

# ELFOSpace BOX3

"Cassette" type water terminal unit for indoor installation

**CFK 007.0 - 041.0 RANGE**



- ▶ DC Brushless Motor
- ▶ Compact design, simple installation and easy maintenance for modules 600x600
- ▶ High standards of efficiency and low noise for modules 800x800
- ▶ Electronic version with infra-red remote control
- ▶ New wall remote control (optional accessory)
- ▶ The unit comes with a built-in condensate drain pump



Nominal cooling capacity from 2,98 to 11,19 kW  
Nominal heating capacity from 2,61 to 10,07 kW



## Terminal unit Clivet

The hydronic terminal units are very diffused for their versatility and reliability. The Clivet range includes many versions that simplify the application in different types of installation and building.

| Commercial          |   |   |   |   |
|---------------------|---|---|---|---|
|                     | ELFOSpace   | ELFODuct MP<br>ELFODuct HP  | ELFOSpace BOX3  | ELFOSpace WALL3   |
| Capacities (A27/W7) | 1,5 ÷ 11 kW   | 6 ÷ 25 kW   | 3 ÷ 11 kW   | 2 ÷ 4,5 kW  |
| Vertical cased      |    |   |   |  |
| Horizontal cased    |  |   |  |   |
| Vertical uncased    |  |  |   |   |
| Horizontal uncased  |  |  |   |   |
| 2 pipes             | ✓   | ✓   | ✓   | ✓   |
| 4 pipes             | ✓   | ✓   | ✓   |   |
| DC Motor            | ✓   | ✓   | ✓   | ✓   |
| ESP                 |   | ✓   |   |   |
| High head           |   | ✓   |   |   |
| RS485 Connection    | ✓   | ✓   | ✓   | ✓   |

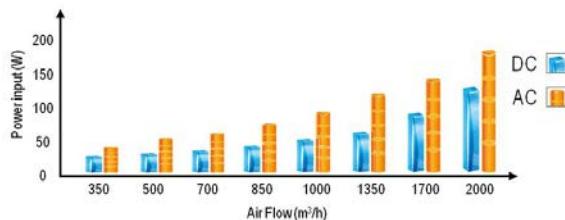
## New 3<sup>rd</sup> generation fan coil Clivet

### High energy efficiency with standard DC brushless motor

The new ventilation fan coils with DC brushless motor of the series, characterized by an advanced high efficiency, provide low levels of noise and precision of the temperature control technology. They are well suited to applications such as hospitals, offices, hotels, airports and many other applications in commercial and industrial applications.



The fan-coils having DC motor reduce the electric input up to 60%, compared to the equipped with asynchronous motor.



### Silent operation

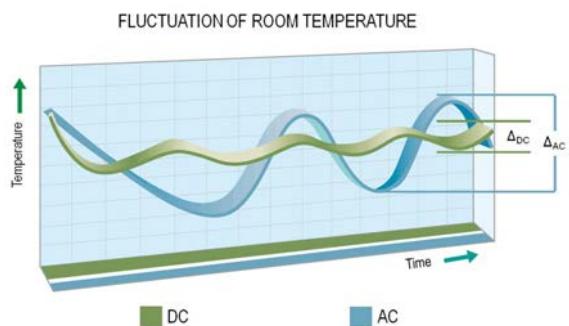
The particular construction features, in addition to increasing the efficiency of the unit, minimize the noise level and make it very noiseless.

The fan-coil noise level when equipped with DC Brushless fan motor is 2÷5 dB(A) less than an AC motor, making the ambient really more comfortable.



### Better control of the air temperature and humidity

The DC brushless motors regulate the air flow rate moment by moment accordingly to the thermal load, ensuring less temperature fluctuations and an improved comfort.



### DC Brushless

The motor is in a fully closed structure thereby ensuring high operating efficiency and high durability.

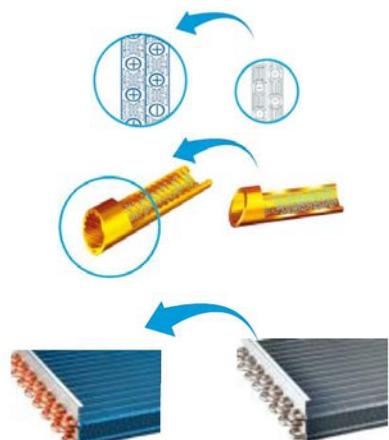
The motor bearing, easy maintenance, can operate up to 80,000 hours continuously.



## Main features of standard unit

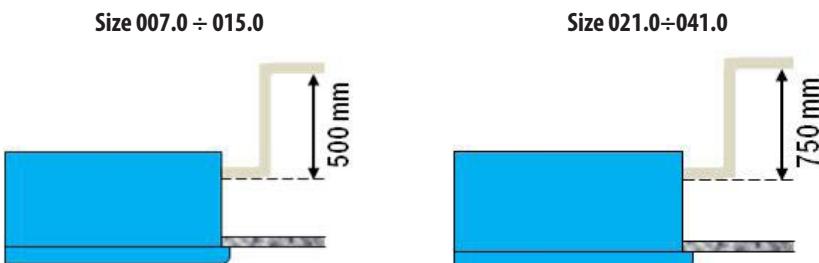
### High-performance heat exchangers

The new fins design is thought to increase the exchange surface, reducing the air resistance, reducing waste and improving energy performances.  
 The inner threaded copper tubes optimizes the efficiency of heat exchange.  
 The fins hydrophilic coating increase the heat exchanger operating life, improving longevity and corrosion resistance  
 Having 2 rows in the configuration for 2 pipes installation, and 2 or 3 rows in the 4 pipes installation.



### Condensate drain pump, built-in

To ensure the optimal condensate drain, the standard unit is equipped with condensation drain pump having available head 500mmwc in 600x600 modules (sizes 007.0 ÷ 015.0) and 750mmwc in 800x800 modules (sizes 021.0 ÷ 041.0).



### Infrared standar control

The R05 infrared remote control allows to remotely manage the unit through a receiver placed on the air supply and return ceiling.

Features:

- Backlit

Functions:

- On/Off
- Operation selection: Auto, Heating, Cooling, Dehumidification, Ventilation
- Set the fan speed (MIN - MED - MAX or AUTO)
- Temperature setting (temperature range selectable: 17~30°C)
- Timer setting
- Setting of deflectors position (swing)



### Filtration

Synthetic washable filter class G2 (EU2), easily accessible for maintenance.

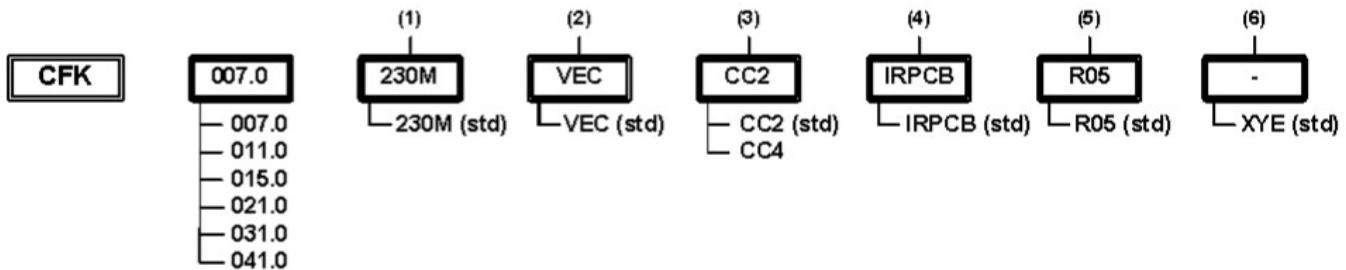
### Primary air inlet and air distribution in adjacent rooms

Arrangement for primary air into the ambient through a precut.

Having specific precuts positioned on the sides of the unit, it is also possible enter the air in adjacent rooms or at greater distances.



## Configuration Unit



**(1) Voltage**

- 230M - Supply voltage 230V/1Ph/50Hz (standard)

**(2) Fans**

- VEC - High efficiency DC Brushless fan (standard)

**(3) Coil configuration**

- CC2 - Coil configuration for 2-pipe system (standard)
- CC4 - Coil configuration for 4-pipe system

**(4) Electronic version**

- IRPCB - Electronics with infrared remote control (standard)

**(5) Control**

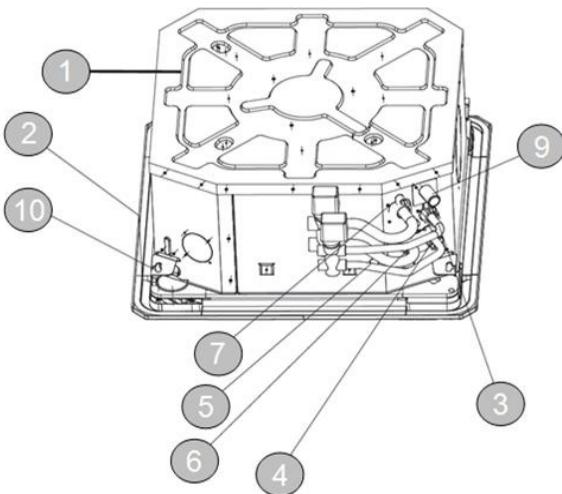
- R05 - R05 infrared remote control

**(6) Communication module**

- XYE - XYE communication port (standard)

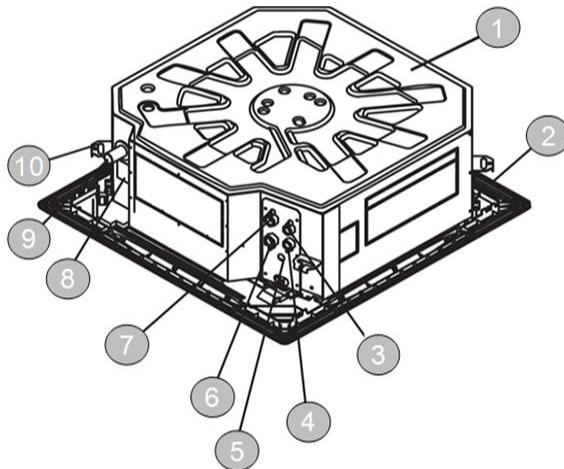
## Description Unit

**Size 007.0 ÷ 015.0 (module 600x600)**



- (1) Main structure
- (2) Air return and supply ceiling
- (3) Additional coil water outlet (4-pipe system)
- (4) Additional coil water inlet (4-pipe system)
- (5) Valve condensate collection tray fixing holes

**Size 021.0 ÷ 041.0 (module 800x800)**



- (6) Water inlet (main coil)
- (7) Water outlet (main coil)
- (8) Inspection panel of the condensate discharge pump
- (9) Drain pipe
- (10) Ceiling fixing hook

## External appearance

**Size 007.0 ÷ 015.0 (module 600x600)**



CC2 - 2-pipe system



CC4 - 4-pipe system

**Size 021.0 ÷ 041.0 (module 800x800)**



CC2 - 2-pipe system



CC4 - 4-pipe system

# Standard unit technical specifications

## Structure

In galvanized sheet metal with internal thermal insulation (high-density expanded polystyrene) and an anti-condensation barrier on the external panel.

## Internal exchanger

It is composed of copper pipes and aluminium fins, with hydrophilic coating, fastened to tube with a process of mechanical expansion and suitably shaped.

The batteries are with 2 rows for 2 pipe models and 2 or 3 rows for 4 pipe models.

The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

## Fan

The fan-motor assembly, hung on anti-vibration devices, is especially quiet. The radial fan with single intake is designed to optimize improvement using wing-profile rotor blades with a special shape that reduces turbulence, increasing efficiency and reducing noise. The fans are coupled to a single-speed electric motor, driven by the continuous magnetic switching of the stator, with built-in thermal overload protection. The brushless technology and the special supply increase both the life expectancy and the efficiency. The units use 3 preset speeds with the possibility, during system adjustment, to modify them.

## Filtration

Washable renewable synthetic filter, G2 class (EU2), easily accessible.

## Condensate drain

In high-density expanded polystyrene, with preformed air passages suitable shaped to allow passage of air. To ensure optimal runoff of condensation, the unit is standard equipped with a centrifugal condensation drain pump with static pressure of 500mm for 600x600 modules and 750mm for 800x800 models. It is controlled directly by the electronic card to which is connected a float system to control the condensation and alarm level.

## Electrical panel

Electrical panel inside the unit with a complete accessibility from below for an easy maintenance.

Standard infrared remote control to manage the unit remotely through a receiver placed in the air supply and return ceiling.

The unit is equipped with XYE communication port standards.

- remote ON/OFF control
- Remoting of cumulative alarm

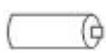
## Configuration options

- 230M - Supply voltage 230V/1Ph/50Hz (standard)
- VEC - High efficiency DC Brushless fan (standard)
- CC2 - Coil configuration for 2-pipe system (standard)
- CC4 - Coil configuration for 4-pipe system
- IRPCB - Electronics for control with infrared remote control (standard)
- R05 - Infrared remote control R05
- XYE - XYE communication port (standard)

## Accessories separately supplied

- 360PX - Air return and supply frame with supply at 360° (mandatory accessory)
- 3V2X - Three-way valve kit for 2-pipe system type "on/off"
- 3V4X - Three-way valve kit for 4-pipe system type "on/off"
- DTX - Auxiliary condensate collection tray
- KJR90X - Electronic room control for wall installation
- KJR150X - Indoor units' group controller
- CCM30BX - Touch-key indoor units' centralized controller (with cover plate)
- CCM08X - BACnet protocol
- CMM18X - Modbus protocol for up to 64 fancoil units
- CCM18UX - Modbus protocol for up to 16 fancoil units
- LONGWX - LowWorks protocol

## Accessories standard supplied

| Accessory                                    | Picture   | Description   | Quantity    |             |
|--|---|---|-------------|-------------|
|  |   |   | 007.0÷015.0 | 021.0÷041.0 |
| Installation and operating manual            |    | Installation and operating guide                          | 1           | 1           |
| Control Manual                               |    | Control Manual  | 1           | 1           |
| Pattern for installation                     |    | Pattern for installation                                  | 1           | 1           |
| Bolt M6                                      |    | Bolt M6   | -           | 4           |
| Pipes and fittings                           |    | Tubing insulating and sound insulating                    | 2           | 2           |
| Water connection for draining the condensate |  | Drain pipe  | 1           | 1           |
|  |  | Tubing insulating and sound insulating for the drain pipe | -           | 1           |
|  |  | Fastening collar  | 1           | 1           |
|  |  | Ties  | 5           | 5           |
| Infrared remote control                      |  | Infrared remote control R05                               | 1           | 1           |
|  |  | Pocket for remote control for wall installation           | 1           | 1           |
|  |  | Fixing screws   | 2           | 2           |
|  |  | Remote control batteries                                  | 2           | 2           |

