



Ductable Air-Cooled Liquid Chillers/  
Ductable Air-to-Water Heat Pumps

PRO-DIALOG +

AQUASNAP™



Quality  
Management  
Systems



## 30RBY/RQY 017-033

**Nominal cooling capacity 15-33 kW**

**Nominal heating capacity 17-31 kW**

The new generation of Aquasnap liquid chillers/heat pumps was designed for commercial applications such as the air conditioning of offices and hotels etc.

The new Aquasnap units integrate the latest technological innovations:

- ozone-friendly refrigerant R410A
- scroll compressors
- low-noise fans
- auto-adaptive microprocessor control

The standard Aquasnap units are equipped with a hydronic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply, of the water supply and return piping and of the air distribution ducting.

### Features

#### Quiet operation

- Compressors
  - Low-noise scroll compressors with low vibration levels
  - The compressor assembly is installed on an independent chassis and supported by anti-vibration mountings
- Air heat exchanger section
  - Vertical air heat exchanger coils
  - Anti-vibration protection grilles protect the heat exchanger against possible shocks.
  - 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 hydronic module
  - High-pressure centrifugal water pump
  - Water filter protecting the water pump against circulating debris
  - High-capacity membrane expansion tank ensures pressurisation of the water circuit
  - Overpressure valve, set to 4 bar
  - Pressure gauge to measure the system pressure.
  - Automatic purge valve positioned at the highest point of the hydronic module to remove air from the system.
  - Thermal insulation and frost protection down to -10°C, using an electric resistance heater and pump cycling.
  - Integrated water fill system to ensure correct water pressure (option/accessory)
- Physical features
  - With its small footprint the unit blends in with any architectural styles.
  - The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).

### Access panels, sizes 017-021



- Easy duct connection
  - Rectangular discharge air connection.
  - Fan with 80 Pa available pressure. Centrifugal fan for sizes 017 and 021, and axial fan for sizes 026 and 033.
  - Rectangular suction and filter connection option (sizes 017 and 021 only).

### Inlet filters, sizes 017-021



- Simplified electrical connections
  - A single power supply point
  - 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

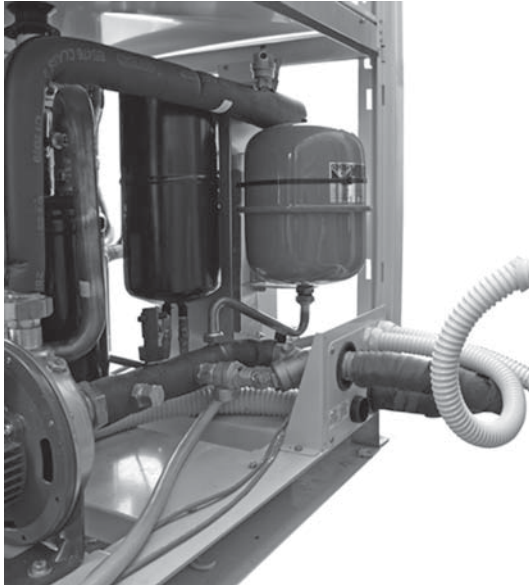
## Economical operation

- Increased energy efficiency at part load
  - The exceptionally high energy efficiency of the Aquasnap unit is the result of a long qualification and optimisation process. The whole range is rated class A in cooling mode (EER) and B in heating mode (COP) - in accordance with the Eurovent certification programmes for air conditioning and heating/cooling floors (see table on page 6).
- Reduced maintenance costs
  - Maintenance-free scroll compressors
  - Fast diagnosis of possible incidents and their history via the Pro-Dialog+ control
  - 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
  - High-density refrigerant, therefore less refrigerant required
  - 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

### Hydronic module, sizes 026-033



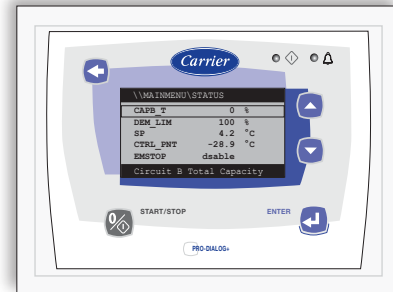
### Superior reliability

- State-of-the-art concept
  - Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping etc.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydronic circuit (Carrier patent)
- 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.

### Pro-Dialog+ control

Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

### Pro-Dialog+ interface



- Energy management
  - Seven-day internal time schedule clock: permits unit on/off control and operation at a second set point
  - Set point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T
  - Master/slave control of two units operating in parallel with operating time equalisation and automatic change-over in case of a unit fault.
  - Change-over based on the outside air temperature
- Integrated features
  - Night mode: capacity and fan speed limitation for reduced noise level
- Ease-of-use
  - The new backlit LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
  - The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult Carrier)
  - The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.

### Remote operating mode with volt-free contacts (standard)

A simple two-wire communication bus between the RS485 port of the Aquasnap and the Carrier Comfort Network offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information on these products.

- Start/stop: opening of this contact will shut down the unit
- Dual set point: closing of this contact activates a second set point (example: unoccupied mode)
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of the unit
- User safety: this contact can be used for any customer safety loop, closing of the contact generates a specific alarm
- Compressor operation: this contact signals that the compressor is in operation

### Remote interface (accessory)

This interface allows access to the same menus as the unit interface and can be installed up to 300 m away. It includes a box that can be mounted inside the building. The power supply is provided via a 220 V/24V transformer supplied.



## Options and accessories

| Options                      | Description                                                                                                                                        | Advantages                                                                     | Use               |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------|
| Hydronic module              | The hydronic module is factory-installed. As it contains most of the required hydronic components, the unit is more compact and easier to install. | Simply plug in and the unit is ready, making installation quick and easy.      | 30RBY/RQY 017-033 |
| Integrated water fill system | This option is offered for units with hydronic module. It allows the user to automatically fill water into the system.                             | Water is added automatically into the unit system circuit.                     | 30RBY/RQY 017-033 |
| Inlet duct frame             | Inlet air duct connection frame                                                                                                                    | Easy connection of the inlet air duct                                          | 30RBY/RQY 017-021 |
| Inlet filter frame           | Inlet duct connection frame with washable G8 filters                                                                                               | Easy connection of the inlet air duct, protection of the coil against clogging | 30RBY/RQY 017-021 |
| Accessories                  | Description                                                                                                                                        | Advantages                                                                     | Use               |
| Integrated water fill system | This option is offered for units with hydronic module. It allows the user to automatically fill water into the system.                             | Water is added automatically into the unit system circuit.                     | 30RBY/RQY 017-033 |
| JBus gateway                 | Two-directional communications board, complies with JBus protocol                                                                                  | Easy connection by communication bus to a building management system           | 30RBY/RQY 017-033 |
| BacNet gateway               | Two-directional communications board, complies with BacNet protocol                                                                                | Easy connection by communication bus to a building management system           | 30RBY/RQY 017-033 |
| LonTalk gateway              | Two-directional communications board, complies with LonTalk protocol                                                                               | Easy connection by communication bus to a building management system           | 30RBY/RQY 017-033 |
| Remote interface             | Remotely installed user interface (via communication bus)                                                                                          | Remote unit control up to 300 m                                                | 30RBY/RQY 017-033 |
| Condensate drain pan         | To be installed below the unit and connected to the water drain                                                                                    | Easy water drainage (maintenance and defrost)                                  | 30RBY/RQY 017-033 |

# Physical data, 30RBY units

| 30RBY                                          |       | 017   | 021                                                                                                                            | 026                   | 033   |
|------------------------------------------------|-------|-------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------|
| <b>Data at Eurovent LCP/A/AC conditions*</b>   |       |       |                                                                                                                                |                       |       |
| <b>Nominal cooling capacity, standard unit</b> | kW    | 15.8  | 20.5                                                                                                                           | 27.3                  | 32.7  |
| Power input                                    | kW    | 5.77  | 7.57                                                                                                                           | 9.02                  | 10.22 |
| EER                                            | kW/kW | 2.74  | 2.71                                                                                                                           | 3.03                  | 3.20  |
| Eurovent class, cooling                        |       | A     | A                                                                                                                              | A                     | A     |
| ESEER part-load performance                    | kW/kW | 3.05  | 2.99                                                                                                                           | 3.36                  | 3.53  |
| <b>Operating weight**</b>                      |       |       |                                                                                                                                |                       |       |
| Standard unit (with hydronic module)           | kg    | 209   | 228                                                                                                                            | 255                   | 280   |
| Standard unit (without hydronic module)        | kg    | 193   | 213                                                                                                                            | 237                   | 262   |
| <b>Refrigerant charge R-410A</b>               | kg    | 5.5   | 6.4                                                                                                                            | 5.8                   | 8.6   |
| <b>Compressor</b>                              |       |       |                                                                                                                                |                       |       |
| One scroll compressor                          |       |       |                                                                                                                                |                       |       |
| <b>Control</b>                                 |       |       |                                                                                                                                |                       |       |
| Pro-Dialog+                                    |       |       |                                                                                                                                |                       |       |
| <b>Fans</b>                                    |       |       |                                                                                                                                |                       |       |
|                                                |       |       | Two 2-speed centrifugal fans, backward-curved blades                                                                           | One 2-speed axial fan |       |
| Diameter                                       | mm    | 454   | 454                                                                                                                            | 630                   | 630   |
| Number of blades                               |       | 5     | 5                                                                                                                              | 7                     | 7     |
| Available static pressure                      | Pa    | 80    | 80                                                                                                                             | 80                    | 80    |
| Air flow                                       | l/s   | 1640  | 1640                                                                                                                           | 3472                  | 3472  |
| Speed                                          | r/s   | 20.5  | 20.5                                                                                                                           | 21.5                  | 21.5  |
| <b>Air heat exchanger</b>                      |       |       |                                                                                                                                |                       |       |
|                                                |       |       | Copper tubes and aluminium fins                                                                                                |                       |       |
| Pipe diameter                                  | in    | 3/8   | 3/8                                                                                                                            | 3/8                   | 3/8   |
| Number of rows                                 |       | 2     | 2                                                                                                                              | 2                     | 3     |
| Number of pipes per row                        |       | 60    | 60                                                                                                                             | 60                    | 60    |
| Fin spacing                                    | mm    | 1.69  | 1.69                                                                                                                           | 1.69                  | 1.69  |
| <b>Water heat exchanger</b>                    |       |       |                                                                                                                                |                       |       |
|                                                |       |       | One plate heat exchanger                                                                                                       |                       |       |
| Water volume                                   | l     | 1.52  | 1.90                                                                                                                           | 2.28                  | 2.85  |
| Maximum operating pressure                     | kPa   | 1000  | 1000                                                                                                                           | 1000                  | 1000  |
| <b>Standard unit</b>                           |       |       |                                                                                                                                |                       |       |
| Water connections (MPT gas)                    | in    | 1     | 1                                                                                                                              | 1-1/4                 | 1-1/4 |
| <b>Unit with hydronic module*</b>              |       |       |                                                                                                                                |                       |       |
|                                                |       |       | Safety valve, screen filter, expansion tank, automatic air purge valve, water circuit drain valve, pressure gauge, flow switch |                       |       |
| Pump                                           |       |       | One single-speed pump                                                                                                          |                       |       |
| Maximum water-side operating pressure          | kPa   | 400   | 400                                                                                                                            | 400                   | 400   |
| Entering water connection                      | in    | 1-1/4 | 1-1/4                                                                                                                          | 1-1/4                 | 1-1/4 |
| Leaving water connection                       | in    | 1     | 1                                                                                                                              | 1-1/4                 | 1-1/4 |
| Expansion tank capacity                        | l     | 5     | 5                                                                                                                              | 8                     | 8     |
| <b>Water fill system</b>                       |       |       |                                                                                                                                |                       |       |
| Inlet/outlet diameter                          | in    | 1/2   | 1/2                                                                                                                            | 1/2                   | 1/2   |
| <b>Sound pressure level***</b>                 |       |       |                                                                                                                                |                       |       |
| Sound power level radiated from the unit****   | dB(A) | 50    | 50                                                                                                                             | 53                    | 53    |
| Sound power level at unit discharge****        | dB(A) | 82    | 82                                                                                                                             | 85                    | 85    |
| Sound power level at unit discharge****        | dB(A) | 80    | 80                                                                                                                             | 91                    | 91    |

\* Standard Eurovent LCP/A/AC conditions in cooling mode: water heat exchanger entering/leaving water temp. 12°C/7°C.

