dual-circuit plate heat exchanger | | | | | | | |
| Water volume | l | 16,2 | 16,2 | 16,2 | 20,7 | 20,7 | 38,7 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | | | | | | |
| Pump, victaulic screen filter, relief valve, drain valve (water and air), pressure sensors | | | | | | | |
| Centrifugal pump, monocell, 48,3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | |
| Pump | | | | | | | |
| Expansion tank volume (option) | l | 50 | 50 | 50 | 50 | 50 | 80 |
| Buffer tank volume (option) | l | 550 | 550 | 550 | 550 | 550 | 550 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Hydraulic connections with/without hydronic module | | | | | | | |
| Victaulic® type | | | | | | | |
| Connections | inches | 3 | 3 | 3 | 3 | 3 | 4 |
| External diameter | mm | 88,5 | 88,6 | 88,7 | 88,8 | 88,9 | 114,3 |
| Casing paint colour | | | | | | | |
| Colour code RAL 7035 & 7024 | | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIATPOWER™ ILD | | | 1250R | 1400R | 1500R | 1600R | 1750R | 2000R | |
|--|---------|---|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 336 | 387 | 406 | 441 | 467 | 537 |
| | | COP | kW/kW | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
| | HA2 | Nominal capacity | kW | 329 | 378 | 397 | 431 | 458 | 526 |
| | | COP | kW/kW | 3,09 | 3,10 | 3,09 | 3,10 | 3,03 | 3,09 |
| Seasonal energy efficiency** | HA1 | SCOP_{30/35°C} | kWh/kWh | 3,58 | 3,55 | 3,57 | 3,54 | 3,53 | 3,57 |
| | | η_{s heat 30/35°C} | % | 140 | 139 | 140 | 139 | 138 | 140 |
| | | Prated | kW | 266 | 305 | 321 | 349 | 371 | 425 |
| Unit + Rated & Seasonal high performance options Full load performances* | HA1 | Nominal capacity | kW | 336 | 387 | 406 | 441 | 467 | 537 |
| | | COP | kW/kW | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
| | HA1 | SCOP_{30/35°C} | kWh/kWh | 3,86 | 3,90 | 3,91 | 3,92 | 3,89 | 3,96 |
| | | η_{s heat 30/35°C} | % | 151 | 153 | 153 | 154 | 153 | 155 |
| | HA1 | Prated | kW | 265 | 305 | 320 | 348 | 370 | 424 |
| Cooling | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 305 | 341 | 358 | 389 | 414 | 470 |
| | | EER | | 2,59 | 2,64 | 2,57 | 2,64 | 2,55 | 2,55 |
| Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,50 | 4,46 | 4,33 | 4,44 | 4,38 | 4,32 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 4,76 | 4,93 | 4,79 | 4,94 | 4,82 | 4,83 |
| Unit + Rated & Seasonal high performance options Full load performances* | CA1 | Nominal capacity | kW | 324 | 362 | 381 | 413 | 439 | 500 |
| | | EER | kW/kW | 2,80 | 2,82 | 2,76 | 2,81 | 2,74 | 2,73 |
| | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,81 | 4,88 | 4,87 | 4,81 | 4,75 | 4,81 |
| SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,34 | 5,60 | 5,40 | 5,60 | 5,43 | 5,47 | | |
| Sound levels | | | | | | | | | |
| Unit + High temperature option/Nominal high performance | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 93,5 | 94,0 | 94,0 | 94,5 | 94,5 | 95,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 61,5 | 62,0 | 62,0 | 62,0 | 62,0 | 62,5 |
| Standard unit | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 91,0 | 91,5 | 91,5 | 92,0 | 92,5 | 93,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 58,5 | 59,5 | 59,5 | 60,0 | 60,0 | 60,5 |
| Unit + Very Low Noise option⁽³⁾ | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 88,0 | 89,0 | 89,0 | 89,5 | 90,0 | 90,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 55,5 | 56,5 | 56,5 | 57,0 | 57,5 | 57,5 |
| Unit + Ultra Low Noise option⁽³⁾ | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 86,0 | 86,5 | 87,0 | 87,5 | 87,5 | 88,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 54,0 | 54,5 | 55,0 | 55,5 | 55,5 | 56,0 |

* In accordance with standard EN14511-3:2018.
 ** In accordance with EN14825:2018, average climate conditions
 HA1 Heating mode conditions: water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 HA2 Heating mode conditions: water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
η_{s heat 30/35°C} & SCOP_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
 SEER_{12/7°C} & SEPR_{12/7°C} Applicable Ecodesign regulation (EU) No. 2016/2281
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
 (3) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values


TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIATPOWER™ ILD | | 1250R | 1400R | 1500R | 1600R | 1750R | 2000R |
|--|--------------------|---|-------|-------|-------|-------|-------|
| Dimensions | | | | | | | |
| Standard unit | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option⁽³⁾ | | | | | | | |
| Length | mm | 4798 | 4798 | 4798 | 5992 | 5992 | 5992 |
| Operating weight ⁽³⁾ | | | | | | | |
| Standard unit | kg | 2452 | 2672 | 2678 | 3154 | 3180 | 3430 |
| Unit + Ultra Low Noise option | kg | 2611 | 2855 | 2861 | 3361 | 3387 | 3661 |
| Unit + Ultra Low Noise + HP dual-pump hydronic module option | kg | 2806 | 3089 | 3095 | 3595 | 3658 | 3932 |
| Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option | kg | 3815 | 4098 | 4104 | 4595 | 4658 | 4932 |
| Compressors | | | | | | | |
| Hermetic Scroll 48,3 r/s | | | | | | | |
| Circuit A | | 2 | 2 | 2 | 3 | 3 | 4 |
| Circuit B | | 3 | 4 | 4 | 4 | 4 | 4 |
| No. of power stages | | 5 | 6 | 6 | 7 | 7 | 8 |
| Unit PED category | | | | | | | |
| | | IV | IV | IV | IV | IV | IV |
| Refrigerant⁽³⁾ | | | | | | | |
| R-32 / A2L/ GWP= 675 following ARI4 | | | | | | | |
| Circuit A | kg | 18,00 | 18,00 | 18,00 | 29,00 | 29,00 | 35,00 |
| | tCO ₂ e | 12,2 | 12,2 | 12,2 | 19,6 | 19,6 | 23,6 |
| Circuit B | kg | 28,50 | 34,00 | 34,00 | 34,50 | 35,00 | 35,00 |
| | tCO ₂ e | 19,2 | 23,0 | 23,0 | 23,3 | 23,6 | 23,6 |
| Oil | | | | | | | |
| Circuit A | l | 13,2 | 13,2 | 13,2 | 22,8 | 22,8 | 30,4 |
| Circuit B | l | 22,8 | 30,4 | 30,4 | 30,4 | 30,4 | 30,4 |
| Capacity control | | | | | | | |
| Connect' Touch | | | | | | | |
| Minimum capacity | % | 20 | 17 | 17 | 14 | 14 | 13 |
| Condenser | | | | | | | |
| Grooved copper tubes and aluminium fins | | | | | | | |
| Fans | | | | | | | |
| Axial with rotating impeller | | | | | | | |
| Standard unit | | | | | | | |
| Quantity | | 5 | 6 | 6 | 7 | 7 | 8 |
| Maximum total air flow (cooling mode) | l/s | 19650 | 23580 | 23580 | 27510 | 27510 | 31440 |
| Maximum rotation speed (heating mode) | r/s | 12 | 12 | 12 | 12 | 12 | 12 |
| Maximum total air flow (heating mode) | l/s | 24100 | 28920 | 28920 | 33740 | 33740 | 38560 |
| Maximum rotation speed (heating mode) | r/s | 16 | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | | | | | | |
| Dual-circuit plate heat exchanger | | | | | | | |
| Water volume | l | 48,6 | 48,6 | 48,6 | 48,6 | 52,2 | 58,5 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | | | | | | |
| Pump, victaulic screen filter, relief valve, drain valve (water and air), pressure sensors | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48,3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (option) | l | 80 | 80 | 80 | 80 | 80 | 80 |
| Buffer tank volume (option) | | 550 | 550 | 550 | 550 | 550 | 550 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Hydraulic connections with/without hydronic module | | | | | | | |
| Victaulic® type | | | | | | | |
| Connections | inches | 4 | 4 | 4 | 4 | 4 | 4 |
| External diameter | mm | 114,4 | 114,5 | 114,6 | 114,7 | 114,8 | 114,9 |
| Casing paint colour | | | | | | | |
| Colour code RAL 7035 & 7024 | | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

ELECTRICAL SPECIFICATIONS

■ Basic unit (excluding pump)

| AQUACIATPOWER™ LD | | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R | 1750R |
|---|---------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power circuit supply | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | |
| Control circuit supply | | | | | | | | | | | |
| 24 V via internal transformer | | | | | | | | | | | |
| Maximum operating input power^{(1) or (2)} | | | | | | | | | | | |
| Circuit A&B | kW | 71,6 | 77,2 | 86,8 | 95,4 | 114,6 | 128,9 | 143,3 | 157,5 | 171,9 | 186,2 |
| Power factor at maximum power^{(1) or (2)} | | | | | | | | | | | |
| Standard unit power factor | | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 |
| Maximum operating current draw (Un)^{(1) or (2)} | | | | | | | | | | | |
| Standard unit | A | 123,9 | 134,4 | 151,0 | 165,2 | 198,4 | 223,1 | 248,0 | 272,7 | 297,6 | 322,3 |
| Maximum current (Un-10%)^{(1) or (2)} | | | | | | | | | | | |
| Standard unit | A | 132,6 | 143,8 | 161,8 | 176,8 | 212,8 | 239 | 266 | 292,2 | 319,2 | 345,4 |
| Maximum start-up current (Un)^{(2) + (3)} | | | | | | | | | | | |
| Standard unit | A | 300 | 347 | 364 | 341 | 411 | 436 | 461 | 485 | 510 | 535 |
| Unit + Electronic starter option | A | 257 | 295 | 312 | 298 | 359 | 384 | 409 | 433 | 458 | 483 |

| AQUACIATPOWER™ LD | | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R |
|---|---------|----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power circuit supply | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | |
| Control circuit supply | | | | | | | | | | |
| 24 V via internal transformer | | | | | | | | | | |
| Maximum operating input power^{(1) or (2)} | | | | | | | | | | |
| Circuit A&B | kW | 200,6 | 229,2 | 246,7 | 271,9 | 295,3 | 316,7 | 328,4 | 361,4 | 392,6 |
| Power factor at maximum power^{(1) or (2)} | | | | | | | | | | |
| Standard unit power factor | | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 |
| Maximum operating current draw (Un)^{(1) or (2)} | | | | | | | | | | |
| Standard unit | A | 347,2 | 396,8 | 432,3 | 478,0 | 517,0 | 556,2 | 575,7 | 634,4 | 686,4 |
| Maximum current (Un-10%)^{(1) or (2)} | | | | | | | | | | |
| Standard unit | A | 372,4 | 425,6 | 464,8 | 514 | 556 | 598,2 | 619,2 | 682,4 | 738,4 |
| Maximum start-up current (Un)^{(2) + (3)} | | | | | | | | | | |
| Standard unit | A | 560 | 609 | 763 | 815 | 848 | 893 | 906 | 971 | 1017 |
| Unit + Electronic starter option | A | 508 | 557 | 680 | 732 | 765 | 811 | 824 | 889 | 934 |

| AQUACIATPOWER™ ILD | | 0602R | 0700R | 0800R | 0900R | 1000R | 1150R | 1250R | 1400R | 1500R | 1600R | 1750R | 2000R |
|---|---------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power circuit supply | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | |
| Control circuit supply | | | | | | | | | | | | | |
| 24 V via internal transformer | | | | | | | | | | | | | |
| Maximum operating input power^{(1) or (2)} | | | | | | | | | | | | | |
| Circuit A&B | kW | 71,6 | 81,2 | 95,4 | 105,0 | 114,6 | 133,7 | 143,3 | 162,3 | 171,9 | 186,2 | 200,6 | 229,2 |
| Power factor at maximum power^{(1) or (2)} | | | | | | | | | | | | | |
| Standard unit power factor | | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 |
| Maximum operating current draw (Un)^{(1) or (2)} | | | | | | | | | | | | | |
| Standard unit | A | 129,0 | 145,6 | 172,0 | 188,6 | 205,2 | 239,9 | 256,5 | 291,2 | 307,8 | 334,2 | 359,1 | 410,4 |
| Maximum current (Un-10%)^{(1) or (2)} | | | | | | | | | | | | | |
| Standard unit | A | 135,6 | 151,6 | 180,8 | 196,8 | 212,8 | 250 | 266 | 303,2 | 319,2 | 348,4 | 372,4 | 425,6 |
| Maximum start-up current (Un)^{(2) + (3)} | | | | | | | | | | | | | |
| Standard unit | A | 300 | 355 | 341 | 394 | 411 | 444 | 461 | 494 | 510 | 535 | 560 | 609 |
| Unit + Electronic starter option | A | 257 | 303 | 298 | 342 | 359 | 392 | 409 | 442 | 458 | 483 | 508 | 557 |

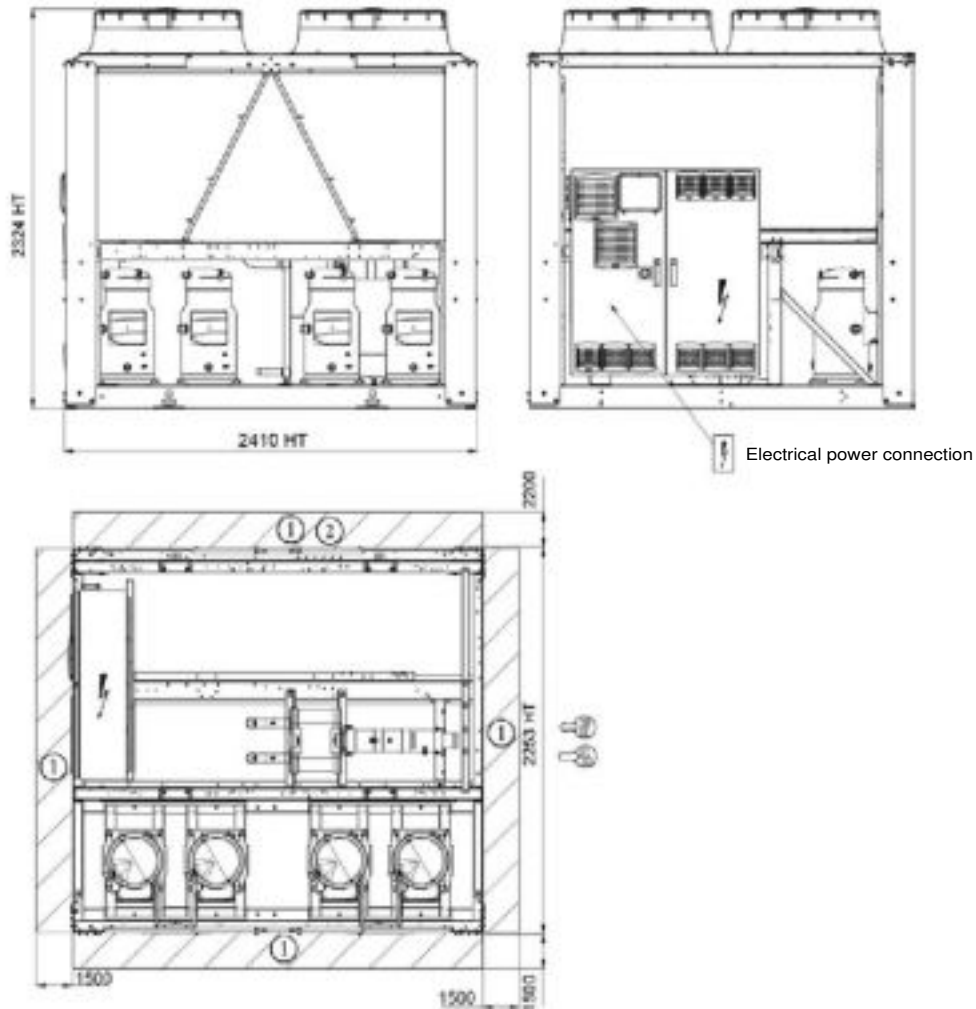
(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

DIMENSIONS

■ AQUACIAT^{POWER}™ LD 602R to 1100R/ILD 602R to 1000R Without buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

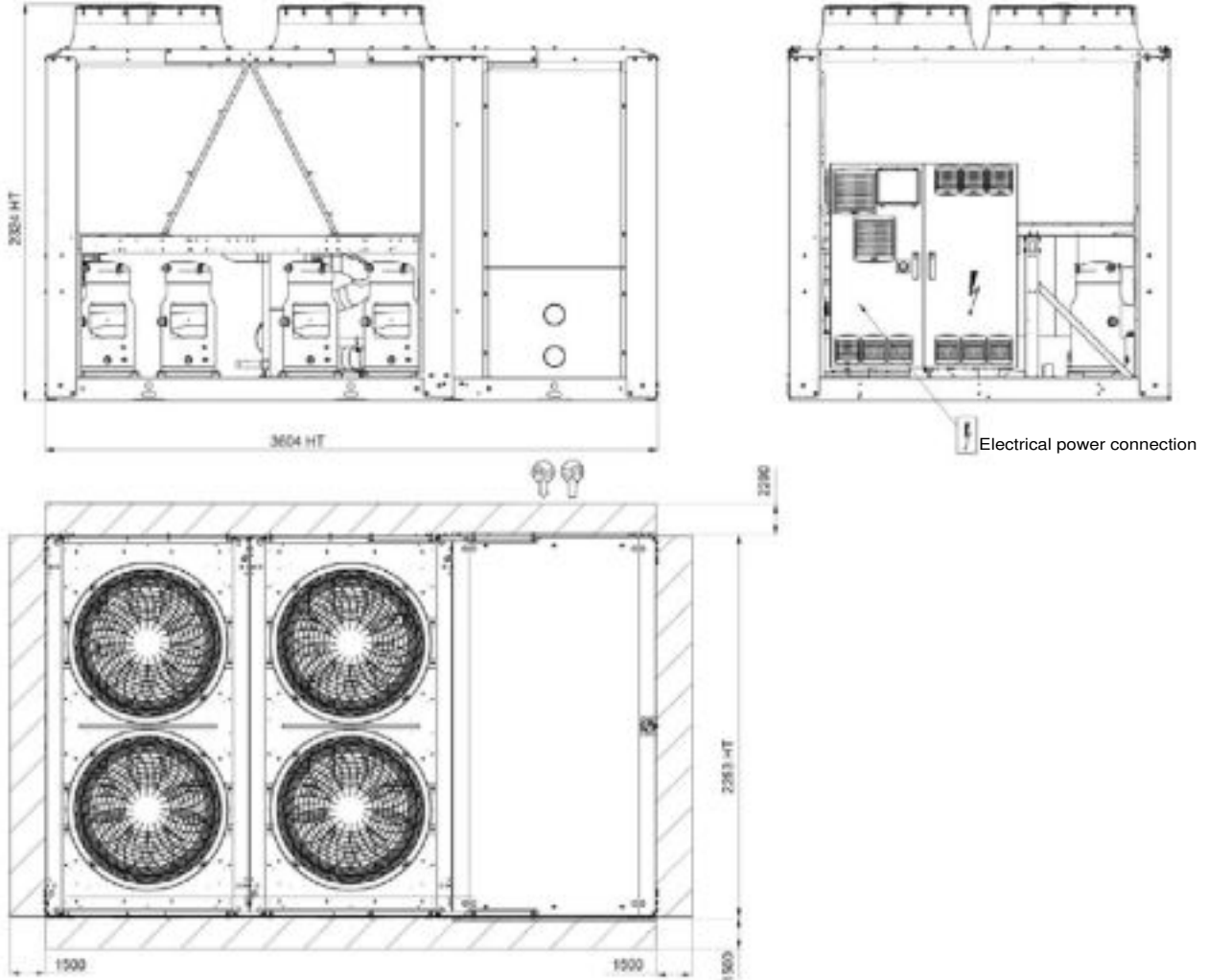
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER}™ LD 602R to 1100R/ILD 602R to 1000R With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

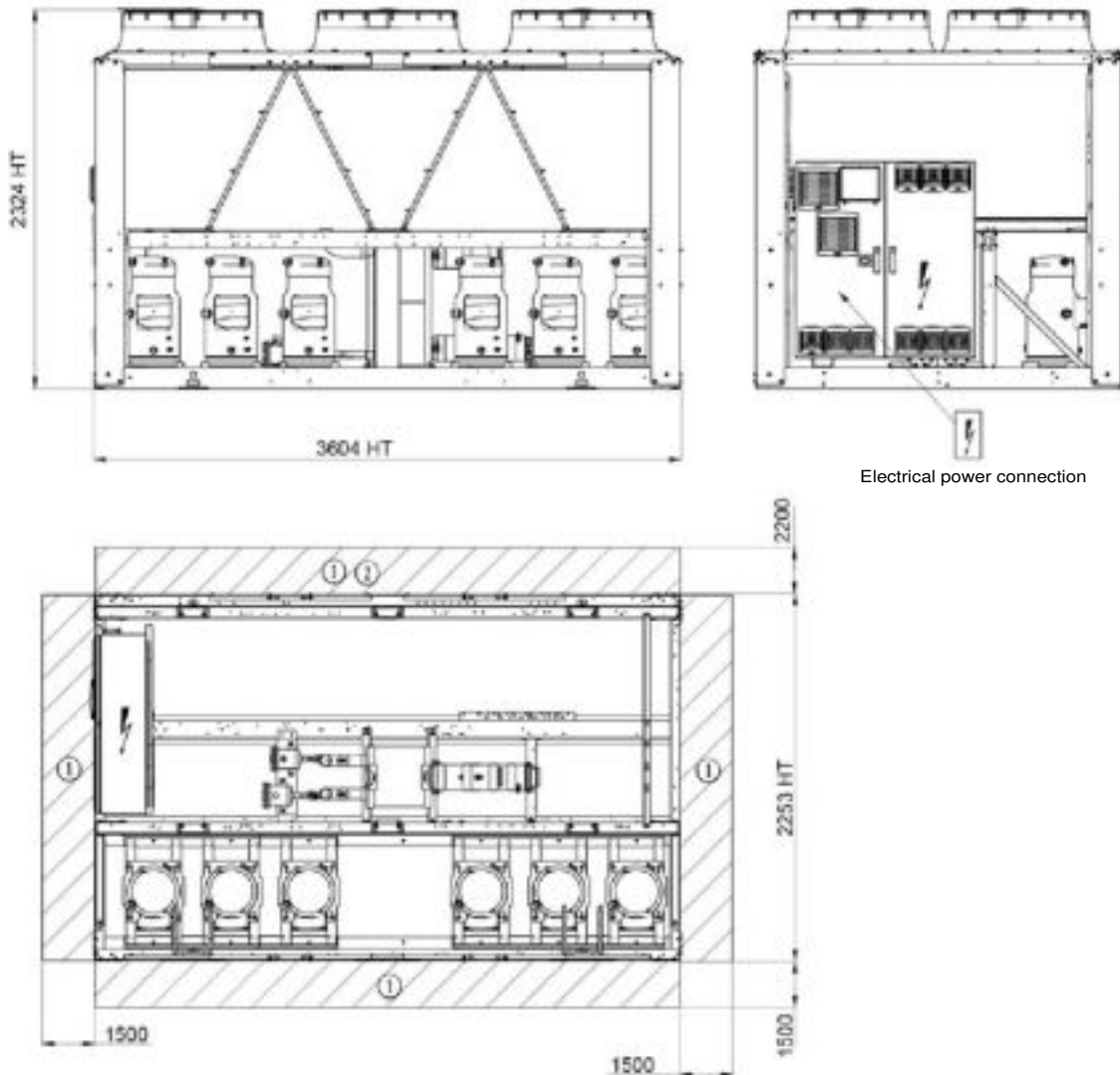
Non-contractual drawings.

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DIMENSIONS

- AQUACIATPOWER™ LD 1200R to 1600R/ILD 1150R to 1500R Without buffer tank



Electrical power connection

Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

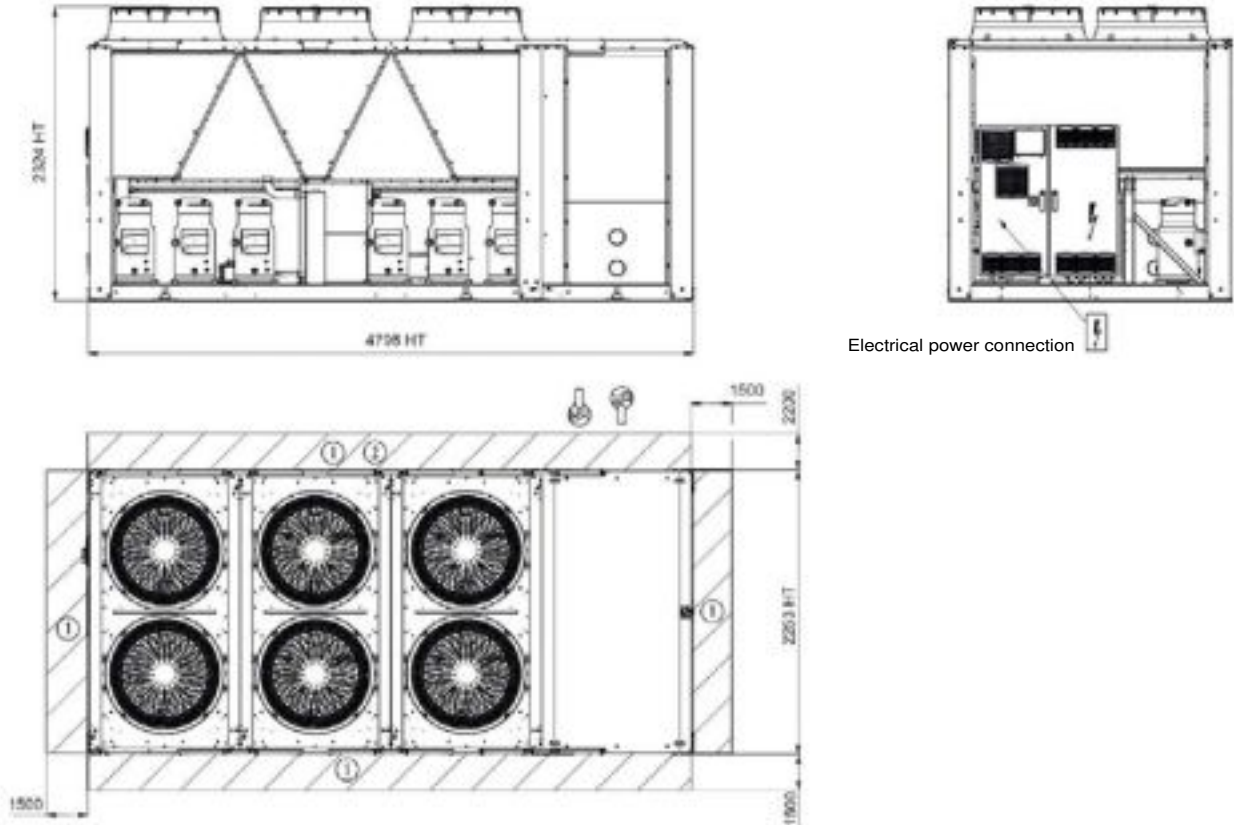
Non-contractual drawings.

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Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

- AQUACIAT^{POWER}™ LD 1200R to 1600R/ILD 1150R to 1500R With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

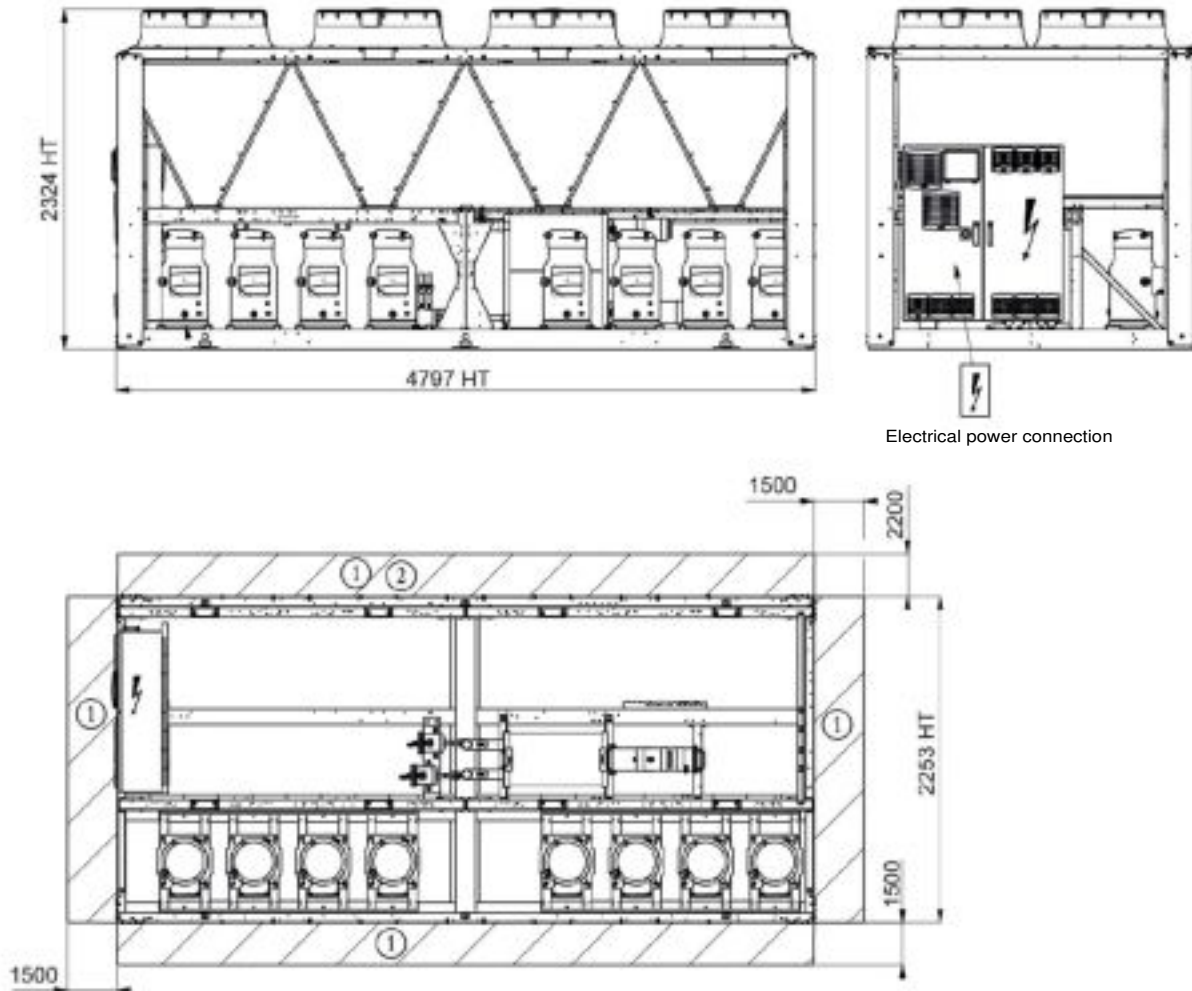
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

- AQUACIAT^{POWER}™ LD 1750R to 2000R/ILD 1600R to 2000R Without buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

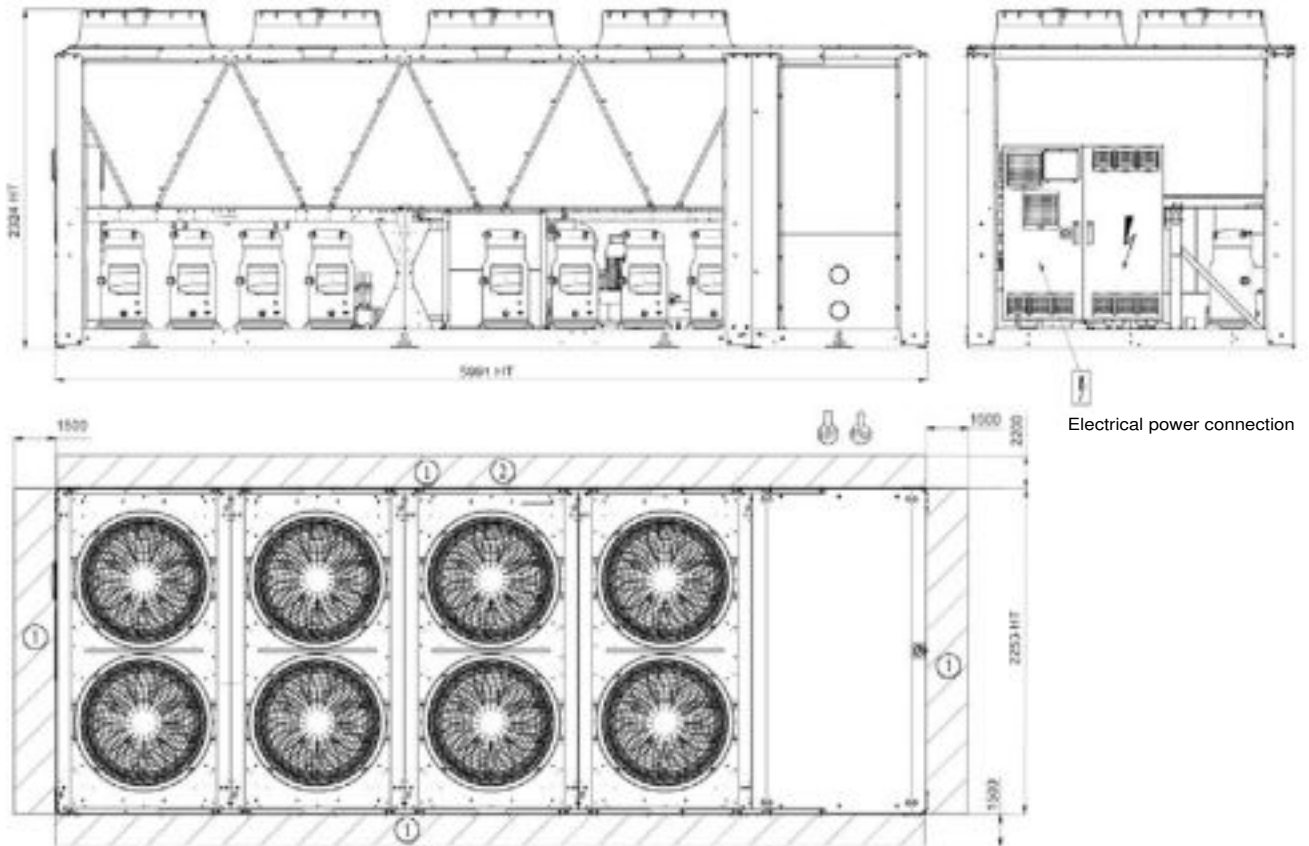
Non-contractual drawings.

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Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

- AQUACIAT^{POWER}™ LD 1750R to 2000R/ILD 1600R to 2000R With buffer tank



Electrical power connection

Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

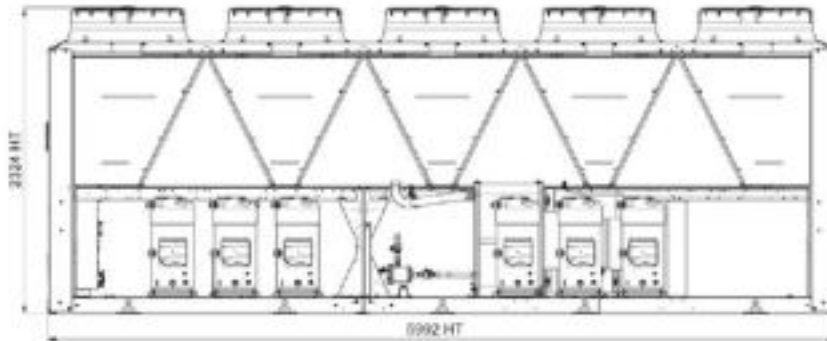
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

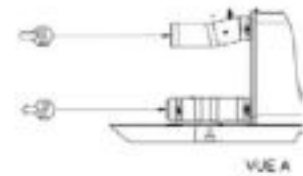
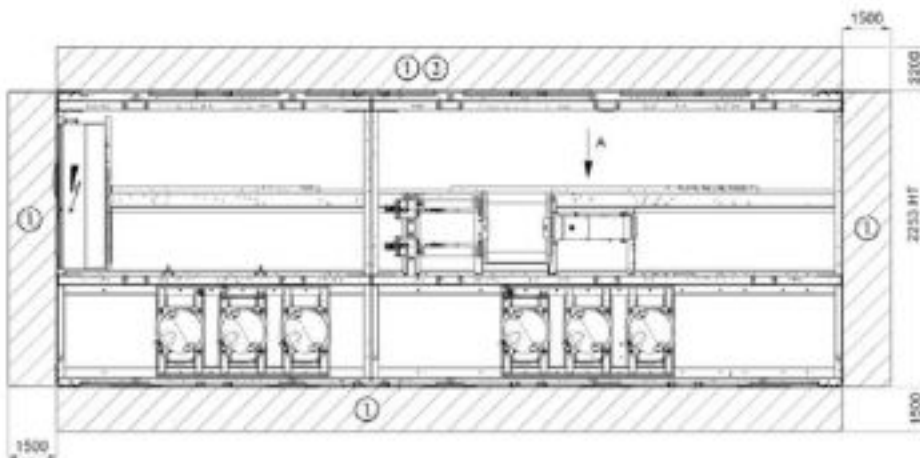
Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER}™ LD 2200R to 2650R Without buffer tank



Main hydraulic connection



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

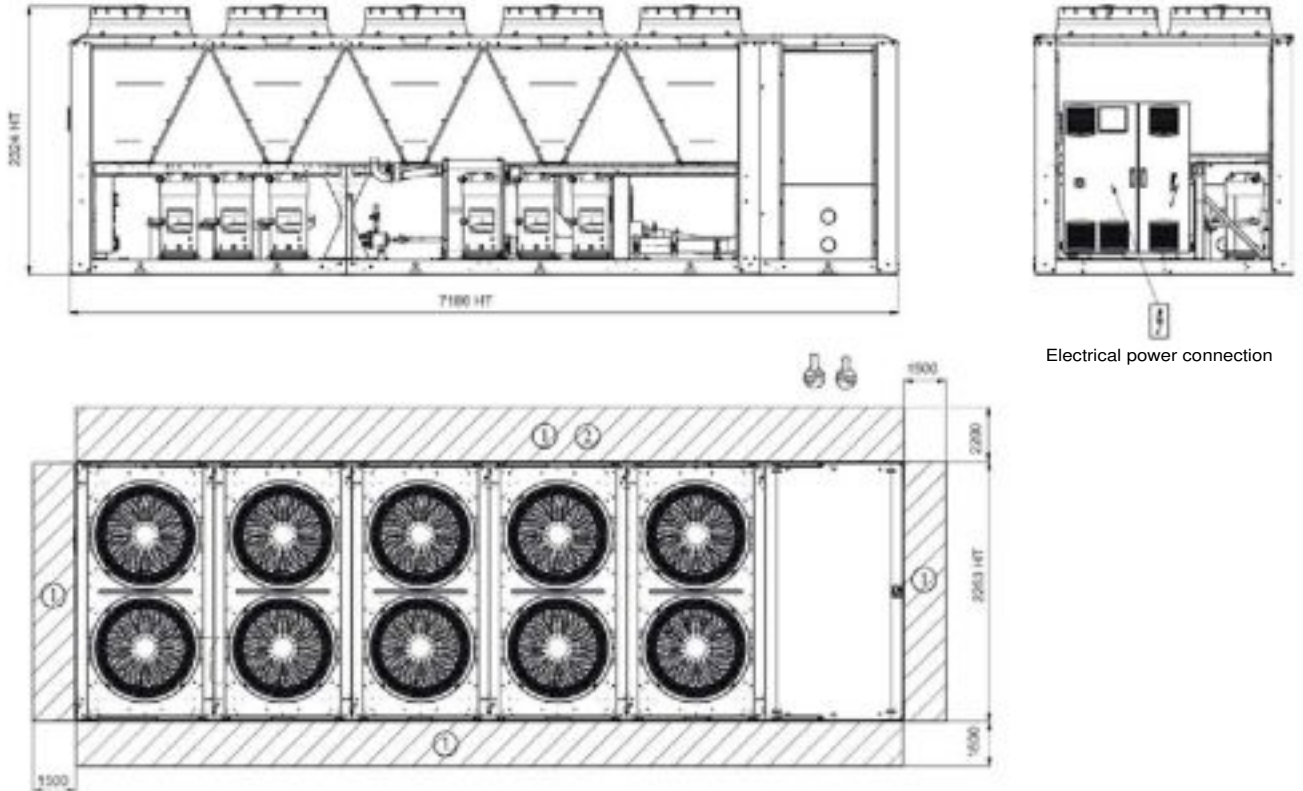
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER}™ LD 2200R to 2650R/With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

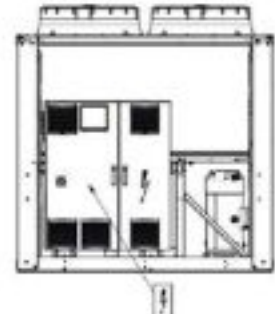
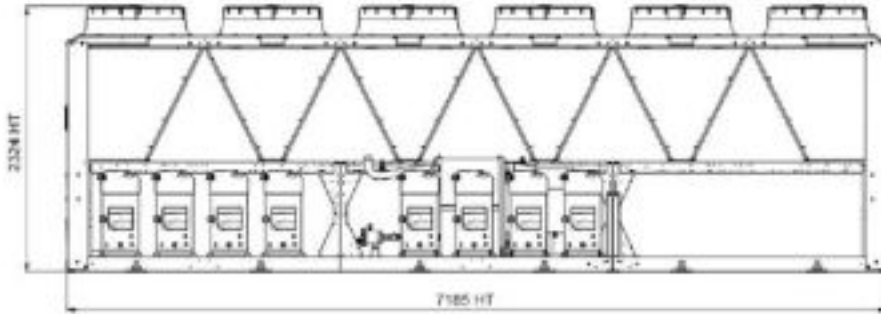
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

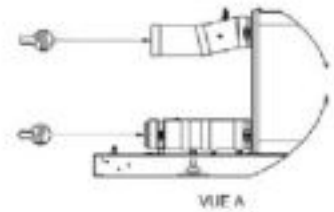
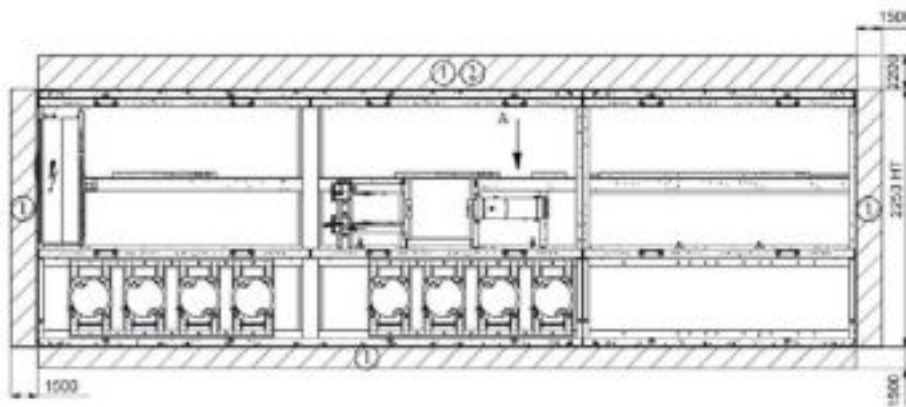
Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER}™ LD 2800R to 3500R/Without buffer tank



Electrical power connection



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

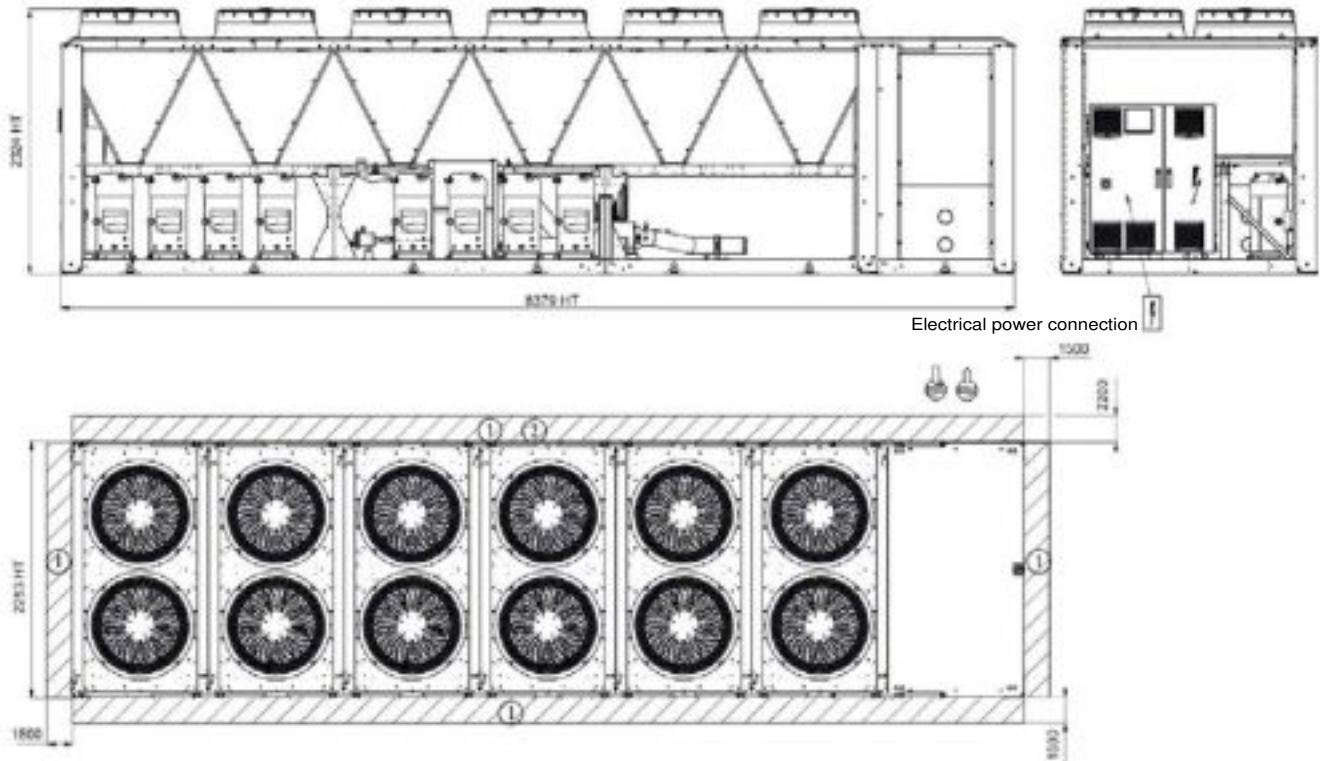
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER}™ LD 2800R to 3500R/With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

POWERCAT™ LX

Water chillers



Energy excellence !

Eurovent-certified

SEER up to 4,7, SEPR up to 6,2

Operating range from -20 °C to +55 °C

Compact and silent

High-efficiency flooded shell and tube evaporator

Aluminium micro-channel condenser

Hydraulic module & heat recovery

Cooling capacity : 277 à 1512 kW



Cooling only



Hydraulic module



Heat recovery



USE

The latest generation of **POWERCAT™** high-efficiency air-to-water

water chillers are the perfect solution for all cooling applications in the Offices, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

POWERCAT™ is optimised to use ozone-friendly HFC R134a refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SEPR) and CO₂ reduction to comply with the various applicable European directives and regulations.

RANGE

■ POWERCAT™ series LX XE

Premium cooling only version.

The product is optimised for part load applications and fulfils the provisions of the new Ecodesign regulation governing comfort and process applications, while also facilitating a return on investment. In this case, the machine is equipped with EC type variable-speed fans as standard, enabling the optimum part load efficiency to be achieved throughout the year

■ POWERCAT™ series LX HE

Cooling only version High seasonal energy efficiency.

The product is optimised for part load applications and fulfils the provisions of the new Ecodesign regulation governing comfort and process applications. In this case, the machine is equipped as standard with variable-speed fans with AC motor and external speed regulator, allowing for optimisation of the part load efficiency throughout the year.

DESCRIPTION

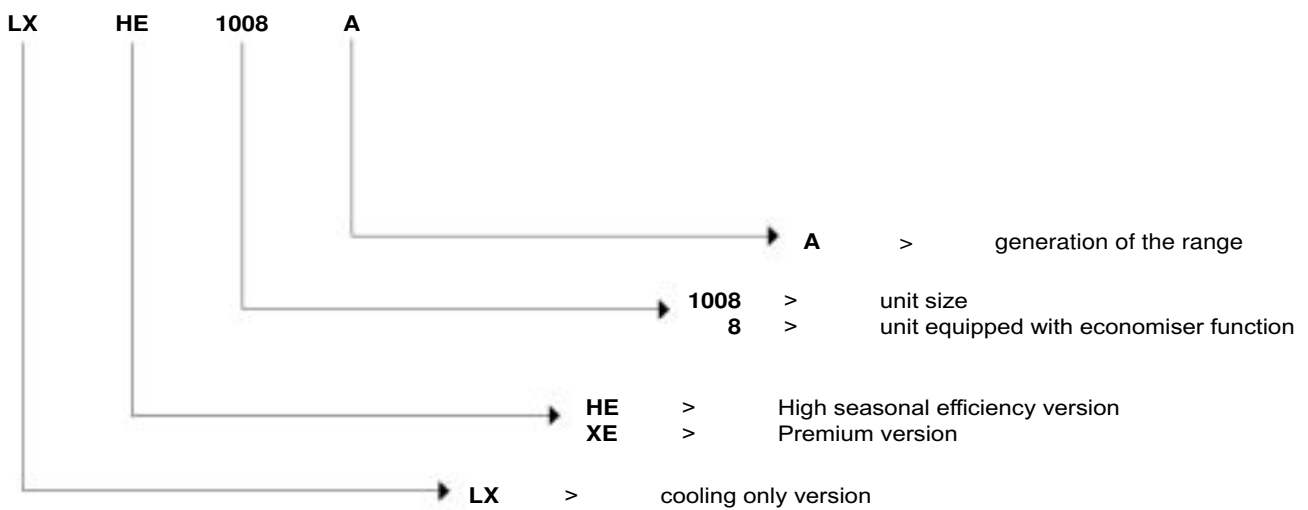
POWERCAT™ units are packaged machines supplied as standard with the following components:

- Twin-screw semi-hermetic compressors
- Flooded shell and tube type chilled-water evaporator
- Air-cooled exchanger, all-aluminium micro-channel coil with axial fan motor assembly
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz (+/-10 %) mains power supply + earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for outdoor installation

The entire POWERCAT™ range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
- Electromagnetic compatibility directive 2014/30/EU.
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU.
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 - 1
- Refrigeration systems and heat pumps EN 378-2
- Regulation (EU) no. 2016/2281 implementing directive 2009/125/EC with regard to Ecodesign requirements

DESCRIPTION



CONFIGURATION

| | |
|----------------------|--|
| HE | High Seasonal Efficiency |
| HE LN option | High Seasonal Efficiency Low Noise |
| HE XLN option | High Seasonal Efficiency Xtra Low Noise |
| HE SLN option | High Seasonal Efficiency Super Low Noise |
| XE | Premium |
| XE Option LN | Premium Low Noise |
| XE Option XLN | Premium Xtra Low Noise |

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Twin-screw semi-hermetic type
- 2 screws fitted on ball and roller bearings
- Continuous powerCTRL
- Built-in electric motor, cooled by intake gases
- Integral electronic protection of the motor against thermal and electrical overloads
- Monitoring of rotation direction, absence of phase, over and under voltage, and power supply failure
- Monitoring of lubrication under differential pressure
- Built-in oil filter
- Internal pressure surge valve and valve to prevent reverse rotation during shutdown phases
- Monitoring of maximum head pressure
- Oil separator with integrated silencer to reduce pulses from the discharged gas
- Star-delta start limiting the in-rush current

■ Shell and tube evaporator

- High performance glandless technology
- Copper tube bundle with internal and external grooves
- 19-mm thermal insulation
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar **(21 bar as option)**

■ Condenser

- air-cooled exchanger, all-aluminium micro-channel coil
- propeller fans with composite blades offering an optimised profile, variable speed (HE and XE versions)
- motors – IP 54, class F

■ Refrigerating accessories

- Dehumidifier filters with rechargeable cartridges
- hygroscopic sight glasses
- electronic expansion valves
- service valves on the liquid line

■ Control and safety instruments

- low and high pressure sensors
- safety valves on refrigerant circuit
- water temperature control sensors
- evaporator antifreeze protection sensor
- factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet protection rating: IP 44 (IP 54 optional)
- A connection point without neutral for sizes 808 to 3028
- Two connection points without neutral for sizes 3428 to 4608 (one connection point optional)
- front-mounted main safety switch with handle
- control circuit transformer
- 24 V control circuit
- fan and compressor motor circuit breaker
- fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- wire numbering
- marking of the main electrical components

■ Chassis

Frame made from RAL 7035 light grey & RAL 7024 graphite grey painted panels

■ Connect Touch control module

- User interface with 4.3-inch touchscreen
- Intuitive, user - friendly navigation using icons
- Clear text display of information available in 9 languages (F-GBD- NL-E-I-P-RU +Chinese)



The electronic control module performs the following main functions:

- regulation of the chilled water temperature (at the return or at the outlet)
- regulation of the water temperature based on the outdoor temperature (water law)
- regulation for low temperature energy storage
- second setpoint management
- complete management of compressors with start-up sequence, timer and operating time balancing
- self-regulating and proactive functions with adjustment of the control to counter parameter drift
- i n-series staged powerCTRL system on the compressors according to the thermal requirements
- management of compressor short-cycle protection
- frost protection (exchanger heater option)
- phase reversal protection
- management of occupied/unoccupied modes (according to the time schedule)
- compressor and pump operating time balancing
- management of the machine operating limit according to outdoor temperature
- sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- diagnosis of fault and operating statuses
- management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- weekly and hourly time schedule for the machine, including 16 periods of absence
- pump standby based on demand (energy saving)
- calculation of the water flow rate and operating pressure (hydraulic module version)
- display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- display of trend curves for the main values
- storage of maintenance manual, wiring diagram and spare parts list.

DESCRIPTION OF THE MAIN COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP as an option, enabling most CMS/BMS to be integrated

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- automatic operation control: when this contact is open, the machine stops
- setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerant circuits to stop
- operational status reporting indicates that the unit is in production mode.
- switch control for the customer pump, external to the machine (on/off).

Contacts available as an option:

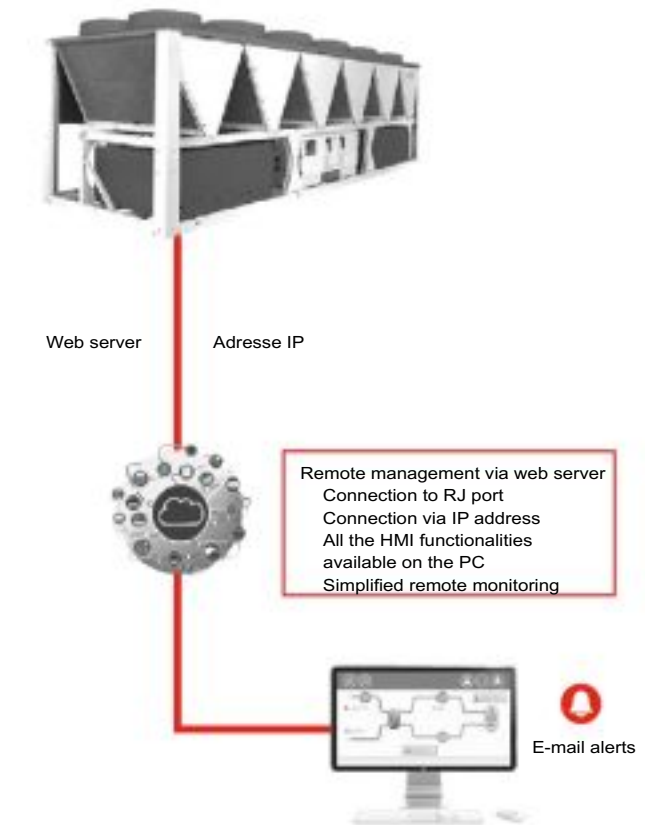
- setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- power limitation adjustable by 4-20 mA signal
- Second power limitation level
- Power indication: analogue output (0-10 V) providing an indication of the unit's load rate.
- user fault reporting, enables integration of a fault in the water loop
- general fault reporting: this contact indicates that the unit has stopped completely
- alert reporting: this contact indicates the presence of a minor fault which did not cause the refrigerant circuit in question to stop.
- End of storage signal: enables return to the second setpoint at the end of the storage cycle
- Schedule override: closing this contact cancels the time schedule.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator.

The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- the scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- the compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the unit's refrigerant charge, in compliance with the F-GAS regulations.