## General technical data - CC2 (2-pipe system)

| Size                       |        |         | 007.0      |      |      | 011.0      |      |      | 015.0      |      |      | 021.0      |       |       | 031.0      |       |       | 041.0      |       |       |
|----------------------------|--------|---------|------------|------|------|------------|------|------|------------|------|------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Fan Speed                  |        |         | H          | M    | L    | H          | M    | L    | H          | M    | L    | H          | M     | L     | H          | M     | L     | H          | M     | L     |
| Air flow                   | [m³/h] | 535     | 429        | 322  | 719  | 561        | 448  | 781  | 611        | 494  | 1175 | 987        | 768   | 1581  | 1371       | 1236  | 1871  | 1415       | 1198  |       |
| <b>Cooling Performance</b> |        |         |            |      |      |            |      |      |            |      |      |            |       |       |            |       |       |            |       |       |
| Total cooling capacity     | (1)    | [kW]    | 2,98       | 2,53 | 2,00 | 3,96       | 3,26 | 2,76 | 4,20       | 3,48 | 3,01 | 5,93       | 5,30  | 4,40  | 7,87       | 7,12  | 6,67  | 11,19      | 8,82  | 7,48  |
| Sensible cooling capacity  | (1)    | [kW]    | 2,49       | 2,08 | 1,59 | 3,20       | 2,57 | 2,10 | 3,45       | 2,74 | 2,31 | 5,00       | 4,34  | 3,52  | 6,68       | 5,95  | 5,50  | 9,04       | 7,03  | 5,97  |
| Water flow rate            | (1)    | [l/h]   | 530        | 450  | 350  | 700        | 580  | 510  | 750        | 610  | 540  | 1050       | 920   | 770   | 1440       | 1280  | 1220  | 1960       | 1530  | 1280  |
| Water pressure drop        | (1)    | [kPa]   | 10,00      | 7,00 | 5,00 | 11,48      | 8,20 | 6,54 | 12,32      | 8,62 | 7,40 | 19,20      | 15,40 | 11,00 | 22,30      | 18,10 | 16,30 | 36,60      | 22,70 | 16,40 |
| <b>Heating Performance</b> |        |         |            |      |      |            |      |      |            |      |      |            |       |       |            |       |       |            |       |       |
| Heating capacity (45°)     | (2)    | [kW]    | 2,61       | 2,89 | 2,24 | 4,63       | 3,79 | 3,10 | 4,95       | 3,99 | 3,26 | 6,06       | 6,35  | 5,32  | 9,16       | 8,54  | 7,90  | 10,07      | 10,08 | 8,68  |
| Water flow rate            | (2)    | [l/h]   | 640        | 540  | 420  | 830        | 670  | 560  | 870        | 700  | 580  | 1300       | 1140  | 1130  | 1730       | 1570  | 1460  | 2350       | 1860  | 1590  |
| Water pressure drop        | (2)    | [kPa]   | 12,10      | 8,50 | 5,30 | 9,20       | 8,60 | 6,00 | 9,40       | 8,23 | 6,10 | 25,90      | 20,10 | 19,90 | 28,80      | 24,00 | 20,70 | 49,20      | 31,20 | 23,30 |
| Heating capacity (65°)     | (3)    | [kW]    | 5,57       | 5,19 | 4,07 | 8,04       | 6,59 | 5,54 | 8,67       | 7,15 | 5,96 | 10,87      | 10,49 | 8,74  | 15,81      | 14,52 | 13,49 | 19,47      | 17,01 | 14,77 |
| Water flow rate            | (3)    | [l/h]   | 490        | 450  | 360  | 700        | 580  | 480  | 760        | 620  | 520  | 950        | 920   | 760   | 1380       | 1270  | 1180  | 1700       | 1480  | 1290  |
| Water pressure drop        | (3)    | [kPa]   | 7,52       | 6,34 | 3,93 | 7,15       | 6,32 | 4,86 | 7,06       | 6,20 | 4,38 | 19,01      | 17,34 | 16,87 | 22,82      | 19,40 | 16,80 | 33,96      | 24,98 | 18,45 |
| <b>Sound level</b>         |        |         |            |      |      |            |      |      |            |      |      |            |       |       |            |       |       |            |       |       |
| Sound pressure level       | (4)    | [dB(A)] | 39         | 33   | 27   | 42         | 36   | 30   | 43         | 38   | 32   | 43         | 39    | 33    | 48         | 44    | 41    | 49         | 43    | 39    |
| Sound power level          | (4)    | [dB(A)] | 51         | 45   | 39   | 54         | 48   | 42   | 55         | 50   | 44   | 55         | 51    | 45    | 60         | 56    | 53    | 61         | 55    | 51    |
| <b>Fan motor</b>           |        |         |            |      |      |            |      |      |            |      |      |            |       |       |            |       |       |            |       |       |
| Type                       |        | [ - ]   | DC         |      |      | DC         |      |      | DC         |      |      | DC         |       |       | DC         |       |       | DC         |       |       |
| Quantity                   |        | [Nr]    | 1          |      |      | 1          |      |      | 1          |      |      | 1          |       |       | 1          |       |       | 1          |       |       |
| Brand                      |        | [ - ]   | Panasonic  |      |      | Panasonic  |      |      | Panasonic  |      |      | Panasonic  |       |       | Panasonic  |       |       | Panasonic  |       |       |
| Model                      |        | [ - ]   | WZDK37-38G |      |      | WZDK37-38G |      |      | WZDK37-38G |      |      | WZDK80-38G |       |       | WZDK90-38G |       |       | WZDK90-38G |       |       |
| <b>Fan</b>                 |        |         |            |      |      |            |      |      |            |      |      |            |       |       |            |       |       |            |       |       |
| Type                       | (5)    | [ - ]   | RAD        |      |      | RAD        |      |      | RAD        |      |      | RAD        |       |       | RAD        |       |       | RAD        |       |       |
| Quantity                   |        | [Nr]    | 1          |      |      | 1          |      |      | 1          |      |      | 1          |       |       | 1          |       |       | 1          |       |       |
| <b>Coil</b>                |        |         |            |      |      |            |      |      |            |      |      |            |       |       |            |       |       |            |       |       |
| Row                        |        | [Nr]    | 2          |      |      | 2          |      |      | 2          |      |      | 2          |       |       | 2          |       |       | 2          |       |       |
| Coil (length x height)     |        | [mm]    | 1315 x 210 |      |      | 1315 x 210 |      |      | 1315 x 210 |      |      | 1960 x 168 |       |       | 1960 x 252 |       |       | 1960 x 252 |       |       |
| Circuits                   |        | [Nr]    | 5          |      |      | 6          |      |      | 7          |      |      | 8          |       |       | 12         |       |       | 12         |       |       |
| Max. working pressure      |        | [MPa]   | 1,6        |      |      | 1,6        |      |      | 1,6        |      |      | 1,6        |       |       | 1,6        |       |       | 1,6        |       |       |
| <b>Pipe connections</b>    |        |         |            |      |      |            |      |      |            |      |      |            |       |       |            |       |       |            |       |       |
| Water inlet                |        | [ " ]   | G3/4"      |      |      | G3/4"      |      |      | G3/4"      |      |      | RC3/4"     |       |       | RC3/4"     |       |       | RC3/4"     |       |       |
| Water outlet               |        | [ " ]   | G3/4"      |      |      | G3/4"      |      |      | G3/4"      |      |      | RC3/4"     |       |       | RC3/4"     |       |       | RC3/4"     |       |       |
| Drain pipe                 | (6)    | [mm]    | Ø25mm      |      |      | Ø25mm      |      |      | Ø25mm      |      |      | Ø32mm      |       |       | Ø32mm      |       |       | Ø32mm      |       |       |

The Product is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.

H = High

M = Medium

L = Low

(1) Cooling: Exchanger inlet water 7°C (temperature differential 5°C)

Ambient air 27°C D.B. / 19°C W.B

(2) Heating: Exchanger inlet water 45°C (temperature differential 5°C)

Ambient air 20°C D.B.

(3) Heating: Exchanger inlet water 65°C (temperature differential 10°C)

Ambient air 20°C D.B.

(4) Sound levels tested in an anechoic chamber. The sound pressure level refers to a distance of 1 m from the outer surface of the unit operating in an open field.

(5) RAD = Radial fan

(6) External diameter

## General technical data - CC4 (4-pipe system)

| Size                       |        |         | 007.0      |       |       | 011.0      |       |       | 015.0      |       |       | 021.0      |       |       | 031.0      |       |       | 041.0      |       |       |
|----------------------------|--------|---------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Fan Speed                  |        |         | H          | M     | L     | H          | M     | L     | H          | M     | L     | H          | M     | L     | H          | M     | L     | H          | M     | L     |
| Air flow                   | [m³/h] | 536     | 429        | 321   | 727   | 569        | 451   | 731   | 572        | 462   | 1287  | 1084       | 851   | 1785  | 1545       | 1397  | 1857  | 1410       | 1191  |       |
| <b>Cooling Performance</b> |        |         |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |
| Total cooling capacity     | (1)    | [kW]    | 2,40       | 2,08  | 1,65  | 3,08       | 2,64  | 2,28  | 3,05       | 2,62  | 2,30  | 5,36       | 4,81  | 4,00  | 8,75       | 7,97  | 7,40  | 8,76       | 7,29  | 6,45  |
| Sensible cooling capacity  | (1)    | [kW]    | 2,08       | 1,78  | 1,39  | 2,69       | 2,24  | 1,88  | 2,61       | 2,21  | 1,90  | 4,66       | 4,17  | 3,42  | 7,51       | 6,74  | 6,18  | 7,70       | 6,20  | 5,40  |
| Water flow rate            | (1)    | [l/h]   | 420        | 360   | 290   | 560        | 480   | 410   | 540        | 470   | 400   | 990        | 870   | 720   | 1570       | 1430  | 1310  | 1580       | 1300  | 1150  |
| Water pressure drop        | (1)    | [kPa]   | 17,40      | 13,50 | 9,30  | 13,15      | 9,40  | 7,00  | 16,80      | 13,10 | 10,30 | 14,80      | 11,50 | 8,10  | 33,90      | 30,00 | 24,00 | 33,00      | 22,60 | 17,70 |
| <b>Heating Performance</b> |        |         |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |
| Heating capacity (45°)     | (2)    | [kW]    | 2,65       | 2,01  | 1,61  | 3,18       | 2,29  | 1,94  | 3,13       | 2,18  | 1,86  | 4,40       | 3,76  | 3,17  | 6,29       | 5,50  | 5,17  | 6,55       | 5,16  | 4,65  |
| Water flow rate            | (2)    | [l/h]   | 460        | 350   | 280   | 550        | 400   | 340   | 540        | 380   | 320   | 760        | 650   | 550   | 1090       | 950   | 900   | 1140       | 900   | 810   |
| Water pressure drop        | (2)    | [kPa]   | 25,60      | 15,29 | 10,29 | 30,60      | 16,28 | 11,45 | 43,68      | 20,91 | 15,15 | 26,69      | 19,81 | 13,38 | 62,60      | 49,03 | 43,04 | 74,37      | 42,77 | 35,06 |
| Heating capacity (65°)     | (3)    | [kW]    | 4,24       | 2,86  | 2,25  | 5,52       | 3,53  | 2,98  | 5,97       | 3,66  | 3,09  | 7,38       | 6,06  | 5,09  | 11,70      | 9,88  | 9,27  | 12,29      | 9,17  | 8,24  |
| Water flow rate            | (3)    | [l/h]   | 320        | 270   | 210   | 360        | 310   | 270   | 390        | 330   | 280   | 610        | 550   | 470   | 960        | 890   | 840   | 990        | 830   | 760   |
| Water pressure drop        | (3)    | [kPa]   | 23,50      | 17,10 | 11,30 | 24,14      | 17,90 | 13,10 | 26,80      | 19,20 | 14,50 | 25,30      | 20,50 | 14,50 | 42,40      | 36,60 | 32,60 | 48,70      | 32,50 | 27,00 |
| <b>Sound level</b>         |        |         |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |
| Sound pressure level       | (4)    | [dB(A)] | 39         | 33    | 27    | 42         | 35    | 30    | 44         | 39    | 31    | 42         | 37    | 31    | 48         | 44    | 42    | 49         | 43    | 38    |
| Sound power level          | (4)    | [dB(A)] | 51         | 45    | 39    | 54         | 47    | 42    | 56         | 51    | 43    | 54         | 49    | 43    | 60         | 56    | 54    | 61         | 55    | 50    |
| <b>Fan motor</b>           |        |         |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |
| Type                       |        | [-]     | DC         |       |       |
| Quantity                   |        | [Nr]    | 1          |       |       | 1          |       |       | 1          |       |       | 1          |       |       | 1          |       |       | 1          |       |       |
| Brand                      |        | [-]     | Panasonic  |       |       |
| Model                      |        | [-]     | WZDK37-38G |       |       | WZDK37-38G |       |       | WZDK37-38G |       |       | WZDK90-38G |       |       | WZDK90-38G |       |       | WZDK90-38G |       |       |
| <b>Fan</b>                 |        |         |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |
| Type                       |        | [-]     | RAD        |       |       |
| Quantity                   |        | [Nr]    | 1          |       |       | 1          |       |       | 1          |       |       | 1          |       |       | 1          |       |       | 1          |       |       |
| <b>Coil</b>                |        |         |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |
| Row                        |        | [Nr]    | 2          |       |       | 2          |       |       | 2          |       |       | 2          |       |       | 3          |       |       | 3          |       |       |
| Coil (length x height)     |        | [mm]    | 1315 x 210 |       |       | 1315 x 210 |       |       | 1315 x 210 |       |       | 1990 x 252 |       |       | 2050 x 252 |       |       | 2080 x 252 |       |       |
| Circuits in cooling        |        | [Nr]    | 3          |       |       | 4          |       |       | 4          |       |       | 9          |       |       | 14         |       |       | 14         |       |       |
| Circuits in heating        |        | [Nr]    | 3          |       |       | 3          |       |       | 3          |       |       | 3          |       |       | 4          |       |       | 4          |       |       |
| Max. working pressure      |        | [MPa]   | 1,6        |       |       | 1,6        |       |       | 1,6        |       |       | 1,6        |       |       | 1,6        |       |       | 1,6        |       |       |
| <b>Pipe connections</b>    |        |         |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |            |       |       |
| Water inlet in cooling     |        | [""]    | G3/4       |       |       | G3/4       |       |       | G3/4       |       |       | RC3/4      |       |       | RC3/4      |       |       | RC3/4      |       |       |
| Water inlet in heating     |        | [""]    | G1/2       |       |       | G1/2       |       |       | G1/2       |       |       | RC1/2      |       |       | RC1/2      |       |       | RC1/2      |       |       |
| Water outlet in cooling    |        | [""]    | G3/4       |       |       | G3/4       |       |       | G3/4       |       |       | RC3/4      |       |       | RC3/4      |       |       | RC3/4      |       |       |
| Water outlet in heating    |        | [""]    | G1/2       |       |       | G1/2       |       |       | G1/2       |       |       | RC1/2      |       |       | RC1/2      |       |       | RC1/2      |       |       |
| Drain pipe                 |        | [mm]    | Ø25mm      |       |       | Ø25mm      |       |       | Ø25mm      |       |       | Ø32mm      |       |       | Ø32mm      |       |       | Ø32mm      |       |       |

The Product is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.