\*\* Weight shown is a guideline only.

\*\*\* For information, calculated from the sound power level Lw(A)

\*\*\*\* In accordance with ISO 9614 (10<sup>-12</sup> W)

# Physical data, 30RQY units

| 30RQY                                                                                                                           |       | 017                                                                                                                            | 021   | 026                   | 033   |
|---------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------|-------|
|  <b>Data at Eurovent LCP/A/AC conditions*</b>   |       |                                                                                                                                |       |                       |       |
| <b>Nominal cooling capacity, standard unit</b>                                                                                  | kW    | 15.0                                                                                                                           | 19.2  | 27.3                  | 32.6  |
| Power input                                                                                                                     | kW    | 5.52                                                                                                                           | 7.06  | 9.03                  | 10.22 |
| EER                                                                                                                             | kW/kW | 2.72                                                                                                                           | 2.72  | 3.03                  | 3.19  |
| Eurovent class, cooling                                                                                                         | -     | A                                                                                                                              | A     | A                     | A     |
| ESEER part-load performance                                                                                                     | kW/kW | 3.04                                                                                                                           | 2.98  | 3.35                  | 3.52  |
| <b>Nominal heating capacity, standard unit</b>                                                                                  | kW    | 16.9                                                                                                                           | 20.3  | 28.5                  | 31.1  |
| Power input                                                                                                                     | kW    | 6.01                                                                                                                           | 7.22  | 10.15                 | 11.08 |
| COP                                                                                                                             | kW/kW | 2.81                                                                                                                           | 2.81  | 2.81                  | 2.81  |
| Eurovent class, heating                                                                                                         |       | B                                                                                                                              | B     | B                     | B     |
|  <b>Data at Eurovent LCP/A/CHF conditions**</b> |       |                                                                                                                                |       |                       |       |
| <b>Nominal cooling capacity, standard unit</b>                                                                                  | kW    | 18.6                                                                                                                           | 24.1  | 36.1                  | 41.9  |
| Power input                                                                                                                     | kW    | 6.08                                                                                                                           | 7.66  | 9.52                  | 10.76 |
| EER                                                                                                                             | kW/kW | 3.06                                                                                                                           | 3.15  | 3.79                  | 3.89  |
| <b>Nominal heating capacity, standard unit</b>                                                                                  | kW    | 17.3                                                                                                                           | 20.6  | 29.6                  | 32.0  |
| Power input                                                                                                                     | kW    | 5.03                                                                                                                           | 6.14  | 8.52                  | 9.28  |
| COP                                                                                                                             | kW/kW | 3.45                                                                                                                           | 3.36  | 3.47                  | 3.45  |
| <b>Operating weight***</b>                                                                                                      |       |                                                                                                                                |       |                       |       |
| Standard unit (with hydronic module)                                                                                            | kg    | 226                                                                                                                            | 243   | 280                   | 295   |
| Standard unit (without hydronic module)                                                                                         | kg    | 211                                                                                                                            | 228   | 262                   | 277   |
| <b>Refrigerant charge R-410A</b>                                                                                                | kg    | 6.4                                                                                                                            | 7.7   | 7.6                   | 9.5   |
| <b>Compressor</b>                                                                                                               |       | One scroll compressor                                                                                                          |       |                       |       |
| <b>Control</b>                                                                                                                  |       | Pro-Dialog+                                                                                                                    |       |                       |       |
| <b>Fans</b>                                                                                                                     |       | Two 2-speed centrifugal fans, backward-curved blades                                                                           |       | One 2-speed axial fan |       |
| Diameter                                                                                                                        | mm    | 454                                                                                                                            | 454   | 630                   | 630   |
| Number of blades                                                                                                                |       | 5                                                                                                                              | 5     | 7                     | 7     |
| Available static pressure                                                                                                       | Pa    | 80                                                                                                                             | 80    | 80                    | 80    |
| Air flow                                                                                                                        | l/s   | 1640                                                                                                                           | 1640  | 3472                  | 3472  |
| Speed                                                                                                                           | r/s   | 20.5                                                                                                                           | 20.5  | 21.5                  | 21.5  |
| <b>Air heat exchanger</b>                                                                                                       |       | Copper tubes and aluminium fins                                                                                                |       |                       |       |
| Pipe diameter                                                                                                                   | in    | 3/8                                                                                                                            | 3/8   | 3/8                   | 3/8   |
| Number of rows                                                                                                                  |       | 2                                                                                                                              | 2     | 2                     | 3     |
| Number of pipes per row                                                                                                         |       | 60                                                                                                                             | 60    | 60                    | 60    |
| Fin spacing                                                                                                                     | mm    | 1.69                                                                                                                           | 1.69  | 1.69                  | 1.69  |
| <b>Water heat exchanger</b>                                                                                                     |       | One plate heat exchanger                                                                                                       |       |                       |       |
| Water volume                                                                                                                    | l     | 1.52                                                                                                                           | 1.90  | 2.28                  | 2.85  |
| Maximum operating pressure                                                                                                      | kPa   | 1000                                                                                                                           | 1000  | 1000                  | 1000  |
| <b>Standard unit</b>                                                                                                            |       |                                                                                                                                |       |                       |       |
| Water connections (MPT gas)                                                                                                     | in    | 1                                                                                                                              | 1     | 1-1/4                 | 1-1/4 |
| <b>Unit with hydronic module*</b>                                                                                               |       | Safety valve, screen filter, expansion tank, automatic air purge valve, water circuit drain valve, pressure gauge, flow switch |       |                       |       |
| <b>Pump</b>                                                                                                                     |       | One single-speed pump                                                                                                          |       |                       |       |
| Maximum water-side operating pressure                                                                                           | kPa   | 400                                                                                                                            | 400   | 400                   | 400   |
| Entering water connection                                                                                                       | in    | 1-1/4                                                                                                                          | 1-1/4 | 1-1/4                 | 1-1/4 |
| Leaving water connection                                                                                                        | in    | 1                                                                                                                              | 1     | 1-1/4                 | 1-1/4 |
| Expansion tank capacity                                                                                                         | l     | 5                                                                                                                              | 5     | 8                     | 8     |
| <b>Water fill system</b>                                                                                                        |       |                                                                                                                                |       |                       |       |
| Inlet/outlet diameter                                                                                                           | in    | 1/2                                                                                                                            | 1/2   | 1/2                   | 1/2   |
| <b>Sound pressure level****</b>                                                                                                 | dB(A) | 50                                                                                                                             | 50    | 53                    | 53    |
| Sound power level radiated from the unit†                                                                                       | dB(A) | 82                                                                                                                             | 82    | 85                    | 85    |
| Sound power level at unit discharge†                                                                                            | dB(A) | 80                                                                                                                             | 80    | 91                    | 91    |

\* Standard Eurovent LCP/A/AC conditions in cooling mode: water heat exchanger entering/leaving water temp. 12°C/7°C, outside air temp. 35°C.

Standard Eurovent LCP/A/AC conditions in heating mode: water heat exchanger entering/leaving water temp. 40°C/45°C, outside air temp. 7°C db/6°C wb.

\*\* Standard Eurovent LCP/A/CHF conditions in cooling mode: water heat exchanger entering/leaving water temp. 23°C/18°C, outside air temp. 35°C.

Standard Eurovent LCP/A/CHF conditions in heating mode: water heat exchanger entering/leaving water temp. 30°C/35°C, outside air temp. 7°C db/6°C wb.

\*\*\* Weight shown is a guideline only.

\*\*\*\* For information, calculated from the sound power level Lw(A)

† In accordance with ISO 9614 (10<sup>-12</sup> W)

## Sound spectrum, 30RBY/RQY units

| 30RBY/RQY  |     | Octave bands, Hz |     |     |     |      |      |      |      | Sound power levels |    |
|------------|-----|------------------|-----|-----|-----|------|------|------|------|--------------------|----|
|            |     |                  | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                    |    |
| Radiated   | 017 | dB               | 95  | 80  | 78  | 73   | 71   | 69   | 65   | dB(A)              | 82 |
|            | 021 | dB               | 95  | 80  | 78  | 73   | 71   | 69   | 65   | dB(A)              | 82 |
|            | 026 | dB               | 95  | 84  | 80  | 79   | 78   | 72   | 68   | dB(A)              | 85 |
|            | 033 | dB               | 95  | 84  | 80  | 79   | 78   | 72   | 68   | dB(A)              | 85 |
| Fan outlet | 017 | dB               | 88  | 79  | 77  | 74   | 71   | 68   | 65   | dB(A)              | 80 |
|            | 021 | dB               | 88  | 79  | 77  | 74   | 71   | 68   | 65   | dB(A)              | 80 |
|            | 026 | dB               | 91  | 85  | 84  | 87   | 86   | 78   | 71   | dB(A)              | 91 |
|            | 033 | dB               | 91  | 85  | 84  | 87   | 86   | 78   | 71   | dB(A)              | 91 |

## Electrical data, 30RBY/RQY units

| 30RBY/RQY                                       |         | 017                           | 021  | 026  | 033  |
|-------------------------------------------------|---------|-------------------------------|------|------|------|
| <b>Power circuit</b>                            |         |                               |      |      |      |
| Nominal power supply                            | V-ph-Hz | 400-3-50                      |      |      |      |
| Voltage range                                   | V       | 340-440                       |      |      |      |
| <b>Control circuit supply</b>                   |         | 24 V via internal transformer |      |      |      |
| <b>Maximum start-up current (Un)*</b>           | A       | 75                            | 95   | 118  | 118  |
| <b>Unit power factor at nominal capacity**</b>  |         | 0.84                          | 0.79 | 0.77 | 0.81 |
| <b>Maximum operating power input**</b>          | kW      | 8.0                           | 9.3  | 11.2 | 14.0 |
| <b>Nominal unit operating current draw***</b>   | A       | 8                             | 12   | 20   | 21   |
| <b>Maximum operating current draw (Un)****</b>  | A       | 13                            | 16   | 20   | 24   |
| <b>Maximum operating current draw (Un-15%)†</b> | A       | 15                            | 18   | 23   | 27   |

\* Maximum instantaneous start-up current (locked rotor current of the compressor).

\*\* Power input, compressors and 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).

\*\*\* Standardised Eurovent conditions: water heat exchanger entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

\*\*\*\* Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

† Maximum unit operating current at maximum unit power input and 340-460 V.

