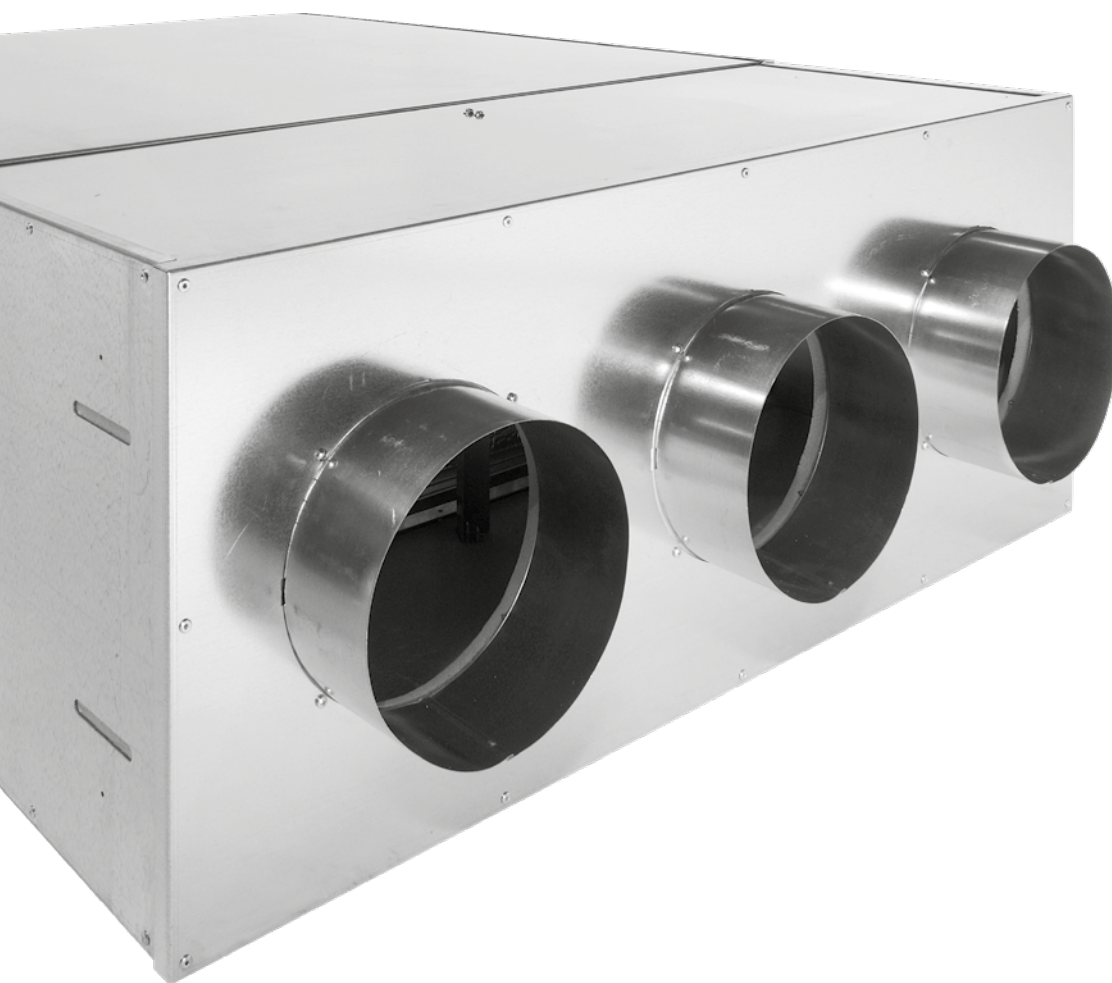


# TECHNICAL MANUAL



## HIGH PRESSURE UNIT EBH

**EURAPO**

INTEGRATED  
COMFORT  
SYSTEMS





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# 1. GENERAL INFORMATION

## 1.1 APPLICATIONS

EBH high pressure ducted fan coils are specifically designed for ducted installations, with external static pressure up to 350 Pa. Their high pressure fan decks permit to satisfy every request of heating and cooling application in big environments.

## 1.2 OPERATION

The effectiveness of a fan coil is due to the large surface area of the finned heat exchanger (coil) where the air drawn from the room by the fan passes through.

Heating operation: the hot water circulating in the finned coil supplies heat to the air passing through the heat exchanger.

Cooling operation: the chilled water circulating in the finned coil removes heat from the air passing through the heat exchanger. The air is also dehumidified and the condensed water vapour must be discharged from the unit: suitable drains must therefore be provided to drain the condensed water that collects in the condensate tray.

## 1.3 PERFORMANCES

The performance of a fan coil can vary greatly with changes in the temperature and in the amount of water circulating through the coil, as well as with changes in the temperature and in the amount of air circulating through the coil.

The air volume is determined by selecting the proper fan speed through electronic or digital regulators (also for BMS systems), while the water flow rate is determined by the specifications of the system and of the pump.

Thermal performances of the unit can be optimized by controlling the inlet flow rate of the water with proper regulating valves (ON/OFF or modulating), which can be supplied as accessories and which are necessary in case of cooling operation.

For each model, thermal performances in heating and cooling depend on the number of rows of the coil installed, which gives the opportunity to make the air treatment suit every condition required.

In cooling function, under the same operating conditions, the more rows the heat exchanger has, the more it will dehumidify.

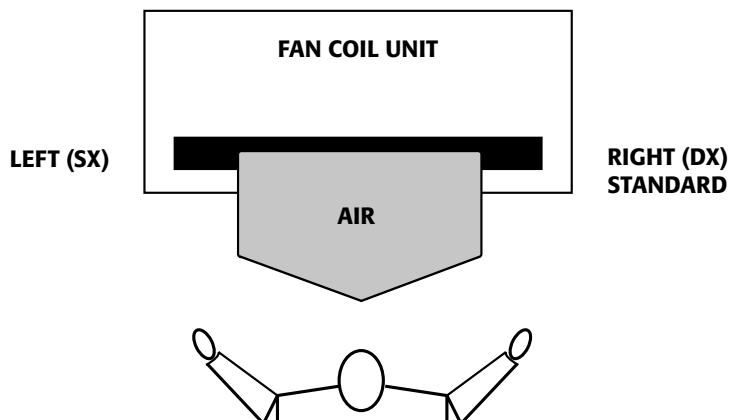
## 1.4 PRODUCT RANGE

The EBH high-pressure fan coil units are available in 6 sizes (020÷070) for concealed horizontal installation, in 2 and 4 pipe systems.

## 1.5 SELECTION SOFTWARE

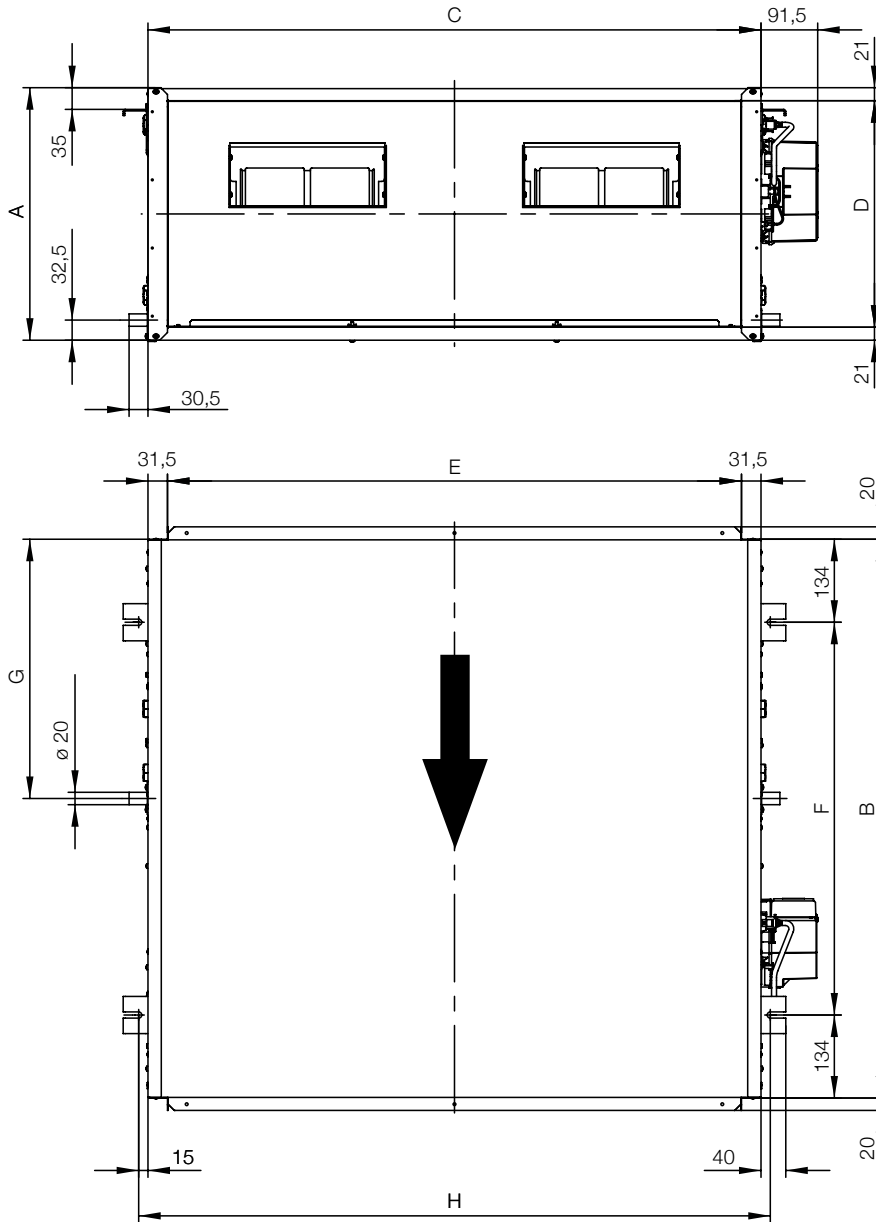
To facilitate choosing the correct size of a fan coil for any operating condition (including those differing from the standard ones), EURAPO offers a dedicated computer program that can be downloaded from the ftp address <https://www.geniusplan.it>.

## 1.6 WATER CONNECTIONS



## 2. DIMENSIONS AND WEIGHTS

AIR DELIVERY



		020	030	040	050	060	070
A	[mm]	407,6	407,6	407,6	407,6	517,6	517,6
B	[mm]	902	902	902	902	1160	1160
C	[mm]	989,6	989,6	1239,6	1239,6	1634,6	1634,6
D	[mm]	365,6	365,6	365,6	365,6	475,6	475,6
E	[mm]	926,6	926,6	1176,6	1176,6	1571,6	1571,6
F	[mm]	634	634	634	634	892	892
G	[mm]	418,5	418,5	418,5	418,5	446,5	446,5
H	[mm]	1019,6	1019,6	1269,6	1269,6	1664,6	1664,6
Weight (3R - 3 rows)	[kg]	64,3	64,3	79,3	79,3	126,0	126,0
		(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 5 rows)	(2-3-4 5 rows)
Weight of the coil	[kg]	4,8-5,8-7,6	4,8-5,8-7,6	5,6-7,4-9,6	5,6-7,4-9,6	9,4-12,8-17,4-21,5	9,4-12,8-17,4-21,5
Water connection		G1/2" F	G1/2" F	G1/2" F	G1/2" F	G1" M	G1" M
		(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 rows)	(2-3-4 5 rows)	(2-3-4 5 rows)
Water content	[l]	1,4-2,2-2,9	1,4-2,2-2,9	1,9-2,8-3,8	1,9-2,8-3,8	3,4-5,0-6,7-8,4	3,4-5,0-6,7-8,4

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### 3. COMPONENTS

#### 3.1 STRUCTURE

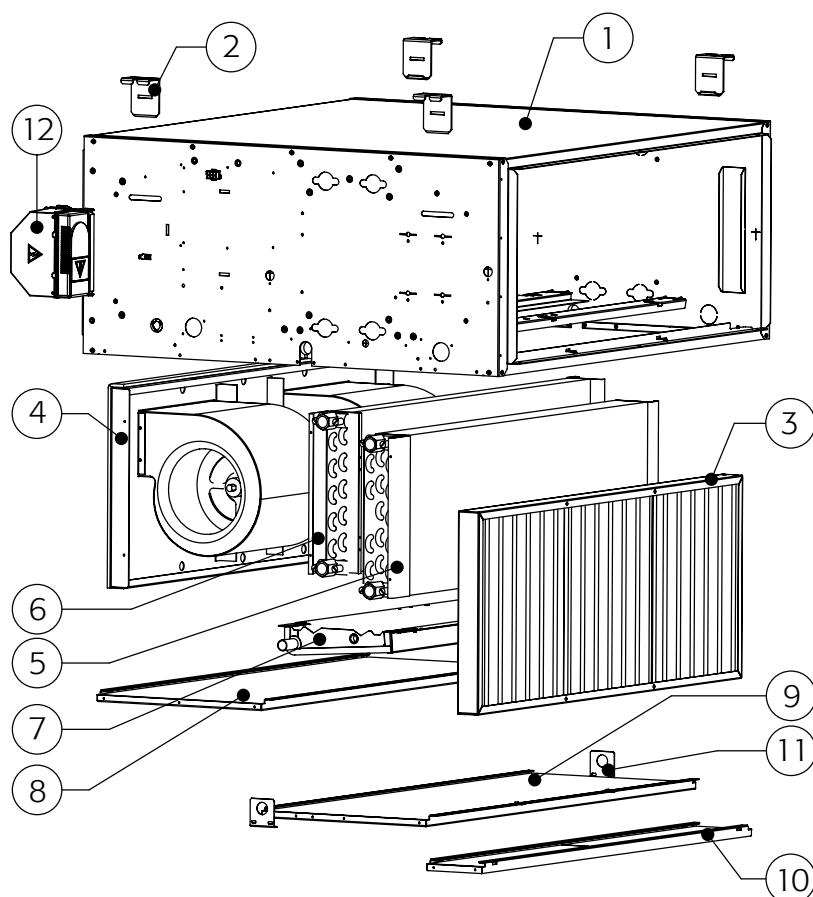
The structure is made of galvanized steel. A particular manufacturing process gives stiffness to the structure: in this way all risks of vibration (which causes unpleasant noise) are strongly reduced. All the inner elements that could be cooled are completely lined with insulating material based on polyolefin, chemically reticulated and closed cell foam, which is not only a thermal insulation material but also a good sound attenuator. Self-extinguishing grade in accordance to norms: Class 1 - Italy, Class M1 - France UNI 8457 and UNI 9174.

In order to facilitate all maintenance operations, the structure is divided in 3 separate and independent sections:

- Fan deck
- Condensate tray
- Filter

The air intake and outlet are provided with a 21 mm flange for an easy connection to the air duct.

The EBH fan coils can be installed on the ceiling by using the four fixing brackets always supplied with every unit.



#### LEGEND

1.	Structure
2.	Fixing support
3.	Filter
4.	Fan deck
5.	Standard coil
6.	Heat exchangers (2 or 3 rows)
7.	Condensate tray
8.	Access panel to fan deck
9.	Access panel to condensate tray
10.	Access panel to filter
11.	Water discharge fixing supports
12.	Electric box

### 3.2 COILS

For each unit size there are 2, 3 and 4 row coils available; for 4 pipe systems it is possible to install a 2 or 3 row coil. It is therefore possible to have a combination of maximum 7 rows (4 row cooling + 3 row heating). For models 060 and 070 are also 5 row coils available, which can be combined with additional 2 or 3 row coils.

All coils consist of 3/8" external diameter copper pipes mechanically expanded to the aluminium fin packs, provided with copper headers and brass soldering connections.

Max. operating pressure 1,6 MPa, testing pressure 2,8 MPa.

For the sizes 020, 030, 040 e 050 each header is provided with a very handy air valve, to allow air venting or water drainage from the coil. The air valve can be easily reached from the outside of the unit.

For the sizes 060 and 070 the air vent valve are not present, therefore it is necessary to provide in the pipe connection a system for the water discharge and air venting of the coil.

EBH units are also available for **District Cooling** applications: the water coils (4 rows for size 020-050 and 5 rows for size 060) are designed with a reduced number of circuits, suitable for functioning with high water temperature difference.

EBH units can be ordered with right (standard) or left water connections, so defined when facing the air outlet. If necessary, however the coils can be easily removed and reversed on site.

Water connections are 1/2" F (female threaded) for sizes 020, 030, 040, 050 and 1" M (male threaded) for size 060 and 070.

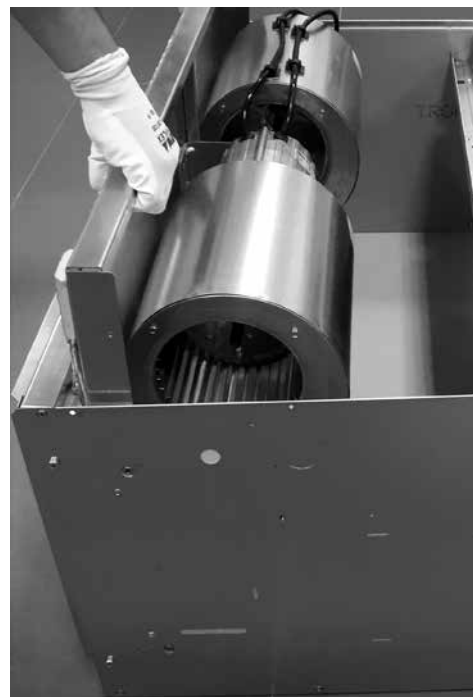
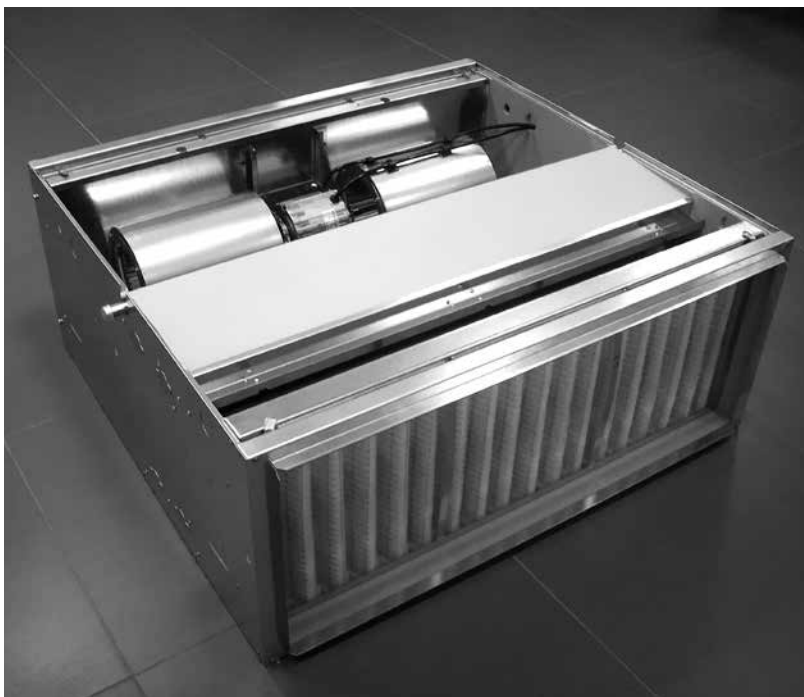


**MAXIMUM OPERATING PRESSURE WITH VALVES: 16 BAR.**

### 3.3 FAN DECK

The fan deck is composed by a 3 speed motor and 2 centrifugal galvanized steel scrolls. The motor and the scrolls are fixed on a rigid galvanized steel 1,5 mm thick basement: the motor is located in a proper cradle and fixed with elastic ribbon supports. All motors are provided with permanently connected capacitor and thermal protection of the windings with automatic recharge; single phase 50/60 Hz for sizes 020, 030, 040, 050, 060 and 070 (for the functioning at 60 Hz please verify with the Eurapo staff). For all sizes the power supply is 230V± 6%.