H = High  
M = Medium  
L = Low

(1) Cooling: Exchanger inlet water 7°C (temperature differential 5°C)  
Ambient air 27°C D.B. / 19°C W.B.  
(2) Heating: Exchanger inlet water 45°C (temperature differential 5°C)  
Ambient air 20°C D.B.

(3) Heating: Exchanger inlet water 65°C (temperature differential 10°C)  
Ambient air 20°C D.B.

(4) Sound levels tested in an anechoic chamber. The sound pressure level refers to a distance of 1 m from the outer surface of the unit operating in an open field.

(5) RAD = Radial fan  
(6) External diameter

| Size  |           |              | 007.0        |     |      | 011.0        |      |      | 015.0        |      |      | 021.0        |      |       | 031.0        |      |       | 041.0        |      |   |
|---|-----------|--------------|--------------|-----|------|--------------|------|------|--------------|------|------|--------------|------|-------|--------------|------|-------|--------------|------|---|
| Fan speed   |           |              | H            | M   | L    | H            | M    | L    | H            | M    | L    | H            | M    | L     | H            | M    | L     | H            | M    | L |
| <b>Electrical data</b>                                  |           |              |              |     |      |              |      |      |              |      |      |              |      |       |              |      |       |              |      |   |
| Power supply  | [V/Ph/Hz] | 220-240/1/50 | 220-240/1/50 |     |      | 220-240/1/50 |      |      | 220-240/1/50 |      |      | 220-240/1/50 |      |       | 220-240/1/50 |      |       | 220-240/1/50 |      |   |
| Power input   | [W]       | 14,0         | 9,0          | 5,0 | 37,0 | 24,0         | 19,0 | 32,0 | 17,0         | 11,0 | 50,0 | 33,0         | 19,0 | 107,0 | 71,0         | 54,0 | 125,0 | 58,0         | 38,0 |   |
| F.L.A. - Full load current at max admissible conditions | [A]       | 0,21         | 0,32         |     |      | 0,36         |      |      | 0,50         |      |      | 0,90         |      |       | 1,30         |      |       |              |      |   |

H = High

M = Medium

L = Low

- Cooling: Exchanger inlet water 7°C (temperature differential 5°C)

Ambient air 27°C D.B. / 19°C W.B.

- Heating: Exchanger inlet water 45°C (temperature differential 5°C)

Ambient air 20°C D.B.

- Heating: Exchanger inlet water 65°C (temperature differential 10°C)

Ambient air 20°C D.B.

## Operating limits

### CC2 - 2-pipe system

| Size                                    |               | 007.0             | 011.0             | 015.0             | 021.0             | 031.0             | 041.0             |
|---|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Maximum water inlet temperature         | [°C]          | 80                | 80                | 80                | 80                | 80                | 80                |
| Minimum water inlet temperature         | [°C]          | 3                 | 3                 | 3                 | 3                 | 3                 | 3                 |
| Maximum operating pressure              | [bar]         | 16                | 16                | 16                | 16                | 16                | 16                |
| Maximum water flow rate                 | Cooling [l/h] | 674               | 878               | 947               | 1248              | 1567              | 2379              |
|   | Heating [l/h] | 674               | 878               | 947               | 1248              | 1567              | 2379              |
| Minimum water flow rate                 | Cooling [l/h] | 363               | 473               | 510               | 672               | 844               | 1281              |
|   | Heating [l/h] | 363               | 473               | 510               | 672               | 844               | 1281              |
| Maximum inlet air temperature Ta (W.B.) | Cooling [°C]  | 40                | 40                | 40                | 40                | 40                | 40                |
| Minimum inlet air temperature Ta (W.B.) | Cooling [°C]  | 3                 | 3                 | 3                 | 3                 | 3                 | 3                 |
| Maximum inlet air temperature Ta (D.B.) | Heating [°C]  | 40                | 40                | 40                | 40                | 40                | 40                |
| Minimum inlet air temperature Ta (D.B.) | Heating [°C]  | 3                 | 3                 | 3                 | 3                 | 3                 | 3                 |
| Relative humidity limits in the room    | R.H.          | 20% < R.H. < 100% |

- Cooling: Exchanger inlet water 7°C (temperature differential 5°C)  
Aria ambiente 27°C D.B. / 19°C W.B.
- Heating: Exchanger inlet water 45°C (temperature differential 5°C)  
Aria ambiente 20°C D.B.
- Heating: Exchanger inlet water 65°C ((temperature differential 10°C)  
Ambient air 20°C D.B.

### CC2 - 4-pipe system

| Size                                    |               | 007.0             | 011.0             | 015.0             | 021.0             | 031.0             | 041.0             |
|---|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Maximum water inlet temperature         | [°C]          | 80                | 80                | 80                | 80                | 80                | 80                |
| Minimum water inlet temperature         | [°C]          | 3                 | 3                 | 3                 | 3                 | 3                 | 3                 |
| Maximum operating pressure              | [bar]         | 16                | 16                | 16                | 16                | 16                | 16                |
| Maximum water flow rate                 | Cooling [l/h] | 534               | 643               | 725               | 1105              | 2016              | 2048              |
|   | Heating [l/h] | 438               | 529               | 551               | 798               | 1264              | 1328              |
| Minimum water flow rate                 | Cooling [l/h] | 287               | 346               | 390               | 595               | 1085              | 1103              |
|   | Heating [l/h] | 235               | 284               | 396               | 429               | 681               | 715               |
| Maximum inlet air temperature Ta (W.B.) | Cooling [°C]  | 40                | 40                | 40                | 40                | 40                | 40                |
| Minimum inlet air temperature Ta (W.B.) | Cooling [°C]  | 3                 | 3                 | 3                 | 3                 | 3                 | 3                 |
| Maximum inlet air temperature Ta (D.B.) | Heating [°C]  | 40                | 40                | 40                | 40                | 40                | 40                |
| Minimum inlet air temperature Ta (D.B.) | Heating [°C]  | 3                 | 3                 | 3                 | 3                 | 3                 | 3                 |
| Relative humidity limits in the room    | R.H.          | 20% < R.H. < 100% |

- Cooling: Exchanger inlet water 7°C (temperature differential 5°C)  
Aria ambiente 27°C D.B. / 19°C W.B.
- Heating: Exchanger inlet water 45°C (temperature differential 5°C)  
Aria ambiente 20°C D.B.
- Heating: Exchanger inlet water 65°C ((temperature differential 10°C)  
Ambient air 20°C D.B.

## Sound levels

### CC2 - 2-pipe system

| Size         | HIGH SPEED             |      |      |      |      |      |      |      |  | Sound pressure level<br>(at 1 meter) | Sound power level |
|--------------|------------------------|------|------|------|------|------|------|------|--|--------------------------------------|-------------------|
|              | Sound power level (dB) |      |      |      |      |      |      |      |  |                                      |                   |
|              | Octave band (Hz)       |      |      |      |      |      |      |      |  |                                      |                   |
|              | 63                     | 125  | 250  | 500  | 1000 | 2000 | 4000 | 8000 |  | dB(A)                                | dB(A)             |
| <b>007.0</b> | 35,7                   | 38,5 | 38,3 | 36,8 | 30,6 | 24,9 | 17,5 | 15,2 |  | 39                                   | <b>51</b>         |
| <b>011.0</b> | 37,8                   | 42,4 | 40,3 | 39,1 | 32,9 | 27,2 | 21,3 | 19,6 |  | 42                                   | <b>54</b>         |
| <b>015.0</b> | 39,7                   | 45,1 | 42,4 | 40,6 | 34,8 | 29,8 | 23,5 | 22,4 |  | 43                                   | <b>55</b>         |
| <b>021.0</b> | 38,3                   | 41,2 | 42,9 | 39,9 | 33,1 | 27,6 | 19,6 | 16,8 |  | 43                                   | <b>55</b>         |
| <b>031.0</b> | 42,5                   | 48,4 | 47,3 | 42,6 | 39,8 | 32,2 | 25,4 | 22,8 |  | 48                                   | <b>60</b>         |
| <b>041.0</b> | 42,8                   | 49,3 | 47,9 | 43,8 | 40,8 | 32,7 | 27,2 | 23,2 |  | 49                                   | <b>61</b>         |

| Size         | MEDIUM SPEED           |      |      |      |      |      |      |      |  | Sound pressure level<br>(at 1 meter) | Sound power level |
|--------------|------------------------|------|------|------|------|------|------|------|--|--------------------------------------|-------------------|
|              | Sound power level (dB) |      |      |      |      |      |      |      |  |                                      |                   |
|              | Octave band (Hz)       |      |      |      |      |      |      |      |  |                                      |                   |
|              | 63                     | 125  | 250  | 500  | 1000 | 2000 | 4000 | 8000 |  | dB(A)                                | dB(A)             |
| <b>007.0</b> | 34,1                   | 35,6 | 36,7 | 31,7 | 27,5 | 20,7 | 15,7 | 14,2 |  | 33                                   | <b>45</b>         |
| <b>011.0</b> | 36,5                   | 38,1 | 38,7 | 34,2 | 30,2 | 22,9 | 19,4 | 17,7 |  | 36                                   | <b>48</b>         |
| <b>015.0</b> | 38,3                   | 40,3 | 39,6 | 36,1 | 31,6 | 24,2 | 21,2 | 18,9 |  | 38                                   | <b>50</b>         |
| <b>021.0</b> | 37,3                   | 39,5 | 38,9 | 37,2 | 30,7 | 25,7 | 17,5 | 14,7 |  | 39                                   | <b>51</b>         |
| <b>031.0</b> | 41,1                   | 45,9 | 44,2 | 40,2 | 34,7 | 30,1 | 22,1 | 20,7 |  | 44                                   | <b>56</b>         |
| <b>041.0</b> | 41,1                   | 44,1 | 43,5 | 39,8 | 34,5 | 28,8 | 21,4 | 20,6 |  | 43                                   | <b>55</b>         |

| Size         | LOW SPEED              |      |      |      |      |      |      |      |  | Sound pressure level<br>(at 1 meter) | Sound power level |
|--------------|------------------------|------|------|------|------|------|------|------|--|--------------------------------------|-------------------|
|              | Sound power level (dB) |      |      |      |      |      |      |      |  |                                      |                   |
|              | Octave band (Hz)       |      |      |      |      |      |      |      |  |                                      |                   |
|              | 63                     | 125  | 250  | 500  | 1000 | 2000 | 4000 | 8000 |  | dB(A)                                | dB(A)             |
| <b>007.0</b> | 30,5                   | 31,5 | 29,1 | 26,7 | 21,7 | 18,1 | 15,1 | 13,5 |  | 27                                   | <b>39</b>         |
| <b>011.0</b> | 32,8                   | 34,2 | 32,6 | 30,3 | 24,3 | 20,7 | 17,8 | 16,4 |  | 30                                   | <b>42</b>         |
| <b>015.0</b> | 33,7                   | 35,5 | 34,2 | 31,8 | 26,6 | 21,9 | 18,8 | 17,8 |  | 32                                   | <b>44</b>         |
| <b>021.0</b> | 33,7                   | 35,4 | 34,7 | 31,2 | 23,5 | 21,4 | 16,2 | 12,3 |  | 33                                   | <b>45</b>         |
| <b>031.0</b> | 39,7                   | 41,5 | 40,7 | 37,1 | 30,2 | 27,6 | 20,2 | 19,2 |  | 41                                   | <b>53</b>         |
| <b>041.0</b> | 38,3                   | 40,3 | 39,5 | 36,3 | 29,4 | 26,2 | 18,3 | 18,8 |  | 39                                   | <b>51</b>         |

-Sound levels tested in an anechoic chamber. The sound pressure level refers to a distance of 1 m from the outer surface of the unit operating in an open field.

## Sound levels

### CC4 - 4-pipe system

| HIGH SPEED   |                        |      |      |      |      |      |      |      |                                   |                   |
|--------------|------------------------|------|------|------|------|------|------|------|-----------------------------------|-------------------|
| Size         | Sound power level (dB) |      |      |      |      |      |      |      | Sound pressure level (at 1 meter) | Sound power level |
|              | Octave band (Hz)       |      |      |      |      |      |      |      |                                   |                   |
|              | 63                     | 125  | 250  | 500  | 1000 | 2000 | 4000 | 8000 | dB(A)                             | dB(A)             |
| <b>007.0</b> | 35,5                   | 39,1 | 38,2 | 36,2 | 30,6 | 23,2 | 17,2 | 15,5 | 39                                | <b>51</b>         |
| <b>011.0</b> | 37,5                   | 42,4 | 41,1 | 38,4 | 32,5 | 27,1 | 20,9 | 19,2 | 42                                | <b>54</b>         |
| <b>015.0</b> | 40,1                   | 45,5 | 43,8 | 42,2 | 34,8 | 30,1 | 23,7 | 22,9 | 44                                | <b>56</b>         |
| <b>021.0</b> | 38,0                   | 40,8 | 41,8 | 39,1 | 33,0 | 27,3 | 18,8 | 16,9 | 42                                | <b>54</b>         |
| <b>031.0</b> | 42,1                   | 48,9 | 46,8 | 42,7 | 40,2 | 31,7 | 26,2 | 22,1 | 48                                | <b>60</b>         |
| <b>041.0</b> | 42,2                   | 49,5 | 47,2 | 43,9 | 40,5 | 33,1 | 26,9 | 23,0 | 49                                | <b>61</b>         |

| MEDIUM SPEED |                        |      |      |      |      |      |      |      |                                   |                   |
|--------------|------------------------|------|------|------|------|------|------|------|-----------------------------------|-------------------|
| Size         | Sound power level (dB) |      |      |      |      |      |      |      | Sound pressure level (at 1 meter) | Sound power level |
|              | Octave band (Hz)       |      |      |      |      |      |      |      |                                   |                   |
|              | 63                     | 125  | 250  | 500  | 1000 | 2000 | 4000 | 8000 | dB(A)                             | dB(A)             |
| <b>007.0</b> | 33,9                   | 35,2 | 36,4 | 32,3 | 27,7 | 21,7 | 15,5 | 14,1 | 33                                | <b>45</b>         |
| <b>011.0</b> | 36,1                   | 37,4 | 37,7 | 34,1 | 30,6 | 22,6 | 19,6 | 17,5 | 35                                | <b>47</b>         |
| <b>015.0</b> | 39,1                   | 41,6 | 39,9 | 35,8 | 31,9 | 23,6 | 21,5 | 19,2 | 39                                | <b>51</b>         |
| <b>021.0</b> | 36,1                   | 38,2 | 38,5 | 37,0 | 29,3 | 24,3 | 17,3 | 14,2 | 37                                | <b>49</b>         |
| <b>031.0</b> | 41,0                   | 45,5 | 44,6 | 41,1 | 34,2 | 29,2 | 22,5 | 20,6 | 44                                | <b>56</b>         |
| <b>041.0</b> | 41,0                   | 44,3 | 43,2 | 40,1 | 34,8 | 28,5 | 21,7 | 20,3 | 43                                | <b>55</b>         |

| LOW SPEED    |                        |      |      |      |      |      |      |      |                                   |                   |
|--------------|------------------------|------|------|------|------|------|------|------|-----------------------------------|-------------------|
| Size         | Sound power level (dB) |      |      |      |      |      |      |      | Sound pressure level (at 1 meter) | Sound power level |
|              | Octave band (Hz)       |      |      |      |      |      |      |      |                                   |                   |
|              | 63                     | 125  | 250  | 500  | 1000 | 2000 | 4000 | 8000 | dB(A)                             | dB(A)             |
| <b>007.0</b> | 30,3                   | 30,9 | 29,5 | 26,2 | 20,9 | 18,0 | 14,3 | 13,5 | 27                                | <b>39</b>         |
| <b>011.0</b> | 32,4                   | 34,1 | 31,9 | 30,5 | 24,7 | 21,1 | 18,2 | 16,3 | 30                                | <b>42</b>         |
| <b>015.0</b> | 33,2                   | 35,1 | 34,3 | 31,4 | 25,2 | 21,2 | 17,9 | 17,5 | 31                                | <b>43</b>         |
| <b>021.0</b> | 32,2                   | 34,1 | 33,4 | 31,0 | 23,1 | 20,8 | 16,1 | 11,7 | 31                                | <b>43</b>         |
| <b>031.0</b> | 40,1                   | 41,9 | 40,7 | 38,1 | 31,2 | 28,1 | 20,6 | 19,6 | 42                                | <b>54</b>         |
| <b>041.0</b> | 37,5                   | 40,1 | 39,3 | 35,8 | 28,9 | 26,4 | 18,5 | 18,1 | 38                                | <b>50</b>         |

-Sound levels tested in an anechoic chamber. The sound pressure level refers to a distance of 1 m from the outer surface of the unit operating in an open field.