# Operating limits

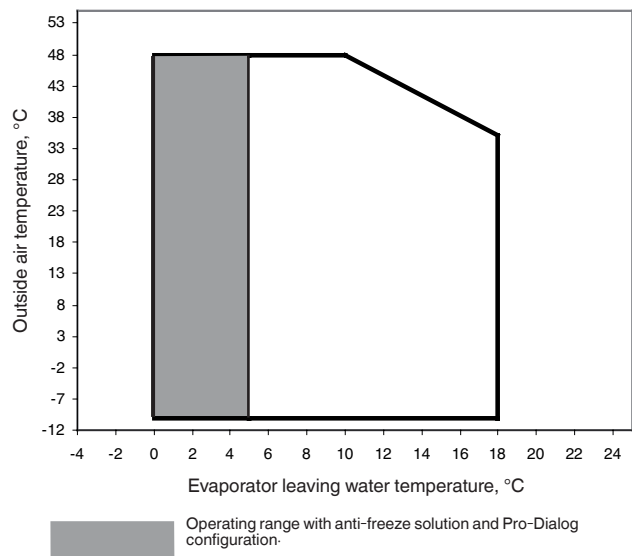
## Water heat exchanger water flow rate

| 30RBY | Flow rate, l/s |          |           |
|-------|----------------|----------|-----------|
|       | Minimum        | Maximum* | Maximum** |
| 017   | 0.45           | 1.39     | 1.26      |
| 021   | 0.57           | 1.52     | 1.42      |
| 026   | 0.67           | 1.96     | 1.43      |
| 033   | 0.87           | 2.18     | 1.72      |

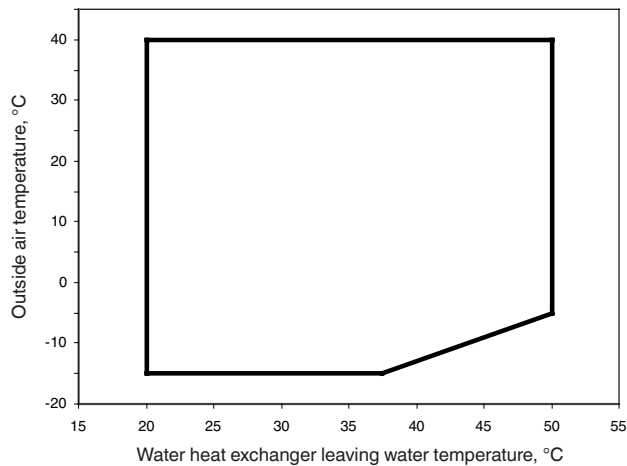
| 30RQY | Flow rate, l/s |          |           |
|-------|----------------|----------|-----------|
|       | Minimum        | Maximum* | Maximum** |
| 017   | 0.45           | 1.39     | 1.26      |
| 021   | 0.57           | 1.52     | 1.42      |
| 026   | 0.67           | 2.18     | 1.72      |
| 033   | 0.87           | 2.29     | 1.85      |

\* Maximum flow rate at an available pressure of 50 kPa (unit with hydronic module)  
\*\* Maximum flow rate at pressure drop of 100 kPa in the plate heat exchanger (unit without hydronic module).

### 30RBY/RQY (cooling mode)

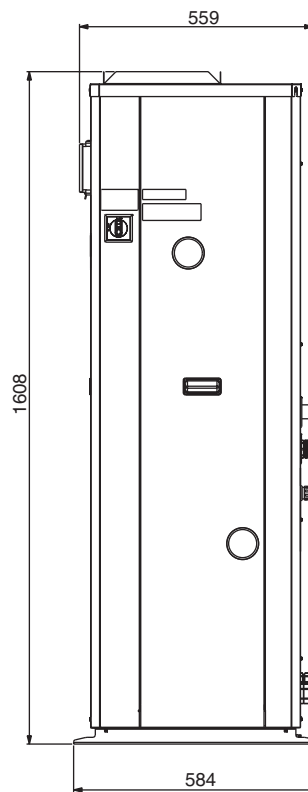
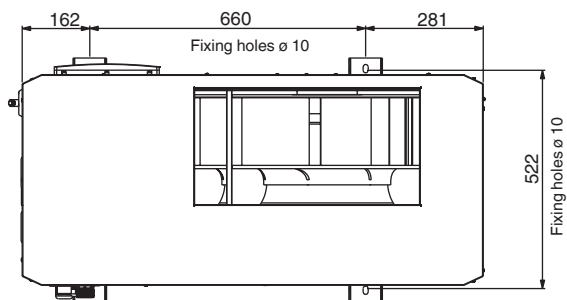
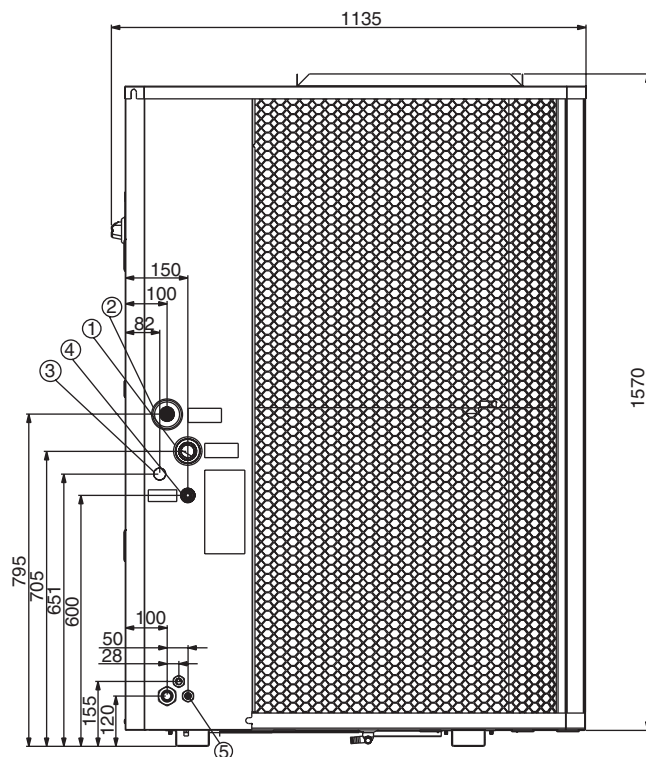
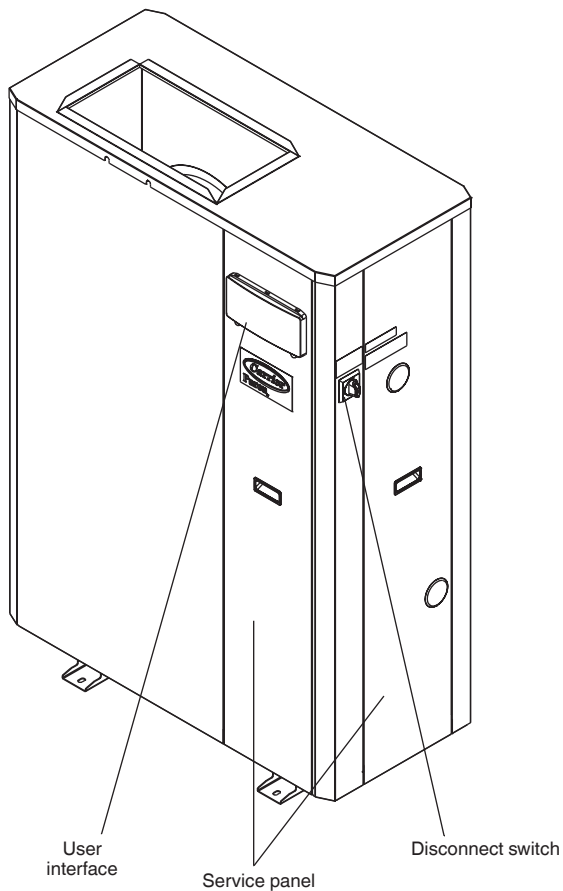


### 30RQY (heating mode)



## Dimensions/clearances

### 30RBY/RQY 017-021 - standard units



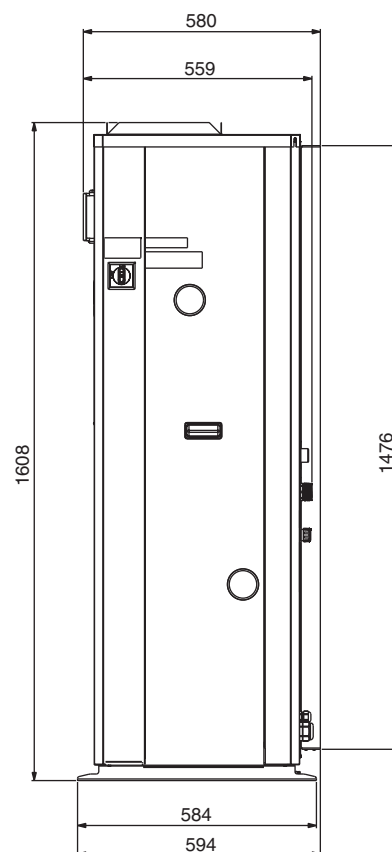
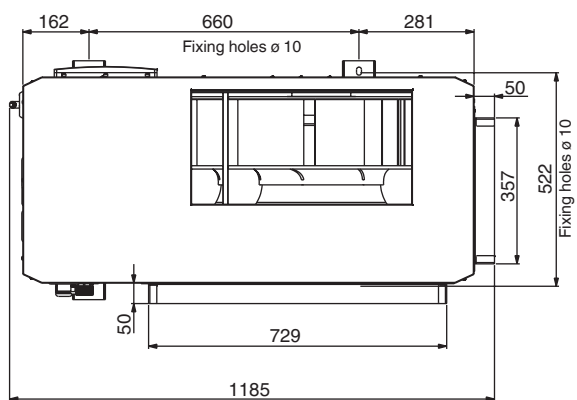
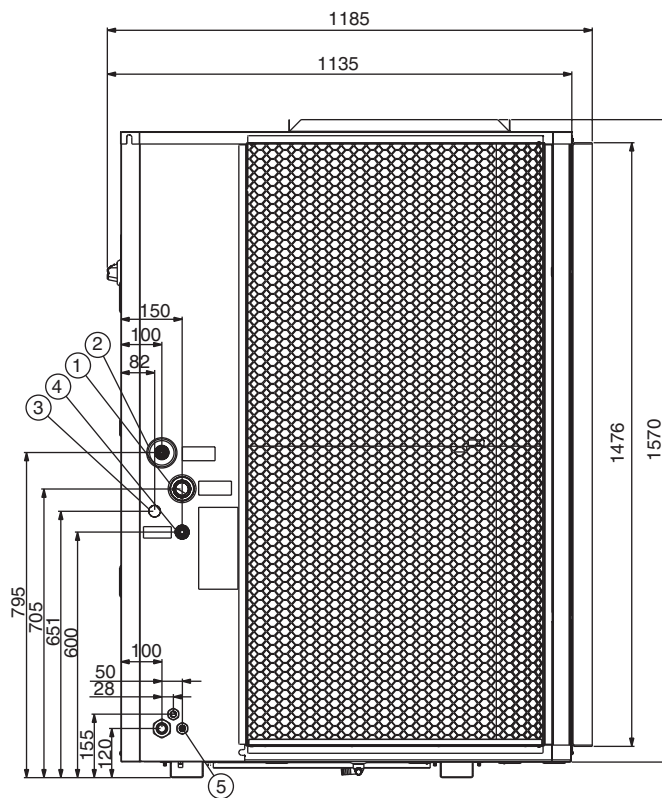
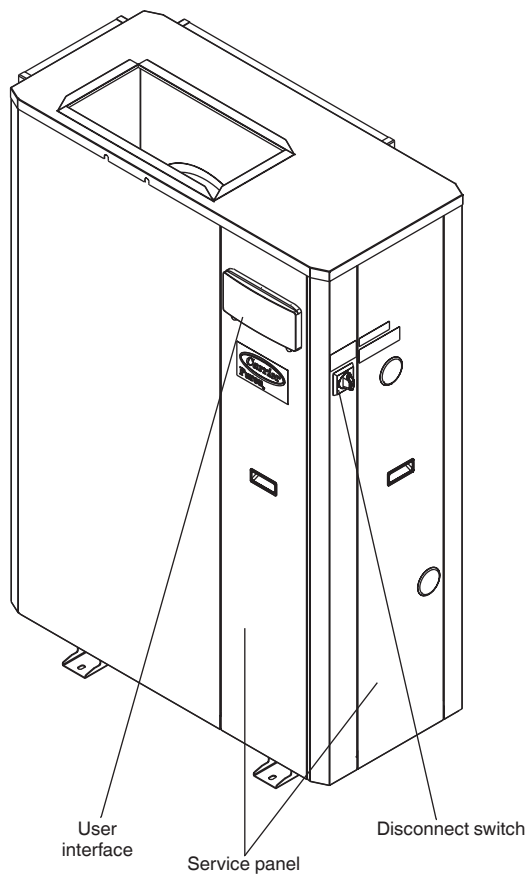
### Legend