AVAILABLE OPTIONS

| Options | Description | Advantages | LX HE/XE |
|--|---|---|--------------------|
| Medium-temperature brine solution | Implementation of new algorithms of control and evaporator redesign to allow chilled brine solution production down to -12°C when ethylene glycol is used (-8°C with propylene glycol) | Covers specific applications such as ice storage and industrial processes | • |
| Low-temperature brine solution | Implementation of new algorithms of control and evaporator redesign to allow chilled brine solution production down to -15°C when ethylene glycol is used (-10°C with propylene glycol) | Covers specific applications such as ice storage and industrial processes | • |
| Light-brine solution, down to -3°C | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol) | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements | • |
| Unit equipped for air discharge ducting | Fans equipped with discharge connection flanges - maximum available pressure 60 Pa | Facilitates connections to the discharge ducts | • |
| Low Noise | Aesthetic and sound absorbing compressor enclosure | Noise level reduction | • |
| Xtra Low Noise | Acoustic compressor enclosure and low-speed fans | Noise emission reduction at reduced fan speed | • |
| Super Low Noise | Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources | Noise level reduction in sensitive environments | 1308-4608 |
| IP54 control box | Increased leak tightness of the unit | Protects the inside of the electrical box from dust, water and sand. As a rule, this option is recommended for installations located in polluted environments | • |
| Tropicalisation of the electrical box | Electrical box equipped with an electrical heater and a fan. Electrical connections on the compressors painted with a special varnish. | Grant safe operation in typical "tropical" climate. This option is recommended for all applications where humidity inside the electrical box can reach 80% at 40°C and unit can remain in stand-by for a long time under this conditions. | • |
| Protection grilles | Metal grilles on the 4 unit sides. | Improves protection against intrusion to the unit interior, and protects the coil and piping against impacts. | • |
| 230 V electrical plug | 230 V AC power supply source provided with plug socket and transformer (180 VA, 0.8 A) | Permits connection of a laptop or an electrical device during unit commissioning or servicing | • |
| Water exchanger frost protection | Electric resistance heater on the water exchanger and discharge valve | Water exchanger frost protection down to -20°C outside temperature | • |
| Evaporator & hydraulic module frost protection | Electric resistance heater on water exchanger, discharge valve and hydraulic module | Water exchanger and hydraulic module frost protection down to -20°C outside temperature | Sizes 808 to 1108 |
| Total heat recovery | Unit equipped with additional heat exchanger in parallel with the condenser coils. | Production of free hot-water simultaneously with chilled water production | Sizes 808 to 3028 |
| Evaporator with one pass less | Evaporator with one pass more on the water | Optimise chiller operation when the chilled water circuit is designed with low waterflows (high delta T evaporator inlet/outlet) | Sizes 808-3028 |
| Master/slave operation | side | Optimised operation of two units connected in parallel operation with operating time equalisation | • |
| 21 bar evaporator | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar) | Covers applications with a high water column evaporator side (typically high buildings) | • |
| Single power connection point | Unit power connection via one main supply connection | Quick and easy installation | Sizes 3428 to 4608 |
| Evap. and pumps with aluminum jacket | Evaporator and pumps covered with an aluminum sheet for thermal insulation protection | Improved resistance to aggressive climate conditions | Sizes 0808-1108 |
| Reversed evaporator water connections | Evaporator with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Service valve set | Liquid line valve (evaporator inlet), compressor suction and discharge line valves and economiser line valve | Allow isolation of various refrigerant circuit components for simplified service and maintenance | • |
| Evaporator with one pass more | Evaporator with one pass more on the water side | Optimise chiller operation when the chilled water circuit is designed with low waterflows (high delta T evaporator inlet/outlet) | • |
| Set point adjustment by 4-20mA signal | Connections to allow a 4-20mA signal input | Easy energy management, allow to adjust set point by a 4-20mA external signal | • |
| Lon gateway | Two-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | • |
| HP single-pump hydraulic module | Complete hydraulic module equipped with water filter, relief valve, one high pressure pump and drain valve. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available). | Quick and easy installation (plug & play) | Sizes 808 to 1108 |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | LX HE/XE |
|--|--|---|-------------------|
| HP dual-pump hydraulic module | Dual high pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available) | Quick and easy installation (plug & play) | Sizes 808 to 1108 |
| LP single-pump hydraulic module | Single low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available) | Quick and easy installation (plug & play) | Sizes 808 to 1108 |
| LP dual-pump hydraulic module | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available) | Quick and easy installation (plug & play) | Sizes 808 to 1108 |
| Dual relief valves on 3-way valve | Three-way valve upstream of dual relief valves on the shell and tubes evaporator | Valve replacement and inspection facilitated without refrigerant loss. Conforms to European standard EN378/BGVD4 | Sizes 808 to 3028 |
| Compliance with Swiss regulations | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications | Compliance with Swiss regulations | • |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | • |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy, high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | • |
| Energy Management Module | Control board with additional inputs/outputs. See Contacts available in option on control description | Extended remote control capabilities (setpoint reset by 0-20 mA input, ice storage end, demand limits, boiler on/off command...) | • |
| 7" user interface | Control supplied with a 7 inch colour touch screen user interface | Enhanced ease of use | • |
| Input contact for Refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • |
| Compliance with Australian regulations | Unit approved to Australian code | Compliance with Australian regulations | • |
| Insulation of the evap. in/ out ref.lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/ leaving refrigerant lines | • |
| MCHE anti-corrosion protection Protect2 | Coating by conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117) | Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments | • |
| MCHE anti-corrosion protection Protect4 | Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in corrosive environments | • |
| Evaporator with aluminium jacket | Evaporator covered with an aluminium sheet for thermal insulation protection | Improved resistance to aggressive climate conditions | • |
| Expansion tank | 6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option) | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure | Sizes 808 to 1108 |
| Anti-vibration mounts | Elastomer anti-vibration mounts to be placed under the unit (material classified B2 fire class according to DIN 4102). | Isolate the unit from the building, avoid transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side | • |
| Free cooling drycooler management | Control & connections to a free cooling drycooler Opera or Vextra fitted with the FC control box option | Easy system management, extended control capabilities to a drycooler used in free cooling mode | • |
| Variable Water Flow control | Hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant ΔT , constant outlet pressure and fixed-speed control | When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/optimised chiller operation | Sizes 808 to 1108 |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX HE | | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 | |
|---|--|------------------|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | | | | |
| LX HE standard Full load performances* | CA1 | Nominal capacity | kW | 277 | 300 | 322 | 392 | 444 | 494 | 623 | 676 | 730 |
| | | EER | kW/kW | 3,15 | 3,12 | 3,08 | 3,18 | 3,11 | 3,08 | 3,22 | 3,28 | 3,10 |
| LX HE with Xtra & Super Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 271 | 293 | 313 | 384 | 432 | 478 | 607 | 659 | 709 |
| | | EER | kW/kW | 3,13 | 3,08 | 3,00 | 3,16 | 3,03 | 2,93 | 3,13 | 3,20 | 2,97 |
| LX HE standard Seasonal energy efficiency** | SEER 127 °C Comfort low temp. | | kWh/kWh | 4,47 | 4,46 | 4,40 | 4,33 | 4,56 | 4,55 | 4,55 | 4,62 | 4,56 |
| | ηs cool 127 °C | | % | 176 | 175 | 173 | 170 | 179 | 179 | 179 | 182 | 179 |
| | SEPR 127 °C Process high temp. | | kWh/kWh | 5,70 | 5,69 | 5,65 | 5,78 | 5,72 | 5,74 | 5,68 | 5,79 | 5,63 |
| LX HE with medium-temperature brine solution option Seasonal energy efficiency** | SEPR -2/-8 °C Process medium temp.*** | | kWh/kWh | 2,72 | 3,02 | 3,18 | 2,81 | 3,51 | 3,56 | 3,65 | 3,67 | 3,44 |
| | SEER 127 °C Comfort low temp. | | kWh/kWh | 4,47 | 4,47 | 4,43 | 4,49 | - | - | - | - | - |
| LX HE with variable water flow control option Seasonal energy efficiency** | ηs cool 127 °C | | % | 176 | 176 | 174 | 177 | - | - | - | - | - |
| | SEPR 127 °C Process high temp. | | kWh/kWh | 5,72 | 5,71 | 5,68 | 5,83 | - | - | - | - | - |
| | SEPR -2/-8 °C Process medium temp.*** | | kWh/kWh | 3,29 | 3,46 | 3,52 | 3,26 | 3,42 | 3,50 | 3,50 | 3,62 | 3,38 |
| LX HE with Xtra & Super Low Noise option Seasonal energy efficiency** | SEER 127 °C Comfort low temp. | | kWh/kWh | 4,49 | 4,48 | 4,41 | 4,33 | 4,56 | 4,57 | 4,56 | 4,62 | 4,56 |
| | ηs cool 127 °C | | % | 176 | 176 | 173 | 170 | 179 | 180 | 179 | 182 | 179 |
| | SEPR 127 °C Process high temp. | | kWh/kWh | 5,82 | 5,88 | 5,79 | 5,57 | 5,70 | 5,79 | 5,92 | 5,93 | 5,79 |
| LX HE with medium-temperature brine solution, Xtra & super low noise options Seasonal energy efficiency** | SEPR -2/-8 °C Process medium temp.*** | | kWh/kWh | 2,75 | 3,10 | 3,29 | 2,83 | 3,54 | 3,67 | 3,79 | 3,82 | 3,55 |
| | SEER 127 °C Comfort low temp. | | kWh/kWh | 4,47 | 4,47 | 4,42 | 4,47 | - | - | - | - | - |
| LX HE with variable water flow control option & Xtra & super low noise Seasonal energy efficiency** | ηs cool 127 °C | | % | 176 | 176 | 174 | 176 | - | - | - | - | - |
| | SEPR 127 °C Process high temp. | | kWh/kWh | 5,84 | 5,91 | 5,82 | 5,61 | - | - | - | - | - |
| | SEPR -2/-8 °C Process medium temp.*** | | kWh/kWh | 3,35 | 3,58 | 3,71 | 3,38 | 3,64 | 3,61 | 3,63 | 3,78 | 3,50 |
| Sound levels | | | | | | | | | | | | |
| LX HE | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 99 | 99 | 99 | 99 | 101 | 99 | 101 | 99 | 99 | 103 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 67 | 67 | 67 | 67 | 69 | 67 | 68 | 66 | 66 | 70 |
| LX HE + Low Noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 93 | 93 | 94 | 95 | 95 | 95 | 97 | 96 | 97 | 97 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 61 | 61 | 62 | 63 | 63 | 63 | 64 | 63 | 64 | 64 |
| LX HE + Xtra low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 87 | 87 | 87 | 90 | 91 | 91 | 93 | 92 | 94 | 94 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 55 | 55 | 55 | 58 | 59 | 59 | 60 | 59 | 61 | 61 |
| LX HE + Super low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | - | - | - | - | 89 | 89 | 91 | 90 | 91 | 91 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | - | - | - | - | 57 | 57 | 58 | 57 | 58 | 58 |

* In accordance with standard EN14511-3:2018.
 ** In accordance with standard EN14825:2016, average climate
 *** 30 % brine solution
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
ηs cool 127 °C & SEER 127 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**
SEPR 127 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application**
SEPR -2/-8 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application**
 - Non applicable
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCAT™ LX HE | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 |
|---|--------------------|---|----------------|----------------|----------------|----------------|----------------|-------|-------|-------|
| Dimensions | | | | | | | | | | |
| LX HE | | | | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 | 7186 | 7186 | 7186 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX HE standard | | | | | | | | | | |
| | kg | 3081 | 3112 | 3132 | 3729 | 3791 | 3852 | 4878 | 5024 | 5282 |
| LX HE Unit + Low noise option | | | | | | | | | | |
| | kg | 3349 | 3380 | 3400 | 4028 | 4090 | 4151 | 5209 | 5355 | 5613 |
| Compressors | | | | | | | | | | |
| 06T semi-hermetic screw, 50 r/s | | | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | | | | | | | | | |
| R134a | | | | | | | | | | |
| Circuit A | kg | 39 | 37 | 37 | 52 | 53 | 55 | 60 | 61 | 69 |
| | tCO ₂ e | 55,8 | 52,9 | 52,9 | 74,4 | 75,8 | 77,9 | 85,8 | 87,2 | 98,0 |
| Circuit B | kg | 40,0 | 38 | 39 | 40,0 | 40 | 37,0 | 61 | 64 | 61 |
| | tCO ₂ e | 57,2 | 54,3 | 55,8 | 57,2 | 57,2 | 52,9 | 87,2 | 91,5 | 86,5 |
| Oil | | | | | | | | | | |
| Circuit A | l | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 | 23,5 | 23,5 | 27,6 |
| Circuit B | l | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 |
| Capacity control | | | | | | | | | | |
| Connect Touch, electronic expansion valve (EXV) | | | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | | | | | | | | | |
| Aluminium micro-channel coils (MCHE) | | | | | | | | | | |
| Fans | | | | | | | | | | |
| LX HE | | | | | | | | | | |
| Axial type, with rotating impeller, FLYING-BIRD 6 | | | | | | | | | | |
| Quantity | | 6 | 6 | 6 | 8 | 8 | 8 | 11 | 12 | 12 |
| Maximum total air flow | l/s | 28920 | 28920 | 28920 | 38560 | 38560 | 38560 | 53020 | 57840 | 57840 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX HE Unit + Xtra Low Noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 23580 | 23580 | 23580 | 31440 | 31440 | 31440 | 43230 | 47160 | 47160 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | | | | | | | | | |
| Flooded multi-pipe type | | | | | | | | | | |
| Water volume | l | 58 | 61 | 61 | 66 | 70 | 77 | 79 | 94 | 98 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | | | | | | | | | |
| Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | |
| Expansion vessel volume | l | 50 | 50 | 50 | 50 | 50 | 80 | | | |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | | | |
| Water connections with or without hydraulic module | | | | | | | | | | |
| Victaulic® type | | | | | | | | | | |
| Connections | inch | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 | 6 | 6 |
| External diameter ⁽⁴⁾ | mm | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 141,3 | 168,3 | 168,3 |
| Casing paintwork | | | | | | | | | | |
| Colour code RAL 7035 & RAL 7024 | | | | | | | | | | |

- (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Meas red in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
- (3) Values are guidelines only. Refer to the unit name plate.
- (4) Depends on the number of passes on the evaporator



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX HE | | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 | |
|---|-----|--|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | | | | |
| LX HE standard Full load performances* | CA1 | Nominal capacity | kW | 782 | 825 | 899 | 983 | 1143 | 1262 | 1330 | 1441 | 1512 |
| | | EER | kW/kW | 3,10 | 3,08 | 3,12 | 3,17 | 3,22 | 3,19 | 3,16 | 3,05 | 3,07 |
| LX HE with Xtra & Super Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 757 | 795 | 878 | 969 | 1113 | 1226 | 1290 | 1392 | 1464 |
| | | EER | kW/kW | 2,93 | 2,89 | 2,99 | 3,03 | 3,11 | 3,05 | 2,98 | 2,82 | 2,89 |
| LX HE standard Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | 4,55 | 4,56 | 4,56 | 4,60 | 4,58 | 4,61 | 4,55 | 4,55 | 4,55 |
| | | ηs cool 12/7 °C | % | 179 | 179 | 179 | 181 | 180 | 181 | 179 | 179 | 179 |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | NA | 5,55 | 5,54 | 5,83 | 5,76 | 5,71 | 5,68 | 5,56 | NA |
| LX HE with medium-temperature brine solution option Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,35 | 3,53 | 3,44 | 3,55 | 3,52 | 3,47 | 3,60 | 3,63 | NA |
| | | SEER 12/7 °C Comfort low temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX HE with variable water flow control option Seasonal energy efficiency** | | ηs cool 12/7 °C | % | - | - | - | - | - | - | - | - | - |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,34 | 3,47 | 3,39 | 3,47 | 3,29 | 2,63 | 3,45 | 3,53 | NA |
| LX HE with Xtra & Super Low Noise option Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | 4,58 | 4,56 | 4,57 | 4,56 | 4,60 | 4,62 | 4,59 | 4,56 | 4,55 |
| | | ηs cool 12/7 °C | % | 180 | 179 | 180 | 179 | 181 | 182 | 181 | 179 | 179 |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | 5,72 | 5,80 | 5,76 | 5,88 | 5,90 | 5,81 | 5,71 | 5,68 | 5,52 |
| LX HE with medium-temperature brine solution, Xtra & super low noise options Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,57 | 3,66 | 3,55 | 3,78 | 3,61 | 3,31 | 3,22 | 3,27 | 3,28 |
| | | SEER 12/7 °C Comfort low temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX HE with variable water flow control option & Xtra & super low noise Seasonal energy efficiency** | | ηs cool 12/7 °C | % | - | - | - | - | - | - | - | - | - |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,55 | 3,59 | 3,47 | 3,70 | 3,58 | 3,44 | 3,67 | 3,67 | 3,45 |
| Sound levels | | | | | | | | | | | | |
| LX HE | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 103 | 101 | 104 | 102 | 103 | 102 | 104 | 104 | 104 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 70 | 68 | 71 | 69 | 70 | 69 | 71 | 71 | 71 | |
| LX HE + Low Noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 98 | 97 | 99 | 98 | 98 | 98 | 100 | 99 | 99 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 65 | 64 | 66 | 65 | 65 | 65 | 67 | 66 | 66 | |
| LX HE + Xtra low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 94 | 94 | 95 | 94 | 94 | 94 | 99 | 95 | 96 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 61 | 61 | 62 | 61 | 61 | 61 | 66 | 62 | 63 | |
| LX HE + Super low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 92 | 91 | 93 | 92 | 93 | 93 | 97 | 94 | 95 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 59 | 58 | 60 | 59 | 60 | 60 | 64 | 61 | 62 | |

* In accordance with standard EN14511-3:2018.
 ** In accordance with standard EN14825:2016, average climate
 *** 30 % brine solution
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². kW
ηs cool 12/7 °C & SEER 12/7 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**
SEPR 12/7 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application**
SEPR -2/-8 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application**
 NA Not authorised for the specific application for the CEE market
 - Non applicable
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX HE | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 |
|---|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Dimensions | | | | | | | | | | |
| LX HE | | | | | | | | | | |
| Length | mm | 7186 | 7186 | 8380 | 9574 | 11962 | 11962 | 11962 | 11962 | 13157 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX HE standard | kg | 5594 | 5643 | 6262 | 6772 | 8061 | 8202 | 8793 | 8868 | 9218 |
| LX HE Unit + Low noise option | kg | 5925 | 5974 | 6593 | 7103 | 8435 | 8576 | 9167 | 9242 | 9592 |
| Compressors | | | | | | | | | | |
| 06T semi-hermetic screw, 50 r/s | | | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | | | | | | | | | |
| R134a | | | | | | | | | | |
| Circuit A | kg | 69 | 69 | 72 | 79 | 82 | 84 | 115 | 121 | 124 |
| | tCO ₂ e | 98,7 | 98,7 | 103,0 | 113,0 | 117,3 | 120,1 | 164,5 | 173,0 | 177,3 |
| Circuit B | kg | 67 | 67 | 74 | 83 | 118 | 130 | 121 | 127 | 130 |
| | tCO ₂ e | 95,8 | 95,8 | 105,8 | 118,7 | 168,7 | 185,9 | 173,0 | 181,6 | 185,9 |
| Oil | | | | | | | | | | |
| Circuit A | l | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 |
| Circuit B | l | 23,5 | 23,5 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 | 36,0 | 36,0 |
| Capacity control | | | | | | | | | | |
| Connect Touch, electronic expansion valve (EXV) | | | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | | | | | | | | | |
| Aluminium micro-channel coils (MCHE) | | | | | | | | | | |
| Fans | | | | | | | | | | |
| Axial type, with rotating impeller, FLYING-BIRD 6 | | | | | | | | | | |
| LX HE | | | | | | | | | | |
| Quantity | | 12 | 12 | 14 | 16 | 20 | 20 | 20 | 20 | 22 |
| Maximum total air flow | l/s | 57840 | 57840 | 67480 | 77120 | 96400 | 96400 | 96400 | 96400 | 106040 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX HE Unit + Xtra Low Noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 47160 | 47160 | 55020 | 62880 | 78600 | 78600 | 78600 | 78600 | 86460 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | | | | | | | | | |
| Flooded multi-pipe type | | | | | | | | | | |
| Water volume | l | 119 | 119 | 130 | 140 | 164 | 174 | 180 | 189 | 189 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Water connections with or without hydraulic module | | | | | | | | | | |
| Victaulic® type | | | | | | | | | | |
| Connections | inch | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 |
| External diameter | mm | 168,3 | 168,3 | 168,3 | 219,1 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3 |
| Casing paintwork | | | | | | | | | | |
| Colour code RAL 7035 & RAL 7024 | | | | | | | | | | |

- (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Meas red in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
- (3) Values are guidelines only. Refer to the unit name plate.
- (4) Depends on the number of passes on the evaporator



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX XE | | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 | |
|---|-----|--|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | | | | |
| LX XE standard Full load performances* | CA1 | Nominal capacity | kW | 277 | 301 | 323 | 392 | 445 | 500 | 623 | 677 | 730 |
| | | EER | kW/kW | 3,21 | 3,18 | 3,14 | 3,23 | 3,16 | 3,23 | 3,27 | 3,34 | 3,14 |
| LX XE with Xtra Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 271 | 293 | 313 | 384 | 432 | 486 | 607 | 659 | 709 |
| | | EER | kW/kW | 3,17 | 3,11 | 3,03 | 3,20 | 3,05 | 3,13 | 3,16 | 3,23 | 2,99 |
| LX XE standard Seasonal energy efficiency** | | SEER_{12/7 °C} Comfort low temp. | kWh/kWh | 4,66 | 4,64 | 4,55 | 4,50 | 4,62 | 4,67 | 4,66 | 4,77 | 4,61 |
| | | η_{s cool} 12/7 °C | % | 183 | 183 | 179 | 177 | 182 | 184 | 183 | 188 | 181 |
| | | SEPR_{12/7 °C} Process high temp. | kWh/kWh | 6,12 | 6,16 | 6,11 | 6,06 | 6,01 | 6,13 | NA | 6,18 | 5,81 |
| LX XE with medium-temperature brine solution option Seasonal energy efficiency** | | SEPR_{-2/-8 °C} Process medium temp.*** | kWh/kWh | 2,86 | 3,26 | 3,39 | 2,97 | 3,67 | 3,80 | 3,84 | 4,02 | 3,61 |
| | | SEER_{12/7 °C} Comfort low temp. | kWh/kWh | 4,59 | 4,57 | 4,52 | 4,61 | - | - | - | - | - |
| LX XE with variable water flow control option Seasonal energy efficiency** | | η_{s cool} 12/7 °C | % | 180 | 180 | 178 | 181 | - | - | - | - | - |
| | | SEPR_{12/7 °C} Process high temp. | kWh/kWh | 6,13 | 6,18 | 6,15 | 6,10 | - | - | - | - | - |
| | | SEPR_{-2/-8 °C} Process medium temp.*** | kWh/kWh | 3,51 | 3,72 | 3,78 | 3,64 | 3,62 | 3,72 | 3,68 | 3,96 | 3,55 |
| LX XE with Xtra Low Noise option Seasonal energy efficiency** | | SEER_{12/7 °C} Comfort low temp. | kWh/kWh | 4,67 | 4,67 | 4,56 | 4,49 | 4,59 | 4,64 | 4,65 | 4,78 | 4,60 |
| | | η_{s cool} 12/7 °C | % | 184 | 184 | 179 | 176 | 181 | 183 | 183 | 188 | 181 |
| | | SEPR_{12/7 °C} Process high temp. | kWh/kWh | 6,09 | 6,18 | 6,08 | 5,88 | 5,90 | 6,11 | 6,07 | 6,23 | 5,85 |
| LX XE with medium-temperature brine solution, Xtra low noise options Seasonal energy efficiency** | | SEPR_{-2/-8 °C} Process medium temp.*** | kWh/kWh | 2,85 | 3,25 | 3,42 | 2,94 | 3,64 | 3,70 | 3,93 | 3,97 | 3,64 |
| | | SEER_{12/7 °C} Comfort low temp. | kWh/kWh | 4,59 | 4,59 | 4,51 | 4,58 | - | - | - | - | - |
| LX XE with variable water flow control option & Xtra low noise Seasonal energy efficiency** | | η_{s cool} 12/7 °C | % | 181 | 181 | 177 | 180 | - | - | - | - | - |
| | | SEPR_{12/7 °C} Process high temp. | kWh/kWh | 6,11 | 6,20 | 6,11 | 5,91 | - | - | - | - | - |
| | | SEPR_{-2/-8 °C} Process medium temp.*** | kWh/kWh | 3,47 | 3,74 | 3,89 | 3,52 | 3,75 | 3,79 | 3,77 | 3,93 | 3,59 |
| Sound levels | | | | | | | | | | | | |
| LX XE | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 99 | 99 | 99 | 99 | 101 | 99 | 101 | 99 | 103 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 67 | 67 | 67 | 67 | 69 | 67 | 68 | 67 | 70 |
| LX XE + low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 93 | 93 | 94 | 95 | 95 | 95 | 97 | 96 | 97 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 61 | 61 | 62 | 63 | 63 | 63 | 65 | 63 | 64 |
| LX XE + Xtra low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 87 | 87 | 87 | 90 | 91 | 91 | 93 | 92 | 94 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 55 | 55 | 55 | 58 | 59 | 59 | 60 | 59 | 61 |
| LX HE + Super low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | - | - | - | - | 89 | 89 | 91 | 90 | 91 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | - | - | - | - | 56 | 56 | 57 | 56 | 58 |

* In accordance with standard EN14511-3:2018.
 ** In accordance with standard EN14825:2016, average climate
 *** 30 % brine solution
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
η_{s cool} 12/7 °C & SEER_{12/7 °C} **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**
SEPR_{12/7 °C} **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application**
SEPR_{-2/-8 °C} **Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application**
 NA Not authorised for the specific application for the CEE market
 - Non applicable
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCAT™ LX XE | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 |
|---|--------------------|---|----------------|----------------|----------------|----------------|----------------|-------|-------|-------|
| Dimensions | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 4798 | 4798 | 5992 | 7186 | 7186 | 7186 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX XE standard | kg | 3040 | 3071 | 3090 | 3683 | 3746 | 4091 | 4807 | 4941 | 5208 |
| LX XE + low noise option | kg | 3308 | 3339 | 3358 | 3982 | 4045 | 4390 | 5138 | 5272 | 5539 |
| Compressors | | | | | | | | | | |
| 06T semi-hermetic screw, 50 r/s | | | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | | | | | | | | | |
| R134a | | | | | | | | | | |
| Circuit A | kg | 39 | 37 | 37 | 52 | 53 | 59 | 60 | 61 | 69 |
| | tCO ₂ e | 55,8 | 52,9 | 52,9 | 74,4 | 75,8 | 83,7 | 85,8 | 87,2 | 98,0 |
| Circuit B | kg | 40 | 38 | 39 | 40 | 40 | 36 | 61 | 64 | 61 |
| | tCO ₂ e | 57,2 | 54,3 | 55,8 | 57,2 | 57,2 | 51,5 | 87,2 | 91,5 | 86,5 |
| Oil | | | | | | | | | | |
| Circuit A | l | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 | 23,5 | 23,5 | 27,6 |
| Circuit B | l | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 |
| Capacity control | | | | | | | | | | |
| Connect Touch, electronic expansion valve (EXV) | | | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | | | | | | | | | |
| Aluminium micro-channel coils (MCHE) | | | | | | | | | | |
| Fans | | | | | | | | | | |
| LX XE | | | | | | | | | | |
| Axial type, with rotating impeller | | | | | | | | | | |
| Quantity | | 6 | 6 | 6 | 8 | 8 | 9 | 11 | 12 | 12 |
| Maximum total air flow | l/s | 28920 | 28920 | 28920 | 38560 | 38560 | 43380 | 53020 | 57840 | 57840 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX XE + Xtra low noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 23580 | 23580 | 23580 | 31440 | 31440 | 35370 | 43230 | 47160 | 47160 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | | | | | | | | | |
| Flooded multi-pipe type | | | | | | | | | | |
| Water volume | l | 58 | 61 | 61 | 66 | 70 | 77 | 79 | 94 | 98 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | | | | | | | | | |
| Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | |
| Expansion vessel volume | l | 50 | 50 | 50 | 50 | 50 | 80 | | | |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | | | |
| Water connections with or without hydraulic module | | | | | | | | | | |
| Victaulic® type | | | | | | | | | | |
| Connections | inch | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 | 6 | 6 |
| External diameter | mm | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 141,3 | 168,3 | 168,3 |
| Casing paintwork | | | | | | | | | | |
| Colour code RAL 7035 & RAL 7024 | | | | | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL SPECIFICATIONS



| POWERCIAAT™ LX XE | | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 | |
|---|--|------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Cooling | | | | | | | | | | | | |
| LX XE standard Full load performances* | CA1 | Nominal capacity | kW | 782 | 837 | 899 | 982 | 1143 | 1262 | 1330 | 1441 | 1512 |
| | | EER | kW/kW | 3,13 | 3,27 | 3,15 | 3,21 | 3,28 | 3,24 | 3,20 | 3,08 | 3,11 |
| LX XE with Xtra Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 757 | 813 | 872 | 969 | 1113 | 1227 | 1290 | 1391 | 1466 |
| | | EER | kW/kW | 2,95 | 3,13 | 2,98 | 3,06 | 3,16 | 3,06 | 3,01 | 2,84 | 2,91 |
| LX XE standard Seasonal energy efficiency** | SEER 12/7 °C Comfort low temp. | | kWh/kWh | 4,58 | 4,68 | 4,61 | 4,69 | 4,70 | 4,72 | 4,62 | 4,63 | 4,62 |
| | ηs cool 12/7 °C | | % | 180 | 184 | 181 | 185 | 185 | 186 | 182 | 182 | 182 |
| | SEPR 12/7 °C Process high temp. | | kWh/kWh | 5,69 | 5,96 | 5,84 | 5,83 | 5,90 | 5,87 | 5,99 | 5,65 | 6,16 |
| LX XE with medium-temperature brine solution option Seasonal energy efficiency** | SEPR-2/-8 °C Process medium temp.*** | | kWh/kWh | 3,63 | 3,83 | 3,67 | 3,66 | 3,77 | 3,66 | 3,70 | 3,72 | 3,24 |
| | SEER 12/7 °C Comfort low temp. | | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX XE with variable water flow control option Seasonal energy efficiency** | ηs cool 12/7 °C | | % | - | - | - | - | - | - | - | - | - |
| | SEPR 12/7 °C Process high temp. | | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | SEPR -2/-8 °C Process medium temp.*** | | kWh/kWh | 3,61 | 3,75 | 3,64 | 3,58 | 3,45 | 3,73 | 3,59 | 3,69 | 3,42 |
| LX XE with low-temperature brine solution option Seasonal energy efficiency** | SEER 12/7 °C Comfort low temp. | | kWh/kWh | 4,57 | 4,66 | 4,58 | 4,67 | 4,68 | 4,70 | 4,57 | 4,56 | 4,56 |
| | ηs cool 12/7 °C | | % | 180 | 183 | 180 | 184 | 184 | 185 | 180 | 179 | 179 |
| | SEPR 12/7 °C Process high temp. | | kWh/kWh | 5,85 | 5,97 | 5,87 | 5,91 | 6,17 | 6,12 | 5,98 | 5,77 | 5,98 |
| LX XE with medium-temperature brine solution, Xtra low noise options Seasonal energy efficiency** | SEPR-2/-8 °C Process medium temp.*** | | kWh/kWh | 3,68 | 3,75 | 3,65 | 3,72 | 3,55 | 3,49 | 3,41 | 3,45 | 3,46 |
| | SEER 12/7 °C Comfort low temp. | | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX XE with variable water flow control option & Xtra low noise Seasonal energy efficiency** | ηs cool 12/7 °C | | % | - | - | - | - | - | - | - | - | - |
| | SEPR 12/7 °C Process high temp. | | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | SEPR-2/-8 °C Process medium temp.*** | | kWh/kWh | 3,67 | 3,69 | 3,64 | 3,65 | 3,69 | 3,70 | 3,93 | 3,87 | 3,50 |
| Sound levels | | | | | | | | | | | | |
| LX XE | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | | 103 | 101 | 104 | 102 | 103 | 102 | 104 | 104 | 104 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | | 70 | 68 | 71 | 69 | 70 | 69 | 71 | 71 | 71 |
| LX XE + low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | | 98 | 97 | 99 | 98 | 98 | 98 | 100 | 99 | 99 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | | 65 | 64 | 66 | 65 | 65 | 65 | 67 | 66 | 66 |
| LX XE + Xtra low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | | 94 | 94 | 95 | 94 | 94 | 94 | 99 | 95 | 96 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | | 61 | 61 | 62 | 61 | 61 | 61 | 66 | 62 | 63 |
| LX HE + Super low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | | 92 | 91 | 93 | 92 | 93 | 93 | 97 | 94 | 95 |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | | 59 | 58 | 60 | 59 | 60 | 60 | 64 | 61 | 62 |

* In accordance with standard EN14511-3:2018.
 ** In accordance with standard EN14825:2016, average climate
 *** 30 % brine solution
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². kW
ηs cool 12/7 °C & SEER 12/7 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**
SEPR 12/7 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application**
SEPR -2/-8 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application**
 - Non applicable
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
 NA Not authorised for the specific application for the CEE market



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX XE | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 |
|---|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Dimensions | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Length | mm | 7186 | 8380 | 8380 | 9574 | 11962 | 11962 | 11962 | 11962 | 13157 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX XE standard | kg | 5520 | 5889 | 6172 | 6668 | 7945 | 8082 | 8698 | 8773 | 9087 |
| LX XE + low noise option | kg | 5851 | 6220 | 6503 | 6999 | 8319 | 8456 | 9072 | 9147 | 9461 |
| Compressors | | | | | | | | | | |
| 06T semi-hermetic screw, 50 r/s | | | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | | | | | | | | | |
| R134a | | | | | | | | | | |
| Circuit A | kg | 69 | 75 | 72 | 79 | 82 | 84 | 115 | 121 | 124 |
| | tCO ₂ e | 98,7 | 107,3 | 103,0 | 113,0 | 117,3 | 120,1 | 164,5 | 173,0 | 177,3 |
| Circuit B | kg | 67 | 67 | 74 | 83 | 118 | 130 | 121 | 127 | 130 |
| | tCO ₂ e | 95,8 | 95,8 | 105,8 | 118,7 | 168,7 | 185,9 | 173,0 | 181,6 | 185,9 |
| Oil | | | | | | | | | | |
| Circuit A | l | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 |
| Circuit B | l | 23,5 | 23,5 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 | 36,0 | 36,0 |
| Capacity control | | | | | | | | | | |
| Connect Touch, electronic expansion valve (EXV) | | | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | | | | | | | | | |
| Aluminium micro-channel coils (MCHE) | | | | | | | | | | |
| Fans | | | | | | | | | | |
| Axial type, with rotating impeller, FLYING-BIRD 6 | | | | | | | | | | |
| LX XE | | | | | | | | | | |
| Quantity | | 12 | 14 | 14 | 16 | 20 | 20 | 20 | 20 | 22 |
| Maximum total air flow | l/s | 57840 | 67480 | 67480 | 77120 | 96400 | 96400 | 96400 | 96400 | 106040 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX XE + Xtra low noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 47160 | 55020 | 55020 | 62880 | 78600 | 78600 | 78600 | 78600 | 86460 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | | | | | | | | | |
| Flooded multi-pipe type | | | | | | | | | | |
| Water volume | l | 119 | 119 | 130 | 140 | 164 | 174 | 180 | 189 | 189 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Water connections with or without hydraulic module | | | | | | | | | | |
| Victaulic® type | | | | | | | | | | |
| Connections | inch | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 |
| External diameter | mm | 168,3 | 168,3 | 168,3 | 219,1 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3 |
| Casing paintwork | | | | | | | | | | |
| Colour code RAL 7035 & RAL 7024 | | | | | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL SPECIFICATIONS

Basic unit (excluding pump)

| POWERCIAT™ LX HE | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 | 2308 | 2528 | 2628 | 3028 |
|---|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit supply | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | | | | | |
| Maximum operating input power⁽¹⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | kW | 127 | 138 | 148 | 174 | 194 | 212 | 260 | 280 | 310 | 329 | 359 | 381 | 446 |
| Unit + Xtra / Super Low Noise option | kW | 122 | 132 | 143 | 166 | 186 | 205 | 250 | 269 | 300 | 318 | 349 | 369 | 432 |
| Power factor at maximum power⁽²⁾ - LX HE | | | | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,90 | 0,90 | 0,89 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Displacement Power Factor (Cos Phi) unit + Xtra / Super Low noise option | | 0,90 | 0,90 | 0,89 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Nominal unit current draw⁽³⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 148 | 164 | 180 | 207 | 238 | 259 | 320 | 345 | 396 | 417 | 433 | 495 | 533 |
| Unit + Xtra / Super Low Noise option | A | 138 | 154 | 170 | 195 | 226 | 247 | 304 | 326 | 377 | 398 | 414 | 473 | 509 |
| Maximum operating current draw (Un)⁽¹⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 204 | 222 | 240 | 279 | 312 | 342 | 417 | 449 | 504 | 534 | 580 | 625 | 723 |
| Unit + Xtra / Super Low Noise option | A | 195 | 213 | 231 | 267 | 300 | 330 | 401 | 432 | 487 | 517 | 563 | 605 | 700 |
| Maximum current (Un-10 %)⁽²⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 216 | 235 | 254 | 295 | 330 | 362 | 441 | 475 | 534 | 566 | 615 | 663 | 767 |
| Unit + Xtra / Super Low Noise option | A | 207 | 226 | 245 | 283 | 318 | 350 | 425 | 458 | 517 | 549 | 598 | 643 | 744 |
| Start-up current⁽³⁾ + ⁽⁴⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 246 | 246 | 262 | 379 | 480 | 480 | 539 | 564 | 738 | 759 | 759 | 839 | 858 |
| Unit + Xtra / Super Low Noise option | A | 241 | 241 | 257 | 374 | 475 | 475 | 531 | 555 | 730 | 751 | 751 | 828 | 846 |
| Maximum start-up current (Un)⁽²⁾ + ⁽⁴⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 275 | 293 | 293 | 408 | 511 | 511 | 618 | 618 | 783 | 813 | 813 | 906 | 955 |
| Unit + Xtra / Super Low Noise option | A | 270 | 288 | 288 | 403 | 506 | 506 | 610 | 609 | 775 | 805 | 805 | 895 | 943 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.
For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B

TECHNICAL SPECIFICATIONS

| POWERCIAAT™ LX HE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|--|---------|-------------------------------|------|------|------|------|
| Power circuit supply | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | |
| Voltage range | V | 360-440 | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | |
| Maximum operating input power⁽¹⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| | kW | | | | | |
| Circuit 1 ^(a) | kW | 194 | 223 | 264 | 284 | 307 |
| Circuit 2 ^(a) | kW | 284 | 308 | 282 | 305 | 307 |
| Single power connection point option | kW | 478 | 532 | 546 | 588 | 614 |
| Unit with Xtra & Super Low Noise option | | | | | | |
| Circuit 1 ^(a) | kW | 187 | 216 | 255 | 274 | 297 |
| Circuit 2 ^(a) | kW | 275 | 298 | 273 | 296 | 297 |
| Single power connection point option | kW | 461 | 514 | 528 | 570 | 594 |
| Power factor at maximum power⁽¹⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,89 | 0,89 | 0,89 | 0,89 | 0,89 |
| Unit + Xtra & Super low noise option | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,89 | 0,89 | 0,89 | 0,89 | 0,89 |
| Nominal unit current draw⁽²⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| | A | | | | | |
| Circuit 1 ^(a) | A | 251 | 267 | 334 | 347 | 382 |
| Circuit 2 ^(a) | A | 350 | 386 | 347 | 379 | 382 |
| Single power connection point option | A | 601 | 652 | 681 | 726 | 764 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 239 | 255 | 319 | 332 | 366 |
| Circuit 2 ^(a) | A | 334 | 367 | 332 | 364 | 366 |
| Single power connection point option | A | 572 | 621 | 650 | 695 | 731 |
| Maximum operating current draw (Un)⁽¹⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| | A | | | | | |
| Circuit 1 ^(a) | A | 316 | 362 | 430 | 460 | 498 |
| Circuit 2 ^(a) | A | 463 | 500 | 460 | 495 | 498 |
| Single power connection point option | A | 778 | 862 | 889 | 954 | 995 |
| Unit with Xtra & Super Low Noise option | | | | | | |
| Circuit 1 ^(a) | A | 304 | 350 | 415 | 445 | 482 |
| Circuit 2 ^(a) | A | 447 | 483 | 445 | 480 | 482 |
| Single power connection point option | A | 751 | 833 | 860 | 925 | 963 |
| Maximum current (Un-10 %)⁽¹⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| | A | | | | | |
| Circuit 1 ^(a) | A | 335 | 384 | 466 | 498 | 529 |
| Circuit 2 ^(a) | A | 501 | 531 | 498 | 526 | 529 |
| Single power connection point option | A | 835 | 915 | 963 | 1023 | 1057 |
| Unit with Xtra & Super Low Noise option | | | | | | |
| Circuit 1 ^(a) | A | 323 | 372 | 451 | 483 | 513 |
| Circuit 2 ^(a) | A | 485 | 514 | 483 | 511 | 513 |
| Single power connection point option | A | 808 | 886 | 934 | 994 | 1025 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.
For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

TECHNICAL SPECIFICATIONS

| POWERCAT™ LX HE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|--|---|------|------|------|------|------|
| Start-up current⁽³⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 687 | 702 | 729 | 744 | 744 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 671 | 684 | 714 | 729 | 727 |
| Maximum start-up current (Un)⁽²⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 802 | 820 | 844 | 862 | 862 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 786 | 802 | 829 | 847 | 845 |

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.
For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

TECHNICAL SPECIFICATIONS

| POWERCIAT™ LX XE | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 | 2308 | 2528 | 2628 | 3028 |
|--|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit supply | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | | | | | |
| Maximum operating input power⁽¹⁾ | | | | | | | | | | | | | | |
| Standard unit | kW | 126 | 137 | 147 | 172 | 192 | 210 | 257 | 278 | 308 | 327 | 357 | 375 | 440 |
| Unit + Xtra / Super Low Noise option | kW | 124 | 135 | 145 | 170 | 189 | 208 | 254 | 274 | 304 | 323 | 353 | 371 | 434 |
| Power factor at maximum power⁽²⁾ | | | | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi)+ | | 0,90 | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Displacement Power Factor (Cos Phi) unit + Xtra / Super Low noise option | | 0,90 | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Nominal operating current draw⁽³⁾ | | | | | | | | | | | | | | |
| Circuit 1 ^(a) | A | 145 | 161 | 177 | 203 | 234 | 255 | 315 | 339 | 390 | 411 | 427 | 483 | 521 |
| Unit + Xtra / Super Low Noise option | A | 142 | 158 | 174 | 199 | 230 | 251 | 310 | 333 | 384 | 405 | 420 | 476 | 512 |
| Maximum operating current draw (Un)⁽¹⁾ | | | | | | | | | | | | | | |
| Circuit 1 ^(a) | A | 203 | 221 | 239 | 277 | 310 | 340 | 414 | 447 | 502 | 532 | 578 | 617 | 715 |
| Unit + Xtra / Super Low Noise option | A | 200 | 218 | 236 | 273 | 306 | 336 | 409 | 441 | 496 | 526 | 571 | 610 | 706 |
| Maximum current (Un-10 %)⁽²⁾ | | | | | | | | | | | | | | |
| Circuit 1 ^(a) | A | 215 | 234 | 253 | 293 | 328 | 360 | 438 | 473 | 532 | 564 | 613 | 655 | 759 |
| Unit + Xtra / Super Low Noise option | A | 212 | 231 | 250 | 289 | 324 | 356 | 433 | 467 | 526 | 558 | 606 | 648 | 750 |
| Start-up current⁽³⁾ + ⁽⁴⁾ | | | | | | | | | | | | | | |
| Circuit 1 ^(a) | A | 181 | 174 | 190 | 314 | 408 | 408 | 408 | 432 | 626 | 632 | 632 | 660 | 652 |
| Unit + Xtra / Super Low Noise option | A | 179 | 172 | 188 | 312 | 405 | 406 | 405 | 428 | 622 | 628 | 628 | 656 | 646 |
| Maximum start-up current (Un)⁽²⁾ + ⁽³⁾ | | | | | | | | | | | | | | |
| Circuit 1 ^(a) | A | 210 | 221 | 221 | 343 | 439 | 439 | 487 | 486 | 671 | 686 | 686 | 727 | 749 |
| Unit + Xtra / Super Low Noise option | A | 208 | 219 | 219 | 341 | 436 | 437 | 484 | 482 | 667 | 682 | 682 | 723 | 743 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.
For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

TECHNICAL SPECIFICATIONS

| POWERCIAAT™ LX XE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|--|---------|-------------------------------|------|------|------|------|
| Power circuit supply | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | |
| Voltage range | V | 360-440 | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | |
| Maximum operating input power^{(1) or (2)} | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | kW | 191 | 220 | 262 | 282 | 304 |
| Circuit 2 ^(a) | kW | 279 | 304 | 280 | 303 | 304 |
| Single power connection point option | kW | 469 | 525 | 542 | 584 | 609 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | kW | 188 | 217 | 258 | 278 | 301 |
| Circuit 2 ^(a) | kW | 276 | 301 | 277 | 300 | 301 |
| Single power connection point option | kW | 463 | 518 | 535 | 578 | 602 |
| Power factor at maximum power^{(1) or (2)} | | | | | | |
| Standard unit | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,88 | 0,89 | 0,88 | 0,89 | 0,89 |
| Unit + Xtra & Super low noise option | | | | | | |
| Displacement Power Factor (Cos Phi) unit + Xtra & Super Low noise option | | 0,88 | 0,89 | 0,88 | 0,89 | 0,89 |
| Nominal operating current draw⁽³⁾ | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 245 | 261 | 330 | 343 | 377 |
| Circuit 2 ^(a) | A | 340 | 377 | 343 | 375 | 377 |
| Single power connection point option | A | 584 | 638 | 672 | 717 | 754 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 240 | 256 | 324 | 337 | 372 |
| Circuit 2 ^(a) | A | 334 | 371 | 337 | 369 | 372 |
| Single power connection point option | A | 574 | 627 | 661 | 706 | 743 |
| Maximum operating current draw (Un)^{(1) or (2)} | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 312 | 358 | 428 | 458 | 495 |
| Circuit 2 ^(a) | A | 455 | 495 | 458 | 493 | 495 |
| Single power connection point option | A | 766 | 853 | 885 | 950 | 990 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 307 | 353 | 422 | 452 | 490 |
| Circuit 2 ^(a) | A | 450 | 490 | 452 | 487 | 490 |
| Single power connection point option | A | 756 | 842 | 874 | 939 | 979 |
| Maximum current (Un-10 %)^{(1) or (2)} | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 331 | 380 | 464 | 496 | 526 |
| Circuit 2 ^(a) | A | 493 | 526 | 496 | 524 | 526 |
| Single power connection point option | A | 823 | 906 | 959 | 1019 | 1052 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 326 | 375 | 458 | 490 | 521 |
| Circuit 2 ^(a) | A | 488 | 521 | 490 | 518 | 521 |
| Single power connection point option | A | 813 | 895 | 948 | 1008 | 1041 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies the refrigerant circuit B

TECHNICAL SPECIFICATIONS

| POWERCAT™ LX XE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|---|---|------|------|------|------|------|
| Start-up current⁽³⁾ + ⁽⁴⁾ | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 678 | 691 | 719 | 734 | 733 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 674 | 685 | 714 | 729 | 727 |
| Maximum start-up current (Un)⁽²⁾ + ⁽⁴⁾ | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 793 | 809 | 834 | 852 | 851 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 789 | 803 | 829 | 847 | 845 |

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies the refrigerant circuit B

Short circuit current withstand capability (TN system⁽¹⁾)

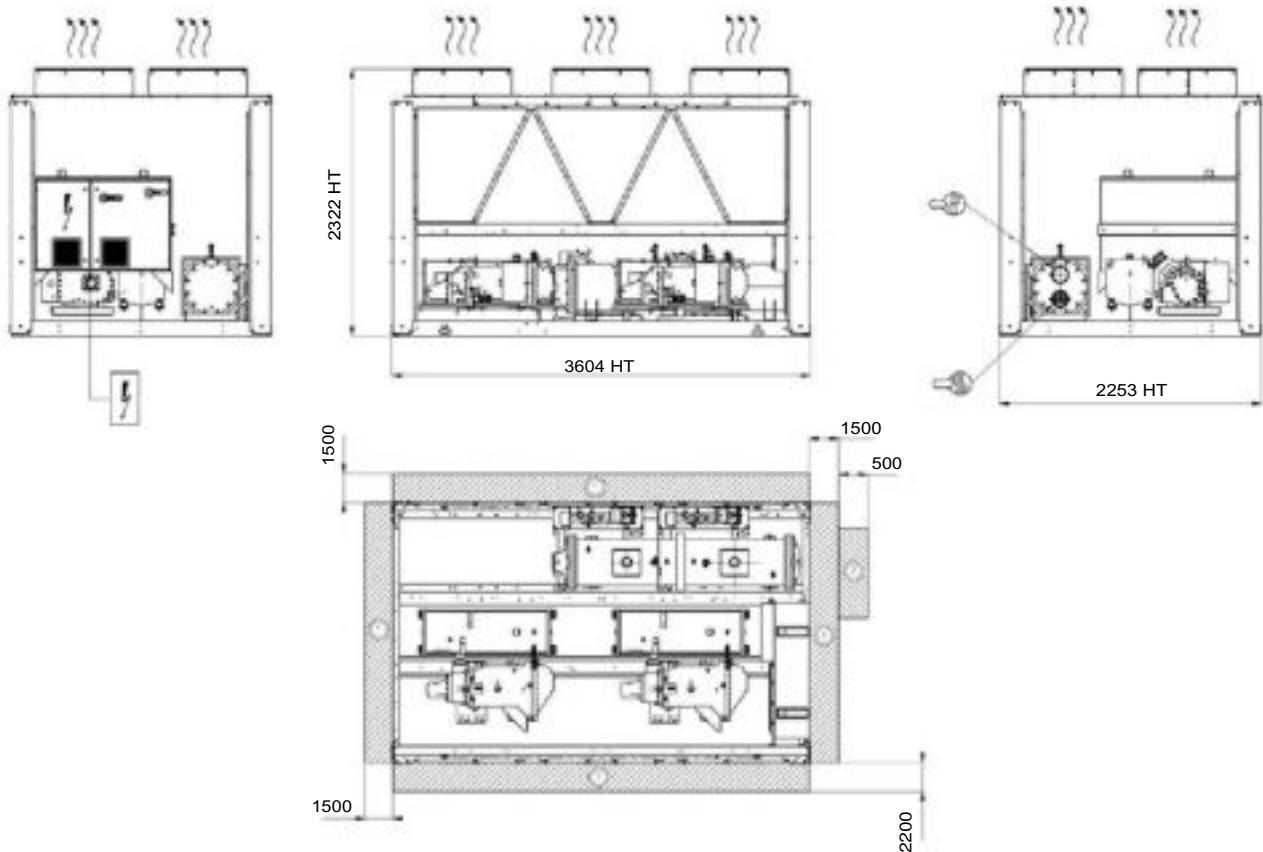
| POWERCAT™ LX HE/XE | | 0808 to 1528 | 1858 to 3028 | 3428 to 4608 |
|--|----|--------------|--------------|--------------|
| Short-circuit withstand current (TN system) | | | | |
| Circuit A+B | kA | 38 | 50 | 50 |
| Circuit C+D | kA | NA | NA | 50 |
| Unit + single power connection point option | A | NA | NA | 50 |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I²t) trip characteristics must be at least equivalent to those of the recommended protection.





Note: The short-circuit stability current values above are suitable with the TN system.

DIMENSIONS

■ POWERCAT™ LX HE-XE 0808 to 1008



Key
All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
-  Water inlet
-  Water outlet
-  Air outlet, do not obstruct
-  Electrical cabinet

Notes:

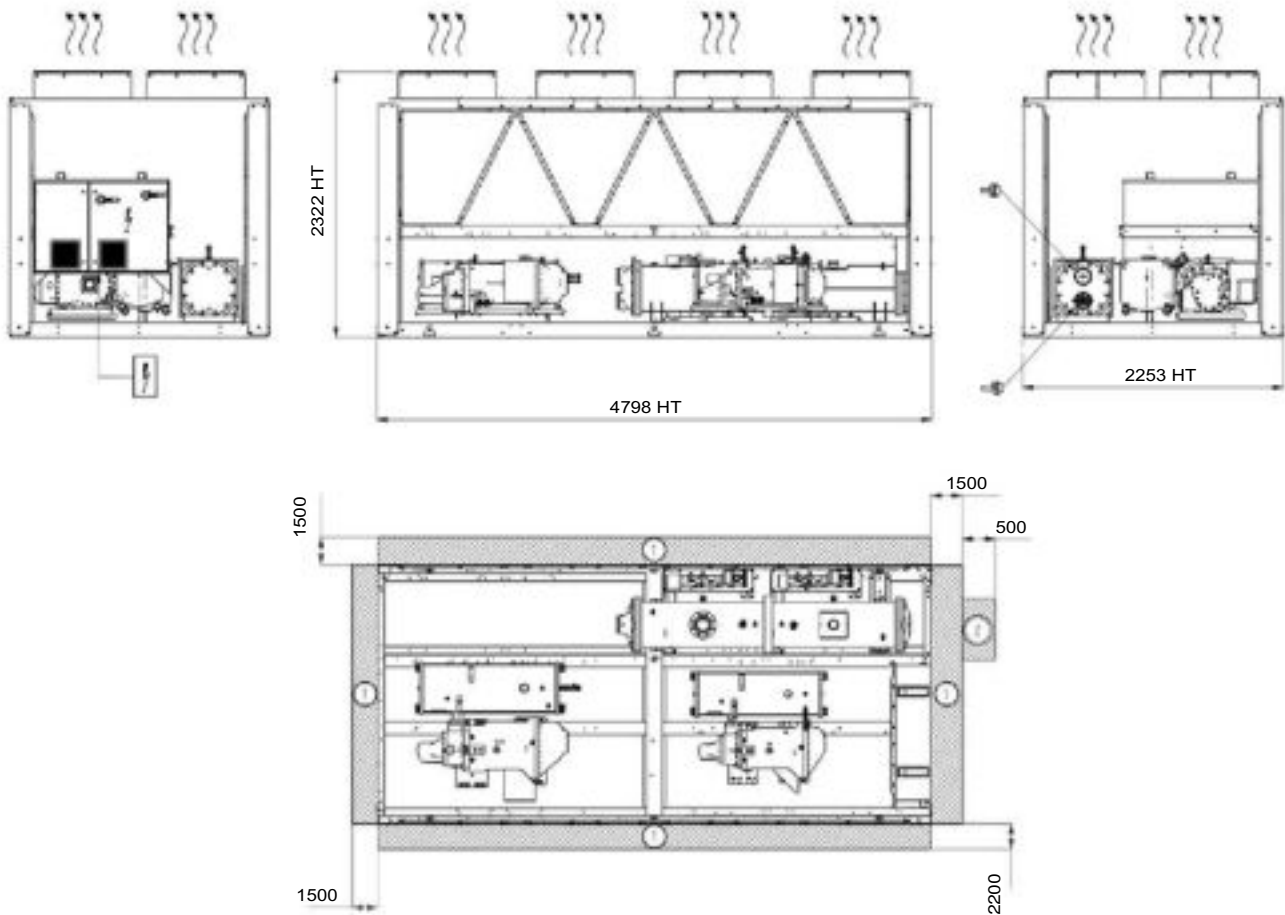
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX HE-XE 1108 to 1358 and LX HE 1528



Key
All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

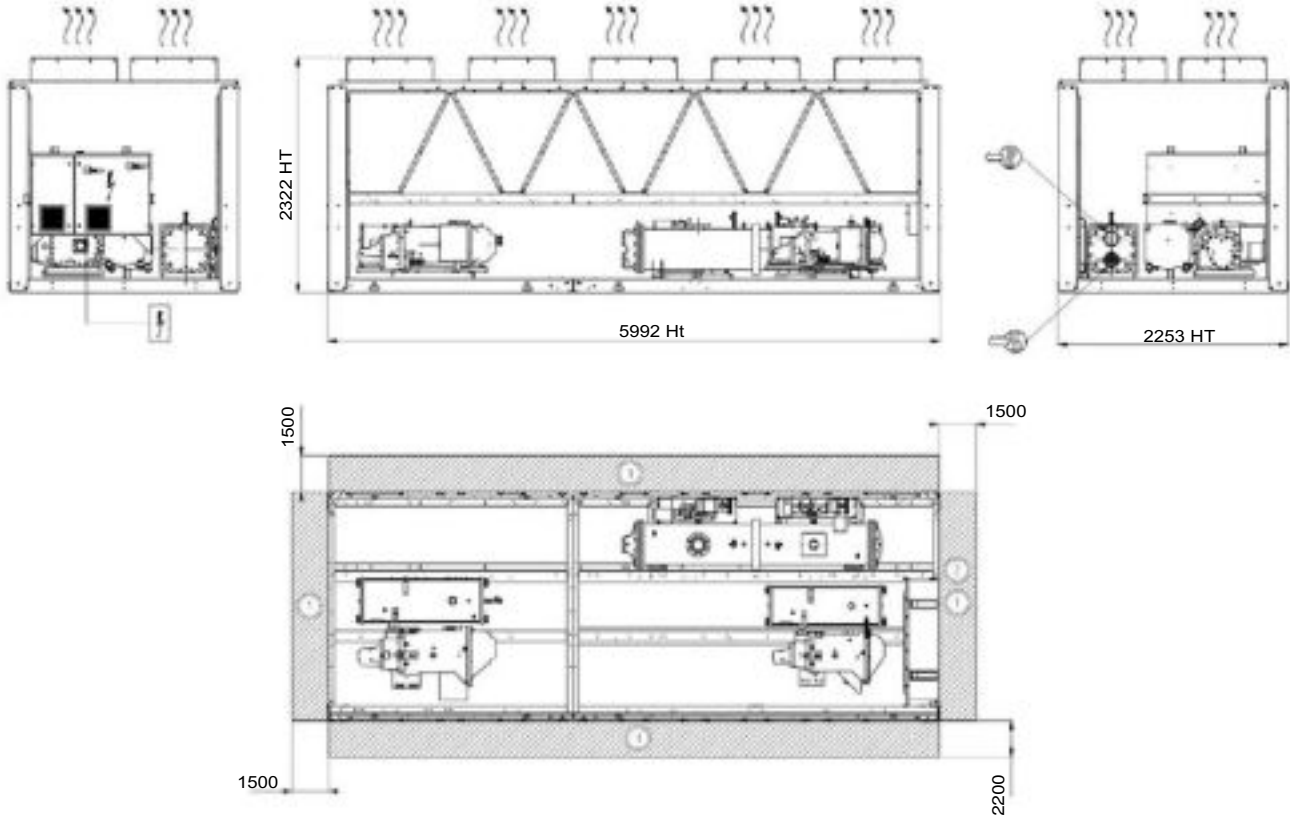
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.





Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX XE 1528



Key
All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
-  Water inlet
-  Water outlet
-  Air outlet, do not obstruct
-  Electrical cabinet

Notes:

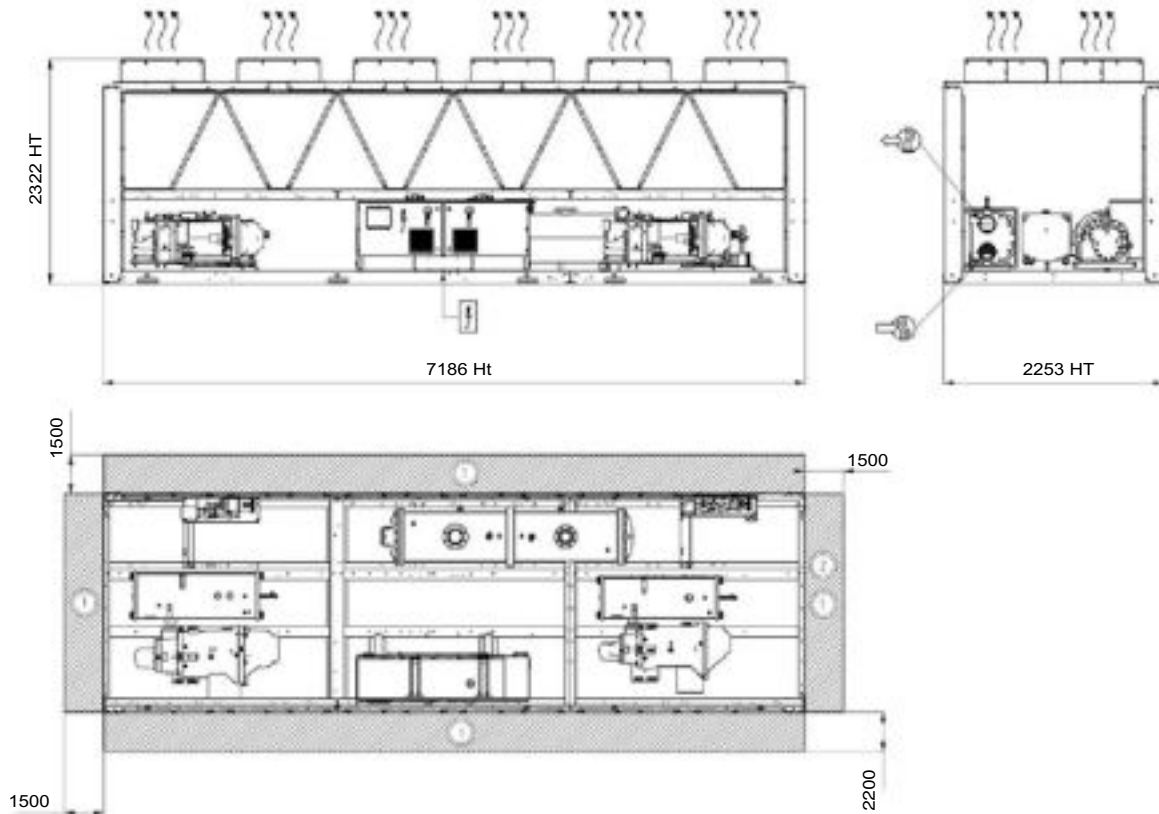
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.





Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX HE-XE 1858 to 2308 and LX HE 2528



Key
All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
-  Water inlet
-  Water outlet
-  Air outlet, do not obstruct
-  Electrical cabinet

Notes:

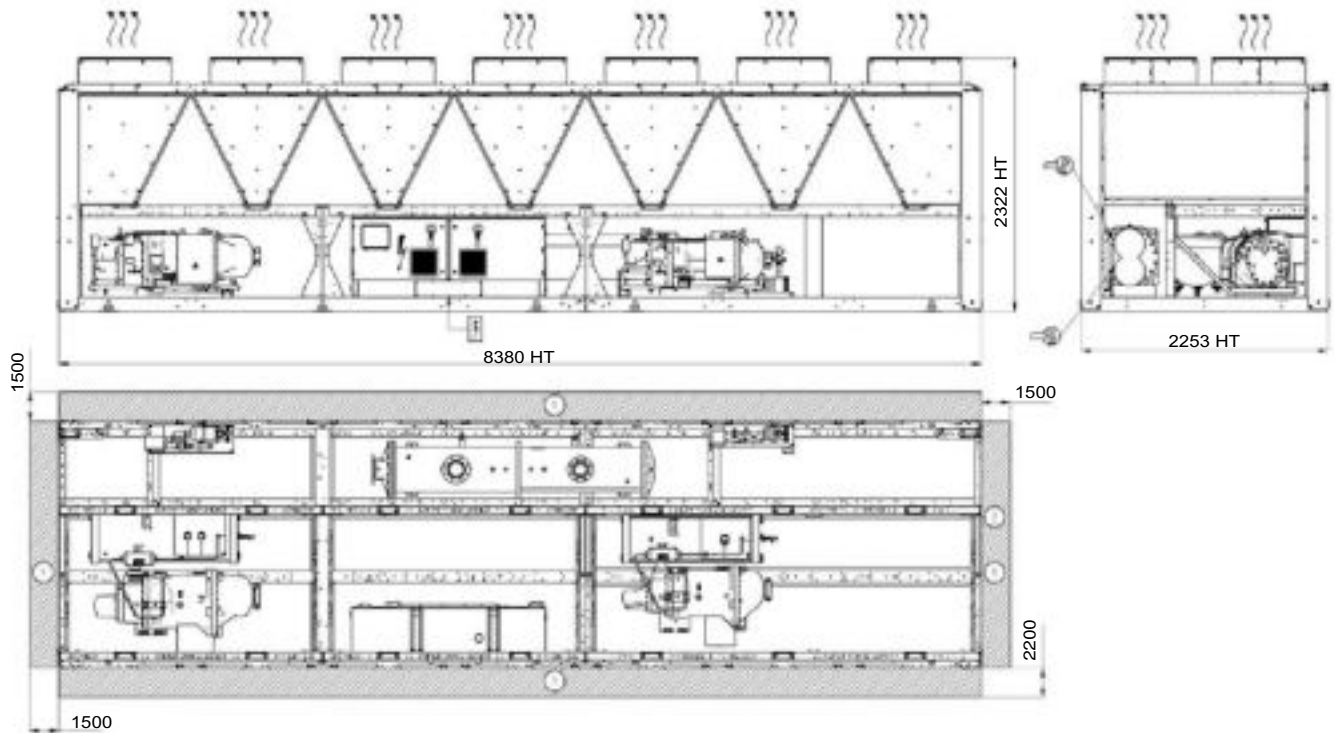
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.





Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX XE 2528 and LX HE-XE 2628



Key All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
-  Water inlet
-  Water outlet
-  Air outlet, do not obstruct
-  Electrical cabinet

Notes:

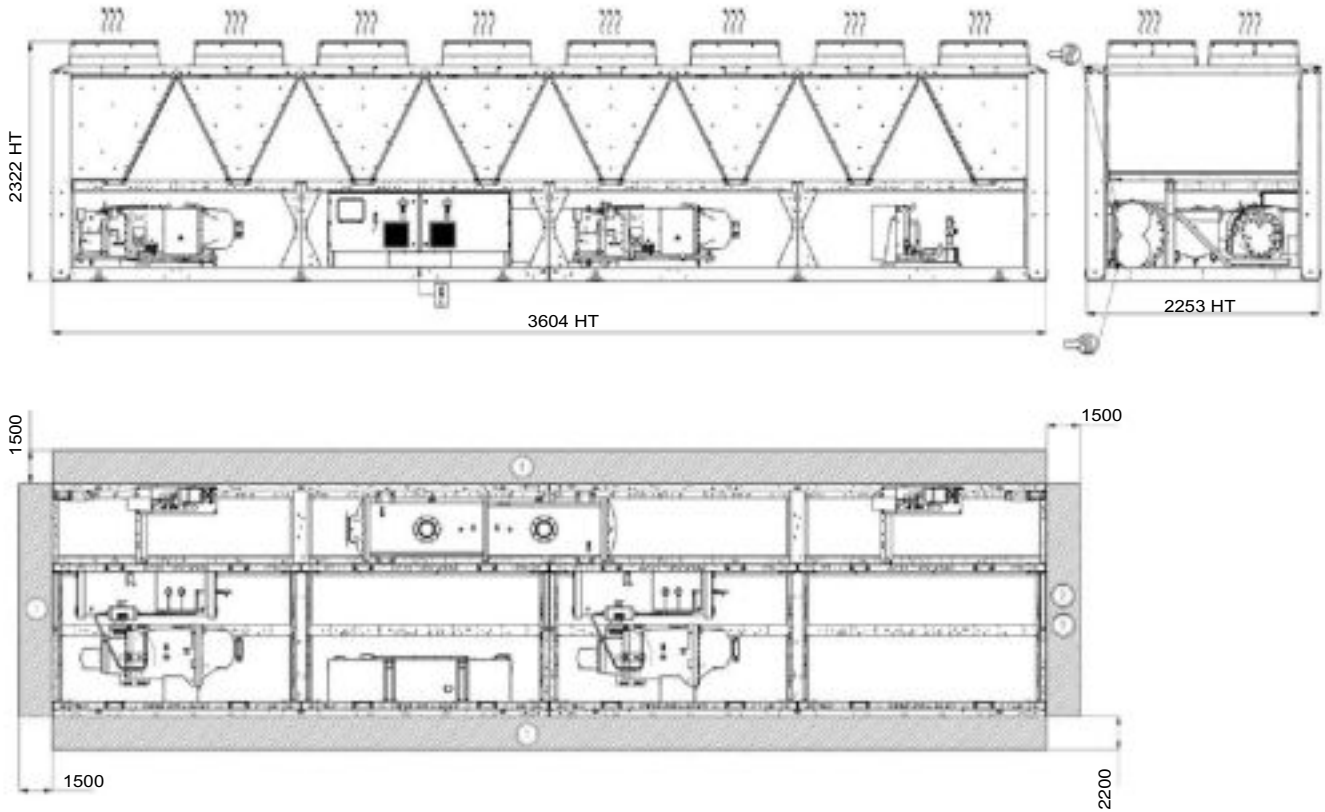
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.





Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX HE-XE 3028



Key
All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
-  Water inlet
-  Water outlet
-  Air outlet, do not obstruct
-  Electrical cabinet

Notes:

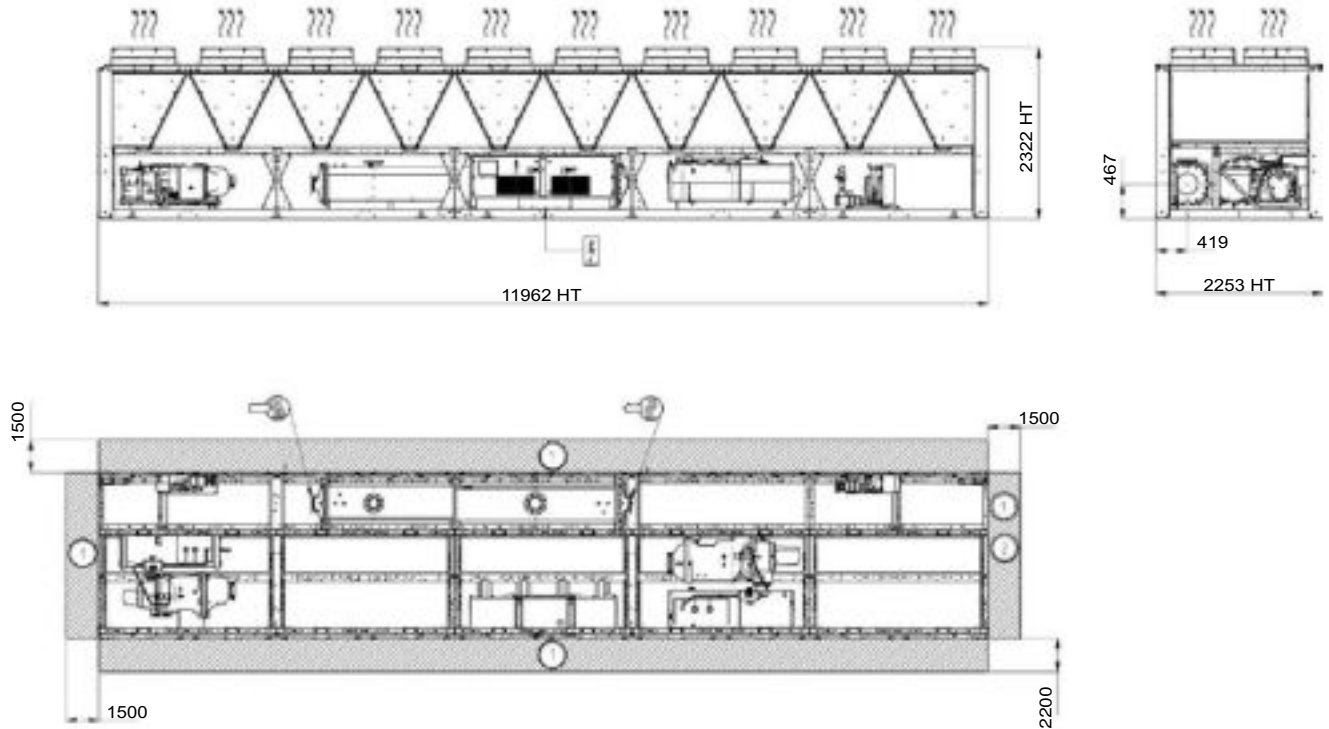
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.





Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX HE-XE 3428 to 4408



Key
All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
-  Water inlet
-  Water outlet
-  Air outlet, do not obstruct
-  Electrical cabinet

Notes:

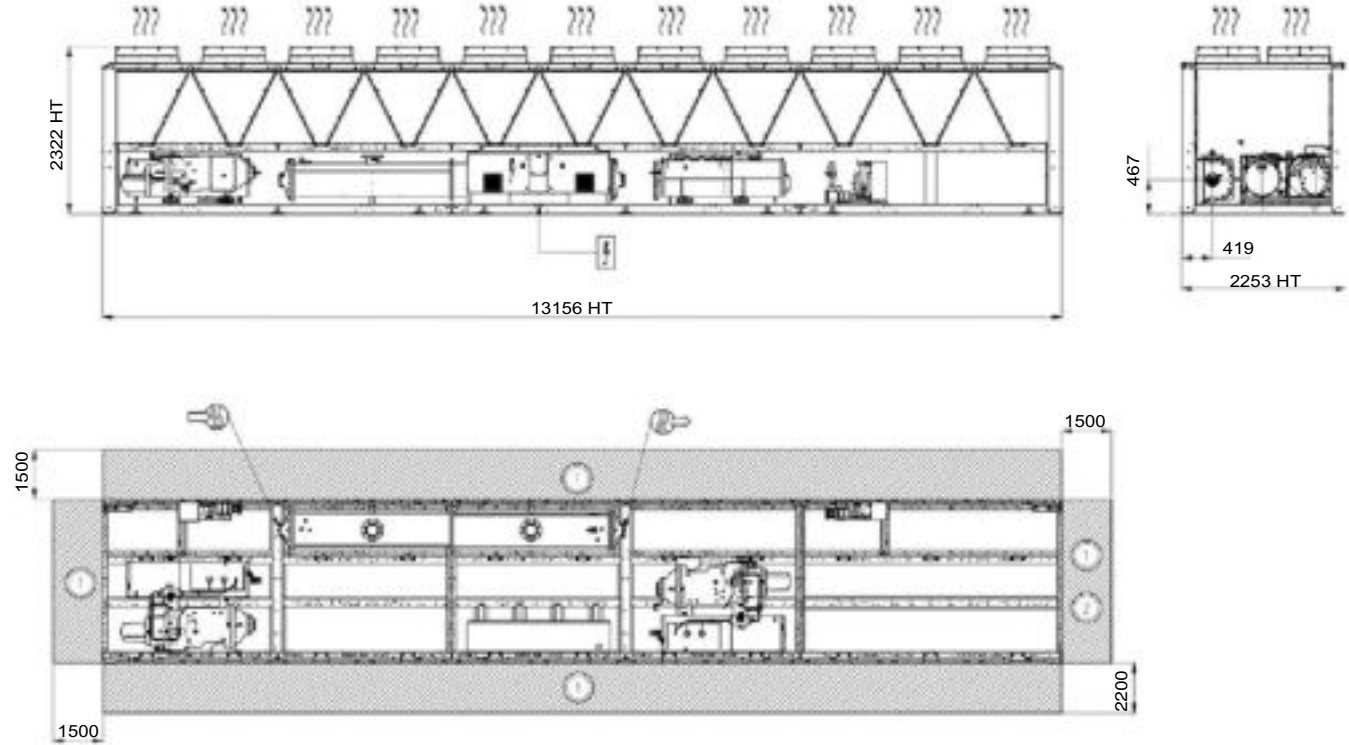
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX HE-XE 4608



Key
All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.



DYNACIAT™ LGN

Water chillers
Without condenser



Compact and silent

High energy efficiency

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control

Cooling capacity: 23 to 175 kW



Cooling



Hydraulic
module

R-410A 

USE

The latest generation of **DYNACIAT™ LGN** water chillers without condenser are the perfect solution for all cooling applications in the Offices, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

For quick and easy installation, an optional hydraulic module offer is available on the evaporator side (chilled water production).

DYNACIAT™ is optimised to use ozone-friendly HFC R410A refrigerant.

This range guarantees compliance with the most demanding requirements for high energy efficiency and CO₂ reduction to comply with the various applicable European directives and regulations.

RANGE

DYNACIAT™ LGN series

Split system cooling only version without condenser.

DESCRIPTION

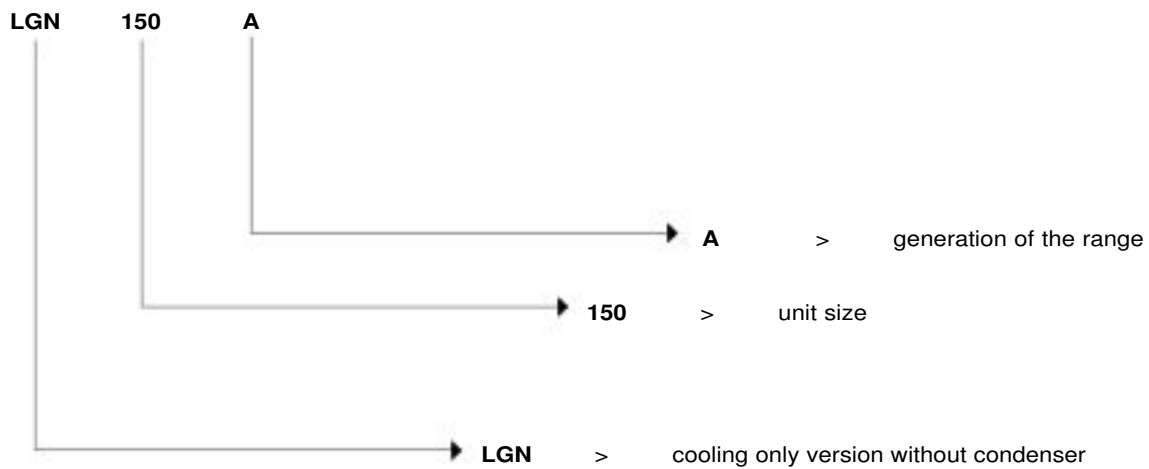
Units in the DYNACIAT™ LGN series are split-system type machines without condenser, supplied as standard with the following components:

- Hermetic SCROLL compressors
- Chilled-water evaporator with brazed plates
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+/-10%) general power supply + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24V
- Connect Touch electronic control module
- Casing for indoor installation

The entire range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC
- Electromagnetic compatibility directive 2014/30/EC
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2

DESCRIPTION



CONFIGURATION

| | |
|---------------|--------------------|
| LGN | Standard |
| LGN LN option | Standard Low Noise |

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Evaporator

- Brazed-plate exchanger
- Plate patterns optimised for high efficiency
- 19 mm armaflex thermal insulation

■ Refrigerating accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line

■ Regulation and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 23 protection rating
- A connection point without neutral
- Main safety switch with handle on front
- Control circuit transformer
- 24V control circuit
- Compressor motor circuit breaker
- Compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Casing

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (Certified BTL) as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Switch control for the customer pump, external to the machine (on/off).

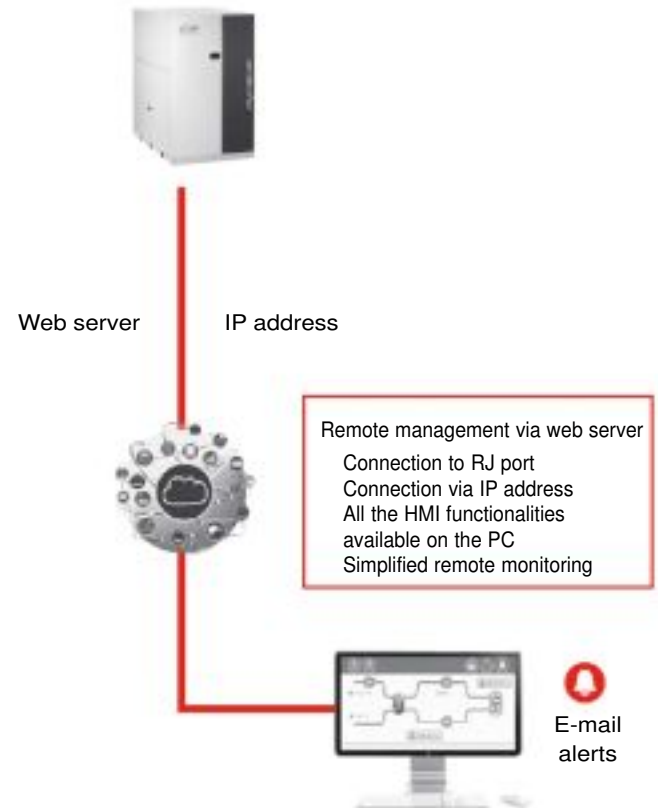
Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations.

AVAILABLE OPTIONS

| Options | Description | Advantages | LGN |
|--|---|--|------------------|
| Medium-temperature brine solution | Low-temperature chilled water production down to 0 °C with ethylene glycol and propylene glycol. | Covers specific applications such as ice storage and industrial processes | ● |
| Soft Starter | Electronic starter on each compressor | Reduced start-up current | ● |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | ● |
| Evap. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | Sizes 360 to 600 |
| HP evap. single-pump | Evaporator hydraulic module equipped with high-pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play) | Sizes 360 to 600 |
| LP evap. single-pump | Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play) | ● |
| HP evap. variable-speed single-pump | Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability. | ● |
| LP VSD single-pump | Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | ● |
| Dual high-pressure variable-speed pump. | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | ● |
| Lon gateway | Bi-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | ● |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | ● |
| Condenser control | Control box for communication with the condenser via a bus. For OPERA condenser need to select the cabinet with option control cabinet manage by the chiller ConnectTouch control | Permits the use of an energy-efficient plug-and-play system | ● |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | ● |
| Insulation of the evap. in/out ref.lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/leaving refrigerant lines | ● |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

| Options | Description | Advantages | LGN |
|---|---|---|--------------------------|
| Low noise level | Compressor sound enclosure | Reduced sound emissions | ● |
| Evaporator screw connection sleeves (kit) | Evaporator inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | ● |
| Replaceable filter drier | Filter drier with cartridge to replace hermetic filter | Easy filter replacement without emptying the refrigerant circuit | ● |
| Safety hydraulic components, evap. side | Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module | Easy and fast installation (plug & play), operating safety | ● |
| M2M supervision (accessory) | Monitoring solution which allows customers to track and monitor their equipment remotely in real time | Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment. | ● |
| Anti-vibration mounts (kit) | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the building. Must be used in conjunction with a flexible connection on the water side | ● |
| Exchangers flexibles connection (kit) | Flexible connections on the exchanger water side | Easy installation. Limit transmission of vibrations on the water network | ● |
| Flexible refrigerating sleeves | Flexibles connections on the refrigerant pipes | Easy installation. Limits the transmission of vibrations to the refrigerant network | ● |
| Exchangers water filter (kit) | Water filter | Eliminate dust in the water network | ● Without pump option |
| Set point adjustment by 4-20mA signal | Connections to allow a 4-20 mA signal input | Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal | ● |
| External temperature sensor | External temperature sensor control for using weather compensation | Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature | ● |
| Free Cooling dry cooler management | Control & connections to a Free Cooling Drycooler Opera or Vextra fitted with option FC control box | Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode | ● |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LGN | | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 | |
|---|-----|---|-------|------|------|------|------|------|------|------|------|------|------|------|
| Cooling | | | | | | | | | | | | | | |
| Standard unit Full load performances * | CS1 | Nominal capacity | kW | 22,8 | 27 | 29,1 | 34 | 39,2 | 42,7 | 54,5 | 59,1 | 67,5 | 78,2 | 87,4 |
| | | EER | kW/kW | 3,70 | 3,76 | 3,68 | 3,73 | 3,75 | 3,70 | 3,70 | 3,66 | 3,64 | 3,81 | 3,77 |
| | CS2 | Nominal capacity | kW | 31,9 | 37,6 | 40,3 | 47 | 53,2 | 61,3 | 74,5 | 81,2 | 94,9 | 108 | 121 |
| | | EER | kW/kW | 5,35 | 5,25 | 5,11 | 5,09 | 4,99 | 5,15 | 5,16 | 5,15 | 5,18 | 5,26 | 5,13 |
| Sound levels | | | | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 67 | 69 | 69 | 69 | 70 | 70 | 72 | 72 | 72 | 73 | 73 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 36 | 37 | 38 | 38 | 39 | 39 | 40 | 41 | 41 | 42 | 42 | |
| Unit with Low Noise option | | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 65 | 66 | 66 | 67 | 68 | 68 | 68 | 69 | 69 | 69 | 70 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 34 | 35 | 35 | 35 | 37 | 37 | 37 | 37 | 38 | 38 | 39 | |
| Dimensions | | | | | | | | | | | | | | |
| Length | | mm | 1044 | 1044 | 1044 | 1044 | 1044 | 1044 | 1474 | 1474 | 1474 | 1474 | 1474 | |
| Width | | mm | 600 | 600 | 600 | 600 | 600 | 600 | 880 | 880 | 880 | 880 | 880 | |
| Height | | mm | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | |
| Operating Weight ⁽³⁾ | | | | | | | | | | | | | | |
| Standard unit | | kg | 164 | 171 | 171 | 177 | 180 | 185 | 321 | 324 | 332 | 339 | 354 | |
| Unit with evaporator with single LP pump | | kg | 250 | 258 | 258 | 263 | 266 | 271 | 431 | 435 | 442 | 449 | 465 | |
| Compressors | | | | | | | | | | | | | | |
| Hermetic Scroll 48.3 r/s | | | | | | | | | | | | | | |
| Circuit A | | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | |
| Number of power stages | | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | |
| Refrigerant ⁽³⁾ | | | | | | | | | | | | | | |
| R410A (GWP=2088 following ARI4) | | | | | | | | | | | | | | |
| Oil charge | | | | | | | | | | | | | | |
| 160SZ | | | | | | | | | | | | | | |
| Circuit A | | L | 3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 | |
| Power control | | | | | | | | | | | | | | |
| Connect' Touch Control | | | | | | | | | | | | | | |
| Minimum capacity | | % | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 50 | 50 | 50 | 50 | |
| Water type heat exchanger | | | | | | | | | | | | | | |
| Direct expansion, plate heat exchanger | | | | | | | | | | | | | | |
| Evaporator | | | | | | | | | | | | | | |
| Water volume | | L | 3,3 | 3,6 | 3,6 | 4,2 | 4,6 | 5 | 8,4 | 9,2 | 9,6 | 10,4 | 12,5 | |
| Max. water-side operating pressure without hydraulic module | | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | |
| Hydronic module (optional) | | | | | | | | | | | | | | |
| Single pump (as required) | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | | | | | | | | |
| Expansion tank volume | | L | 8 | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 12 | 12 | 12 | |
| Expansion vessel pressure ⁽⁴⁾ | | bar | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| Max. water-side operating pressure with hydraulic module | | kPa | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | |
| Water connections with or without hydronic module | | | | | | | | | | | | | | |
| Victaulic® | | | | | | | | | | | | | | |
| Connections | | inch | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 2 | 2 | 2 | 2 | 2 | |
| External diameter | | mm | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | |
| Casing paint | | | | | | | | | | | | | | |
| Colour code RAL 7035/RAL 7024 | | | | | | | | | | | | | | |

* In accordance with standard EN14511-3:2013.

CS1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

CS2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

(1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LGN | | | 360 | 390 | 450 | 480 | 520 | 600 | |
|---|-----|------------------|---|-------|-------|-------|-------|-------|-------|
| Cooling | | | | | | | | | |
| Standard unit Full load performances * | CS1 | Nominal capacity | kW | 106 | 119 | 132 | 140 | 159 | 175 |
| | | EER | kW/kW | 3,78 | 3,78 | 3,72 | 3,74 | 3,81 | 3,73 |
| | CS2 | Nominal capacity | kW | 146 | 166 | 185 | 195 | 218 | 247 |
| | | EER | kW/kW | 5,24 | 5,17 | 5,12 | 5,32 | 5,17 | 5,26 |
| Sound levels | | | | | | | | | |
| Standard unit | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 76 | 77 | 78 | 76 | 77 | 78 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 44 | 45 | 46 | 44 | 45 | 47 |
| Dimensions | | | | | | | | | |
| Length | | | mm | 1583 | 1583 | 1583 | 1583 | 1583 | 1583 |
| Width | | | mm | 880 | 880 | 880 | 880 | 880 | 880 |
| Height | | | mm | 1574 | 1574 | 1574 | 1574 | 1574 | 1574 |
| Operating Weight ⁽³⁾ | | | | | | | | | |
| Standard unit | | | kg | 630 | 647 | 665 | 751 | 774 | 796 |
| Unit with evaporator with single LP pump | | | kg | 674 | 691 | 709 | 797 | 846 | 868 |
| Compressors | | | Hermetic scroll 48.3 rev/s | | | | | | |
| Circuit A | | | Qty | 3 | 3 | 3 | 2 | 2 | 2 |
| Circuit B | | | Qty | - | - | - | 2 | 2 | 2 |
| Number of power stages | | | Qty | 3 | 3 | 3 | 4 | 4 | 4 |
| Refrigerant ⁽³⁾ | | | R410A (GWP=2088 following ARI4) | | | | | | |
| Oil charge | | | | | | | | | |
| Circuit A | | | L | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,6 |
| Circuit B | | | L | - | - | - | 3,3 | 3,3 | 3,6 |
| Power control | | | Connect' Touch Control | | | | | | |
| Minimum capacity | | | % | 33% | 33% | 33% | 25% | 25% | 25% |
| Water type heat exchanger | | | | | | | | | |
| Evaporator | | | Direct expansion, plate heat exchanger | | | | | | |
| Water volume | | | L | 15,18 | 17,35 | 19,04 | 23,16 | 26,52 | 29,05 |
| Max. water-side operating pressure without hydraulic module | | | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (optional) | | | | | | | | | |
| Single pump (as required) | | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | | |
| Expansion tank volume | | | L | 25 | 25 | 25 | 35 | 35 | 35 |
| Expansion vessel pressure ⁽⁴⁾ | | | bar | 4 | 4 | 4 | 4 | 4 | 4 |
| Max. water-side operating pressure with hydraulic module | | | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | | Victaulic® | | | | | | |
| Connections | | | inch | 2,5 | 2,5 | 2,5 | 3 | 3 | 3 |
| External diameter | | | mm | 73 | 73 | 73 | 88,9 | 88,9 | 88,9 |
| Casing paint | | | Colour code RAL 7035/RAL 7024 | | | | | | |

* In accordance with standard EN14511-3:2013.

CS1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

CS2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

(1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

ELECTRICAL SPECIFICATIONS

| LGN- Standard unit (without hydraulic module) | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|---|---------|-------------------------------|------|------|------|------|-------|------|------|-------|-------|-------|
| Power circuit | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | | | |
| Nominal unit operating current draw⁽³⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 11,4 | 13,8 | 14,7 | 16,5 | 18,1 | 21,2 | 27,6 | 29,4 | 33,1 | 36,4 | 42,5 |
| Maximum unit power input⁽²⁾ | | | | | | | | | | | | |
| Circuit A&B | kW | 9,2 | 10,8 | 11,7 | 13,7 | 15,1 | 17,1 | 21,5 | 23,3 | 27,3 | 30,3 | 34,2 |
| Unit power factor at maximum capacity ⁽²⁾ | | 0,85 | 0,83 | 0,85 | 0,85 | 0,86 | 0,85 | 0,83 | 0,85 | 0,85 | 0,86 | 0,85 |
| Unit max. operating current draw (Un-10%) ⁽⁵⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 17,3 | 20,8 | 22 | 25,8 | 28,2 | 32,2 | 41,6 | 44 | 51,6 | 56,4 | 64,4 |
| Maximum unit current draw (Un) ⁽⁴⁾ | | | | | | | | | | | | |
| Circuit A&B - Standard unit | A | 15,6 | 18,7 | 19,8 | 23,2 | 25,4 | 29 | 37,4 | 39,6 | 46,4 | 50,8 | 58 |
| Maximum start-up current, standard unit (Un) ⁽¹⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 98 | 142 | 142 | 147 | 158 | 197 | 161 | 162 | 170 | 183 | 226 |
| Maximum start-up current, unit with a soft-starter (Un) ⁽¹⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 53,9 | 78,1 | 78,1 | 80,9 | 86,9 | 108,4 | 96,8 | 97,9 | 104,1 | 112,3 | 137,4 |

| LGN- Standard unit (without hydraulic module) | | 360 | 390 | 450 | 480 | 520 | 600 |
|---|---------|-------------------------------|-------|-------|-------|-------|-------|
| Power circuit | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | |
| Voltage range | V | 360-440 | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | |
| Nominal unit operating current draw⁽³⁾ | | | | | | | |
| Circuit A&B | A | 49,5 | 54,3 | 63,6 | 66 | 72,4 | 84,8 |
| Maximum unit power input⁽²⁾ | | | | | | | |
| Circuit A&B | kW | 42 | 44,9 | 51,2 | 55,9 | 59,8 | 68,3 |
| Unit power factor at maximum capacity ⁽²⁾ | | 0,87 | 0,85 | 0,85 | 0,87 | 0,85 | 0,85 |
| Unit max. operating current draw (Un-10%) ⁽⁵⁾ | | | | | | | |
| Circuit A&B | A | 77,3 | 84,7 | 96,7 | 103,1 | 112,9 | 128,9 |
| Maximum unit current draw (Un) ⁽⁴⁾ | | | | | | | |
| Circuit A&B - Standard unit | A | 69,6 | 76,2 | 87 | 92,8 | 101,6 | 116 |
| Maximum start-up current, standard unit (Un) ⁽¹⁾ | | | | | | | |
| Circuit A&B | A | 193,4 | 208,8 | 255 | 216,6 | 234,2 | 284 |
| Maximum start-up current, unit with a soft-starter (Un) ⁽¹⁾ | | | | | | | |
| Circuit A&B | A | 127,3 | 137,7 | 166,3 | 150,4 | 163,1 | 195,3 |

- (1) Maximum instantaneous starting current (maximum operating current of the smallest compressor(s) + locked rotor current of the largest compressor).
- (2) Power input, at the unit's permanent operating limits (indication given on the unit's name plate).
- (3) Standardised EUROVENT conditions, water type heat exchanger inlet/outlet 12 °C/7 °C, saturated condensing temperature 45 °C and subcooling 5 K.
- (4) Unit maximum current at 400 V, in non-continuous operation (indicated on the unit name plate).
- (5) Unit maximum current at 360 V, in non-continuous operation.

ELECTRICAL SPECIFICATIONS

■ Short circuit current withstand capability (TN system⁽¹⁾)

| DYNACIAT™ LGN | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|--|--------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Value without upstream protection | | | | | | | | | | | | |
| Short time assigned current (1s) - I _{cw} | kA eff | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Allowable peak assigned current - I _{pk} | kA pk | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Value with upstream protection | | | | | | | | | | | | |
| Conditional short circuit assigned current I _{cc} | kA eff | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Associated Schneider circuit breaker - Compact type range ⁽²⁾ | | NSX 100N | | | | | | | | | | |

| DYNACIAT™ LGN | | 360 | 390 | 450 | 480 | 520 | 600 |
|--|--------|----------|-----|-----|-----|-----|-----|
| Value without upstream protection | | | | | | | |
| Short time assigned current (1s) - I _{cw} | kA eff | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 |
| Allowable peak assigned current - I _{pk} | kA pk | 20 | 20 | 20 | 20 | 20 | 20 |
| Value with upstream protection | | | | | | | |
| Conditional short circuit assigned current I _{cc} | kA eff | 154 | 154 | 154 | 154 | 154 | 154 |
| Associated Schneider circuit breaker - Compact type range ⁽²⁾ | | NSX 100N | | | | | |

(1) Type of system earthing

(2) If another current limiting protection device is used, its time-current trip and I²t thermal stress characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.
 The short-circuit withstand values given above were determined for the TN system.

INTELLIGENTLY-DESIGNED ACOUSTICS

To comply with the various restrictions on integration, the DYNACIAT™ has two sound finish levels enabling it to be easily integrated into a number of zones without causing disruption to users or their neighbours.

■ Basic version

The distinguishing feature of the DYNACIAT™ range is its rigorous design incorporating "noiseless" assembly techniques to reduce vibrations and sources of noise:

- New generation scroll compressors with a continuous scrolling motion to lessen vibrations
- Compressor structure separated from the unit by anti-vibration mounts
- Pipes separated from the unit structure

■ Low Noise option

In this version, the compressors are housed inside noise insulating jackets.

■ Acoustic signature

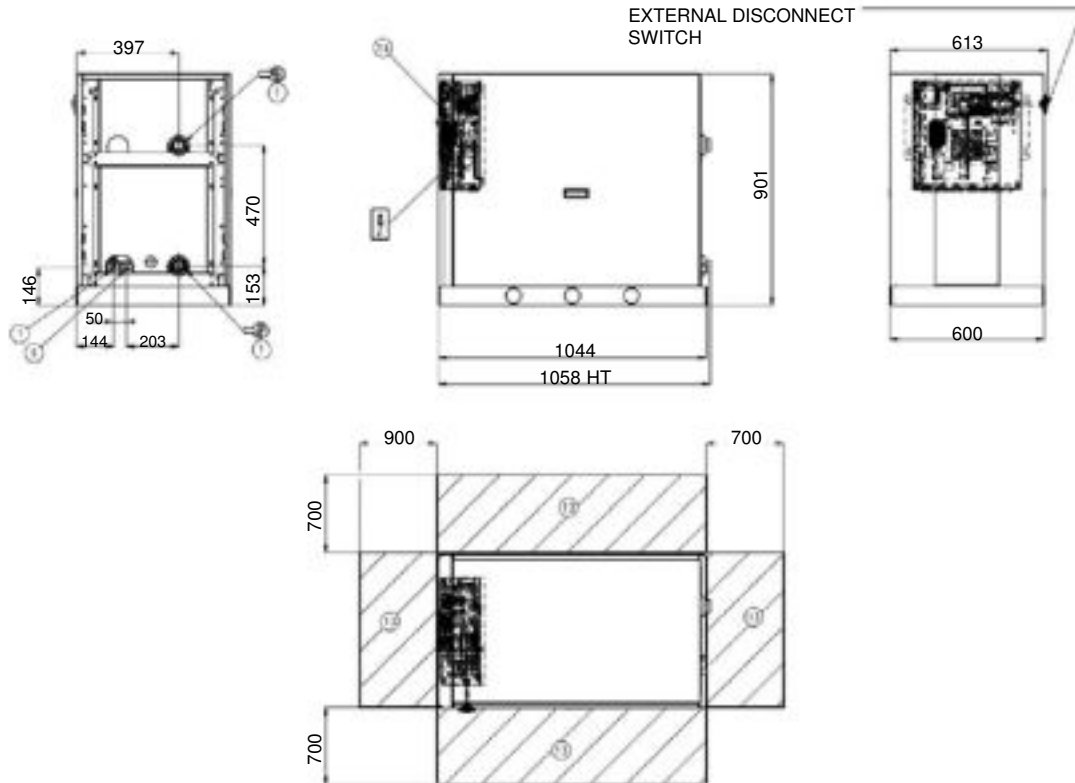
As important as the sound power level, the acoustic signature reflects the noise disturbance generated by the unit.

The installation of a variable-speed pump enables the sound level of the pump function to be reduced by adjusting the pump speed to what is strictly necessary. The soft start improves the signature and reduces nuisance noise.

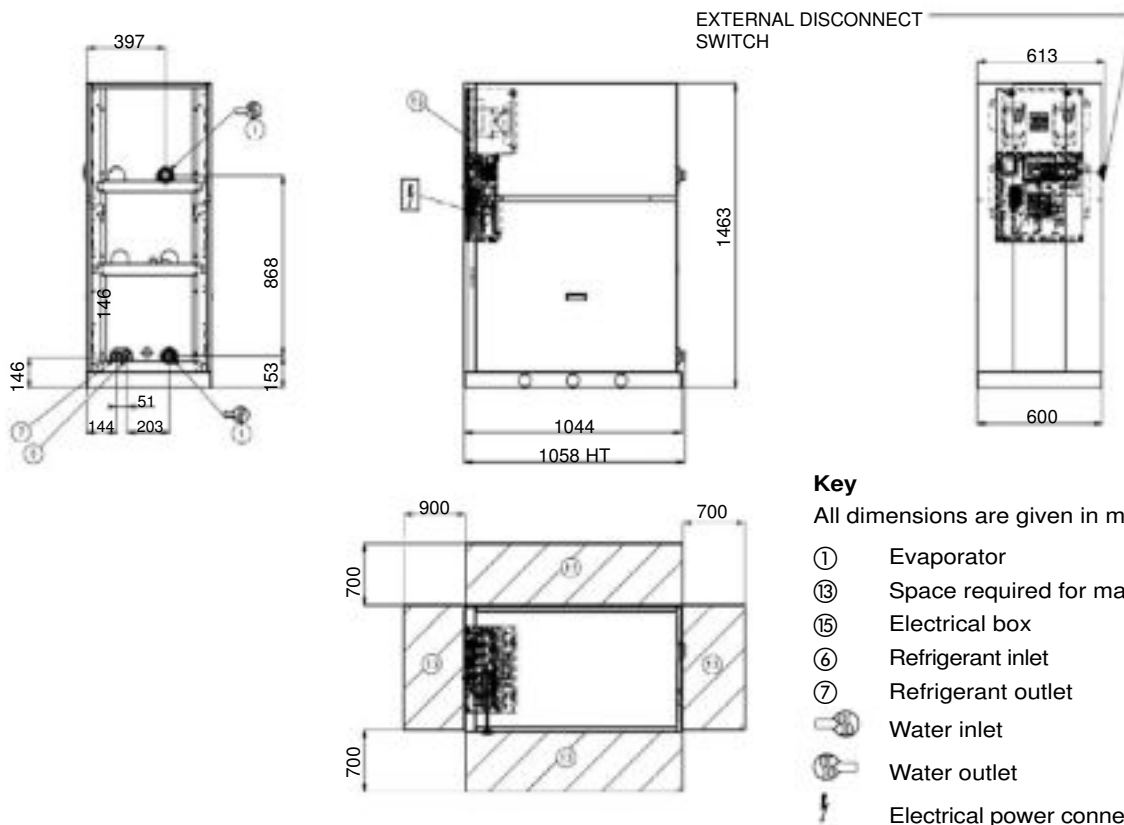
With all these benefits and its two acoustic finish levels (Standard and Xtra Low Noise), the DYNACIAT™ ensures any environmental noise constraints can be met.

DIMENSIONS

■ DYNACIAT™ LGN 80 to 150 without hydraulic module



■ DYNACIAT™ LGN 80 to 150 with hydraulic module



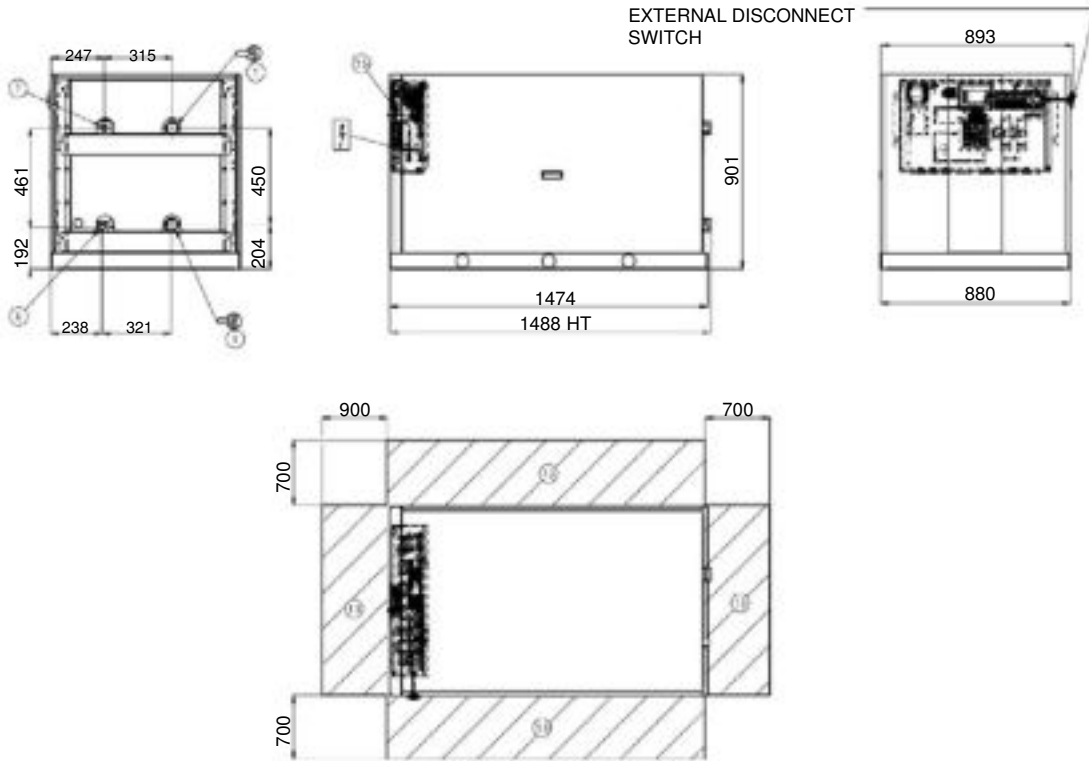
Notes:

Non-contractual drawings.

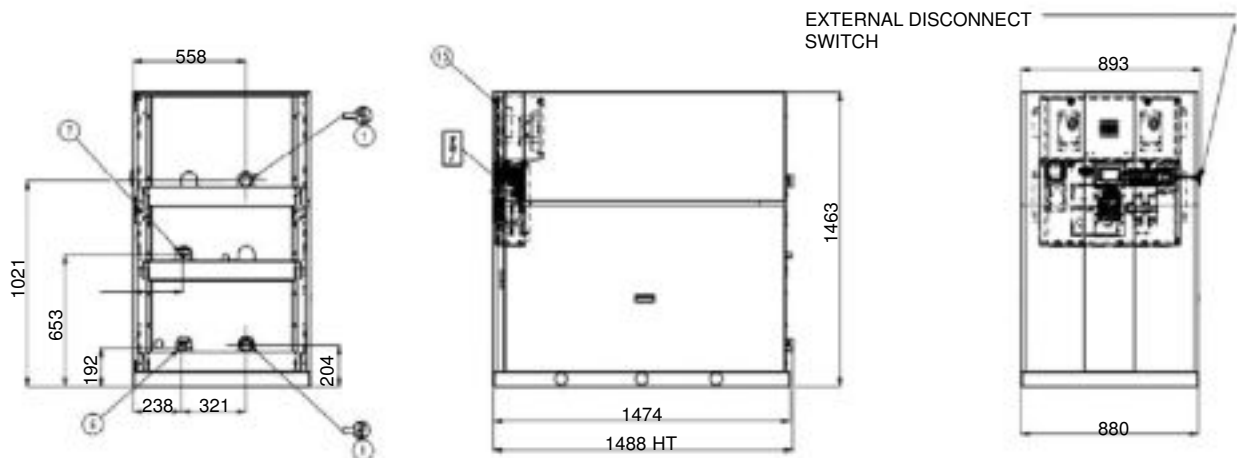
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LGN 180 to 300 without hydraulic module



■ DYNACIAT™ LGN 180 to 300 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- Water inlet
- Water outlet
- Electrical power connection

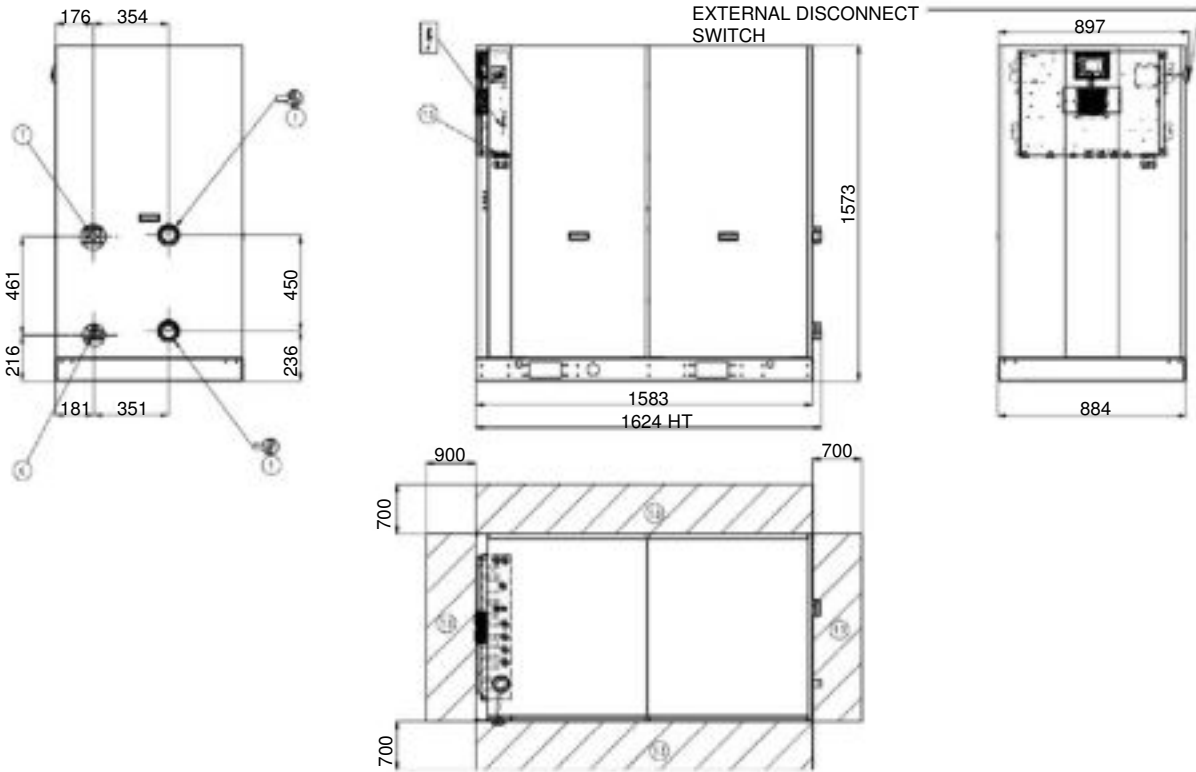
Notes:

Non-contractual drawings.

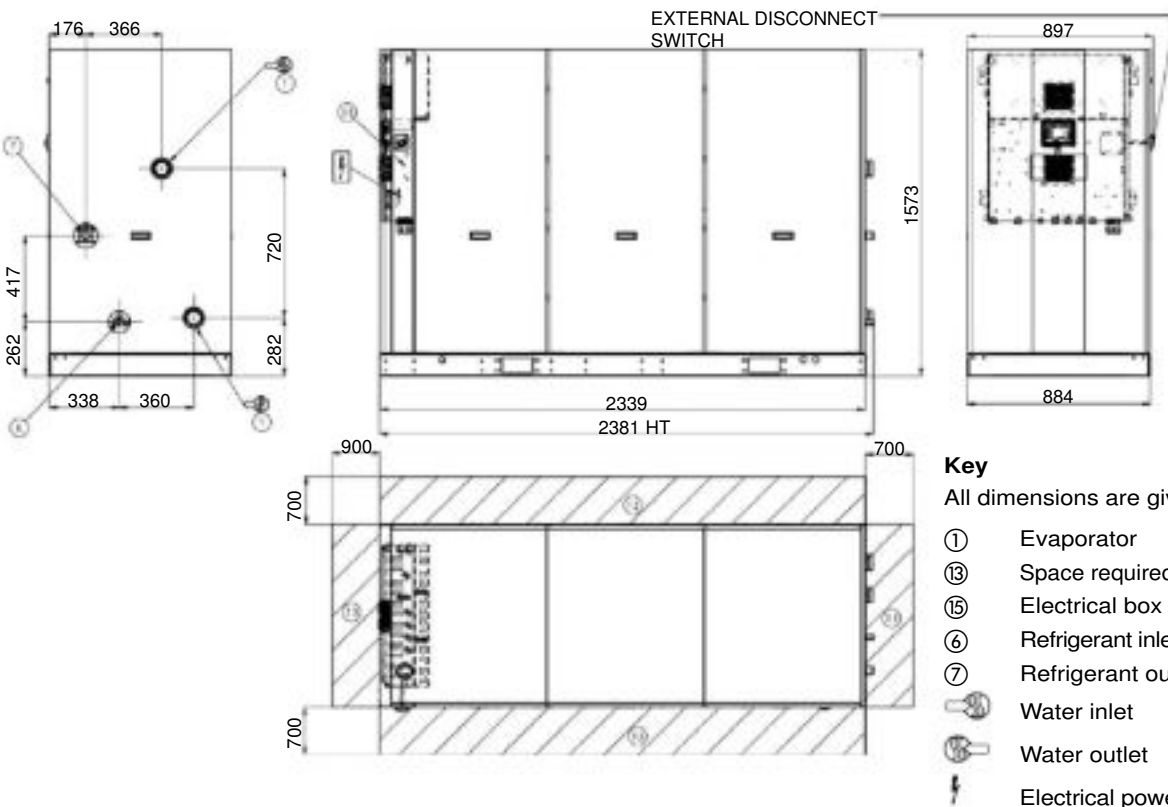
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LGN 360 to 450 without hydraulic module



■ DYNACIAT™ LGN 360 to 450 with hydraulic module



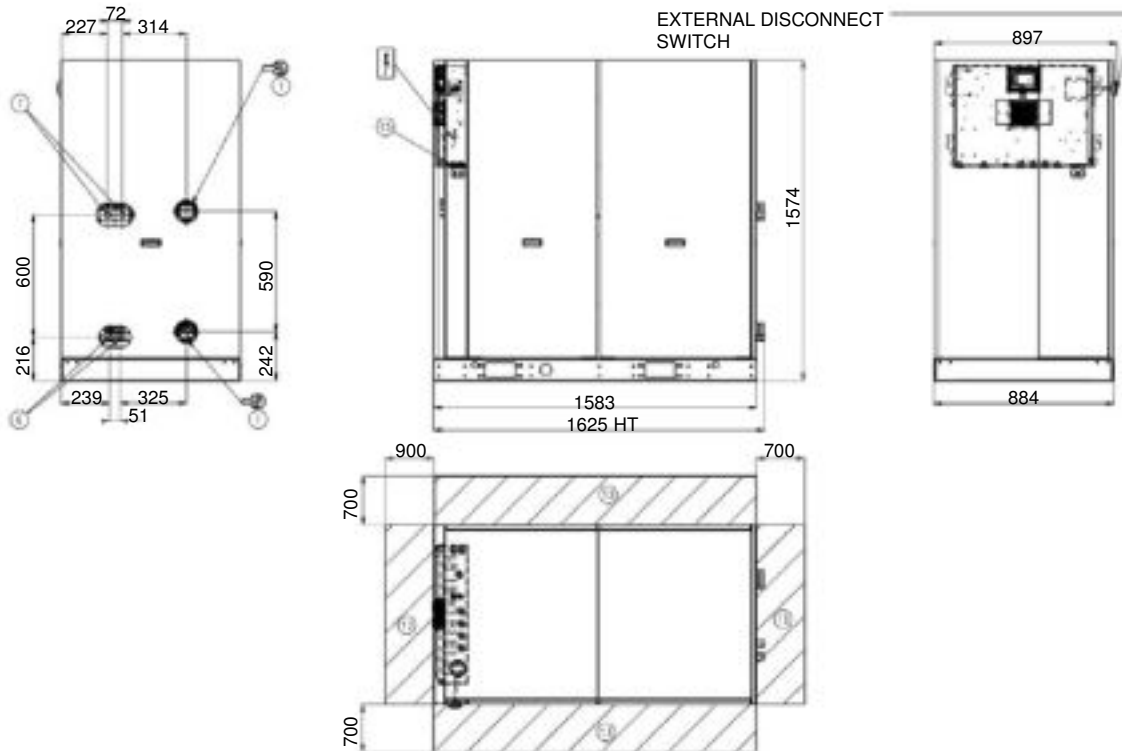
Notes:

Non-contractual drawings.