## Cooling performance

## CC2 - 2-pipe system

| 007.0 |      |           |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |
|-------|------|-----------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|
| EWT   | ΔT   | Ta (W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |
|       |      |           | 21        |      |       |       | 23   |      |       |       | 25   |      |       |       | 27   |      |       |       | 29   |      |       |       | 30   |      |       |       |
|       |      |           | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |
| [°C]  | [°C] | [°C]      | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |
| 3     | 3    | 15        | 2,69      | 1,93 | 770   | 16,71 | 2,67 | 2,19 | 760   | 16,54 | 2,74 | 2,58 | 780   | 17,22 | 2,99 | 2,99 | 850   | 20,08 | 3,28 | 3,28 | 940   | 23,54 | 3,43 | 3,43 | 980   | 25,35 |
|       |      | 17        | 3,57      | 1,95 | 1020  | 27,17 | 3,55 | 2,22 | 1010  | 26,90 | 3,53 | 2,49 | 1010  | 26,63 | 3,51 | 2,75 | 1000  | 26,37 | 3,49 | 3,01 | 990   | 26,10 | 3,51 | 3,24 | 1000  | 26,44 |
|       |      | 19        | 4,51      | 1,98 | 1290  | 40,79 | 4,49 | 2,26 | 1280  | 40,39 | 4,46 | 2,53 | 1270  | 40,01 | 4,44 | 2,79 | 1270  | 39,62 | 4,41 | 3,05 | 1260  | 39,24 | 4,40 | 3,18 | 1260  | 39,05 |
|       |      | 21        | -         | -    | -     | -     | 5,50 | 2,29 | 1570  | 57,56 | 5,47 | 2,56 | 1560  | 57,02 | 5,45 | 2,83 | 1550  | 56,49 | 5,42 | 3,09 | 1540  | 55,97 | 5,40 | 3,23 | 1540  | 55,71 |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 6,57  | 2,60 | 1870 | 78,33 | 6,53  | 2,87 | 1860 | 77,62 | 6,50  | 3,14 | 1850 | 76,92 | 6,48  | 3,27 | 1850 | 76,57 |       |
| 5     | 5    | 15        | 2,04      | 1,65 | 350   | 4,35  | 2,19 | 2,03 | 380   | 4,91  | 2,44 | 2,42 | 420   | 5,93  | 2,75 | 2,75 | 470   | 7,22  | 3,04 | 3,04 | 520   | 8,59  | 3,19 | 3,19 | 550   | 9,30  |
|       |      | 17        | 2,96      | 1,69 | 510   | 8,18  | 2,94 | 1,96 | 500   | 8,09  | 2,92 | 2,22 | 500   | 8,00  | 2,93 | 2,54 | 500   | 8,06  | 3,08 | 2,92 | 530   | 8,78  | 3,20 | 3,12 | 550   | 9,35  |
|       |      | 19        | 3,92      | 1,72 | 670   | 13,25 | 3,90 | 2,00 | 670   | 13,11 | 3,88 | 2,27 | 670   | 12,98 | 3,86 | 2,53 | 660   | 12,85 | 3,83 | 2,80 | 660   | 12,72 | 3,82 | 2,93 | 660   | 12,65 |
|       |      | 21        | -         | -    | -     | -     | 4,93 | 2,04 | 850   | 19,57 | 4,90 | 2,31 | 840   | 19,38 | 4,87 | 2,58 | 840   | 19,19 | 4,85 | 2,84 | 830   | 19,01 | 4,83 | 2,97 | 830   | 18,92 |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 6,00  | 2,35 | 1030 | 27,48 | 5,97  | 2,62 | 1020 | 27,22 | 5,94  | 2,89 | 1020 | 26,97 | 5,92  | 3,02 | 1020 | 26,85 |       |
| 7     | 7    | 15        | 1,26      | 1,26 | 150   | 0,81  | 1,80 | 1,80 | 220   | 1,28  | 2,15 | 2,15 | 260   | 2,25  | 2,47 | 2,47 | 300   | 3,27  | 2,78 | 2,78 | 340   | 4,11  | 2,93 | 2,93 | 360   | 4,51  |
|       |      | 17        | 2,26      | 1,44 | 530   | 2,68  | 2,18 | 1,66 | 270   | 2,36  | 2,30 | 2,01 | 530   | 2,75  | 2,54 | 2,41 | 310   | 3,49  | 2,78 | 2,75 | 340   | 4,13  | 2,93 | 2,93 | 360   | 4,52  |
|       |      | 19        | 3,24      | 1,44 | 400   | 5,34  | 3,22 | 1,71 | 390   | 5,28  | 3,19 | 1,98 | 390   | 5,22  | 3,17 | 2,25 | 390   | 5,16  | 3,16 | 2,53 | 390   | 5,12  | 3,19 | 2,70 | 390   | 5,22  |
|       |      | 21        | -         | -    | -     | -     | 4,28 | 1,77 | 530   | 8,59  | 4,26 | 2,04 | 520   | 8,50  | 4,23 | 2,31 | 520   | 8,41  | 4,21 | 2,57 | 520   | 8,33  | 4,19 | 2,71 | 510   | 8,28  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,38  | 2,09 | 660  | 12,67 | 5,35  | 2,36 | 660  | 12,55 | 5,32  | 2,63 | 650  | 12,43 | 5,30  | 2,76 | 650  | 12,37 |       |
| 7     | 7    | 15        | 2,03      | 1,63 | 580   | 10,18 | 2,13 | 2,02 | 610   | 11,08 | 2,40 | 2,40 | 690   | 13,60 | 2,69 | 2,69 | 770   | 16,59 | 2,99 | 2,99 | 860   | 19,80 | 3,13 | 3,13 | 900   | 21,48 |
|       |      | 17        | 2,91      | 1,66 | 830   | 18,96 | 2,89 | 1,94 | 830   | 18,75 | 2,87 | 2,20 | 820   | 18,54 | 2,86 | 2,49 | 820   | 18,41 | 3,00 | 2,91 | 860   | 19,99 | 3,14 | 3,14 | 900   | 21,54 |
|       |      | 19        | 3,86      | 1,69 | 1110  | 30,82 | 3,84 | 1,97 | 1100  | 30,51 | 3,81 | 2,24 | 1090  | 30,20 | 3,79 | 2,50 | 1090  | 29,89 | 3,77 | 2,77 | 1080  | 29,58 | 3,76 | 2,90 | 1080  | 29,43 |
|       |      | 21        | -         | -    | -     | -     | 4,85 | 2,00 | 1390  | 45,87 | 4,83 | 2,28 | 1380  | 45,42 | 4,80 | 2,54 | 1370  | 44,98 | 4,77 | 2,81 | 1370  | 44,54 | 4,76 | 2,94 | 1360  | 44,33 |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,92  | 2,31 | 1700 | 64,85 | 5,89  | 2,59 | 1690 | 64,24 | 5,86  | 2,85 | 1680 | 63,64 | 5,84  | 2,99 | 1670 | 63,34 |       |
| 7     | 5    | 15        | 1,53      | 1,45 | 260   | 2,33  | 1,83 | 1,83 | 310   | 3,56  | 2,14 | 2,14 | 370   | 4,67  | 2,45 | 2,45 | 420   | 5,84  | 2,74 | 2,74 | 470   | 7,10  | 2,89 | 2,89 | 500   | 7,76  |
|       |      | 17        | 2,23      | 1,39 | 380   | 5,01  | 2,22 | 1,66 | 380   | 4,94  | 2,28 | 1,99 | 390   | 5,18  | 2,47 | 2,36 | 420   | 5,95  | 2,75 | 2,75 | 470   | 7,12  | 2,90 | 2,90 | 500   | 7,78  |
|       |      | 19        | 3,22      | 1,43 | 550   | 9,33  | 3,20 | 1,71 | 550   | 9,22  | 3,18 | 1,98 | 550   | 9,12  | 2,98 | 2,49 | 530   | 10,00 | 3,14 | 2,50 | 540   | 8,92  | 3,15 | 2,67 | 530   | 8,96  |
|       |      | 21        | -         | -    | -     | -     | 4,24 | 1,75 | 730   | 14,89 | 4,21 | 2,02 | 720   | 14,74 | 4,19 | 2,29 | 720   | 14,59 | 4,16 | 2,55 | 720   | 14,44 | 4,15 | 2,69 | 710   | 14,36 |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,32  | 2,06 | 910  | 22,00 | 5,29  | 2,34 | 910  | 21,79 | 5,26  | 2,60 | 900  | 21,58 | 5,24  | 2,74 | 900  | 21,48 |       |
| 7     | 7    | 15        | 1,00      | 1,00 | 120   | 0,61  | 1,32 | 1,32 | 160   | 0,81  | 1,83 | 1,83 | 230   | 1,44  | 2,16 | 2,16 | 270   | 2,45  | 2,48 | 2,48 | 300   | 3,32  | 2,63 | 2,63 | 320   | 3,70  |
|       |      | 17        | 1,61      | 1,31 | 530   | 1,12  | 1,69 | 1,53 | 530   | 1,27  | 1,84 | 1,79 | 230   | 1,46  | 2,17 | 2,16 | 270   | 2,46  | 2,48 | 2,48 | 300   | 3,33  | 2,64 | 2,64 | 320   | 3,71  |
|       |      | 19        | 2,44      | 1,13 | 300   | 3,21  | 2,47 | 1,44 | 300   | 3,29  | 2,39 | 1,67 | 290   | 3,10  | 2,44 | 1,98 | 300   | 3,21  | 2,60 | 2,34 | 320   | 3,61  | 2,70 | 2,51 | 330   | 3,87  |
|       |      | 21        | -         | -    | -     | -     | 3,53 | 1,47 | 430   | 6,10  | 3,51 | 1,74 | 430   | 6,03  | 3,49 | 2,01 | 430   | 5,96  | 3,46 | 2,28 | 430   | 5,89  | 3,45 | 2,41 | 420   | 5,86  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 4,65  | 1,80 | 570  | 9,73  | 4,62  | 2,07 | 570  | 9,63  | 4,59  | 2,34 | 560  | 9,53  | 4,58  | 2,47 | 560  | 9,48  |       |
| 3     | 3    | 15        | 1,50      | 1,45 | 430   | 6,00  | 1,80 | 1,80 | 510   | 8,14  | 2,10 | 2,10 | 600   | 10,60 | 2,39 | 2,39 | 680   | 13,29 | 2,69 | 2,69 | 770   | 16,21 | 2,83 | 2,83 | 810   | 17,76 |
|       |      | 17        | 2,20      | 1,37 | 630   | 11,51 | 2,18 | 1,64 | 620   | 11,36 | 2,21 | 1,96 | 630   | 11,56 | 2,40 | 2,36 | 690   | 13,36 | 2,69 | 2,69 | 770   | 16,26 | 2,84 | 2,84 | 810   | 17,81 |
|       |      | 19        | 3,16      | 1,40 | 900   | 21,38 | 3,13 | 1,68 | 900   | 21,14 | 3,11 | 1,95 | 890   | 20,90 | 3,09 | 2,21 | 890   | 20,67 | 3,07 | 2,48 | 880   | 20,44 | 3,07 | 2,61 | 880   | 20,34 |
|       |      | 21        | -         | -    | -     | -     | 4,16 | 1,71 | 1190  | 34,41 | 4,13 | 1,99 | 1180  | 34,06 | 4,11 | 2,25 | 1170  | 33,70 | 4,08 | 2,52 | 1170  | 33,35 | 4,07 | 2,65 | 1160  | 33,18 |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,23  | 2,03 | 1500 | 51,29 | 5,20  | 2,30 | 1490 | 50,79 | 5,17  | 2,56 | 1480 | 50,29 | 5,15  | 2,70 | 1470 | 50,04 |       |
| 5     | 5    | 15        | 1,17      | 1,17 | 200   | 1,05  | 1,52 | 1,52 | 260   | 2,40  | 1,84 | 1,84 | 320   | 3,53  | 2,14 | 2,14 | 370   | 4,60  | 2,45 | 2,45 | 420   | 5,74  | 2,59 | 2,59 | 450   | 6,34  |
|       |      | 17        | 1,48      | 1,16 | 250   | 2,25  | 1,59 | 1,43 | 530   | 2,67  | 1,85 | 1,80 | 320   | 3,56  | 2,15 | 2,15 | 370   | 4,61  | 2,45 | 2,45 | 420   | 5,75  | 2,60 | 2,60 | 450   | 6,36  |
|       |      | 19        | 2,46      | 1,13 | 420   | 5,77  | 2,44 | 1,41 | 420   | 5,69  | 2,42 | 1,68 | 420   | 5,62  | 2,42 | 1,97 | 420   | 5,62  | 2,55 | 2,32 | 440   | 6,14  | 2,65 | 2,50 | 450   | 6,55  |
|       |      | 21        | -         | -    | -     | -     | 3,49 | 1,45 | 600   | 10,51 | 3,47 | 1,73 | 600   | 10,39 | 3,45 | 2,00 | 590   | 10,27 | 3,42 | 2,26 | 590   | 10,15 | 3,41 | 2,39 | 590   | 10,10 |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 4,58  | 1,77 | 790  | 16,75 | 4,55  | 2,05 | 780  | 16,57 | 4,53  | 2,31 | 780  | 16,40 | 4,51  | 2,45 | 780  | 16,32 |       |
| 7     | 7    | 15        | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |
|       |      | 17        | 0,77      | 0,76 | 90    | 0,44  | 1,00 | 1,00 | 120   | 0,58  | 1,47 | 1,47 | 180   | 0,86  | 1,86 | 1,86 | 230   | 1,62  | 2,18 | 2,18 | 270   | 2,56  | 2,33 | 2,33 | 290   | 2,95  |
|       |      | 19        | 1,61      | 0,96 | 530   | 1,04  | 1,06 | 0,96 | 130   | 0,61  | 1,73 | 1,52 | 210   | 1,28  | 1,95 | 1,83 | 530   | 1,91  | 2,22 | 2,18 | 270   | 2,68  | 2,34 | 2,32 | 290   | 2,97  |
|       |      | 21        | -         | -    | -     | -     | 2,69 | 1,16 | 330   | 3,78  | 2,67 | 1,43 | 330   | 3,73  | 2,65 | 1,70 | 330   | 3,68  | 2,64 | 1,98 | 320   | 3,65  | 2,67 | 2,14 | 330   | 3,73  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 3,85  | 1,50 | 470  | 6,94  | 3,83  | 1,78 | 470  | 6,86  | 3,80  | 2,04 | 470  | 6,78  | 3,79  | 2,18 | 470  | 6,75  |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential ( $^{\circ}\text{C}$ )