All dimensions are in mm

- 1 Water inlet
- 2 Water outlet
- 3 Water fill kit connection (option)
- 4 Safety valve
- 5 Power connections

# Dimensions/clearances

30RBY/RQY 017-021 - units with return air ducts



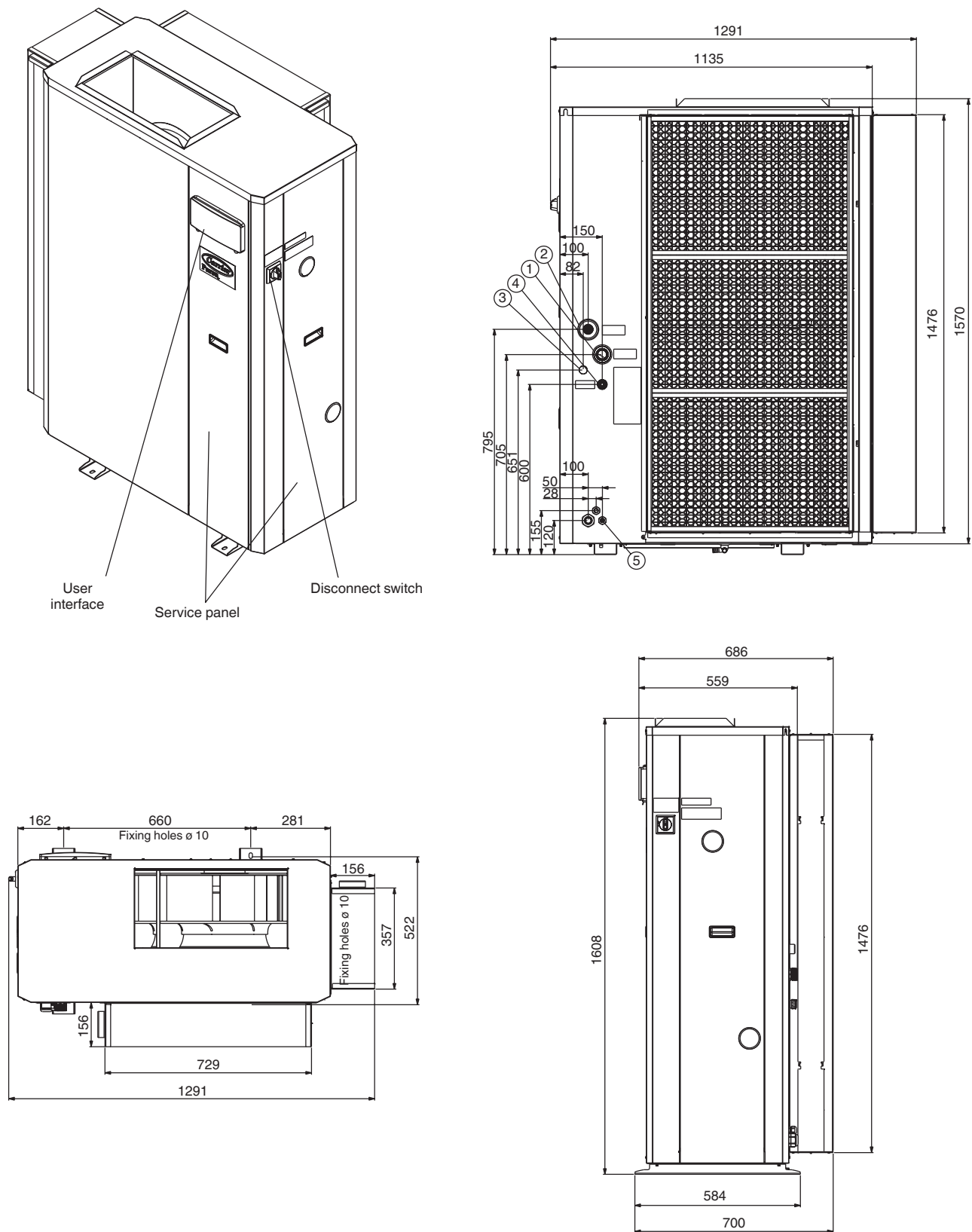
## Legend

All dimensions are in mm

- 1 Water inlet
- 2 Water outlet
- 3 Water fill kit connection (option)
- 4 Safety valve
- 5 Power connections

# Dimensions/clearances

30RBY/RQY 017-021 - units with filter frame on the return air side



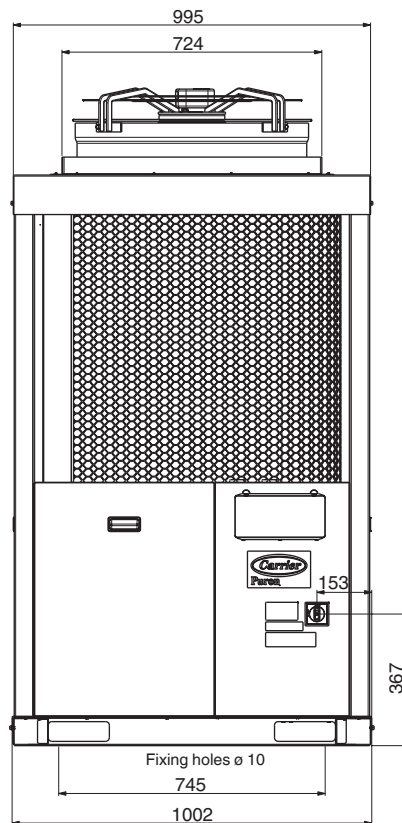
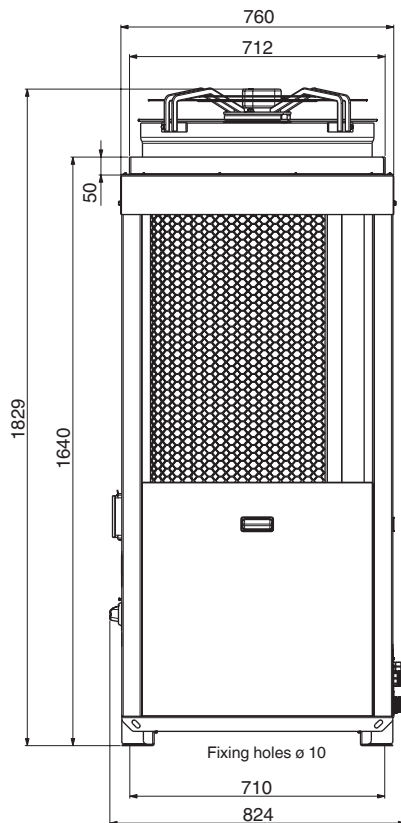
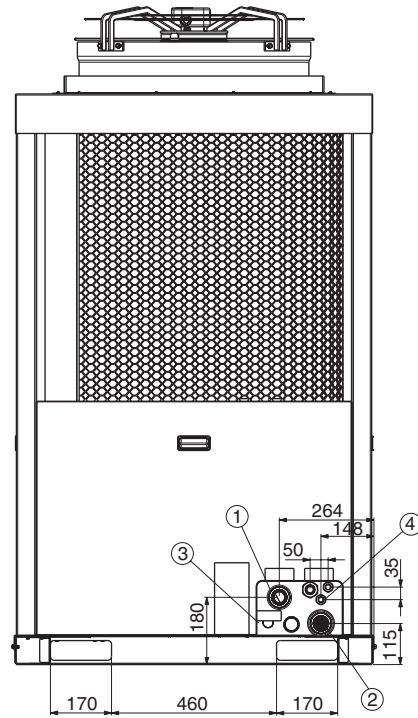
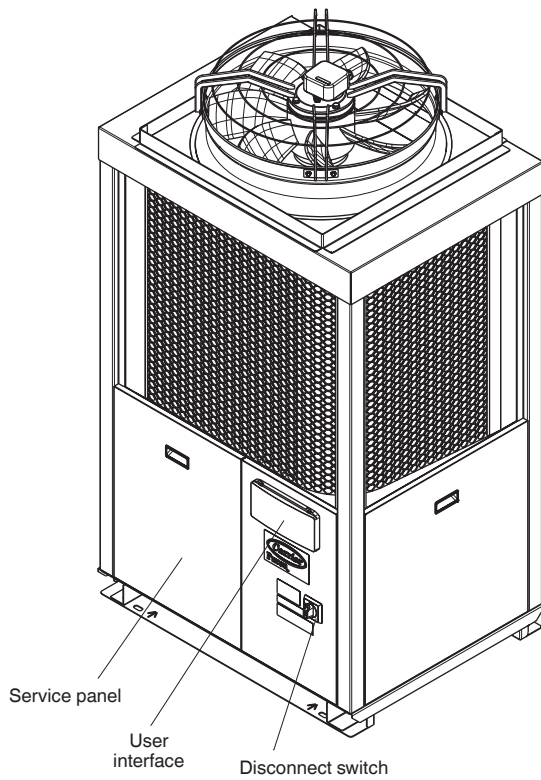
## Legend

All dimensions are in mm

- 1 Water inlet
- 2 Water outlet
- 3 Water fill kit connection (option)
- 4 Safety valve
- 5 Power connections

# Dimensions/clearances

30RBY/RQY 026-033



## Legend

All dimensions are in mm

- 1 Water inlet
- 2 Water outlet
- 3 Water fill kit connection (option)
- 4 Power connections

# Part load performances

With the rapid increase in energy costs and the care about environmental impacts of electricity production, the power consumption of air conditioning equipment has become an important topic. The energy efficiency of a unit at full load is rarely representative of the actual performance of the units, as on average a unit works less than 5% of the time at full load.

The heat load of a building depends on many factors, such as the outside air temperature, the exposure to the sun and its occupation.

Consequently it is preferable to use the seasonal energy efficiency, calculated at several operating points that are representative for the unit utilisation.

## ESEER (EUROVENT)

The ESEER (European seasonal energy efficiency ratio) permits evaluation of the average energy efficiency at part load, based on four operating conditions defined by Eurovent. The ESEER is the average value of energy efficiency ratios (EER) at different operating conditions, weighted by the operating time.