Each fan assembly is dynamically balanced, to reduce noise and wear of the components to minimum levels; it can easily be removed for maintenance operation.



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### 3.4 CONDENSATE TRAY

The condensate tray is made of galvanized steel and it is completely insulated by a 12 mm thick closed cell polyurethane foam layer. The condensed water is discharged from both sides (left or right) through a 20 mm diameter header. Stainless Steel (AISI 316) condensate tray is also available upon request.

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### 3.5 AIR FILTER

The air filter consists of a polyester acrylic fibre, filtration class G3. A filter with higher filtering grade (F5) is also available upon request for each model.

The particular pleated shape of the filter, protected by a metal frame, allows having a big filtering surface with only 45 mm thickness. The filter section can be easily removed for cleaning and maintenance operation. Filters are not washable.

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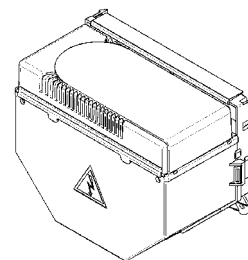
### 3.6 STANDARD ELECTRICAL PANEL IP30

All models are provided with a terminal board with screw terminals contained in a self-extinguishing (class V0) plastic box (IP30). CBL00 is the standard electrical panel for sizes 020÷030.

For sizes 040÷070 a supporting relay is installed as standard on the electrical panel, where the power supply must be connected (CBL20).

The electric box must be fixed on the pre-arranged position on the side of the EBH unit and connected with a «plug and play» system to the plug already present on the side itself.

Every EBH model is supplied with an electric wiring diagram showing all the electrical components, accessories factory fitted and/or remote controllers ordered together with the unit. Everything must be correctly wired in accordance to the diagram, to obtain the requested working conditions of the unit.



Standard electrical panel  
CBL00 - CBL20

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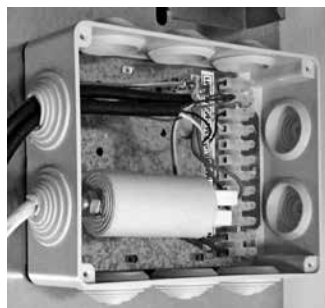
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#### 3.6.1 OPTIONAL ELECTRICAL PANEL IP44 (GW00-GW20)

Electrical panel composed by a terminal board with screw terminals contained in a high protection box (IP44). Available on request. GW00 is the basic box for sizes 020÷030; GW20 is the basic box for sizes 040÷070 where a supporting relay for the motor is installed.



GW00

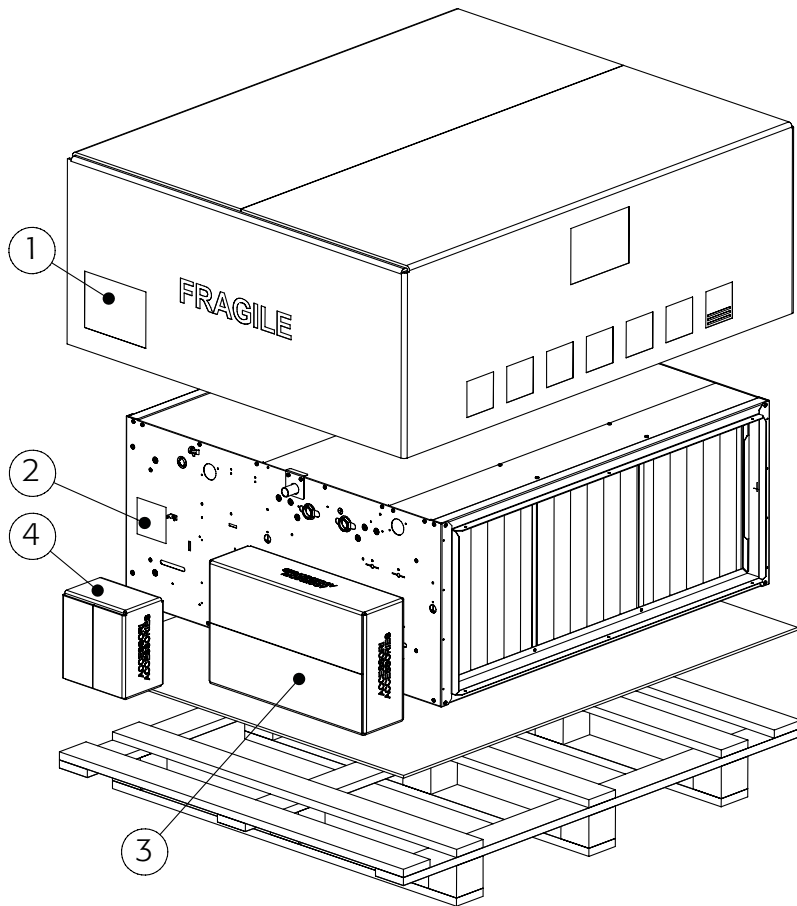


GW20



### 3.7 PACKING

Every unit is packed in a carton box and lays on a wooden pallet. Available fumigated (SPM15-IPPC) pallets as optional.



#### LEGEND

- 1. Label on packing
- 2. Label on internal structure
- 3. Box with fixing brackets and electric panel
- 4. Valve Kit (optional)

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## 4. ELECTRICAL ACCESSORIES

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### 4.1 ELECTRIC BOX CBL10

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Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board and a double insulated transformer (230/24 V~10 VA), for the electrical connection of the modulating valves. It is supplied as standard for sizes 020 and 030 when the regulators CER10/B and CER30/B are requested.

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### 4.2 ELECTRIC BOX CBL20

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Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board and a power relay card (230V): this card is requested either when an electric heater is mounted on the fancoil unit or to control the fan speeds in Master/Slave configuration. It can be combined with the following regulators: CMR00, CER00, CER20 and OMNIBUS. It is always supplied as standard for units size 040–070.

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### 4.3 ELECTRIC BOX CBL30

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Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board, a double insulated transformer (230/24 V~10 VA) for the electrical connection of the modulating valves and/or 24V controls, a power relay card (24V), which is requested to control the fan speeds in Master/Slave configuration. It can be combined with the following regulators: CER11, CER31, CER00, and CER20 (with power supply 24V). It is always supplied as standard for units size 040 and 070 when ordering the CER11 or CER31 controls.

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**EURAPO recommend to use also on sizes 020 and 030 the CBL30 electric box every time that modulating valves are installed.**

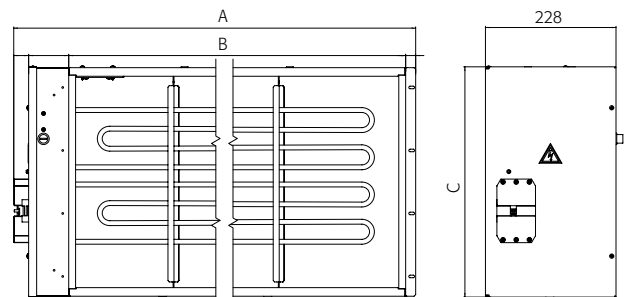
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### 4.4 ELECTRIC HEATER - KREL

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Additional module for electric heater supplied with 2 safety thermostats, one with automatic resetting and the other one with manual resetting, a power relay card and a terminal board for the electrical connection. The table shows the power of the electric heater for each unit size.

EBH	P [kW]	P/S [V-ph-Hz]	A	B	C
020 030	3,0	230-1-50/60	1068,1	954,6	402,1
040 050	6,0	380-3-50/60	1318,1	1204,6	
060 070	9,0	380-3-50/60	1713,1	1599,6	512,1



### 4.5 FAN SPEED SELECTOR - CSR

This selector has no room thermostat and it can control the 3 fan speed only. The speed selector does not control any valve: a remote thermostat (TAD10) is requested in order to control the ON/OFF valves, in case.



CSR00

### 4.6 ROOM TEMPERATURE THERMOSTAT - TAD10

Room temperature thermostat for wall installation with manual selection of the working mode (Summer/Winter changeover) and set point regulation of the room temperature.

## 4.7 THERMOSTATS - CMR

Room temperature thermostats with manual fan speed selector and Summer/Winter switch. The comfort temperature zone (20-25 °C) is marked around the knob. It is also possible to limit the temperature setting range.



CMR00



CER00

## 4.8 ELECTRONIC REGULATORS - CER

The EURAPO electronic controllers with microprocessor offer a wide range of functions for the fancoil regulation; they are provided with the comfort temperature zone (20-25 °C) and with the opportunity to limit the temperature setting range. These regulators can also provide the following functions: automatic fan speed and automatic S/W changeover.

EURAPO REGULATORS						
Functions	CSR00	CMR00	CER00	CER10/B CER11	CER20	CER30/B CER31
Ventilation mode (Thermostated - OFF - Continuous)		•	•	•	•	•
Manual speed selector	•	•	•	•		
Automatic or manual speed selection					•	•
Manual Summer/Winter changeover		•				
Summer/Winter changeover with dead band or external (centralized)			•	•	•	•
Setting Temperature thermostat		•	•	•	•	•
Temperature setting range limitation		•	•	•	•	•
De-stratification function			•	•	•	•
Economy/occupancy contact*			•	•	•	•
Window contact*			•	•	•	•
Frost protection (only with heating valve)			•	•	•	•
Operating mode LED (Summer - Winter)			•	•	•	•
Dirty filter alarm LED			•	•	•	•

\* not optoinsulated from 230 V~ power supply net

EURAPO REGULATORS						
Compatibility	CSR00	CMR00	CER00	CER10/B CER11	CER20	CER30/B CER31
2 pipe system only	•					
2/4 pipe system		•	•	•	•	•
ON/OFF 230V cooling and heating valve		•	•		•	
Modulating 24V cooling and heating valve				•		•
Room temperature thermostat TAD	•					
NTC sensor for automatic S/W changeover (2 pipe system only)			•	•	•	•
Electric heater (in alternative to the heating valve)		•	•		•	

**For more information please refer to the TECHNICAL MANUAL FOR EURAPO CONTROLLERS.**

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## 4.9 OMNIBUS DIGITAL CONTROL

The OMNIBUS digital control system permits a complete and integrated management of several fancoil units installed in the same building. It is designed either for a stand-alone operating mode, or to be integrated, at different levels, to a centralized Building Automation System, with a serial communication protocol RS-485 (Modbus RTU). The digital regulator can control many fancoils at the same time (Master/Slave solution), which are connected together by two twisted wires (AWG 24).

### 4.9.1 POWER OMNIBUS CARD for BMS - OPT10

The Power Omnibus card mounted on the unit is designed to fully regulate (directly or via Modbus) the water terminal units.

The card can provide:

- 6 ON/OFF outputs: Fan speed Minimum-Medium-Maximum; Electric heater/ Dehumidification; Hot water valve, Cold water valve
- 3 Analogue 0-10V outputs: Heating modulating valve, Cooling modulating valve, Auxiliary fan
- 5 Outputs on the additional multitask card OPT50 (optional): On/off heating valve 24V; On/off cooling valve 24V; Auxiliary fan for fresh air and/or free cooling; Alarm contact; External air damper
- 5 Analogue inputs: Room temperature sensor (AS), Water sensor (WS), Air outlet sensor (CS), External air temperature sensor and relative humidity sensor
- 3 Digital inputs: Economy contact; Window contact; contact for the thermal protection of the motor
- 2 Serial communication ports (RS485): Network "Local Bus" for the connection of the Console (built-in the unit or for remote installation); Network Modbus for the connection of the Manager Console or other Supervision System (BMS)

This card is available also without BMS communication (ONT10).



OPT10

### 4.9.2 CONSOLE DISPLAY - OC236

The Console is connected to the Power Omnibus card by a phone cable (4 wires), from which it is energized (15 Vcc) and it receives information from the Local-bus network. The Display Console is provided with four buttons for setting the parameters and the operating modes of the water terminal unit:

- Status: OFF-Comfort-Economy
- Fan: Low, Med, High, Auto
- Mode: Cool-Heat-Fan-Dry
- Room temperature Set-point

The Display Console can be used as "service tool":

- identification by code of possible alarms
- setting or variation of the Modbus address
- visualization of the I/O status



OC236

### 4.9.3 ANALOGUE PLUS CONSOLE - OC736

The Console is connected to the Power Omnibus card by a phone cable (4 wires), from which it is energized (15 Vcc) and it receives information from the Local-bus network. The Analogue Plus Console is composed by:

- One LED showing the operating mode and operating status of the Power Omnibus card
- Four LEDs to visualize the fan speed status and warnings, in case
- Two buttons: one for setting the operating mode of the terminal unit (Cooling/Heating) and one for the selection of the fan speed
- Room temperature sensor
- One knob for setting the room temperature set-point value and OFF position



OC736

#### 4.9.4 INFRARED RECEIVER (OC516) AND REMOTE CONTROL (OIR30)

The end user has the possibility to regulate the fan coil unit through the Infrared remote control (OIR30). The IR receiver is connected to the Power Omnibus card by a flat phone cable from which it takes the power supply (15 Vcc) and by which it exchanges information on the RS485 "Local bus" network. The IR console has a built-in air sensor and one LED showing the Status of the unit (in particular: fixed green: cooling mode; fixed red: heating mode; flashing yellow: alarm or warning status)



OC516



OIR30

### 4.10 OMNIBUS SUPERVISION

#### 4.10.1 MANAGER CONSOLE - OC436 (up to 10 units)

- Modbus/RTU protocol
- Different access levels (user/supervisor/service)
- Centralized operation
- Set-up parameters configuration
- INPUT/OUTPUT status monitoring
- Daily and weekly program
- Alarms management



OC436

#### 4.10.2 OTOUCH - OCB30 (up to 100 units)

- Modbus/RTU protocol
- Different access levels (user/supervisor/service)
- Centralized operation
- Set-up parameters configuration
- INPUT/OUTPUT status monitoring
- Daily, weekly and special events program
- Alarms management
- 7 inches touch screen
- Boost function for a period set by the user
- LAN interface with TCP/IP protocol
- Suitable for the most common web browsers
- Remote management via Internet
- Boiler room management (pumps, boiler, heat pump)
- Scenarios management
- Multilanguage



OTOUCH

#### 4.10.3 ONET - OCB50 WEBSERVER (up to 250 units)

- Modbus/RTU protocol
- Different access levels (user/supervisor/service)
- Centralized operation
- Set-up parameters configuration
- INPUT/OUTPUT status monitoring
- Daily, weekly and special events program
- Alarms management
- Boost function for a period set by the user
- Suitable for connecting up to 250 units
- LAN interface with TCP/IP protocol
- Suitable for the most common web browsers
- Remote management via Internet



OCB50

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For more information please refer to the **TECHNICAL MANUAL FOR OMNIBUS CONTROLLERS**.

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### 4.11 AS - AIR SENSOR

1 or 3 m long NTC sensor fixed on the air inlet of the ducted unit.

It is optional, on request, with the following regulators: CMR00, CER00, CER10/B, CER11, CER20, CER30/B, CER31 and OMNIBUS.

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### 4.12 CS - CHECK SENSOR

1 m long NTC sensor, to be installed on the air outlet of the ducted unit. In combination with OMNIBUS card, it allows highlighting any faults in the functioning of the ducted unit, by reporting an alarm signal.

4

### 4.13 WS - WATER SENSOR

3 m long NTC sensor (10K, 25°C), requested for the automatic S/W switch when a ducted unit is controlled by a regulator with microprocessor or OMNIBUS, in a 2 pipe system, for both heating and cooling operation. The Summer/Winter changeover works as follows:

WS combined with CER00, CER20, CER30/B

- Summer: water temperature < 17 °C = cooling on
- water temperature > 19 °C = cooling off
- Winter:  water temperature > 32 °C = valve open
- water temperature < 30 °C = valve closed
- water temperature > 35 °C = fan on
- water temperature < 33 °C = fan off



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WS combined with CER10/B, CER11, CER31

- Summer: water temperature < 11 °C ± 1 K = cooling on
- water temperature > 14 °C ± 1 K = cooling off
- Winter:  water temperature > 40 °C ± 1 K = heating on
- water temperature < 30 °C ± 1 K = heating off

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The water sensor is not compatible with 2 way valves (J2B2 or J2C2, for example).

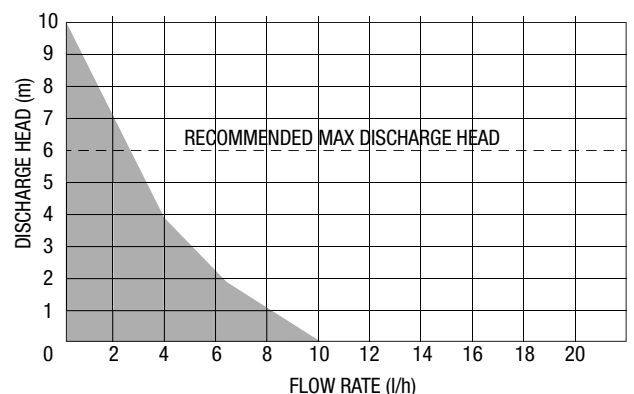
### 4.14 PC - CONDENSATE PUMP

The condensate pump (with no-return valve) is necessary when the traditional water discharge is not allowed. It is supplied already mounted on the unit. The power of the pump is different for the different models where it has to be installed.