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Cooling performance

### CC2 - 2-pipe system

| 007.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |  |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|--|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |  |  |
|       |            |              | 21        |      |       |       |      | 23   |       |       |      |      | 25    |       |      |      |       | 27    |      |      |       |       | 29   |      |       |       |      | 30   |       |       |  |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |  |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |  |  |
| 11    | 3          | 15           | 1,18      | 1,18 | 340   | 3,94  | 1,49 | 1,49 | 430   | 5,84  | 1,79 | 1,79 | 510   | 8,00  | 2,09 | 2,09 | 600   | 10,41 | 2,39 | 2,39 | 680   | 13,06 | 2,53 | 2,53 | 730   | 14,46 |      |      |       |       |  |  |
|       |            | 17           | 1,42      | 1,07 | 410   | 5,38  | 1,54 | 1,42 | 440   | 6,15  | 1,80 | 1,80 | 510   | 8,03  | 2,10 | 2,10 | 600   | 10,44 | 2,39 | 2,39 | 690   | 13,10 | 2,54 | 2,54 | 730   | 14,51 |      |      |       |       |  |  |
|       |            | 19           | 2,39      | 1,11 | 690   | 13,12 | 2,38 | 1,38 | 680   | 12,95 | 2,36 | 1,65 | 680   | 12,78 | 2,34 | 1,92 | 670   | 12,63 | 2,45 | 2,29 | 700   | 13,61 | 2,55 | 2,49 | 730   | 14,65 |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 3,40 | 1,42 | 980   | 24,04 | 3,38 | 1,69 | 970   | 23,77 | 3,36 | 1,96 | 960   | 23,50 | 3,34 | 2,23 | 960   | 23,23 | 3,33 | 2,36 | 950   | 23,10 |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 4,48 | 1,73 | 1280  | 38,75 | 4,45 | 2,00 | 1280  | 38,34 | 4,43 | 2,27 | 1270  | 37,94 | 4,41 | 2,40 | 1260  | 37,74 |      |      |       |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 17           | 0,72      | 0,72 | 120   | 0,57  | 1,20 | 1,20 | 210   | 1,18  | 1,53 | 1,53 | 260   | 2,49  | 1,84 | 1,84 | 320   | 3,50  | 2,15 | 2,15 | 370   | 4,54  | 2,30 | 2,30 | 400   | 5,09  |      |      |       |       |  |  |
|       |            | 19           | 1,72      | 0,94 | 530   | 3,14  | 1,61 | 1,14 | 280   | 2,76  | 1,67 | 1,42 | 290   | 2,94  | 1,88 | 1,77 | 320   | 3,63  | 2,15 | 2,13 | 370   | 4,55  | 2,30 | 2,30 | 400   | 5,11  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 2,67 | 1,15 | 460   | 6,57  | 2,65 | 1,42 | 460   | 6,48  | 2,63 | 1,69 | 450   | 6,40  | 2,61 | 1,96 | 450   | 6,31  | 2,62 | 2,12 | 450   | 6,35  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 3,78 | 1,48 | 650   | 11,89 | 3,76 | 1,75 | 650   | 11,76 | 3,73 | 2,02 | 640   | 11,62 | 3,72 | 2,15 | 640   | 11,56 |      |      |       |       |  |  |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | 0,78 | 0,76 | 100   | 0,42  | 1,01 | 1,01 | 120   | 0,55  | 1,53 | 1,53 | 190   | 0,93  | 1,87 | 1,87 | 230   | 1,79  | 2,03 | 2,03 | 250   | 2,22  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 1,86 | 0,99 | 530   | 1,74  | 1,72 | 1,17 | 530   | 1,38  | 1,81 | 1,46 | 530   | 1,62  | 1,99 | 1,76 | 530   | 2,13  | 1,95 | 260  | 2,45  |       |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 2,96 | 1,19 | 360   | 4,38  | 2,94 | 1,46 | 360   | 4,32  | 2,92 | 1,73 | 360   | 4,26  | 2,90 | 1,86 | 360   | 4,23  |      |      |       |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 17           | 0,86      | 0,85 | 250   | 2,21  | 1,18 | 1,18 | 340   | 3,89  | 1,49 | 1,49 | 430   | 5,76  | 1,79 | 1,79 | 510   | 7,89  | 2,09 | 2,09 | 600   | 10,26 | 2,24 | 2,24 | 640   | 11,54 |      |      |       |       |  |  |
|       |            | 19           | 1,61      | 0,84 | 460   | 6,59  | 1,54 | 1,08 | 440   | 6,11  | 1,60 | 1,40 | 460   | 6,48  | 1,80 | 1,76 | 520   | 7,98  | 2,09 | 2,09 | 600   | 10,29 | 2,24 | 2,24 | 640   | 11,57 |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | 2,59  | 1,12 | 740  | 14,81 | 2,57  | 1,39 | 740  | 14,61 | 2,55  | 1,66 | 730  | 14,42 | 2,53  | 1,93 | 730  | 14,23 | 2,52  | 2,06 | 720  | 14,15 |       |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 3,68 | 1,44 | 1050  | 27,13 | 3,65 | 1,71 | 1050  | 26,82 | 3,63 | 1,98 | 1040  | 26,52 | 3,62 | 2,11 | 1040  | 26,36 |      |      |       |       |  |  |
| 15    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | 0,72 | 0,72 | 120   | 0,54  | 1,21 | 1,19 | 210   | 1,34  | 1,54 | 1,54 | 260   | 2,52  | 1,85 | 1,85 | 320   | 3,47  | 2,00 | 2,00 | 340   | 3,97  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 1,91 | 0,96 | 330   | 3,65  | 1,73 | 1,10 | 530   | 3,09  | 1,77 | 1,41 | 310   | 3,22  | 1,95 | 1,75 | 340   | 3,78  | 2,06 | 1,92 | 350   | 4,15  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 2,91 | 1,17 | 500   | 7,48  | 2,89 | 1,44 | 500   | 7,38  | 2,86 | 1,71 | 490   | 7,28  | 2,85 | 1,84 | 490   | 7,23  |      |      |       |       |  |  |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | 0,88 | 0,84 | 250   | 2,30  | 1,18 | 1,18 | 340   | 3,85  | 1,49 | 1,49 | 430   | 5,68  | 1,79 | 1,79 | 510   | 7,77  | 1,94 | 1,94 | 560   | 8,91  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 1,69 | 0,81 | 490   | 7,06  | 1,68 | 1,09 | 480   | 6,94  | 1,69 | 1,38 | 480   | 6,99  | 1,84 | 1,73 | 530   | 8,13  | 1,96 | 1,91 | 560   | 9,02  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 2,80 | 1,13 | 800   | 16,74 | 2,78 | 1,41 | 800   | 16,51 | 2,76 | 1,67 | 790   | 16,30 | 2,75 | 1,81 | 790   | 16,19 |      |      |       |       |  |  |
| 16    | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 0,74 | 0,74 | 130   | 0,53  | 1,23 | 1,18 | 530   | 1,53  | 1,54 | 1,54 | 270   | 2,51  | 1,70 | 1,70 | 290   | 2,96  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 2,07 | 0,97 | 530   | 4,03  | 1,90 | 1,12 | 330   | 3,56  | 1,90 | 1,41 | 330   | 3,57  | 1,95 | 1,57 | 340   | 3,74  |      |      |       |       |  |  |
|       | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     |       |  |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC2 - 2-pipe system