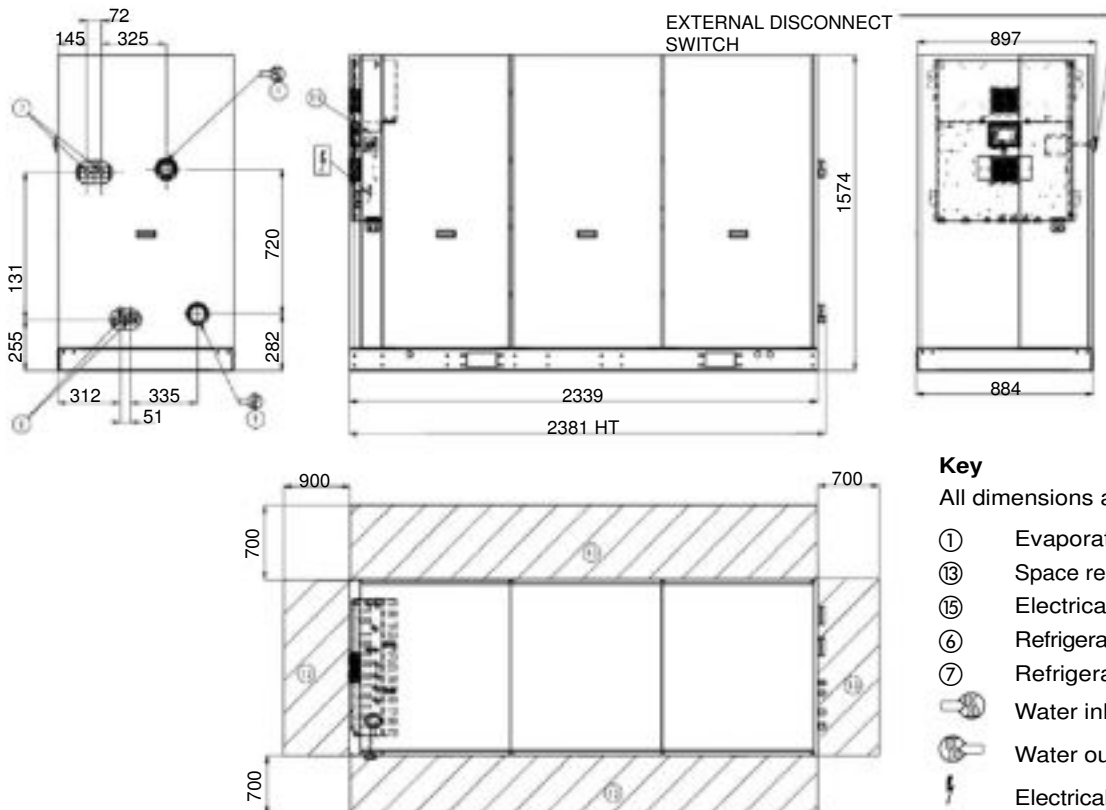
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LGN 480 to 600 without hydraulic module



■ DYNACIAT™ LGN 480 to 600 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- Water inlet
- Water outlet
- Electrical power connection

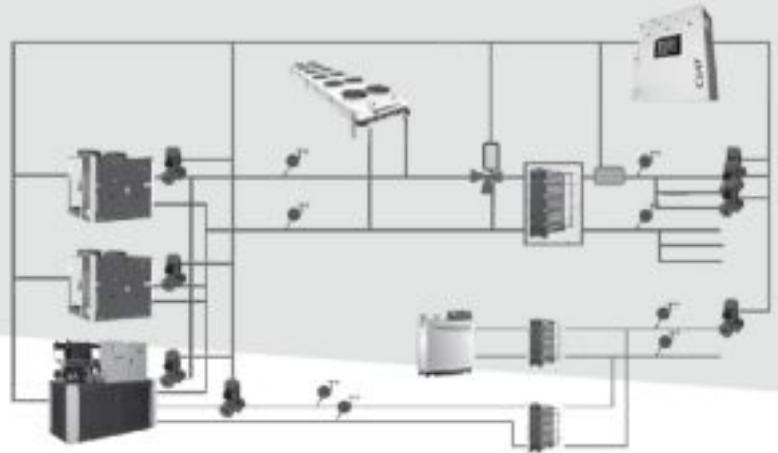
Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

PowerCTRL

Energy optimization for high-performance energy systems



Production system management

Designed to control the entire thermal energy production system (heating and cooling)

MANAGEMENT TOOL FOR YOUR ENERGY HUB

Features

- Command & control all components on the production loop
- Maximize energy optimization
- Optimize & secure system operation
- Local and remote monitoring

Main functions

Command & control

- Controlling water chillers, heat pumps, drycoolers in heating/cooling/free cooling mode, heat recovery, balancing running time.
- Controlling and regulating all hydraulic peripherals on the production loop (pumps, 2-way and 3-way valves, etc.).
- Acquiring analogue signals (on/off contacts) and digital signals (temperature, pressure, Δp , flow rate).

Maximize energy optimization

- Optimizing system energy & maximizing free cooling and heat recovery capacity.
- Optimizing cascading of producers and their peripherals, water law, upholding at best charge rate, etc.
- Managing equipment, alternation/back-up/priority networks.
- Detecting and reporting faults/alarms, corrective management algorithms, etc.

Secure system operation

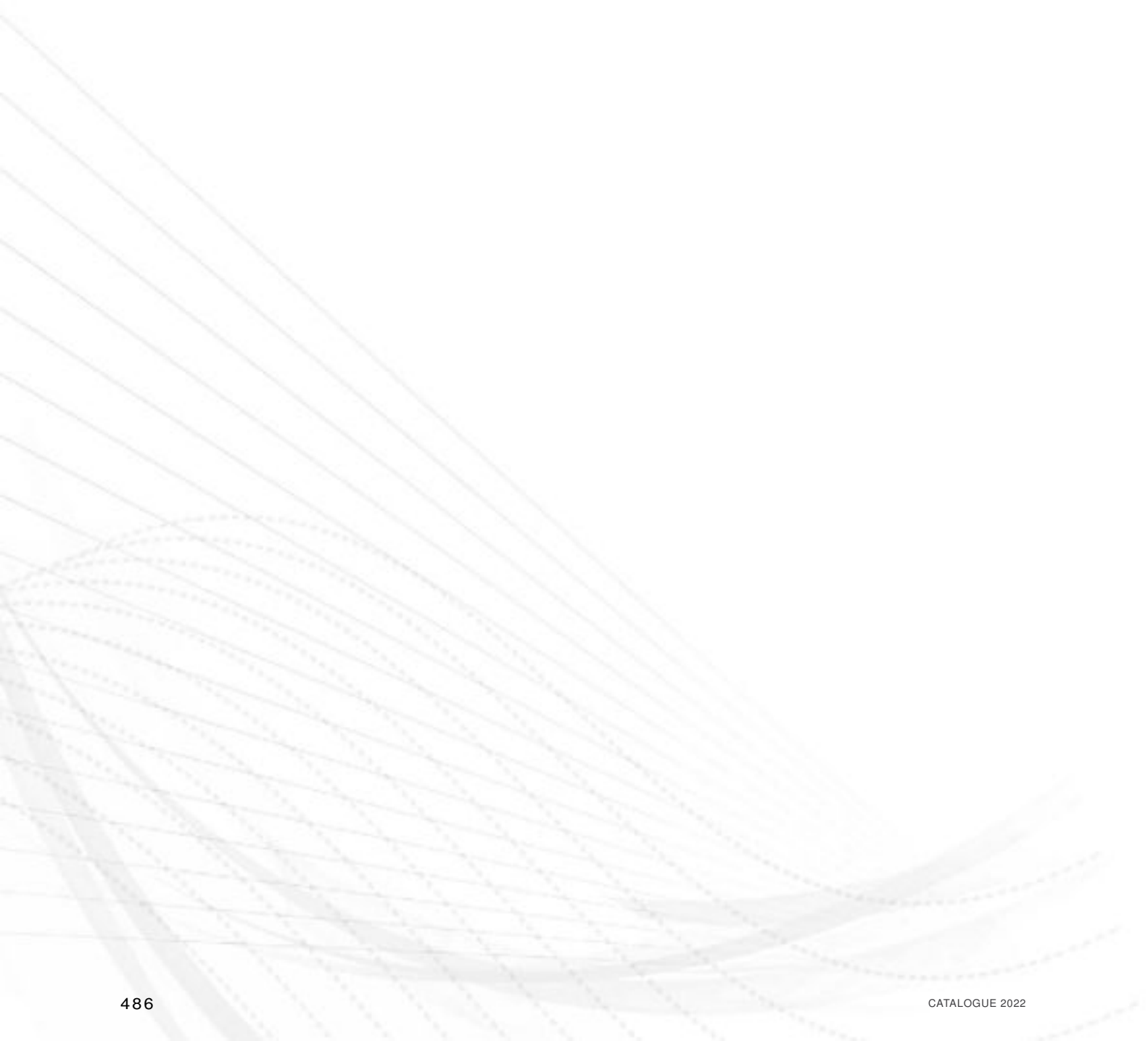
- Intuitive human/machine communication via a graphic touch screen interface.
- Daily and seasonal programming & setpoint configuration.
- Overview of the system and component states, display of measured values, curves, etc.

Offer local monitoring

- Remote monitoring via the I-Vù software.
- Component status display.
- Overviews, curves and events logs.
- Long-term logging of measured values and events.
- Support Hotline.

Technical characteristics

- IP54 electrics box.
- Supply: 100-230 VAC, 50/60 Hz.
- Operating temperature: -10 °C to +50 °C.
- Humidity: 0 to 90% RH, non-condensing.
- Terminal strips marked with wiring diagram.
- Industrial controller.
- I-Vù monitoring software on user PC or PC panel option.
- Access for remote support via LAN (or 3/4G, SIM supplied by the customer).
- BMS communication via BACnet or ModBus or LON (option) protocols.

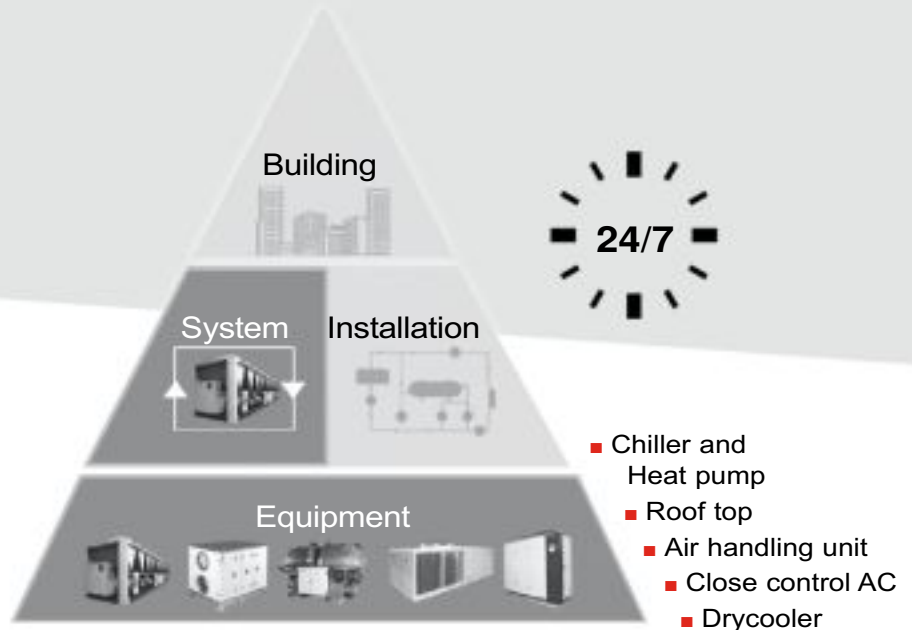


BluEdge® Digital*

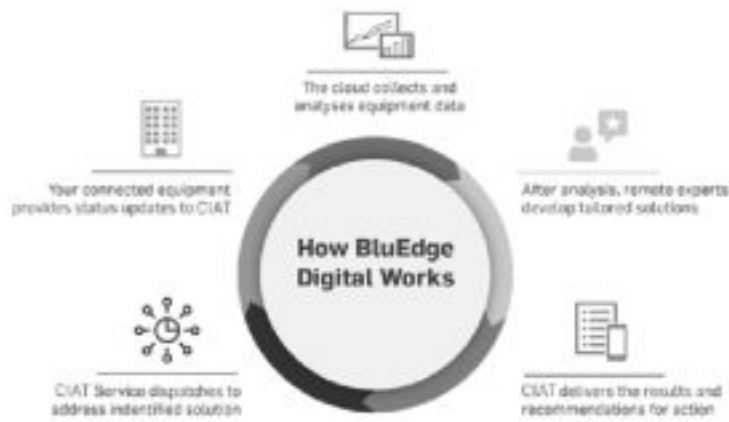
Monitoring solution
for CIAT units

Monitoring solution

To track, monitor
hvac system performance &
take preventive and
corrective actions remotely



REAL-TIME MONITORING



THE ADVANTAGES

- Better profitability
- Equipment availability
- Equipment optimal control
- Fully secured connection
- Increased responsiveness; Better technical knowledge of your site

TO MEET ENERGY REGULATIONS

To achieve the 2030 energy efficiency target of $\geq 27\%$, European regulations encourage buildings to install control and monitoring systems.

The European Performance Building Directive (EPBD), the Energy Efficiency Directive (EED), buildings certifications as BREEAM and HQE and all other European local regulations as RT2012 in France, contribute to optimize energy usage and improve smartness indicators of the potential energy savings.

* BluEdge Digital is the new name for CIATM2M. Technology remains the same.

Real time data

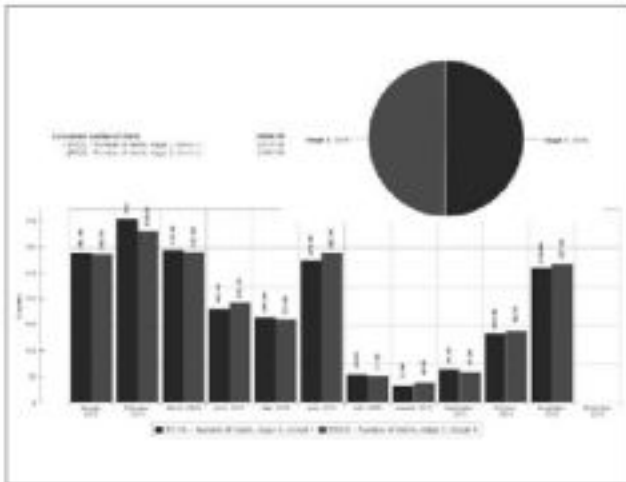
Real-time data dedicated website

- Machine summary
- Controller dashboard
- Temperature curves and events
- Alert & fault log
- Parameters log

Alerts

Be informed

- Email alert at event on the equipment



Reports

Visualize the efficiency of your installation

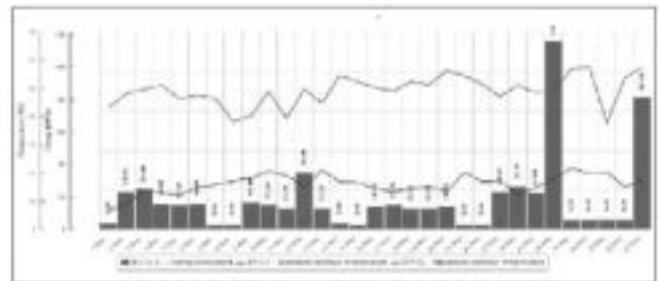
Get reports with expert analysis to optimise your system

Frequency

- Monthly
- Annual

Content

- Trend
- Run times
- Number of starts
- Event reports
- Preventive maintenance actions
- Energy consumption (with optional energy meter)



* BluEdge Digital is the new name for CIATM2M. Technology remains the same.



CIAT

HEAT PUMPS & WATER CHILLERS

WATER-COOLED UNITS

DYNACIAT™ LG P.493

25 to 190kW

29 to 230kW

DYNACIAT^{POWER}™ P.509

200 to 700kW

230 to 800kW

HYDROCIAT™ LW P.519

273 to 1756kW

317 to 1989kW

HYDROCIAT^{TURBO}™ LWT P.545

550 to 1600kW

650 to 1875kW

CONTROL AND SUPERVISION

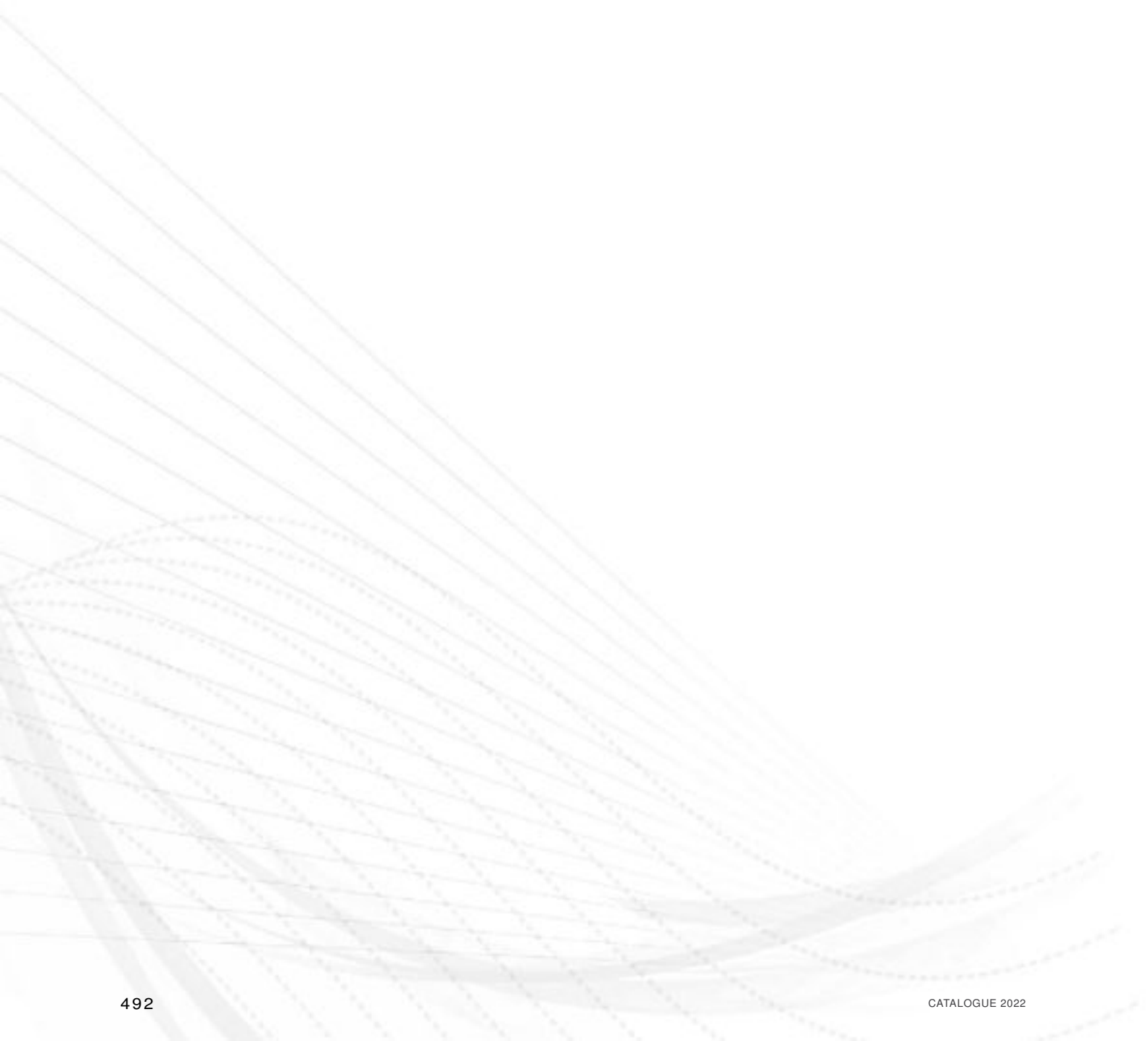
POWER'CONTROL P.485

BluEdge® Digital P.487

BluEdge® digital is the new name for CIATM2M. Technology remains the same.

■ Cooling

■ Heating





DYNACIAT™ LG

Water chillers
Heat pump



Compact et silent

High energy efficiency

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control

Cooling capacity: 25 to 190 kW
Heating capacity: 29 to 230 kW



Cooling



Heating



Hydraulic
module

R-410A 



UTILISATION

The latest generation of **DYNACIAT™** water chillers and heat pumps are the perfect solution for all cooling and heating applications in the Offices, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

When producing chilled water, these units can be connected to a drycooler or a water cooling tower. This range is also available in a "split system" version without a condenser (LGN series).

Connected to an underfloor heating-cooling system, comfort units or an air handling unit, **DYNACIAT™** can heat or cool buildings by reversing the cycle on hydraulic circuits using a set of valves (hydraulic valves not supplied).

For quick and easy installation, a range of hydronic modules is available as an option on the evaporator side (for chilled water production) and the condenser side (for hot water production).

DYNACIAT™ is optimised to use ozone-friendly HFC R410A refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER, SEPR and SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

RANGE

DYNACIAT™ LG series

Cooling or heating version.

DYNACIAT™ LGN series

Split system cooling only version without condenser.

DESCRIPTION

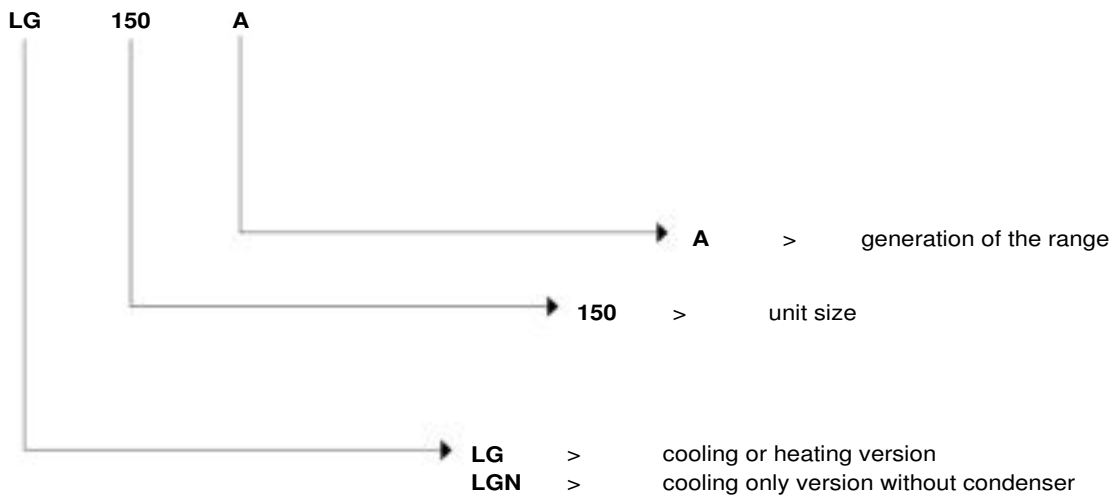
DYNACIAT™ units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Chilled-water evaporator with brazed plates
- Hot water condenser, with brazed plates
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+/-10%) general power supply + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24V
- Connect Touch electronic control module
- Casing for indoor installation

The entire DYNACIAT™ range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC
- Electromagnetic compatibility directive 2014/30/EC
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2
- Commission Regulation (EU) No. 813/2013 implementing directive 2009/125/EC setting the ecodesign requirements

DESIGNATION



CONFIGURATION

| | |
|------------------|--------------------|
| LG-LGN | Standard |
| LG-LGN LN option | Standard Low Noise |

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Evaporator

- Brazed-plate exchanger
- Plate patterns optimised for high efficiency
- 19 mm armafex thermal insulation

■ Condenser

- Brazed-plate exchanger
- Plate patterns optimised for high-efficiency
- 19 mm armafex thermal insulation (optional)

■ Refrigerating accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line

■ Regulation and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 23 protection rating
- A connection point without neutral
- Main safety switch with handle on front
- Control circuit transformer
- 24V control circuit
- Compressor motor circuit breaker
- Compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Casing

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

DESCRIPTION OF THE MAIN COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics. Using the integrated Webservice, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (Certified BTL) as an option, enabling most CMS/BMS to be integrated.

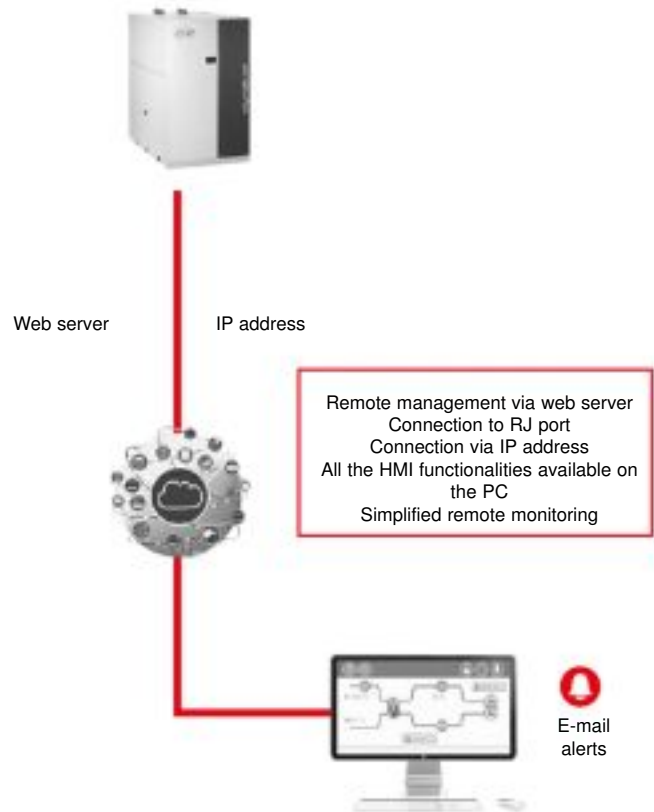
Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Heating/cooling operating mode selection
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- Operational status reporting indicates that the unit is in production mode.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations

AVAILABLE OPTIONS

| Options | Description | Advantages | LG |
|--|---|--|------------------|
| Low-temperature brine solution | Low temperature glycol solution production down to -12°C with ethylene glycol | Covers specific applications such as ice storage and industrial processes | ● |
| Soft Starter | Electronic starter on each compressor | Reduced start-up current | ● |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | ● |
| Evap. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | Sizes 360 to 600 |
| Cond. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump condenser side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | Sizes 360 to 600 |
| Condenser insulation | Thermal condenser insulation | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) | ● |
| HP single-pump hydraulic module | Single high-pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play) | Sizes 360 to 600 |
| LP evap. single-pump | Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play) | ● |
| HP evap. variable-speed single-pump | Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability | ● |
| HP VSD dual-pump hydraulic mod. | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability | Sizes 360 to 600 |
| LP VSD single-pump | Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included. Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability | Sizes 360 to 600 |
| Lon gateway | Bi-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | ● |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | ● |
| Specific dry cooler control | Control box for communication with the drycooler via a bus. For OPERA drycooler need to select the cabinet with option control cabinet manage by the chiller ConnectTouch control | Permits the use of an energy-efficient plug-and-play system | ● |
| External boiler management | Control board factory-installed on the unit to control a boiler | Extended remote control capabilities to a boiler on/off command. Permits easy control of a basic heating system | ● |
| Electric heaters management | Control board factory-installed on the unit with additional inputs/outputs in order to manage up to 4 external heating stages (electric heaters, etc.) | Extended remote control capabilities to up to 4 electric heaters. Permits easy control of a basic heating system | ● |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | ● |
| Insulation of the evap. in/ out ref. lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/leaving refrigerant lines | ● |
| Low noise level | Compressor sound enclosure | Reduced sound emissions | ● |
| Evaporator screw connection sleeves (kit) | Evaporator inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | ● |
| Condenser screw connection sleeves kit | Condenser inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | ● |
| HP single-pump, condenser side | Condenser hydraulic module equipped with high pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option. | Easy and fast installation (plug & play) | Sizes 360 to 600 |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

AVAILABLE OPTIONS

| Options | Description | Advantages | LG |
|--|---|--|--------------------------|
| LP single-pump, cond. side | Condenser hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option. | Easy and fast installation (plug & play) | ● |
| HP cond. variable-speed single-pump | Condenser hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included). Built-in safety hydraulic components available in option | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | ● |
| HP cond. variable-speed dual-pump | Condenser hydraulic module equipped with dual high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Optional hydraulic safety components available | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | Sizes 360 to 600 |
| LP cond. variable-speed single-pump | Condenser hydraulic module equipped with low-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Optional hydraulic safety components available | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | Sizes 360 to 600 |
| Safety hydraulic components, evap. side | Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module | Easy and fast installation (plug & play), operating safety | ● |
| Safety hydraulic components, cond. side | Screen filter, expansion tank and relief valve integrated in the condenser hydraulic module | Easy and fast installation (plug & play), operating safety | ● |
| M2M supervision (accessory) | Monitoring solution which allows customers to track and monitor their equipment remotely in real time | Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment. | ● |
| Anti-vibration mounts (kit) | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the buiding. Must be used in conjunction with a flexible connection on the water side | ● |
| Exchangers flexibles connection (kit) | Flexible connections on the exchanger water side | Easy installation. Limit transmission of vibrations on the water network | ● |
| Exchangers water filter (kit) | Water filter | Eliminate dust in the water network | ● Without pump option |
| Condenser water filter (kit) | Water filter | Eliminate dust in the water network | ● Without pump option |
| Set point adjustment by 4-20mA signal | Connections to allow a 4-20 mA signal input | Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal | ● |
| External temperature sensor | External temperature sensor control for using weather compensation | Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature | ● |
| Free Cooling dry cooler management | Control & connections to a Free Cooling Drycooler Opera or Vextra fitted with option FC control box | Easy system managment, Extended control capabilities to a dryccoler used in Free Cooling mode | ● |
| Desuperheater flexibles connection (kit) | Flexibles connections on the desuperheatterr water side | Easy installation. Limit transmission of vibrations on the water network | Sizes 360 to 600 |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 | |
|--|-----|---|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 30 | 35 | 38 | 44 | 51 | 56 | 70 | 77 | 89 | 101 | 114 |
| | | COP | kW/kW | 5,48 | 5,48 | 5,44 | 5,47 | 5,43 | 5,45 | 5,49 | 5,40 | 5,46 | 5,42 | 5,47 |
| | HW2 | Nominal capacity | kW | 29 | 33 | 36 | 43 | 49 | 54 | 68 | 74 | 85 | 97 | 108 |
| | | COP | kW/kW | 4,31 | 4,33 | 4,32 | 4,33 | 4,37 | 4,31 | 4,35 | 4,30 | 4,27 | 4,36 | 4,29 |
| | HW3 | Nominal capacity | kW | 28 | 33 | 35 | 41 | 47 | 52 | 65 | 73 | 81 | 93 | 103 |
| | | COP | kW/kW | 3,57 | 3,61 | 3,59 | 3,58 | 3,65 | 3,59 | 3,55 | 3,60 | 3,51 | 3,68 | 3,54 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,35 | 5,33 | 5,24 | 5,28 | 5,23 | 5,26 | 5,95 | 5,9 | 5,93 | 6,01 | 6,03 |
| | | η _{s heat} _{30/35°C} | % | 206 | 205 | 202 | 203 | 201 | 202 | 230 | 228 | 229 | 232 | 233 |
| | HW3 | SCOP_{47/55°C} | kWh/kWh | 4,31 | 4,31 | 4,29 | 4,31 | 4,33 | 4,28 | 4,79 | 4,83 | 4,74 | 4,96 | 4,81 |
| | | η_{s heat}_{47/55°C} | % | 164 | 164 | 163 | 164 | 165 | 163 | 184 | 185 | 181 | 191 | 184 |
| | | P _{rated} | kW | 32 | 37 | 40 | 47 | 54 | 59 | 75 | 83 | 93 | 106 | 118 |
| | | Energy labelling | kW/kW | A++ | A++ | A++ | A++ | A++ | A++ | - | - | - | - | - |
| Cooling | | | | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 25 | 29 | 32 | 37 | 42 | 47 | 58 | 63 | 74 | 84 | 94 |
| | | EER | kW/kW | 4,68 | 4,68 | 4,65 | 4,68 | 4,65 | 4,67 | 4,65 | 4,57 | 4,62 | 4,58 | 4,62 |
| | | Eurovent class | | B | B | B | B | B | B | B | C | C | C | C |
| | CW2 | Nominal capacity | kW | 34 | 39 | 43 | 50 | 57 | 66 | 78 | 86 | 102 | 113 | 129 |
| | | EER | kW/kW | 6,35 | 6,04 | 5,96 | 5,98 | 5,83 | 5,99 | 6,02 | 5,83 | 6,10 | 5,86 | 6,08 |
| | | Eurovent class | | A | A | A | A | A | A | A | A | A | A | A |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,79 | 4,78 | 4,69 | 4,72 | 4,69 | 4,72 | 5,41 | 5,34 | 5,31 | 5,45 | 5,41 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 6,33 | 6,34 | 6,17 | 6,12 | 6,16 | 6,20 | 6,47 | 6,33 | 6,33 | 6,43 | 6,47 |
| Unit with Low-temperature brine solution option Seasonal energy efficiency** | | SEPR _{-2/-8°C} Process medium temp.*** | kWh/kWh | 3,88 | 4,22 | 4,38 | 4,29 | 4,41 | 3,96 | 4,10 | 4,63 | 4,46 | 4,67 | 4,65 |
| | | Part Load integrated values | IPLV.SI | 5,840 | 5,850 | 5,760 | 5,780 | 5,770 | 5,820 | 6,580 | 6,680 | 6,560 | 6,810 | 6,720 |
| Sound levels | | | | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 67 | 69 | 69 | 69 | 70 | 70 | 72 | 72 | 72 | 73 | 73 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 36 | 37 | 38 | 38 | 39 | 39 | 40 | 41 | 41 | 42 | 42 |
| Unit with Low Noise option | | | | | | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 65 | 66 | 66 | 67 | 68 | 68 | 68 | 69 | 69 | 69 | 70 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 34 | 35 | 35 | 35 | 37 | 37 | 37 | 37 | 38 | 38 | 39 |

* In accordance with standard EN14511-3:2013.
 ** In accordance with standard EN14825:2016, average climate
 *** With EG 30%
 HW1 Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m². k/W
 HW2 Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 40 °C/45 °C, evaporator fouling factor 0 m². k/W
 HW3 Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 47 °C/55 °C, evaporator fouling factor 0 m². k/W
 CW1 Cooling mode conditions: Evaporator water inlet/outlet temperature 12 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m². k/W
 CW2 Cooling mode conditions: Evaporator water inlet/outlet temperature 23 °C/18 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m². k/W
 η_{s heat}_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016
 η_{s heat}_{47/55°C} & SCOP_{47/55°C} **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**
 SEER_{12/7°C} & SEPR_{12/7°C} Values calculated in accordance with EN14825:2016
 SEPR_{-2/-8°C} Values calculated in accordance with EN14825:2016
 IPLV.SI Calculated as per AHRI standard 551-591(SI).
 - Not applicable
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).



Eurovent certified values

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|--|--------------------|------|------|------|------|------|------|------|------|------|------|------|
| Dimensions | | | | | | | | | | | | |
| Length | mm | 600 | 600 | 600 | 600 | 600 | 600 | 880 | 880 | 880 | 880 | 880 |
| Width | mm | 1044 | 1044 | 1044 | 1044 | 1044 | 1044 | 1474 | 1474 | 1474 | 1474 | 1474 |
| Height | mm | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 |
| Operating Weight ⁽³⁾ | | | | | | | | | | | | |
| Standard unit | kg | 191 | 200 | 200 | 207 | 212 | 220 | 386 | 392 | 403 | 413 | 441 |
| Unit with evaporator with single LP pump | kg | 250 | 258 | 258 | 263 | 266 | 271 | 431 | 435 | 442 | 449 | 465 |
| Unit with condenser with single LP pump | kg | 250 | 258 | 258 | 263 | 266 | 271 | 431 | 435 | 442 | 449 | 465 |
| Unit with evaporator with single variable-speed HP pump + condenser with single variable-speed HP pump | kg | 305 | 313 | 313 | 321 | 327 | 334 | 513 | 521 | 533 | 544 | 574 |
| Compressors | | | | | | | | | | | | |
| Hermetic Scroll 48.3 r/s | | | | | | | | | | | | |
| Circuit A | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Number of power stages | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant ⁽³⁾ | | | | | | | | | | | | |
| R410A (GWP=2088 following ARI4) | | | | | | | | | | | | |
| Circuit A | kg | 3,5 | 3,5 | 3,6 | 3,7 | 4 | 4,6 | 7,6 | 7,8 | 7,9 | 8,7 | 11,5 |
| | tCO ₂ e | 7,3 | 7,3 | 7,5 | 7,7 | 8,4 | 9,6 | 15,9 | 16,3 | 16,5 | 18,2 | 24 |
| Oil charge | | | | | | | | | | | | |
| TYPE: 160SZ | | | | | | | | | | | | |
| Circuit A | l | 3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 |
| Power control | | | | | | | | | | | | |
| Connect Touch Control | | | | | | | | | | | | |
| Minimum capacity | % | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 50 | 50 | 50 | 50 |
| Water type heat exchanger | | | | | | | | | | | | |
| Evaporator | | | | | | | | | | | | |
| Plate heat exchanger with direct expansion | | | | | | | | | | | | |
| Water volume | l | 3,3 | 3,6 | 3,6 | 4,2 | 4,6 | 5 | 8,4 | 9,2 | 9,6 | 10,4 | 12,5 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | | | | | | | | | | | |
| Plate heat exchanger | | | | | | | | | | | | |
| Water volume | l | 3,3 | 3,6 | 3,6 | 4,2 | 4,6 | 5 | 8,4 | 9,2 | 9,6 | 10,4 | 12,5 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (optional) | | | | | | | | | | | | |
| Single pump | | | | | | | | | | | | |
| Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | | | | | | | | |
| Expansion tank volume (optional) | l | 8 | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 12 | 12 | 12 |
| Expansion vessel pressure ⁽⁴⁾ | bar | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Max. water-side operating pressure with hydraulic module | kPa | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Water connections with or without hydronic module | | | | | | | | | | | | |
| Victaulic® | | | | | | | | | | | | |
| Connections | inch | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint | | | | | | | | | | | | |
| Colour code: RAL 7035 / RAL 7024 | | | | | | | | | | | | |

(3) Values shown are a guideline only. Please refer to the unit nameplate

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | | 360 | 390 | 450 | 480 | 520 | 600 | |
|--|----------------|---|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 137 | 156 | 172 | 183 | 206 | 230 |
| | | COP | kW/kW | 5,60 | 5,57 | 5,49 | 5,64 | 5,59 | 5,56 |
| | HW2 | Nominal capacity | kW | 131 | 148 | 163 | 174 | 197 | 218 |
| | | COP | kW/kW | 4,42 | 4,43 | 4,37 | 4,40 | 4,48 | 4,36 |
| | HW3 | Nominal capacity | kW | 125 | 140 | 155 | 166 | 189 | 209 |
| | | COP | kW/kW | 3,58 | 3,62 | 3,56 | 3,60 | 3,76 | 3,59 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,24 | 6,28 | 6,18 | 6,24 | 6,24 | 6,08 |
| | | η _{s heat} _{30/35°C} | % | 242 | 243 | 239 | 242 | 241 | 235 |
| | HW3 | SCOP_{47/55°C} | kWh/kWh | 5,02 | 5,05 | 5,01 | 4,99 | 5,14 | 4,92 |
| | | η_{s heat}_{47/55°C} | % | 193 | 194 | 192 | 192 | 198 | 189 |
| | | P _{rated} | kW | 143 | 161 | 178 | 191 | 216 | 239 |
| | Cooling | | | | | | | | |
| Standard unit Full load performances * | CW1 | Nominal capacity | kW | 115 | 130 | 144 | 153 | 172 | 192 |
| | | EER | kW/kW | 4,78 | 4,75 | 4,68 | 4,81 | 4,76 | 4,77 |
| | | Eurovent class | | B | B | B | B | B | B |
| | CW2 | Nominal capacity | kW | 155 | 176 | 196 | 207 | 230 | 262 |
| | | EER | kW/kW | 6,17 | 6,07 | 5,98 | 6,20 | 5,94 | 6,09 |
| | | Eurovent class | | A | A | A | A | A | A |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 6,05 | 6,16 | 6,07 | 5,91 | 5,97 | 5,87 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 6,92 | 7,05 | 6,90 | 6,69 | 6,69 | 6,69 |
| Unit with Low-temperature brine solution option Seasonal energy efficiency** | | SEPR _{-2/-8°C} Process medium temp.*** | kWh/kWh | 4,30 | 4,45 | 4,42 | 4,66 | 4,72 | 4,68 |
| Part Load integrated values | | IPLV.SI | kW/kW | 6,860 | 6,980 | 6,900 | 6,820 | 6,890 | 6,820 |
| Sound levels | | | | | | | | | |
| Standard unit | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 76 | 77 | 78 | 76 | 77 | 78 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 44 | 45 | 46 | 44 | 45 | 47 |
| Unit with Low Noise option | | | | | | | | | |
| | | Sound power ⁽¹⁾ | dB(A) | 73 | 74 | 75 | 73 | 74 | 75 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 41 | 42 | 43 | 41 | 42 | 44 |

* In accordance with standard EN14511-3:2013.
 ** In accordance with standard EN14825:2016, average climate
 *** With EG 30%
 HW1 Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m². k/W
 HW2 Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 40 °C/45 °C, evaporator fouling factor 0 m². k/W
 HW3 Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 47 °C/55 °C, evaporator fouling factor 0 m². k/W
 CW1 Cooling mode conditions: Evaporator water inlet/outlet temperature 12 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m². k/W
 CW2 Cooling mode conditions: Evaporator water inlet/outlet temperature 23 °C/18 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m². k/W
 η_{s heat}_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016
 η_{s heat}_{47/55°C} & SCOP_{47/55°C} **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**
 SEER_{12/7°C} & SEPR_{12/7°C} Values calculated in accordance with EN14825:2016
 SEPR_{-2/-8°C} Values calculated in accordance with EN14825:2016
 IPLV.SI Calculated as per AHRI standard 551-591(SI).
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).



Eurovent certified values

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | 360 | 390 | 450 | 480 | 520 | 600 |
|--|--------------------|---|------|------|------|-------|-------|
| Dimensions | | | | | | | |
| Length | mm | 880 | 880 | 880 | 880 | 880 | 880 |
| Width | mm | 1583 | 1583 | 1583 | 1583 | 1583 | 1583 |
| Height | mm | 1574 | 1574 | 1574 | 1574 | 1574 | 1574 |
| Operating Weight ⁽³⁾ | | | | | | | |
| Standard unit | kg | 721 | 742 | 765 | 844 | 872 | 899 |
| Unit with evaporator with single LP pump | kg | 996 | 1022 | 1048 | 1158 | 1230 | 1261 |
| Unit with condenser with single LP pump | kg | 1016 | 1042 | 1068 | 1178 | 1230 | 1261 |
| Unit with evaporator with single variable-speed HP pump + condenser with single variable-speed HP pump | kg | 1056 | 1082 | 1108 | 1218 | 1270 | 1301 |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | |
| Circuit A | Qty | 3 | 3 | 3 | 2 | 2 | 2 |
| Circuit B | Qty | - | - | - | 2 | 2 | 2 |
| Number of power stages | Qty | 3 | 3 | 3 | 4 | 4 | 4 |
| Refrigerant ⁽³⁾ | | R410A (GWP=2088 following ARI4) | | | | | |
| Circuit A | kg | 13,3 | 14,7 | 15,3 | 10,5 | 11,5 | 12,1 |
| | tCO ₂ e | 27,8 | 30,7 | 31,9 | 21,9 | 23,9 | 25,05 |
| Circuit B | kg | - | - | - | 10,5 | 11,25 | 12 |
| | tCO ₂ e | - | - | - | 21,9 | 23,9 | 25,05 |
| Oil charge | | TYPE: 160SZ | | | | | |
| Circuit A | l | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,6 |
| Circuit B | l | - | - | - | 3,3 | 3,3 | 3,6 |
| Power control | | Connect Touch Control | | | | | |
| Minimum capacity | % | 33 | 33 | 33 | 25 | 25 | 25 |
| Water type heat exchanger | | Plate heat exchanger with direct expansion | | | | | |
| Evaporator | | Plate heat exchanger with direct expansion | | | | | |
| Water volume | l | 15 | 17 | 19 | 23 | 26 | 29 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Plate heat exchanger | | | | | |
| Water volume | l | 15 | 17 | 19 | 23 | 26 | 29 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (optional) | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | |
| Single pump | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | |
| Expansion tank volume (optional) | l | 25 | 25 | 25 | 35 | 35 | 35 |
| Expansion vessel pressure ⁽⁴⁾ | bar | 4 | 4 | 4 | 4 | 4 | 4 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® | | | | | |
| Connections | inch | 2,5 | 2,5 | 2,5 | 3 | 3 | 3 |
| External diameter | mm | 73 | 73 | 73 | 88,9 | 88,9 | 88,9 |
| Casing paint | | Colour code: RAL 7035 / RAL 7024 | | | | | |

(3) Values shown are a guideline only. Please refer to the unit nameplate

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

ELECTRICAL SPECIFICATIONS

| DYNACIAT™ LG - Standard unit (without hydraulic module) | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 | 360 | 390 | 450 | 480 | 520 | 600 | |
|--|---------|-------------------------------|------|------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Power circuit | | | | | | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | | | | | | | | | | |
| Nominal unit current draw⁽³⁾ | | | | | | | | | | | | | | | | | | | |
| Circuit A&B | A | 10,5 | 13,2 | 13,8 | 15,6 | 16,2 | 20,2 | 26,4 | 27,6 | 31,2 | 32,4 | 40,4 | 46,8 | 48,6 | 60,6 | 62,4 | 64,8 | 80,8 | |
| Maximum unit power input⁽²⁾ | | | | | | | | | | | | | | | | | | | |
| Circuit A&B | kW | 9,2 | 10,8 | 11,7 | 13,7 | 15,1 | 17,1 | 21,5 | 23,3 | 27,3 | 30,3 | 34,2 | 41 | 44,9 | 51,2 | 54,6 | 59,8 | 68,3 | |
| Unit power factor at maximum capacity⁽²⁾ | | 0,85 | | | | | | | | | | | | | | | | | |
| Maximum unit current draw (Un-10%)⁽⁵⁾ | | | | | | | | | | | | | | | | | | | |
| Circuit A&B | A | 17,3 | 20,8 | 22 | 25,8 | 28,2 | 32,2 | 41,6 | 44 | 51,6 | 56,4 | 64,4 | 77,3 | 84,7 | 96,7 | 103,1 | 112,9 | 128,9 | |
| Maximum current draw (Un)⁽⁴⁾ | | | | | | | | | | | | | | | | | | | |
| Circuit A&B - Standard unit | A | 15,6 | 18,7 | 19,8 | 23,2 | 25,4 | 29 | 37,4 | 39,6 | 46,4 | 50,8 | 58 | 69,6 | 76,2 | 87 | 92,8 | 101,6 | 116 | |
| Maximum start-up current, standard unit (Un)⁽¹⁾ | | | | | | | | | | | | | | | | | | | |
| Circuit A&B | A | 98 | 142 | 142 | 147 | 158 | 197 | 161 | 162 | 170 | 183 | 226 | 193,4 | 208,8 | 255 | 216,6 | 234,2 | 284 | |
| Maximum start-up current, unit with soft start (Un)⁽¹⁾ | | | | | | | | | | | | | | | | | | | |
| Circuit A&B | A | 53,9 | 78,1 | 78,1 | 80,9 | 86,9 | 108,4 | 96,8 | 97,9 | 104,1 | 112,3 | 137,4 | 127,3 | 137,7 | 166,4 | 150,5 | 163,1 | 195,4 | |

(1) Maximum instantaneous starting current (maximum operating current of the smallest compressor(s) + locked rotor current of the largest compressor).

(2) Power input, at the unit's permanent operating limits (indication given on the unit's name plate).

(3) Standardised EUROVENT conditions, water type heat exchanger input/output = 12°C/7°C, outdoor air temperature = 35°C.

(4) Maximum unit current at 400V, during non-permanent operation (indication given on the unit's name plate)

(5) Maximum unit current at 360V, during non-permanent operation

■ Short circuit current withstand capability (TN system⁽¹⁾)

| DYNACIAT™ LG | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 | 360 | 390 | 450 | 480 | 520 | 600 | |
|--|--------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Value without upstream protection | | | | | | | | | | | | | | | | | | | |
| Short time assigned current (1s) - I _{cw} | kA eff | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 | |
| Allowable peak assigned current - I _{pk} | kA pk | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Value with upstream protection | | | | | | | | | | | | | | | | | | | |
| Conditional short circuit assigned current I _{cc} | kA eff | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 154 | 154 | 154 | 154 | 154 | 154 | |
| Associated Schneider circuit breaker - Compact type range ⁽²⁾ | | NSX 100N | | | | | | | | | | | | | | | | | |

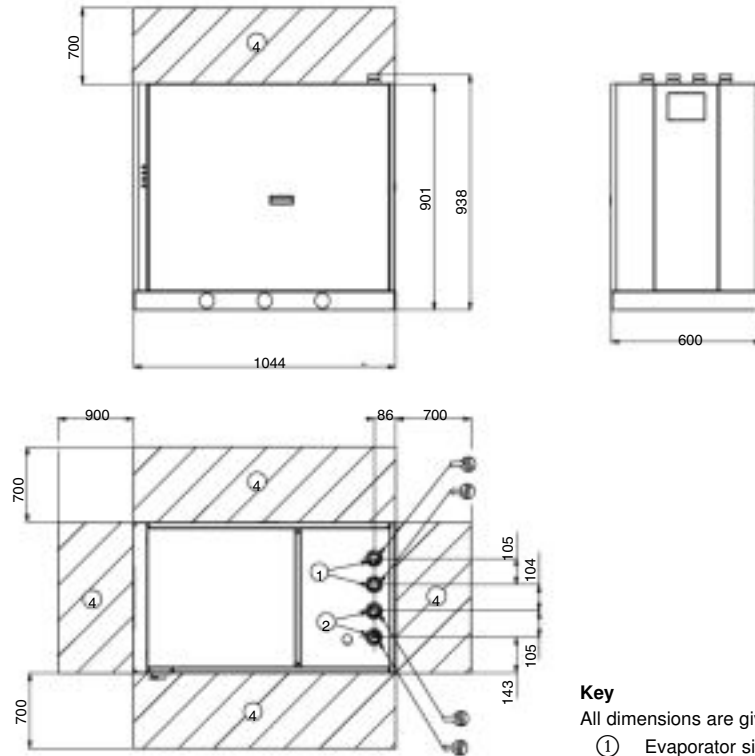
(1) Type of system earthing

(2) If another current limiting protection device is used, its time-current trip and I²t thermal stress characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.

The short-circuit withstand values given above were determined for the TN system.

DIMENSIONS

■ DYNACIAT™ LG 80A to 150 without hydraulic module

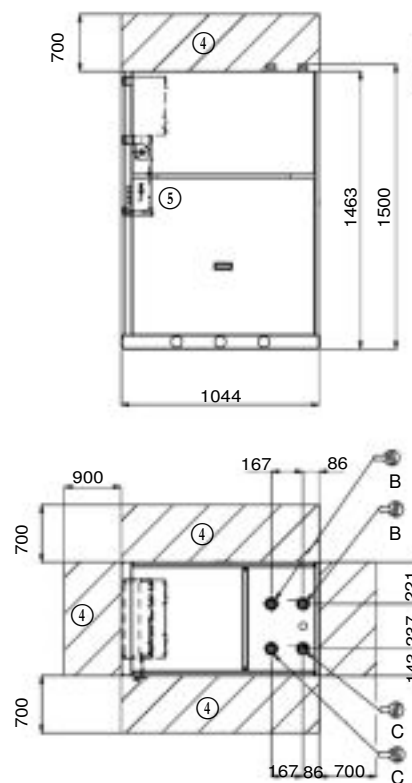


Key

All dimensions are given in mm

- ① Evaporator side
- ② Condenser side
- ③ Valve
- ④ Clearances required for maintenance (see Note)
- ⑤ Electrical box
- Water inlet
- Water outlet
- Electrical power connection

■ DYNACIAT™ LG 80A to 150 with hydraulic module



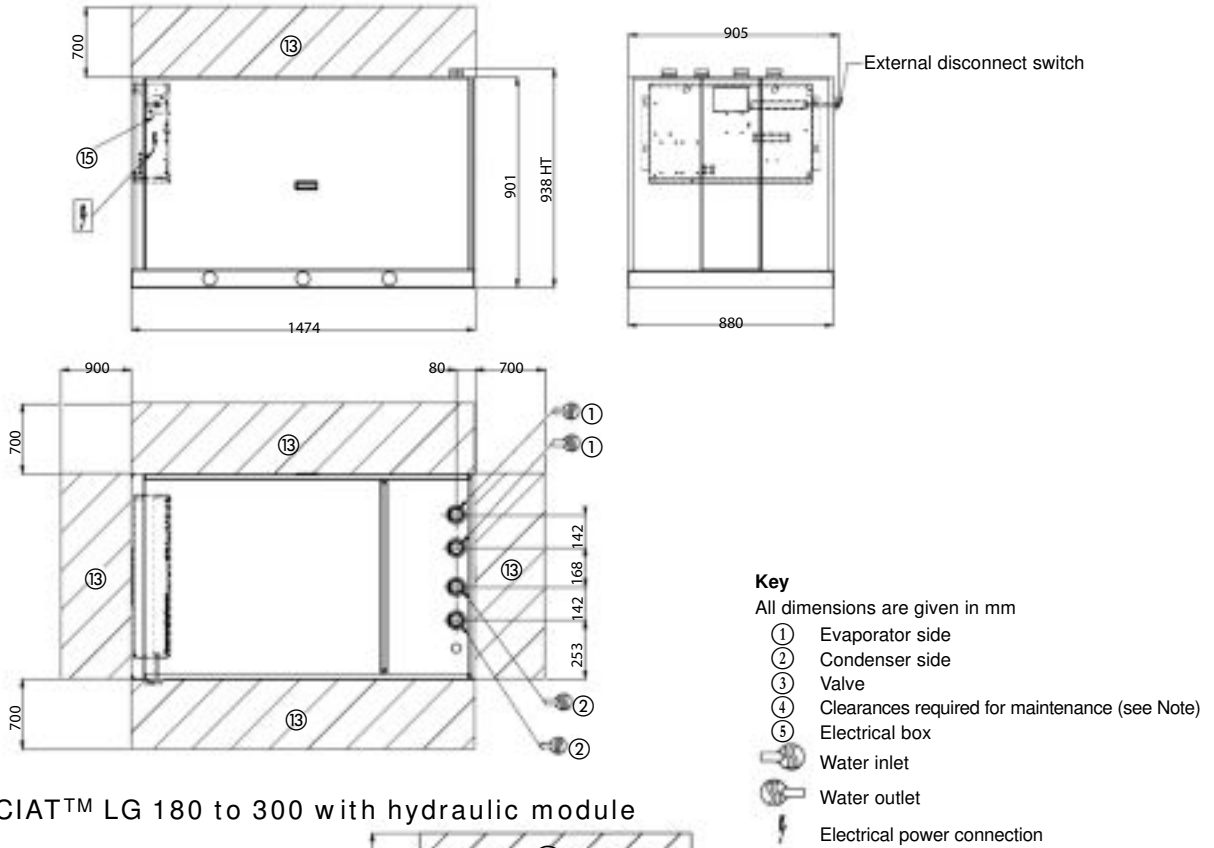
Notes:

Non-contractual drawings.

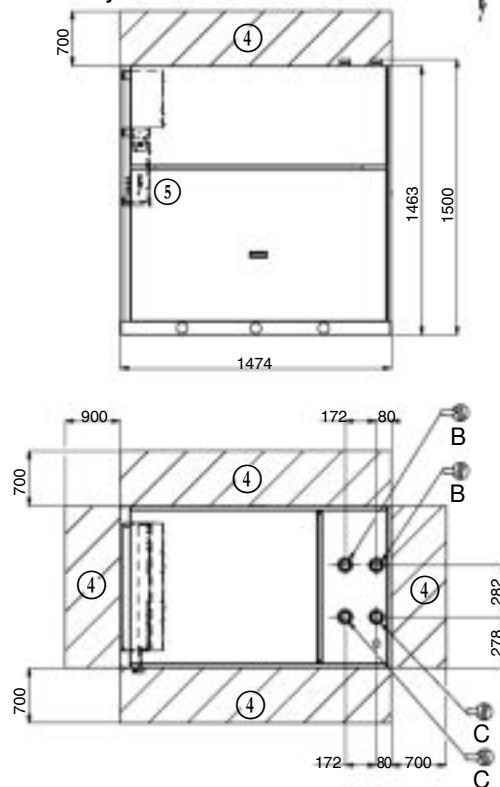
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LG 180 to 300 without hydraulic module



■ DYNACIAT™ LG 180 to 300 with hydraulic module



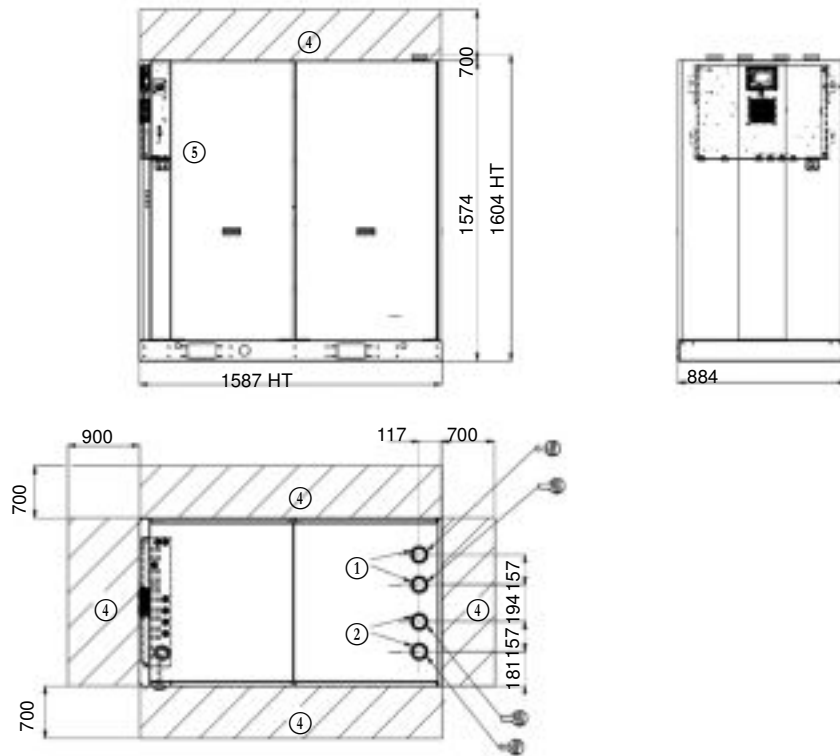
Notes:

Non-contractual drawings.