Functions:

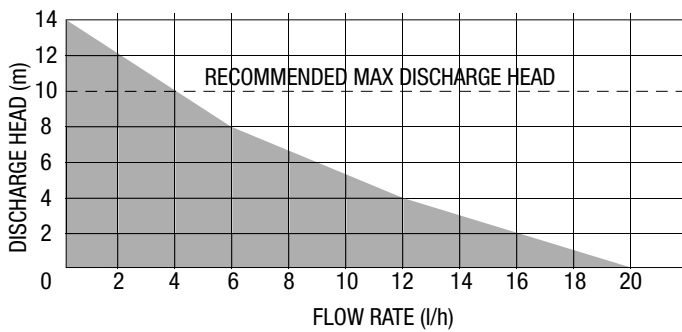
- forced evacuation of the condensed water.

PC Technical features for sizes O20 and O30



Max flow rate	10 l/h
Max suction head	2 m
Max discharge head	6 m
Electric power	18 W
Electric voltage	230 V~ 50/60 Hz
Alarm contact	NC 8 A - 250 V
Detection levels in mm	ON: 16, OFF: 11, Alarm: 19
Sound level at 1 m	25,1 dBA
Protection	IP20
Detection	remote
Thermal protection (overheating)	90 °C
Safety standards	CE
RhOS and WEEE directives	Complies

PC Technical features for sizes 040÷070:



Max flow rate	20 l/h
Max suction head	3 m
Max discharge head	10 m (flow= 4 l/h)
Electric power	14 W
Electric voltage	230 V~ 50/60 Hz
Alarm contact	NC 8 A resistive - 250 V
Detection levels in mm	ON: 16, OFF: 11, Alarm: 19
Sound level at 1 m	< 20 dBA
Protection	IP20
Detection	remote
Thermal protection (overheating)	90 °C
Safety standards	CE
RhOS and WEEE directives	Complies

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## 5. HYDRAULIC ACCESSORIES

### 5.1 J3B2 – ON/OFF 3-WAY VALVES WITH 4 WATER CONNECTIONS, 3/4", FOR 2 OR 4 PIPE SYSTEMS, 230V

The ON/OFF 3-way regulating valves with bypass are provided with thermoelectric actuator and connection tubes. The direct water flow is closed by not supplying power to the actuator. They are suitable for fan coils size 020÷050 and available also with 24V. They are always supplied loose together with their proper insulating shell.

### 5.2 J3C2 – ON/OFF 3-WAY VALVES WITH 4 WATER CONNECTIONS, 1", FOR 2 OR 4 PIPE SYSTEMS, 230V

The ON/OFF 3-way regulating valves with bypass are provided with thermoelectric actuator and connection tubes. The direct water flow is closed by not supplying power to the actuator. They are suitable for fan coils size 060÷070 and available also with 24V. They are always supplied loose together with their proper insulating shell.

### 5.3 J3BM – MODULATING (24V) 3-WAY VALVES WITH 4 WATER CONNECTIONS, 3/4", FOR 2 OR 4 PIPE SYSTEMS

The modulating 3-way regulating valves with bypass are provided with modulating actuator and connection tubes. The direct water flow is closed by not supplying power to the actuator. They are suitable for fan coils size 020÷050. They are always supplied loose together with their proper insulating shell.

### 5.4 J3CM – MODULATING (24V) 3-WAY VALVES WITH 4 WATER CONNECTIONS, 1", FOR 2 OR 4 PIPE SYSTEMS

The modulating 3-way regulating valves with bypass are provided with modulating actuator and connection tubes. The direct water flow is closed by not supplying power to the actuator. They are suitable for fan coils size 060÷070. They are always supplied loose together with their proper insulating shell.

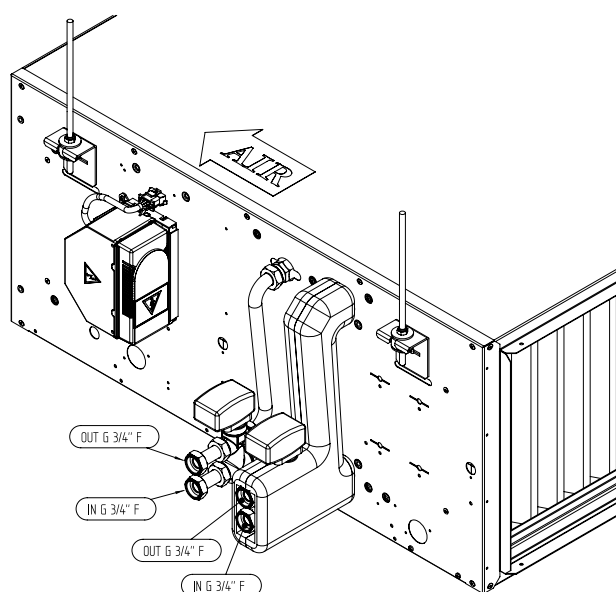
### 5.5 J2B2 – ON/OFF 2-WAY VALVES, 3/4", FOR 2 OR 4 PIPE SYSTEMS, 230V

The ON/OFF 2-way regulating valves with bypass are provided with thermoelectric actuator and connection tubes. They are suitable for fan coils size 020÷050 and available also with 24V (J2BM). They are not supplied with insulation shell. They need to be insulated on site.

### 5.6 J2C2 – ON/OFF 2-WAY VALVES, 1", FOR 2 OR 4 PIPE SYSTEMS, 230V

The ON/OFF 2-way regulating valves with bypass are provided with thermoelectric actuator and connection tubes. They are suitable for fan coils size 060÷070 and available also with 24V (J2CM). They are not supplied with insulation shell. They need to be insulated on site.





EBH with J3B2

### TECHNICAL FEATURES OF THE VALVES

Nominal pressure	PN16	Cod.: J3B2, J3BM, J3C2, J3CM, J2B2, J2C2, J2BM, J2CM
Fluid	Hot or cold water for HVAC system, according to VDI standard quality or equivalent	Cod.: J3B2, J3BM, J3C2, J3CM, J2B2, J2C2, J2BM, J2CM
Hydraulic connection	1" GF 3/4" GF	Cod.: J3C2, J3CM, J2C2, J2CM Cod.: J3B2, J3BM, J2B2, J2BM
Max close-off pressure	100 kPa 200 kPa	Cod.: J2C2, J3C2, J2CM, J3CM Cod.: J2BM, J3B2, J3BM, J2B2
Kvs	2,5 6,3	Cod.: J3B2, J3BM, J2B2, J2BM Cod.: J2C2, J3C2, J2CM, J3CM
Material	Brass	Cod.: J3B2, J3BM, J3C2, J3CM, J2B2, J2C2, J2BM, J2CM
Flow temperature limit	2÷110 °C	Cod.: J3B2, J3BM, J3C2, J3CM, J2B2, J2C2, J2BM, J2CM
Room temperature limit	2÷50 °C	Cod.: J3B2, J3BM, J3C2, J3CM, J2B2, J2C2, J2BM, J2CM
Actuator	On/Off Modulating	Cod.: J3B2, J3C2, J2B2, J2C2 Cod.: J3CM, J3BM, J2CM, J2BM
Operation Voltage	230 VAC ±10% 24 VAC/DC ±15%	Cod.: J3B2, J2B2, J2C2, J3C2 Cod.: J3CM, J3BM, J2BM, J2CM
Control signal	0÷10 Vcc	Cod.: J3CM, J3BM, J2CM, J2BM
Operation power	1 W 1,5 W	Cod.: J3B2, J3C2, J2B2, J2C2 Cod.: J3CM, J3BM, J2CM, J2BM
Running time	~ 4 min	Cod.: J3B2, J3C2, J2B2, J2C2
Protection grade	IP54 IP43	Cod.: J3B2, J2B2, J2C2, J3C2 Cod.: J2CM, J3CM, J2BM, J3BM

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## GRAPHIC PRESSURE DROP VALVES

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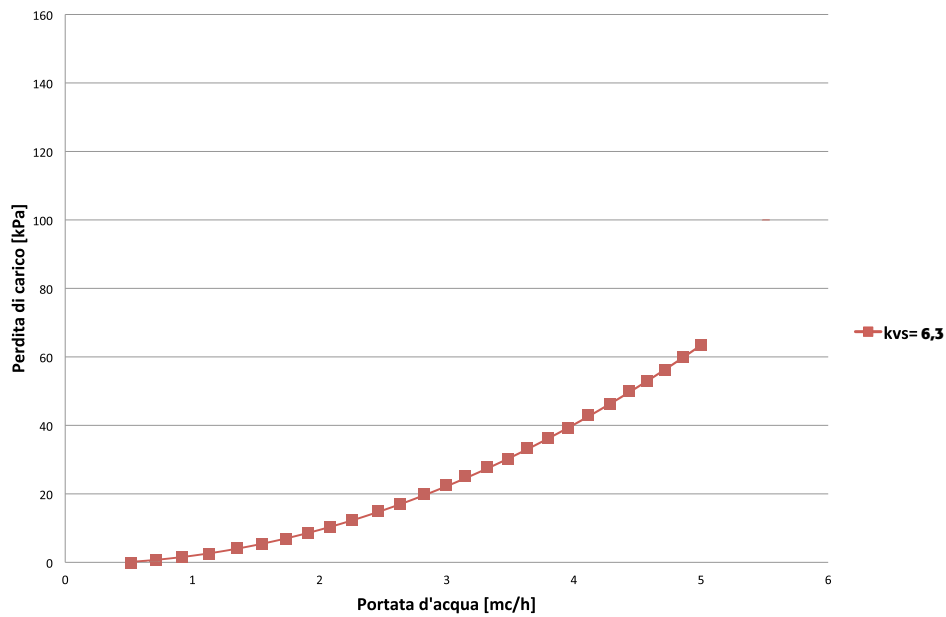
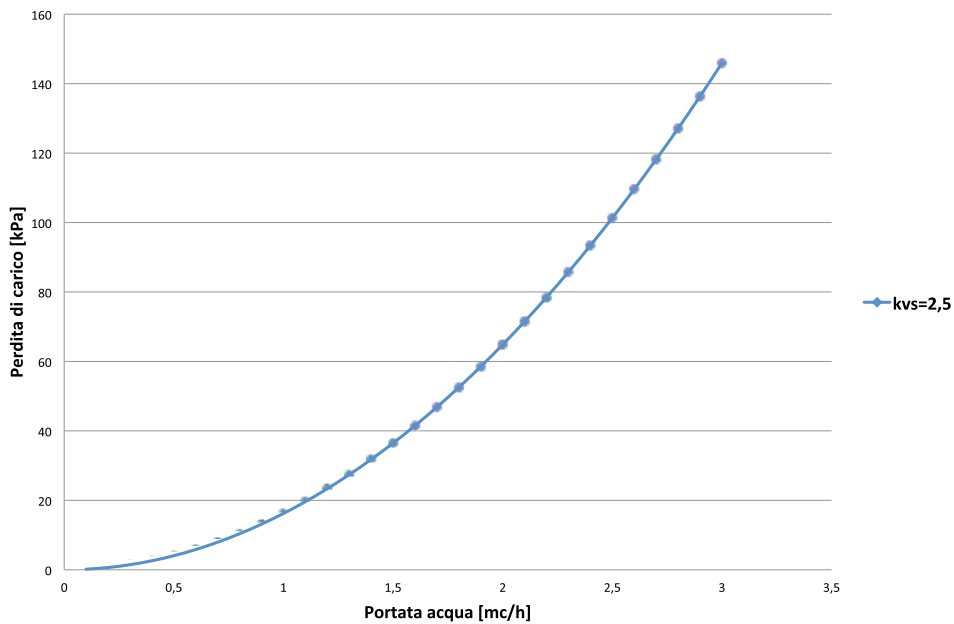
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**In order to choose the correct type of valve it is necessary to know the system's technical specifications; for this reason the consultant should take full responsibility for this choice.**



**MAXIMUM OPERATING PRESSURE WITH VALVES: 16 BAR.**

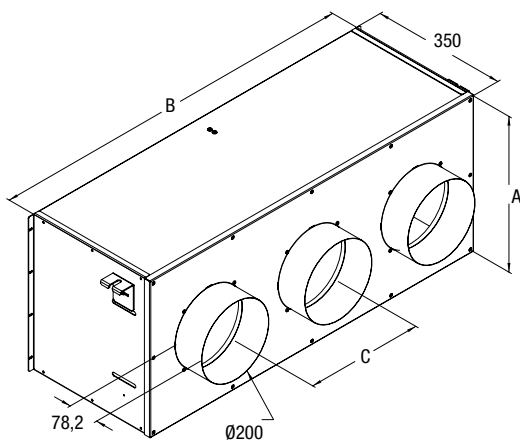
## 6. OTHER ACCESSORIES

### 6.1 PM – AIR DELIVERY PLENUM

The air delivery plenum is made of galvanized steel sheet, insulated inside with polyurethane foam, 12 mm thick, provided with spigots for the connection to the air ducts and with fixing supports. It must be installed on the air outlet of the unit.

### 6.2 PA – AIR INTAKE PLENUM

The air intake plenum is made of galvanized steel sheet, insulated inside with polyurethane foam, 12 mm thick, provided with spigots for the connection to the air ducts and with fixing supports. It must be installed on the air inlet of the unit.



PM-PA						
Mod.	020	030	040	050	060	070
N. Collars	3	3	4	4	5	5
A	403,6		403,6		513,6	
B	962,6		1212,6		1607,6	
C	306,5		300		311	

### 6.3 FILTER F5

High filtering grade air filter consisting of a polyester acrylic fiber foam, filtration class F5.



Filter F5 (on request)

### 6.4 RAL PAINTING

The complete structure of the unit can be painted with oven dried epoxy powders. The standard colour is white (RAL 9001) but the full range of RAL colours is available upon request, with possible delays in the delivery time.

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## 7. TECHNICAL DATA

### 7.1 AIR VOLUMES [m<sup>3</sup>/h] AT DIFFERENT EXTERNAL STATIC PRESSURES [PA]

MOD	SPEED	0	25	50	75	100	125	150	175	200	250	300
020	max	1756	1582	1383	1144	857	523	-	-	-	-	-
	med	1137	1057	920 <sup>(E)</sup>	760	542	278	-	-	-	-	-
	min	728	617	494	359	212	53	-	-	-	-	-
030	max	2579	2402	2230	2025	1759	1412	973	444	-	-	-
	med	1727	1653	1520 <sup>(E)</sup>	1448	1260	998	667	289	-	-	-
	min	1373	1339	1273	1162	998	779	510	202	-	-	-
040	max	3138	3121	3026	2863	2643	2378	2078	1754	1418	752	-
	med	2327	2260	2130 <sup>(E)</sup>	2036	1884	1706	1504	1282	1039	501	-
	min	1775	1699	1598	1475	1336	1182	1017	842	660	274	-
050	max	3774	3647	3472	3255	3005	2729	2434	2127	1815	1209	-
	med	3125	3030	2870 <sup>(E)</sup>	2723	2523	2300	2059	1805	1545	1028	-
	min	2629	2552	2438	2292	2120	1928	1719	1500	1276	831	-
060	max	-	4504*	4414	4306	4183	4023	3809	3525	3157	2125	642
	med	-	3792*	3610	3698	3621	3497	3307	3041	2694	1761	581
	min	-	2667*	2649	2616	2554	2447	2288	2073	1802	1124	369
070	max	-	-	5548	5476	5388	5278	5139	4964	4745	4151	3301
	med	-	-	4936	4894	4841	4771	4677	4551	4386	3906	3168
	min	-	-	4374	4341	4290	4220	4131	4018	3877	3480	2864

\* measured at 30Pa

<sup>(E)</sup>: Eurovent

**The air volume refers to standard fan coils, with clean air filter, 20 °C room temperature, at sea level and without plenum.**

## 7.2 CAPACITIES FOR SIZE 020 AT DIFFERENT EXTERNAL STATIC PRESSURES [PA]

### 7.2.1 COOLING CAPACITIES

Room temperature: 27 °C d.b. - 47% r.h. – Water temperature: 7/12 °C



MOD	SPEED		0	25	50	75	100	125
020-2R	max	Total cooling capacity [kW]	6,06	5,69	5,24	4,63	3,81	2,66
		Sensible cooling capacity [kW]	5,34	4,98	4,55	3,99	3,23	2,21
		Water flow [l/h]	1030	970	895	790	647	453
		Pressure drop [kPa]	18,5	16,7	14,6	11,8	8,4	4,6
	med	Total cooling capacity [kW]	4,61	4,40	4,03	3,51	2,73	1,55
		Sensible cooling capacity [kW]	3,97	3,77	3,44	2,96	2,28	1,28
		Water flow [l/h]	786	749	686	599	465	263
		Pressure drop [kPa]	11,7	10,7	9,2	7,4	4,8	1,9
	min	Total cooling capacity [kW]	3,40	3,01	2,54	1,86	1,28	0,45
		Sensible cooling capacity [kW]	2,87	2,52	2,11	1,58	1,03	0,29
		Water flow [l/h]	581	514	434	315	218	77
		Pressure drop [kPa]	7,0	5,7	4,3	2,5	1,4	0,3
020-3R	max	Total cooling capacity [kW]	7,08	6,62	6,06	5,33	4,36	2,79
		Sensible cooling capacity [kW]	5,96	5,54	5,03	4,38	3,53	2,23
		Water flow [l/h]	1210	1130	1034	908	746	475
		Pressure drop [kPa]	34,6	30,8	26,4	21,1	15,1	7,1
	med	Total cooling capacity [kW]	5,31	5,05	4,62	4,00	2,87	1,60
		Sensible cooling capacity [kW]	4,36	4,13	3,76	3,22	2,30	1,29
		Water flow [l/h]	903	859	784	683	489	271
		Pressure drop [kPa]	20,9	19,2	16,5	13,0	7,4	2,8
	min	Total cooling capacity [kW]	3,87	3,42	2,67	2,00	1,31	0,45
		Sensible cooling capacity [kW]	3,11	2,72	2,13	1,61	1,03	0,29
		Water flow [l/h]	662	584	453	340	223	76
		Pressure drop [kPa]	12,3	10,0	6,5	4,0	2,0	0,4
020-4R	max	Total cooling capacity [kW]	9,53	8,84	8,00	6,94	5,53	3,68
		Sensible cooling capacity [kW]	7,64	7,03	6,31	5,41	4,24	2,74
		Water flow [l/h]	1630	1511	1368	1185	943	629
		Pressure drop [kPa]	25,6	22,4	18,9	14,8	10,1	5,1
	med	Total cooling capacity [kW]	6,90	6,53	5,90 <sup>(E)</sup>	5,02	3,79	2,09
		Sensible cooling capacity [kW]	5,38	5,07	4,14 <sup>(E)</sup>	3,82	2,83	1,49
		Water flow [l/h]	1178	1114	1015	855	644	359
		Pressure drop [kPa]	14,7	13,3	12,2 <sup>(E)</sup>	8,5	5,3	2,0
	min	Total cooling capacity [kW]	4,85	4,22	3,51	2,56	1,67	0,54
		Sensible cooling capacity [kW]	3,68	3,17	2,60	1,90	1,19	0,31
		Water flow [l/h]	826	718	599	437	286	92
		Pressure drop [kPa]	8,0	6,4	4,7	2,8	1,4	0,2