| 011.0 |            |              |           |      |       |       |      |      |       |       |      |       |       |        |      |       |       |        |      |       |       |        |      |       |       |       |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|-------|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |       |       |        |      |       |       |        |      |       |       |        |      |       |       |       |  |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25   |       |       |        | 27   |       |       |        | 29   |       |       |        | 30   |       |       |       |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC    | WF    | WDP    | TC   | SC    | WF    | WDP    | TC   | SC    | WF    | WDP    | TC   | SC    | WF    | WDP   |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW]  | [l/h] | [kPa]  | [kW] | [kW]  | [l/h] | [kPa]  | [kW] | [kW]  | [l/h] | [kPa]  | [kW] | [kW]  | [l/h] | [kPa] |  |
| 3     | 3          | 15           | 3,47      | 2,51 | 990   | 21,22 | 3,45 | 2,87 | 980   | 21,00 | 3,57 | 3,40  | 1020  | 22,28  | 3,93 | 3,93  | 1120  | 26,29  | 4,32 | 4,32  | 1230  | 30,88  | 4,51 | 4,51  | 1290  | 33,28 |  |
|       |            | 17           | 4,64      | 2,55 | 1320  | 34,90 | 4,61 | 2,91 | 1310  | 34,56 | 4,58 | 3,26  | 1310  | 34,22  | 4,56 | 3,61  | 1300  | 33,89  | 4,54 | 3,98  | 1290  | 33,62  | 4,59 | 4,28  | 1310  | 34,33 |  |
|       |            | 19           | 5,89      | 2,59 | 1680  | 52,74 | 5,86 | 2,95 | 1670  | 52,24 | 5,83 | 3,31  | 1660  | 51,76  | 4,62 | 3,15  | 700   | 11,65  | 5,76 | 4,01  | 1640  | 50,80  | 5,75 | 4,18  | 1640  | 50,56 |  |
|       |            | 21           | -         | -    | -     | -     | 7,21 | 2,99 | 2050  | 74,77 | 7,17 | 3,36  | 2040  | 74,09  | 7,13 | 3,71  | 2030  | 73,43  | 7,09 | 4,07  | 2020  | 72,77  | 7,08 | 4,24  | 2020  | 72,45 |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 8,62 | 3,41  | 2460  | 102,09 | 8,58 | 3,77  | 2450  | 101,20 | 8,53 | 4,12  | 2430  | 100,32 | 8,51 | 4,30  | 2430  | 99,89 |  |
|       | 5          | 15           | 2,60      | 2,23 | 700   | 5,04  | 2,84 | 2,72 | 700   | 6,18  | 3,16 | 3,16  | 540   | 7,58   | 3,56 | 3,56  | 610   | 9,30   | 3,96 | 3,96  | 680   | 11,12  | 4,16 | 4,16  | 710   | 12,07 |  |
|       |            | 17           | 3,80      | 2,21 | 650   | 10,35 | 3,71 | 2,51 | 640   | 9,92  | 3,68 | 2,87  | 630   | 9,81   | 3,74 | 3,32  | 640   | 10,08  | 3,99 | 3,84  | 680   | 11,24  | 4,16 | 4,11  | 710   | 12,08 |  |
|       |            | 19           | 5,03      | 2,21 | 860   | 16,65 | 5,00 | 2,58 | 860   | 16,49 | 4,97 | 2,93  | 850   | 16,32  | 4,62 | 3,15  | 700   | 11,65  | 4,95 | 3,67  | 850   | 16,20  | 4,90 | 3,81  | 840   | 15,92 |  |
|       |            | 21           | -         | -    | -     | 6,37  | 2,63 | 1090 | 24,93 | 6,33  | 2,99 | 1090  | 24,69 | 6,30   | 3,35 | 1080  | 24,46 | 6,26   | 3,70 | 1070  | 24,23 | 6,25   | 3,87 | 1070  | 24,12 |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 7,80  | 3,05 | 1340  | 35,28 | 7,75   | 3,41 | 1330  | 34,96 | 7,71   | 3,77 | 1320  | 34,65 | 7,69   | 3,94 | 1320  | 34,49 |       |  |
| 7     | 7          | 15           | 1,62      | 1,62 | 200   | 1,15  | 1,97 | 1,97 | 240   | 1,40  | 2,66 | 2,66  | 330   | 2,02   | 3,13 | 3,13  | 380   | 3,36   | 3,56 | 3,56  | 440   | 4,90   | 3,76 | 3,76  | 460   | 5,58  |  |
|       |            | 17           | 2,70      | 1,93 | 700   | 2,12  | 2,75 | 2,37 | 340   | 2,22  | 2,93 | 2,76  | 700   | 2,68   | 3,17 | 3,10  | 390   | 3,50   | 3,56 | 3,56  | 440   | 4,92   | 3,77 | 3,77  | 460   | 5,60  |  |
|       |            | 19           | 4,06      | 1,86 | 500   | 6,45  | 3,94 | 2,14 | 480   | 6,11  | 3,91 | 2,50  | 480   | 6,03   | 4,62 | 3,15  | 700   | 11,65  | 3,92 | 3,27  | 480   | 6,04   | 4,05 | 3,57  | 700   | 6,39  |  |
|       |            | 21           | -         | -    | -     | 5,41  | 2,24 | 660  | 10,55 | 5,37  | 2,60 | 660   | 10,44 | 5,34   | 2,95 | 650   | 10,33 | 5,31   | 3,31 | 650   | 10,23 | 5,35   | 3,53 | 660   | 10,35 |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 6,88  | 2,67 | 840   | 15,88 | 6,84   | 3,03 | 840   | 15,73 | 6,80   | 3,39 | 830   | 15,58 | 6,79   | 3,56 | 830   | 15,51 |       |  |
|       | 5          | 15           | 2,58      | 2,12 | 740   | 12,69 | 2,76 | 2,65 | 790   | 14,25 | 3,14 | 3,14  | 900   | 17,74  | 3,53 | 3,53  | 1010  | 21,70  | 3,92 | 3,92  | 1120  | 25,95  | 4,12 | 4,12  | 1180  | 28,18 |  |
|       |            | 17           | 3,76      | 2,17 | 1080  | 24,14 | 3,74 | 2,53 | 1070  | 23,88 | 3,71 | 2,88  | 1060  | 23,62  | 3,71 | 3,29  | 1060  | 23,60  | 3,93 | 3,85  | 1130  | 26,08  | 4,12 | 4,12  | 1180  | 28,26 |  |
|       |            | 19           | 5,02      | 2,21 | 1440  | 39,65 | 4,99 | 2,57 | 1430  | 39,26 | 4,96 | 2,93  | 1420  | 38,87  | 4,93 | 3,28  | 1410  | 38,48  | 4,91 | 3,63  | 1400  | 38,10  | 4,89 | 3,80  | 1400  | 37,91 |  |
|       |            | 21           | -         | -    | -     | 6,34  | 2,62 | 1820 | 59,38 | 6,31  | 2,98 | 1810  | 58,82 | 6,27   | 3,34 | 1800  | 58,26 | 6,24   | 3,69 | 1790  | 57,71 | 6,22   | 3,86 | 1780  | 57,44 |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | 7,76  | 3,03  | 2220 | 84,32 | 7,72  | 3,39   | 2210 | 83,55 | 7,68  | 3,75   | 2200 | 82,80 | 7,66  | 3,92   | 2190 | 82,42 |       |       |  |
| 9     | 7          | 15           | 1,87      | 1,85 | 320   | 1,96  | 2,33 | 2,33 | 400   | 4,03  | 2,76 | 2,76  | 470   | 5,90   | 3,17 | 3,17  | 540   | 7,50   | 3,57 | 3,57  | 610   | 9,18   | 3,77 | 3,77  | 650   | 10,05 |  |
|       |            | 17           | 2,89      | 1,87 | 500   | 6,40  | 2,77 | 2,15 | 480   | 5,93  | 2,87 | 2,59  | 700   | 6,33   | 3,20 | 3,11  | 700   | 7,64   | 3,57 | 3,57  | 610   | 9,20   | 3,77 | 3,77  | 650   | 10,08 |  |
|       |            | 19           | 4,09      | 1,82 | 700   | 11,53 | 4,06 | 2,19 | 700   | 11,40 | 4,03 | 2,55  | 690   | 11,28  | 3,96 | 3,20  | 700   | 11,48  | 3,99 | 3,26  | 680   | 11,05  | 4,03 | 3,50  | 690   | 11,25 |  |
|       |            | 21           | -         | -    | -     | 5,45  | 2,25 | 940  | 18,80 | 5,41  | 2,61 | 930   | 18,61 | 5,38   | 2,97 | 920   | 18,42 | 5,35   | 3,32 | 920   | 18,24 | 5,33   | 3,49 | 920   | 18,14 |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | 6,88  | 2,67  | 1180 | 28,09 | 6,85  | 3,03   | 1180 | 27,83 | 6,81  | 3,39   | 1170 | 27,57 | 6,79  | 3,56   | 1170 | 27,44 |       |       |  |
|       | 5          | 15           | 1,31      | 1,31 | 160   | 0,88  | 1,62 | 1,62 | 200   | 1,09  | 2,07 | 2,07  | 250   | 1,39   | 2,72 | 2,72  | 330   | 2,27   | 3,16 | 3,16  | 390   | 3,73   | 3,37 | 3,37  | 410   | 4,43  |  |
|       |            | 17           | 1,36      | 1,26 | 170   | 0,91  | 1,62 | 1,61 | 200   | 1,09  | 2,08 | 2,08  | 250   | 1,40   | 2,72 | 2,72  | 330   | 2,28   | 3,16 | 3,16  | 390   | 3,74   | 3,38 | 3,38  | 410   | 4,45  |  |
|       |            | 19           | 3,22      | 1,65 | 700   | 3,81  | 3,01 | 1,89 | 700   | 3,23  | 2,91 | 2,19  | 360   | 2,87   | 3,07 | 2,67  | 380   | 3,43   | 3,33 | 3,14  | 700   | 4,29   | 3,47 | 3,35  | 700   | 4,75  |  |
|       |            | 21           | -         | -    | -     | 4,39  | 1,84 | 540  | 7,29  | 4,43  | 2,26 | 540   | 7,41  | 4,33   | 2,56 | 530   | 7,12  | 4,30   | 2,91 | 530   | 7,03  | 4,28   | 3,08 | 530   | 6,99  |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | 5,90  | 2,29  | 720  | 12,04 | 5,86  | 2,65   | 720  | 11,92 | 5,83  | 3,00   | 720  | 11,80 | 5,81  | 3,18   | 710  | 11,74 |       |       |  |
| 7     | 3          | 15           | 1,93      | 1,89 | 550   | 7,63  | 2,34 | 2,34 | 670   | 10,54 | 2,74 | 2,74  | 780   | 13,80  | 3,14 | 3,14  | 900   | 17,37  | 3,53 | 3,53  | 1010  | 21,23  | 3,72 | 3,72  | 1060  | 23,27 |  |
|       |            | 17           | 2,81      | 1,78 | 800   | 14,40 | 2,79 | 2,14 | 800   | 14,22 | 2,85 | 2,59  | 820   | 14,74  | 3,14 | 3,11  | 900   | 17,40  | 3,53 | 3,53  | 1010  | 21,29  | 3,73 | 3,73  | 1070  | 23,34 |  |
|       |            | 19           | 4,08      | 1,82 | 1170  | 27,27 | 4,06 | 2,18 | 1160  | 26,97 | 4,03 | 2,54  | 1150  | 26,68  | 4,00 | 2,90  | 1150  | 26,38  | 3,98 | 3,25  | 1140  | 26,09  | 3,98 | 3,45  | 1140  | 26,07 |  |
|       |            | 21           | -         | -    | -     | 5,41  | 2,23 | 1550 | 44,33 | 5,38  | 2,59 | 1540  | 43,88 | 5,35   | 2,95 | 1530  | 43,44 | 5,32   | 3,30 | 1520  | 43,00 | 5,30   | 3,48 | 1520  | 42,78 |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | 6,84  | 2,65  | 1960 | 66,47 | 6,80  | 3,01   | 1940 | 65,83 | 6,76  | 3,37   | 1930 | 65,21 | 6,74  | 3,54   | 1930 | 64,89 |       |       |  |
|       | 7          | 15           | 1,26      | 1,26 | 220   | 1,15  | 1,91 | 1,91 | 330   | 2,20  | 2,35 | 2,35  | 400   | 4,26   | 2,77 | 2,77  | 480   | 5,86   | 3,17 | 3,17  | 550   | 7,39   | 3,37 | 3,37  | 580   | 8,19  |  |
|       |            | 17           | 1,33      | 1,29 | 700   | 1,22  | 1,95 | 1,84 | 340   | 2,38  | 2,35 | 2,34  | 400   | 4,27   | 2,77 | 2,77  | 480   | 5,87   | 3,18 | 3,18  | 550   | 7,41   | 3,38 | 3,38  | 580   | 8,21  |  |
|       |            | 19           | 3,04      | 1,42 | 520   | 6,88  | 3,08 | 1,84 | 700   | 6,94  | 2,99 | 2,14  | 510   | 6,69   | 3,04 | 2,56  | 520   | 6,86   | 3,26 | 3,04  | 560   | 7,73   | 3,41 | 3,28  | 590   | 8,34  |  |
|       |            | 21           | -         | -    | -     | 4,45  | 1,86 | 760  | 13,07 | 4,42  | 2,22 | 760   | 12,92 | 4,39   | 2,58 | 750   | 12,78 | 4,36   | 2,93 | 750   | 12,64 | 4,34   | 3,10 | 750   | 12,56 |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | 5,90  | 2,29  | 1010 | 21,21 | 5,87  | 2,65   | 1010 | 20,99 | 5,83  | 3,00   | 1000 | 20,78 | 5,81  | 3,18   | 1000 | 20,67 |       |       |  |
| 9     | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -     | -     | -      | -    | -     | -     | -      | -    | -     | -     | -      | -    | -     | -     |       |  |
|       |            | 17           |           |      |       |       |      |      |       |       |      |       |       |        |      |       |       |        |      |       |       |        |      |       |       |       |  |

## Cooling performance

### CC2 - 2-pipe system

| 011.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |  |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25   |      |       |       | 27   |      |       |       | 29   |      |       |       | 30   |      |       |       |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |  |
| 11    | 3          | 15           | 1,52      | 1,52 | 430   | 4,96  | 1,93 | 1,93 | 550   | 7,52  | 2,34 | 2,34 | 670   | 10,39 | 2,74 | 2,74 | 780   | 13,58 | 3,13 | 3,13 | 900   | 17,08 | 3,33 | 3,33 | 950   | 18,94 |  |
|       |            | 17           | 1,83      | 1,43 | 700   | 6,93  | 1,97 | 1,86 | 560   | 7,77  | 2,34 | 2,34 | 670   | 10,42 | 2,74 | 2,74 | 790   | 13,61 | 3,14 | 3,14 | 900   | 17,12 | 3,33 | 3,33 | 950   | 18,99 |  |
|       |            | 19           | 3,07      | 1,43 | 880   | 16,48 | 3,04 | 1,79 | 870   | 16,27 | 3,02 | 2,15 | 870   | 16,06 | 3,01 | 2,53 | 860   | 15,95 | 3,18 | 3,03 | 910   | 17,57 | 3,34 | 3,29 | 960   | 19,09 |  |
|       |            | 21           | -         | -    | -     | -     | 4,41 | 1,84 | 1260  | 30,73 | 3,63 | 1,93 | 700   | 11,12 | 4,35 | 2,56 | 1250  | 30,05 | 4,32 | 2,92 | 1240  | 29,72 | 4,31 | 3,09 | 1240  | 29,55 |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 5,84  | 2,26 | 1670 | 49,97 | 5,81  | 2,62 | 1660 | 49,46 | 5,77  | 2,98 | 1650 | 48,96 | 5,76  | 3,15 | 1650 | 48,71 |       |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 17           | 0,94      | 0,94 | 160   | 0,81  | 1,32 | 1,32 | 230   | 1,14  | 1,93 | 1,93 | 330   | 2,53  | 2,37 | 2,37 | 410   | 4,37  | 2,78 | 2,78 | 480   | 5,82  | 2,98 | 2,98 | 510   | 6,55  |  |
|       |            | 19           | 2,08      | 1,24 | 700   | 3,26  | 1,96 | 1,55 | 700   | 2,68  | 2,04 | 1,82 | 350   | 3,02  | 2,39 | 2,30 | 410   | 4,45  | 2,79 | 2,79 | 480   | 5,83  | 2,99 | 2,99 | 510   | 6,57  |  |
|       |            | 21           | -         | -    | -     | -     | 3,34 | 1,45 | 570   | 7,93  | 3,31 | 1,82 | 570   | 7,82  | 3,29 | 2,17 | 570   | 7,72  | 3,27 | 2,54 | 560   | 7,64  | 3,31 | 2,76 | 570   | 7,81  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 4,83  | 1,89 | 830  | 14,86 | 4,80  | 2,25 | 830  | 14,69 | 4,77  | 2,61 | 820  | 14,53 | 4,76  | 2,79 | 820  | 14,45 |       |  |
| 13    | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 17           | 1,09      | 1,09 | 310   | 2,08  | 1,52 | 1,52 | 440   | 4,95  | 1,94 | 1,94 | 560   | 7,44  | 2,34 | 2,34 | 670   | 10,25 | 2,74 | 2,74 | 790   | 13,39 | 2,94 | 2,94 | 840   | 15,08 |  |
|       |            | 19           | 2,21      | 1,25 | 630   | 9,31  | 1,93 | 1,39 | 700   | 7,48  | 2,04 | 1,83 | 580   | 8,11  | 2,35 | 2,31 | 670   | 10,30 | 2,74 | 2,74 | 790   | 13,43 | 2,94 | 2,94 | 840   | 15,12 |  |
|       |            | 21           | -         | -    | -     | -     | 3,33 | 1,45 | 950   | 18,67 | 3,30 | 1,81 | 950   | 18,42 | 3,27 | 2,17 | 940   | 18,18 | 3,25 | 2,52 | 930   | 17,94 | 3,25 | 2,72 | 930   | 17,93 |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 4,77  | 1,87 | 1370 | 34,73 | 4,74  | 2,23 | 1360 | 34,34 | 4,71  | 2,58 | 1350 | 33,95 | 4,69  | 2,76 | 1350 | 33,76 |       |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 19           | -         | -    | -     | -     | 0,94 | 0,94 | 160   | 0,77  | 1,46 | 1,46 | 250   | 1,21  | 1,96 | 1,96 | 340   | 2,81  | 2,38 | 2,38 | 410   | 4,39  | 2,59 | 2,59 | 450   | 5,07  |  |
|       |            | 21           | -         | -    | -     | -     | 2,38 | 1,30 | 410   | 4,37  | 2,15 | 1,49 | 700   | 3,67  | 2,20 | 1,85 | 380   | 3,78  | 2,46 | 2,28 | 420   | 4,64  | 2,62 | 2,51 | 450   | 5,19  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,75  | 1,57 | 650  | 9,49  | 3,63  | 1,85 | 630  | 8,99  | 3,60  | 2,20 | 620  | 8,87  | 3,59  | 2,38 | 620  | 8,81  |       |  |
|       | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 1,02 | 0,98 | 700   | 0,58  | 1,31 | 1,31 | 160   | 0,75  | 1,73 | 1,73 | 210   | 0,99  | 2,13 | 2,13 | 260   | 1,30  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 2,33  | 1,28 | 700  | 1,70  | 2,16  | 1,61 | 700  | 1,35  | 2,32  | 1,94 | 700  | 1,69  | 2,45  | 2,13 | 700  | 2,02  |       |  |
| 15    | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 19           | -         | -    | -     | -     | 1,10 | 1,08 | 320   | 2,37  | 1,53 | 1,53 | 440   | 4,91  | 1,94 | 1,94 | 560   | 7,35  | 2,34 | 2,34 | 670   | 10,11 | 2,54 | 2,54 | 730   | 11,62 |  |
|       |            | 21           | -         | -    | -     | -     | 2,31 | 1,18 | 700   | 9,76  | 2,11 | 1,40 | 700   | 8,48  | 2,14 | 1,81 | 620   | 8,69  | 2,38 | 2,27 | 680   | 10,41 | 2,55 | 2,51 | 730   | 11,68 |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,61  | 1,47 | 1030 | 21,14 | 3,58  | 1,83 | 1030 | 20,86 | 3,55  | 2,18 | 1020 | 20,59 | 3,54  | 2,36 | 1020 | 20,46 |       |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | 0,94 | 0,93 | 160   | 0,73  | 1,52 | 1,51 | 260   | 1,29  | 1,97 | 1,97 | 340   | 2,99  | 2,18 | 2,18 | 380   | 3,71  |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | 2,57  | 1,25 | 700  | 4,93  | 2,41  | 1,53 | 700  | 4,42  | 2,33  | 1,81 | 700  | 4,15  | 2,43  | 2,03 | 420  | 4,47  |       |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | 1,03 | 0,99 | 130   | 0,56  | 1,31 | 1,31 | 160   | 0,71  |  |
|       | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Cooling performance