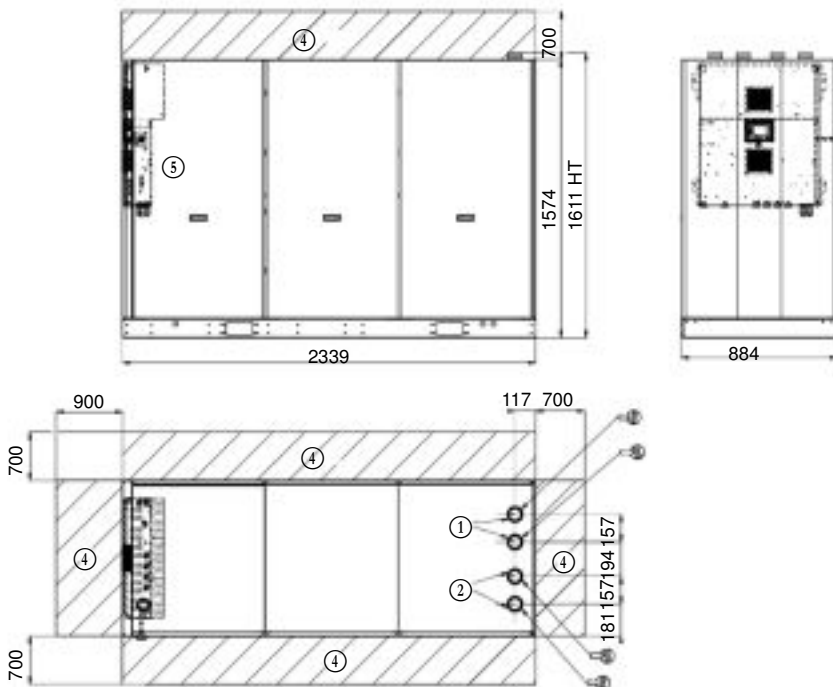
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LG 360 to 450 without hydraulic module



■ DYNACIAT™ LG 360 to 450 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator side
- ② Condenser side
- ③ Valve
- ④ Clearances required for maintenance (see Note)
- ⑤ Electrical box
- Water inlet
- Water outlet
- Electrical power connection

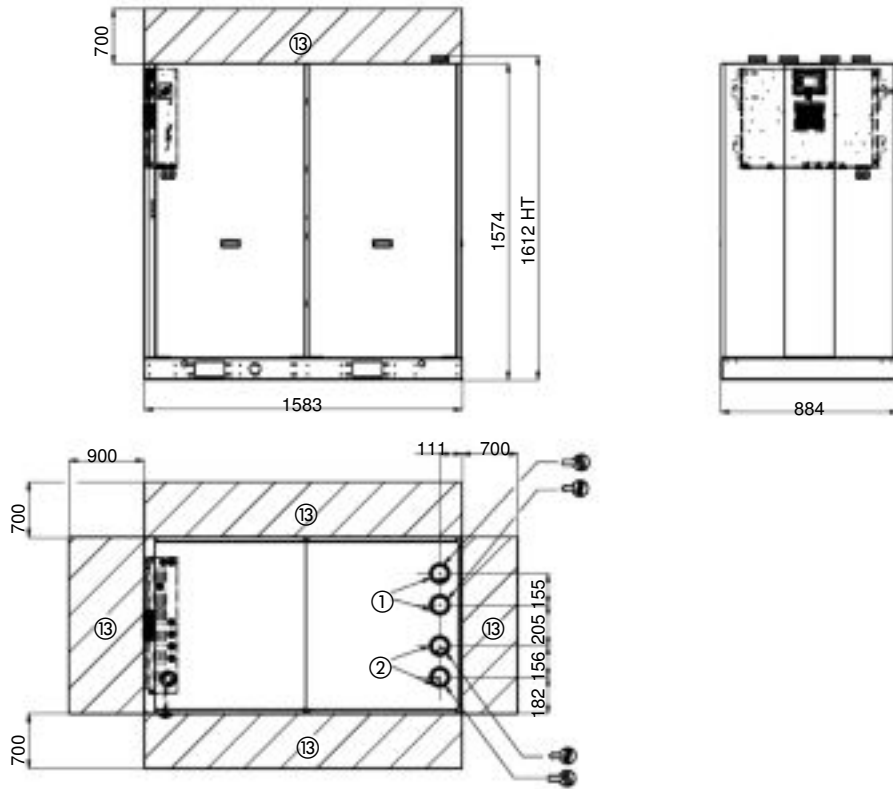
Notes:

Non-contractual drawings.

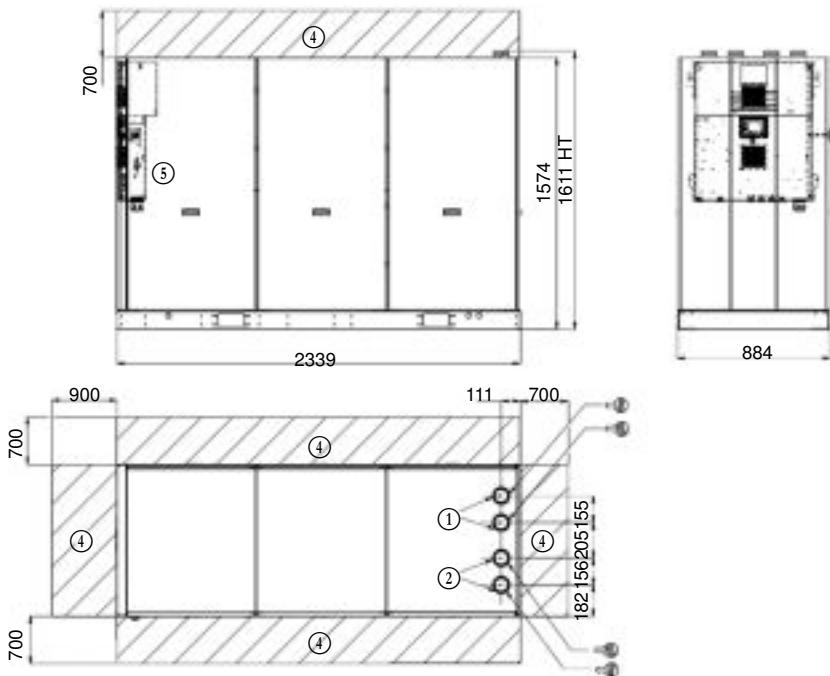
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LG 480 to 600 without hydraulic module



■ DYNACIAT™ LG 480 to 600 with hydraulic module



Key

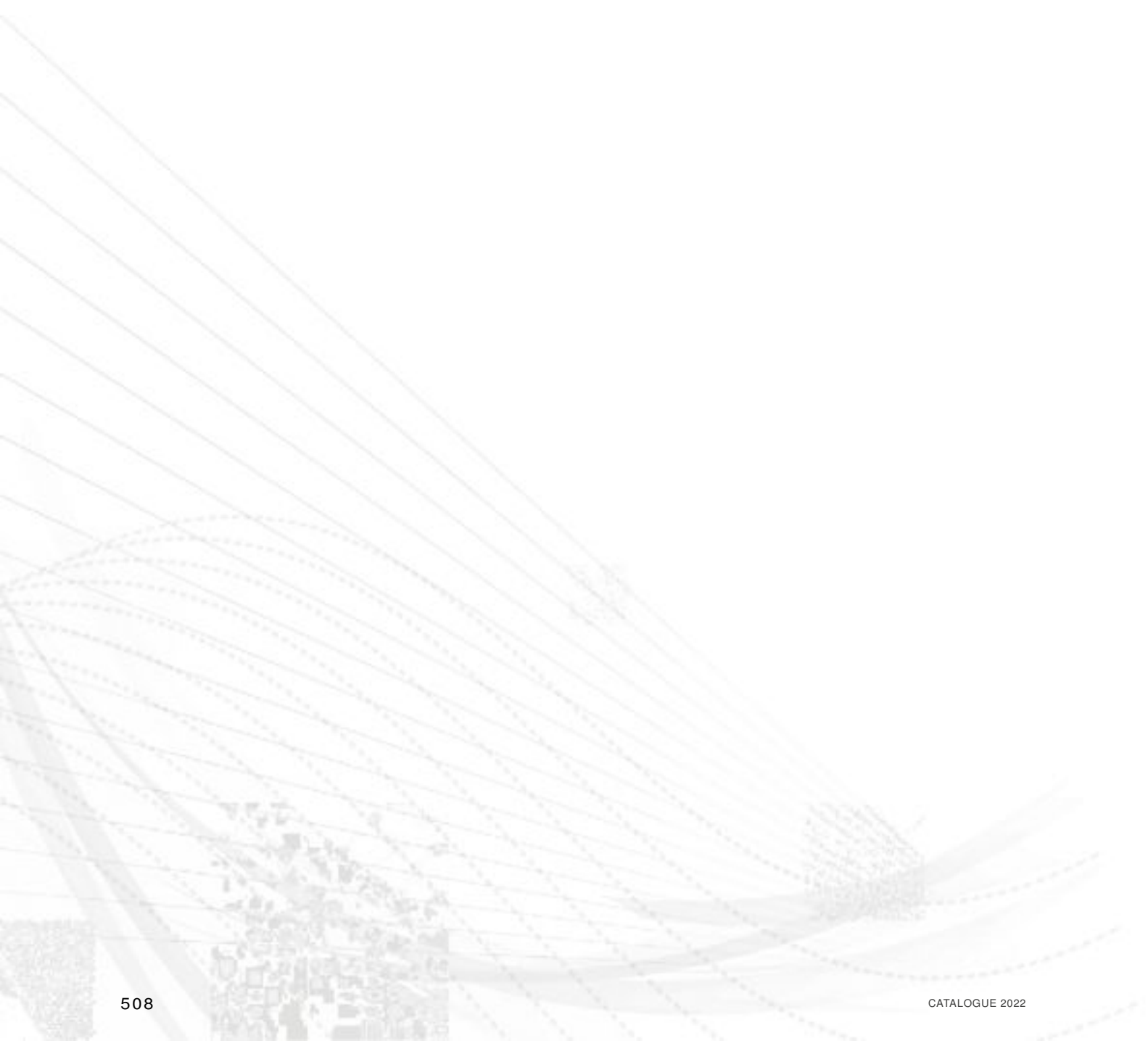
All dimensions are given in mm

- ① Evaporator side
- ② Condenser side
- ③ Valve
- ④ Clearances required for maintenance (see Note)
- ⑤ Electrical box
- Water inlet
- Water outlet
- Electrical power connection

Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.





DYNACIAT^{POWER™} LG

Water cooled
water chillers



High energy efficiency

Compact and quiet

Scroll compressors

*High-efficiency brazed-plate
heat exchangers*

*CIAT self-adjusting
electronic control*

Cooling capacity: 200 to 700 kW

Heating capacity: 230 to 800 kW



Heating



Cooling
only



Cooling
and
heating



USE

The new generation of **DYNACIAT^{POWER™}** water cooled water chillers offers an optimal solution for all heating or process cooling applications.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

The new range has been optimised to use ozone-friendly HFC R410A refrigerant. The use of this refrigerant guarantees compliance with the most demanding requirements for environmental protection and increased seasonal energy efficiency.

RANGE

DYNACIAT^{POWER™} LG series

Cooling-only or heating-only models with water cooled condenser.

The design of the **DYNACIAT^{POWER™} LGP series** heat pump range is identical to that of the **DYNACIAT^{POWER™} LG series**. These machines provide solutions for the most diverse heating problems.

They can also be used in cooling mode by reversing the cycle on the hydraulic circuits.

Acoustic configuration:

- a - STANDARD version
- b - LOW NOISE version. Compressor casing
- c - XTRA LOW NOISE version. Casing with compressor acoustic insulation

DESCRIPTION

The DYNACIAT^{POWER™} LG series units are monoblock machines supplied as standard with the following components:

- Hermetic SCROLL compressors,
- Chilled water evaporator with brazed plates,
- Hot water condenser with brazed plates,
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+10%/-10%) general power supply + earth,
 - Transformer fitted as standard on the machine for supplying the remote control circuit with 230V-1ph-50Hz,
- CIAT CONNECT2 electronic control module.

The entire DYNACIAT^{POWER™} range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC, modified
- Electromagnetic compatibility directive 2014/30/EU, modified
- EMC Immunity and Emissions EN 61800-3 "C3"
- Low voltage directive 2014/35/EU, modified
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN-60-204-1
- Refrigeration systems and heat pumps EN 378-2

DESCRIPTION

LG > cooling only version

1200 > unit size

P > heating only version

V > R410A refrigerant



**LG models 700V to 1600V
Xtra Low Noise Version**

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type.
- Built-in electric motor, cooled by intake gases.
- Motor protected by internal winding thermostat.
- Placed on anti-vibration mounts.

■ Evaporator

- Brazed-plate exchanger.
- Stainless steel plates.
- Plate patterns optimised for high efficiency.
- Armaflex thermal insulation.

■ Condenser

- Brazed-plate exchanger.
- Stainless steel plates.
- Plate patterns optimised for high efficiency.

■ Refrigerating accessories

- Dehumidifier filters with rechargeable cartridges.
- Hygroscopic sight glasses.
- Solenoid valves on refrigerant lines (700V to 1200V models).
- Thermostatic expansion valves (700V to 1000V models).
- Electronic expansion valves (1100V to 2400V models).

■ Regulation and safety instruments

- High and low pressure sensors.
- High pressure safety valves.
- Water temperature control sensors.
- Evaporator antifreeze protection sensor.
- Factory-fitted evaporator water flow controller.

■ Electrics box

- IP 21.
- 400V-3Ph-50 Hz power supply + Earth (+10%/-10%).
- Disconnect switch with handle on front.
- Control circuit transformer.
- Circuit breaker for compressor motor.
- Contact switches for compressor motor.
- CONNECT2 microprocessor-controlled electronic control module.
- Wire numbering.
- Marking of the main electrical components.
- RAL 7035.

■ CONNECT2 electronic control module

The CIAT electronic control module performs the following main functions:

- Regulation of the chilled or hot water temperature
- Regulation of the water temperature based on the outdoor temperature (water law).
- Regulation for low temperature energy storage.
- Second setpoint management.
- Complete management of compressors with start-up sequence, metering and runtime balancing.
- Self-adjusting and proactive functions with adjustment of parameters on drift control.
- In-series staged capacity-reduction system on compressors based on cooling and heating demands.
- Management of compressor short cycle protection.
- Management of the machine operation limit according to outdoor temperature.
- Operating and fault status diagnostics.
- Management of a fault memory allowing a log of the last 20 incidents to be accessed, with operating readings taken when the fault occurs.

- Master/slave management of the two machines in parallel with runtime balancing and automatic changeover if a fault occurs on one machine.
- Machine time schedule.
- Display and access to the operating parameters via a multilingual LCD screen with 4 lines of 24 characters.

■ Remote management

CONNECT2 is equipped as standard with an RS485 serial port offering a range of remote management, monitoring and diagnostic options via the communication bus.

Several contacts are available as standard which enable the DYNACIAT^{POWER™} to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops.
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage mode, for example).
- Heating/cooling operating mode selection: this input switches from one operating mode to another.
Contact closed = heating mode.
Contact open = cooling mode.
- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in heating or cooling mode.
- Compressor load shedding: closing the contact(s) concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors.
- Water pump 1 and 2 control: these outputs control the switches for one or two water pumps.
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop.

■ Power control

In-series staged power control system on the compressors:

- 4 stages for 700V to 1600V models.
- 6 stages for 1800V and 2400V models.
- 8 stages for 2100V models.

■ Casing

Casing made from RAL 7024 and RAL 7035 painted panels.

DESCRIPTION OF THE MAIN COMPONENTS

■ BluEdge®Digital, the CIAT supervision solution

BluEdge®Digital is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.

Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

BluEdge®Digital will send data in real time to the supervision website.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can be configured to trigger a mail alert.

Parameters monitored:

- Overview
- Control panel for the controllers
- Events
- Temperature curves

Monthly and annual reports are available to analyse:

- The performance and operation of the machine
Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other, are immediately detected, and the corrective actions put in place.

Equipment

This kit can be used on both machines which are already in use (existing inventory), and on new machines which do not have sufficient space in their electrical cabinets.

- 1 transportable cabinet
- 1 wall-mounted antenna

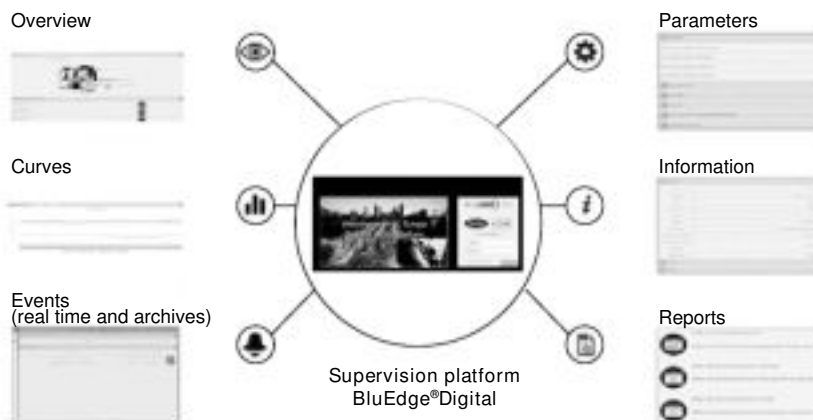


BluEdge®Digital kit contents

- 1 GPRS / 3G modem
- 1 SIM card
- 1 24 VDC power supply
- 1 power protection device
- 1 GSM antenna
- Rail mounting
- Enclosed casing to protect the equipment during transport
- Packing box for cable routing (bus, power supply, Ethernet)

Compatibility

Up to three machines per BluEdge®Digital kit



STANDARD EQUIPMENT/AVAILABLE OPTIONS

| DYNACIAT ^{POWER™} LG | 700V à 2400V |
|---|--------------|
| Low-temperature glycol/water mix (0°C to -12°C) | ● |
| Safety switch | ● |
| Control circuit transformer | ● |
| Electrical cabinet wire numbers | ● |
| RS485 communication interface | ● |
| Water flow controller | ● |
| Master/slave control of two machines | ● |
| ETHERNET gateway MODBUS | ● |
| Electronic expansion valve ⁽¹⁾ | ▲ |
| Low Noise version (compressor casing) | ▲ |
| Xtra Low Noise version (compressor casing with acoustic insulation) | ▲ |
| Compressor intake shut-off valves | ▲ |
| Soft start | ▲ |
| Electrical energy meter | ▲ |
| Water filter on evaporator and condenser | ■ |
| Phase controller (reversal, loss, asymmetry) | ■ |
| Anti-vibration mounts | ■ |
| Flanged connections | ■ |
| Flexible hydraulic couplings on evaporator and condenser | ■ |
| Relay board with dry contacts | ■ |
| LONWORKS/BACNET gateway | ■ |
| Outdoor temperature sensor | ■ |

● Supplied as standard ▲ Factory-mounted option ■ Option supplied as a kit
 (1) Standard equipment for 1100V to 2400V models

TECHNICAL SPECIFICATIONS

| DYNACIAT ^{POWER™} LG | | | 700V | 800V | 900V | 1000V | 1100V | 1200V | 1400V | 1600V | 1800V | 2100V | 2400V | |
|---|-----|---|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------------|----------------------|
| Heating | | | | | | | | | | | | | | |
| Standard unit Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kW / kW | 5,29 | 5,52 | 5,44 | 5,47 | 5,43 | 5,49 | 5,48 | 5,48 | 5,44 | 5,46 | 5,24 |
| | | η _s heat _{30/35°C} | % | 204 | 213 | 210 | 211 | 209 | 211 | 211 | 211 | 210 | 211 | 202 |
| | | P _{rated} | kW | 246 | 293 | 335 | 384 | 419 | 463 | 530 | 593 | 687 | 795 | 876 |
| Cooling | | | | | | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Net cooling capacity | kW | 203 | 242 | 278 | 320 | 348 | 382 | 439 | 495 | 574 | 651 | 703 |
| | | Net power input | kW | 49 | 56 | 64 | 71 | 79 | 86 | 97 | 108 | 125 | 145 | 165 |
| | | EER | kW / kW | 4,18 | 4,32 | 4,33 | 4,50 | 4,42 | 4,42 | 4,55 | 4,60 | 4,60 | 4,49 | 4,27 |
| Standard unit Seasonal energy efficiency** | | SEPR _{-2/-8°C} Process medium temp *** | kWh/kWh | 3,92 | 4,06 | 3,89 | 4,21 | 3,99 | 4,18 | 4,43 | 4,50 | 4,55 | 4,57 | 4,71 |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7°C} Comfort Low temp. | kW / kW | 5,51 | 5,81 | 5,8 | 5,75 | 5,72 | 5,65 | 5,61 | 5,52 | 5,62 | 5,51 | 5,15 |
| Standard unit | | Lw / Lp ⁽¹⁾ | dB(A) | 89/57 | 90/58 | 90/58 | 89/57 | 90/58 | 91/59 | 95/63 | 96/64 | 93/61 | 95/63 | 97/65 |
| Unit + Low Noise option | | Lw / Lp ⁽¹⁾ | dB(A) | 84/52 | 85/53 | 85/53 | 86/54 | 87/55 | 88/56 | 90/58 | 91/59 | 89/57 | 90/58 | 91/59 |
| Unit + Xtra Low Noise | | Lw / Lp ⁽¹⁾ | dB(A) | 79/47 | 80/48 | 80/48 | 80/48 | 81/49 | 82/50 | 85/53 | 86/54 | 85/53 | 86/54 | 87/55 |
| Refrigerating circuit | | | | | | | | | | | | | | |
| Refrigerant (GWP) | | R410 (GWP=2088) | | | | | | | | | | | | |
| Number | | 2 | | | | | | | | | | | | |
| Refrigerant circuit 1 | | kg | 13,5 | 15,5 | 16,4 | 17 | 19,7 | 21,3 | 21,5 | 23 | 31 | 33 | 34 | |
| Refrigerant circuit 2 | | kg | 14 | 15 | 16,4 | 17,2 | 19,7 | 21,3 | 21 | 22 | 31 | 34 | 34 | |
| Tonne of CO ₂ equivalent | | TCO ₂ Eq | 57,42 | 63,68 | 68,49 | 71,41 | 82,27 | 88,95 | 88,74 | 93,96 | 129,46 | 139,9 | 141,98 | |
| Compressor | | | | | | | | | | | | | | |
| Type | | Hermetic SCROLL - 2900 rpm | | | | | | | | | | | | |
| Number | | 4 | | | | | | | | | | | | |
| Start-up mode | | Direct in line in series | | | | | | | | | | | | |
| | | Number of stages | 6 | 4 | 6 | 4 | 6 | 4 | 6 | 4 | 6 | 8 | 6 | |
| Capacity control | | % | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-84-66-48-36-30-18-15-0 | 100-83-66-50-33-16-0 |
| Type of oil for R410A | | Polyolester POE 160SZ (32cP) | | | | | | | | | | | | |
| Oil capacity per circuit | | l | 6,7 + 6,7 | 6,7 + 6,7 | 6,7 + 6,7 | 6,7 + 6,7 | 6,7 + 7,2 | 6,7 + 7,2 | 6,3 + 6,3 | 6,3 + 6,3 | 3 x 6,3 | 3 x 6,3 | 3 x 6,3 | |
| Evaporator | | | | | | | | | | | | | | |
| Type/Number | | Brazed-plate heat exchanger/ 1 | | | | | | | | | | | | |
| Water capacity | | l | 20 | 23 | 26 | 29 | 32 | 37 | 50 | 57 | 64 | 77 | | |
| Hydraulic connection | | Ø | VICTAULIC DN100 | | | | VICTAULIC DN125 | | | | VICTAULIC DN150 | | | |
| Max. pressure, water end | | bar | 10 bars | | | | | | | | | | | |
| Min/max water flow rate | | m ³ /h | 22 / 70 | 26 / 81 | 29 / 92 | 33 / 105 | 35 / 113 | 38 / 124 | 44 / 137 | 51 / 151 | 61 / 150 | 68 / 150 | 74 / 150 | |

* In accordance with standard EN14511-3:2013.
 ** In accordance with standard EN14825:2016, average climate With EG 30%.

 HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m². k/W.
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
 η_s heat_{30/35°C} & SCOP_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications.
 SEER_{12/7°C} Values calculated according to EN14825:2016.
 SEPR_{-2/-8°C} Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for Process application
 (1) Lw : overall power level in accordance with standard ISO3744
 Lp : overall pressure level at 10 metres in a free field calculated using the formula Lp=LW-10logS



Eurovent certified values

TECHNICAL SPECIFICATIONS

| DYNACIAT ^{POWER™} LG | | 700V | 800V | 900V | 1000V | 1100V | 1200V | 1400V | 1600V | 1800V | 2100V | 2400V | |
|-------------------------------|-------------------|--------------------------------|--------|--------|-----------------|---------|---------|---------|-----------------|---------|---------|---------|--|
| Water condenser | | | | | | | | | | | | | |
| Type/ Number | | Brazed-plate heat exchanger/ 1 | | | | | | | | | | | |
| Water capacity | l | 23 | 26 | 29 | 32 | 37 | 40 | 55 | 61 | 73 | 77 | 77 | |
| Hydraulic connection | Ø | VICTAULIC DN100 | | | VICTAULIC DN125 | | | | VICTAULIC DN150 | | | | |
| Max. pressure, water end | bar | 10 bars | | | | | | | | | | | |
| Min/max water flow rate | m ³ /h | 19/ 64 | 22/ 74 | 25/ 84 | 28/ 95 | 31/ 103 | 33/ 112 | 38/ 129 | 43/ 143 | 52/ 150 | 59/ 150 | 66/ 163 | |
| Dimensions | | | | | | | | | | | | | |
| Length | mm | 2099 | | | | | 2499 | | | 3350 | | | |
| Width | mm | 996 | | | | | | | | | | | |
| Height | mm | 1869 | | | | | 1887 | | | 1970 | | | |
| Weight | | | | | | | | | | | | | |
| Weight (empty) | kg | 1044 | 1156 | 1189 | 1312 | 1363 | 1425 | 1613 | 1708 | 2284 | 2376 | 2418 | |
| Weight in operation | kg | 1088 | 1205 | 1246 | 1378 | 1436 | 1510 | 1713 | 1818 | 2472 | 2588 | 2637 | |
| Max. storage temperature | °C | +50°C | | | | | | | | | | | |

ELECTRICAL DATA

| DYNACIAT ^{POWER™} LG | | 700V | 800V | 900V | 1000V | 1100V | 1200V | 1400V | 1600V | 1800V | 2100V | 2400V | |
|---|----|-------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| COMPRESSOR | | | | | | | | | | | | | |
| Voltage | V | 400V - 3Ph - 50Hz (+10/- 10%) | | | | | | | | | | | |
| Maximum nominal current | A | 140 | 160 | 182 | 205 | 218 | 232 | 266 | 295 | 356 | 399 | 443 | |
| Starting current (1) | A | 316 | 334 | 391 | 414 | 480 | 494 | 586 | 615 | 607 | 720 | 763 | |
| Starting current with Soft Start option (1) | A | 230 | 248 | 287 | 310 | 352 | 366 | 429 | 458 | 483 | 562 | 605 | |
| REMOTE CONTROL AUXILIARY CIRCUIT | | | | | | | | | | | | | |
| Voltage | V | 230V - 1Ph - 50Hz (+10/- 10%) | | | | | | | | | | | |
| Maximum nominal current | A | 0,8 | | | | | 1,3 | | | | | | |
| Transformer capacity | VA | 160 | | | | | 250 | | | | | | |
| Machine protection rating | | IP 21 | | | | | | | | | | | |

(1) Starting current of largest compressor + maximum current of other compressors under full load
Cable selection nominal current = sum of maximum nominal currents in above tables

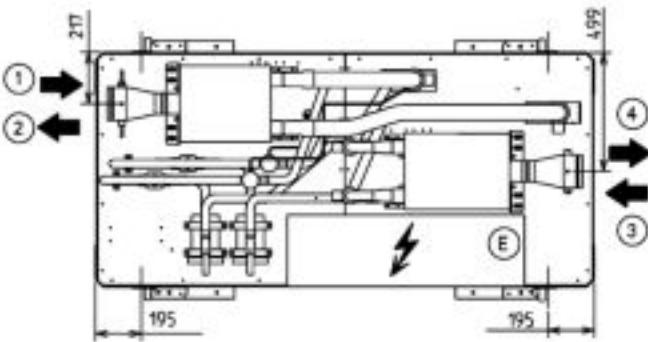
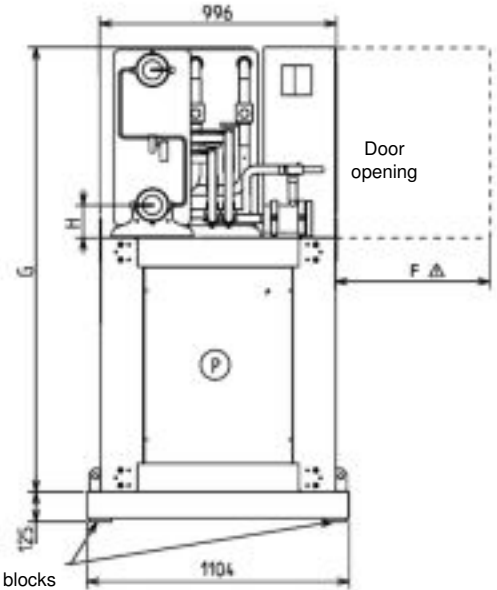
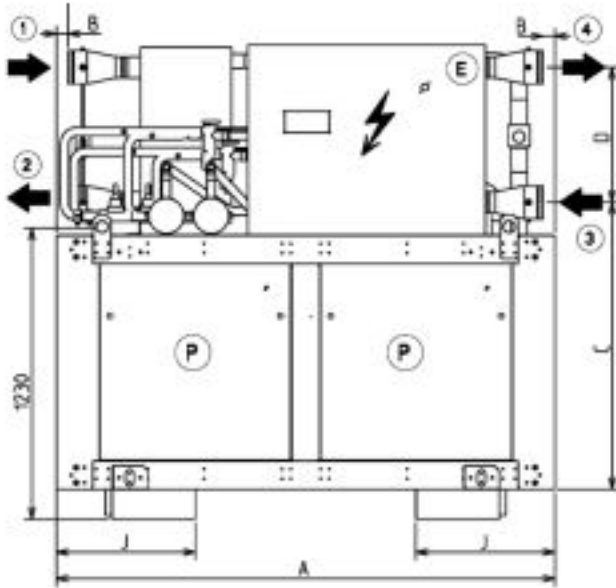


DYNACIAT POWER™

Water cooled
water chillers

DIMENSIONS

■ 700V to 1600V models

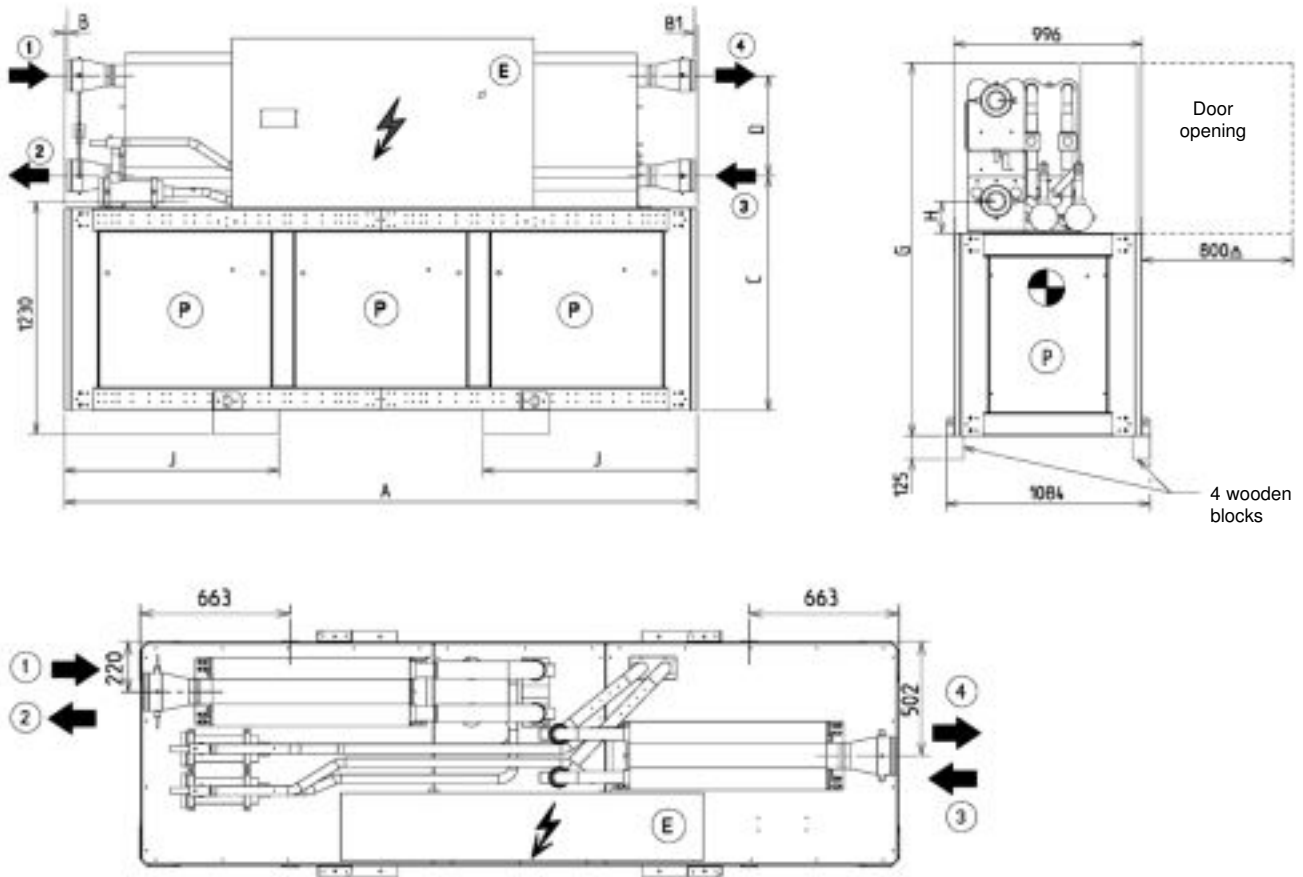


- (E)** Electrical connection on the side
- (P)** Noise insulation panels option

| Models | Dimensions (mm) | | | | | | | | Chilled water | | Hot water | | Weight (kg) | | | | | | | | | |
|--------|-----------------|------|------|-----|------|------|-----|-----|---------------------|----------|---------------------|----------|-------------|--------------|-----|-----|---------------------|--|---------------------|--|------|------|
| | A | B | C | D | F | G | H | J | Input 1 | Outlet 2 | Input 3 | Outlet 4 | empty | in operation | | | | | | | | |
| 700V | 2099 | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 | VICTAULIC DN 100 | | VICTAULIC DN 100 | | 1044 | 1088 | | | | | | | | |
| 800V | | | | | | | | | | | | | 1156 | 1205 | | | | | | | | |
| 900V | | | | | | | | | | | | | 1189 | 1246 | | | | | | | | |
| 1000V | | | | | | | | | 2499 | 60 | 1240 | 532 | 600 | 1887 | 170 | 715 | VICTAULIC DN 125 | | VICTAULIC DN 125 | | 1312 | 1378 |
| 1100V | | | | | | | | | | | | | | | | | | | | | 1363 | 1436 |
| 1200V | | | | | | | | | | | | | | | | | | | | | 1425 | 1510 |
| 1400V | 1613 | 1713 | | | | | | | | | | | | | | | | | | | | |
| 1600V | | | | | | | | | | | | | 1708 | 1818 | | | | | | | | |

DIMENSIONS

■ 1800V to 2400V models



- (E)** Electrical connection on the side
- (P)** Noise insulation panels option

| Models | Dimensions (mm) | | | | | | | | Chilled water | | Hot water | | Weight (kg) | |
|--------|-----------------|-----|----|------|-----|------|-----|------|---------------------|---------------------|-----------|----------|-------------|--------------|
| | A | B | B1 | C | D | G | H | J | Input 1 | Outlet 2 | Input 1 | Outlet 2 | empty | in operation |
| 1800V | 3350 | 159 | 63 | 1240 | 532 | 1970 | 170 | 1135 | VICTAULIC DN 150 | VICTAULIC DN 150 | | | 2284 | 2472 |
| 2100V | | 15 | 15 | | | | | | | | | | 2376 | 2588 |
| 2400V | | | | | | | | | | | | | 2418 | 2637 |

HYDROCIAT™ LW

Water chillers
Heat pump



Energy excellence

Compact and reliable

Screw compressors

Flooded shell and tubes evaporator

Self-adjusting electronic control

Touch screen control interface

Cooling capacity 273-1756 kW

Heating capacity 317-1989 kW



Cooling



Heating



Heat
recovery

HFC
R-134A



USE

The latest generation of **HYDROCIAT™ LW** water chillers and water-to-water heat pumps are the perfect solution for all heating and cooling applications in the Office, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

HYDROCIAT™ is optimised to use ozone-friendly HFC R134a refrigerant.

This range guarantees compliance with the most demanding requirements for high energy efficiency and CO₂ reduction to comply with the various applicable European directives and regulations.

When producing chilled water, these units can be connected to a drycooler or a water cooling tower.

With the heat pump option, the units can produce hot water for heating applications. They can also be used in cooling mode by reversing the cycle on the hydraulic circuits using a set of valves (hydraulic valves not supplied).

RANGE

HYDROCIAT™ LW ST series

Standard cooling or heating version

The product is optimised to meet the most demanding technical and economic requirements.

HYDROCIAT™ LW HE series

High Efficiency cooling or heating version

The product is optimised for high energy efficiency applications for which optimum SEER, SEPR and SCOP values are required, ensuring operating costs are kept to a minimum.

DESCRIPTION

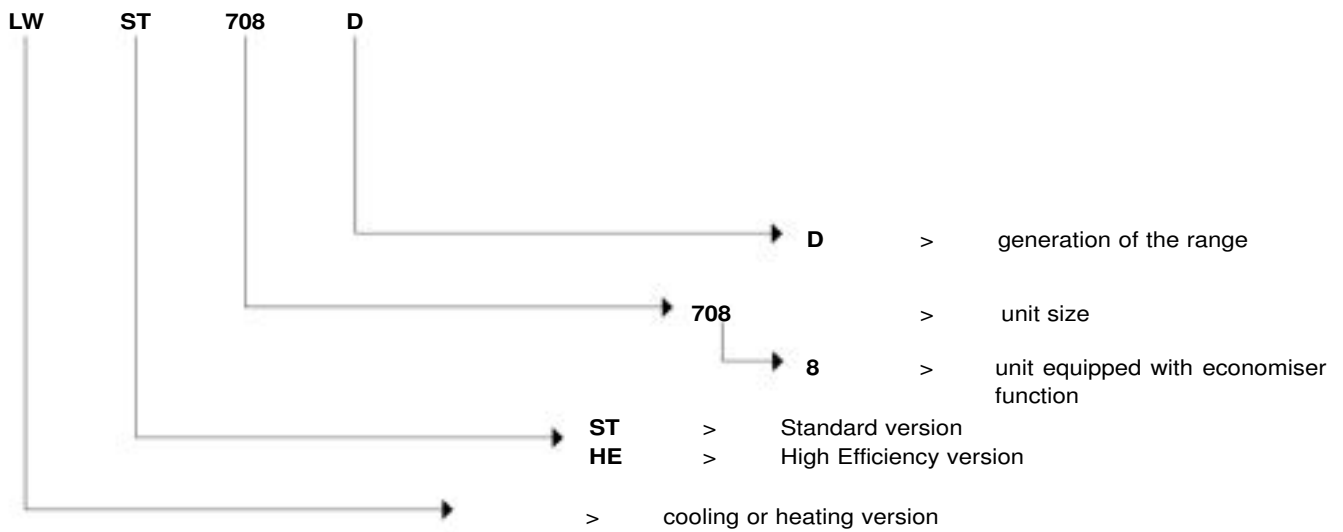
HYDROCIAT™ units are packaged machines supplied as standard with the following components:

- Twin-screw semi-hermetic compressors
- Shell and tube type chilled-water evaporator
- Shell and tube type hot water condenser
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz general power supply (+/-10%) + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for indoor installation

The entire HYDROCIAT™ range complies with the following EC directives and standards:

- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2014/30/EU
- EMC immunity and emissions EN 61800-3 'C3'
- Low Voltage Directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure Equipment Directive (PED) 2014/68/EU
- Machinery Directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2.
- Regulation (EU) 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements

DESIGNATION



CONFIGURATION

| | | | |
|---------------------|--------------------|---------------------|---------------------------|
| ST | Standard | HE | High Efficiency |
| ST LN option | Standard Low Noise | HE LN option | High Efficiency Low Noise |

DESCRIPTION OF THE COMPONENTS

■ Compressors

- Twin-screw semi-hermetic type
- 2 screws fitted on ball and roller bearings
- Continuous power control
- Built-in electric motor, cooled by intake gases
- Integral electronic protection of the motor against thermal and electrical overloads
- Monitoring of rotation direction, absence of phase, over and under voltage, and power supply failure
- Monitoring of lubrication under differential pressure
- Built-in oil filter
- Internal pressure surge valve and valve to prevent reverse rotation during shutdown phases
- Monitoring of maximum head pressure
- Silencer fitted at the discharge to reduce pulses from the discharged gas
- Star-delta start limiting the in-rush current

■ Shell and tube evaporator

- High performance glandless technology
- Copper tube bundle with internal and external grooves
- 19 mm thermal insulation
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar (21 bar as option)

■ Shell and tube condenser

- Copper tube bundle with internal and external grooves
- 19 mm thermal insulation (option)
- Built-in oil separator
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar **(21 bar as option)**

■ Economiser function (available on models designated by the figure 8)

- 1 brazed plate heat exchanger on each refrigerating circuit
- Refrigerant flow rate controlled by an electronic expansion valve
- The economiser function allows the cooling capacity to be significantly increased and provides considerable optimisation of the machine's energy efficiency

■ Refrigerant accessories

- Dehumidifier filters with rechargeable cartridges
- Hygroscopic sight glasses
- Electronic expansion valves

■ Regulation and safety instruments

- High and low pressure sensors
- Safety relief valves on refrigerating circuit
- Evaporator antifreeze protection sensor
- Chilled water and hot water control sensors
- Electronic evaporator water circulation controller

■ Electrical cabinet

- Electrical cabinet index of protection IP23
- Safety disconnect switch
- 24 V control circuit
- Remote control transformer circuit
- Protection of the power and control circuits

- Compressor motor contactor
- Connect Touch microprocessor-controlled electronic control module
- Electrical cabinet wire numbers
- Location of main components

■ Connect Touch control module

- User interface with 4.3 inch touchscreen (7-inch option)
- Intuitive, user-friendly navigation using icons
- Clear information display in 8 languages
- (F-GB-E-NL-I-S-P + Chinese)



- The electronic control module performs the following main functions:

- regulation of the chilled water temperature (at the return or at the outlet)
- regulation of the water temperature based on the outdoor temperature (water law)
- regulation for low temperature energy storage
- second setpoint management
- complete management of compressors with start-up sequence, timer and operating time balancing
- self-regulating and proactive functions with adjustment of settings on drift control
- continuous power control slide system on the compressors according to the thermal requirements
- management of compressor short cycle protection
- phase reversal protection
- management of occupied/unoccupied modes (according to the time schedule)
- equalisation of compressor operating hours
- condensing temperature limitation (option)
- diagnosis of fault and operating statuses
- management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- blackbox memory
- master/slave management of two machines with equalisation of operating hours and automatic switching
- in case of a machine fault
- weekly and hourly time schedule for the machine, including 16 periods of absence
- display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, flow rate, operation time.
- display of trend curves for the main values
- storage of maintenance manual, wiring diagram and spare parts list.

■ Unit construction

- Electrical cabinet in graphite grey (RAL 7024)
- Compressors in grey (RAL 7037)

DESCRIPTION OF THE COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

Numerous communication protocols are available: MODBUS/JBUS RTU(RS485) or TC/IP as standard, LONWORKS – BACNET IP optional, enabling integration with most CMS/BMS

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- automatic operation control: when this contact is open, the machine stops
- setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- heating/cooling operating mode selection
- power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- operational status reporting indicates that the unit is in production mode
- 0-10V signal output for external variable speed pump management

Contacts available as an option:

- setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- power limitation adjustable by 4-20 mA signal
- second power limitation level
- power indication: analogue output (0-10 V) providing an indication of the unit's load rate.
- user fault reporting enables integration of a fault in the water loop
- general fault reporting: this contact indicates that the unit has stopped completely
- alert reporting: this contact indicates the presence of a minor fault which has not caused the circuit affected to stop.
- end of storage signal: enables return to the second setpoint at the end of the storage cycle

■ Maintenance alert as standard

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.

- schedule override: closing this contact cancels the time schedule.
- drycooler management

Direct access to technical literature

- Instruction manual
- Electrical diagram
- Spare parts list



Web server integrate as standard

IP address

Remote management via web server

- Connection to RJ port
- Connection via IP address
- All the HMI functionalities available on the PC
- Simplified remote monitoring



E-mail alerts
(2 addresses)

- the scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- the compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations.

OPTIONS

| Options | Description | Advantages | LW ST/HE |
|--|--|--|------------------------------------|
| Low Brine with turbulators down to -15°C | Redesigned evaporator including turbulators to allow chilled brine solution production with low pressure drops on the entire negative application range, down to -15°C (including turbulators, extra insulation and algorithms). | Covers specific applications such as ice storage and industrial processes | Only LW ST |
| Light-brine solution, down to -3°C | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol) | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements | • |
| 90-10 Copper-Nickel condensers | - Condenser tubes 90-10 Cu/Ni. - Condenser tube sheets clad with 90-10 Cu/Ni. - Waterboxes not treated against corrosion. | Improved resistance to corrosion | • |
| IP44 electrical protection level | Control box tightness reinforced Electrical box enclosure and outside electrical component following IEC 60529 standard | Permits unit installation in more severe environments | • |
| Unit supplied in two assembled parts | The unit is equipped with flanges that allow disassembly of the unit on site | Facilitates installation in plant rooms with limited access | Only sizes: 4228/4408/4608/4628 |
| Evap. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 708-3428 |
| 230V electrical plug | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps) | Permits connection of a laptop or an electrical device during unit commissioning or servicing | • |
| Evaporator with one pass less | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides. | Easy to install, depending on site. Reduced pressure drops | • |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | • |
| Condenser with one pass less | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides. | Easy to install, depending on site. Reduced pressure drops | • |
| 21 bar evaporator | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar) | Covers applications with a high water column evaporator side (typically high buildings) | • |
| Single power connection point | Unit power connection via one main supply connection | Quick and easy installation | 2800/4628 |
| 21 bar condenser | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar) | Covers applications with a high water column condenser side (typically high buildings) | • |
| Reversed evaporator water connections | Evaporator with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Reversed condenser water connections | Condenser with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Condenser insulation | Thermal condenser insulation | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) | • |
| Service valve set | Liquid line valve (evaporator inlet) and compressor suction line valve | Allow isolation of various refrigerant circuit components for simplified service and maintenance | • |
| Lon gateway | Bi-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | • |
| Control for low cond. temperature | Output signal (0-10 V) to control the condenser water inlet valve | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | • |
| Compliance with Swiss regulations | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications | Conformance with Swiss regulations | • |
| Compliance with Morocco regulation | Specifics documents according Morocco regulation | Conformance with Morocco regulations | • |
| Dual relief valves on 3-way valve | Three-way valve upstream of dual relief valves on the evaporator and the oil separator | Valve replacement and inspection facilitated without refrigerant loss. Conforms to European standard EN378/BGVD4 | • |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible

OPTIONS

| Options | Description | Advantages | LW ST/HE |
|--|---|---|--|
| Compliance with Russian regulations | EAC certification | Conformance with Russian regulations | • |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters | • |
| High condensing temperature | Optimized compressor for operation at high condensing temperature | Increased condenser leaving water temperature up to 63°C. Allows applications with high condensing temperature (heat pumps, installations with not generously sized dry-coolers or more generally, installations with dry-coolers in hot climate). NOTE: to ensure control of the condenser leaving water temperature, this option must be fitted on the units. | Available for all LW HE Available for LW ST 708 / 858 / 1008, and for higher LW ST sizes only with heat pump application option |
| Condensing temperature limitation | Limitation of the maximum condenser leaving water temperature to 45°C | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized | • |
| Flanged evaporator water connection kit | Victaulic piping connections with flanged joints | Easy installation | • |
| Specific dry cooler control | Control box for communication with the drycooler via a bus. For OPERA drycooler need to select the cabinet with option control cabinet manage by the chiller Connect"Touch control" | Permits the use of an energy-efficient plug-and-play system | • |
| Flanged condenser water connection kit | Victaulic piping connections with flanged joints | Easy installation | • |
| Energy Management Module | Control board with additional inputs/outputs. See Contacts available in option on control description. | Extended remote control capabilities (Set-point reset by 0-20ma input, ice storage end, demand limits, boiler on/off command...) | • |
| 7" user interface | Control supplied with a 7 inch colour touch screen user interface | Enhanced ease of use. | • |
| Input contact for Refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • |
| Compliance with Australian regulations | Unit approved to Australian code | Conformance with Australian regulations | • |
| Low noise level | Evaporator sound insulation | 3 dB(A) quieter than standard unit | 1308-4608 |
| Evap. dual pumps power/control circuit | Unit equipped with an electrical power and control circuit for two pumps evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 708-3428 |
| Thermal compressor insulation | The compressor is covered with a thermal insulation layer | Prevents air humidity to condensate on the compressor surface | • |
| Cond. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump condenser side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 708-3428 |
| Anti-vibration mounts (kit) | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the buiding. Must be associate with flexible connection on water side | • |
| Free Cooling dry cooler management | Control & connections to a Free Cooling Drycooler Opera or Vextra fitted with option FC control box | Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode | • |
| Heat Pump application | Unit configured for Heat Pump application, include thermal condenser insulation | Optimisation on heating mode & minimize thermal dispersions condenser side | • |

- ALL MODELS

Refer to the selection tool to find out which options are not compatible

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | |
|--|---------|---|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 317 | 360 | 422 | 499 | 555 | 626 | 633 | 793 | 858 | 929 |
| | | COP | kW/kW | 5,96 | 5,98 | 5,93 | 5,98 | 6,04 | 5,84 | 5,81 | 6,06 | 5,96 | 5,79 |
| | HW2 | Nominal capacity | kW | 312 | 353 | 417 | 473 | 526 | 595 | 624 | 749 | 812 | 879 |
| | | COP | kW/kW | 4,51 | 4,50 | 4,55 | 4,54 | 4,56 | 4,42 | 4,46 | 4,54 | 4,48 | 4,40 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,98 | 6,02 | 5,99 | 6,45 | 6,60 | 6,58 | 6,31 | 6,16 | 6,15 | 6,13 |
| | | η _{s heat 30/35°C} | % | 231 | 233 | 231 | 250 | 256 | 255 | 245 | 238 | 238 | 237 |
| | | P _{rated} | kW | 414 | 426 | 500 | 595 | 660 | 742 | 750 | 945 | 1022 | 1095 |
| Cooling | | | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 269 | 303 | 354 | 421 | 467 | 525 | 531 | 669 | 720 | 783 |
| | | EER | kW/kW | 5,25 | 5,23 | 5,17 | 5,22 | 5,28 | 5,12 | 5,11 | 5,32 | 5,23 | 5,13 |
| | CW2 | Nominal capacity | kW | 317 | 362 | 447 | 594 | 639 | 608 | 674 | 851 | 890 | 884 |
| | | EER | kW/kW | 6,46 | 6,25 | 6,86 | 7,04 | 6,97 | 5,84 | 6,38 | 6,55 | 6,27 | 5,68 |
| Standard unit Seasonal energy efficiency** | CW1 | SEER _{12/7°C Comfort low temp.} | kWh/kWh | 6,26 | 6,33 | 6,40 | 6,85 | 7,04 | 7,12 | 6,82 | 6,64 | 6,63 | 6,82 |
| | | η _{s cool 12/7°C} | % | 247 | 250 | 253 | 271 | 279 | 282 | 270 | 263 | 262 | 270 |
| | | SEPR _{12/7°C Process high temp.} | kWh/kWh | 8,60 | 8,16 | 8,80 | 8,12 | 8,28 | 7,72 | 7,90 | 8,83 | 8,25 | 8,01 |
| Integrated Part Load Value | IPLV.SI | kW/kW | 6,791 | 6,845 | 6,850 | 6,861 | 7,165 | 7,430 | 7,110 | 7,185 | 7,168 | 7,212 | |
| Sound levels - standard unit | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | dB(A) | 95 | 95 | 95 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Sound pressure level at 1 m ⁽²⁾ | | dB(A) | 78 | 78 | 78 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| Sound levels - unit with Low Noise option | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | dB(A) | - | - | - | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sound pressure level at 1 m ⁽²⁾ | | dB(A) | - | - | - | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| Dimensions - standard unit | | | | | | | | | | | | | |
| Length | | mm | 2724 | 2724 | 2724 | 2741 | 2741 | 2741 | 2741 | 3059 | 3059 | 3059 | 3059 |
| Width | | mm | 928 | 928 | 928 | 936 | 936 | 936 | 936 | 1040 | 1040 | 1040 | 1040 |
| Height | | mm | 1567 | 1567 | 1567 | 1692 | 1692 | 1692 | 1692 | 1848 | 1848 | 1848 | 1848 |
| Operating weight ⁽³⁾ | | kg | 2017 | 2036 | 2072 | 2575 | 2575 | 2613 | 2644 | 3247 | 3266 | 3282 | 3282 |
| Compressors | | | | | | | | | | | | | |
| Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | | | | |
| Circuit A | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant - standard unit | | | | | | | | | | | | | |
| R-134a | | | | | | | | | | | | | |
| Circuit A | | kg | 84 | 80 | 78 | 92 | 92 | 92 | 92 | 145 | 135 | 125 | 125 |
| | | teqCO ₂ | 120 | 114 | 112 | 132 | 132 | 132 | 132 | 207 | 193 | 179 | 179 |

* In accordance with standard EN14511-3:2018.