<sup>(E)</sup> Eurovent

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## 7.2.2 HEATING CAPACITIES 2 AND 4 PIPE



Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 45/40 °C

MOD	SPEED	0	25	50	75	100	125	
020-2R	max	Heating capacity [kW]	7,32	6,81	6,21	5,43	4,41	3,03
		Water flow [l/h]	1271	1178	1079	943	763	524
		Pressure drop [kPa]	24,7	21,6	18,5	14,6	10,1	5,3
	med	Heating capacity [kW]	5,41	5,13	4,68	4,03	3,11	1,82
		Water flow [l/h]	938	891	812	698	538	313
		Pressure drop [kPa]	14,5	13,3	11,3	8,7	5,6	2,2
	min	Heating capacity [kW]	3,90	3,44	2,89	2,24	1,44	0,41
		Water flow [l/h]	676	595	500	387	248	71
		Pressure drop [kPa]	8,2	6,6	4,9	3,2	1,5	0,2
020-3R	max	Heating capacity [kW]	7,39	6,86	6,24	5,44	4,39	3,00
		Water flow [l/h]	1282	1185	1084	944	760	518
		Pressure drop [kPa]	29,1	25,4	21,7	17,1	11,7	6,0
	med	Heating capacity [kW]	5,41	5,13	4,67	4,01	3,08	1,79
		Water flow [l/h]	939	890	809	694	533	308
		Pressure drop [kPa]	16,9	15,4	13,1	10,0	6,3	2,5
	min	Heating capacity [kW]	3,88	3,41	2,86	2,21	1,41	0,41
		Water flow [l/h]	671	589	494	380	245	70
		Pressure drop [kPa]	9,4	7,5	5,6	3,6	1,7	0,2
020-4R	max	Heating capacity [kW]	9,07	8,38	7,57	6,53	5,19	3,45
		Water flow [l/h]	1573	1452	1310	1130	897	596
		Pressure drop [kPa]	22,2	19,3	16,1	12,5	8,4	4,2
	med	Heating capacity [kW]	6,49	6,14	6,20 <sup>(E)</sup>	4,71	3,56	2,00
		Water flow [l/h]	1124	1061	1067	814	614	344
		Pressure drop [kPa]	12,4	11,2	10,3 <sup>(E)</sup>	7,1	4,4	1,6
	min	Heating capacity [kW]	4,55	3,96	3,29	2,50	1,56	0,43
		Water flow [l/h]	785	684	567	430	270	74
		Pressure drop [kPa]	6,7	5,3	3,8	2,4	1,1	0,1

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 65/55 °C

MOD	SPEED	0	25	50	75	100	125	
020-4+2R	max	Heating capacity [kW]	15,29	14,34	13,08	11,46	9,41	6,83
		Water flow [l/h]	1321	1237	1128	987	810	586
		Pressure drop [kPa]	24,4	21,7	18,5	14,6	10,3	5,9
	med	Heating capacity [kW]	11,75	10,78	8,29 <sup>(E)</sup>	8,20	6,50	4,46
		Water flow [l/h]	1013	928	713	705	558	386
		Pressure drop [kPa]	15,3	13,1	7,8 <sup>(E)</sup>	8,1	5,4	2,9
	min	Heating capacity [kW]	8,45	6,98	5,55	4,13	2,72	1,32
		Water flow [l/h]	726	600	480	357	235	114
		Pressure drop [kPa]	8,6	6,1	4,2	2,5	1,2	0,4
020-4+3R	max	Heating capacity [kW]	15,83	14,62	13,21	11,40	9,07	6,04
		Water flow [l/h]	1371	1266	1143	985	783	520
		Pressure drop [kPa]	32,3	28,1	23,5	18,1	12,1	6,0
	med	Heating capacity [kW]	11,34	10,72	9,69	8,23	6,23	3,50
		Water flow [l/h]	980	926	837	710	536	301
		Pressure drop [kPa]	17,9	16,2	13,6	10,2	6,3	2,3
	min	Heating capacity [kW]	7,95	6,93	5,75	4,37	2,74	0,75
		Water flow [l/h]	685	597	495	376	237	64
		Pressure drop [kPa]	9,6	7,6	5,5	3,4	1,6	0,2

## 7.3 CAPACITIES FOR SIZE 030 AT DIFFERENT EXTERNAL STATIC PRESSURES [PA]

### 7.3.1 COOLING CAPACITIES

Room temperature: 27 °C d.b. - 47% r.h. – Water temperature: 7/12 °C



MOD	SPEED		0	25	50	75	100	125	150	175
030-2R	max	Total cooling capacity [kW]	7,63	7,33	7,01	6,63	6,06	5,29	4,16	2,37
		Sensible cooling capacity [kW]	6,84	6,55	6,24	5,87	5,34	4,61	3,55	1,95
		Water flow [l/h]	1320	1264	1208	1142	1031	899	707	405
		Pressure drop [kPa]	28,4	26,4	24,4	22,1	18,6	14,7	9,7	3,8
	med	Total cooling capacity [kW]	6,01	5,85	5,66	5,38	4,93	4,23	3,19	1,58
		Sensible cooling capacity [kW]	5,28	5,13	4,96	4,69	4,26	3,61	2,68	1,32
		Water flow [l/h]	1027	998	965	914	842	719	545	269
		Pressure drop [kPa]	18,4	17,6	16,6	15,1	13,1	10,0	6,3	1,9
	min	Total cooling capacity [kW]	5,21	5,13	4,97	4,68	4,23	3,57	2,61	1,24
		Sensible cooling capacity [kW]	4,53	4,45	4,30	4,03	3,61	3,01	2,17	0,99
		Water flow [l/h]	891	876	848	798	719	610	443	211
		Pressure drop [kPa]	14,5	14,0	13,3	12,0	10,0	7,6	4,4	1,3
030-3R	max	Total cooling capacity [kW]	9,58	9,15	8,75	8,22	7,50	6,47	4,99	2,71
		Sensible cooling capacity [kW]	8,52	8,10	7,69	7,19	6,49	5,52	4,15	2,14
		Water flow [l/h]	1633	1557	1496	1405	1279	1100	853	462
		Pressure drop [kPa]	58,0	53,4	49,9	44,7	38,0	29,4	19,0	6,7
	med	Total cooling capacity [kW]	7,41	7,19	6,96	6,59	5,98	5,08	3,76	1,79
		Sensible cooling capacity [kW]	6,41	6,20	5,98	5,63	5,07	4,23	3,05	1,42
		Water flow [l/h]	1263	1226	1184	1120	1016	868	641	305
		Pressure drop [kPa]	37,2	35,4	33,3	30,3	25,6	19,6	11,7	3,4
	min	Total cooling capacity [kW]	6,35	6,24	6,02	5,67	5,08	4,23	3,04	1,37
		Sensible cooling capacity [kW]	5,41	5,31	5,11	4,77	4,23	3,46	2,41	1,04
		Water flow [l/h]	1079	1060	1023	970	868	722	517	232
		Pressure drop [kPa]	28,4	27,6	25,9	23,6	19,6	14,3	8,1	2,2
030-4R	max	Total cooling capacity [kW]	12,44	11,84	11,25	10,52	9,54	8,12	6,12	3,17
		Sensible cooling capacity [kW]	10,24	9,70	9,17	8,52	7,65	6,42	4,72	2,34
		Water flow [l/h]	2119	2017	1915	1789	1632	1389	1043	540
		Pressure drop [kPa]	37,4	34,3	31,4	27,9	23,9	18,1	11,1	3,7
	med	Total cooling capacity [kW]	9,42	9,12	8,23 <sup>(E)</sup>	8,29	7,46	6,24	4,51	2,15
		Sensible cooling capacity [kW]	7,54	7,28	6,70 <sup>(E)</sup>	6,55	5,85	4,82	3,40	1,57
		Water flow [l/h]	1611	1560	1417	1416	1274	1063	768	367
		Pressure drop [kPa]	23,3	22,1	24,1 <sup>(E)</sup>	18,7	15,6	11,5	6,6	1,9
	min	Total cooling capacity [kW]	7,96	7,81	7,52	7,02	6,24	5,11	3,61	1,61
		Sensible cooling capacity [kW]	6,28	6,15	5,91	5,48	4,82	3,90	2,67	1,15
		Water flow [l/h]	1361	1334	1285	1199	1063	871	617	275
		Pressure drop [kPa]	17,5	16,9	15,8	14,1	11,5	8,2	4,6	1,2

<sup>(E)</sup> Eurovent

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## 7.3.2 HEATING CAPACITIES 2 AND 4 PIPE

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 45/40 °C

MOD	SPEED		0	25	50	75	100	125	150	175
030-2R	max	Heating capacity [kW]	9,44	9,03	8,59	8,06	7,33	6,29	4,84	2,66
		Water flow [l/h]	1645	1585	1505	1407	1272	1084	838	459
		Pressure drop [kPa]	38,8	36,3	33,2	29,5	24,7	18,7	11,9	4,2
	med	Heating capacity [kW]	7,24	7,02	6,78	6,41	5,82	4,92	3,65	1,87
		Water flow [l/h]	1256	1216	1173	1105	1010	854	632	323
		Pressure drop [kPa]	24,2	22,8	21,4	19,3	16,5	12,3	7,3	2,3
	min	Heating capacity [kW]	6,18	6,07	5,86	5,50	4,92	4,10	2,96	1,39
		Water flow [l/h]	1074	1054	1018	954	854	710	513	238
		Pressure drop [kPa]	18,4	17,8	16,7	14,9	12,3	9,0	5,1	1,4
030-3R	max	Heating capacity [kW]	11,05	10,50	9,97	9,31	8,40	7,14	5,37	2,85
		Water flow [l/h]	1912	1813	1732	1616	1458	1237	930	491
		Pressure drop [kPa]	54,8	49,8	46,0	40,7	34,0	25,5	15,5	5,1
	med	Heating capacity [kW]	8,29	8,02	7,73	7,28	6,55	5,48	3,98	1,97
		Water flow [l/h]	1438	1392	1341	1261	1134	948	688	339
		Pressure drop [kPa]	33,2	31,3	29,3	26,3	21,9	16,0	9,2	2,7
	min	Heating capacity [kW]	6,99	6,86	6,60	6,16	5,48	4,51	3,19	1,44
		Water flow [l/h]	1212	1188	1144	1067	948	779	551	250
		Pressure drop [kPa]	24,6	23,7	22,2	19,7	16,0	11,4	6,3	1,6
030-4R	max	Heating capacity [kW]	12,05	11,44	10,83	10,09	9,09	7,68	5,75	3,00
		Water flow [l/h]	2091	1985	1879	1750	1575	1331	994	517
		Pressure drop [kPa]	36,5	33,3	30,3	26,7	22,2	16,6	10,0	3,3
	med	Heating capacity [kW]	8,96	8,67	9,62 <sup>(E)</sup>	7,84	7,04	5,86	4,23	2,06
		Water flow [l/h]	1553	1501	1656	1357	1218	1013	731	355
		Pressure drop [kPa]	21,7	20,5	25,7 <sup>(E)</sup>	17,2	14,2	10,3	5,9	1,7
	min	Heating capacity [kW]	7,52	7,38	7,10	6,61	5,86	4,80	3,38	1,49
		Water flow [l/h]	1303	1277	1228	1144	1013	829	583	259
		Pressure drop [kPa]	16,0	15,4	14,4	12,8	10,3	7,3	4,0	1,0

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 65/55 °C

MOD	SPEED		0	25	50	75	100	125	150	175
030-4+2R	max	Heating capacity [kW]	19,61	19,21	18,41	17,16	15,38	12,90	9,52	4,70
		Water flow [l/h]	1697	1662	1593	1484	1328	1113	819	407
		Pressure drop [kPa]	38,0	36,6	33,9	29,9	24,6	18,0	10,5	3,1
	med	Heating capacity [kW]	15,31	14,94	11,34 <sup>(E)</sup>	13,32	11,90	9,93	7,17	3,19
		Water flow [l/h]	1322	1290	976	1149	1026	855	616	276
		Pressure drop [kPa]	24,4	23,4	14,0 <sup>(E)</sup>	19,1	15,6	11,4	6,4	1,6
	min	Heating capacity [kW]	13,48	13,20	12,59	11,64	10,28	8,42	5,92	2,43
		Water flow [l/h]	1163	1138	1085	1003	885	724	512	210
		Pressure drop [kPa]	19,5	18,8	17,3	15,0	12,1	8,5	4,7	1,0
030-4+3R	max	Heating capacity [kW]	20,98	19,93	18,88	17,59	15,85	13,41	10,04	5,25
		Water flow [l/h]	1822	1730	1638	1526	1373	1160	867	452
		Pressure drop [kPa]	53,5	48,7	44,3	39,0	32,4	24,1	14,5	4,7
	med	Heating capacity [kW]	15,63	15,12	14,55	13,68	12,28	10,23	7,40	3,61
		Water flow [l/h]	1354	1309	1260	1184	1062	884	638	310
		Pressure drop [kPa]	31,6	29,8	27,9	25,0	20,6	15,0	8,5	2,5
	min	Heating capacity [kW]	13,13	12,87	12,39	11,54	10,23	8,39	5,91	2,64
		Water flow [l/h]	1136	1114	1071	998	884	723	508	228
		Pressure drop [kPa]	23,2	22,4	21,0	18,5	15,0	10,6	5,7	1,5



## 7.4 CAPACITIES FOR SIZE 040 AT DIFFERENT EXTERNAL STATIC PRESSURES [PA]

### 7.4.1 COOLING CAPACITIES

Room temperature: 27 °C d.b. - 47% r.h. – Water temperature: 7/12 °C



MOD	SPEED		0	25	50	75	100	125	150	175	200	250
040-2R	max	Total cooling capacity [kW]	9,61	9,58	9,41	9,14	8,72	8,14	7,50	6,76	5,90	3,61
		Sensible cooling capacity [kW]	8,59	8,56	8,39	8,11	7,71	7,18	6,56	5,85	5,05	3,01
		Water flow [l/h]	1657	1652	1621	1583	1510	1386	1279	1156	1005	617
		Pressure drop [kPa]	45,8	45,6	44,1	42,3	39,0	33,6	29,3	24,6	19,3	8,4
	med	Total cooling capacity [kW]	8,03	7,90	7,69	7,41	7,06	6,65	6,13	5,52	4,78	2,66
		Sensible cooling capacity [kW]	7,07	6,94	6,74	6,48	6,14	5,74	5,26	4,70	4,02	2,18
		Water flow [l/h]	1365	1351	1313	1263	1199	1136	1046	939	812	453
		Pressure drop [kPa]	32,8	32,2	30,6	28,6	26,2	23,8	20,7	17,2	13,4	5,0
	min	Total cooling capacity [kW]	6,82	6,63	6,38	6,05	5,67	5,22	4,71	4,14	3,28	1,54
		Sensible cooling capacity [kW]	5,90	5,73	5,49	5,19	4,84	4,43	3,96	3,44	2,72	1,27
		Water flow [l/h]	1165	1133	1088	1033	966	889	800	707	560	262
		Pressure drop [kPa]	24,9	23,7	22,2	20,3	18,1	15,7	13,1	10,6	7,2	2,0
040-3R	max	Total cooling capacity [kW]	11,85	11,81	11,58	11,22	10,68	9,98	9,14	8,17	7,07	4,42
		Sensible cooling capacity [kW]	10,13	10,10	9,88	9,53	9,02	8,38	7,61	6,73	5,76	3,48
		Water flow [l/h]	2015	2008	1968	1919	1824	1703	1558	1389	1209	753
		Pressure drop [kPa]	37,0	36,8	35,5	34,0	31,2	27,7	23,8	19,5	15,4	6,9
	med	Total cooling capacity [kW]	9,85	9,66	9,39	9,03	8,57	8,01	7,37	6,59	5,65	3,19
		Sensible cooling capacity [kW]	8,26	8,08	7,84	7,51	7,10	6,60	6,02	5,33	4,53	2,47
		Water flow [l/h]	1680	1647	1600	1538	1459	1363	1261	1126	965	544
		Pressure drop [kPa]	27,1	26,2	24,9	23,3	21,2	18,9	16,6	13,6	10,5	4,0
	min	Total cooling capacity [kW]	8,24	7,99	7,66	7,27	6,78	6,22	5,57	4,83	3,98	1,90
		Sensible cooling capacity [kW]	6,80	6,58	6,29	5,93	5,50	5,01	4,45	3,82	3,12	1,42
		Water flow [l/h]	1401	1359	1302	1244	1159	1062	951	822	678	324
		Pressure drop [kPa]	19,8	18,8	17,5	16,2	14,3	12,4	10,3	8,0	5,8	1,7
040-4R	max	Total cooling capacity [kW]	14,14	14,09	13,80	13,30	12,60	11,72	10,66	9,48	8,10	4,92
		Sensible cooling capacity [kW]	11,62	11,57	11,31	10,87	10,25	9,47	8,55	7,52	6,36	3,75
		Water flow [l/h]	2412	2403	2353	2267	2147	1994	1812	1620	1384	841
		Pressure drop [kPa]	45,4	45,1	43,5	40,8	37,1	32,7	27,8	23,0	17,6	7,6
	med	Total cooling capacity [kW]	11,55	11,31	10,40 <sup>(E)</sup>	10,51	9,98	9,29	8,47	7,51	6,37	3,36
		Sensible cooling capacity [kW]	9,32	9,12	8,61 <sup>(E)</sup>	8,42	7,95	7,36	6,67	5,86	4,93	2,55
		Water flow [l/h]	1965	1924	1781	1787	1706	1587	1447	1281	1087	574
		Pressure drop [kPa]	31,9	30,8	23,3 <sup>(E)</sup>	27,1	25,1	22,2	19,0	15,4	11,7	4,0
	min	Total cooling capacity [kW]	9,56	9,26	8,85	8,35	7,75	7,05	6,27	5,39	4,36	2,09
		Sensible cooling capacity [kW]	7,59	7,34	6,99	6,56	6,06	5,49	4,84	4,12	3,31	1,49
		Water flow [l/h]	1635	1583	1513	1426	1323	1204	1069	917	742	358
		Pressure drop [kPa]	23,3	22,1	20,4	18,5	16,3	13,9	11,4	8,8	6,2	1,9