## ESEER (European seasonal energy efficiency ratio)

| Load %                                                                                                   | Air heat exchanger entering water temperature, °C | Energy efficiency | Operating time, % |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------|-------------------|
| 100                                                                                                      | 35                                                | EER <sub>1</sub>  | 3                 |
| 75                                                                                                       | 30                                                | EER <sub>2</sub>  | 33                |
| 50                                                                                                       | 25                                                | EER <sub>3</sub>  | 41                |
| 25                                                                                                       | 20                                                | EER <sub>4</sub>  | 23                |
| ESEER = EER <sub>1</sub> x 3% + EER <sub>2</sub> x 33% + EER <sub>3</sub> x 41% + EER <sub>4</sub> x 23% |                                                   |                   |                   |

Note: Constant leaving water temperature = 7°C

## Part-load performances in accordance with Eurovent

| 30RBY | LOAD % | CAP kW | UNIT kW | EER kW/kW | ESEER kW/kW |
|-------|--------|--------|---------|-----------|-------------|
| 17    | 100    | 15.8   | 5.77    | 2.74      | 3.05        |
|       | 75     | 11.9   | 3.98    | 2.98      |             |
|       | 50     | 7.91   | 2.49    | 3.17      |             |
|       | 25     | 3.95   | 1.33    | 2.96      |             |
| 21    | 100    | 20.5   | 7.57    | 2.71      | 2.99        |
|       | 75     | 15.4   | 5.17    | 2.98      |             |
|       | 50     | 10.3   | 3.30    | 3.11      |             |
|       | 25     | 5.13   | 1.80    | 2.85      |             |
| 26    | 100    | 27.3   | 8.95    | 3.06      | 3.36        |
|       | 75     | 20.5   | 6.16    | 3.33      |             |
|       | 50     | 13.7   | 3.92    | 3.48      |             |
|       | 25     | 6.84   | 2.11    | 3.23      |             |
| 33    | 100    | 32.7   | 10.15   | 3.22      | 3.53        |
|       | 75     | 24.5   | 6.99    | 3.51      |             |
|       | 50     | 16.4   | 4.48    | 3.65      |             |
|       | 25     | 8.18   | 2.42    | 3.38      |             |

| 30RQY | LOAD % | CAP kW | UNIT kW | EER kW/kW | ESEER kW/kW |
|-------|--------|--------|---------|-----------|-------------|
| 17    | 100    | 15.0   | 5.52    | 2.72      | 3.04        |
|       | 75     | 11.3   | 3.76    | 3.00      |             |
|       | 50     | 7.51   | 2.37    | 3.16      |             |
|       | 25     | 3.75   | 1.29    | 2.91      |             |
| 21    | 100    | 19.2   | 7.06    | 2.72      | 2.98        |
|       | 75     | 14.4   | 4.86    | 2.97      |             |
|       | 50     | 9.6    | 3.12    | 3.08      |             |
|       | 25     | 4.80   | 1.69    | 2.85      |             |
| 26    | 100    | 27.3   | 8.96    | 3.05      | 3.35        |
|       | 75     | 20.5   | 6.17    | 3.33      |             |
|       | 50     | 13.7   | 3.94    | 3.47      |             |
|       | 25     | 6.84   | 2.12    | 3.22      |             |
| 33    | 100    | 32.6   | 10.15   | 3.22      | 3.52        |
|       | 75     | 24.5   | 6.99    | 3.50      |             |
|       | 50     | 16.3   | 4.48    | 3.64      |             |
|       | 25     | 8.16   | 2.42    | 3.37      |             |

### Legend

- Load % - Unit heat load
- Cap kW - Cooling capacity
- Unit kW - Unit power input
- EER - Cooling capacity kW/unit power input kW

Cooling capacities, 30RBY units

| 30RBY 017-033                          |           |            |            |             |                                                              |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
|----------------------------------------|-----------|------------|------------|-------------|--------------------------------------------------------------|-----------|------------|------------|-------------|-------------|-----------|------------|------------|-------------|-------------|-----------|------------|------------|-------------|-------------|-----------|------------|------------|-------------|-------------|
| Condenser entering air temperature, °C |           |            |            |             |                                                              |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| LWT<br>°C                              | 25        |            |            |             |                                                              | 30        |            |            |             |             | 35        |            |            |             |             | 40        |            |            |             |             | 45        |            |            |             |             |
|                                        | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa                                                  | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa |
| 017                                    | 16.7      | 3.95       | 5.25       | 0.80        | 148.1                                                        | 16.0      | 4.31       | 5.61       | 0.76        | 153.0       | 15.2      | 4.72       | 6.01       | 0.72        | 158.1       | 14.4      | 5.14       | 6.41       | 0.68        | 163.2       | 13.5      | 5.59       | 6.85       | 0.64        | 168.4       |
| 021                                    | 21.5      | 5.49       | 6.79       | 1.02        | 120.7                                                        | 20.6      | 5.98       | 7.28       | 0.98        | 126.6       | 19.5      | 6.55       | 7.85       | 0.93        | 133.6       | 18.2      | 7.25       | 8.53       | 0.87        | 141.6       | 16.8      | 8.06       | 9.31       | 0.80        | 150.5       |
| 026                                    | 28.1      | 5.96       | 8.56       | 1.34        | 163.9                                                        | 27.0      | 6.58       | 9.18       | 1.29        | 172.9       | 25.7      | 7.27       | 9.85       | 1.22        | 183.1       | 24.3      | 8.05       | 10.6       | 1.16        | 194.3       | 22.5      | 8.95       | 11.5       | 1.07        | 207.2       |
| 033                                    | 33.4      | 7.00       | 9.60       | 1.59        | 158.6                                                        | 32.2      | 7.66       | 10.3       | 1.53        | 167.8       | 30.8      | 8.46       | 11.0       | 1.47        | 178.2       | 29.0      | 9.39       | 11.9       | 1.38        | 191.1       | 26.7      | 10.4       | 12.9       | 1.27        | 206.1       |
| 017                                    | 17.5      | 4.07       | 5.37       | 0.84        | 143.2                                                        | 16.6      | 4.51       | 5.81       | 0.79        | 149.2       | 15.8      | 4.91       | 6.20       | 0.75        | 154.6       | 14.9      | 5.34       | 6.62       | 0.71        | 160.1       | 14.0      | 5.80       | 7.05       | 0.67        | 165.8       |
| 021                                    | 22.6      | 5.63       | 6.93       | 1.08        | 113.5                                                        | 21.7      | 6.14       | 7.43       | 1.03        | 120.1       | 20.5      | 6.71       | 8.00       | 0.98        | 127.6       | 19.2      | 7.42       | 8.69       | 0.91        | 136.1       | 17.7      | 8.22       | 9.47       | 0.84        | 145.5       |
| 026                                    | 29.7      | 6.05       | 8.65       | 1.42        | 150.8                                                        | 28.6      | 6.67       | 9.27       | 1.36        | 160.3       | 27.3      | 7.36       | 9.94       | 1.30        | 171.2       | 25.8      | 8.14       | 10.7       | 1.23        | 183.4       | 23.9      | 9.04       | 11.6       | 1.14        | 197.4       |
| 033                                    | 35.4      | 7.10       | 9.70       | 1.69        | 144.2                                                        | 34.1      | 7.77       | 10.40      | 1.63        | 154.1       | 32.7      | 8.56       | 11.1       | 1.56        | 165.3       | 30.8      | 9.49       | 12.0       | 1.47        | 179.1       | 28.4      | 10.5       | 13.0       | 1.36        | 195.5       |
| 017                                    | 19.1      | 4.18       | 5.48       | 0.91        | 133.2                                                        | 18.1      | 4.63       | 5.92       | 0.86        | 140.0       | 17.1      | 5.11       | 6.40       | 0.81        | 147.0       | 15.9      | 5.64       | 6.91       | 0.76        | 154.3       | 14.8      | 6.17       | 7.43       | 0.70        | 161.6       |
| 021                                    | 24.4      | 5.87       | 7.18       | 1.16        | 101.9                                                        | 23.4      | 6.39       | 7.69       | 1.12        | 109.2       | 22.1      | 6.98       | 8.27       | 1.06        | 118.0       | 20.7      | 7.69       | 8.97       | 0.99        | 127.4       | 19.0      | 8.49       | 9.74       | 0.91        | 137.8       |
| 026                                    | 32.3      | 6.20       | 8.80       | 1.54        | 129.8                                                        | 31.1      | 6.82       | 9.42       | 1.49        | 140.1       | 29.7      | 7.50       | 10.1       | 1.42        | 152.2       | 28.1      | 8.28       | 10.8       | 1.34        | 165.8       | 26.2      | 9.17       | 11.7       | 1.25        | 181.6       |
| 033                                    | 38.4      | 7.26       | 9.87       | 1.84        | 120.7                                                        | 37.1      | 7.94       | 10.5       | 1.77        | 131.8       | 35.5      | 8.74       | 11.3       | 1.70        | 144.3       | 33.6      | 9.67       | 12.2       | 1.60        | 159.5       | 31.1      | 10.7       | 13.2       | 1.49        | 177.5       |
| 017                                    | 21.7      | 4.46       | 5.76       | 1.04        | 114.9                                                        | 20.7      | 4.86       | 6.16       | 0.99        | 122.3       | 19.6      | 5.33       | 6.62       | 0.94        | 130.6       | 18.3      | 5.87       | 7.14       | 0.88        | 139.7       | -         | -          | -          | -           | -           |
| 021                                    | 27.7      | 6.36       | 7.66       | 1.33        | 79.1                                                         | 26.5      | 6.89       | 8.19       | 1.27        | 88.5        | 25.0      | 7.50       | 8.79       | 1.20        | 99.3        | 23.3      | 8.21       | 9.48       | 1.12        | 111.1       | -         | -          | -          | -           | -           |
| 026                                    | 37.0      | 6.57       | 9.18       | 1.77        | 89.0                                                         | 35.7      | 7.19       | 9.79       | 1.71        | 101.4       | 34.2      | 7.86       | 10.4       | 1.64        | 115.5       | 32.4      | 8.62       | 11.2       | 1.55        | 131.3       | -         | -          | -          | -           | -           |
| 033                                    | 44.2      | 7.61       | 10.2       | 2.12        | 71.7                                                         | 42.7      | 8.31       | 10.9       | 2.05        | 85.6        | 41.0      | 9.09       | 11.7       | 1.96        | 101.2       | 38.8      | 10.0       | 12.6       | 1.86        | 119.6       | -         | -          | -          | -           | -           |
| 017                                    | 22.2      | 4.58       | 5.88       | 1.07        | 111.3                                                        | 21.2      | 4.98       | 6.28       | 1.02        | 119.4       | 20.1      | 5.41       | 6.69       | 0.96        | 127.6       | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| 021                                    | 28.0      | 6.41       | 7.72       | 1.34        | 78.0                                                         | 26.7      | 6.93       | 8.23       | 1.28        | 88.1        | 25.1      | 7.52       | 8.81       | 1.20        | 99.7        | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| 026                                    | 40.0      | 6.83       | 9.43       | 1.91        | 61.2                                                         | 38.5      | 7.45       | 10.1       | 1.85        | 75.6        | 36.7      | 8.09       | 10.7       | 1.76        | 93.5        | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| 033                                    | 46.6      | 7.76       | 10.4       | 2.23        | 51.4                                                         | 44.9      | 8.46       | 11.1       | 2.15        | 67.5        | 42.9      | 9.23       | 11.8       | 2.06        | 85.8        | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| Legend:                                |           |            |            |             | Application data:                                            |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| LWT                                    |           |            |            |             | Standard units, refrigerant: R410A                           |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| CAP kW                                 |           |            |            |             | Evaporator temperature rise: 5 K                             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| COMP kW                                |           |            |            |             | Evaporator fluid: chilled water                              |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| UNIT kW                                |           |            |            |             | Fouling factor: 0.18 x 10 <sup>-4</sup> (m <sup>2</sup> K)/W |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| COOL l/s                               |           |            |            |             | Performances in accordance with EN 14511                     |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| COOL kPa                               |           |            |            |             |                                                              |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |

Cooling capacities, 30RQY units

| 30RQY 017-033                          |    |                                                  |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
|----------------------------------------|----|--------------------------------------------------|------------|------------|-------------|-------------|-----------|------------|------------|-------------|-------------|-----------|------------|------------|-------------|-------------|-----------|------------|------------|-------------|-------------|-----------|------------|------------|-------------|-------------|
| Condenser entering air temperature, °C |    |                                                  |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| LWT<br>°C                              |    | 25                                               |            |            |             |             | 30        |            |            |             |             | 35        |            |            |             |             | 40        |            |            |             |             | 45        |            |            |             |             |
|                                        |    | CAP<br>kW                                        | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa | CAP<br>kW | COMP<br>kW | UNIT<br>kW | COOL<br>l/s | COOL<br>kPa |
| 017                                    | 5  | 15.8                                             | 3.73       | 5.05       | 0.75        | 153.4       | 15.1      | 4.12       | 5.44       | 0.72        | 158.2       | 14.3      | 4.56       | 5.86       | 0.68        | 163.2       | 13.4      | 5.03       | 6.33       | 0.64        | 168.5       | 12.4      | 5.55       | 6.83       | 0.59        | 174.0       |
| 021                                    |    | 20.0                                             | 5.08       | 6.47       | 0.95        | 136.3       | 19.1      | 5.51       | 6.90       | 0.91        | 141.3       | 18.2      | 6.03       | 7.41       | 0.87        | 146.7       | 17.0      | 6.63       | 7.99       | 0.81        | 153.2       | 15.7      | 7.37       | 8.71       | 0.75        | 160.5       |
| 026                                    |    | 28.0                                             | 5.98       | 8.58       | 1.33        | 191.6       | 27.0      | 6.60       | 9.19       | 1.28        | 199.2       | 25.7      | 7.28       | 9.87       | 1.22        | 207.6       | 24.3      | 8.06       | 10.6       | 1.16        | 217.7       | 22.6      | 8.97       | 11.5       | 1.07        | 227.7       |
| 033                                    |    | 33.5                                             | 6.97       | 9.62       | 1.60        | 166.7       | 32.2      | 7.63       | 10.3       | 1.54        | 175.8       | 30.8      | 8.42       | 11.0       | 1.46        | 186.2       | 28.9      | 9.33       | 11.9       | 1.38        | 198.8       | 26.5      | 10.3       | 12.9       | 1.26        | 213.5       |
| 017                                    | 7  | 16.7                                             | 3.82       | 5.14       | 0.79        | 148.5       | 15.9      | 4.21       | 5.52       | 0.76        | 153.7       | 15.0      | 4.65       | 5.95       | 0.72        | 159.1       | 14.1      | 5.12       | 6.42       | 0.67        | 164.7       | 13.1      | 5.64       | 6.91       | 0.62        | 170.6       |
| 021                                    |    | 21.1                                             | 5.17       | 6.56       | 1.00        | 130.0       | 20.2      | 5.60       | 6.99       | 0.96        | 135.4       | 19.2      | 6.12       | 7.50       | 0.92        | 141.3       | 18.0      | 6.72       | 8.08       | 0.86        | 148.3       | 16.6      | 7.45       | 8.79       | 0.79        | 156.1       |
| 026                                    |    | 29.7                                             | 6.07       | 8.67       | 1.42        | 180.1       | 28.6      | 6.69       | 9.29       | 1.36        | 188.3       | 27.3      | 7.37       | 9.96       | 1.30        | 197.3       | 25.8      | 8.15       | 10.7       | 1.23        | 207.5       | 24.0      | 9.06       | 11.6       | 1.14        | 219.3       |
| 033                                    |    | 35.5                                             | 7.07       | 9.72       | 1.69        | 152.8       | 34.1      | 7.74       | 10.4       | 1.63        | 163.0       | 32.6      | 8.52       | 11.1       | 1.55        | 174.0       | 30.6      | 9.43       | 12.0       | 1.46        | 187.6       | 28.2      | 10.4       | 13.0       | 1.34        | 203.7       |
| 017                                    | 10 | 18.0                                             | 3.96       | 5.28       | 0.86        | 139.8       | 17.2      | 4.36       | 5.67       | 0.82        | 145.7       | 16.2      | 4.80       | 6.11       | 0.78        | 151.9       | 15.2      | 5.28       | 6.58       | 0.73        | 158.2       | 14.2      | 5.80       | 7.08       | 0.68        | 164.7       |
| 021                                    |    | 22.9                                             | 5.32       | 6.71       | 1.09        | 119.5       | 21.9      | 5.76       | 7.15       | 1.05        | 125.6       | 20.9      | 6.27       | 7.65       | 1.00        | 132.1       | 19.6      | 6.86       | 8.23       | 0.93        | 139.8       | 18.0      | 7.59       | 8.93       | 0.86        | 148.6       |
| 026                                    |    | 32.3                                             | 6.21       | 8.81       | 1.54        | 161.9       | 31.1      | 6.84       | 9.43       | 1.49        | 170.7       | 29.8      | 7.52       | 10.1       | 1.42        | 180.8       | 28.2      | 8.30       | 10.9       | 1.35        | 192.1       | 26.2      | 9.20       | 11.7       | 1.25        | 205.3       |
| 033                                    |    | 38.6                                             | 7.25       | 9.90       | 1.84        | 130.0       | 37.1      | 7.92       | 10.6       | 1.77        | 141.1       | 35.5      | 8.70       | 11.3       | 1.70        | 153.8       | 33.5      | 9.62       | 12.2       | 1.60        | 168.8       | 30.9      | 10.6       | 13.2       | 1.48        | 186.6       |
| 017                                    | 15 | 20.3                                             | 4.32       | 5.64       | 0.97        | 124.8       | 19.3      | 4.71       | 6.03       | 0.93        | 131.7       | 18.3      | 5.15       | 6.46       | 0.88        | 138.7       | 17.3      | 5.60       | 6.90       | 0.83        | 145.9       | -         | -          | -          | -           | -           |
| 021                                    |    | 26.0                                             | 5.80       | 7.19       | 1.24        | 100.3       | 25.0      | 6.19       | 7.58       | 1.20        | 107.2       | 23.9      | 6.66       | 8.03       | 1.14        | 114.4       | 22.5      | 7.17       | 8.53       | 1.08        | 122.9       | -         | -          | -          | -           | -           |
| 026                                    |    | 37.2                                             | 6.52       | 9.12       | 1.78        | 123.5       | 36.0      | 7.15       | 9.75       | 1.72        | 134.0       | 34.5      | 7.82       | 10.4       | 1.65        | 146.3       | 32.7      | 8.60       | 11.2       | 1.57        | 160.0       | -         | -          | -          | -           | -           |
| 033                                    |    | 44.3                                             | 7.59       | 10.2       | 2.12        | 83.7        | 42.7      | 8.29       | 10.9       | 2.04        | 97.7        | 40.8      | 9.05       | 11.7       | 1.95        | 113.6       | 38.6      | 9.98       | 12.6       | 1.85        | 131.8       | -         | -          | -          | -           | -           |
| 017                                    | 18 | 20.6                                             | 4.39       | 5.71       | 0.99        | 122.8       | 19.7      | 4.78       | 6.10       | 0.94        | 130.1       | 18.6      | 5.21       | 6.52       | 0.89        | 137.5       | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| 021                                    |    | 26.4                                             | 5.89       | 7.28       | 1.27        | 98.4        | 25.3      | 6.27       | 7.66       | 1.21        | 105.8       | 24.1      | 6.72       | 8.10       | 1.16        | 113.7       | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| 026                                    |    | 39.3                                             | 6.66       | 9.26       | 1.88        | 106.9       | 37.9      | 7.28       | 9.88       | 1.81        | 119.3       | 36.1      | 7.93       | 10.5       | 1.73        | 134.1       | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| 033                                    |    | 45.7                                             | 7.69       | 10.3       | 2.19        | 73.1        | 43.9      | 8.38       | 11.0       | 2.10        | 88.6        | 41.9      | 9.13       | 11.8       | 2.01        | 106.1       | -         | -          | -          | -           | -           | -         | -          | -          | -           | -           |
| Legend:                                |    | Application data:                                |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| LWT                                    |    | Standard units, refrigerant: R410A               |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| CAP kW                                 |    | Evaporator temperature rise: 5 K                 |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| COMP kW                                |    | Evaporator fluid: chilled water                  |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| UNIT kW                                |    | Fouling factor: 0.18 x 10 <sup>-4</sup> (m² K)/W |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| COOL l/s                               |    | Performances in accordance with EN 14511         |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |
| COOL kPa                               |    |                                                  |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |           |            |            |             |             |