** In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².kW

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².kW

η_{s heat 30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016

η_{s cool 12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR_{12/7°C} Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)

(1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values



AHRI certified values
30XW-only

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 |
|--|-----|------|------|------|------|------|------|------|------|------|------|
| Oil - standard unit | | | | | | | | | | | |
| Circuit A | I | 23.5 | 23.5 | 23.5 | 32 | 32 | 32 | 32 | 36 | 36 | 36 |
| Capacity control | | | | | | | | | | | |
| Connect Touch, electronic expansion valves (EXV) | | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 20 | 20 | 25 | 30 | 30 | 30 | 30 | 20 | 20 | 20 |
| Evaporator | | | | | | | | | | | |
| Shell and tube flooded type | | | | | | | | | | | |
| Water volume | l | 50 | 56 | 61 | 70 | 70 | 70 | 70 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | | | | | | | | | | |
| Shell and tube type | | | | | | | | | | | |
| Water volume | l | 55 | 55 | 55 | 76 | 76 | 76 | 76 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 | |
|--|-----|---|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 981 | 1185 | 1237 | 1324 | 1457 | 1557 | 1689 | 1795 | 1913 | 2001 |
| | | COP | kW/kW | 5,98 | 5,77 | 5,67 | 5,79 | 6,12 | 5,96 | 5,76 | 5,61 | 5,94 | 5,92 |
| | HW2 | Nominal capacity | kW | 958 | 1123 | 1174 | 1297 | 1375 | 1466 | 1592 | 1687 | 1867 | 1948 |
| | | COP | kW/kW | 4,60 | 4,40 | 4,33 | 4,46 | 4,63 | 4,53 | 4,41 | 4,33 | 4,61 | 4,64 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,33 | 6,43 | 6,24 | 6,30 | 6,56 | 6,33 | 6,22 | 6,11 | 6,46 | 6,50 |
| | | η _s heat _{30/35°C} | % | 245 | 249 | 242 | 244 | 254 | 245 | 241 | 236 | 251 | 252 |
| | | P _{rated} | kW | 1153 | 1411 | 1473 | 1569 | 1737 | 1856 | 2013 | 2140 | 2265 | 2371 |
| | | Cooling | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 829 | 1005 | 1049 | 1128 | 1242 | 1327 | 1438 | 1532 | 1637 | 1712 |
| | | EER | kW/kW | 5,33 | 5,19 | 5,12 | 5,25 | 5,55 | 5,45 | 5,31 | 5,24 | 5,54 | 5,55 |
| | CW2 | Nominal capacity | kW | 936 | 1341 | 1505 | 1384 | 1733 | 1894 | 1981 | 2172 | 1949 | 2066 |
| | | EER | kW/kW | 5,91 | 6,64 | 6,91 | 6,28 | 7,31 | 7,29 | 6,86 | 6,88 | 6,47 | 6,43 |
| Standard unit Seasonal energy efficiency** | CW1 | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 7,09 | 7,07 | 7,02 | 6,96 | 7,51 | 7,24 | 7,11 | 7,13 | 7,55 | 7,69 |
| | | η _s cool _{12/7°C} | % | 281 | 280 | 278 | 275 | 298 | 287 | 282 | 282 | 299 | 304 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 8,01 | 8,29 | 8,11 | 7,96 | 8,97 | 9,09 | 8,34 | 8,13 | 8,45 | 8,50 |
| | | Integrated Part Load Value | IPLV.SI | kW/kW | 7,289 | 7,478 | 7,367 | 7,435 | 7,804 | 7,725 | 7,666 | 7,504 | 8,000 |
| Sound levels - standard unit | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | dB(A) | 99 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 |
| Sound pressure level at 1 m ⁽²⁾ | | dB(A) | 82 | 84 | 84 | 84 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| Sound levels - unit with Low Noise option | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | dB(A) | 96 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Sound pressure level at 1 m ⁽²⁾ | | dB(A) | 78 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Dimensions - standard unit | | | | | | | | | | | | | |
| Length | | mm | 2780 | 4025 | 4025 | 4025 | 4730 | 4730 | 4730 | 4730 | 4790 | 4790 | |
| Width | | mm | 1042 | 1036 | 1036 | 1036 | 1156 | 1156 | 1156 | 1156 | 1902 | 1902 | |
| Height | | mm | 1898 | 1870 | 1870 | 1925 | 2051 | 2051 | 2051 | 2051 | 1515 | 1515 | |
| Operating weight ⁽³⁾ | | kg | 3492 | 5370 | 5408 | 5698 | 7066 | 7267 | 7305 | 7337 | 8681 | 8699 | |
| Compressors | | | | | | | | | | | | | |
| Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | | | | |
| Circuit A | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Circuit B | | | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Refrigerant - standard unit | | | | | | | | | | | | | |
| R-134a | | | | | | | | | | | | | |
| Circuit A | | kg | 158 | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 | |
| | | teqCO ₂ | 226 | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 | |
| Circuit B | | kg | - | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 | |
| | | teqCO ₂ | - | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 | |

* In accordance with standard EN14511-3:2018.

** In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W

η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016

η_s cool_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR_{12/7°C} Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)

(1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values


 AHRI certified values
30XW-only

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|--|-----|------|------|------|------|------|------|------|------|------|------|
| Oil - standard unit | | | | | | | | | | | |
| Circuit A | l | 36 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 | 36 |
| Circuit B | l | - | 32 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 |
| Capacity control | | | | | | | | | | | |
| Connect Touch, electronic expansion valves (EXV) | | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 20 | 15 | 15 | 15 | 15 | 10 | 10 | 10 | 10 | 10 |
| Evaporator | | | | | | | | | | | |
| Shell and tube flooded type | | | | | | | | | | | |
| Water volume | l | 98 | 182 | 182 | 205 | 301 | 301 | 301 | 301 | 354 | 354 |
| Water connections (Victaulic) | in | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | | | | | | | | | | |
| Shell and tube type | | | | | | | | | | | |
| Water volume | l | 137 | 193 | 193 | 193 | 340 | 340 | 340 | 340 | 426 | 426 |
| Water connections (Victaulic) | in | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.



HIGH EFFICIENCY UNIT TECHNICAL CHARACTERISTICS

| LW HE / LW HE + Heat pump application option | | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 | |
|--|---------|--|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 586 | 667 | 851 | 912 | 995 | 1201 | 1327 | 1522 | 1680 | 1863 | 2019 |
| | | COP | kW/kW | 6,36 | 6,30 | 6,52 | 6,29 | 6,27 | 6,35 | 6,24 | 6,29 | 6,06 | 6,38 | 6,27 |
| | HW2 | Nominal capacity | kW | 573 | 654 | 836 | 896 | 970 | 1179 | 1296 | 1489 | 1643 | 1823 | 1964 |
| | | COP | kW/kW | 4,82 | 4,78 | 4,92 | 4,74 | 4,78 | 4,85 | 4,77 | 4,82 | 4,66 | 4,84 | 4,81 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,58 | 6,59 | 6,48 | 6,27 | 6,48 | 6,72 | 6,85 | 6,75 | 6,38 | 6,73 | 6,71 |
| | | η _{s heat 30/35°C} | % | 255 | 256 | 251 | 243 | 251 | 261 | 266 | 262 | 247 | 261 | 260 |
| | | P _{Rated} | kW | 694 | 791 | 1009 | 1081 | 1180 | 1424 | 1572 | 1805 | 1993 | 2210 | 2395 |
| Cooling | | | | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 502 | 569 | 727 | 776 | 850 | 1025 | 1143 | 1308 | 1435 | 1606 | 1736 |
| | | EER | kW/kW | 5,63 | 5,57 | 5,75 | 5,55 | 5,59 | 5,67 | 5,71 | 5,74 | 5,53 | 5,80 | 5,72 |
| | CW2 | Nominal capacity | kW | 617 | 727 | 890 | 971 | 1001 | 1375 | 1425 | 1772 | 1905 | 2034 | 2105 |
| | | EER | kW/kW | 6,88 | 6,94 | 7,20 | 6,98 | 6,83 | 7,46 | 6,90 | 7,55 | 7,28 | 7,34 | 7,11 |
| Standard unit Seasonal energy efficiency** | CW1 | SEER _{12/7°C Comfort low temp.} | kWh/kWh | 7,00 | 7,12 | 7,05 | 6,82 | 7,24 | 7,34 | 7,78 | 7,69 | 7,29 | 7,79 | 7,86 |
| | | η _{s cool 12/7°C} | % | 277 | 282 | 279 | 270 | 287 | 291 | 308 | 304 | 289 | 309 | 311 |
| | | SEPR _{12/7°C Process high temp.} | kWh/kWh | 8,42 | 8,50 | 9,23 | 8,33 | 8,54 | 8,50 | 8,85 | 9,00 | 8,89 | 8,82 | 8,83 |
| Integrated Part Load Value | IPLV.SI | kW/kW | 7,391 | 7,473 | 7,556 | 7,301 | 7,538 | 7,639 | 8,053 | 8,150 | 7,485 | 7,757 | 8,089 | |
| Sound levels - standard unit | | | | | | | | | | | | | | |
| | | Sound power level ⁽¹⁾ | dB(A) | 99 | 99 | 99 | 99 | 99 | 102 | 102 | 102 | 102 | 102 | 102 |
| | | Sound pressure level at 1 m ⁽²⁾ | dB(A) | 82 | 82 | 81 | 81 | 81 | 83 | 83 | 83 | 83 | 83 | 83 |
| Sound levels - standard unit + Low noise level option | | | | | | | | | | | | | | |
| | | Sound power level ⁽¹⁾ | dB(A) | 96 | 96 | 96 | 96 | 96 | 99 | 99 | 99 | 99 | 99 | 99 |
| | | Sound pressure level at 1 m ⁽²⁾ | dB(A) | 78 | 78 | 78 | 78 | 78 | 80 | 80 | 80 | 80 | 80 | 80 |
| Dimensions - standard unit | | | | | | | | | | | | | | |
| | | Length | mm | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4832 | 4832 |
| | | Width | mm | 936 | 936 | 1069 | 1069 | 1069 | 1039 | 1039 | 1162 | 1162 | 2129 | 2129 |
| | | Height | mm | 1743 | 1743 | 1950 | 1950 | 1950 | 1997 | 1997 | 2051 | 2051 | 1562 | 1562 |
| | | Operating weight ⁽³⁾ | kg | 2981 | 3020 | 3912 | 3947 | 3965 | 6872 | 6950 | 7542 | 7752 | 10910 | 10946 |
| Compressors | | | | | | | | | | | | | | |
| Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | | | | | |
| | | Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | Circuit B | | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant - standard unit | | | | | | | | | | | | | | |
| R-134a | | | | | | | | | | | | | | |
| Circuit A | | kg | 130 | 130 | 180 | 175 | 177 | 120 | 120 | 130 | 130 | 240 | 250 | |
| | | teqCO ₂ | 186 | 186 | 257 | 250 | 253 | 172 | 172 | 186 | 186 | 343 | 358 | |
| Circuit B | | kg | - | - | - | - | - | 120 | 120 | 150 | 130 | 240 | 250 | |
| | | teqCO ₂ | - | - | - | - | - | 172 | 172 | 215 | 186 | 343 | 358 | |

* In accordance with standard EN14511-3:2018.
 ** In accordance with standard EN14825:2016, average climate
 HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW/W
 HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW/W
 CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W
 CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W
 η_{s heat 30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016
 η_{s cool 12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
 SEPR_{12/7°C} Values calculated in accordance with EN14825:2016
 IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
 (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values



AHRI certified values
30XW-only



HIGH EFFICIENCY UNIT TECHNICAL CHARACTERISTICS

| LW HE / LW HE + Heat pump application option | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|--|-----|------|------|------|------|------|------|------|------|------|------|------|
| Oil - standard unit | | | | | | | | | | | | |
| Circuit A | l | 32 | 32 | 36 | 36 | 36 | 32 | 32 | 36 | 36 | 36 | 36 |
| Circuit B | l | - | - | - | - | - | 32 | 32 | 32 | 36 | 36 | 36 |
| Capacity control | | | | | | | | | | | | |
| Connect Touch, electronic expansion valves (EXV) | | | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 30 | 30 | 20 | 20 | 20 | 15 | 15 | 15 | 10 | 10 | 10 |
| Evaporator | | | | | | | | | | | | |
| Shell and tube flooded type | | | | | | | | | | | | |
| Water volume | l | 101 | 101 | 154 | 154 | 154 | 293 | 293 | 321 | 321 | 473 | 473 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | | | | | | | | | | | |
| Shell and tube type | | | | | | | | | | | | |
| Water volume | l | 103 | 103 | 148 | 148 | 148 | 316 | 316 | 340 | 340 | 623 | 623 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

TECHNICAL CHARACTERISTICS FOR LOW TEMPERATURE UNITS STANDARD AND HIGH-EFFICIENCY LW UNITS (LOW TEMPERATURE BRINE SOLUTION)

| LW ST | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 2100 | 2300 |
|--|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Operating weight | kg | 2041 | 2063 | 2102 | 2609 | 2609 | 2647 | 2678 | 3492 | 3516 |
| Refrigerant charge ⁽¹⁾ | | | | | | | | | | |
| R-134a | | | | | | | | | | |
| Circuit A | kg | 91 | 86 | 84 | 99 | 99 | 99 | 99 | 146 | 135 |
| | teqCO ₂ | 129730 | 123552 | 120463 | 142085 | 142085 | 142085 | 142085 | 208494 | 193050 |
| Circuit B | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | teqCO ₂ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Evaporator | | | | | | | | | | |
| Single pass, multi-pipe flooded type | | | | | | | | | | |
| Water volume | l | 50 | 56 | 61 | 70 | 70 | 70 | 70 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

| LW ST | | 2308 | 2800 | 3000 | 3008 | 3400 | 4200 | 4600 | 4408 | 4608 |
|--|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Operating weight | kg | 3720 | 5467 | 5505 | 5806 | 7392 | 7781 | 7829 | 9193 | 9219 |
| Refrigerant charge ⁽¹⁾ | | | | | | | | | | |
| R-134a | | | | | | | | | | |
| Circuit A | kg | 171 | 92 | 92 | 113 | 130 | 119 | 113 | 211 | 211 |
| | teqCO ₂ | 244015 | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301158 |
| Circuit B | kg | 0 | 92 | 92 | 113 | 130 | 119 | 113 | 211 | 211 |
| | teqCO ₂ | 0 | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301730 |
| Evaporator | | | | | | | | | | |
| Single pass, multi-pipe flooded type | | | | | | | | | | |
| Water volume | l | 98 | 182 | 182 | 205 | 301 | 301 | 301 | 354 | 354 |
| Water connections (Victaulic) | in | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(1) Weights are guidelines only. The refrigerant charge is given on the unit nameplate.

ELECTRICAL DATA NOTES FOR STANDARD UNITS

| LW ST | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 | |
|--|---------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | | | | | | | | | |
| Control circuit | | | | | | | | | | | | | | | | | | | | | | |
| 24 V via the built-in transformer | | | | | | | | | | | | | | | | | | | | | | |
| Nominal start-up current⁽¹⁾ | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 233 | 233 | 303 | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 558 | 574 | 574 | 747 | 780 | 801 | 819 | 819 | 819 | 819 |
| Maximum start-up current⁽²⁾ | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 233 | 233 | 303 | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 631 | 656 | 656 | 829 | 882 | 904 | 938 | 938 | 938 | 938 |
| Cosine phi | | | | | | | | | | | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,83 | 0,85 | 0,83 | 0,87 | 0,88 | 0,89 | 0,89 | 0,88 | 0,89 | 0,90 | 0,90 | 0,88 | 0,89 | 0,89 | 0,88 | 0,88 | 0,89 | 0,9 | 0,9 | 0,9 | 0,9 |
| Maximum ⁽⁴⁾ | | 0,89 | 0,89 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,91 | 0,92 | 0,92 | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,91 | 0,92 | 0,92 | 0,92 | 0,92 |
| Total harmonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | kW | 76 | 89 | 97 | 128 | 135 | 151 | 151 | 184 | 200 | 223 | 223 | 150 | 151 | 151 | 184 | 184 | 200 | 223 | 223 | 223 | 223 |
| Circuit B | kW | - | - | - | - | - | - | - | - | - | - | - | 135 | 151 | 151 | 151 | 184 | 200 | 223 | 202 | 223 | 223 |
| Single power connection point option | kW | - | - | - | - | - | - | - | - | - | - | - | 284 | 301 | 301 | 334 | 367 | 399 | 447 | 425 | 447 | 447 |
| Nominal input current⁽³⁾ | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 84 | 96 | 113 | 136 | 144 | 162 | 162 | 193 | 214 | 232 | 232 | 162 | 162 | 162 | 193 | 193 | 214 | 232 | 232 | 232 | 232 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 144 | 162 | 162 | 162 | 193 | 214 | 232 | 214 | 232 | 232 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 306 | 324 | 324 | 355 | 386 | 427 | 464 | 446 | 464 | 464 |
| Maximum input current (Un)* | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 123 | 145 | 160 | 206 | 217 | 242 | 242 | 295 | 317 | 351 | 351 | 242 | 242 | 242 | 295 | 295 | 317 | 351 | 351 | 351 | 351 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 217 | 242 | 242 | 242 | 295 | 317 | 351 | 317 | 351 | 351 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 459 | 484 | 484 | 537 | 590 | 634 | 702 | 668 | 702 | 702 |
| Maximum input current (Un -10%)⁽⁴⁾ | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 138 | 162 | 178 | 218 | 230 | 260 | 260 | 304 | 340 | 358 | 358 | 260 | 260 | 260 | 304 | 304 | 340 | 358 | 358 | 358 | 358 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 230 | 260 | 260 | 260 | 304 | 340 | 358 | 340 | 358 | 358 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 490 | 520 | 520 | 564 | 608 | 680 | 716 | 698 | 716 | 716 |
| Maximum input power with condensing temperature limitation option* | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | kW | 67 | 79 | 87 | 114 | 118 | 133 | 134 | 173 | 183 | 205 | 205 | 133 | 133 | 133 | 173 | 173 | 183 | 207 | 207 | 207 | 207 |
| Circuit B | kW | - | - | - | - | - | - | - | - | - | - | - | 118 | 133 | 133 | 133 | 173 | 183 | 207 | 185 | 207 | 207 |
| Single power connection point option | kW | - | - | - | - | - | - | - | - | - | - | - | 251 | 265 | 265 | 305 | 346 | 365 | 414 | 391 | 414 | 414 |
| Maximum input current (Un) with condensing temperature limitation option* | | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 109 | 129 | 142 | 183 | 191 | 212 | 212 | 278 | 290 | 325 | 325 | 212 | 212 | 212 | 278 | 278 | 290 | 325 | 325 | 325 | 325 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 191 | 212 | 212 | 212 | 278 | 290 | 325 | 290 | 325 | 325 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 403 | 424 | 424 | 490 | 556 | 580 | 650 | 615 | 650 | 650 |

- (1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.
 - (2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation point with maximum unit power input.
 - (3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.
 - (4) Values obtained at operation point with maximum unit power input.
- * Values obtained in operation with maximum unit power input. Values given on the unit name plate.



HIGH EFFICIENCY UNIT ELECTRICAL DATA NOTES

| LW HE | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|--|---------|----------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | |
| Control circuit | | | | | | | | | | | | |
| 24 V via the built-in transformer | | | | | | | | | | | | |
| Nominal start-up current⁽¹⁾ | | | | | | | | | | | | |
| Circuit A | A | 414 | 414 | 587 | 587 | 587 | 414 | 414 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | 414 | 414 | 414 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | 556 | 574 | 747 | 780 | 801 | 819 |
| Maximum start-up current⁽²⁾ | | | | | | | | | | | | |
| Circuit A | A | 414 | 414 | 587 | 587 | 587 | 414 | 414 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | 414 | 414 | 414 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | 631 | 656 | 829 | 882 | 904 | 938 |
| Cosine phi | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,88 | 0,89 | 0,88 | 0,89 | 0,90 | 0,86 | 0,87 | 0,88 | 0,88 | 0,89 | 0,90 |
| Maximum ⁽⁴⁾ | | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 | 0,89 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 |
| Total harmonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | |
| Circuit A | kW | 135 | 151 | 184 | 200 | 223 | 134 | 151 | 184 | 184 | 200 | 223 |
| Circuit B | kW | - | - | - | - | - | 134 | 151 | 151 | 184 | 200 | 223 |
| Single power connection point option | kW | - | - | - | - | - | 267 | 301 | 334 | 367 | 399 | 447 |
| Nominal input current⁽³⁾ | | | | | | | | | | | | |
| Circuit A | A | 144 | 162 | 193 | 214 | 232 | 144 | 162 | 193 | 193 | 214 | 232 |
| Circuit B | A | - | - | - | - | - | 144 | 162 | 162 | 193 | 214 | 232 |
| Single power connection point option | A | - | - | - | - | - | 288 | 324 | 355 | 386 | 427 | 464 |
| Maximum input current (Un)* | | | | | | | | | | | | |
| Circuit A | A | 217 | 242 | 295 | 317 | 351 | 217 | 242 | 295 | 295 | 317 | 351 |
| Circuit B | A | - | - | - | - | - | 217 | 242 | 242 | 295 | 317 | 351 |
| Single power connection point option | A | - | - | - | - | - | 434 | 484 | 537 | 590 | 634 | 702 |
| Maximum input current (Un -10%)⁽⁴⁾ | | | | | | | | | | | | |
| Circuit A | A | 230 | 260 | 304 | 340 | 358 | 230 | 260 | 304 | 304 | 340 | 358 |
| Circuit B | A | - | - | - | - | - | 230 | 260 | 260 | 304 | 340 | 358 |
| Single power connection point option | A | - | - | - | - | - | 460 | 520 | 564 | 608 | 680 | 716 |
| Maximum input power with condensing temperature limitation option* | | | | | | | | | | | | |
| Circuit A | kW | 118 | 133 | 173 | 183 | 207 | 118 | 133 | 173 | 173 | 183 | 207 |
| Circuit B | kW | - | - | - | - | - | 118 | 133 | 133 | 173 | 183 | 207 |
| Single power connection point option | kW | - | - | - | - | - | 235 | 265 | 305 | 346 | 365 | 414 |
| Maximum input current (Un) with condensing temperature limitation option* | | | | | | | | | | | | |
| Circuit A | A | 191 | 212 | 278 | 290 | 325 | 191 | 212 | 278 | 278 | 290 | 325 |
| Circuit B | A | - | - | - | - | - | 191 | 212 | 212 | 278 | 290 | 325 |
| Single power connection point option | A | - | - | - | - | - | 382 | 424 | 490 | 556 | 580 | 650 |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

* Values obtained in operation with maximum unit power input. Values given on the unit name plate.

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | |
|---|----------------|---|---------|-------------|-------------|-------------|-------|-------|-------|-------|-------|-------|------|
| Heating | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | HW1 | Nominal capacity | kW | 328 | 366 | 413 | 502 | 536 | 597 | 618 | 756 | 845 | 869 |
| | | COOP | kW/kW | 5,49 | 5,48 | 5,44 | 5,11 | 5,41 | 5,27 | 5,41 | 5,31 | 5,37 | 5,17 |
| | HW2 | Nominal heating capacity | kW | 319 | 356 | 402 | 470 | 501 | 559 | 599 | 706 | 789 | 812 |
| | | COOP | kW/kW | 4,54 | 4,51 | 4,47 | 4,21 | 4,45 | 4,36 | 4,48 | 4,39 | 4,44 | 4,31 |
| | HW3 | Nominal capacity | kW | 310 | 347 | 391 | 440 | 469 | 523 | 582 | 659 | 738 | 760 |
| | | COOP | kW/kW | 3,80 | 3,78 | 3,75 | 3,47 | 3,67 | 3,61 | 3,76 | 3,62 | 3,68 | 3,57 |
| Unit with high condensing option Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,77 | 5,94 | 5,86 | 5,54 | 5,77 | 5,75 | 5,72 | 5,55 | 5,79 | 5,01 |
| | | η _s heat _{30/35°C} | % | 223 | 230 | 226 | 214 | 223 | 222 | 221 | 214 | 223 | 193 |
| | HW3 | SCOP _{47/55°C} | kWh/kWh | 4,58 | 4,63 | 4,56 | 4,20 | 4,42 | 4,45 | 4,50 | 4,26 | 4,45 | 3,86 |
| | | η _s heat _{47/55°C} | % | 175 | 177 | 175 | 160 | 169 | 170 | 172 | 163 | 170 | 146 |
| | | Rated | kW | 411 | 415 | 467 | 535 | 571 | 637 | 697 | 803 | 898 | 926 |
| | Cooling | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | CW1 | Nominal capacity | kW | 278 | 309 | 348 | NA | NA | NA | NA | NA | NA | NA |
| | | EER | kW/kW | 4,83 | 4,80 | 4,76 | NA | NA | NA | NA | NA | NA | NA |
| Unit with high condensing option Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 6,19 | 6,29 | 6,22 | NA | NA | NA | NA | NA | NA | NA |
| | | η _s cool _{12/7°C} | % | 245 | 249 | 246 | NA | NA | NA | NA | NA | NA | NA |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 6,67 | 6,72 | 6,57 | NA | NA | NA | NA | NA | NA | NA |
| Integrated Part Load Value | IPLV.SI | kW/kW | 6,364 | 6,527 | 6,531 | 5,928 | 6,176 | 6,287 | 6,185 | 5,931 | 6,433 | 5,575 | |
| Sound levels - standard unit | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | dB(A) | 95 | 95 | 95 | 99 | 99 | 99 | 99 | 102 | 102 | 102 | |
| Sound pressure level at 1 m ⁽²⁾ | | dB(A) | 78 | 78 | 78 | 82 | 82 | 82 | 82 | 84 | 84 | 84 | |
| Sound levels - standard unit + low noise level option | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | dB(A) | - | - | - | 96 | 96 | 96 | 96 | 100 | 100 | 100 | |
| Sound pressure level at 1 m ⁽²⁾ | | dB(A) | - | - | - | 78 | 78 | 78 | 78 | 82 | 82 | 82 | |
| Dimensions | | | | | | | | | | | | | |
| Length | | mm | 2724 | 2724 | 2724 | 2741 | 2741 | 2741 | 2741 | 3059 | 3059 | 3059 | |
| Width | | mm | 928 | 928 | 928 | 936 | 936 | 936 | 936 | 1090 | 1090 | 1090 | |
| Height | | mm | 1567 | 1567 | 1567 | 1692 | 1692 | 1692 | 1692 | 1858 | 1858 | 1858 | |
| Operating weight ⁽³⁾ | | kg | 2017 | 2036 | 2072 | 2575 | 2575 | 2613 | 2644 | 3407 | 3438 | 3462 | |
| Compressors | | | | | | | | | | | | | |
| Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | | | | |
| Circuit A | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Refrigerant⁽³⁾ | | | | | | | | | | | | | |
| R-134a | | | | | | | | | | | | | |
| Circuit A | | kg | 84 | 80 | 78 | 92 | 92 | 92 | 92 | 145 | 135 | 125 | |
| | | teqCO ₂ | 120 | 114 | 112 | 132 | 132 | 132 | 132 | 207 | 193 | 179 | |

* In accordance with standard EN14511-3:2018.
 ** In accordance with standard EN14825:2016, average climate
 HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². k/W
 HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². k/W
 HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m². k/W
 CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W
 η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016
 η_s heat_{47/55°C} & SCOP_{47/55°C} Values calculated in accordance with EN14825:2016
 η_s cool_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
 SEPR_{12/7°C} Values calculated in accordance with EN14825:2016
 IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
 NA Non Authorized for the specific application for CEE market
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
 (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values



AHRI certified values
30XW-only

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | |
|--|-----|------|------|------|------|------|------|------|------|------|------|
| Oil | | | | | | | | | | | |
| Circuit A | I | 23,5 | 23,5 | 23,5 | 32 | 32 | 32 | 32 | 36 | 36 | 36 |
| Capacity control | | | | | | | | | | | |
| Connect Touch, electronic expansion valves (EXV) | | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 25 | 25 | 25 |
| Evaporator | | | | | | | | | | | |
| Shell and tube flooded type | | | | | | | | | | | |
| Net water volume | l | 50 | 56 | 61 | 70 | 70 | 70 | 70 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | | | | | | | | | | |
| Shell and tube type | | | | | | | | | | | |
| Net water volume | l | 55 | 55 | 55 | 76 | 76 | 76 | 76 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | | | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|---|-----|---|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | HW1 | Nominal capacity | kW | 963 | 1163 | 1228 | 1338 | 1432 | 1551 | 1671 | 1776 | 1928 | 1991 |
| | | COP | kW/kW | 5,36 | 5,37 | 5,28 | 5,38 | 5,56 | 5,32 | 5,23 | 5,12 | 5,34 | 5,27 |
| | HW2 | Nominal heating capacity | kW | 939 | 1085 | 1146 | 1290 | 1329 | 1445 | 1558 | 1649 | 1873 | 1936 |
| | | COP | kW/kW | 4,46 | 4,46 | 4,40 | 4,48 | 4,63 | 4,45 | 4,38 | 4,34 | 4,50 | 4,46 |
| | HW3 | Nominal capacity | kW | 915 | 1012 | 1068 | 1249 | 1244 | 1345 | 1452 | 1543 | 1821 | 1882 |
| | | COP | kW/kW | 3,73 | 3,71 | 3,66 | 3,77 | 3,83 | 3,68 | 3,64 | 3,63 | 3,81 | 3,77 |
| Unit with high condensing option Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,66 | 5,86 | 5,86 | 5,78 | 6,09 | 5,69 | 5,79 | 5,43 | 5,93 | 5,92 |
| | | η _s heat _{30/35°C} | % | 218 | 226 | 226 | 223 | 236 | 220 | 224 | 209 | 229 | 229 |
| | | SCOP _{47/55°C} | kWh/kWh | 4,47 | 4,73 | 4,73 | 4,61 | 4,68 | 4,38 | 4,45 | 4,35 | 4,74 | 4,76 |
| | HW3 | η _s heat _{47/55°C} | % | 171 | 181 | 181 | 176 | 179 | 167 | 170 | 166 | 182 | 182 |
| | | P _{rated} | kW | 1094 | 1234 | 1303 | 1497 | 1518 | 1641 | 1770 | 1882 | 2179 | 2253 |
| | | | | | | | | | | | | | |
| Cooling | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | CW1 | Nominal capacity | kW | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | | EER | kW/kW | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Unit with high condensing option Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | | η _s cool _{12/7°C} | % | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Integrated Part Load Value | | IPLV.SI | kW/kW | 6,351 | 6,572 | 6,595 | 6,522 | 6,873 | 6,211 | 6,615 | 6,366 | 6,939 | 7,136 |
| Sound levels - standard unit | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 102 | 102 | 102 | 102 | 105 | 105 | 105 | 105 | 105 | 105 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 84 | 84 | 84 | 84 | 86 | 86 | 86 | 86 | 86 | 86 |
| Sound levels - standard unit + low noise level option | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 100 | 99 | 99 | 99 | 103 | 103 | 103 | 103 | 103 | 103 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 82 | 80 | 80 | 80 | 84 | 84 | 84 | 84 | 84 | 84 |
| Dimensions | | | | | | | | | | | | | |
| Length | | | mm | 2780 | 4025 | 4025 | 4025 | 4730 | 4730 | 4730 | 4730 | 4790 | 4790 |
| Width | | | mm | 1090 | 1036 | 1036 | 1036 | 1201 | 1201 | 1201 | 1201 | 1947 | 1947 |
| Height | | | mm | 1920 | 1870 | 1870 | 1925 | 2071 | 2071 | 2071 | 2071 | 1535 | 1535 |
| Operating weight ⁽³⁾ | | | kg | 3672 | 5370 | 5408 | 5698 | 7233 | 7554 | 7622 | 7670 | 9006 | 9032 |
| Compressors | | | | | | | | | | | | | |
| Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | | | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | | | | | | | | | | | | |
| R-134a | | | | | | | | | | | | | |
| Circuit A | | kg | | 158 | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 |
| | | teqCO ₂ | | 226 | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 |
| Circuit B | | kg | | - | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 |
| | | teqCO ₂ | | - | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 |

* In accordance with standard EN14511-3:2018.
 ** In accordance with standard EN14825:2016, average climate
 HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
 HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW
 HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m². kW
 CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².kW
 η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016
 η_s heat_{47/55°C} & SCOP_{47/55°C} Values calculated in accordance with EN14825:2016
 IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
 (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values



AHRI certified values
30XW-only

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|--|-----|------|------|------|------|------|------|------|------|------|------|
| Oil | | | | | | | | | | | |
| Circuit A | l | 36 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 | 36 |
| Circuit B | l | - | 32 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 |
| Capacity control | | | | | | | | | | | |
| Connect'Touch, electronic expansion valves (EXV) | | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 25 | 15 | 15 | 15 | 15 | 10 | 10 | 10 | 10 | 10 |
| Evaporator | | | | | | | | | | | |
| Multi-pipe flooded type | | | | | | | | | | | |
| Net water volume | l | 98 | 182 | 182 | 205 | 301 | 301 | 301 | 301 | 354 | 354 |
| Water connections (Victaulic) | in | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | | | | | | | | | | |
| Multi-pipe flooded type | | | | | | | | | | | |
| Net water volume | l | 137 | 193 | 193 | 193 | 340 | 340 | 340 | 340 | 426 | 426 |
| Water connections (Victaulic) | in | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

TECHNICAL CHARACTERISTICS

HIGH EFFICIENCY UNITS FOR HIGH CONDENSING TEMPERATURES



| LW HE + high condensing option | | | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|---|--|-----------------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | HW1 | Nominal capacity | kW | 600 | 670 | 840 | 910 | 975 | 1188 | 1375 | 1514 | 1698 | 1890 | 1983 |
| | | COP | kW/kW | 5,89 | 5,90 | 5,72 | 5,58 | 5,72 | 5,61 | 5,77 | 5,55 | 5,40 | 5,78 | 5,73 |
| | HW2 | Nominal heating capacity | kW | 580 | 646 | 815 | 885 | 950 | 1147 | 1322 | 1465 | 1648 | 1834 | 1929 |
| | | COP | kW/kW | 4,85 | 4,86 | 4,72 | 4,61 | 4,75 | 4,65 | 4,80 | 4,62 | 4,52 | 4,80 | 4,79 |
| | HW3 | Nominal capacity | kW | 561 | 625 | 790 | 862 | 925 | 1110 | 1275 | 1419 | 1598 | 1783 | 1874 |
| | | COP | kW/kW | 4,02 | 4,04 | 3,92 | 3,83 | 3,97 | 3,86 | 4,01 | 3,88 | 3,81 | 4,00 | 4,00 |
| Unit with high condensing option Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,15 | 6,22 | 6,40 | 6,11 | 5,99 | 5,97 | 6,24 | 6,18 | 6,18 | 6,50 | 6,21 |
| | | η _{s heat 30/35°C} | % | 238 | 241 | 248 | 236 | 231 | 231 | 242 | 239 | 239 | 252 | 240 |
| | | SCOP _{47/55°C} | kWh/kWh | 4,78 | 4,86 | 4,97 | 4,76 | 4,73 | 4,63 | 4,88 | 4,88 | 4,94 | 5,07 | 4,92 |
| | HW3 | η _{s heat 47/55°C} | % | 183 | 186 | 191 | 182 | 181 | 177 | 187 | 187 | 189 | 195 | 189 |
| | | P _{rated} | kW | 673 | 749 | 947 | 1030 | 1106 | 1330 | 1531 | 1701 | 1915 | 2133 | 2243 |
| | Cooling | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | CW1 | Nominal cooling capacity | kW | 510 | 569 | 715 | 770 | 833 | 1011 | 1178 | 1287 | 1437 | 1613 | 1706 |
| | | EER | kW/kW | 5,14 | 5,17 | 5,02 | 4,88 | 5,09 | 4,98 | 5,23 | 4,96 | 4,84 | 5,15 | 5,21 |
| Unit with high condensing option Seasonal energy efficiency** | SEER_{12/7°C} Comfort low temp. | | kWh/kWh | 6,53 | 6,68 | 6,81 | 6,56 | 6,45 | 6,51 | 6,95 | 6,76 | 6,66 | 7,13 | 6,90 |
| | η _{s cool 12/7°C} | | % | 258 | 264 | 269 | 259 | 255 | 258 | 275 | 267 | 264 | 282 | 273 |
| | SEPR _{12/7°C} Process high temp. | | kWh/kWh | 6,90 | 6,93 | 7,23 | 6,68 | 6,38 | 6,71 | 6,97 | 6,88 | 7,03 | 7,15 | 6,63 |
| Integrated Part Load Value | | IPLV.SI | kW/kW | 6,612 | 6,804 | 7,029 | 6,703 | 6,782 | 6,505 | 6,997 | 6,946 | 7,131 | 7,302 | 7,308 |
| Sound levels - standard unit | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 99 | 99 | 102 | 102 | 102 | 102 | 102 | 105 | 105 | 105 | 105 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 82 | 82 | 84 | 84 | 84 | 83 | 83 | 86 | 86 | 86 | 86 |
| Sound levels - standard unit + low noise level option | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 96 | 96 | 100 | 100 | 100 | 99 | 99 | 103 | 103 | 103 | 103 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 78 | 78 | 82 | 82 | 82 | 80 | 80 | 84 | 84 | 84 | 84 |
| Dimensions | | | | | | | | | | | | | | |
| Length | | | mm | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4832 | 4832 |
| Width | | | mm | 936 | 936 | 1105 | 1105 | 1105 | 1039 | 1039 | 1202 | 1202 | 2174 | 2174 |
| Height | | | mm | 1743 | 1743 | 1970 | 1970 | 1970 | 1997 | 1997 | 2071 | 2071 | 1585 | 1585 |
| Operating weight⁽³⁾ | | | kg | 2981 | 3020 | 4072 | 4117 | 4145 | 6872 | 6950 | 7721 | 8059 | 11225 | 11279 |
| Compressors | | | | | | | | | | | | | | |
| Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | | | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |

* In accordance with standard EN14511-3:2018.

** In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m². kW

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².kW

η_{s heat 30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2016

η_{s heat 47/55°C} & SCOP_{47/55°C} Values calculated in accordance with EN14825:2016

η_{s cool 12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR_{12/7°C} Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values



AHRI certified values
30XW-only

TECHNICAL CHARACTERISTICS

HIGH EFFICIENCY UNITS FOR HIGH CONDENSING TEMPERATURES



| LW HE + high condensing option | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|------------------------------------|--------------------|--|------|------|------|------|------|------|------|------|------|------|
| Refrigerant⁽³⁾ | | R-134a | | | | | | | | | | |
| Circuit A | kg | 130 | 130 | 180 | 175 | 177 | 120 | 120 | 130 | 130 | 240 | 250 |
| | teqCO ₂ | 186 | 186 | 257 | 250 | 253 | 172 | 172 | 186 | 186 | 343 | 358 |
| Circuit B | kg | - | - | - | - | - | 120 | 120 | 150 | 130 | 240 | 250 |
| | teqCO ₂ | - | - | - | - | - | 172 | 172 | 215 | 186 | 343 | 358 |
| Oil | | | | | | | | | | | | |
| Circuit A | l | 32 | 32 | 36 | 36 | 36 | 32 | 32 | 36 | 36 | 36 | 36 |
| Capacity control | | Connect'Touch, electronic expansion valves (EXV) | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 30 | 30 | 20 | 20 | 20 | 15 | 15 | 15 | 10 | 10 | 10 |
| Evaporator | | Multi-pipe flooded type | | | | | | | | | | |
| Net water volume | l | 101 | 101 | 154 | 154 | 154 | 293 | 293 | 321 | 321 | 473 | 473 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Multi-pipe flooded type | | | | | | | | | | |
| Net water volume | l | 103 | 103 | 148 | 148 | 148 | 316 | 316 | 340 | 340 | 623 | 623 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 10 | 10 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

ELECTRICAL DATA NOTES

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|--|---------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | | | | | | | | |
| Control circuit | | | | | | | | | | | | | | | | | | | | | |
| 24 V via the built-in transformer | | | | | | | | | | | | | | | | | | | | | |
| Nominal start-up current⁽¹⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 303 | 388 | 388 | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 757 | 757 | 757 | 943 | 965 | 986 | 1004 | 1004 | 1004 |
| Maximum start-up current⁽²⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 303 | 388 | 388 | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 887 | 887 | 887 | 1072 | 1172 | 1202 | 1232 | 1004 | 1232 |
| Cosine phi | | | | | | | | | | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,79 | 0,78 | 0,79 | 0,83 | 0,85 | 0,85 | 0,85 | 0,84 | 0,86 | 0,87 | 0,87 | 0,85 | 0,85 | 0,85 | 0,86 | 0,85 | 0,86 | 0,87 | 0,86 | 0,87 |
| Maximum ⁽⁴⁾ | | 0,88 | 0,87 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | kW | 97 | 111 | 122 | 156 | 173 | 191 | 191 | 249 | 268 | 286 | 286 | 191 | 191 | 191 | 252 | 252 | 271 | 290 | 290 | 290 |
| Circuit B | kW | - | - | - | - | - | - | - | - | - | - | - | 173 | 191 | 191 | 191 | 252 | 271 | 290 | 271 | 290 |
| Single power connection point option | kW | - | - | - | - | - | - | - | - | - | - | - | 364 | 382 | 382 | 443 | 504 | 542 | 580 | 562 | 580 |
| Nominal input current⁽³⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 95 | 109 | 125 | 150 | 162 | 171 | 171 | 193 | 214 | 232 | 232 | 171 | 171 | 171 | 210 | 210 | 230 | 250 | 250 | 250 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 162 | 171 | 171 | 171 | 210 | 230 | 250 | 230 | 250 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 333 | 342 | 342 | 381 | 420 | 460 | 500 | 480 | 500 |
| Maximum input current (Un)* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 160 | 185 | 200 | 250 | 275 | 300 | 300 | 400 | 430 | 460 | 460 | 300 | 300 | 300 | 400 | 400 | 430 | 460 | 460 | 460 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 275 | 300 | 300 | 300 | 400 | 430 | 460 | 430 | 460 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 575 | 600 | 600 | 700 | 800 | 860 | 920 | 890 | 920 |
| Maximum input current (Un -10%)⁽⁴⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 176 | 206 | 224 | 270 | 300 | 330 | 330 | 419 | 455 | 476 | 476 | 330 | 330 | 330 | 419 | 419 | 455 | 476 | 476 | 476 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 300 | 330 | 330 | 330 | 419 | 455 | 476 | 455 | 476 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 630 | 660 | 660 | 749 | 838 | 910 | 952 | 931 | 952 |

- (1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.
- (2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.
- (3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.
- (4) Values obtained at operation with maximum unit power input.
- * Values obtained in operation with maximum unit power input. Values given on the unit name plate.

ELECTRICAL DATA NOTES

HIGH EFFICIENCY UNITS FOR HIGH CONDENSING TEMPERATURES



| LW HE | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|--|---------|----------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | |
| Control circuit | | | | | | | | | | | | |
| 24 V via the built-in transformer | | | | | | | | | | | | |
| Nominal start-up current⁽¹⁾ | | | | | | | | | | | | |
| Circuit A | A | 587 | 587 | 772 | 772 | 772 | 587 | 587 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | 587 | 587 | 587 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | 749 | 757 | 943 | 965 | 986 | 1004 |
| Maximum start-up current⁽²⁾ | | | | | | | | | | | | |
| Circuit A | A | 587 | 587 | 772 | 772 | 772 | 587 | 587 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | 587 | 587 | 587 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | 862 | 887 | 1072 | 1172 | 1202 | 1232 |
| Cosine phi | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,88 | 0,88 | 0,84 | 0,86 | 0,87 | 0,87 | 0,88 | 0,86 | 0,85 | 0,86 | 0,87 |
| Maximum ⁽⁴⁾ | | 0,91 | 0,92 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | |
| Circuit A | kW | 173 | 191 | 252 | 271 | 290 | 173 | 191 | 252 | 252 | 271 | 290 |
| Circuit B | kW | - | - | - | - | - | 173 | 191 | 191 | 252 | 271 | 290 |
| Single power connection point option | kW | - | - | - | - | - | 346 | 382 | 443 | 504 | 542 | 580 |
| Nominal input current⁽³⁾ | | | | | | | | | | | | |
| Circuit A | A | 162 | 171 | 210 | 230 | 250 | 162 | 171 | 210 | 210 | 230 | 250 |
| Circuit B | A | - | - | - | - | - | 162 | 171 | 171 | 210 | 230 | 250 |
| Single power connection point option | A | - | - | - | - | - | 324 | 342 | 381 | 420 | 460 | 500 |
| Maximum input current (Un)* | | | | | | | | | | | | |
| Circuit A | A | 275 | 300 | 400 | 430 | 460 | 275 | 300 | 400 | 400 | 430 | 460 |
| Circuit B | A | - | - | - | - | - | 275 | 300 | 300 | 400 | 430 | 460 |
| Single power connection point option | A | - | - | - | - | - | 550 | 600 | 700 | 800 | 860 | 920 |
| Maximum input current (Un -10%)⁽⁴⁾ | | | | | | | | | | | | |
| Circuit A | A | 300 | 330 | 419 | 455 | 476 | 300 | 330 | 419 | 419 | 455 | 476 |
| Circuit B | A | - | - | - | - | - | 300 | 330 | 330 | 419 | 455 | 476 |
| Single power connection point option | A | - | - | - | - | - | 600 | 660 | 749 | 838 | 910 | 952 |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

* Values obtained in operation with maximum unit power input. Values given on the unit name plate.

ELECTRICAL DATA NOTES

■ Standard and high efficiency units

Notes, electrical data and operating conditions HYDROCIAT™ LW

- As standard:
LW 708 to 2328 units have a single power connection point located immediately upstream of the main disconnect switch.
HYDROCIAT™ LW 2800 to 4628 units have two connection points located immediately upstream of the main disconnect switches.
- The control box includes the following standard features:
 - one main disconnect switch per circuit⁽¹⁾,
 - Starter and motor protection devices for each compressor
 - anti-short cycle protection devices⁽¹⁾,
 - Control devices
- Field connections:
All connections to the system and the electrical installations must be in full accordance with all applicable codes.
- The CIAT LW units are designed and built to ensure conformance with local codes. The recommendations of European standard EN 60204-1 (corresponds to IEC 60204-1) (machine safety - electrical machine components - part 1: general regulations) are specifically taken into account, when designing the electrical equipment.
- The absence of power supply disconnect switch(es) and short-cycle protection devices in option : Non disconnect switch, but short circuit protection, is an important factor that has to be taken into consideration at the installation site.
Units equipped with one of these two options are supplied with a declaration of incorporation, as required by the machinery directive.

Notes:

- **Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation directives. Conformance with EN 60204-1 is the best means of ensuring compliance with the Machines Directive.**
- **Annex B of EN 60204 1 describes the electrical characteristics used for the operation of the machines.**

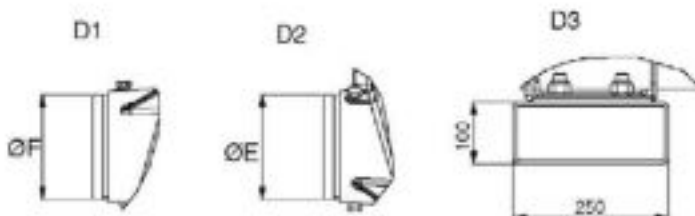
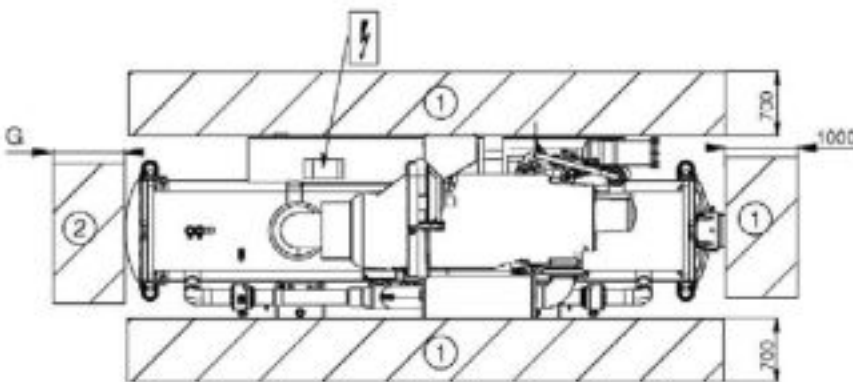
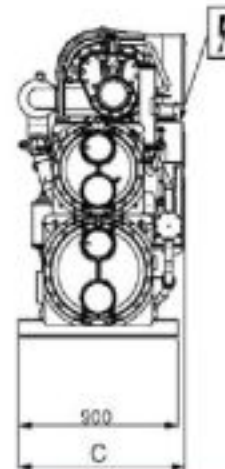
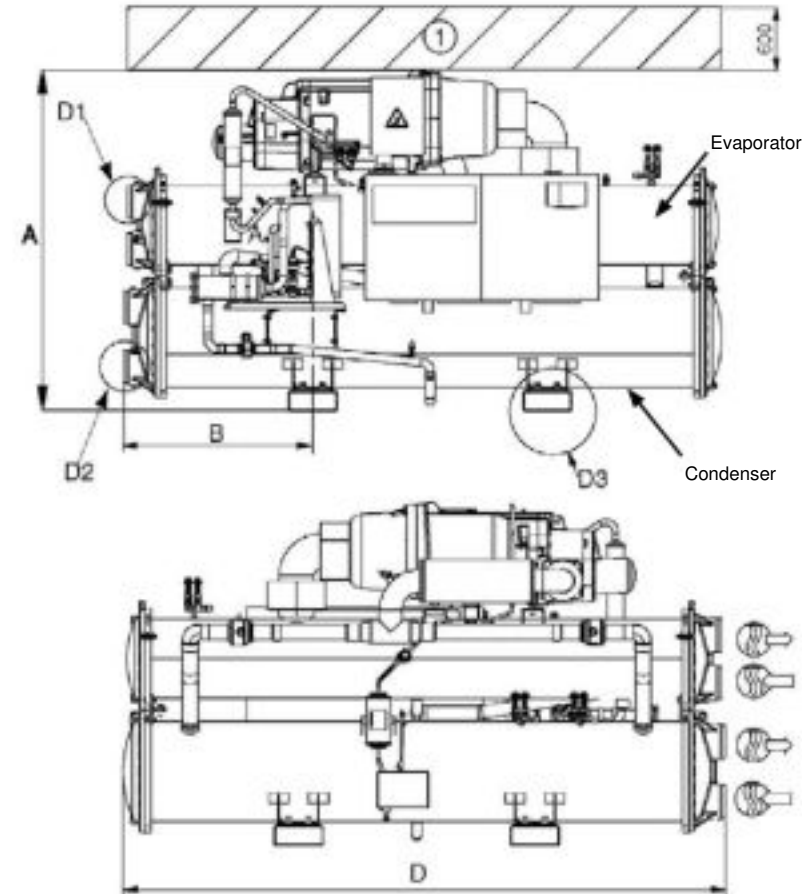
1. The operating environment for the HYDROCIAT™ LW units is specified below:
 - Environment⁽²⁾: Environment as classified in EN 60721 (corresponds to IEC 60721):
 - indoor installation
 - ambient temperature range: minimum temperature +5°C to +42°C, class AA4
 - altitude: lower than or equal to 2000 m
 - presence of water: class AD2 (possibility of water droplets)
 - presence of hard solids, class 4S2 (no significant dust present)
 - presence of corrosive and polluting substances, class 4C2 (negligible)
2. Power supply frequency variation: ± 2 Hz.
3. The neutral (N) line must not be connected directly to the unit (if necessary use a transformer).
4. Overcurrent protection of the power supply conductors is not provided with the unit.
5. The factory installed disconnect switch(es)/circuit breaker(s) is (are) of a type suitable for power interruption in accordance with EN 60947-3 (corresponds to IEC 60947-3).
6. The units are designed for connection to TN networks (IEC 60364). For IT networks the earth connection must not be at the network earth. Provide a local earth, consult competent local organisations to complete the electrical installation.

NOTE: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local CIAT representative.

- (1) Not provided for units equipped with no disconnect switch but short circuit protection option.
- (2) The required protection level for this class is IP21B or 1PX1B (according to reference document IEC 60529). All HYDROCIAT™ LW units fulfil this protection condition. In general the casings fulfil class IP23 or IPX3B.

DIMENSIONS

- LW ST - 708-2308
- LW HE - 1328-2328



| Units sizes | Dimensions in mm | | | | | | |
|--|------------------|------|------|------|-------|-------|------|
| | A | B | C | D | E | F | G |
| LW ST standard units | | | | | | | |
| 708 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 858 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1008 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1300 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1302 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1500 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1508 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1900 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 2100 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 2300 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 2308 | 1898 | 828 | 1044 | 2780 | 219,1 | 168,3 | 2600 |
| LW HE high efficiency units | | | | | | | |
| 1328 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1528 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1928 | 1950 | 1083 | 1065 | 3290 | 219,1 | 219,1 | 3100 |
| 2128 | 1950 | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |
| 2328 | 1950 | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |
| LW ST with high condensing option | | | | | | | |
| 708 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 858 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1008 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1300 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1302 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1500 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1508 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1900 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 2100 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 2300 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 2308 | 1920 | 828 | 1090 | 2780 | 168,3 | 219,1 | 2600 |
| LW HE with high condensing option | | | | | | | |
| 1328 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1528 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1928 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 2128 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 2328 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |

Key:

All dimensions are in mm.

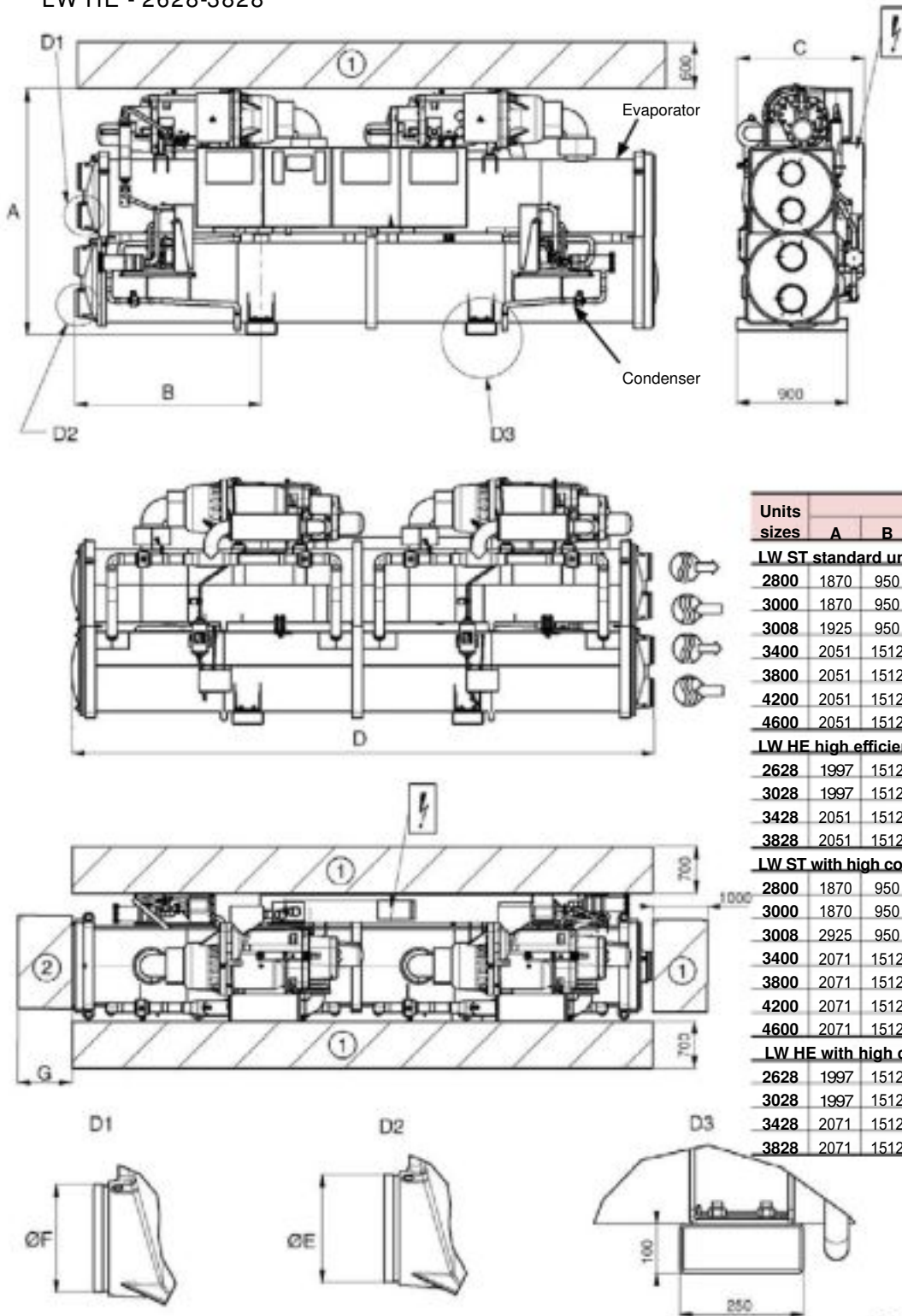
- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Electrical cabinet

- Low brine option has same dimensions as high condensing option.
- IP44 option has same dimensions as high condensing option on units 1900, 1928, 2300, 2308, 2328. IP44 option has same dimensions as standard on the other units.

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

DIMENSIONS

- LW ST - 2800-4600
LW HE - 2628-3828



| Units sizes | Dimensions in mm | | | | | | |
|--|------------------|------|------|------|-------|-------|------|
| | A | B | C | D | E | F | G |
| LW ST standard units | | | | | | | |
| 2800 | 1870 | 950 | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 3000 | 1870 | 950 | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 3008 | 1925 | 950 | 1036 | 4025 | 219,1 | 219,1 | 3800 |
| 3400 | 2051 | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 3800 | 2051 | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 4200 | 2051 | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 4600 | 2051 | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| LW HE high efficiency units | | | | | | | |
| 2628 | 1997 | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 3028 | 1997 | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 3428 | 2051 | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 3828 | 2051 | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| LW ST with high condensing option | | | | | | | |
| 2800 | 1870 | 950 | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 3000 | 1870 | 950 | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 3008 | 2925 | 950 | 1036 | 4025 | 219,1 | 219,1 | 3800 |
| 3400 | 2071 | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 3800 | 2071 | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 4200 | 2071 | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 4600 | 2071 | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| LW HE with high condensing option | | | | | | | |
| 2628 | 1997 | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 3028 | 1997 | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 3428 | 2071 | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 3828 | 2071 | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |

Key:

All dimensions are in mm.