<sup>(E)</sup> Eurovent

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## 7.4.2 HEATING CAPACITIES 2 AND 4 PIPE

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 45/40 °C

MOD	SPEED		0	25	50	75	100	125	150	175	200	250
040-2R	max	Heating capacity [kW]	11,82	11,78	11,54	11,12	10,55	9,81	8,95	7,97	6,85	4,27
		Water flow [l/h]	2074	2067	2022	1946	1840	1697	1549	1384	1189	740
		Pressure drop [kPa]	64,9	64,5	62,1	58,0	52,5	45,6	38,8	31,8	24,4	10,7
	med	Heating capacity [kW]	9,68	9,48	9,20	8,83	8,36	7,81	7,15	6,37	5,46	3,10
		Water flow [l/h]	1681	1646	1594	1527	1442	1357	1241	1105	946	536
		Pressure drop [kPa]	44,8	43,1	40,8	37,8	34,2	30,7	26,3	21,5	16,4	6,1
	min	Heating capacity [kW]	8,04	7,79	7,46	7,05	6,56	6,01	5,37	4,66	3,86	1,87
		Water flow [l/h]	1396	1353	1295	1224	1138	1041	931	807	667	323
		Pressure drop [kPa]	32,3	30,6	28,3	25,7	22,6	19,4	15,9	12,4	8,9	2,6
040-3R	max	Heating capacity [kW]	13,76	13,71	13,41	12,91	12,20	11,31	10,26	9,05	7,71	4,69
		Water flow [l/h]	2374	2365	2310	2243	2119	1963	1779	1568	1335	809
		Pressure drop [kPa]	54,3	53,9	51,7	49,1	44,4	38,9	32,7	26,3	19,8	8,4
	med	Heating capacity [kW]	11,14	10,90	10,56	10,11	9,54	8,87	8,07	7,14	6,06	3,35
		Water flow [l/h]	1933	1891	1832	1753	1654	1536	1397	1235	1048	577
		Pressure drop [kPa]	37,8	36,4	34,4	31,9	28,8	25,3	21,5	17,3	13,0	4,7
	min	Heating capacity [kW]	9,14	8,84	8,44	7,95	7,37	6,71	5,96	5,13	4,21	1,98
		Water flow [l/h]	1583	1531	1462	1376	1275	1160	1031	887	726	343
		Pressure drop [kPa]	26,7	25,2	23,2	20,9	18,3	15,6	12,7	9,8	6,9	2,0
040-4R	max	Heating capacity [kW]	17,50	17,43	17,01	16,28	15,29	14,05	12,61	10,98	9,20	5,34
		Water flow [l/h]	3026	3013	2940	2814	2642	2427	2176	1894	1587	919
		Pressure drop [kPa]	59,8	59,3	56,8	52,6	47,1	40,6	33,6	26,4	19,4	7,6
	med	Heating capacity [kW]	13,82	13,49	12,19 <sup>(E)</sup>	12,41	11,64	10,73	9,67	8,45	7,06	3,71
		Water flow [l/h]	2386	2330	2098	2141	2009	1851	1668	1457	1217	645
		Pressure drop [kPa]	39,4	37,8	26,9 <sup>(E)</sup>	32,6	29,2	25,3	21,1	16,7	12,3	4,1
	min	Heating capacity [kW]	11,09	10,69	10,16	9,51	8,75	7,89	6,94	5,89	4,75	2,12
		Water flow [l/h]	1914	1845	1753	1641	1509	1361	1196	1015	817	368
		Pressure drop [kPa]	26,8	25,2	23,1	20,6	17,8	14,9	11,9	9,0	6,2	1,6

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 65/55 °C

MOD	SPEED		0	25	50	75	100	125	150	175	200	250
040-4+2R	max	Heating capacity [kW]	20,23	19,77	19,19	18,50	17,68	16,72	15,60	13,33	10,01	
		Water flow [l/h]	1775	1732	1678	1614	1538	1450	1348	1328	1185	863
		Pressure drop [kPa]	51,9	49,7	47,0	43,9	40,3	36,3	32,0	31,2	25,5	14,6
	med	Heating capacity [kW]	16,65	16,27	15,90 <sup>(E)</sup>	16,25	15,41	14,39	13,93	12,40	10,59	5,83
		Water flow [l/h]	1443	1409	1368	1408	1335	1246	1204	1070	913	502
		Pressure drop [kPa]	36,1	34,6	30,4 <sup>(E)</sup>	34,5	31,4	27,8	26,2	21,3	16,1	5,7
	min	Heating capacity [kW]	14,72	14,22	13,61	13,63	12,75	11,73	10,57	9,24	7,71	3,83
		Water flow [l/h]	1275	1231	1178	1177	1101	1013	912	797	664	329
		Pressure drop [kPa]	29,0	27,2	25,2	25,2	22,4	19,3	16,1	12,7	9,3	2,8
040-4+3R	max	Heating capacity [kW]	24,51	24,42	23,89	23,01	21,75	20,16	18,28	16,14	13,75	8,36
		Water flow [l/h]	2119	2110	2062	2000	1890	1751	1586	1399	1191	722
		Pressure drop [kPa]	41,1	40,8	39,1	37,1	33,6	29,3	24,7	19,8	15,0	6,3
	med	Heating capacity [kW]	19,85	19,43	18,82	18,02	17,01	15,81	14,39	12,73	10,82	5,98
		Water flow [l/h]	1724	1687	1634	1563	1475	1370	1246	1102	935	515
		Pressure drop [kPa]	28,6	27,5	26,0	24,1	21,7	19,1	16,2	13,1	9,8	3,5
	min	Heating capacity [kW]	16,29	15,76	15,05	14,18	13,14	11,97	10,64	9,16	7,51	3,54
		Water flow [l/h]	1412	1366	1304	1228	1137	1035	920	791	648	307
		Pressure drop [kPa]	20,1	19,0	17,5	15,8	13,8	11,7	9,5	7,4	5,2	1,5

## 7.5 CAPACITIES FOR SIZE 050 AT DIFFERENT EXTERNAL STATIC PRESSURES [PA]

### 7.5.1 COOLING CAPACITIES

Room temperature: 27 °C d.b. - 47% r.h. – Water temperature: 7/12 °C



MOD	SPEED		0	25	50	75	100	125	150	175	200	250
050-2R	max	Total cooling capacity [kW]	10,63	10,46	10,18	9,82	9,37	8,87	8,26	7,61	6,91	6,31
		Sensible cooling capacity [kW]	9,61	9,42	9,14	8,79	8,36	7,86	7,29	6,67	6,00	4,50
		Water flow [l/h]	1830	1812	1761	1694	1614	1531	1409	1299	1182	903
		Pressure drop [kPa]	54,4	53,5	50,9	47,6	43,8	39,9	34,6	30,1	25,6	16,1
	med	Total cooling capacity [kW]	9,59	9,41	9,16	8,86	8,44	7,97	7,46	6,89	6,24	4,74
		Sensible cooling capacity [kW]	8,57	8,40	8,16	7,85	7,46	7,02	6,52	5,97	5,37	3,99
		Water flow [l/h]	1653	1622	1577	1528	1441	1354	1272	1178	1065	806
		Pressure drop [kPa]	45,6	44,2	42,1	39,8	36,0	32,3	29,0	25,4	21,3	13,2
	min	Total cooling capacity [kW]	8,69	8,51	8,27	7,95	7,60	7,16	6,68	6,12	5,50	4,10
		Sensible cooling capacity [kW]	7,68	7,52	7,30	7,00	6,65	6,24	5,78	5,25	4,68	3,41
		Water flow [l/h]	1502	1457	1411	1350	1297	1218	1142	1044	936	700
		Pressure drop [kPa]	38,6	36,7	34,7	32,1	30,0	26,9	24,1	20,6	17,1	10,4
050-3R	max	Total cooling capacity [kW]	13,26	12,99	12,61	12,12	11,53	10,90	10,13	9,29	8,36	6,32
		Sensible cooling capacity [kW]	11,47	11,21	10,85	10,39	9,84	9,22	8,52	7,74	6,91	5,10
		Water flow [l/h]	2267	2219	2151	2064	1959	1862	1729	1582	1423	1079
		Pressure drop [kPa]	45,4	43,7	41,4	38,6	35,3	32,3	28,4	24,4	20,3	12,7
	med	Total cooling capacity [kW]	11,82	11,59	11,30	10,88	10,37	9,77	9,09	8,33	7,49	5,61
		Sensible cooling capacity [kW]	10,11	9,89	9,60	9,21	8,74	8,19	7,57	6,88	6,13	4,49
		Water flow [l/h]	2010	1969	1932	1859	1771	1667	1549	1417	1272	958
		Pressure drop [kPa]	36,8	35,6	34,4	32,2	29,6	26,7	23,5	20,2	16,8	10,4
	min	Total cooling capacity [kW]	10,64	10,44	10,14	9,75	9,27	8,70	8,06	7,36	6,57	4,78
		Sensible cooling capacity [kW]	8,99	8,80	8,53	8,16	7,73	7,22	6,64	6,01	5,31	3,78
		Water flow [l/h]	1818	1783	1731	1663	1579	1482	1370	1258	1122	814
		Pressure drop [kPa]	31,0	30,0	28,5	26,6	24,3	21,8	19,1	16,5	13,6	7,9
050-4R	max	Total cooling capacity [kW]	14,28	13,97	13,58	13,05	12,40	11,66	10,81	9,87	8,86	6,64
		Sensible cooling capacity [kW]	11,86	11,59	11,22	10,74	10,16	9,51	8,77	7,96	7,09	5,22
		Water flow [l/h]	2430	2376	2324	2231	2118	1990	1842	1681	1506	1133
		Pressure drop [kPa]	35,7	34,3	33,0	30,8	28,2	25,3	22,2	19,0	15,7	9,7
	med	Total cooling capacity [kW]	12,71	12,46	12,60 <sup>(E)</sup>	11,64	11,07	10,41	9,66	8,82	7,93	5,87
		Sensible cooling capacity [kW]	10,44	10,22	10,60 <sup>(E)</sup>	9,50	9,00	8,43	7,78	7,06	6,29	4,58
		Water flow [l/h]	2173	2129	2169	1987	1888	1774	1644	1500	1356	1001
		Pressure drop [kPa]	29,4	28,4	33,8 <sup>(E)</sup>	25,2	23,1	20,8	18,3	15,6	13,2	7,9
	min	Total cooling capacity [kW]	11,37	11,15	10,82	10,38	9,85	9,23	8,53	7,77	6,90	5,07
		Sensible cooling capacity [kW]	9,26	9,07	8,78	8,40	7,95	7,41	6,81	6,16	5,44	3,92
		Water flow [l/h]	1941	1902	1845	1769	1678	1570	1449	1328	1179	862
		Pressure drop [kPa]	24,3	23,4	22,2	20,7	18,9	16,9	14,7	12,7	10,4	6,1

<sup>(E)</sup> Eurovent

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## 7.5.2 HEATING CAPACITIES 2 AND 4 PIPE

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 45/40 °C

MOD	SPEED		0	25	50	75	100	125	150	175	200	250
050-2R	max	Heating capacity [kW]	13,29	13,01	12,60	12,09	11,49	10,78	9,98	9,10	8,16	6,11
		Water flow [l/h]	2316	2266	2195	2105	2013	1882	1737	1575	1418	1059
		Pressure drop [kPa]	78,9	75,9	71,7	66,6	61,6	54,7	47,5	40,0	33,2	19,9
	med	Heating capacity [kW]	11,79	11,55	11,20	10,76	10,22	9,60	8,90	8,13	7,29	5,41
		Water flow [l/h]	2068	2024	1961	1879	1781	1667	1539	1412	1265	938
		Pressure drop [kPa]	64,6	62,2	58,7	54,5	49,6	44,1	38,3	33,0	27,2	16,1
	min	Heating capacity [kW]	10,51	10,30	9,99	9,58	9,08	8,50	7,86	7,14	6,35	4,61
		Water flow [l/h]	1833	1795	1740	1662	1572	1467	1365	1238	1101	799
		Pressure drop [kPa]	52,2	50,3	47,6	43,9	39,8	35,2	31,1	26,2	21,3	12,2
050-3R	max	Heating capacity [kW]	15,63	15,28	14,77	14,12	13,35	12,49	11,50	10,43	9,29	6,83
		Water flow [l/h]	2695	2652	2557	2439	2299	2168	1996	1809	1609	1181
		Pressure drop [kPa]	67,8	65,9	61,8	56,9	51,3	46,3	40,0	33,7	27,5	16,0
	med	Heating capacity [kW]	13,72	13,42	13,01	12,47	11,81	11,05	10,19	9,25	8,23	6,01
		Water flow [l/h]	2367	2313	2260	2164	2049	1916	1767	1603	1426	1039
		Pressure drop [kPa]	54,0	51,8	49,8	46,1	41,9	37,3	32,3	27,3	22,3	12,9
	min	Heating capacity [kW]	12,16	11,90	11,52	11,02	10,41	9,71	8,92	8,05	7,11	5,08
		Water flow [l/h]	2111	2065	1998	1911	1805	1683	1545	1394	1231	877
		Pressure drop [kPa]	44,1	42,5	40,1	37,1	33,6	29,7	25,6	21,4	17,2	9,6
050-4R	max	Heating capacity [kW]	16,96	16,56	15,98	15,26	14,40	13,41	12,32	11,13	9,87	7,19
		Water flow [l/h]	2947	2876	2775	2648	2498	2327	2136	1929	1709	1242
		Pressure drop [kPa]	45,4	43,4	40,8	37,6	34,0	30,0	25,8	21,6	17,5	10,1
	med	Heating capacity [kW]	14,81	14,48	15,53 <sup>(E)</sup>	13,39	12,66	11,81	10,86	9,83	8,72	6,30
		Water flow [l/h]	2571	2512	2673	2323	2195	2047	1882	1702	1508	1089
		Pressure drop [kPa]	35,7	34,3	41,3 <sup>(E)</sup>	29,9	27,1	24,0	20,7	17,4	14,1	8,0
	min	Heating capacity [kW]	13,05	12,76	12,34	11,78	11,11	10,33	9,47	8,52	7,50	5,30
		Water flow [l/h]	2263	2213	2138	2041	1925	1790	1639	1474	1296	915
		Pressure drop [kPa]	28,6	27,5	25,9	23,9	21,6	19,0	16,3	13,6	10,9	6,0

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 65/55 °C

MOD	SPEED		0	25	50	75	100	125	150	175	200	250
050-4+2R	max	Heating capacity [kW]	25,46	24,94	24,14	23,12	21,92	20,53	18,97	17,29	15,46	11,49
		Water flow [l/h]	2216	2187	2113	2019	1907	1779	1636	1499	1339	993
		Pressure drop [kPa]	72,3	70,7	66,5	61,3	55,4	49,0	42,3	36,2	29,7	17,5
	med	Heating capacity [kW]	22,50	22,03	20,23 <sup>(E)</sup>	20,49	19,45	18,24	16,90	15,40	13,77	10,16
		Water flow [l/h]	1961	1918	1741	1777	1681	1570	1465	1334	1191	877
		Pressure drop [kPa]	58,2	56,0	43,6 <sup>(E)</sup>	48,9	44,3	39,3	34,8	29,5	24,2	14,1
	min	Heating capacity [kW]	20,01	19,60	18,99	18,19	17,25	16,13	14,87	13,47	11,95	8,63
		Water flow [l/h]	1732	1694	1638	1566	1496	1398	1288	1166	1033	744
		Pressure drop [kPa]	46,7	44,9	42,4	39,1	36,1	32,0	27,7	23,3	18,8	10,6
050-4+3R	max	Heating capacity [kW]	27,86	27,22	26,30	25,15	23,77	22,25	20,50	18,60	16,56	12,18
		Water flow [l/h]	2425	2368	2283	2177	2051	1934	1780	1614	1435	1053
		Pressure drop [kPa]	52,1	49,9	46,8	43,1	38,8	34,9	30,2	25,4	20,7	12,1
	med	Heating capacity [kW]	24,44	23,91	23,18	22,21	21,04	19,69	18,16	16,49	14,68	10,73
		Water flow [l/h]	2112	2064	2016	1931	1828	1709	1576	1430	1272	927
		Pressure drop [kPa]	40,8	39,2	37,6	34,9	31,7	28,1	24,4	20,6	16,8	9,7
	min	Heating capacity [kW]	21,66	21,20	20,52	19,63	18,56	17,31	15,90	14,36	12,69	9,07
		Water flow [l/h]	1883	1842	1783	1704	1610	1501	1378	1243	1098	783
		Pressure drop [kPa]	33,3	32,1	30,3	28,0	25,3	22,4	19,3	16,1	13,0	7,2