Heating capacities, 30RQY units

30RQY 017-033

|           |    | Outdoor temperature, °C db/wb |             |            |            |             |             |            |             |            |            |             |             |            |             |            |            |             |             |            |             |            |            |             |             |            |             |            |            |             |             |
|-----------|----|-------------------------------|-------------|------------|------------|-------------|-------------|------------|-------------|------------|------------|-------------|-------------|------------|-------------|------------|------------|-------------|-------------|------------|-------------|------------|------------|-------------|-------------|------------|-------------|------------|------------|-------------|-------------|
| LWT<br>°C |    | -15/-16                       |             |            |            |             |             | -7/-8      |             |            |            |             |             | 0/-1       |             |            |            |             |             | 7/6        |             |            |            |             |             | 15/12.5    |             |            |            |             |             |
|           |    | CAP*<br>kW                    | CAP**<br>kW | COMP<br>kW | UNIT<br>kW | COND<br>l/s | COND<br>kPa | CAP*<br>kW | CAP**<br>kW | COMP<br>kW | UNIT<br>kW | COND<br>l/s | COND<br>kPa | CAP*<br>kW | CAP**<br>kW | COMP<br>kW | UNIT<br>kW | COND<br>l/s | COND<br>kPa | CAP*<br>kW | CAP**<br>kW | COMP<br>kW | UNIT<br>kW | COND<br>l/s | COND<br>kPa | CAP*<br>kW | CAP**<br>kW | COMP<br>kW | UNIT<br>kW | COND<br>l/s | COND<br>kPa |
| 017       | 30 | 8.87                          | 9.83        | 3.47       | 5.33       | 0.47        | 190         | 10.1       | 12.1        | 3.50       | 5.29       | 0.58        | 179         | 11.6       | 14.6        | 3.58       | 5.10       | 0.70        | 166         | 17.6       | 17.6        | 3.73       | 5.09       | 0.84        | 149         | 20.8       | 20.8        | 3.83       | 5.15       | 1.00        | 128         |
| 021       |    | 10.8                          | 12.0        | 4.52       | 6.39       | 0.58        | 181         | 12.1       | 14.5        | 4.53       | 6.32       | 0.70        | 169         | 13.8       | 17.4        | 4.62       | 6.22       | 0.84        | 155         | 20.8       | 20.8        | 4.78       | 6.14       | 1.00        | 137         | 24.5       | 24.5        | 4.94       | 6.26       | 1.18        | 114         |
| 026       |    | 14.9                          | 16.5        | 5.74       | 9.35       | 0.79        | 262         | 17.2       | 20.6        | 5.85       | 9.32       | 0.99        | 242         | 19.7       | 24.9        | 6.02       | 8.87       | 1.20        | 217         | 29.9       | 29.9        | 6.23       | 8.86       | 1.44        | 185         | 35.4       | 35.4        | 6.34       | 8.89       | 1.70        | 144         |
| 033       |    | 16.3                          | 18.1        | 6.46       | 10.0       | 0.87        | 259         | 18.6       | 22.3        | 6.55       | 10.0       | 1.07        | 239         | 21.3       | 27.0        | 6.67       | 9.52       | 1.30        | 213         | 32.2       | 32.2        | 7.00       | 9.58       | 1.55        | 179         | 38.0       | 38.0        | 7.10       | 9.61       | 1.83        | 137         |
| 017       | 35 | 8.84                          | 9.86        | 3.87       | 5.73       | 0.47        | 189         | 10.0       | 12.0        | 3.91       | 5.70       | 2.11        | 180         | 11.3       | 14.5        | 3.99       | 5.50       | 0.70        | 167         | 17.3       | 17.3        | 4.11       | 5.47       | 0.83        | 151         | 20.5       | 20.5        | 4.20       | 5.51       | 0.99        | 131         |
| 021       |    | 10.8                          | 12.1        | 4.98       | 6.84       | 0.58        | 180         | 12.0       | 14.5        | 4.98       | 6.77       | 2.14        | 170         | 13.6       | 17.3        | 5.05       | 6.63       | 0.83        | 156         | 20.6       | 20.6        | 5.22       | 6.57       | 0.99        | 138         | 24.3       | 24.3        | 5.40       | 6.72       | 1.17        | 116         |
| 026       |    | 14.6                          | 16.3        | 6.40       | 10.0       | 0.79        | 263         | 16.8       | 20.3        | 6.51       | 9.98       | 2.04        | 244         | 19.2       | 24.6        | 6.67       | 9.50       | 1.18        | 220         | 29.6       | 29.6        | 6.89       | 9.52       | 1.42        | 188         | 35.0       | 35.0        | 6.99       | 9.54       | 1.69        | 149         |
| 033       |    | 16.1                          | 17.9        | 7.14       | 10.7       | 0.86        | 260         | 18.3       | 22.2        | 7.21       | 10.6       | 2.09        | 240         | 20.9       | 26.8        | 7.34       | 10.2       | 1.29        | 214         | 32.0       | 32.0        | 7.69       | 10.3       | 1.54        | 182         | 37.8       | 37.8        | 7.80       | 10.3       | 1.82        | 140         |
| 017       | 40 | -                             | -           | -          | -          | -           | -           | 9.70       | 12.0        | 4.36       | 6.15       | 1.95        | 180         | 11.0       | 14.4        | 4.45       | 5.94       | 0.69        | 168         | 17.1       | 17.1        | 4.58       | 5.93       | 0.82        | 153         | 20.2       | 20.2        | 4.66       | 5.98       | 0.97        | 134         |
| 021       |    | -                             | -           | -          | -          | -           | -           | 11.7       | 14.5        | 5.52       | 7.31       | 1.99        | 170         | 13.2       | 17.3        | 5.56       | 7.13       | 0.83        | 156         | 20.5       | 20.5        | 5.72       | 7.07       | 0.99        | 140         | 24.1       | 24.1        | 5.86       | 7.18       | 1.16        | 119         |
| 026       |    | -                             | -           | -          | -          | -           | -           | 16.3       | 20.1        | 7.27       | 10.7       | 1.88        | 245         | 18.5       | 24.3        | 7.43       | 10.2       | 1.17        | 222         | 29.1       | 29.1        | 7.62       | 10.2       | 1.40        | 192         | 34.4       | 34.4        | 7.66       | 10.2       | 1.66        | 154         |
| 033       |    | -                             | -           | -          | -          | -           | -           | 17.8       | 22.0        | 8.02       | 11.4       | 1.93        | 240         | 20.2       | 26.5        | 8.14       | 10.9       | 1.28        | 216         | 31.6       | 31.6        | 8.48       | 11.1       | 1.52        | 185         | 37.2       | 37.2        | 8.49       | 11.0       | 1.79        | 145         |
| 017       | 45 | -                             | -           | -          | -          | -           | -           | 9.44       | 12.0        | 4.85       | 6.64       | 1.81        | 180         | 10.6       | 14.2        | 4.95       | 6.43       | 0.69        | 169         | 16.9       | 16.9        | 5.10       | 6.45       | 0.81        | 155         | 19.8       | 19.8        | 5.18       | 6.50       | 0.96        | 137         |
| 021       |    | -                             | -           | -          | -          | -           | -           | 11.5       | 14.6        | 6.19       | 7.98       | 1.83        | 170         | 12.8       | 17.2        | 6.17       | 7.72       | 0.83        | 157         | 20.3       | 20.3        | 6.31       | 7.66       | 0.98        | 141         | 23.8       | 23.8        | 6.42       | 7.74       | 1.15        | 121         |
| 026       |    | -                             | -           | -          | -          | -           | -           | 15.7       | 19.9        | 8.13       | 11.6       | 1.71        | 246         | 17.7       | 23.8        | 8.27       | 11.0       | 1.15        | 225         | 28.5       | 28.5        | 8.46       | 11.1       | 1.38        | 197         | 33.8       | 33.8        | 8.45       | 11.0       | 1.63        | 160         |
| 033       |    | -                             | -           | -          | -          | -           | -           | 17.1       | 21.7        | 8.93       | 12.3       | 1.76        | 242         | 19.4       | 26.1        | 9.07       | 11.8       | 1.26        | 219         | 31.1       | 31.1        | 9.42       | 12.0       | 1.50        | 189         | 36.7       | 36.7        | 9.38       | 11.9       | 1.77        | 150         |
| 017       | 50 | -                             | -           | -          | -          | -           | -           | -          | -           | -          | -          | -           | -           | 10.4       | 14.1        | 5.50       | 7.0        | 0.68        | 170         | 16.6       | 16.6        | 5.66       | 7.01       | 0.80        | 156         | 19.4       | 19.4        | 5.75       | 7.06       | 0.94        | 140         |
| 021       |    | -                             | -           | -          | -          | -           | -           | -          | -           | -          | -          | -           | -           | 12.6       | 17.1        | 6.95       | 8.5        | 0.83        | 158         | 20.1       | 20.1        | 7.05       | 8.41       | 0.97        | 143         | 23.4       | 23.4        | 7.11       | 8.42       | 1.13        | 125         |
| 026       |    | -                             | -           | -          | -          | -           | -           | -          | -           | -          | -          | -           | -           | 17.2       | 23.4        | 9.27       | 12.0       | 1.13        | 228         | 27.8       | 27.8        | 9.44       | 12.1       | 1.34        | 202         | 32.8       | 32.8        | 9.38       | 11.9       | 1.58        | 168         |
| 033       |    | -                             | -           | -          | -          | -           | -           | -          | -           | -          | -          | -           | -           | 18.7       | 25.5        | 10.1       | 12.8       | 1.23        | 222         | 30.3       | 30.3        | 10.4       | 13.0       | 1.46        | 194         | 35.8       | 35.8        | 10.4       | 12.9       | 1.73        | 158         |

Legend:

LWT Leaving water temperature

CAP\* kW Heating capacity with defrost cycle

CAP\*\* kW Heating capacity without defrost cycle

COMP kW Compressor power input

UNIT kW Unit power input (compressors, fans and control circuit)

COND I/s Condenser water flow rate

COND kPa Condenser pressure drop

Application data:

Standard units, refrigerant: R410A

Condenser temperature rise: 5 K

Condenser fluid: water

Fouling factor: 0.18 x 10<sup>-4</sup> (m<sup>2</sup> K)/W

Performances in accordance with EN 14511

# Air pressure drop

## Ducted unit selection

The selection is based on the pressure drop:  
The cooling and heating capacities are given for an available pressure of 80 Pa and for a unit without filter.

To calculate the performances at lower pressure drops please use the correction factors below.

## Example 30RQY 021 without filter:

Duct pressure drop: 40 Pa  
Performance at Eurovent conditions:  
Cooling capacity:  $20.3 \times 1.034 = 21.0 \text{ kW}$   
Power input:  $7.06 \times 0.979 = 6.91 \text{ kW}$   
Air flow =  $1640 \times 1.064 = 1745 \text{ l/s}$

## Cooling mode

| Air duct conditions, 30RBY/RQY 017-021 |                 |                         |            |                    |
|----------------------------------------|-----------------|-------------------------|------------|--------------------|
| Duct pressure drop, Pa                 | Air flow factor | Cooling capacity factor | EER factor | Power input factor |
| 0                                      | 1.129           | 1.053                   | 1.087      | 0.962              |
| 20                                     | 1.097           | 1.047                   | 1.076      | 0.966              |
| 40                                     | 1.064           | 1.034                   | 1.050      | 0.979              |
| 60                                     | 1.032           | 1.021                   | 1.022      | 0.990              |
| 80                                     | 1.000           | 1.000                   | 1.000      | 1.000              |

| Air duct conditions, 30RBY/RQY 026-033 |                 |                         |            |                    |
|----------------------------------------|-----------------|-------------------------|------------|--------------------|
| Duct pressure drop, Pa                 | Air flow factor | Cooling capacity factor | EER factor | Power input factor |
| 0                                      | 1.200           | 1.042                   | 1.075      | 0.971              |
| 20                                     | 1.150           | 1.033                   | 1.065      | 0.974              |
| 40                                     | 1.100           | 1.021                   | 1.043      | 0.981              |
| 60                                     | 1.049           | 1.010                   | 1.022      | 0.990              |
| 80                                     | 1.000           | 1.000                   | 1.000      | 1.000              |

## Heating mode

| Air duct conditions, 30RQY 017-021 |                 |                         |            |                    |
|------------------------------------|-----------------|-------------------------|------------|--------------------|
| Duct pressure drop, Pa             | Air flow factor | Heating capacity factor | COP factor | Power input factor |
| 0                                  | 1.129           | 1.020                   | 1.020      | 1.000              |
| 20                                 | 1.097           | 1.018                   | 1.018      | 1.000              |
| 40                                 | 1.064           | 1.015                   | 1.015      | 1.000              |
| 60                                 | 1.032           | 1.008                   | 1.008      | 1.000              |
| 80                                 | 1.000           | 1.000                   | 1.000      | 1.000              |

| Air duct conditions, 30RQY 026-033 |                 |                         |            |                    |
|------------------------------------|-----------------|-------------------------|------------|--------------------|
| Duct pressure drop, Pa             | Air flow factor | Heating capacity factor | COP factor | Power input factor |
| 0                                  | 1.200           | 1.015                   | 1.015      | 1.000              |
| 20                                 | 1.150           | 1.012                   | 1.012      | 1.000              |
| 40                                 | 1.100           | 1.009                   | 1.009      | 1.000              |
| 60                                 | 1.049           | 1.005                   | 1.005      | 1.000              |
| 80                                 | 1.000           | 1.000                   | 1.000      | 1.000              |

## Filter option

| 30RBY/RQY            |    | 017 | 021 |
|----------------------|----|-----|-----|
| Filter pressure drop |    |     |     |
| Clean filter         | Pa | 10  | 10  |
| Clogged filter       | Pa | 20  | 20  |

# Hydronic module

The hydronic module reduces the installation time. The unit is factory-equipped with the main hydronic components required for the installation: screen filter, water pump, expansion tank, safety valve and pressure gauge.