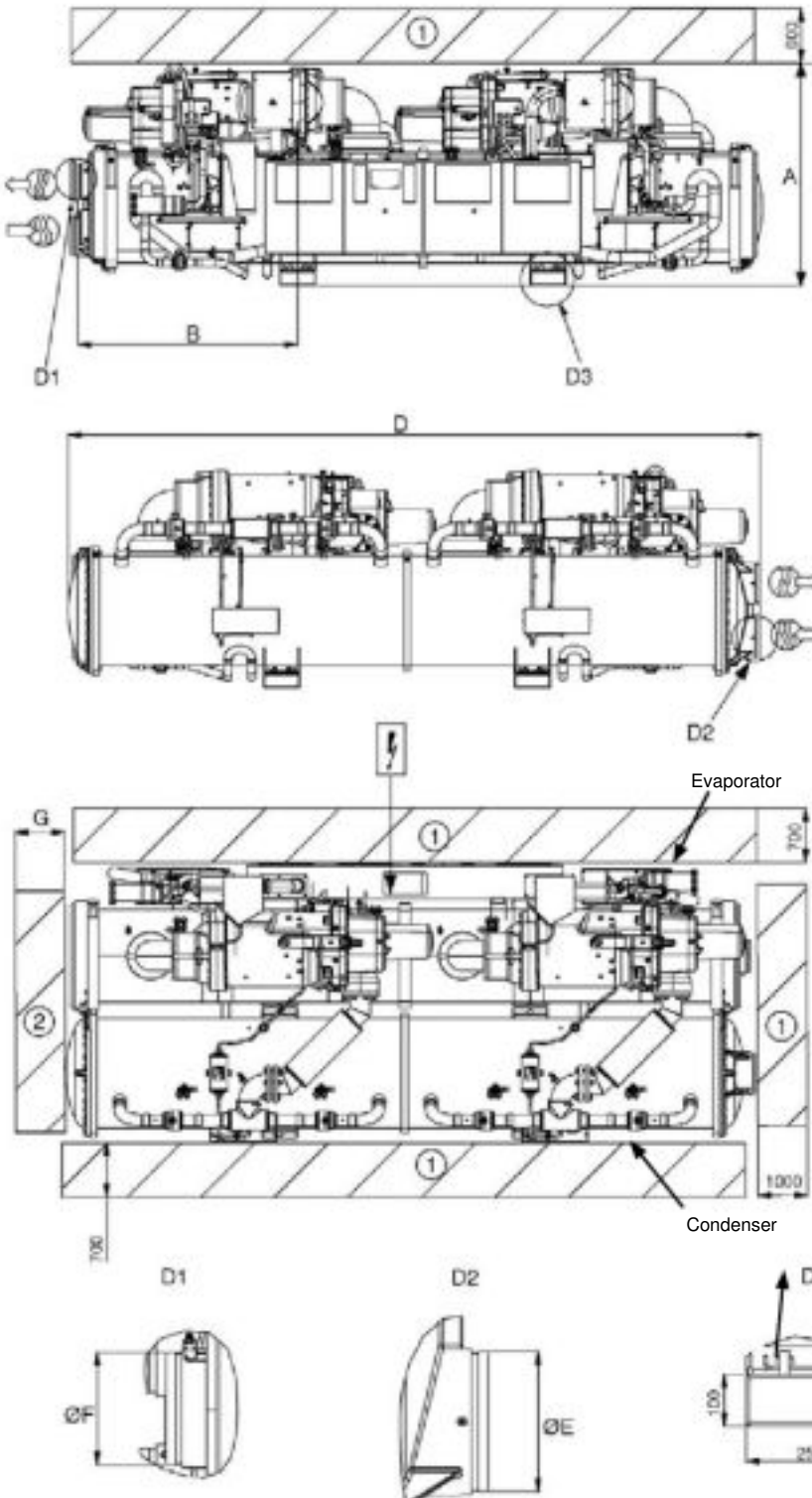
- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Electrical cabinet

- Low brine option has same dimensions as high condensing option.
- IP44 option has same dimensions as high condensing option on units 1900, 1928, 2300, 2308, 2328. IP44 option has same dimensions as standard on the other units.

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

DIMENSIONS

- LW ST - 4408-4608
- LW HE - 4228-4628



| Units sizes | Dimensions in mm | | | | | | |
|--|------------------|------|------|------|-------|-------|------|
| | A | B | C | D | E | F | G |
| LW ST standard units | | | | | | | |
| 4408 | 1515 | 1568 | 1902 | 4790 | 219.1 | 219.1 | 4500 |
| 4608 | 1515 | 1568 | 1902 | 4790 | 219.1 | 219.1 | 4500 |
| LW HE high efficiency units | | | | | | | |
| 4228 | 1562 | 1591 | 2129 | 4832 | 273 | 273 | 4600 |
| 4628 | 1562 | 1591 | 2129 | 4832 | 273 | 273 | 4600 |
| LW ST with high condensing option | | | | | | | |
| 4408 | 1535 | 1568 | 1947 | 4790 | 219 | 219 | 4500 |
| 4608 | 1535 | 1568 | 1947 | 4790 | 219 | 219 | 4500 |
| LW HE with high condensing option | | | | | | | |
| 4228 | 1585 | 1591 | 2174 | 4832 | 273.1 | 273.1 | 4600 |
| 4628 | 1585 | 1591 | 2174 | 4832 | 273.1 | 273.1 | 4600 |

Key:

All dimensions are in mm.

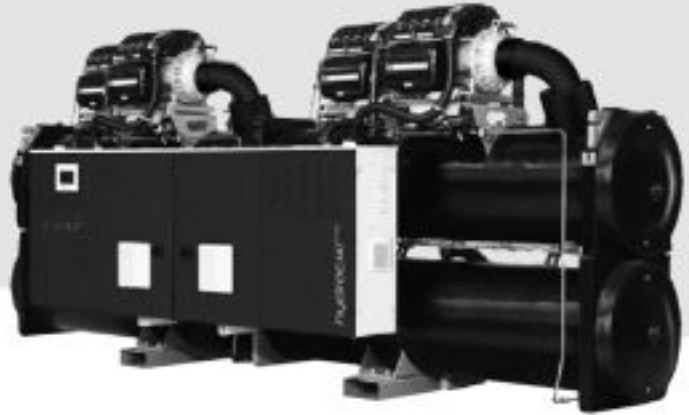
- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- ↻ Water inlet
- ↻ Water outlet
- ⚡ Electrical cabinet

- Low brine option has same dimensions as high condensing option.
- IP44 option has same dimensions as high condensing option on units 1900, 1928, 2300, 2308, 2328. IP44 option has same dimensions as standard on the other units.

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

HYDROCIAT TURBO™ LWT

Water chillers
Heat pump



Energy excellence

Compact and reliable

Twin-turbine centrifugal compressors

Oil-Free compressors

Flooded shell and tubes evaporator

Self-adjusting electronic control

Touch screen control interface

Cooling capacity 550-1600 kW

Heating capacity 650-1875 kW



Cooling



Heating



Heat
recovery



USE

The latest generation of **HYDROCIAT^{TURBO}™ LWT** water chillers and water-to-water heat pumps are the perfect solution for all heating and cooling applications in the Office, Healthcare, Industry, Administration, Shopping centers, data centers and Collective Housing markets.

HYDROCIAT^{TURBO}™ LWT is optimised to use ozone-friendly HFC R134a refrigerant.

This range guarantees compliance with the most demanding requirements for high energy efficiency and CO₂ reduction to comply with the various applicable European directives and regulations.

When producing chilled water, these units can be connected to a drycooler or a water cooling tower.

With the heat pump option, the units can produce hot water for heating applications. They can also be used in cooling mode by reversing the cycle on the hydronic circuits using a set of valves (hydraulic valves not supplied).

RANGE

HYDROCIAT^{TURBO}™ LWT, series

Very High Efficiency cooling or heating version

The product is optimised to meet the most demanding technical and economic requirements.

The product is optimised for very high energy efficiency applications for which optimum seasonal performance SEER values are required, ensuring operating costs are kept to a minimum.

DESCRIPTION

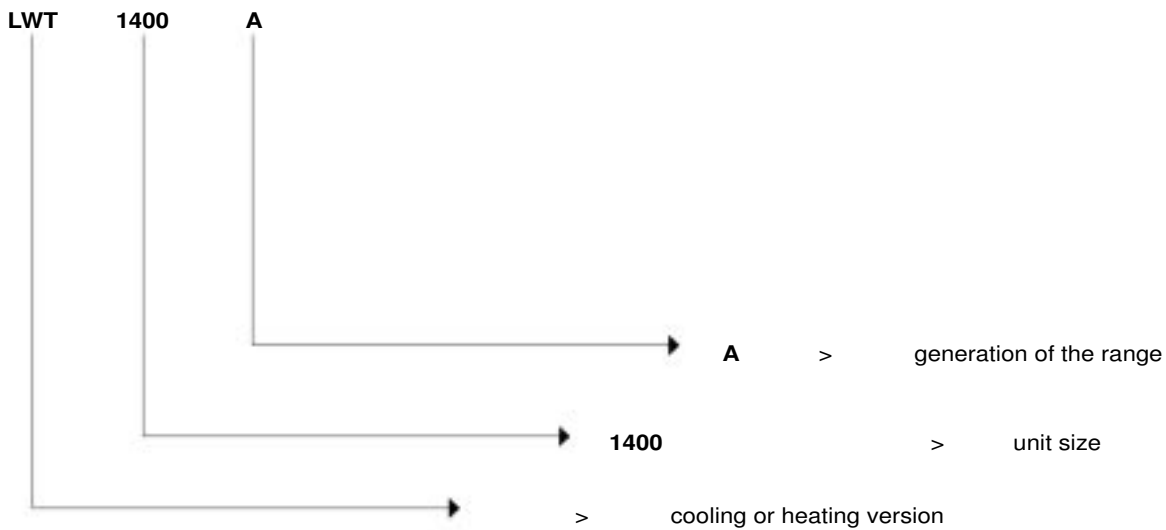
HYDROCIAT^{TURBO™} units are packaged machines supplied as standard with the following components:

- Maglev centrifugal semi-hermetic compressors
- No oil
- Shell and tube type chilled-water evaporator
- Shell and tube type hot water condenser
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz general power supply (+/-10%) + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for indoor installation

The entire HYDROCIAT^{TURBO™} range complies with the following EC directives and standards:

- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2014/30/EU
- EMC immunity and emissions EN 61800-3 'C2'
- Low Voltage Directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure Equipment Directive (PED) 2014/68/EU
- Machinery Directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2.
- Regulation (EU) 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements

DESCRIPTION



DESCRIPTION OF THE COMPONENTS

■ Twin-turbine centrifugal compressors,

- 2 Stages centrifugal compressors
- Optimized for R134a refrigerant
- Oil-free type
- Noiseless , vibration less via Magnetic levitation
- Compression ratio: from 1.5 to 5.0
- High efficiency permanent-magnet synchronous inverter motor.
- Linear step less capacity control via integrated inverter motor (up to 36000 rpm)
- Compressor equipped with Inlet Guide Valve at the turbine suction
- Compressor capacity control by successive use of speed variation swept volume variation at the turbine
- Integrated Soft- Start system (starting current limited to 5A)
- High Power Factor motor ($\cos\phi > 0.9$ for main operating conditions)
- Motor and electronic power section cooled by refrigerant
- Full electronic protection of motor against thermal and electrical overload via Internal sensors
- Rotation direction, no phase, under voltage, over voltage and power failure control
- Sensor on refrigerant suction and discharge for temperature monitoring
- Degree of protection: IP54

■ Shell and tube evaporator

- High performance glandless technology
- Copper tube bundle with internal and external grooves
- 19 mm thermal insulation
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar.

■ Shell and tube condenser

- Copper tube bundle with internal and external grooves
- 19 mm thermal insulation (option)
- Built-in oil separator
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar.

■ Refrigerant accessories

- Dehumidifier filters with rechargeable cartridges
- Hygroscopic sight glasses
- Electronic expansion valves
- Check-valve to prevent fluid recirculation in the compressor during transition phase

■ Regulation and safety instruments

- High and low pressure sensors
- Safety relief valves on refrigerating circuit
- High pressure switch on each compressor
- Evaporator antifreeze protection sensor
- Chilled water and hot water control sensors
- Electronic evaporator water circulation controller

■ Electrical cabinet

- Electrical cabinet index of protection IP23
- Safety disconnect switch
- 24 V control circuit
- Remote control transformer circuit
- Protection of the power and control circuits
- Connect Touch microprocessor-controlled electronic control module
- Electrical cabinet wire numbers
- Location of main components
- EMC filters and line reactors
- Door contact protection

■ Connect Touch control module

- User interface with 7 inch touchscreen
- Intuitive, user-friendly navigation using icons
- Clear information display in 10 languages
- (English, Spanish, French, German, Dutch, Turkish, Italian, Portuguese, Russian +1 Free)



The electronic control

module performs the following main functions:

- regulation of the chilled water temperature (at the return or at the outlet)
- regulation of the water temperature based on the outdoor temperature (water law)
- regulation for low temperature energy storage
- second setpoint management
- complete management of compressors with start-up sequence, timer and operating time balancing
- self-regulating and proactive functions with adjustment of settings on drift control
- continuous power control slide system on the compressors according to the thermal requirements
- management of compressor short cycle protection
- phase reversal protection
- management of occupied/unoccupied modes (according to the time schedule)
- equalisation of compressor operating hours
- condensing temperature limitation (option)
- diagnosis of fault and operating statuses
- management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- blackbox memory
- master/slave management of two machines with equalisation of operating hours and automatic switching in case of a machine fault
- weekly and hourly time schedule for the machine, including 16 periods of absence
- display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, flow rate, operation time.
- display of trend curves for the main values
- storage of maintenance manual, wiring diagram and spare parts list.

■ Unit construction

- Electrical cabinet in graphite grey (RAL 7024)

DESCRIPTION OF THE COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

Numerous communication protocols are available: MODBUS/JBUS TC/IP as standard, BACNET IP optional, enabling integration with most CMS/BMS

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- automatic operation control: when this contact is open, the machine stops
- setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- heating/cooling operating mode selection
- fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- operational status reporting indicates that the unit is in production mode
- Condenser flow switch
- setpoint adjustable via 4-20 mA signal: this input is used to adjust the active setpoint.
- power limitation adjustable by 4-20 mA signal
- power indication: analogue output (0-10 V) providing an indication of the unit's load rate.
- user fault reporting enables integration of a fault in the water loop
- general fault reporting: this contact indicates that the unit has stopped completely
- User interlock (open=unit shuts down / closed = enable to operate)
- alert reporting: this contact indicates the presence of a minor fault which has not caused the circuit affected to stop.
- end of storage signal: enables return to the second setpoint at the end of the storage cycle
- schedule override: closing this contact cancels the time schedule.
- Evaporator pump control (control by 0-10V command)

Direct access to technical literature

- Instruction manual
- Electrical diagram
- Spare parts list



Web server integrate as standard

IP address

Remote management via web server

- Connection to RJ port
- Connection via IP address
- All the HMI functionalities available on the PC
- Simplified remote monitoring



E-mail alerts
(2 addresses)

■ Maintenance alert as standard

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.

- the scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- the compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations.

OPTIONS

| Options | Description | Advantages | HYDROCIAT ^{TURBO™} LWT |
|--|---|--|---------------------------------|
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | • |
| Single power connection point | Unit power connection via one main supply connection | Quick and easy installation | 2300/4200 |
| Evap. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 1400/3100 |
| Cond. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump condenser side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 1400/3100 |
| Condenser insulation | Thermal condenser insulation | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) | • |
| Service valve set | Liquid line valve (evaporator inlet) and compressor suction line valve | Allow isolation of various refrigerant circuit components for simplified service and maintenance | • |
| Evaporator with one pass less | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides. | Easy to install, depending on site. Reduced pressure drops | • |
| Condenser with one pass less | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides. | Easy to install, depending on site. Reduced pressure drops | • |
| Reversed evaporator water connections | Evaporator with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Reversed condenser water connections | Condenser with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters | • |
| Control for low cond. temperature | Output signal (0-10 V) to control the condenser water inlet valve | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | • |
| Specific dry cooler control | Control box for communication with the drycooler via a bus. For OPERA drycooler need to select the cabinet with option control cabinet manage by the chiller ConnectTouch control | Permits the use of an energy-efficient plug-and-play system | • |
| Input contact for Refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • |
| Compliance with Swiss regulations | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications | Conformance with Swiss regulations | • |
| Compliance with Russian regulations | EAC certification | Conformance with Russian regulations | • |
| Flanged evaporator water connection kit | Victaulic piping connections with flanged joints | Easy installation | • |
| Flanged condenser water connection kit | Victaulic piping connections with flanged joints | Easy installation | • |
| 230V electrical plug | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps) | Permits connection of a laptop or an electrical device during unit commissioning or servicing | • |
| M2M supervision (accessory) | Monitoring solution which allows customers to track and monitor their equipment remotely in real time | Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment. | • |
| Anti-vibration mounts (kit) | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the building. Must be associate with flexible connection on water side | • |
| Exchangers flexibles connection (kit) | Flexibles connections on the exchanger water side | Easy installation. Limit transmission of vibrations on the water network | • |
| Free Cooling dry cooler management | Control & connections to a Free Cooling Drycooler Opera or Vextra fitted with option FC control box | Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode | • |
| Heat Pump application | Unit configured for Heat Pump application, include thermal condenser insulation | Optimisation on heating mode & minimize thermal dispersions condenser side | • |

- ALL MODELS

Refer to the selection tool to find out which options are not compatible

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LWT | | | 1400 | 1900 | 2100 | 2300 | 2600 | 3100 | 3400 | 3800 | 4200 | |
|--|--|--|---------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Heating | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 649 | 844 | 939 | 1050 | 1198 | 1389 | 1538 | 1700 | 1875 |
| | | COP | kW/kW | 6,13 | 6,26 | 5,93 | 5,79 | 5,89 | 5,76 | 5,97 | 5,89 | 5,67 |
| | HW2 | Nominal capacity | kW | 629 | 817 | 915 | 1039 | 1186 | 1351 | 1491 | 1648 | 1820 |
| | | COP | kW/kW | 4,89 | 4,81 | 4,63 | 4,68 | 4,68 | 4,53 | 4,72 | 4,62 | 4,50 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kW/kW | 7,43 | 7,42 | 7,35 | 7,30 | 7,23 | 6,82 | 6,90 | 6,47 | 6,54 |
| | | η _{s heat} _{30/35°C} | % | 289 | 289 | 286 | 284 | 281 | 265 | 268 | 251 | 254 |
| | | P _{rated} | kW | 763 | 993 | 1103 | 1235 | 1409 | 1634 | 1809 | 2001 | 2203 |
| | | Cooling | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 550 | 717 | 791 | 880 | 1007 | 1167 | 1302 | 1442 | 1578 |
| | | EER net | kW/kW | 5,39 | 5,53 | 5,18 | 5,02 | 5,15 | 5,13 | 5,38 | 5,42 | 5,13 |
| | | Eurovent class | | A | A | A | B | A | A | A | A | A |
| | | EER gross*** | | 5,55 | 5,70 | 5,32 | 5,14 | 5,30 | 5,33 | 5,63 | 5,69 | 5,39 |
| | CW2 | Nominal capacity | kW | 631 | 823 | 917 | 1014 | 1134 | 1348 | 1441 | 1638 | 1794 |
| | | EER net | kW/kW | 8,00 | 8,43 | 7,79 | 7,61 | 7,86 | 7,80 | 8,04 | 8,11 | 7,49 |
| | | Eurovent class | | A | A | A | A | A | A | A | A | A |
| | | EER gross*** | | 8,41 | 8,88 | 8,19 | 7,94 | 8,25 | 8,37 | 8,68 | 8,78 | 8,17 |
| Standard unit Seasonal energy efficiency** | SEER _{12/7°C} Comfort low temp. | | kW/kW | 9,70 | 9,55 | 9,54 | 9,79 | 9,59 | 9,49 | 9,50 | 9,48 | 9,14 |
| | η _{s cool} _{12/7°C} | | % | 385 | 379 | 379 | 389 | 381 | 377 | 377 | 376 | 363 |
| | SEPR _{12/7°C} Process high temp. | | kWh/kWh | 9,48 | 10,31 | 9,78 | 9,05 | 9,26 | 9,44 | 9,49 | 9,75 | 9,32 |
| | ESEER | | kW/kW | 8,55 | 8,47 | 8,40 | 8,70 | 8,21 | 8,15 | 8,00 | 8,04 | 7,93 |
| | ESEER gross*** | | kW/kW | 9,74 | 9,62 | 9,48 | 9,79 | 8,96 | 9,66 | 9,51 | 9,74 | 9,77 |
| Sound levels | | | | | | | | | | | | |
| standard unit | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 89 | 92 | 94 | 92 | 94 | 95 | 94 | 95 | 97 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 57 | 60 | 62 | 60 | 62 | 63 | 62 | 63 | 65 | |
| Dimensions | | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | | |
| Length | | mm | 3140 | 3160 | 3360 | 4345 | 4345 | 4345 | 4800 | 4800 | 4800 | |
| Width | | mm | 1270 | 1310 | 1335 | 1385 | 1385 | 1385 | 1385 | 1390 | 1410 | |
| Height | | mm | 1780 | 1880 | 1965 | 2036 | 2036 | 2036 | 2000 | 2050 | 2100 | |
| Operating weight⁽³⁾ | | | | | | | | | | | | |
| Standard unit | | kg | 2402 | 2930 | 3376 | 4831 | 4855 | 4904 | 5504 | 6164 | 6730 | |
| Compressors | | | | | | | | | | | | |
| Turbocor TT300 / TT350 | | | | | | | | | | | | |
| Circuit A | | | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | |
| Circuit B | | | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | |

* In accordance with standard EN14511-3:2013.
 ** In accordance with standard EN14825:2016, average climate
 *** Values not Eurovent certified. Calculation without the impact of the exchanger pressure drop.
 HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
 HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW
 CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W
 CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W
 η_{s cool}_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
 SEPR_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**
 (1) in dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
 (3) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values



STANDARD UNIT TECHNICAL CHARACTERISTICS

| LWT | | 1400 | 1900 | 2100 | 2300 | 2600 | 3100 | 3400 | 3800 | 4200 |
|------------------------------------|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Refrigerant⁽³⁾ | | R-134a | | | | | | | | |
| Circuit A | kg | 95,0 | 120,0 | 140,0 | 100,0 | 100,0 | 100,0 | 125,0 | 135,0 | 150,0 |
| | teqCO ₂ | 135,9 | 171,6 | 200,2 | 143,0 | 143,0 | 143,0 | 178,8 | 193,1 | 214,5 |
| Circuit B | kg | - | - | - | 125,0 | 125,0 | 125,0 | 125,0 | 135,0 | 150,0 |
| | teqCO ₂ | - | - | - | 178,8 | 178,8 | 178,8 | 178,8 | 193,1 | 214,5 |
| Capacity control | | Connect'Touch, electronic expansion valves (EXV) | | | | | | | | |
| Minimum capacity | % | 15 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Evaporator | | Flooded multi-pipe type | | | | | | | | |
| Water volume | l | 115 | 165 | 180 | 285 | 285 | 285 | 330 | 330 | 365 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Flooded multi-pipe type | | | | | | | | |
| Water volume | l | 145 | 157 | 187 | 308 | 308 | 308 | 339 | 487 | 487 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(3) Values are guidelines only. Refer to the unit name plate.

ELECTRICAL DATA NOTES FOR STANDARD UNITS

| LWT | | 1400 | 1900 | 2100 | 2300 | 2600 | 3100 | 3400 | 3800 | 4200 |
|---|---------|----------|------|------|------|------|------|------|------|------|
| Power circuit supply | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | |
| Control circuit supply | | | | | | | | | | |
| 24 V via the built-in transformer | | | | | | | | | | |
| Maximum operating input power⁽¹⁾- Standard unit | | | | | | | | | | |
| Circuit 1 ^(a) | kW | 140 | 201 | 230 | 76 | 116 | 111 | 133 | 187 | 222 |
| Circuit 2 ^(a) | kW | - | - | - | 152 | 152 | 222 | 204 | 187 | 222 |
| Single power connection point option | kW | - | - | - | 229 | 269 | 333 | 337 | 375 | 445 |
| Nominal operating current draw⁽²⁾- Standard unit | | | | | | | | | | |
| Circuit 1 ^(a) | A | 162 | 208 | 244 | 93 | 129 | 119 | 151 | 210 | 243 |
| Circuit 2 ^(a) | A | - | - | - | 185 | 187 | 237 | 229 | 210 | 243 |
| Single power connection point option | A | - | - | - | 278 | 315 | 356 | 380 | 420 | 486 |
| Maximum operating current draw (Un)⁽¹⁾- Standard unit | | | | | | | | | | |
| Circuit 1 ^(a) | A | 220 | 315 | 361 | 119 | 183 | 174 | 209 | 294 | 349 |
| Circuit 2 ^(a) | A | - | - | - | 239 | 239 | 349 | 319 | 294 | 349 |
| Single power connection point option | A | - | - | - | 358 | 422 | 523 | 528 | 588 | 697 |
| Maximum current (Un-10%)⁽¹⁾- Standard unit | | | | | | | | | | |
| Circuit 1 ^(a) | A | 237 | 340 | 390 | 129 | 197 | 188 | 225 | 318 | 377 |
| Circuit 2 ^(a) | A | - | - | - | 258 | 258 | 377 | 345 | 318 | 377 |
| Single power connection point option | A | - | - | - | 387 | 456 | 565 | 570 | 635 | 753 |
| Maximum start-up current(Un) - Standard unit⁽³⁾ | | | | | | | | | | |
| Lower than max current | | | | | | | | | | |
| Dissipated power of electrical equipment⁽¹⁾ | | | | | | | | | | |
| | W | 782 | 1249 | 1249 | 1144 | 1347 | 1814 | 1884 | 2351 | 2351 |
| Short-circuit withstand current (TN system) | | | | | | | | | | |
| Circuit A+B | KA | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C

(3) Start-up current is limited by the soft-start controller included in the compressor.

(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B

Note: Evap. single pump power/control circuit and Cond. single pump power/control circuit options are not included in these values.

| LWT | | 1400 | 1900 | 2100 | 2300 | 2600 | 3100 | 3400 | 3800 | 4200 |
|--|----|------|------|------|------|------|------|------|------|------|
| Short-circuit withstand current (TN system) | | | | | | | | | | |
| Circuit A+B | KA | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I²t) trip characteristics must be at least equivalent to those of the recommended protection.

Note: The short-circuit stability current values above are suitable with the TN system.

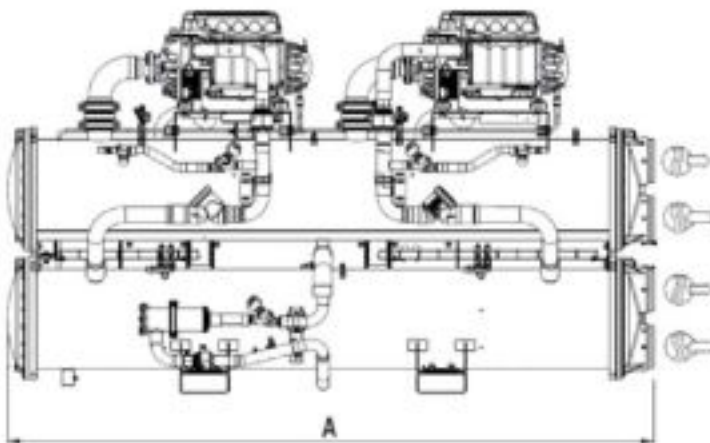
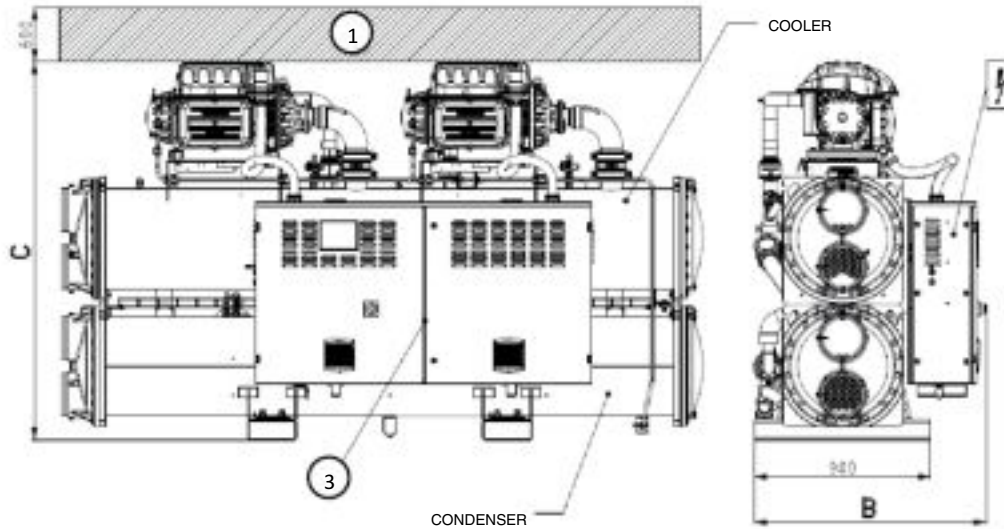
ELECTRICAL DATA NOTES FOR STANDARD UNITS

Electrical data notes and operating conditions, Hydrociat^{TURBO™} LWT units

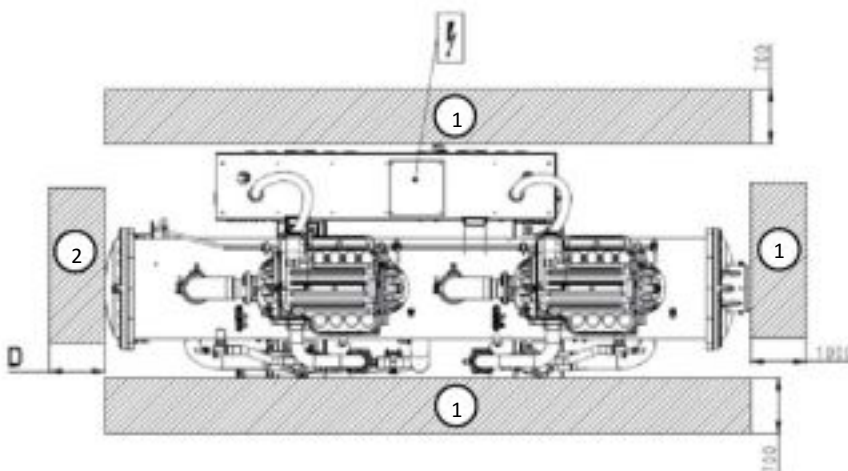
- **As standard:**
HYDROCIAT^{TURBO™} LWT 1400 to HYDROCIAT^{TURBO™} LWT2100 units have a single power connection point located immediately upstream of the main supply disconnect switch.
HYDROCIAT^{TURBO™} LW 2300 to HYDROCIAT^{TURBO™} LWT4200 units have two connection points located immediately upstream of the main supply disconnect switches.
 - **Control box includes the following standard features:**
 - Two disconnect switches per circuit: One main supply disconnect switch and one disconnect switch for the supply of the control part, the undervoltage protection circuit and the motor mechanism module,
 - Filtering compressor current devices
 - Anti-short cycle protection devices
 - Control devices supply by internal transformers.
 - **Field connections:**
All connections to the system and the electrical installations must be in accordance with all applicable codes.*
 - HYDROCIAT^{TURBO™} LWT units are designed and built to ensure conformance with these codes. The recommendations of European standard EN 60204-1 (corresponds to IEC 60204-1) (machine safety)
 - electrical machine components - part 1: general regulations) are specifically taken into account, when designing the electrical equipment.
 - Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation regulation.
 - Annex B of standard EN 60204-1 specifies the electrical features used for the operation of the units. The features below complete the informations given in this document:
 1. Physical environment:
The classification of environment is specified in standard EN 60364:
 - Indoor installation**,
 - Ambient temperature range: minimum temperature +5°C to +42°C, class AA4
 - Altitude: AC1 of 2000 m or less,
 - Presence of water: Class AD2 (possibility of water droplets)**
 - Presence of hard solid: Class AE2 (no significant dust present)**,
 - Presence of corrosive and polluting substances, class AF1 (negligible),
 - Competence of persons: BA4 (Persons wise),
 - Overvoltage category: II (2,5KV).
 2. Compatibility for low-frequency conducted disturbances according to class 2 levels per IEC61000-2-4 standard:
 - Power supply frequency variation: +- 2Hz
 - Phase imbalance : 2%
 3. The neutral (N) line must not be connected directly to the unit (if necessary use a transformer).
 4. Overcurrent protection of the power supply conductors is not provided with the unit.
 5. The factory-installed disconnect switch(es)/circuit breaker(s) are of a type suitable for power interruption in accordance with EN 60947-3 (corresponds to IEC 60947-3).
 6. The units are designed for connection to TN networks (IEC 60364).
In IT networks, if noise filters are integrated into the compressor(s) variable frequency drive(s), this will render the units unsuitable for their intended purpose. In addition, the equipment characteristics in case of insulation failure are modified.
For IT networks, the earth connection must not be at the network earth. Provide a local earth; consult competent local organisations to complete the electrical installation.
 - 7. Electromagnetic environment: classification of the electromagnetic environment is described in standard EN 61800-3 (corresponds to IEC 61800-3):
 - Immunity to external interference defined by the second environment***
 - Interference emission as defined in category C2
- Warning: In a residential environment, this product may cause radio interference in which case additional mitigation measures could be required.**
The compressor variable frequency drive is a source of perturbations from the harmonic currents. An investigation could be necessary to check that the perturbations don't exceed the compatibility limits with the other devices connected on the same power supply network. In an electrical installation, the levels of compatibility to be observed at the internal coupling point (IPC) to which other loads are connected are described in standard IEC 61000-2-4.
- Leakage currents: If protection by monitoring the leakage currents is necessary to ensure the safety of the installation, the presence of additional leakage currents introduced by the use of variable frequency drive(s) in the compressor must be considered.
In particular, the reinforced immunity protection types and a control value not lower than 150 mA are recommended when selecting differential protective devices.
- NOTE: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local Carrier representative.**
- * Generally, the recommendations of the standard of International Electrotechnical Commission (IEC60364) are identified to meet the requirements of the installation guidelines.
 - ** The required protection level for this class is IP21B or IPX1B (according to reference document IEC 60529). All HYDROCIAT^{TURBO™} LWT units are IP23 and fulfil this protection condition.
 - *** Example of second environment installations: Industrial areas, technical facilities supplied by a dedicated transformer

DIMENSIONS

■ LWT 1400-2100



| Units sizes | Dimensions in mm | | | |
|-------------|------------------|------|------|------|
| | A | B | C | D |
| LWT | | | | |
| 1400 | 3045 | 1120 | 1745 | 2800 |
| 1900 | 3070 | 1155 | 1846 | 2800 |
| 2100 | 3270 | 1190 | 1925 | 3000 |



Key:

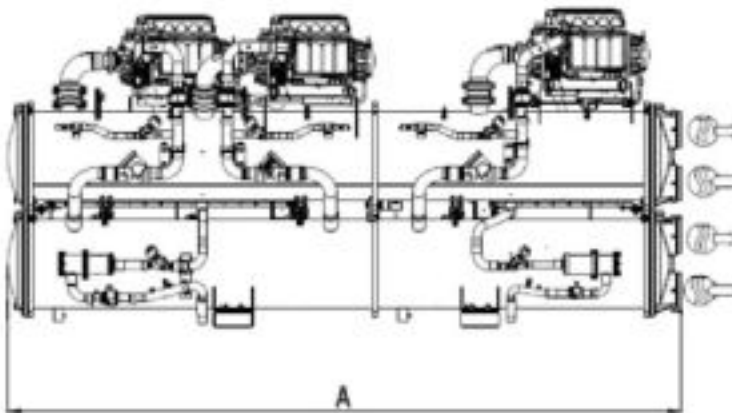
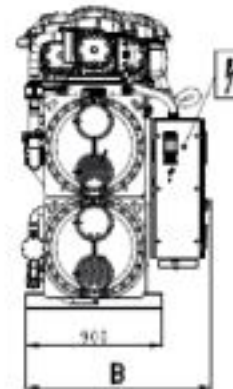
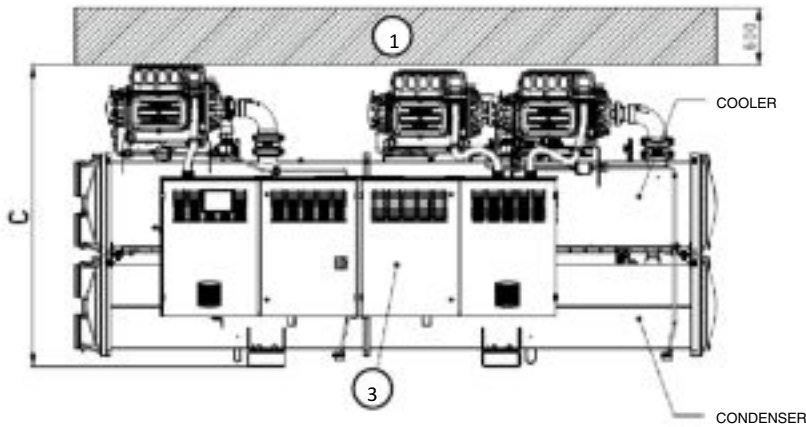
All dimensions are in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Electrical cabinet

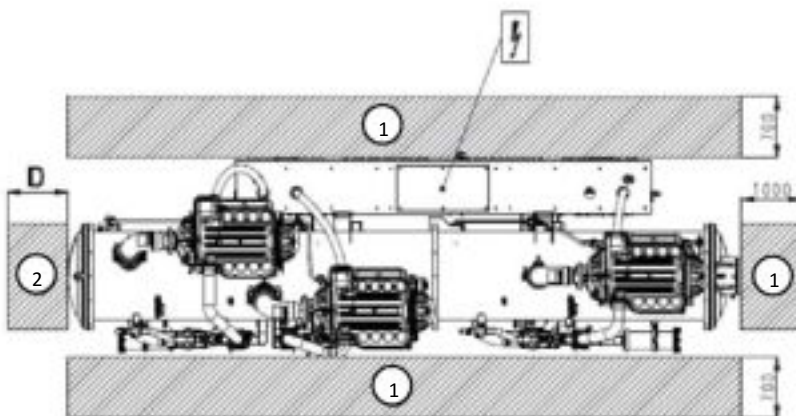
NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

DIMENSIONS

■ LWT 2300-3100



| Units sizes | Dimensions in mm | | | |
|-------------|------------------|------|------|------|
| | A | B | C | D |
| LWT | | | | |
| 2300 | 4257 | 1290 | 1955 | 3950 |
| 2600 | 4257 | 1290 | 1955 | 3950 |
| 3100 | 4257 | 1290 | 1955 | 3950 |



Key:

All dimensions are in mm.

① Required clearance for maintenance

② Recommended clearance for tube removal

Water inlet

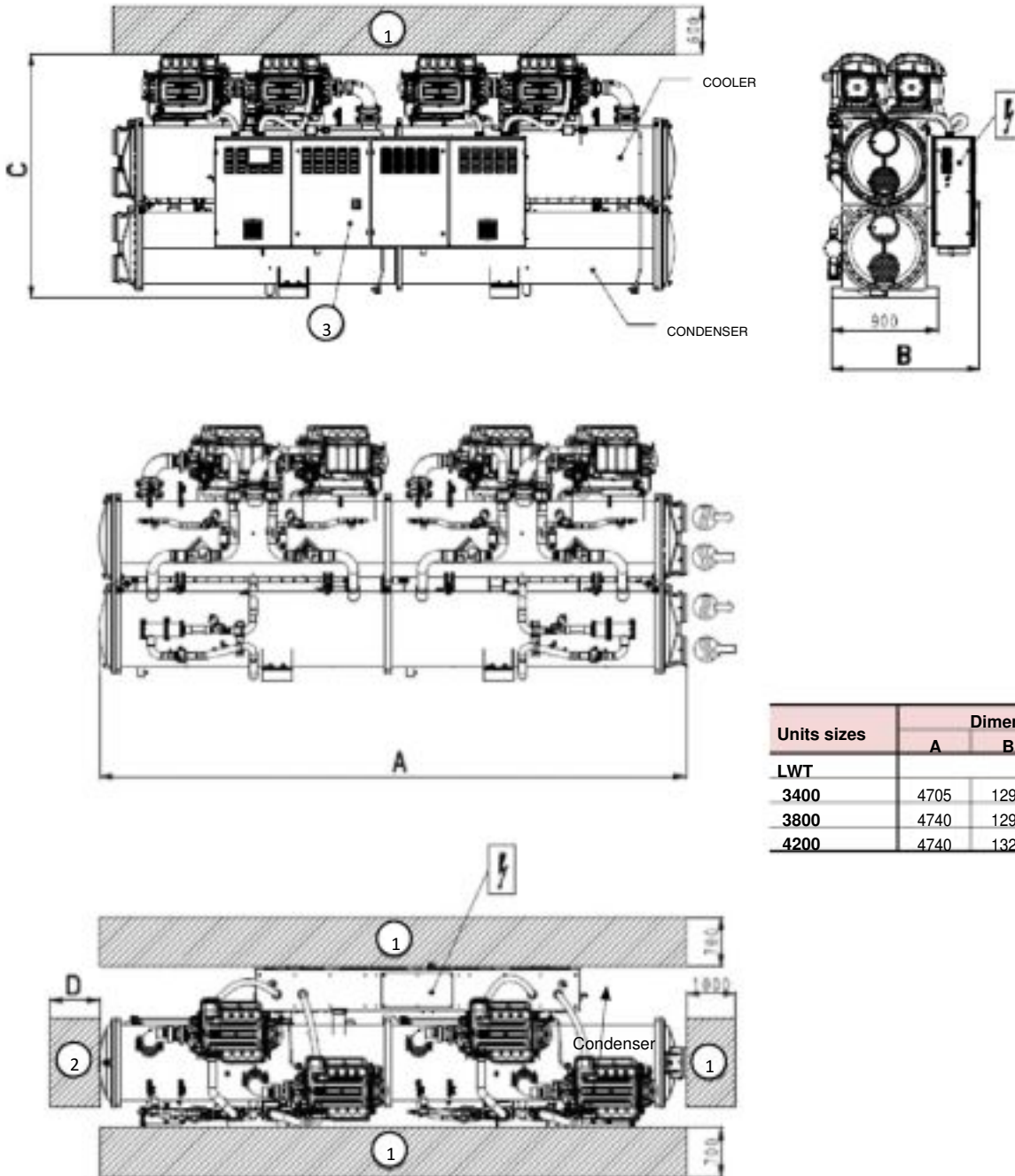
Water outlet

Electrical cabinet

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

DIMENSIONS

■ LWT 3400-4200



| Units sizes | Dimensions in mm | | | |
|-------------|------------------|------|------|------|
| | A | B | C | D |
| LWT | | | | |
| 3400 | 4705 | 1290 | 1955 | 4400 |
| 3800 | 4740 | 1290 | 2011 | 4400 |
| 4200 | 4740 | 1325 | 2065 | 4400 |

Key:

All dimensions are in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Electrical cabinet

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.





CIAT

DRYCOOLERS - CONDENSERS HEAT EXCHANGERS - THERMAL ENERGY STORAGE

DRYCOOLERS - CONDENSERS

OPERATTM P.561

Up to 1 100kW

VEXTRATM P.567

Up to 1 900kW

ENERGY OPTIMISATION SOLUTIONS P.571

AEROFRESHTM P.573

HEAT EXCHANGERS

ITEX P.575

THERMAL ENERGY STORAGE

THERMAL ENERGY STORAGE P.583

 Cooling

 Heating

OPERA™

Drycoolers
Air-cooled condensers



MORE

- More efficient
- More flexible
- More intelligent

for **LESS**

- Less energy
- Less time
- Less noise

Capacity: up to 1100 kW



Free cooling



HFC
R-410A



HFC
407C



HFC
R-134A



USE

The OPERA™ range, available in drycooler or air-cooled condenser versions, is particularly suited to tertiary, industrial and healthcare applications.

Drycoolers in the OPERA™ range are mainly designed for cooling water or glycol/water mix for:

- Condensers for water chillers,
- Generators,
- Free cooling,
- Processes and machines (presses, compressors, etc.)

Air-cooled condensers in the OPERA™ range are mainly designed for the condensation of refrigerants for water chillers, as a "split system".

These devices are designed to be installed outdoors.

RANGE

OPERA™ is a large modular range, which offers:

- 3 casing lengths (S, M or L module), allowing either the dimensions, the capacity or the power consumption to be optimised.
- A range of sizes, from 1 to 14 fans.
- 2 impeller diameters, 800 or 910 mm.

- Adaptation of the rotation speed (EC motor).
- Several configurations: horizontal or vertical unit with forced or induced draught for high temperatures.

Various combinations of these elements, as well as the choice of a number of options, allow us to provide devices that are adapted to a range of applications and environments.

DESCRIPTION

Excellent resistance to corrosion

The casing boasts 480 h resistance to ISO 9227 salt fog tests, corrosivity category C3 Long service life greater than 15 years or C4 Medium service life between 5 and 15 years, in line with ISO standard 12944-2 – RAL 7035 (light grey)



- 1 **Coil**
 Copper tubing and manifolds, high-performance aluminium fins, resistant to fouling.
 Anti-shear system for bundle tubing.
 Piping for drycoolers: ISO PN16 02A type rotating flanges as per DIN 2642 in 304L stainless steel (1 or 2 inlets/outlets depending on flow rate).
 Piping for condenser: copper (1 input/output per refrigerating circuit for units with 1 fan line, 2 inputs/outputs for units with 2 fan lines). Delivered pressurised with nitrogen.
- 2 **Fan motor assemblies**
 Profiled collars in galvanised steel with RAL 7035 polyester powder paint or RAL 9005 composite depending on the motor reference.
 Aluminium and polypropylene impeller.
 Class F motor - IP54 - three-phase 400 V +/-10 % 50 Hz +/-2 % - Standard connection to the motor terminal boxes.
 Black protective grille compliant with standard NF ISO 12499.
 Individual partitioning.
 EC motors can be used in 50 or 60 Hz and from 380 to 480V +/- 10%.
- 3 **Casing**
 Galvanised steel with polyester powder paint. Assembly using stainless rivets and LANTHANUM nuts and bolts for the feet.
- 4 **Feet**
 Galvanised steel with polyester powder paint.
- 5 **Protective enclosures on the elbows and manifolds**

Each device is tested:

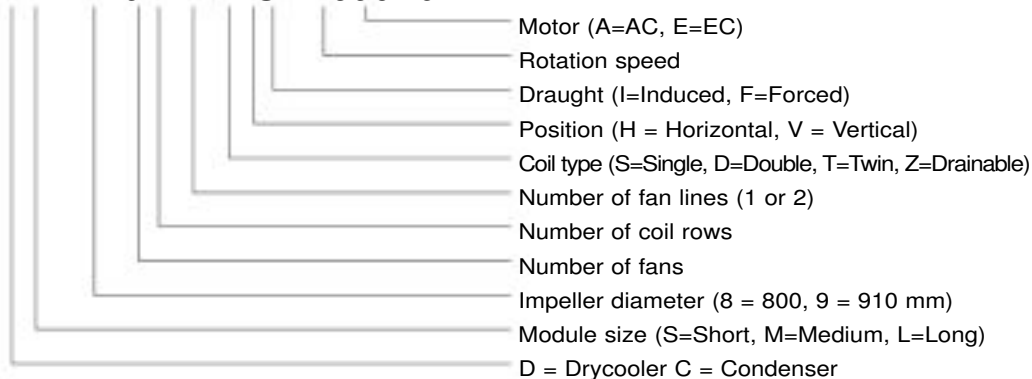
- The tightness of the coil is subjected to an underwater airtightness test.
- For devices with the terminal box or electrical cabinet option: rotation tests, dielectric tests, current measurement.

The OPERA™ range complies with the following European directives:

- Machinery Directive 2006/42/EC,
- EMC Directive 2014/30/EU,
- Pressure Equipment Directive (PED) 2014/68/EU.

DESIGNATION (EXAMPLE)

OPERA™ DLN 9124-2 SHI 690A9A

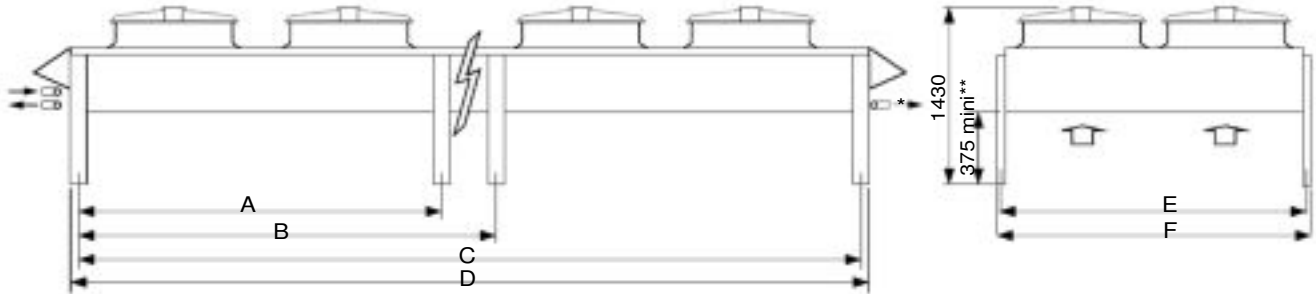


OPTIONS FOR EACH APPLICATION

| | Options | Description/Advantages | DRYCOOLER | CONDENSER |
|--|--|---|-----------|-----------|
| Protection adapted for the environment | Pre-coated aluminium fins | Improves the resistance of the fins to corrosion. For applications in coastal areas, industrial areas or highly populated areas. | • | • |
| | High efficiency coating on the fins : ALUCOAT®507 - HERESITE (on request) | Improves the resistance of the fins to corrosion. For corrosive environments. | • | • |
| | Stainless steel tubing bundle | For corrosive fluids. | • | |
| | Corrosiveness resistance category C5M | Casing and fan motor assemblies for corrosive environments. | • | • |
| | ATEX II 2G/3G | For explosive atmospheres. | • | • |
| Quick, simple installation | Terminal box | Connection to the terminals of each motor on the front panel of unit. | • | • |
| | Protection cabinet | Protected by a thermal-magnetic circuit breaker on each motor. | • | |
| | Control cabinet | Motor and control protection, either by electronic board, depending on the temperature, or by the chiller if compatible. | • | • |
| | Maintenance switch | For stopping individual motors. | • | • |
| | Counter-flanges | In stainless steel, with gaskets, bolts and collar. | • | |
| | Raised feet | To ensure a good flow of air depending on how the units are installed: against a wall, side by side, etc. | • | • |
| | Blade protective screen | Protection against hail, impacts, etc. For forced draught, vertical units. | • | • |
| Installation surface constraints | Vertical position | For narrow terraces. | • | • |
| Optimised, secure transport | Stacking of 2 identical devices | | • | • |
| | Skid for transport by container | Secure transport and easy loading/unloading. | • | • |
| High-temperature fluid application | Forced draught | Motors in the flow of fresh air. | • | |
| Generator application | Double circuit drycooler | Cooling of 2 water circuits (LT – HT) in series using air from just 1 unit. | • | |
| | Expansion tank | Max permissible pressure: 0.5 bar eff. | • | |
| Application for water without glycol | Drainable coil | Device located on a slope to prevent frost - drainage by gravity | • | |
| Free cooling application | Free cooling valve kit | Valves with motor, controlled by the control cabinet. Controlled according to the operation of the drycooler or chiller. | • | |
| Adiabatic cooling application | AEROFRESH (water misting into the air flow) | Size of the unit reduced by cooling of the ambient air. Operates completely safely due to the antibacterial treatment applied to the water. | • | • |

DIMENSIONS

Horizontal Position - Induced Draught

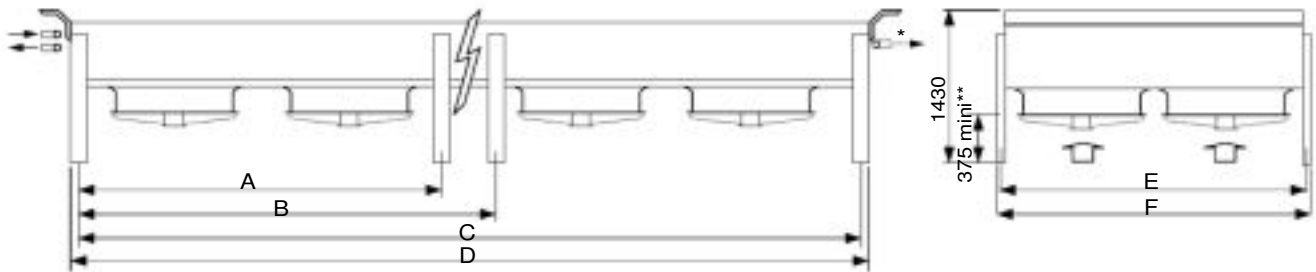


Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

* for units with input/output piping on the opposite side

** standard feet

Horizontal Position - Forced Draught



Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

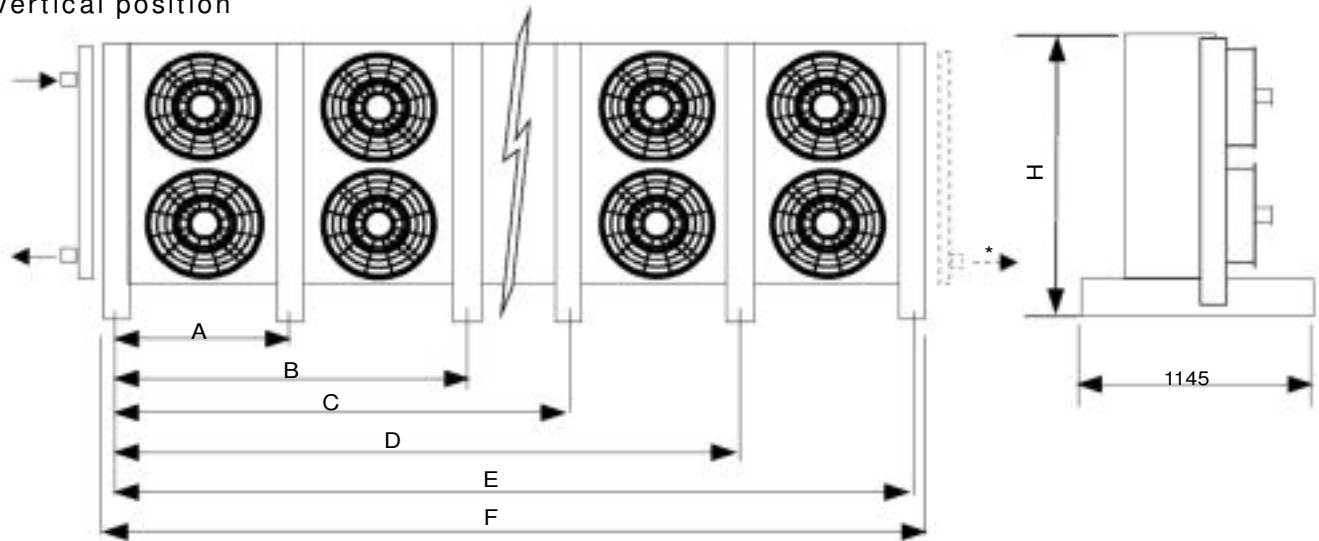
* for units with input/output piping on the opposite side

** standard feet

| No. of motors | | 1 | 2 | 3 | 4 | 5 | 6 | 4 | 6 | 8 | 10 | 12 | 14 |
|---------------|---|---|------|------|------|------|------|------|------|------|-------|-------|-------|
| DSN S module | A | - | - | - | - | 1840 | 1840 | - | - | - | 1840 | 1840 | 1840 |
| | B | - | - | - | - | 2790 | 3740 | - | - | - | 2790 | 3740 | 4690 |
| | C | 830 | 1780 | 2730 | 3680 | 4630 | 5580 | 1780 | 2730 | 3680 | 4630 | 5580 | 6530 |
| | D | 950 | 1900 | 2850 | 3800 | 4750 | 5700 | 1900 | 2850 | 3800 | 4750 | 5700 | 6650 |
| | H | 1388 max | | | | | | | | | | | |
| | Max empty weight with-out options +/-10% (kg) | 233 | 369 | 503 | 666 | 809 | 928 | 638 | 875 | 1135 | 1393 | 1617 | 1874 |
| DMN M module | A | - | - | - | 3140 | 3140 | - | - | 3140 | 3140 | 4740 | 4740 | 3140 |
| | B | - | - | - | 4740 | 4740 | - | - | 4740 | 4740 | 7940 | 7940 | 4740 |
| | C | 1480 | 3080 | 4680 | 6280 | 7880 | 3080 | 4680 | 6280 | 7880 | 9480 | 11080 | 11080 |
| | D | 1600 | 3200 | 4800 | 6400 | 8000 | 3200 | 4800 | 6400 | 8000 | 9600 | 11200 | 11200 |
| | H | IMPELLER ø 800: 1388 max - IMPELLER ø 910: 1483 max | | | | | | | | | | | |
| | Max empty weight with-out options +/-10% (kg) | 314 | 523 | 712 | 958 | 1183 | 918 | 1298 | 1645 | 2029 | 2388 | 2772 | 2772 |
| DLN L module | A | - | - | - | 3740 | 3740 | - | - | 3740 | 3740 | 5640 | 5640 | - |
| | B | - | - | - | 5640 | 5640 | - | - | 5640 | 5640 | 9380 | 9380 | - |
| | C | 1780 | 3680 | 5580 | 7480 | 9380 | 3680 | 5580 | 7480 | 9380 | 11280 | 11280 | - |
| | D | 1900 | 3800 | 5700 | 7600 | 9500 | 3800 | 5700 | 7600 | 9500 | 11400 | 11400 | - |
| | H | IMPELLER ø 800: 1388 max - IMPELLER ø 910: 1483 max | | | | | | | | | | | |
| | Max empty weight with-out options +/-10% (kg) | 352 | 599 | 846 | 1110 | 1373 | 1036 | 1474 | 1929 | 2384 | 2806 | 2806 | - |
| All | E | 1240 | | | | | | 2360 | | | | | |
| | F | 1280 | | | | | | 2400 | | | | | |

Dimensions in mm, excluding options.