## 7.6 CAPACITIES FOR SIZE 060 AT DIFFERENT EXTERNAL STATIC PRESSURES [PA]

### 7.6.1 COOLING CAPACITIES

Room temperature: 27 °C d.b. - 47% r.h. – Water temperature: 7/12 °C

MOD	SPEED		30	50	75	100	125	150	175	200	250	275
060-3R	max	Total cooling capacity [kW]	18,85	18,60	18,30	17,95	17,49	16,87	16,01	14,84	11,22	8,36
		Sensible cooling capacity [kW]	16,19	15,96	15,68	15,35	14,91	14,32	13,52	12,45	9,16	6,63
		Water flow [l/h]	3219	3177	3125	3064	2985	2876	2727	2526	1918	1425
		Pressure drop [kPa]	29,7	29,0	28,2	27,3	26,1	24,5	22,3	19,6	12,3	7,4
	med	Total cooling capacity [kW]	16,82	16,69	16,54	16,31	15,92	15,33	14,46	13,32	9,74	7,18
		Sensible cooling capacity [kW]	14,28	14,16	14,01	13,80	13,44	12,89	12,10	11,04	7,86	5,62
		Water flow [l/h]	2868	2846	2819	2779	2711	2609	2460	2279	1665	1222
		Pressure drop [kPa]	24,4	24,0	23,7	23,1	22,1	20,7	18,7	16,4	9,7	5,7
	min	Total cooling capacity [kW]	13,23	13,17	13,05	12,82	12,44	11,85	11,01	9,92	6,89	4,44
		Sensible cooling capacity [kW]	10,96	10,90	10,79	10,59	10,24	9,72	8,98	8,01	5,36	3,49
		Water flow [l/h]	2263	2252	2232	2193	2127	2026	1883	1695	1176	755
		Pressure drop [kPa]	16,3	16,1	15,9	15,4	14,6	13,5	11,9	10,0	5,4	2,6
060-4R	max	Total cooling capacity [kW]	23,75	23,43	23,03	22,57	21,96	21,15	20,02	18,50	13,83	10,19
		Sensible cooling capacity [kW]	18,71	18,43	18,09	17,68	17,16	16,48	15,52	14,25	10,34	7,48
		Water flow [l/h]	4051	3995	3927	3848	3743	3601	3407	3144	2364	1735
		Pressure drop [kPa]	30,6	29,9	29,1	28,1	26,8	25,1	22,8	19,9	12,3	7,3
	med	Total cooling capacity [kW]	21,09	20,37	20,71	20,41	19,91	19,13	18,01	16,46	11,97	8,64
		Sensible cooling capacity [kW]	16,42	15,81	16,11	15,85	15,43	14,77	13,83	12,55	8,87	6,31
		Water flow [l/h]	3590	3466	3526	3474	3389	3252	3063	2797	2040	1475
		Pressure drop [kPa]	24,9	23,5	24,2	23,6	22,6	21,1	19,0	16,3	9,6	5,6
	min	Total cooling capacity [kW]	16,34	16,25	16,10	15,91	15,38	14,64	13,57	12,19	8,08	5,58
		Sensible cooling capacity [kW]	12,45	12,38	12,26	12,05	11,61	10,99	10,13	9,04	5,92	4,04
		Water flow [l/h]	2777	2763	2737	2718	2633	2503	2319	2078	1380	953
		Pressure drop [kPa]	16,1	16,0	15,7	15,5	14,7	13,5	11,9	9,9	5,0	2,7
060-5R	max	Total cooling capacity [kW]	26,82	26,45	25,98	25,44	24,73	23,77	22,45	20,72	15,10	10,82
		Sensible cooling capacity [kW]	20,25	19,94	19,56	19,12	18,55	17,77	16,72	15,33	10,87	7,74
		Water flow [l/h]	4565	4500	4421	4328	4206	4040	3813	3546	2583	1847
		Pressure drop [kPa]	29,0	28,3	27,4	26,5	25,2	23,5	21,3	18,9	11,1	6,3
	med	Total cooling capacity [kW]	23,69	23,50	23,26	22,90	22,31	21,46	20,14	18,13	12,99	9,08
		Sensible cooling capacity [kW]	17,71	17,56	17,36	17,08	16,61	15,91	14,87	13,17	9,29	6,49
		Water flow [l/h]	4028	3994	3953	3892	3791	3673	3446	3103	2221	1543
		Pressure drop [kPa]	23,4	23,1	22,7	22,1	21,1	20,0	18,0	15,0	8,6	4,7
	min	Total cooling capacity [kW]	18,00	17,90	17,73	17,41	16,85	16,00	14,81	13,24	8,62	6,20
		Sensible cooling capacity [kW]	13,07	13,00	12,87	12,62	12,20	11,55	10,65	9,47	6,15	4,32
		Water flow [l/h]	3080	3065	3036	2980	2884	2738	2533	2264	1469	1058
		Pressure drop [kPa]	14,9	14,7	14,5	14,1	13,3	12,2	10,7	8,9	4,3	2,5

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**7.6.2 HEATING CAPACITIES 2 AND 4 PIPE**

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 45/40 °C

MOD	SPEED		30	50	75	100	125	150	175	200	250	275
060-3R	max	Heating capacity [kW]	24,93	24,56	24,09	23,56	22,85	21,90	20,61	18,90	13,71	9,89
		Water flow [l/h]	4319	4254	4173	4080	3958	3793	3569	3271	2371	1711
		Pressure drop [kPa]	40,3	39,2	37,9	36,5	34,6	32,1	28,8	24,7	14,1	8,0
	med	Heating capacity [kW]	21,83	21,64	21,40	21,06	20,48	19,61	18,34	16,64	11,72	8,40
		Water flow [l/h]	3780	3747	3706	3646	3546	3394	3175	2879	2027	1453
		Pressure drop [kPa]	31,9	31,4	30,8	29,9	28,5	26,4	23,5	19,8	10,8	6,1
	min	Heating capacity [kW]	16,51	16,42	16,25	15,93	15,39	14,57	13,43	11,95	7,97	5,53
		Water flow [l/h]	2856	2841	2812	2757	2663	2521	2323	2066	1378	957
		Pressure drop [kPa]	19,5	19,3	19,0	18,4	17,3	15,7	13,6	11,1	5,5	3,0
060-4R	max	Heating capacity [kW]	27,91	27,46	26,92	26,29	25,47	24,36	22,85	20,86	14,91	10,62
		Water flow [l/h]	4831	4754	4659	4550	4408	4215	3955	3610	2580	1838
		Pressure drop [kPa]	31,9	31,0	29,9	28,7	27,2	25,1	22,5	19,2	10,7	6,0
	med	Heating capacity [kW]	24,27	23,31	23,77	23,37	22,70	21,68	20,22	18,26	12,66	8,96
		Water flow [l/h]	4200	4034	4114	4044	3929	3752	3499	3159	2191	1551
		Pressure drop [kPa]	25,0	23,3	24,1	23,4	22,2	20,5	18,2	15,2	8,1	4,5
	min	Heating capacity [kW]	18,11	18,00	17,81	17,45	16,83	15,89	14,59	12,92	8,48	5,82
		Water flow [l/h]	3133	3115	3083	3020	2913	2750	2525	2236	1468	1004
		Pressure drop [kPa]	15,0	14,8	14,6	14,1	13,2	12,0	10,3	8,4	4,1	2,1
060-5R	max	Heating capacity [kW]	30,11	29,61	29,01	28,31	27,41	26,18	24,52	22,33	15,80	11,15
		Water flow [l/h]	5218	5133	5028	4907	4750	4537	4250	3870	2740	1934
		Pressure drop [kPa]	29,4	28,5	27,5	26,4	24,9	23,0	20,5	17,5	9,6	5,3
	med	Heating capacity [kW]	26,08	25,83	25,53	25,09	24,35	23,23	21,62	19,46	13,36	9,37
		Water flow [l/h]	4521	4478	4425	4349	4221	4026	3748	3374	2317	1624
		Pressure drop [kPa]	22,9	22,5	22,0	21,4	20,3	18,7	16,5	13,8	7,2	3,9
	min	Heating capacity [kW]	19,30	19,19	18,98	18,58	17,90	16,88	15,46	13,64	8,86	6,02
		Water flow [l/h]	3346	3327	3290	3221	3104	2926	2681	2366	1536	1045
		Pressure drop [kPa]	13,6	13,4	13,2	12,7	11,9	10,8	9,3	7,5	3,6	1,9

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 65/55 °C

MOD	SPEED		30	50	75	100	125	150	175	200	250	275
060-4+2R	max	Heating capacity [kW]	27,78	27,32	26,57	25,64	24,45	23,00	21,28	19,24	13,93	10,36
		Water flow [l/h]	2440	2400	2333	2267	2156	2022	1863	1675	1218	904
		Pressure drop [kPa]	21,0	20,4	19,4	18,4	16,9	15,1	13,1	10,9	6,2	3,7
	med	Heating capacity [kW]	24,89	23,10 <sup>(E)</sup>	24,14	23,41	22,45	21,20	19,68	17,85	12,88	9,49
		Water flow [l/h]	2197	1988	2127	2059	1982	1855	1715	1563	1126	827
		Pressure drop [kPa]	17,5	14,5 <sup>(E)</sup>	16,5	15,6	14,6	13,0	11,3	9,6	5,4	3,2
	min	Heating capacity [kW]	19,73	19,65	19,37	18,87	18,17	17,21	15,98	14,44	10,23	7,30
		Water flow [l/h]	1720	1713	1687	1642	1591	1506	1398	1263	893	636
		Pressure drop [kPa]	11,4	11,3	11,0	10,5	9,9	9,0	7,9	6,6	3,6	2,0
060-4+3R	max	Heating capacity [kW]	44,54	43,87	43,04	42,09	40,84	39,14	36,84	33,78	24,52	17,72
		Water flow [l/h]	3887	3828	3756	3672	3563	3414	3213	2945	2136	1543
		Pressure drop [kPa]	30,9	30,1	29,1	28,0	26,5	24,6	22,1	19,0	10,8	6,1
	med	Heating capacity [kW]	39,01	38,67	38,25	37,63	36,61	35,05	32,79	29,75	20,97	15,05
		Water flow [l/h]	3403	3373	3336	3282	3193	3056	2859	2593	1827	1311
		Pressure drop [kPa]	24,5	24,1	23,6	23,0	21,9	20,3	18,0	15,2	8,2	4,6
	min	Heating capacity [kW]	29,52	29,36	29,06	28,50	27,53	26,07	24,02	21,38	14,28	9,92
		Water flow [l/h]	2573	2559	2533	2484	2399	2271	2093	1863	1244	864
		Pressure drop [kPa]	15,0	14,8	14,6	14,1	13,3	12,0	10,4	8,5	4,2	2,3

## 7.7 CAPACITIES FOR SIZE 070 AT DIFFERENT EXTERNAL STATIC PRESSURES [PA]

### 7.7.1 COOLING CAPACITIES

Room temperature: 27 °C d.b. - 47% r.h. – Water temperature: 7/12 °C

MOD	SPEED		50	75	100	125	150	175	200	250	300	350
070-3R	max	Total cooling capacity [kW]	21,55	21,37	21,16	20,88	20,53	20,08	19,50	17,87	15,30	11,27
		Sensible cooling capacity [kW]	18,79	18,62	18,41	18,14	17,80	17,37	16,82	15,26	12,87	9,21
		Water flow [l/h]	3685	3655	3617	3570	3509	3431	3332	3049	2605	1926
		Pressure drop [kPa]	37,5	37,0	36,3	35,5	34,5	33,2	31,5	27,1	20,7	12,4
	med	Total cooling capacity [kW]	20,00	19,90	19,76	19,57	19,32	18,98	18,52	17,16	14,88	11,11
		Sensible cooling capacity [kW]	17,30	17,20	17,06	16,88	16,64	16,32	15,88	14,59	12,48	9,06
		Water flow [l/h]	3418	3400	3376	3344	3300	3241	3163	2926	2532	1897
		Pressure drop [kPa]	33,0	32,6	32,2	31,7	31,0	30,1	28,8	25,2	19,7	12,0
	min	Total cooling capacity [kW]	18,49	18,40	18,26	18,06	17,81	17,48	17,07	15,87	13,87	10,42
		Sensible cooling capacity [kW]	15,86	15,77	15,63	15,45	15,21	14,90	14,51	13,40	11,56	8,46
		Water flow [l/h]	3157	3141	3117	3083	3039	2983	2911	2703	2358	1781
		Pressure drop [kPa]	28,7	28,5	28,1	27,6	26,9	26,1	25,0	22,0	17,4	10,8
070-4R	max	Total cooling capacity [kW]	27,64	27,40	27,10	26,73	26,26	25,65	24,88	22,69	19,30	14,04
		Sensible cooling capacity [kW]	22,10	21,89	21,63	21,31	20,89	20,36	19,69	17,79	14,91	10,49
		Water flow [l/h]	4719	4678	4628	4563	4482	4378	4245	3869	3285	2396
		Pressure drop [kPa]	37,8	37,2	36,5	35,7	34,6	33,2	31,5	26,9	20,3	11,9
	med	Total cooling capacity [kW]	25,55	25,41	25,22	24,97	24,63	24,18	23,57	21,74	18,74	13,82
		Sensible cooling capacity [kW]	20,27	20,15	19,98	19,77	19,47	19,07	18,55	16,98	14,44	10,32
		Water flow [l/h]	4361	4336	4304	4261	4203	4124	4020	3707	3186	2359
		Pressure drop [kPa]	33,0	32,7	32,2	31,7	31,0	30,0	28,7	25,0	19,3	11,6
	min	Total cooling capacity [kW]	23,53	23,41	23,22	22,95	22,61	22,18	21,63	20,06	17,48	12,94
		Sensible cooling capacity [kW]	18,51	18,41	18,24	18,02	17,72	17,36	16,88	15,54	13,37	9,62
		Water flow [l/h]	4013	3992	3959	3914	3855	3781	3686	3414	2987	2211
		Pressure drop [kPa]	28,6	28,3	27,9	27,4	26,7	25,8	24,7	21,7	17,3	10,4
070-5R	max	Total cooling capacity [kW]	31,04	30,76	30,42	29,99	29,44	28,73	27,84	25,30	21,42	15,17
		Sensible cooling capacity [kW]	23,71	23,48	23,20	22,84	22,39	21,81	21,07	19,01	15,88	10,92
		Water flow [l/h]	5290	5242	5183	5109	5014	4893	4740	4304	3667	2596
		Pressure drop [kPa]	37,3	36,7	36,0	35,2	34,0	32,6	30,9	26,2	20,0	11,1
	med	Total cooling capacity [kW]	28,62	28,45	28,23	27,95	27,55	27,02	26,32	24,21	20,78	14,93
		Sensible cooling capacity [kW]	21,71	21,58	21,40	21,16	20,84	20,41	19,84	18,13	15,37	10,74
		Water flow [l/h]	4874	4845	4808	4758	4690	4600	4479	4117	3555	2555
		Pressure drop [kPa]	32,4	32,1	31,7	31,1	30,4	29,4	28,1	24,3	18,9	10,8
	min	Total cooling capacity [kW]	26,27	26,13	25,91	25,61	25,21	24,71	24,08	22,29	18,99	13,96
		Sensible cooling capacity [kW]	19,80	19,68	19,50	19,26	18,94	18,54	18,02	16,57	13,84	10,01
		Water flow [l/h]	4471	4447	4409	4356	4288	4203	4094	3815	3251	2387
		Pressure drop [kPa]	28,0	27,7	27,3	26,8	26,1	25,2	24,1	21,4	16,3	9,7

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## 7.7.2 HEATING CAPACITIES 2 AND 4 PIPE

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 45/40 °C

MOD	SPEED		50	75	100	125	150	175	200	250	300	350
070-3R	max	Heating capacity [kW]	29,21	28,92	28,57	28,13	27,57	26,86	25,95	23,42	19,57	13,77
		Water flow [l/h]	43452	5013	4952	4875	4778	4653	4496	4056	3388	2383
		Pressure drop [kPa]	53,3	52,4	51,3	49,9	48,1	46,0	43,3	36,1	26,3	14,2
	med	Heating capacity [kW]	26,74	26,57	26,35	26,06	25,66	25,13	24,43	22,34	18,95	13,54
		Water flow [l/h]	4633	4604	4566	4515	4446	4354	4232	3869	3280	2343
		Pressure drop [kPa]	45,6	45,1	44,4	43,6	42,4	40,9	38,9	33,2	24,9	13,8
	min	Heating capacity [kW]	24,38	24,24	24,02	23,72	23,33	22,84	22,21	20,41	17,48	12,62
		Water flow [l/h]	4224	4199	4161	4108	4040	3955	3846	3534	3025	2183
		Pressure drop [kPa]	38,8	38,4	37,7	36,9	35,8	34,5	32,9	28,3	21,6	12,2
070-4R	max	Heating capacity [kW]	34,02	33,67	33,23	32,68	31,98	31,10	29,98	26,86	22,18	15,28
		Water flow [l/h]	5886	5825	5749	5654	5533	5379	5186	4646	3836	2642
		Pressure drop [kPa]	50,0	49,1	48,0	46,6	44,9	42,7	40,0	33,0	23,6	12,4
	med	Heating capacity [kW]	30,95	30,74	30,47	30,11	29,62	28,97	28,10	25,54	21,43	15,01
		Water flow [l/h]	5354	5318	5271	5209	5124	5011	4861	4418	3706	2596
		Pressure drop [kPa]	42,4	41,9	41,2	40,4	39,2	37,7	35,7	30,2	22,3	12,0
	min	Heating capacity [kW]	28,05	27,87	27,60	27,23	26,75	26,15	25,38	23,20	19,67	13,93
		Water flow [l/h]	4851	4821	4774	4710	4627	4522	4389	4012	3402	2409
		Pressure drop [kPa]	35,6	35,2	34,6	33,8	32,8	31,5	29,9	25,6	19,2	10,5
070-5R	max	Heating capacity [kW]	35,71	35,33	34,87	34,29	33,55	32,62	31,43	28,14	23,19	15,89
		Water flow [l/h]	6190	6125	6044	5944	5816	5653	5449	4877	4019	2755
		Pressure drop [kPa]	39,6	38,9	38,0	36,9	35,5	33,8	31,7	26,1	18,6	9,7
	med	Heating capacity [kW]	32,46	32,24	31,96	31,58	31,06	30,37	29,45	26,74	22,39	15,61
		Water flow [l/h]	5627	5589	5539	5473	5383	5263	5105	4635	3881	2706
		Pressure drop [kPa]	33,5	33,1	32,6	31,9	31,0	29,8	28,3	23,9	17,6	9,4
	min	Heating capacity [kW]	29,39	29,21	28,92	28,53	28,02	27,38	26,57	24,26	20,53	14,47
		Water flow [l/h]	5094	5062	5013	4944	4856	4746	4605	4205	3559	2509
		Pressure drop [kPa]	28,2	27,9	27,4	26,7	25,9	24,9	23,6	20,2	15,1	8,3

Heating: Room temperature: 20 °C - 50% r.h. - Water temperature: 65/55 °C

MOD	SPEED		50	75	100	125	150	175	200	250	300	350
070-4+2R	max	Heating capacity [kW]	33,03	32,75	32,42	31,99	31,45	30,75	29,87	27,37	23,49	17,39
		Water flow [l/h]	2905	2881	2851	2813	2765	2704	2626	2404	2067	1522
		Pressure drop [kPa]	28,6	28,1	27,6	27,0	26,2	25,2	23,9	20,5	15,7	9,2
	med	Heating capacity [kW]	30,64	30,47	30,26	29,98	29,59	29,07	28,37	26,32	22,85	17,14
		Water flow [l/h]	2694	2679	2660	2635	2600	2554	2493	2331	2008	1500
		Pressure drop [kPa]	25,0	24,8	24,4	24,0	23,5	22,8	21,8	19,4	14,9	9,0
	min	Heating capacity [kW]	28,33	28,19	27,97	27,67	27,28	26,79	26,19	24,36	21,32	16,13
		Water flow [l/h]	2489	2476	2457	2430	2396	2353	2318	2147	1866	1411
		Pressure drop [kPa]	21,7	21,6	21,3	20,9	20,3	19,7	19,2	16,8	13,1	8,0
070-4+3R	max	Heating capacity [kW]	52,15	51,64	51,02	50,23	49,24	47,96	46,36	41,84	34,99	24,64
		Water flow [l/h]	4555	4510	4456	4387	4299	4187	4046	3651	3051	2147
		Pressure drop [kPa]	40,9	40,2	39,4	38,3	37,0	35,3	33,2	27,7	20,2	10,9
	med	Heating capacity [kW]	47,76	47,46	47,07	46,55	45,84	44,90	43,65	39,92	33,88	24,24
		Water flow [l/h]	4169	4143	4109	4063	4001	3919	3809	3483	2954	2112
		Pressure drop [kPa]	35,0	34,6	34,1	33,5	32,6	31,4	29,8	25,5	19,1	10,6
	min	Heating capacity [kW]	43,56	43,31	42,92	42,38	41,68	40,81	39,68	36,48	31,26	22,58
		Water flow [l/h]	3802	3779	3745	3698	3637	3560	3462	3181	2725	1967
		Pressure drop [kPa]	29,7	29,4	29,0	28,3	27,5	26,5	25,2	21,7	16,6	9,4



## 7.8 ELECTRICAL DATA



Electrical data refer to standard fan coils with clean filter and with 50 Pa of external static pressure. A dirty filter or an external air pressure drop will lower the absorbed power level. The installation of electric accessories increases the absorbed power level.