The water heat exchanger and the hydronic module are protected against frost down to -10°C, using an electric resistance heater (standard) and pump cycling.

The hydronic module is integrated into the unit without increasing its dimensions and saves the space normally used for the water pump.

## Physical and electrical data

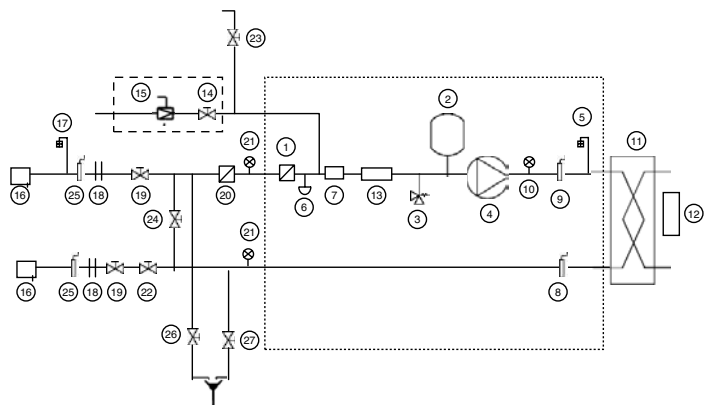
These are the same as for the standard unit except:

| 30RBY/RQY - units with hydronic module |     | 017                                                                                                   | 021  | 026  | 033  |
|----------------------------------------|-----|-------------------------------------------------------------------------------------------------------|------|------|------|
| Hydronic module                        |     |                                                                                                       |      |      |      |
| Expansion tank volume                  | l   | 5                                                                                                     | 5    | 8    | 8    |
| Maximum water-side operating pressure  | kPa | 400                                                                                                   | 400  | 400  | 400  |
| Pumps                                  |     |                                                                                                       |      |      |      |
| Water pump                             |     | Pump, screen filter, expansion tank, flow switch, pressure gauge, automatic purge valve, safety valve |      |      |      |
| Power input*                           | kW  | 0.54                                                                                                  | 0.59 | 0.99 | 1.10 |
| Nominal operating current draw*        | A   | 1.30                                                                                                  | 1.40 | 2.40 | 2.60 |

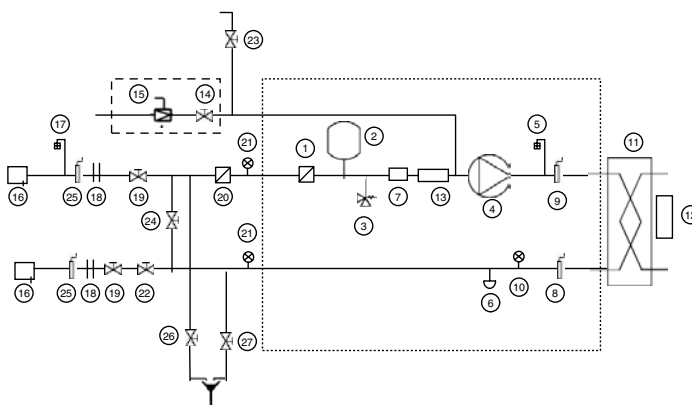
\* Standard Eurovent conditions: water heat exchanger entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

## Typical hydronic circuit diagram

Sizes 17-21 kW



Sizes 26-33 kW



..... Hydronic module (unit with hydronic module)  
 - - - - - Automatic water fill system option

## Legend

### Components of the unit and hydronic module

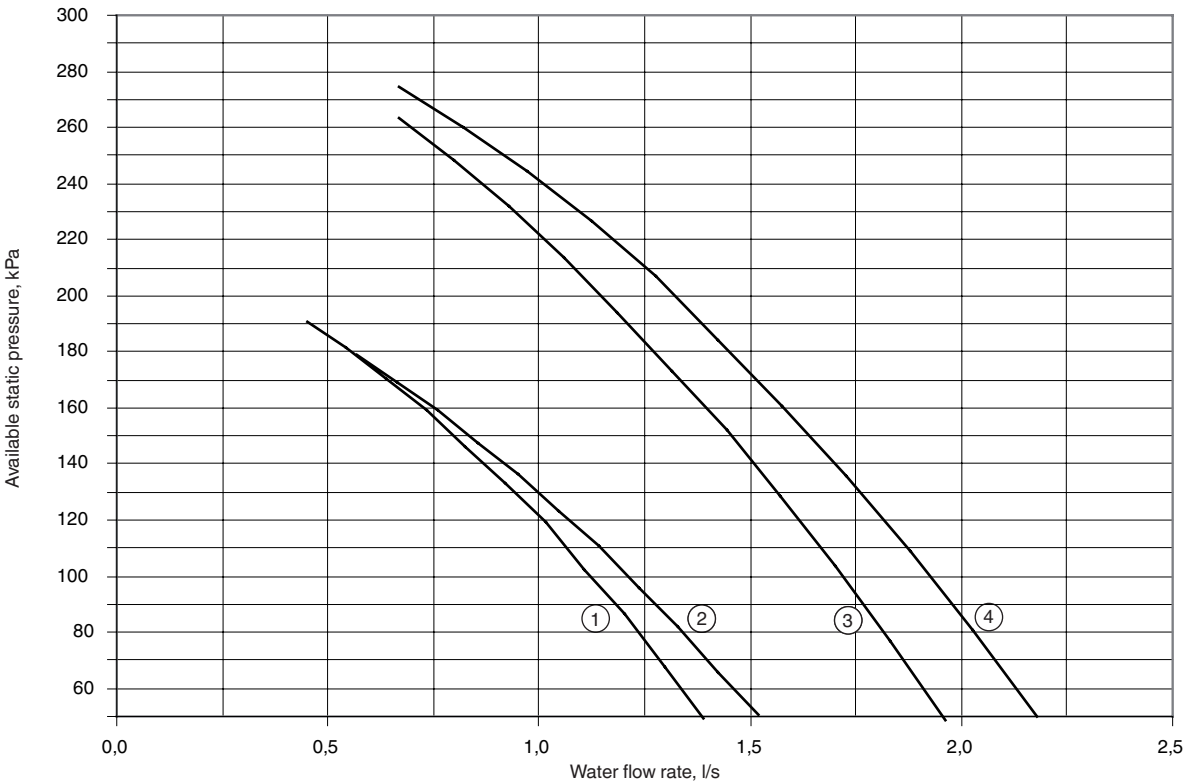
- 1 Screen filter
- 2 Expansion tank
- 3 Safety valve
- 4 High-pressure pump
- 5 Air purge
- 6 Water drain valve
- 7 Flow sensor
- 8 Plate heat exchanger leaving temperature sensor
- 9 Plate heat exchanger entering temperature sensor
- 10 Pressure gauge
- 11 Plate heat exchanger
- 12 Heat exchanger frost protection heater
- 13 Pipe frost protection heater
- 14 Shut-off valve (automatic water fill option)
- 15 Pressure reducer (automatic water fill option)

### System components

- 16 Temperature sensor well
- 17 Air purge
- 18 Flexible connections
- 19 Shut-off valve
- 20 Screen filter (obligatory for a unit without hydronic module)
- 21 Pressure gauge
- 22 Flow control valve (factory-supplied for field installation)
- 23 Charge valve
- 24 Frost protection bypass (when shut-off valves are closed in winter)
- 25 Pressure sensor
- 26 System drain valves
- 27 Plate heat exchanger drain valve

# Available static system pressure

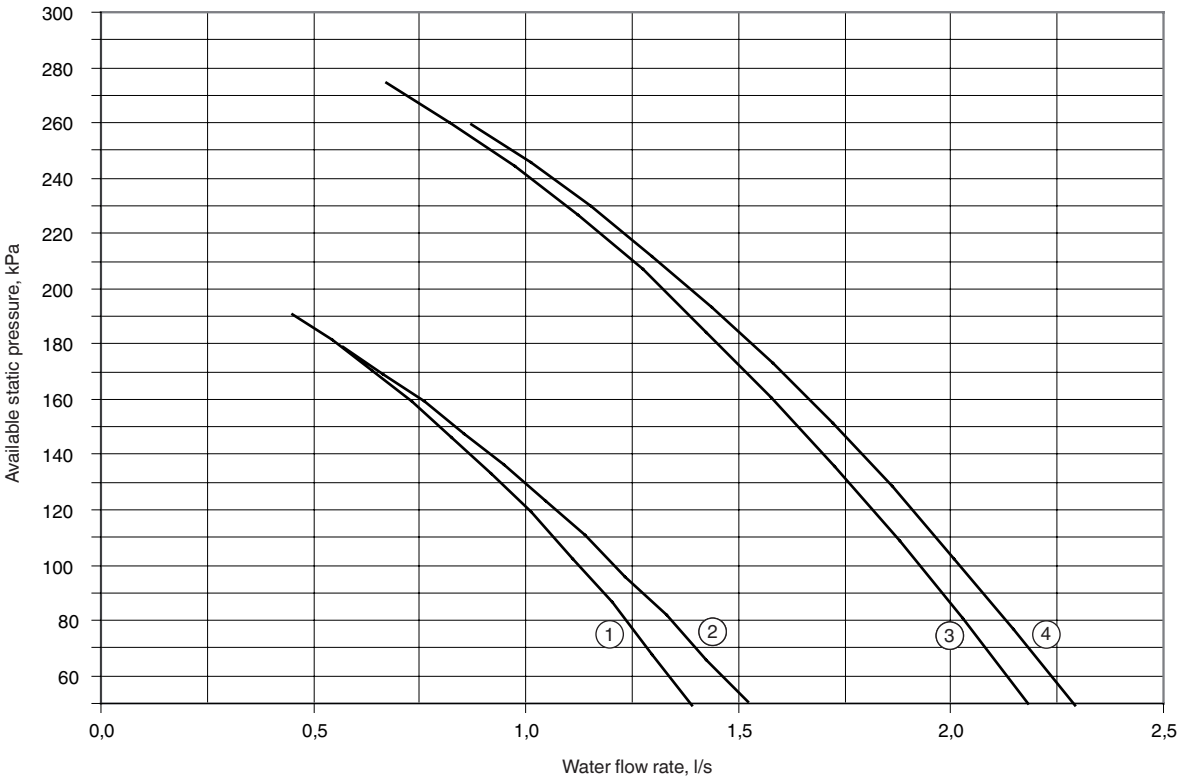
## 30RBY 017-033



**Legend**

- 1. 30RBY 017
- 2. 30RBY 021
- 3. 30RBY 026
- 4. 30RBY 033

## 30RQY 017-033



**Legend**

- 1. 30RQY 017
- 2. 30RQY 021
- 3. 30RQY 026
- 4. 30RQY 033

Carrier is participating in the Eurovent Certification Programme for liquid chilling packages. Products are as listed in the Eurovent Directory of Certified Products or on the Internet site [www.eurovent-certification.com](http://www.eurovent-certification.com).

This programme covers air-cooled chillers up to 600 kW and water-cooled chillers up to 1500 kW.



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