Vertical position



Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

* for units with input/output piping on the opposite side

| No. of motors | | 1 | 2 | 3 | 4 | 5 | 6 | 4 | 6 | 8 | 10 | 12 | 14 |
|---------------------|--|------|------|------|------|------|------|------|------|------|------|-------|-------|
| DSN/CSN S module | A | - | - | - | 1840 | 1840 | 1840 | - | - | 1840 | 1840 | 1840 | 1840 |
| | B | - | - | - | - | 2790 | 3740 | - | - | - | 2790 | 3740 | 4690 |
| | C | - | - | - | - | - | - | - | - | - | - | - | - |
| | D | - | - | - | - | - | - | - | - | - | - | - | - |
| | E | 830 | 1780 | 2730 | 3680 | 4630 | 5580 | 1780 | 2730 | 3680 | 4630 | 5580 | 6530 |
| | F | 950 | 1900 | 2850 | 3800 | 4750 | 5700 | 1900 | 2850 | 3800 | 4750 | 5700 | 6650 |
| | Max empty weight without options +/-10% (kg) | 282 | 419 | 554 | 705 | 915 | 1039 | 684 | 922 | 1181 | 1497 | 1727 | 1983 |
| DMN/CMN M module | A | - | - | 1540 | 1540 | 1540 | - | - | 1540 | 1540 | 1540 | 3140 | 3140 |
| | B | - | - | 3140 | 4740 | 3140 | - | - | 3140 | 4740 | 3140 | 6340 | 4740 |
| | C | - | - | - | - | 4740 | - | - | - | - | 4740 | - | 6340 |
| | D | - | - | - | - | 6340 | - | - | - | - | 6340 | - | 7940 |
| | E | 1480 | 3080 | 4680 | 6280 | 7880 | - | 3080 | 4680 | 6280 | 7880 | 9480 | 11080 |
| | F | 1600 | 3200 | 4800 | 6400 | 8000 | - | 3200 | 4800 | 6400 | 8000 | 9600 | 11200 |
| | Max empty weight without options +/-10% (kg) | 356 | 558 | 835 | 1046 | 1339 | - | 927 | 1383 | 1734 | 2187 | 2464 | 2920 |
| DLN/CLN L module | A | - | - | 1840 | 1840 | 1840 | - | - | 1840 | 1840 | 1840 | 3740 | - |
| | B | - | - | 3740 | 5640 | 3740 | - | - | 3740 | 5640 | 3740 | 7540 | - |
| | C | - | - | - | - | 5640 | - | - | - | - | 5640 | - | - |
| | D | - | - | - | - | 7540 | - | - | - | - | 7540 | - | - |
| | E | 1780 | 3680 | 5580 | 7480 | 9380 | - | 3680 | 5580 | 7480 | 9380 | 11280 | - |
| | F | 1900 | 3800 | 5700 | 7600 | 9500 | - | 3800 | 5700 | 7600 | 9500 | 11400 | - |
| | Max empty weight without options +/-10% (kg) | 399 | 639 | 972 | 1204 | 1537 | - | 1053 | 1572 | 1986 | 2501 | 2842 | - |
| All | H | 1370 | | | | | | 2490 | | | | | |

Dimensions in mm, excluding options.

INSTALLATION RECOMMENDATIONS

- These units are designed to operate outside. When starting up, frost and snow could adversely affect the operation of horizontal units.
As a general measure, all steps should be taken to avoid the risk of air recycling. This is especially important when the installation comprises several units.
It is not recommended to install units near the hot air extraction duct outlet or close to deciduous plants (this could cause fouling).
- A horizontal unit must have a surrounding clearance of 1.5 m. Where the use of anti-vibration mounts is required, use a rigid frame which locks the feet together.
- A vertical unit should preferably be placed parallel to the direction of the wind. It is not recommended for use with low fan rotation speeds. In addition, we recommend that these units be stabilised using braces connecting their two upper ends to fixed supports (wall or framework).
- The use of variable speed drives should be avoided, the EC motor solution should be preferred.
- For air-cooled condensers, the calculation of the evacuation capacity of the air-cooled condenser must be carried out in accordance with professional best practice and particularly in accordance with:
 - the type of compressor in the installation (hermetic, semi-hermetic or open),
 - the horizontal and vertical lengths of the connection pipes and their diameter.
- **Commissioning and maintenance:** refer to the instruction manual.
- These units comply with the European directives. The installer is responsible for ensuring the compliance of the installation. The installer must ensure safety and protective devices (emergency stop, shut-off valves, lightning protection, etc.) are put in place and are accessible.

VEXTRA™

Drycoolers



Up to 1900 kW

*Slim design and
acoustic comfort*

*Saves up to
40% floor space*



Free cooling

USE

Drycoolers in this range are mainly designed for cooling water or glycol/water mix for:

- Condensers for water chillers,
- Free cooling,

- Processes and machines (presses, compressors etc.)
- Replacing water cooling towers etc.

These devices are designed to be installed outdoors.

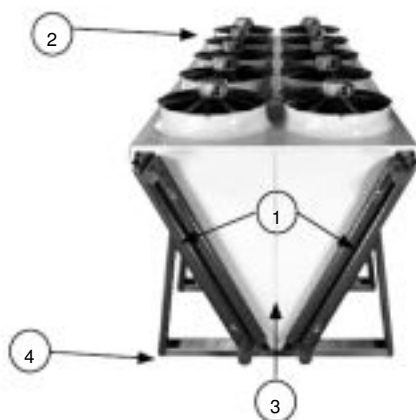
RANGE

- More than 220 models.
- A range of sizes, from 6 to 20 fans.
- 2 impeller diameters, 800 or 910 mm.
- Adaptation of the rotation speed (EC motor).

Various combinations of these elements, as well as the choice of a number of options, allow us to provide devices that are adapted to a range of applications and environments.

DESCRIPTION

Excellent resistance to corrosion
Casing with corrosiveness resistance category as per ISO 12944-2.



- 1 Coils
Copper tubes and high-performance aluminium fins, resistant to fouling.
Manifolds and piping: unpainted copper except for diameter 125 which are RAL 7024 graphite grey painted steel.
- 2 Fan motor assemblies
Profiled collars in galvanised steel with RAL7035 polyester powder paint or RAL9005 composite depending on the motor reference.
Aluminium + polypropylene propeller.
Class F motors - IP54 - TRI400V +/-10% 50Hz+/-2% - Standard connection to motor terminal boxes
Black protective grille compliant with standard BS ISO 12499. Partitioning in pairs.
EC motors can be used in 50 or 60 Hz and from 380 to 480V +/- 10%.
- 3 Casing
Galvanised steel with polyester powder paint in RAL7035 light grey.
- 4 Feet
Galvanised steel with polyester powder paint in RAL7024 light graphite grey.

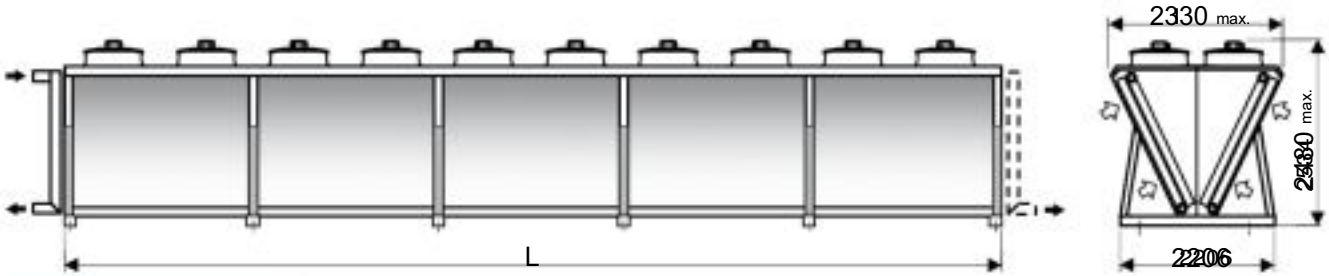
Each device is tested:

- The tightness of the coil is subjected to an underwater airtightness test.
- For devices with the terminal box or electrical cabinet option: rotation tests, dielectric tests, current measurement.

The entire range complies with the following European directives:

- Machinery directive 2006/42/EC,
- EMC directive 2014/30/EU,
- Pressure Equipment Directive (PED) 2014/68 EU.

DIMENSIONS

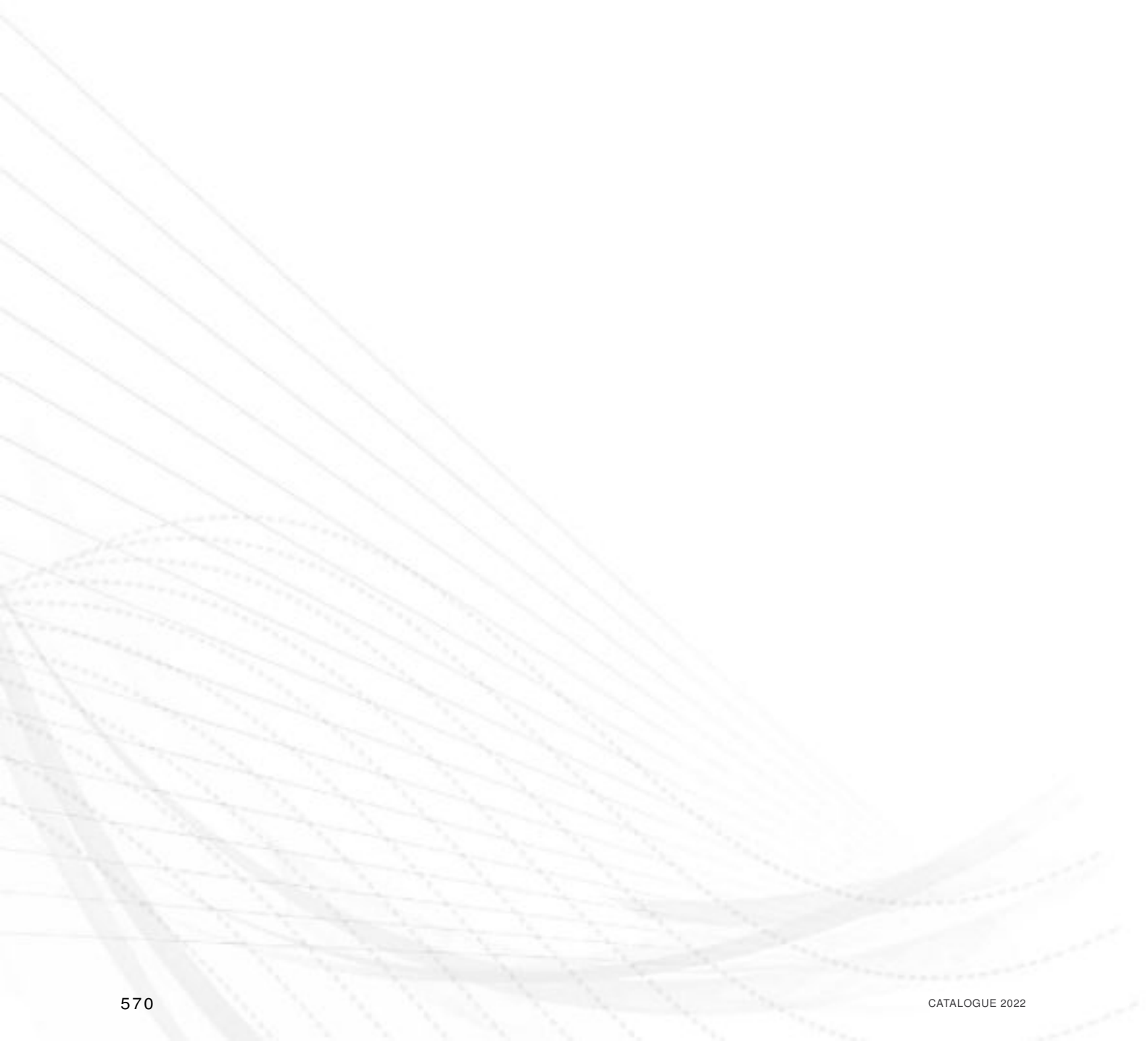


| | 1060 | 1080 | 1100 | 1120 | 1140 | 1160 | 1180 | 1200 |
|--------|-------------------------------------|------|------|------|------|------|-------|-------|
| | | | | | | | | |
| L (mm) | 3550 | 4700 | 5850 | 7000 | 8150 | 9300 | 10450 | 11660 |
| I (mm) | 2305 to 2420 depending on the model | | | | | | | |

Up to size 1180, these units can be transported by container, if the width is compatible.
Dimensions without options.

INSTALLATION RECOMMENDATIONS

- These units are designed to operate outside.
When starting up, frost and snow could adversely impair its operation.
As a general measure, all steps should be taken to avoid the risk of air recycling. This is especially important when the installation comprises several units.
It is not recommended to install units near the hot air extraction duct outlet or close to deciduous plants (this could cause clogging).
- Allow a clearance of 1.5 m around the unit. Where the use of anti-vibration mounts is required, use a rigid frame which locks the feet together.
- The use of variable speed drives should be avoided, the EC motor solution should be preferred.
- **Commissioning and maintenance:** refer to the instruction manual.
- These units **comply with the European directives**. The installer is responsible for ensuring the compliance of the installation. The installer must ensure safety and protective devices (emergency stop, shut-off valves, lightning protection, etc.) are put in place and are accessible.



SOLUTIONS FOR ENERGY OPTIMISATION

For drycoolers & air-cooled condensers

CONTROL UNIT WITH AEROCONNECT™ ELECTRONIC BOARD



*Optimised **energy** management
Information in multilingual clear text*

AEROCONNECT™ is used to control the temperature or pressure, check the operating parameters, communicate with CIAT water chillers and diagnose and memorise faults.

- Control of AC motor stages, or management of EC motor speed by 0/10 V signal, based on the temperature or pressure.
- 2 setpoints: for example for summer/winter or daytime/night-time use. Used to reduce the operating speed and to improve the seasonal energy efficiency coefficient.
- Stage runtime balancing (AC motors).
- EC motor speed limitation.
- Management of misting.
- Management of free cooling.
- Communication:
 - Open ModBus-JBUS RS 485 protocol,
 - ModBus-ETHERNET TC/IP protocol,
 - LONWORKS/BACNET Protocol (option).

CONTROL CABINET CONTROLLED BY THE CHILLER

For drycoolers or air-cooled condensers linked to one of the following water chillers:

- DYNACIAT™ LG
- DYNACIAT™ LGN
- HYDROCIAT™ LW
- AQUACIAT™ LD
- AQUACIAT^{POWER}™ LD
- DYNACIAT^{POWER}™ LG
- POWERCIAT™ LX

The drycooler or condenser can be equipped, as an option, with a managed control cabinet, to be linked to the water chiller. The unit will be controlled by the water chiller and the electricity consumption of the assembly will be optimised by shifting the condensing temperature according to the outdoor temperature.



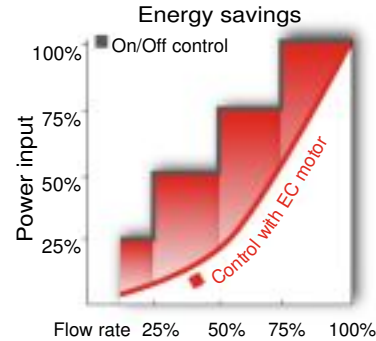
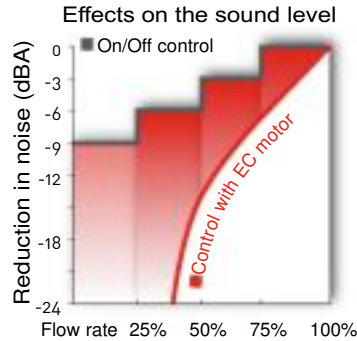
EC MOTOR

- Integrated electronic switching,
- Speed variation from 0 to 100% by 0/10V signal, as required,
- Operation in 50 Hz and 60 Hz,
- Excellent efficiency,
- Integrated monitoring and protection device,
- Easy to wire up,
- Maintenance-free operation.

This new generation of motor offers High Energy Efficiency solutions.

Advantages of speed management by the control cabinet:

- A considerable reduction in annual electricity consumption,
- Optimisation of the sound level.



FREE COOLING

Free cooling can be used to significantly reduce annual consumption of electricity.

The CIAT System offer comprises a water chiller, a drycooler and their associated control boards.

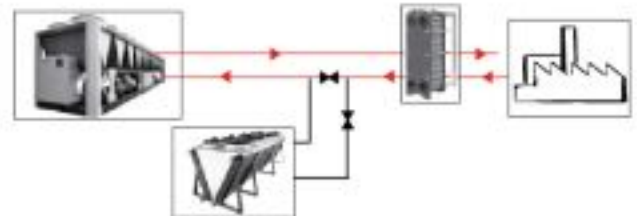
As a drycooler consumes much less electricity than a water chiller, it is beneficial to make best use of the cool air in winter and mid-season to directly cool the process fluid using the drycooler instead of the water chiller.

This system will therefore considerably reduce your annual electricity consumption.

In summer, the drycooler is stopped.

In mid-season, it pre-cools the process fluid.

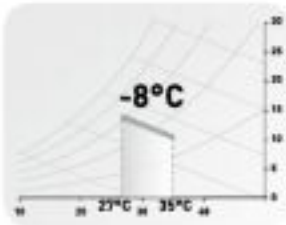
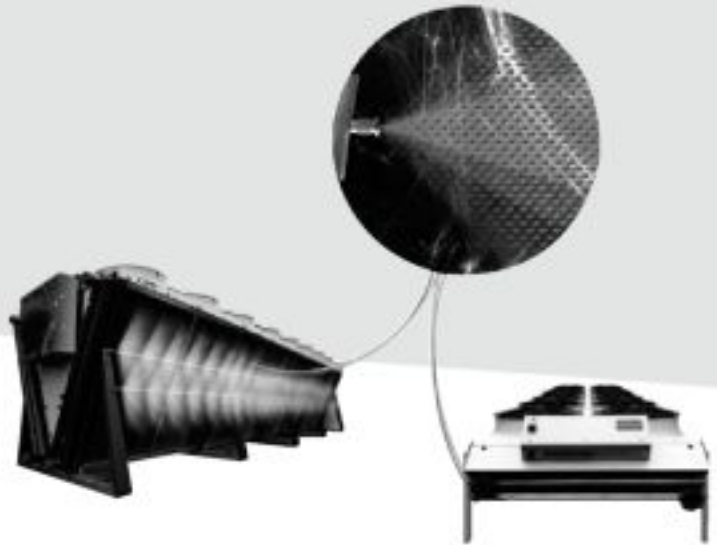
In winter, the water chiller is stopped; the drycooler directly cools the process fluid.



AEROFRESH™

Adiabatic cooling system

*Alternative
to cooling towers
Smaller units*



USE

- AEROFRESH™ is integrated in drycoolers and air condensers, and provides adiabatic cooling of the air.
- Available for the VEXTRA and OPERA ranges (in horizontal position - induced draught).
 - Used during the warmest periods.

DESCRIPTION

AEROFRESH™ is a complete air cooling system which uses water misting.

Misting is obtained using a high-pressure water spray technique (up to 100 bar). Ultra-fine droplets are sprayed in the opposite direction to the flow of air, causing them to evaporate instantly. The air is cooled before it enters the drycooler.

This system avoids having to oversize the system to cope with extreme but infrequent high temperatures.

AEROFRESH™ is composed of:

- an unit with a pump, solenoid valve, pressure gauge, pressure switch and 5 µ filter,
- stainless steel misting rails with brass nozzles.

As an option, a premium version of this unit is available with an additional UV lamp for antibacterial water treatment and automatic controller for managing faults or maintenance.

AEROFRESH™ is also available in an ionised water version. All metal parts in contact with water are made from stainless steel, including the nozzles.

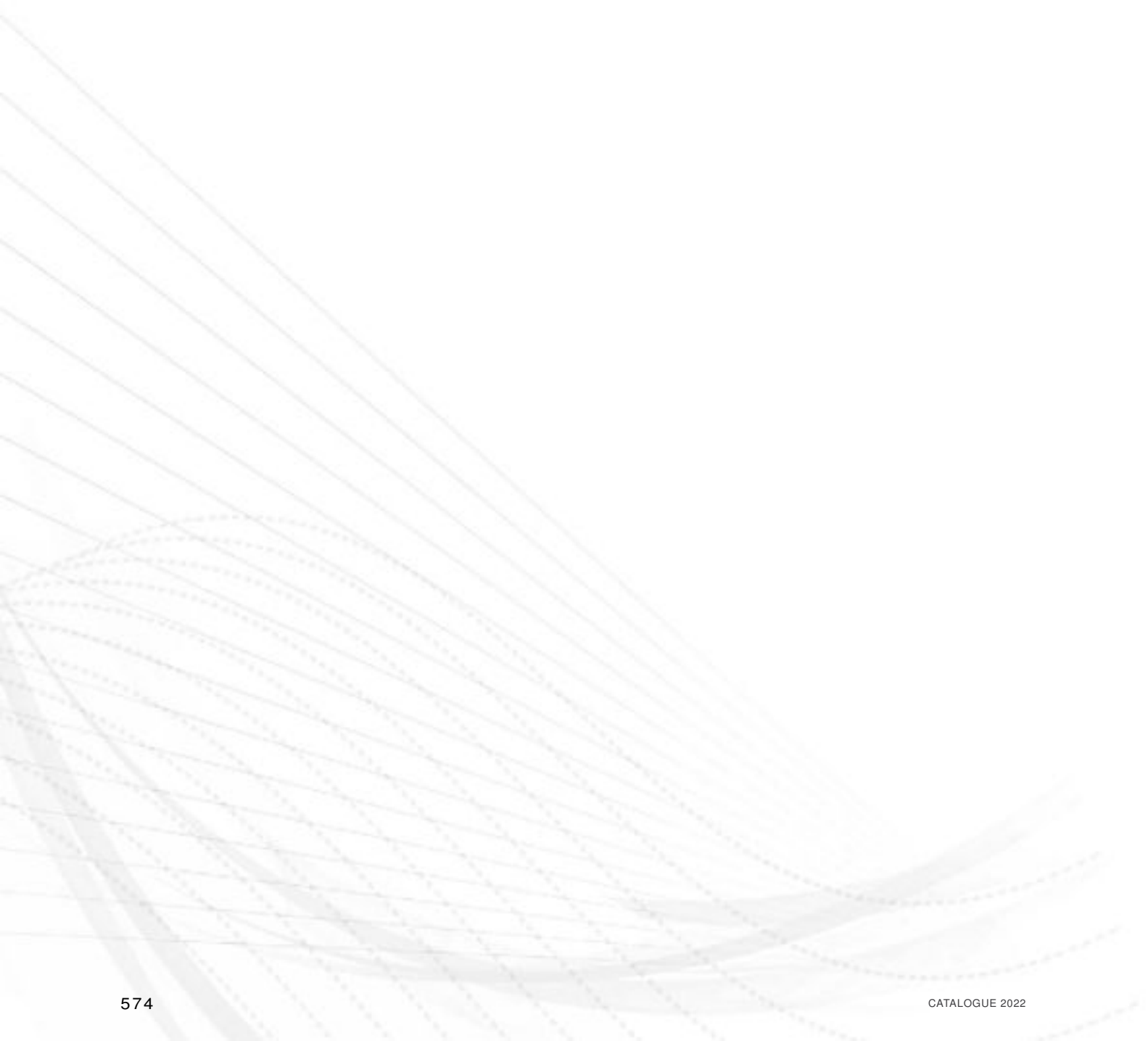
AEROFRESH™ is controlled by an AEROCONNECT control cabinet.

ADVANTAGES

- Smaller units.
- An alternative to cooling towers, misting allows the fluid temperature to be reduced.
- Increases the power of existing units.

AEROFRESH™ ADVANTAGES

- Optimised water consumption:
 - Very limited water supply wastage thanks to optimised evaporation of ultra-fine droplets.
 - To meet the requirements as closely as possible, several nozzle diameters are available and the pressure is set between 50 and 100 bar.
- Health and hygiene with the optional premium unit:
 - Thanks to the antibacterial UV lamp.
 - Thanks to daily flushing (pipes + cabinet) to prevent the formation of biofilm.



ITEX

Gasketed plate heat exchanger



*Offers high
heat
transfer capacity
Particularly suited
to small temperature
differences between the two fluids*

USE

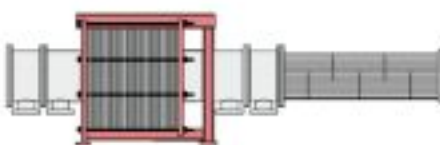
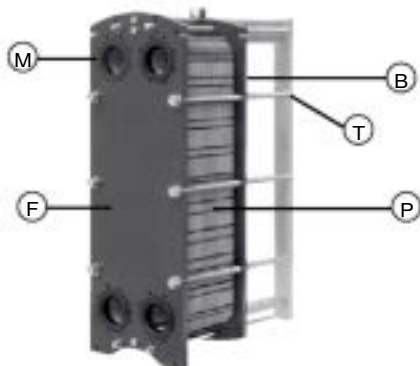
ITEX gasketed plate heat exchangers are particularly well suited to exchanges between two fluids, and therefore to a wide range of applications:

- Heat pump installations
- Water cooled chillers
- Heat recovery
- Heating and cooling sub-stations
- Domestic water heating
- Swimming pool heating
- Recovery on corrosive waste
- Geothermal energy recovery
- Industrial processes

DESCRIPTION

The unit is made of a set of stamped plates (P) and gaskets (B) tightened between 2 plates, one fixed (F) and one movable (B), using compression bolts (T). The gaskets (J) create flow channels between the plates and prevent venting to the atmosphere. The fluid connection is provided by four pipes (M) either integrated in the plate(s) or separate.

Note: the 1 pass/1 pass selection is the only case in which the four pipes are on the same plate.



Compact footprint



Double gasket between fluids

HEATING SELECTION

Due to the range's extreme modularity, the selection has been optimised based on the thermal requirements and the allowable pressure drops for the fluids utilised. The importance of this factor must not be underestimated when selecting a heat exchanger, as it influences the choice and number of plates and thus the transfer area.

The transfer area is also influenced by other factors, such as the height to width ratio, and the angle and depth of the chevron patterns.

ADVANTAGES

- Excellent transfer coefficient, giving a reduced surface area.
- Very low pinch point temperatures possible.
- High corrosion resistance.
- Compact footprint.
- Easy to install and maintain.
- Low-capacity circuits and fluid retention volume.
- Possibility of surface area extension.
- Unit can be cleaned in-place using a circulation system (NEP or CIP).
- Max. differential pressure = max. operating pressure.

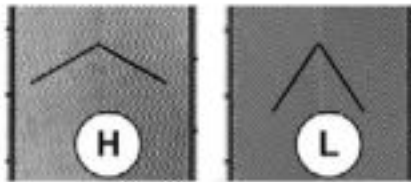
PRECAUTIONS

Do not damage the exchanger gaskets:

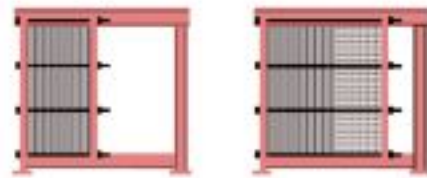
- Prevent overheating, water hammer and overpressure, and limits on-off cycles.
- Do not use 1/4-turn valves.
- Use with steam between 0 and 3 bar (eff).
- Provide a control system adapted to the requirements and which takes the low capacity of the circuits into account..

Keep the plates clean to guarantee thermal efficiency:

- Filter fluids containing suspended particles.
- Ensure the fluids are constantly circulating in the exchanger to prevent any build-up or scale.
- Install nozzles on the pipes for cleaning in place.



Different patterns



Plates can be added and removed easily

RANGE

| | | PWB 2+ | PWB 4+ | PWB 8+ | PWB 7 | PWB 16 | PWB 26 | PWB 10 | PWB 21 | PWB 41 |
|----------------------------|-------------------|------------|-----------|-----------|----------|-----------|-----------|------------|-----------|-----------|
| Width | mm | 145 | | | 245 | | | 320 | | |
| Height | mm | 305 | 455 | 740 | 527 | 857 | 1202 | 584 | 848 | 1375 |
| Connections diameter | | DN32 1"1/4 | | | DN50 2" | | | DN65 2"1/2 | | |
| Corrugation angle | | H/L | | | H/L | | | H/L | | |
| Max. water flowrate | m ³ /h | 19 | | | 63 | | | 80 | | |
| PS=> Max working pressure | bar | 10 16 25 | 10 16 25 | 10 16 25 | 10 16 25 | 10 16 25 | 10 16 25 | 10 16 25 | 10 16 25 | 10 16 25 |

| | | PWB 27 | PWB 30 | PWB 45 | PWB 70 | PWB 40 | PWB 60 | PWB 90 | PWB 65 | PWB 99 |
|----------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Width | mm | 320 | 425 | | | 500 | | | 678 | 668 |
| Height | mm | 1071 | 877 | 1322 | 1767 | 1055 | 1503 | 1951 | 1340 | 1825 |
| Connections diameter | | DN80 3" | DN100 4" | | | DN150 6" | | | DN200 8" | |
| Corrugation angle | | H/L | H/L | | | H/L | | | H/L | |
| Max. water flowrate | m ³ /h | 110 | 240 | | | 380 | | | 800 | 730 |
| PS=> Max working pressure | bar | 10 16 25 | 10 16 25 | 10 16 25 | 10 16 | 10 16 | 10 16 | 10 16 | 10 16 | 10 16 |

- Plate thickness : 0,4mm - 0,5mm - 0,6mm - 0,7mm - availability according to model, material, pressure
- Plate material : 304 stainless steel - 316L stainless steel - 254 SMO (except PWB99) - Titanium (except PWB90).
- Gasket material : NBR - EPDM Prx - FPM
- Frame material : Carbon steel - Stainless steel
- The ITEX range is built with plug-in gaskets and lateral circulation (parallel flow).

THERMOFORMED INSULATION

Option DN 32 - DN50 - DN65

Description

The thermoformed insulation is flexible, semi-rigid prefabricated insulation that is easy to install and adjust to the exchanger's configuration and to customer requirements.

Supplied as a kit, it can be assembled quickly and easily, with no need for special tools (cutters or similar), using the assembly instruction sheet and the pre-punched templates.

Particularly well adapted to HVAC applications, its special "double-layered" structure, comprising two different closed cell expanded elastomers (max. thickness 30 mm) makes it suitable for HEATING and REFRIGERATION applications.

Range

DN 32: PWB 2+, PWB 4+ and PWB 8+ models.

DN 50: PWB 7, PWB 16 and PWB 26 models

DN 65: PWB 10, PWB 21 models.

Advantages

- Reduction in energy losses.
- Easy to adapt on site to the manufacturing configuration (single or multi-pass, with or without a mounting bracket kit, with or without condensate pan, etc.).

- Easy to adapt to customer requirements (for example: specific mounting brackets provided by the customer, specific circulation of fluids, etc.).
- Low installation cost.
- Lightweight and resilient.

Technical specifications

- Operating temperature limits: -10 °C / +130 °C.
- Thermal conductivity λ : 0.0376 W/mK (average value at 40 °C).
- Classification of fire rating of the insulating materials: FMVSS 302 standard of flame containment at less than 100 mm/min.



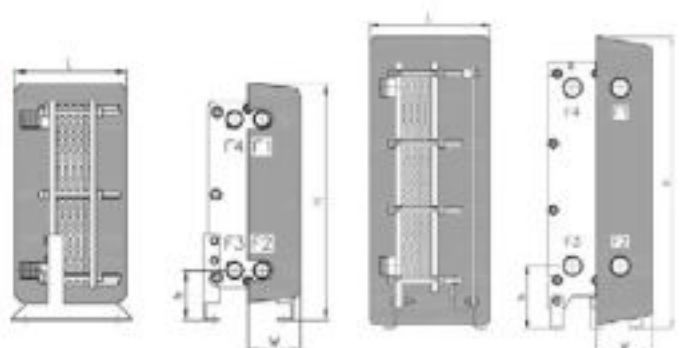
Dimensions

| DN 32 | | | | |
|-----------------|-----|-----|-----|-----|
| PWB 2+ | L | H | W | h |
| Max. 29 plates | 280 | 450 | 130 | 125 |
| Max. 49 plates | 380 | 450 | 130 | 125 |
| Max. 75 plates | 580 | 450 | 130 | 125 |
| PWB 4+ | L | H | W | h |
| Max. 29 plates | 280 | 595 | 130 | 125 |
| Max. 49 plates | 380 | 595 | 130 | 125 |
| Max. 75 plates | 580 | 595 | 130 | 125 |
| PWB 8+ | L | H | W | h |
| Max. 29 plates | 280 | 865 | 130 | 125 |
| Max. 49 plates | 380 | 865 | 130 | 125 |
| Max. 75 plates | 580 | 865 | 130 | 125 |
| Max. 101 plates | 580 | 865 | 130 | 125 |

| DN 65 | | | | |
|-----------------|------|------|-----|-----|
| PWB 10 | L | H | W | h |
| Max. 41 p. | 490 | 900 | 233 | 251 |
| Max. 71 p. | 630 | 900 | 233 | 251 |
| Max. 101 p. | 770 | 900 | 233 | 251 |
| Max. 151 p. | 1000 | 900 | 233 | 251 |
| PWB21 | L | H | W | h |
| Max. 41 plates | 490 | 1160 | 233 | 251 |
| Max. 71 plates | 630 | 1160 | 233 | 251 |
| Max. 101 plates | 770 | 1160 | 233 | 251 |
| Max. 151 plates | 1000 | 1160 | 233 | 251 |

| DN 50 | | | | |
|-----------------|------|------|-----|-----|
| PWB 7 | L | H | W | h |
| Max. 41 plates | 472 | 858 | 185 | 250 |
| Max. 71 plates | 612 | 858 | 185 | 250 |
| Max. 101 plates | 752 | 858 | 185 | 250 |
| Max. 151 plates | 982 | 858 | 185 | 250 |
| PWB 16 | L | H | W | h |
| Max. 41 plates | 472 | 1188 | 185 | 250 |
| Max. 71 plates | 612 | 1188 | 185 | 250 |
| Max. 101 plates | 752 | 1188 | 185 | 250 |
| Max. 151 plates | 982 | 1188 | 185 | 250 |
| Max. 251 plates | 1442 | 1188 | 185 | 250 |
| PWB 26 | L | H | W | h |
| Max. 41 plates | 472 | 1533 | 185 | 250 |
| Max. 71 plates | 612 | 1533 | 185 | 250 |
| Max. 101 plates | 752 | 1533 | 185 | 250 |
| Max. 151 plates | 982 | 1533 | 185 | 250 |
| Max. 251 plates | 1442 | 1533 | 185 | 250 |

All dimensions are given in mm. The dimensional tolerance is compatible with the accuracy permitted by the thermoforming process.



PANEL INSULATION

Option DN 65 - DN 80 - DN 100 - DN 150 - DN 200

■ Description

This insulation is specially designed for the HVAC applications performed by our jointed plate heat exchangers.

It has a modular, self-supporting structure created from insulating panels (45 mm thick) anchored together using hook fasteners and coupled so as to minimise thermal bridges.

The distinctive sandwich structure of the insulating panels, obtained by combining polyurethane foam with sheet aluminium, offers the assembly a high degree of thermal insulation, good structural rigidity and a usable surface finish. Provided as a kit, it is quick and easy to assemble with no special tools needed.

■ Advantages

- The exchanger is completely contained within the insulation: this not only minimises condensation and heat loss, but also provides a high level of safety and comfort to operators working around the exchanger.
- Quick and easy access to the heat exchanger for inspection.
- Low installation costs.

■ Technical specifications

- External finish of the panels: smooth sheet aluminium, pre-painted in RAL 2306 (0.5 mm thick).
- Insulating material: rigid polyurethane foam with a high percentage of closed cells (more than 95 %) and a density of 48 kg/m³.
- Initial thermal conductivity (λ) of the insulating material: 0.024 W/m°C (value measured at an average temperature of 10 °C as per ISO standard 8302).
- Operating temperature range: -10 ° / +130 °C.
- Material fire rating: B – 2 s, d 0 (in accordance with UNI EN 13501-1 :2007).



PANEL INSULATION

■ Dimensions

| DN 65 | | | | |
|-------------|------|------|-----|-----|
| PWB41 | L | H | W | h |
| Max. 41 p. | 842 | 1637 | 554 | 171 |
| Max. 71 p. | 842 | 1637 | 554 | 171 |
| Max. 101 p. | 982 | 1637 | 554 | 171 |
| Max. 151 p. | 1212 | 1637 | 554 | 171 |
| Max. 251 p. | 1701 | 1637 | 554 | 171 |

| DN 80 | | | | |
|-------------|------|------|-----|-----|
| PWB27 | L | H | W | h |
| Max. 41 p. | 842 | 1357 | 554 | 198 |
| Max. 71 p. | 842 | 1357 | 554 | 198 |
| Max. 101 p. | 982 | 1357 | 554 | 198 |
| Max. 151 p. | 1212 | 1357 | 554 | 198 |
| Max. 251 p. | 1701 | 1357 | 554 | 198 |

| DN 100 | | | | |
|-----------------|------|------|-----|-----|
| PWB30 | L | H | W | h |
| Max. 101 plates | 1074 | 1180 | 678 | 198 |
| Max. 201 plates | 1574 | 1180 | 678 | 198 |
| Max. 301 plates | 2074 | 1180 | 678 | 198 |
| Max. 401 plates | 2574 | 1180 | 678 | 198 |

| PWB45 | L | H | W | h |
|-----------------|------|------|-----|-----|
| Max. 101 plates | 1074 | 1625 | 678 | 198 |
| Max. 201 plates | 1574 | 1625 | 678 | 198 |
| Max. 301 plates | 2074 | 1625 | 678 | 198 |
| Max. 401 plates | 2574 | 1625 | 678 | 198 |

| PWB70 | L | H | W | h |
|-----------------|------|------|-----|-----|
| Max. 101 plates | 1074 | 2070 | 678 | 198 |
| Max. 201 plates | 1574 | 2070 | 678 | 198 |
| Max. 301 plates | 2074 | 2070 | 678 | 198 |
| Max. 401 plates | 2574 | 2070 | 678 | 198 |

| DN 150 | | | | |
|-----------------|------|------|-----|-----|
| PWB40 | L | H | W | h |
| Max. 101 plates | 1074 | 1433 | 757 | 256 |
| Max. 201 plates | 1574 | 1433 | 757 | 256 |
| Max. 301 plates | 2074 | 1433 | 757 | 256 |
| Max. 401 plates | 2574 | 1433 | 757 | 256 |
| Max. 551 plates | 3374 | 1433 | 757 | 256 |

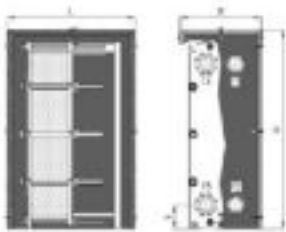
| PWB60 | L | H | W | h |
|-----------------|------|------|-----|-----|
| Max. 101 plates | 1074 | 1881 | 757 | 256 |
| Max. 201 plates | 1574 | 1881 | 757 | 256 |
| Max. 301 plates | 2074 | 1881 | 757 | 256 |
| Max. 401 plates | 2574 | 1881 | 757 | 256 |
| Max. 551 plates | 3374 | 1881 | 757 | 256 |

| PWB90 | L | H | W | h |
|-----------------|------|------|-----|-----|
| Max. 101 plates | 1074 | 2374 | 757 | 256 |
| Max. 201 plates | 1574 | 2374 | 757 | 256 |
| Max. 301 plates | 2074 | 2374 | 757 | 256 |
| Max. 401 plates | 2574 | 2374 | 757 | 256 |
| Max. 551 plates | 3374 | 2374 | 757 | 256 |
| Max. 701 plates | 4204 | 2374 | 757 | 256 |

| DN200 | | | | |
|-----------------|------|------|-----|-----|
| PWB65 | L | H | W | h |
| Max. 151 plates | 1504 | 1764 | 957 | 285 |
| Max. 251 plates | 2104 | 1764 | 957 | 285 |
| Max. 351 plates | 2504 | 1764 | 957 | 285 |
| Max. 551 plates | 3404 | 1764 | 957 | 285 |

| PWB99 | L | H | W | h |
|-----------------|------|------|-----|-----|
| Max. 151 plates | 1504 | 2263 | 957 | 285 |
| Max. 251 plates | 2104 | 2263 | 957 | 285 |
| Max. 351 plates | 2504 | 2263 | 957 | 285 |
| Max. 551 plates | 3404 | 2263 | 957 | 285 |

All dimensions are given in mm. The dimensional tolerance is compatible with the accuracy permitted by the thermoforming process.



The dimensions of the hooks on the closure panels are not included. Add 30 mm to sides W and L, 15 mm to side H.

CONDENSATE DRAIN PAN

Option for all sizes

■ Description

The recovery pan is designed to drain not just the water forming condensation on the exchanger, but also any fluid which could come from an accidental leak around the exchanger, or during opening for maintenance.

Its use is recommended in all applications which carry a risk of condensation and those which carry a risk of environmental pollution.

The pan is made from stainless steel and is designed to be installed underneath the exchanger.

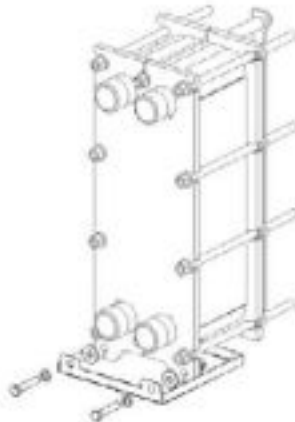
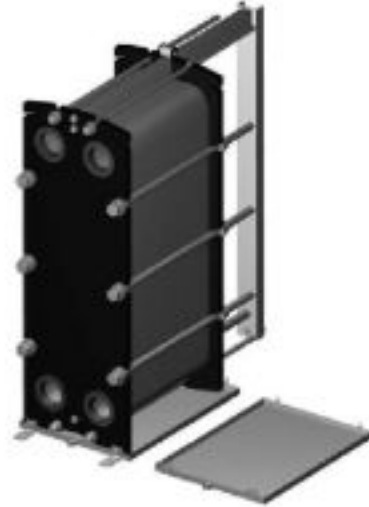
It is positioned and secured to the exchanger using a system of screws, nuts and washers.

■ Advantages

- Recovery and drainage of all traces of condensation which could form on the external surface of the exchanger.
- Recovery and drainage of any fluids which could accidentally escape from the exchanger: ensuring the safety of personnel and of the environment.

■ Technical specifications

- Stainless steel panels (AISI 304).
- 3/4" sleeve (internal tapping) for drainage of the collected fluids.



DOUBLE-WALL PLATES

PWB4+ PWB8 PWB16

■ Description

Double-wall plates consist of two identical heat transfer plates embossed together and then joined by laser welding around the inlet and outlet portholes.

Such kind of coupling generates a thin air gap between the two plates that, in case of welding or plate's failure, prevents fluids intermixing and brings to an external leakage visually detectable. Suitable for all the heat transfer processes where cross-contamination is to avoid, the double-wall plates are the right solution for all those HVAC applications where a higher level of safety is recommendable and/or required by local rules.

■ Benefits

Minimize the risk of fluids intermixing.
 Allow visual detection from the outside of any internal leak.
 Offer all the advantages of Gasketed Plate Heat Exchanger technology: maximum heat transfer, compact design and easy maintenance.

■ Technical data

Material of plates: AISI 316L
 Design standard: PED 2014/68/EU up to risk cat. IV
 Pressure design / test (g): up to 16 / 26 bar

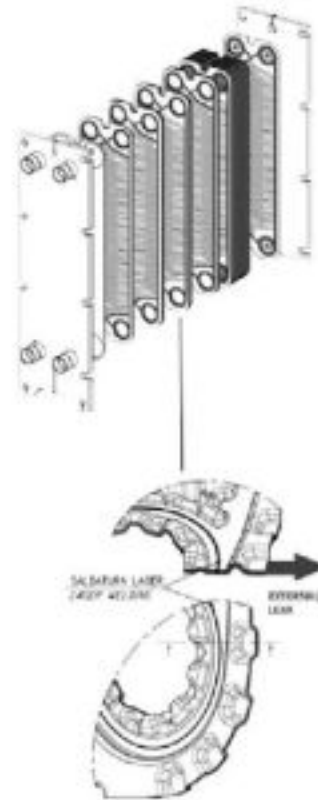


PLATE PACK PROTECTION

ALL MODELS

■ Description

The Plate Pack Protection is a safeguard device specifically designed to protect personnel in case of unexpected leakage. Strongly recommended in case of hazardous services, it should be always used when temperatures are over 60°C also when handling uncritical media.

The Plate Pack Protection consists of two or more metal sheets shaped to cover the plate pack and to fit the plate heat exchangers. On smaller units the sheets cover the plate pack enveloping the frame plates. On larger units the sheets are fitted between the tightening bolts and the plate pack.

Supplied as a kit, it is easily and quickly assembled without the use of tools nor screws or bolts.

■ Benefits

Higher level of safety for those who work around the heat exchanger.
 Protection of the plate pack in case of aggressive or polluted environment.
 Quick and easy access to the heat exchanger for inspection.
 Low installation costs.

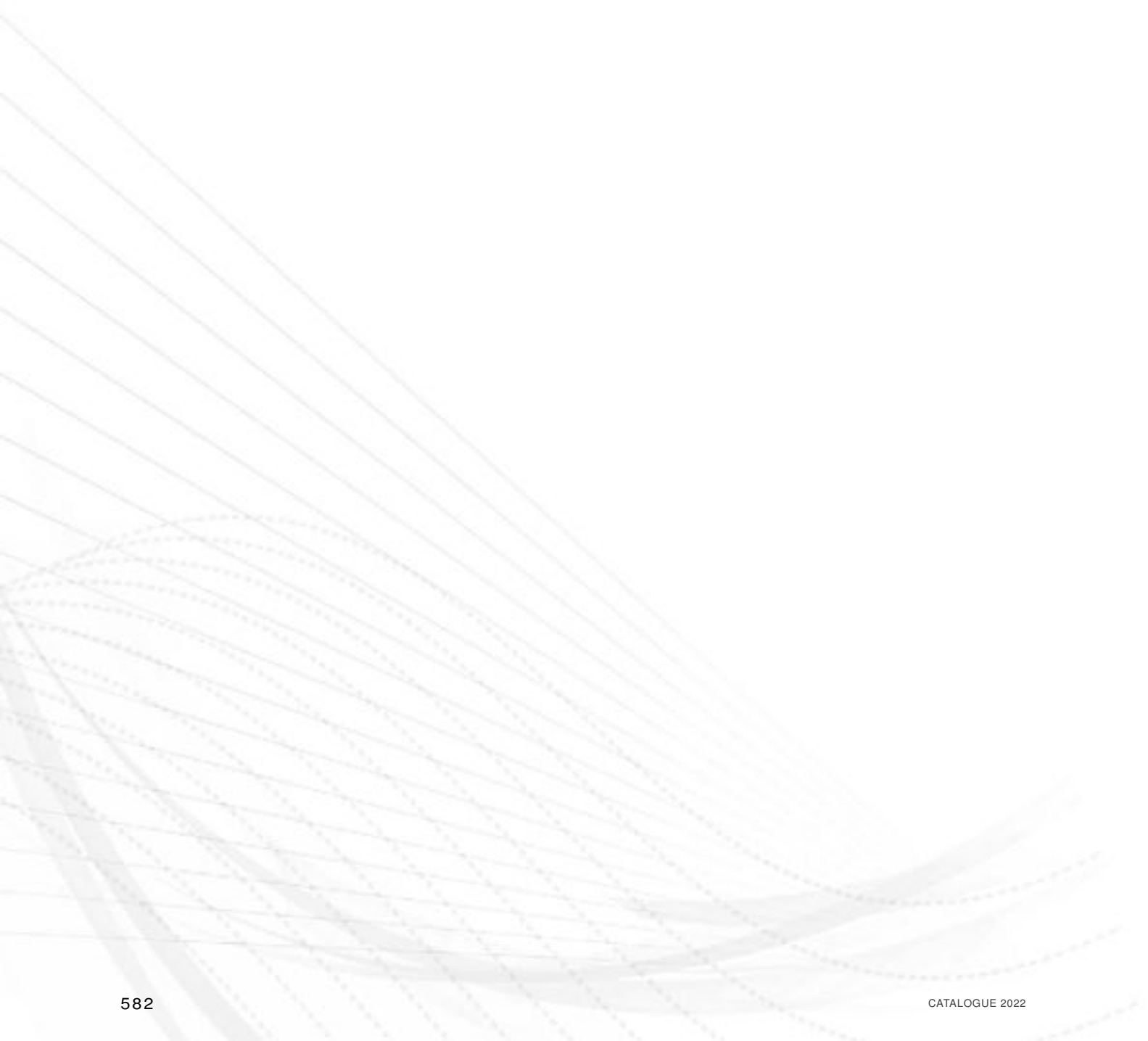
■ Technical data

Material of construction: Stainless steel AISI 304 (thickness 1 mm).

■ Main dimensions

Each Plate Pack Protection is factory-tailor-made to fit to the specific plate heat exchanger.





THERMAL ENERGY STORAGE

A sustainable approach to buildings

*For your systems ≥ 500 kW
CIAT optimizes the design and the operation of your installation for all applications in both commercial and industrial buildings*



HVAC SYSTEM WITH STORAGE

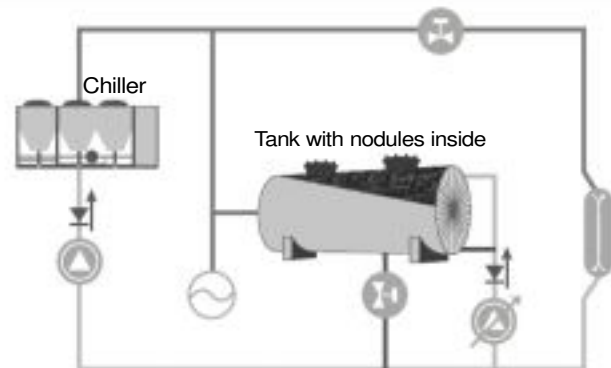
The Thermal Energy Storage (TES) system along with your chillers is composed of one or several tanks filled with spherical elements called nodules that contain the Phase Change Materials (PCM). The use of PCM in nodules provides very high energy density and power exchange.



Nodules
Core TES Technology
Encapsulation of PCM



Reliability
Competitiveness



UNIQUE GLOBAL PCM EXPERTISE

- PCM (formulation, nucleation, characterisation, durability, recyclability)
- Packaging and encapsulation of PCM
- Envelope materials (material compatibility, aging)
- Industrial manufacturing process

MONITORED & CONTROLLED SYSTEM CRISTO'CONTROL2

The control and monitoring system Cristo'Control2 optimizes the operation of the installation. It helps contractors and owners to optimize energy consumption, lower CO₂ and greenhouse gas emissions and reduce operating costs.

Controls

- Operating modes automatic management
- Thermal equipment regulation
- Stored energy optimization

Monitoring

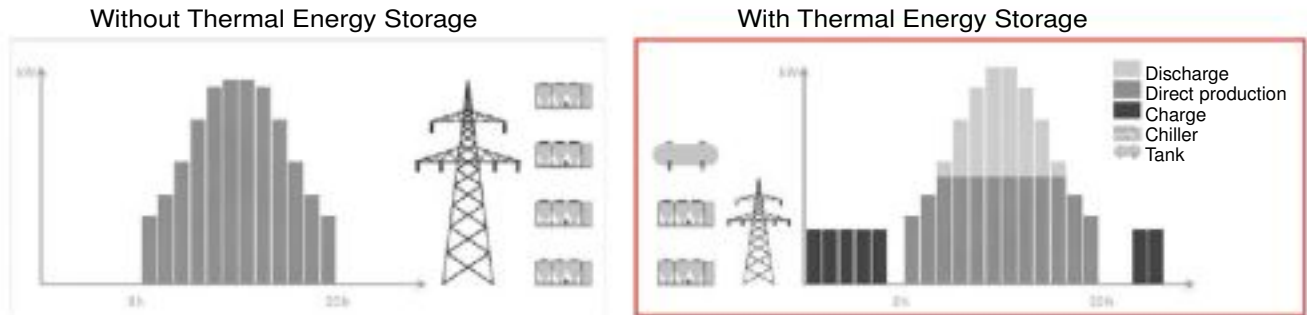
- Local and remote monitoring
- Alarm notification
- Real-time view of operating parameters

Auto-adaptative module

- Daily optimization
- Predictive calculation of the daily cooling demand
- Permanent operating adaptation

SHIFT YOUR ELECTRICITY CONSUMPTION FROM PEAK TO OFF PEAK HOURS

Histogram Of A Building's Daily Cooling Needs And Its Electricity Consumption Profile



OPTIMAL COOLING

The expertise to tailor-make your cooling solution

Turnkey solution

CIAT supports consulting engineers by customizing the hydraulic layout for each project: application, operating conditions and specific customer needs. When necessary, complementary technologies such as free cooling or energy recovery are integrated.

Proven technology

CIAT has unique expertise in Phase Change Materials (PCM) based on over 30 years of Research & Development in partnership with universities and technical centers in Europe. This Thermal Energy Storage (TES) solution by latent heat allows TEWI* benefits from 15% to 40%**.

Unique expertise

CIAT engineers have unique and proven expertise, including in-depth knowledge of dual cooling and automation. The team collaborates closely with Sophia-Antipolis, Europe's largest technology park and is involved in several European research and innovation projects.



OPTIMIZED SAVINGS

Smart energy use for operational optimization

Reduced operating costs

By storing thermal energy during the night and releasing it during the day, the Thermal Energy Storage system consumes electricity at lowest prices and avoids peak times. By spreading thermal energy production over 24 hours, this solution can reduce chiller capacity by 30 to 70%***.

Non-stop support

CIAT expert engineers advise and support you daily. Thanks to regular monitoring and follow-up you can optimize the operation of your cooling installation. CIAT also offers additional services (training, on-site intervention, trending...) throughout the lifecycle of your installation.

Smart-grid ready

By shutting down electricity-hungry energy producers on demand and forcing the discharge of the system, the TES system regulates equipment to respond to peak electricity alerts on the power grid. This solution can also be combined with renewable energy (wind turbines, photovoltaics).

*TEWI: Total Equivalent Warming Impact - ** / ***Source: Measured differences between equivalent systems designed with and without TES.



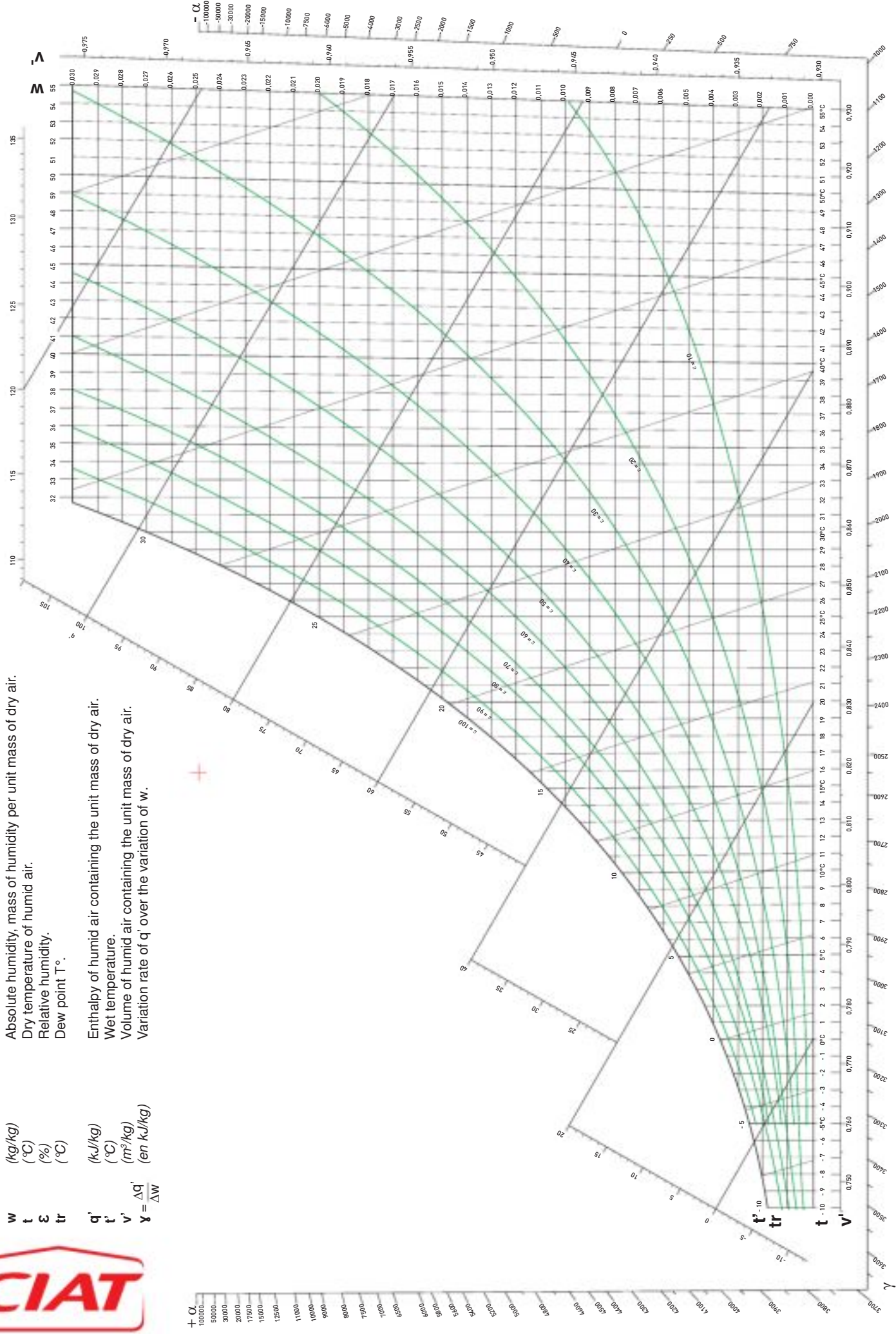




HUMID AIR DIAGRAM

- w** (kg/kg)
- t** (°C)
- ε** (%)
- tr** (°C)
- q'** (kJ/kg)
- t'** (°C)
- v'** (m³/kg)
- γ = Δq' / ΔW** (en kJ/kg)

- Absolute humidity, mass of humidity per unit mass of dry air.
- Dry temperature of humid air.
- Relative humidity.
- Dew point T_d.
- Enthalpy of humid air containing the unit mass of dry air.
- Wet temperature.
- Volume of humid air containing the unit mass of dry air.
- Variation rate of q' over the variation of w.





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