	Absorbed current [A]			Power input [W]			Power supply [V ph-Hz]
	max	med	min	max	med	min	
020	0,75	0,52	0,32	171	119 <sup>(E)</sup>	72	230-1-50/60 <sup>(2)</sup>
030	1,80	1,45	1,30	352	305 <sup>(E)</sup>	267	230-1-50/60 <sup>(2)</sup>
040	2,03	1,64	1,28	451	361 <sup>(E)</sup>	274	230-1-50/60 <sup>(2)</sup>
050	2,83	2,39	2,06	588	512 <sup>(E)</sup>	440	230-1-50/60 <sup>(2)</sup>
060 <sup>(1)</sup>	5,12	4,26	2,82	1007	897	603	230-1-50/60 <sup>(2)</sup>
070 <sup>(1)</sup>	7,90	7,22	6,46	1781	1617	1436	230-1-50/60 <sup>(2)</sup>

<sup>(E)</sup>: Eurovent

<sup>(1)</sup> Performances are out of scope Eurovent FCP.

<sup>(2)</sup> For the functioning at 60 Hz please use the Eurapo software for selection or verify with the Eurapo staff

## 7.9 WORKING OPERATION LIMITS

The EBH ducted unit can work correctly only if the following operational limits are respected:

- Max. operating pressure (water side): 1,6 Mpa
- Min. inlet cold water temperature: 5 °C
- Max. inlet cold water temperature: 20 °C
- Min. inlet hot water temperature: 35 °C
- Max. inlet hot water temperature: 85 °C.



**In order to select the EBH ducted fancoil with calculating conditions differing from the standard ones or with DISTRICT COOLING coils, please use the EURAPO software for selection.**



**Note. Some units can present the risk of condensing water sprays if selected under particular calculating conditions in water temperature and relative humidity. In this case it is necessary to modify the calculating parameters or select a different EBH model.**



**Units size 060 and 070 can be used only with external static pressure >30Pa (060) or >040Pa (070). For a correct selection of the units, pls use the EURAPO software for selection.**

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## 8. SOUND LEVEL

The following sound levels are referred to EBH units with air delivery plenum with spigots, at 50 Pa external static pressure at medium speed.

SIZE	SPEED	EXT. STATIC PRESSURE (PA)	Lw	Lp
			DB(A)	DB(A)
020	max	Outlet	64,0	53,0
		Inlet + Structure	63,0	52,0
	med	Outlet	58,0	47,0
		Inlet + Structure	56,0	45,0
	min	Outlet	48,0	37,0
		Inlet + Structure	47,0	36,0
030	max	Outlet	65,0	54,0
		Inlet + Structure	63,0	52,0
	med	Outlet	61,0	50,0
		Inlet + Structure	60,0	49,0
	min	Outlet	57,0	46,0
		Inlet + Structure	56,0	45,0
040	max	Outlet	69,0	58,0
		Inlet + Structure	67,0	56,0
	med	Outlet	63,0	52,0
		Inlet + Structure	62,0	51,0
	min	Outlet	57,0	46,0
		Inlet + Structure	56,0	45,0
050	max	Outlet	72,0	61,0
		Inlet + Structure	70,0	59,0
	med	Outlet	68,0	57,0
		Inlet + Structure	66,0	55,0
	min	Outlet	65,0	54,0
		Inlet + Structure	63,0	52,0
060*	max	Outlet	77,0	66,0
		Inlet + Structure	73,0	62,0
	med	Outlet	74,0	63,0
		Inlet + Structure	70,0	59,0
	min	Outlet	65,0	54,0
		Inlet + Structure	64,0	53,0
070*	max	Outlet	81,0	70,0
		Inlet + Structure	76,0	65,0
	med	Outlet	79,0	68,0
		Inlet + Structure	74,0	63,0
	min	Outlet	76,0	65,0
		Inlet + Structure	72,0	61,0

\*Performances are out of scope Eurovent FCP.

Lw= Total sound power level


Lp= Total sound pressure level in open field at 1 m from the source

dB(A)= Sound level, weighted

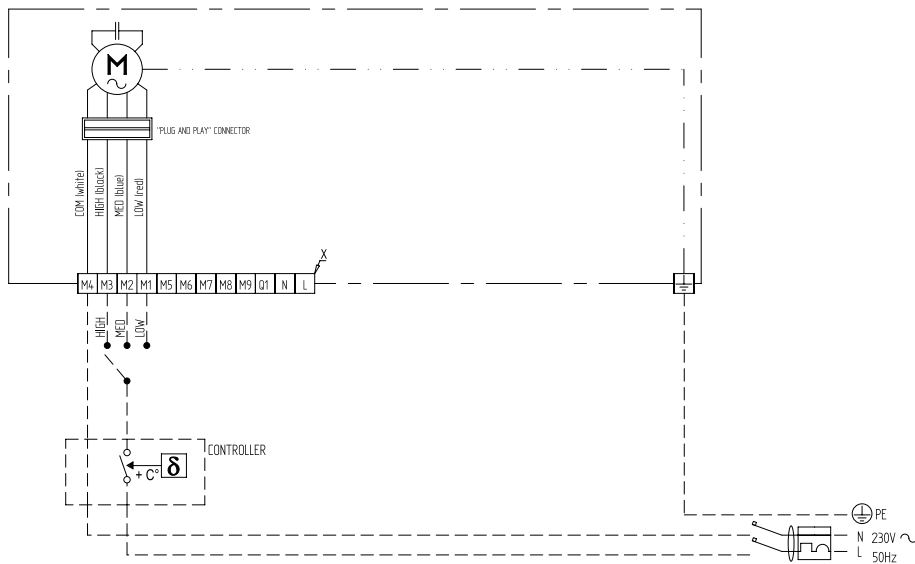
# 9. ELECTRICAL CONNECTIONS

Most frequently used wiring diagrams:

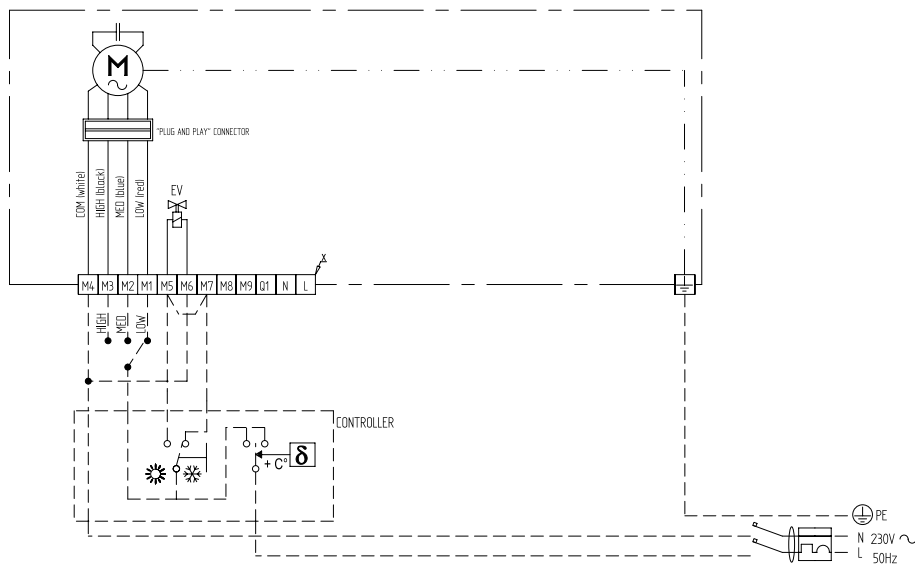
**LEGEND (for all the electric diagrams)**

M	Fan motor	X	Terminal board
N	Neutral	EV	Regulating valve: EVC for cooling; EVH for heating
L	Phase	PC	Condensate pump
PE	Earth		Summer/Winter switch
PR	Power Relay card		

**CBL00**

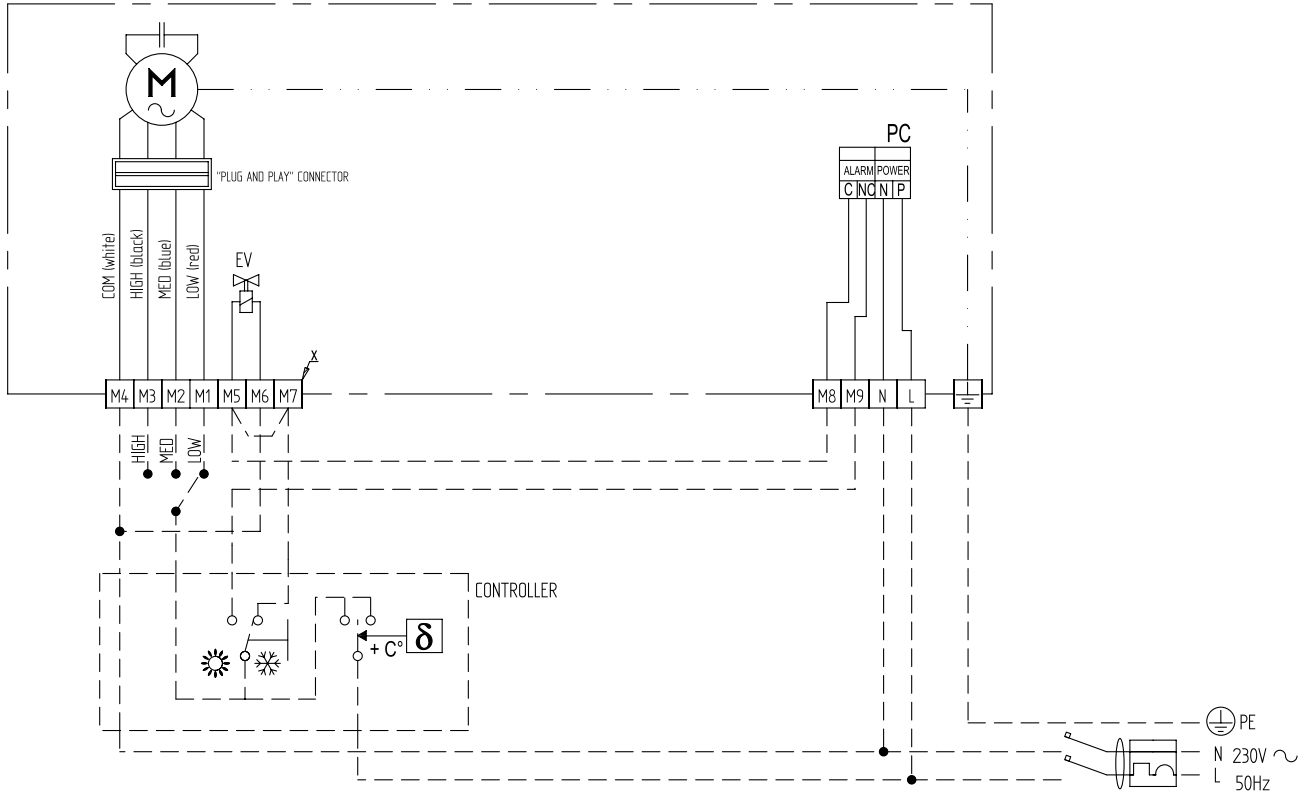


**CBL00+EV**

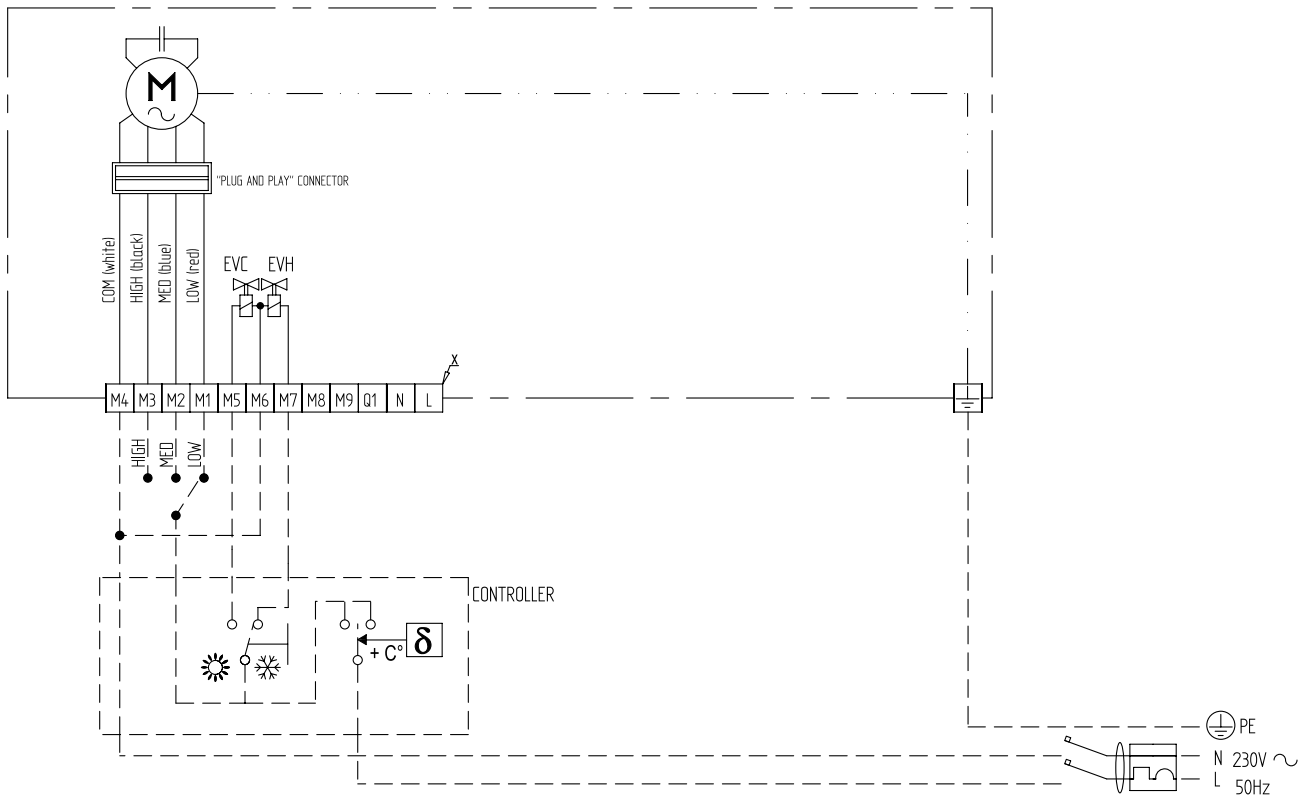


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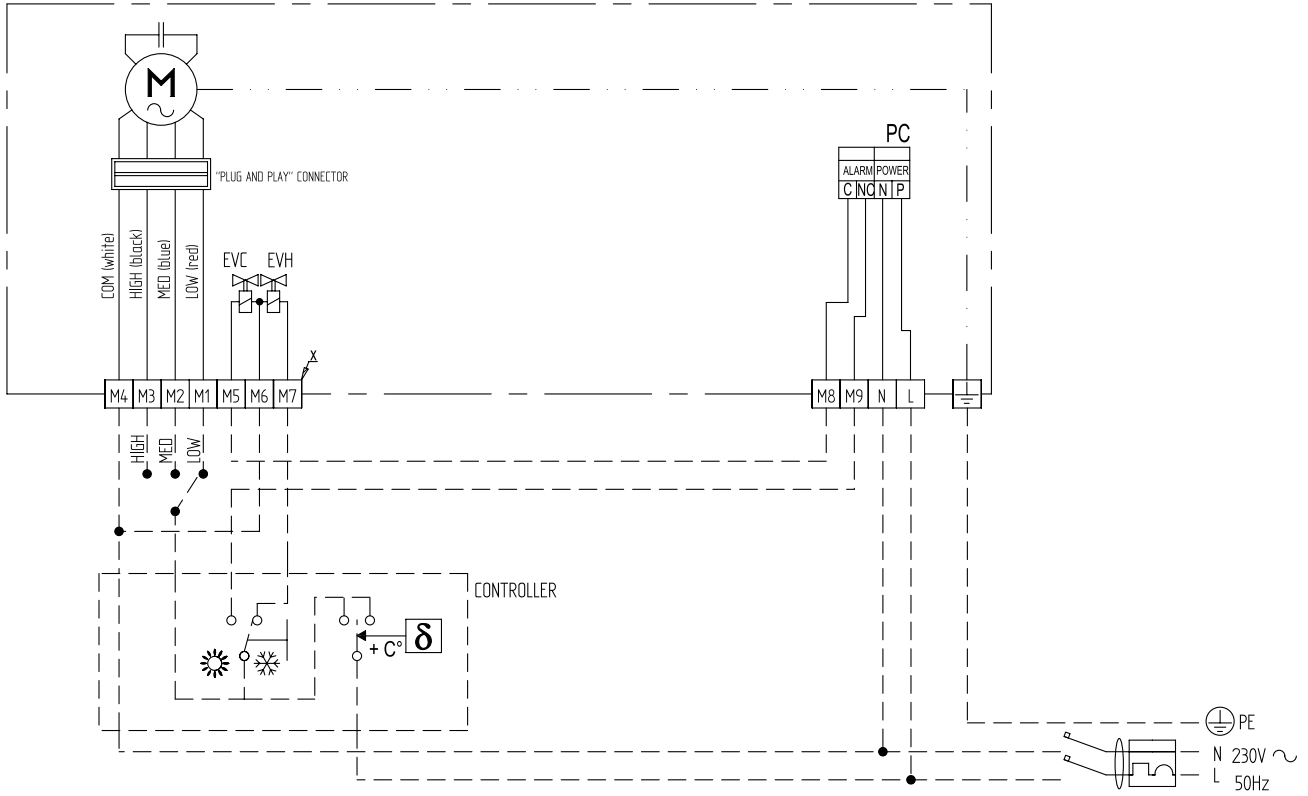
## CBL00 - EV - PC