## CC2 - 2-pipe system

| 015.0 |      |           |           |      |       |       |      |      |       |       |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |
|-------|------|-----------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|
| EWT   | ΔT   | Ta (W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |
|       |      |           | 21        |      |       |       | 23   |      |       |       | 25   |      |       |        | 27   |      |       |        | 29   |      |       |        | 30   |      |       |        |
|       |      |           | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    |
| [°C]  | [°C] | [°C]      | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  |
| 3     | 3    | 15        | 3,77      | 2,75 | 750   | 22,92 | 3,69 | 3,09 | 1050  | 21,90 | 3,84 | 3,68 | 1090  | 23,47  | 4,24 | 4,24 | 1210  | 27,82  | 4,66 | 4,66 | 1330  | 32,70  | 4,87 | 4,87 | 1390  | 35,24  |
|       |      | 17        | 4,98      | 2,74 | 1420  | 36,61 | 4,95 | 3,13 | 1410  | 36,25 | 4,92 | 3,52 | 1400  | 35,89  | 4,89 | 3,90 | 1400  | 35,54  | 4,88 | 4,31 | 1390  | 35,31  | 4,95 | 4,64 | 1410  | 36,19  |
|       |      | 19        | 6,34      | 2,78 | 1810  | 55,47 | 6,31 | 3,18 | 1800  | 54,95 | 6,27 | 3,57 | 1790  | 54,44  | 6,24 | 3,95 | 1780  | 53,93  | 6,20 | 4,33 | 1770  | 53,43  | 6,19 | 4,51 | 1760  | 53,19  |
|       |      | 21        | -         | -    | -     | -     | 7,77 | 3,23 | 2210  | 78,78 | 7,73 | 3,62 | 2200  | 78,07  | 7,69 | 4,01 | 2190  | 77,37  | 7,65 | 4,39 | 2180  | 76,68  | 7,63 | 4,58 | 2180  | 76,34  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 9,30  | 3,67 | -    | 2650  | 107,70 | 9,25 | 4,07 | 2640  | 106,76 | 9,21 | 4,45 | 2630  | 105,84 | 9,18 | 4,64 | 2620  | 105,38 |
| 5     | 5    | 15        | 2,82      | 2,49 | 750   | 5,09  | 2,94 | 2,83 | 500   | 5,71  | 3,38 | 3,38 | 580   | 7,86   | 3,83 | 3,83 | 660   | 9,76   | 4,26 | 4,26 | 730   | 11,71  | 4,47 | 4,47 | 770   | 12,72  |
|       |      | 17        | 4,02      | 2,37 | 690   | 10,63 | 3,91 | 2,68 | 670   | 10,14 | 3,89 | 3,07 | 670   | 10,03  | 3,98 | 3,57 | 680   | 10,44  | 4,28 | 4,15 | 730   | 11,78  | 4,48 | 4,45 | 770   | 12,74  |
|       |      | 19        | 5,36      | 2,36 | 920   | 17,28 | 5,33 | 2,75 | 910   | 17,11 | 5,30 | 3,14 | 910   | 16,94  | 5,27 | 3,53 | 900   | 16,77  | 5,28 | 3,95 | 910   | 16,83  | 5,22 | 4,09 | 900   | 16,51  |
|       |      | 21        | -         | -    | -     | -     | 6,82 | 2,82 | 1170  | 26,04 | 6,78 | 3,21 | 1160  | 25,79  | 6,75 | 3,60 | 1160  | 25,55  | 6,71 | 3,98 | 1150  | 25,31  | 6,69 | 4,17 | 1150  | 25,19  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 8,37  | 3,27 | -    | 1440  | 36,99  | 8,33 | 3,66 | 1430  | 36,65  | 8,28 | 4,05 | 1420  | 36,33  | 8,26 | 4,24 | 1420  | 36,16  |
| 7     | 7    | 15        | 1,75      | 1,75 | 210   | 1,29  | 2,08 | 2,08 | 260   | 1,54  | 2,61 | 2,61 | 320   | 1,93   | 3,30 | 3,30 | 400   | 2,90   | 3,79 | 3,79 | 460   | 4,56   | 4,01 | 4,01 | 490   | 5,43   |
|       |      | 17        | 2,99      | 2,44 | 750   | 2,27  | 2,17 | 2,12 | 750   | 1,60  | 2,61 | 2,61 | 320   | 1,93   | 3,30 | 3,26 | 400   | 2,89   | 3,79 | 3,79 | 460   | 4,59   | 4,02 | 4,02 | 490   | 5,46   |
|       |      | 19        | 4,22      | 1,94 | 520   | 6,16  | 4,08 | 2,24 | 500   | 5,68  | 4,05 | 2,63 | 500   | 5,57   | 4,08 | 3,06 | 500   | 5,67   | 4,22 | 3,61 | 750   | 6,17   | 4,29 | 3,85 | 750   | 6,41   |
|       |      | 21        | -         | -    | -     | -     | 5,72 | 2,37 | 700   | 10,80 | 5,68 | 2,76 | 700   | 10,69  | 5,65 | 3,14 | 690   | 10,58  | 5,61 | 3,53 | 690   | 10,46  | 5,66 | 3,76 | 690   | 10,60  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 7,33  | 2,84 | -    | 900   | 16,46  | 7,29 | 3,24 | 890   | 16,30  | 7,25 | 3,62 | 890   | 16,15  | 7,23 | 3,81 | 890   | 16,07  |
| 9     | 3    | 15        | 2,75      | 2,29 | 790   | 13,13 | 2,97 | 2,87 | 850   | 14,98 | 3,39 | 3,39 | 970   | 18,75  | 3,81 | 3,81 | 1090  | 22,96  | 4,24 | 4,24 | 1210  | 27,47  | 4,45 | 4,45 | 1270  | 29,84  |
|       |      | 17        | 4,03      | 2,33 | 1150  | 25,21 | 4,00 | 2,72 | 1150  | 24,94 | 3,98 | 3,10 | 1140  | 24,67  | 3,98 | 3,55 | 1140  | 24,74  | 4,24 | 4,18 | 1220  | 27,57  | 4,45 | 4,45 | 1280  | 29,92  |
|       |      | 19        | 5,40      | 2,37 | 1550  | 41,62 | 5,36 | 2,77 | 1540  | 41,20 | 4,31 | 2,74 | 750   | 12,01  | 5,30 | 3,54 | 1520  | 40,39  | 5,27 | 3,92 | 1510  | 39,98  | 5,26 | 4,10 | 1510  | 39,79  |
|       |      | 21        | -         | -    | -     | -     | 6,83 | 2,82 | 1960  | 62,48 | 6,79 | 3,21 | 1950  | 61,89  | 6,75 | 3,60 | 1930  | 61,31  | 6,72 | 3,98 | 1920  | 60,73  | 6,70 | 4,17 | 1920  | 60,45  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 8,37  | 3,27 | -    | 2400  | 88,86  | 8,32 | 3,66 | 2380  | 88,06  | 8,28 | 4,04 | 2370  | 87,27  | 8,26 | 4,23 | 2370  | 86,87  |
| 7     | 5    | 15        | 1,84      | 1,84 | 320   | 1,85  | 2,48 | 2,48 | 430   | 3,55  | 2,95 | 2,95 | 510   | 5,97   | 3,40 | 3,40 | 580   | 7,84   | 3,83 | 3,83 | 660   | 9,65   | 4,05 | 4,05 | 700   | 10,58  |
|       |      | 17        | 3,09      | 2,05 | 750   | 6,57  | 2,93 | 2,35 | 750   | 5,94  | 3,06 | 2,81 | 750   | 6,38   | 3,42 | 3,36 | 590   | 7,93   | 3,84 | 3,84 | 660   | 9,67   | 4,06 | 4,06 | 700   | 10,61  |
|       |      | 19        | 4,34      | 1,94 | 740   | 11,87 | 4,31 | 2,33 | 740   | 11,73 | 4,34 | 2,78 | 750   | 11,90  | 4,20 | 3,45 | 750   | 12,32  | 4,23 | 3,51 | 730   | 11,40  | 4,29 | 3,78 | 740   | 11,67  |
|       |      | 21        | -         | -    | -     | -     | 5,82 | 2,40 | 1000  | 19,55 | 5,78 | 2,80 | 990   | 19,36  | 5,75 | 3,18 | 990   | 19,16  | 5,71 | 3,56 | 980   | 18,97  | 5,70 | 3,75 | 980   | 18,87  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 7,38  | 2,86 | -    | 1270  | 29,38  | 7,34 | 3,25 | 1260  | 29,10  | 7,30 | 3,64 | 1250  | 28,83  | 7,28 | 3,83 | 1250  | 28,69  |
| 7     | 7    | 15        | 1,42      | 1,42 | 170   | 0,98  | 1,75 | 1,75 | 210   | 1,22  | 2,10 | 2,10 | 260   | 1,46   | 2,81 | 2,81 | 350   | 2,02   | 3,35 | 3,35 | 410   | 3,30   | 3,59 | 3,59 | 440   | 4,14   |
|       |      | 17        | 1,47      | 1,37 | 180   | 1,02  | 1,75 | 1,74 | 210   | 1,22  | 2,10 | 2,10 | 260   | 1,46   | 2,82 | 2,82 | 350   | 2,03   | 3,36 | 3,36 | 410   | 3,32   | 3,59 | 3,59 | 440   | 4,16   |
|       |      | 19        | 3,37      | 1,75 | 750   | 3,52  | 3,11 | 2,09 | 750   | 2,60  | 4,31 | 2,74 | 750   | 12,01  | 3,21 | 2,93 | 390   | 2,89   | 3,52 | 3,40 | 750   | 3,92   | 3,67 | 3,59 | 450   | 4,45   |
|       |      | 21        | -         | -    | -     | -     | 4,59 | 1,93 | 560   | 7,31  | 4,65 | 2,40 | 570   | 7,47   | 4,52 | 2,71 | 560   | 7,12   | 4,49 | 3,09 | 550   | 7,03   | 4,47 | 3,28 | 550   | 6,98   |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 6,26  | 2,43 | -    | 770   | 12,40  | 6,22 | 2,82 | 760   | 12,27  | 6,18 | 3,21 | 760   | 12,14  | 6,17 | 3,40 | 760   | 12,08  |
| 9     | 3    | 15        | 2,07      | 2,04 | 590   | 7,98  | 2,52 | 2,52 | 720   | 11,11 | 2,95 | 2,95 | 840   | 14,57  | 3,38 | 3,38 | 970   | 18,36  | 3,81 | 3,81 | 1090  | 22,47  | 4,02 | 4,02 | 1150  | 24,63  |
|       |      | 17        | 3,00      | 1,90 | 860   | 14,92 | 2,97 | 2,29 | 850   | 14,73 | 3,05 | 2,79 | 870   | 15,42  | 3,39 | 3,37 | 970   | 18,39  | 3,81 | 3,81 | 1090  | 22,53  | 4,02 | 4,02 | 1150  | 24,70  |
|       |      | 19        | 4,38      | 1,95 | 1250  | 28,52 | 3,68 | 2,09 | 750   | 11,84 | 4,32 | 2,74 | 1240  | 27,89  | 4,29 | 3,12 | 1230  | 27,59  | 4,27 | 3,50 | 1220  | 27,28  | 4,27 | 3,74 | 1220  | 27,32  |
|       |      | 21        | -         | -    | -     | -     | 5,82 | 2,40 | 1660  | 46,55 | 5,79 | 2,79 | 1660  | 46,08  | 5,75 | 3,18 | 1650  | 45,61  | 5,72 | 3,56 | 1640  | 45,15  | 5,70 | 3,75 | 1630  | 44,92  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 7,36  | 2,85 | -    | 2110  | 69,95  | 7,32 | 3,24 | 2100  | 69,29  | 7,28 | 3,63 | 2080  | 68,63  | 7,26 | 3,82 | 2080  | 68,31  |
| 9     | 5    | 15        | 1,35      | 1,35 | 230   | 1,28  | 1,99 | 1,99 | 340   | 1,94  | 2,50 | 2,50 | 430   | 3,98   | 2,96 | 2,96 | 510   | 6,06   | 3,41 | 3,41 | 590   | 7,75   | 3,62 | 3,62 | 620   | 8,61   |
|       |      | 17        | 1,39      | 1,35 | 240   | 1,31  | 1,99 | 1,93 | 340   | 1,95  | 2,51 | 2,51 | 430   | 4,00   | 2,97 | 2,97 | 510   | 6,07   | 3,41 | 3,41 | 590   | 7,77   | 3,63 | 3,63 | 620   | 8,64   |
|       |      | 19        | 3,18      | 1,50 | 550   | 6,90  | 3,33 | 2,03 | 750   | 7,45  | 3,13 | 2,28 | 540   | 6,69   | 3,21 | 2,75 | 550   | 6,99   | 3,48 | 3,28 | 600   | 8,03   | 3,67 | 3,56 | 630   | 8,80   |
|       |      | 21        | -         | -    | -     | -     | 4,73 | 1,98 | 810   | 13,50 | 4,70 | 2,37 | 810   | 13,34  | 4,66 | 2,76 | 800   | 13,19  | 4,63 | 3,14 | 800   | 13,04  | 4,62 | 3,33 | 790   | 12,97  |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 6,31  | 2,45 | -    | 1080  | 22,09  | 6,27 | 2,84 | 1080  | 21,87  | 6,24 | 3,22 | 1070  | 21,65  | 6,22 | 3,41 | 1070  | 21,54  |
| 7     | 7    | 15        | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -      | -    | -    | -     | -      | -    | -    | -     | -      | -    | -    | -     |        |
|       |      | 17        | 1,09      | 1,08 | 130   | 0,71  | 1,42 | 1,42 | 170   | 0,93  | 1,75 | 1,75 | 210   | 1,15   | 2,16 | 2,16 | 270   | 1,43   | 2,90 | 2,90 | 360   | 2,21   | 3,15 | 3,15 | 390   | 2,90   |
|       |      | 19        | 1,40      | 1,00 | 170   | 0,91  | 2,51 | 1,98 | 750   | 2,12  | 1,75 | 1,72 | 210   | 1,15   | 2,17 | 2,17 | 270   | 1,43   | 2,91 | 2,91 | 360   | 2,23   | 3,16 | 3,16 | 390   | 2,92   |
|       |      | 21        | -         | -    | -     | -     | 3,55 | 1,65 | 750   | 4,30  | 3,50 | 2,05 | 430   | 4,10   | 3,32 | 2,34 | 750   | 3,51   | 3,40 | 2,81 | 420   | 3,76   | 3,51 | 3,05 | 430   | 4,12   |
|       |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,07  | 2,00 | -    | 620   | 8,54   | 5,04 | 2,39 | 620   | 8,43   | 5,08 | 2,84 | 620   | 8,55   | 4,99 | 2,96 | 610   | 8,28   |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential ( $^{\circ}\text{C}$ )

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

W = Water flow rate (l/h)