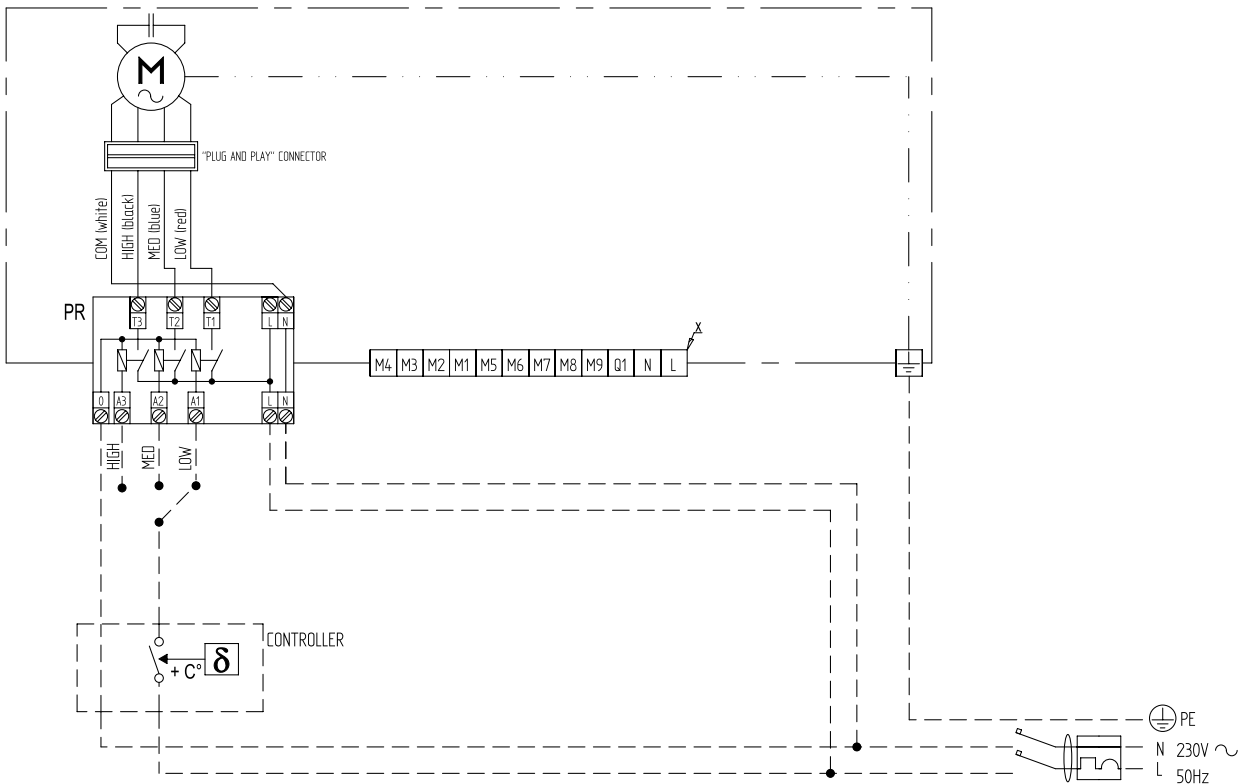
## CBL00 - EVC - EVH



**CBL00 - EVC - EVH - PC**

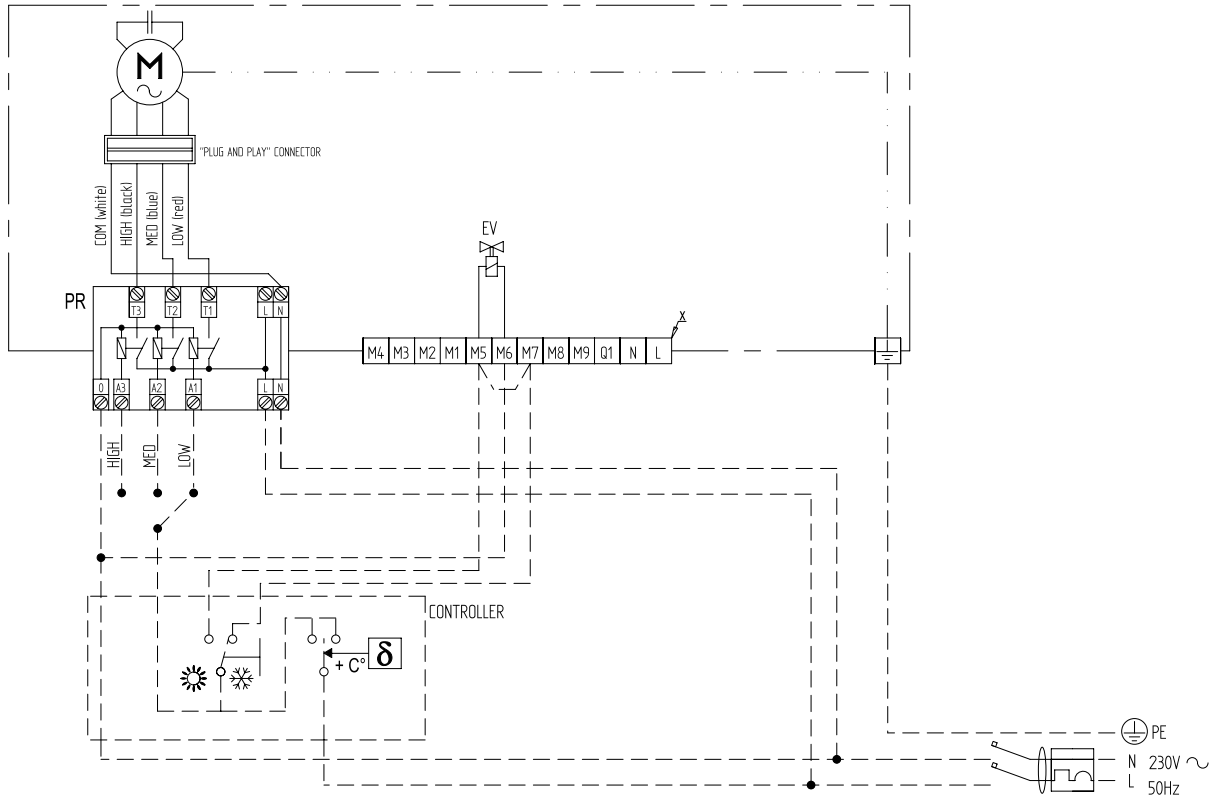


**CBL20**

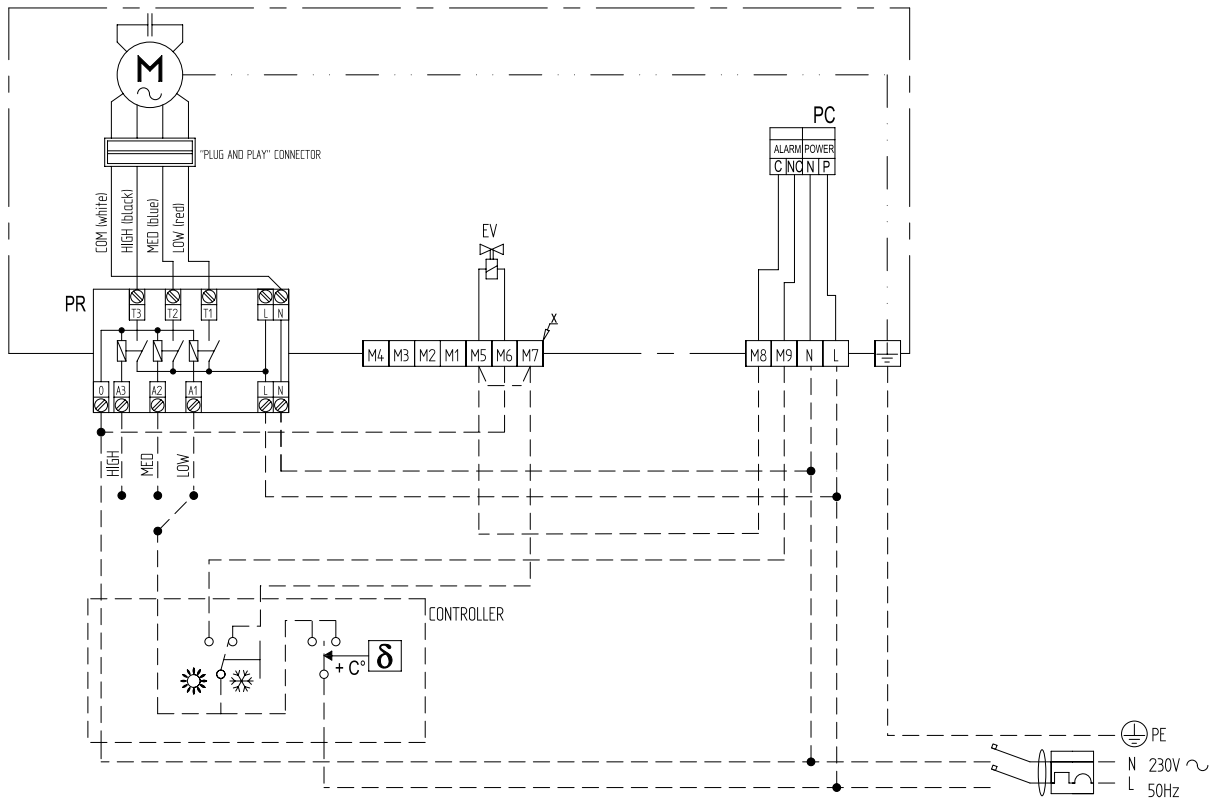


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## CBL20 - EV



## CBL20 - EV - PC



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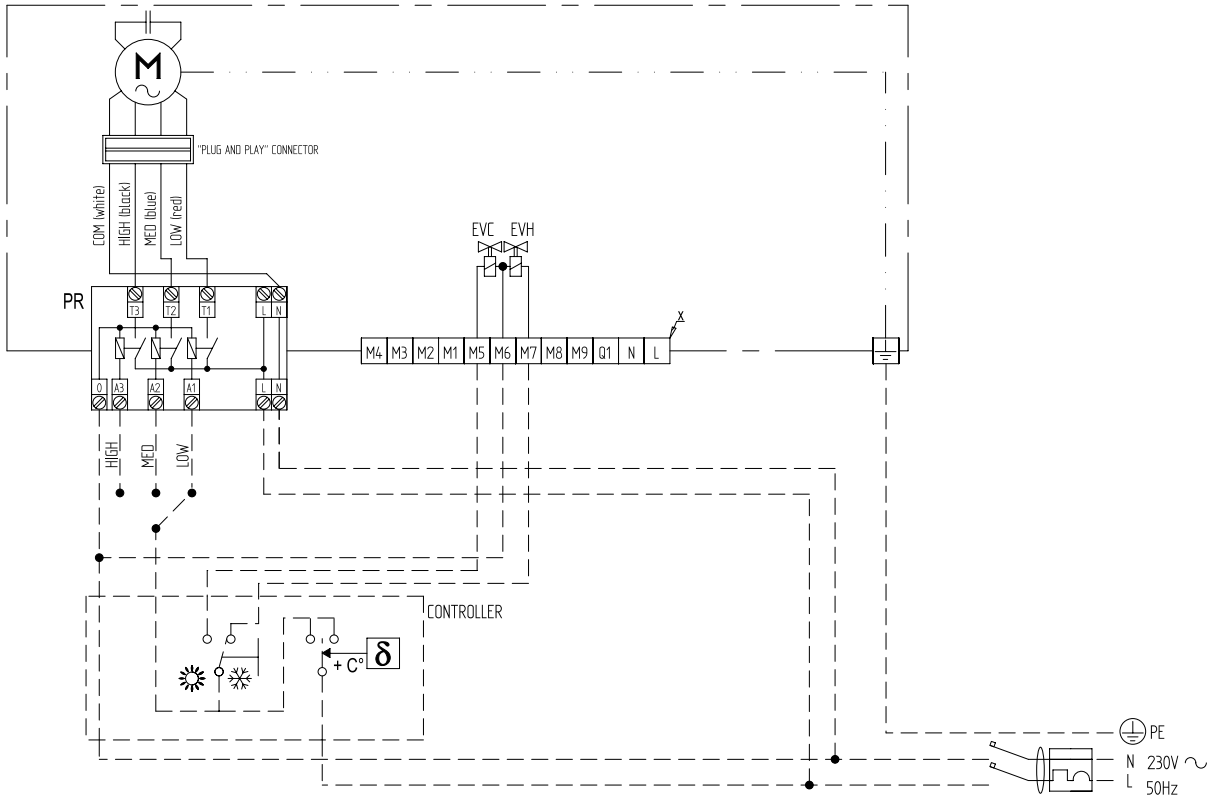
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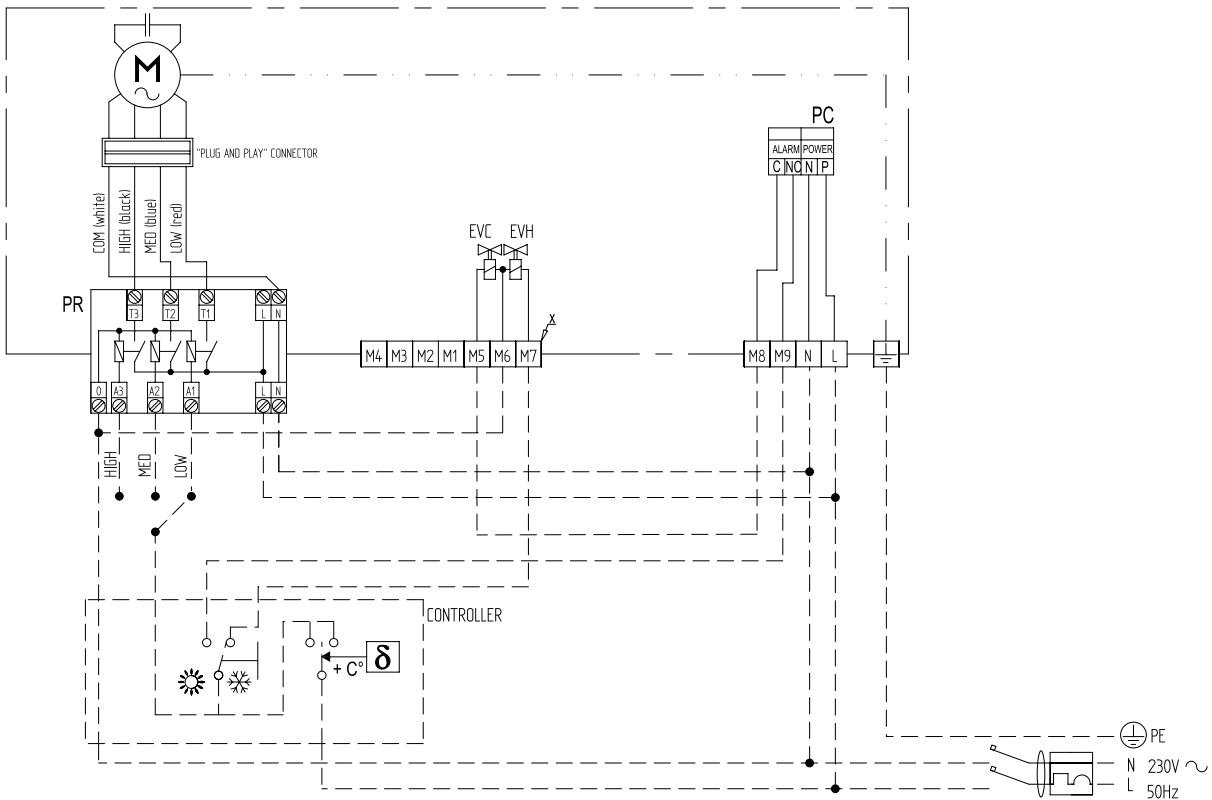
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**CBL20 - EVC - EVH**



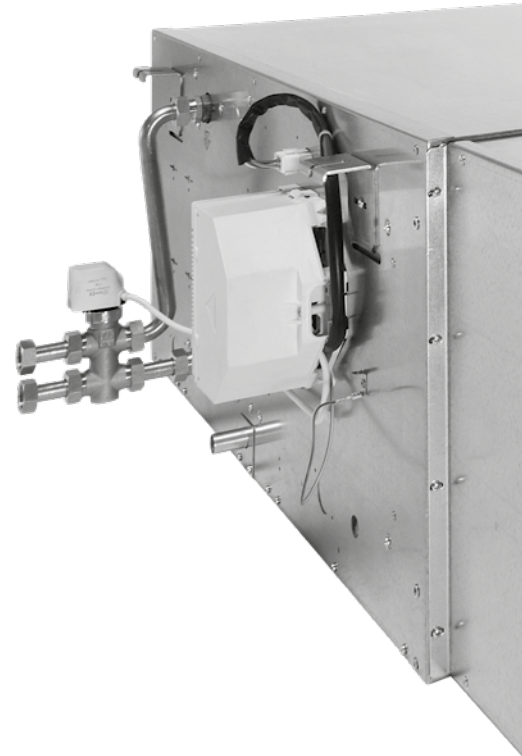
**CBL20 - EVC - EVH - PC**



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