## Cooling performance

### CC2 - 2-pipe system

| 015.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |   |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|---|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |   |  |
|       |            |              | 21        |      |       |       |      | 23   |       |       |      |      | 25    |       |      |      |       | 27    |      |      |       |       | 29   |      |       |       |      | 30   |       |       |   |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |   |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |   |  |
| 11    | 3          | 15           | 1,62      | 1,62 | 460   | 5,02  | 2,08 | 2,08 | 590   | 7,90  | 2,52 | 2,52 | 720   | 10,95 | 2,95 | 2,95 | 850   | 14,34 | 3,38 | 3,38 | 970   | 18,06 | 3,59 | 3,59 | 1030  | 20,04 |      |      |       |       |   |  |
|       |            | 17           | 1,90      | 1,53 | 540   | 6,78  | 2,10 | 2,00 | 600   | 8,09  | 2,52 | 2,52 | 720   | 10,98 | 2,96 | 2,96 | 850   | 14,38 | 3,38 | 3,38 | 970   | 18,11 | 3,60 | 3,60 | 1030  | 20,09 |      |      |       |       |   |  |
|       |            | 19           | 3,27      | 1,53 | 940   | 17,11 | 3,25 | 1,92 | 930   | 16,89 | 3,22 | 2,31 | 920   | 16,67 | 3,22 | 2,73 | 920   | 16,61 | 3,43 | 3,28 | 980   | 18,49 | 3,60 | 3,56 | 1030  | 20,16 |      |      |       |       |   |  |
|       |            | 21           | -         | -    | -     | -     | 4,73 | 1,98 | 1360  | 32,16 | 4,70 | 2,37 | 1350  | 31,80 | 4,67 | 2,76 | 1340  | 31,45 | 4,64 | 3,14 | 1330  | 31,10 | 4,63 | 3,33 | 1330  | 30,92 |      |      |       |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 6,29 | 2,43 | 1800  | 52,49 | 6,25 | 2,82 | 1790  | 51,96 | 6,21 | 3,21 | 1780  | 51,43 | 6,19 | 3,40 | 1770  | 51,17 |      |      |       |       |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 17           | 1,02      | 1,02 | 170   | 0,91  | 1,35 | 1,35 | 230   | 1,21  | 2,04 | 2,04 | 350   | 2,14  | 2,52 | 2,52 | 430   | 4,31  | 2,98 | 2,98 | 510   | 6,07  | 3,20 | 3,20 | 550   | 6,87  |      |      |       |       |   |  |
|       |            | 19           | 2,05      | 1,33 | 750   | 2,22  | 1,43 | 1,36 | 250   | 1,28  | 2,13 | 1,96 | 750   | 2,49  | 2,54 | 2,47 | 440   | 4,36  | 2,98 | 2,98 | 510   | 6,09  | 3,21 | 3,21 | 550   | 6,89  |      |      |       |       |   |  |
|       |            | 21           | -         | -    | -     | -     | 3,52 | 1,54 | 600   | 8,05  | 3,49 | 1,93 | 600   | 7,94  | 3,46 | 2,32 | 590   | 7,83  | 3,45 | 2,73 | 590   | 7,79  | 3,51 | 2,97 | 600   | 8,03  |      |      |       |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 5,15 | 2,02 | 890   | 15,39 | 5,12 | 2,41 | 880   | 15,21 | 5,08 | 2,80 | 870   | 15,04 | 5,07 | 2,99 | 870   | 14,96 |      |      |       |       |   |  |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 1,09 | 1,06 | 130   | 0,68  | 1,42 | 1,42 | 170   | 0,88  | 1,75 | 1,75 | 220   | 1,09  | 2,35 | 2,35 | 290   | 1,47  | 2,70 | 2,70 | 330   | 1,88  |      |      |       |       |   |  |
|       |            | 21           | -         | -    | -     | -     | 1,45 | 1,00 | 750   | 0,90  | 2,49 | 1,94 | 750   | 1,88  | 2,33 | 2,18 | 750   | 1,56  | 2,36 | 2,35 | 290   | 1,48  | 2,70 | 2,63 | 330   | 1,89  |      |      |       |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 3,70 | 1,53 | 460   | 4,83  | 3,86 | 2,06 | 750   | 5,19  | 3,63 | 2,30 | 450   | 4,63  | 3,70 | 2,55 | 750   | 4,85  |      |      |       |       |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 17           | 1,14      | 1,14 | 330   | 1,77  | 1,63 | 1,63 | 470   | 5,12  | 2,08 | 2,08 | 600   | 7,82  | 2,52 | 2,52 | 720   | 10,82 | 2,95 | 2,95 | 850   | 14,15 | 3,17 | 3,17 | 910   | 15,94 |      |      |       |       |   |  |
|       |            | 19           | 2,33      | 1,33 | 670   | 9,46  | 2,03 | 1,48 | 750   | 7,51  | 2,17 | 1,97 | 620   | 8,42  | 2,52 | 2,50 | 720   | 10,85 | 2,96 | 2,96 | 850   | 14,19 | 3,17 | 3,17 | 910   | 15,99 |      |      |       |       |   |  |
|       |            | 21           | -         | -    | -     | -     | 3,55 | 1,55 | 1020  | 19,41 | 3,53 | 1,94 | 1010  | 19,15 | 3,50 | 2,33 | 1000  | 18,90 | 3,47 | 2,71 | 1000  | 18,65 | 3,48 | 2,94 | 1000  | 18,70 |      |      |       |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 5,12 | 2,01 | 1470  | 36,38 | 5,09 | 2,40 | 1460  | 35,97 | 5,05 | 2,78 | 1450  | 35,56 | 5,04 | 2,98 | 1450  | 35,36 |      |      |       |       |   |  |
| 15    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 19           | -         | -    | -     | -     | 1,02 | 1,02 | 180   | 0,86  | 1,38 | 1,38 | 240   | 1,18  | 2,07 | 2,07 | 360   | 2,45  | 2,54 | 2,54 | 440   | 4,48  | 2,77 | 2,77 | 480   | 5,28  |      |      |       |       |   |  |
|       |            | 21           | -         | -    | -     | -     | 2,38 | 1,35 | 410   | 3,84  | 2,25 | 1,68 | 750   | 3,29  | 2,32 | 2,02 | 400   | 3,59  | 2,60 | 2,45 | 450   | 4,70  | 2,80 | 2,70 | 480   | 5,37  |      |      |       |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 3,97 | 1,67 | 680   | 9,74  | 3,83 | 1,97 | 660   | 9,18  | 3,80 | 2,35 | 650   | 9,06  | 3,79 | 2,54 | 650   | 8,99  |      |      |       |       |   |  |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 1,10 | 1,07 | 140   | 0,65  | 1,42 | 1,42 | 170   | 0,84  | 1,76 | 1,76 | 220   | 1,04  | 2,06 | 2,06 | 250   | 1,22  |      |      |       |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 2,44 | 1,59 | 750   | 1,55  | 2,45 | 1,83 | 750   | 1,65  | 2,57 | 2,21 | 750   | 1,89  | 2,15 | 2,12 | 750   | 1,27  |      |      |       |       |   |  |
| 15    | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 1,02 | 1,01 | 170   | 0,82  | 1,48 | 1,48 | 250   | 1,20  | 2,09 | 2,09 | 360   | 2,75  | 2,33 | 2,33 | 400   | 3,72  |      |      |       |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 2,67 | 1,39 | 750   | 4,76  | 2,44 | 1,61 | 420   | 4,13  | 2,43 | 1,94 | 750   | 4,11  | 2,59 | 2,22 | 450   | 4,61  |      |      |       |       |   |  |
|       | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |   |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC2 - 2-pipe system

| 021.0 |            |              |           |      |       |       |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |  |  |
|-------|------------|--------------|-----------|------|-------|-------|-------|------|--------|--------|-------|------|--------|--------|-------|------|--------|--------|-------|------|--------|--------|-------|------|--------|--------|--|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |  |  |
|       |            |              | 21        |      |       |       | 23    |      |        |        | 25    |      |        |        | 27    |      |        |        | 29    |      |        |        | 30    |      |        |        |  |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    |  |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  |  |  |
| 3     | 15         | 15           | 5,01      | 3,62 | 1430  | 37,06 | 4,98  | 4,14 | 1420   | 36,74  | 5,13  | 4,89 | 1460   | 38,62  | 5,63  | 5,63 | 1610   | 45,35  | 6,20  | 6,20 | 1770   | 53,41  | 6,48  | 6,48 | 1850   | 57,64  |  |  |
|       |            | 17           | 6,69      | 3,68 | 1910  | 60,86 | 6,66  | 4,20 | 1900   | 60,37  | 6,62  | 4,71 | 1890   | 59,90  | 6,59  | 5,22 | 1880   | 59,42  | 6,57  | 5,75 | 1870   | 58,99  | 6,63  | 6,17 | 1890   | 59,97  |  |  |
|       |            | 19           | 8,49      | 3,73 | 2420  | 91,85 | 8,45  | 4,26 | 2410   | 91,17  | 8,41  | 4,78 | 2400   | 90,49  | 8,38  | 5,29 | 2390   | 89,82  | 8,34  | 5,80 | 2380   | 89,15  | 8,32  | 6,05 | 2370   | 88,82  |  |  |
|       |            | 21           | -         | -    | -     | -     | 10,39 | 4,32 | 2960   | 130,41 | 10,34 | 4,85 | 2950   | 129,48 | 10,30 | 5,37 | 2940   | 128,57 | 10,26 | 5,88 | 2930   | 127,65 | 10,24 | 6,14 | 2920   | 127,20 |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 12,43 | 4,92 | 3550   | 178,35 | 12,38 | 5,45 | 3530   | 177,13 | 12,34 | 5,97 | 3520   | 175,92 | 12,31 | 6,23 | 3510   | 175,32 |  |  |
|       | 5          | 15           | 3,96      | 3,39 | 680   | 10,33 | 4,05  | 3,86 | 690    | 10,76  | 4,52  | 4,52 | 780    | 13,01  | 5,10  | 5,10 | 880    | 15,98  | 5,68  | 5,68 | 970    | 19,15  | 5,96  | 5,96 | 1020   | 20,80  |  |  |
|       |            | 17           | 5,41      | 3,12 | 930   | 17,65 | 5,38  | 3,64 | 920    | 17,48  | 5,36  | 4,16 | 920    | 17,32  | 5,42  | 4,79 | 930    | 17,66  | 5,74  | 5,52 | 980    | 19,50  | 5,98  | 5,89 | 1030   | 20,88  |  |  |
|       |            | 19           | 7,27      | 3,20 | 1250  | 29,12 | 7,23  | 3,73 | 1240   | 28,88  | 7,20  | 4,25 | 1230   | 28,65  | 7,16  | 4,76 | 1230   | 28,41  | 7,13  | 5,27 | 1220   | 28,18  | 7,11  | 5,52 | 1220   | 28,07  |  |  |
|       |            | 21           | -         | -    | -     | -     | 9,20  | 3,80 | 1580   | 43,56  | 9,16  | 4,33 | 1570   | 43,23  | 9,12  | 4,85 | 1560   | 42,91  | 9,08  | 5,36 | 1560   | 42,58  | 9,06  | 5,62 | 1550   | 42,42  |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 11,26 | 4,41 | 1930   | 61,69  | 11,21 | 4,94 | 1920   | 61,25  | 11,17 | 5,46 | 1920   | 60,81  | 11,14 | 5,71 | 1910   | 60,59  |  |  |
| 7     | 15         | 15           | 2,27      | 2,27 | 280   | 1,84  | 2,87  | 2,87 | 350    | 2,34   | 3,84  | 3,84 | 470    | 3,87   | 4,49  | 4,49 | 550    | 6,44   | 5,10  | 5,10 | 630    | 8,78   | 5,40  | 5,40 | 660    | 9,79   |  |  |
|       |            | 17           | 4,17      | 2,85 | 1050  | 5,29  | 4,08  | 3,42 | 500    | 4,80   | 4,31  | 4,03 | 530    | 5,76   | 4,52  | 4,38 | 550    | 6,58   | 5,11  | 5,11 | 630    | 8,80   | 5,40  | 5,40 | 660    | 9,81   |  |  |
|       |            | 19           | 5,81      | 2,60 | 710   | 11,13 | 5,98  | 3,29 | 730    | 11,71  | 5,74  | 3,64 | 700    | 10,91  | 5,84  | 4,28 | 1050   | 11,27  | 5,88  | 4,87 | 1050   | 11,34  | 5,92  | 5,18 | 1050   | 11,41  |  |  |
|       |            | 21           | -         | -    | -     | -     | 7,85  | 3,25 | 960    | 18,56  | 7,81  | 3,77 | 960    | 18,41  | 7,77  | 4,29 | 950    | 18,25  | 7,73  | 4,80 | 950    | 18,10  | 7,71  | 5,06 | 950    | 18,02  |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 9,97  | 3,88 | 1220   | 27,87  | 9,92  | 4,40 | 1220   | 27,66  | 9,88  | 4,92 | 1210   | 27,45  | 9,86  | 5,18 | 1210   | 27,34  |  |  |
|       | 3          | 15           | 3,73      | 3,07 | 1070  | 22,23 | 3,96  | 3,80 | 1140   | 24,60  | 4,49  | 4,49 | 1290   | 30,50  | 5,07  | 5,07 | 1450   | 37,42  | 5,63  | 5,63 | 1610   | 44,87  | 5,91  | 5,91 | 1690   | 48,79  |  |  |
|       |            | 17           | 5,43      | 3,12 | 1550  | 42,13 | 5,40  | 3,65 | 1550   | 41,75  | 5,37  | 4,16 | 1540   | 41,38  | 5,36  | 4,74 | 1540   | 41,27  | 5,66  | 5,53 | 1620   | 45,22  | 5,92  | 5,92 | 1700   | 48,90  |  |  |
|       |            | 19           | 7,24      | 3,18 | 2070  | 69,12 | 7,20  | 3,71 | 2060   | 68,56  | 7,17  | 4,23 | 2050   | 68,00  | 7,14  | 4,75 | 2040   | 67,45  | 7,10  | 5,25 | 2030   | 66,90  | 7,09  | 5,51 | 2030   | 66,63  |  |  |
|       |            | 21           | -         | -    | -     | 9,14  | 3,78  | 2620 | 103,60 | 9,10   | 4,30  | 2610 | 102,82 | 9,06   | 4,82  | 2600 | 102,04 | 9,02   | 5,34  | 2580 | 101,26 | 9,00   | 5,59  | 2580 | 100,88 |        |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 11,19 | 4,38 | 3210   | 147,33 | 11,15 | 4,90 | 3190   | 146,26 | 11,10 | 5,42 | 3180   | 145,21 | 11,08 | 5,68 | 3170   | 144,69 |  |  |
| 7     | 5          | 15           | 2,71      | 2,64 | 470   | 3,82  | 3,34  | 3,34 | 570    | 7,37   | 3,95  | 3,95 | 680    | 10,17  | 4,54  | 4,54 | 780    | 12,89  | 5,11  | 5,11 | 880    | 15,79  | 5,40  | 5,40 | 930    | 17,32  |  |  |
|       |            | 17           | 4,39      | 2,87 | 750   | 12,17 | 4,23  | 3,30 | 730    | 11,45  | 4,29  | 3,91 | 1050   | 11,51  | 4,62  | 4,50 | 790    | 13,29  | 5,12  | 5,12 | 880    | 15,83  | 5,41  | 5,41 | 930    | 17,36  |  |  |
|       |            | 19           | 5,92      | 2,64 | 1020  | 20,23 | 5,89  | 3,17 | 1010   | 20,04  | 5,86  | 3,69 | 1010   | 19,86  | 5,93  | 5,00 | 1050   | 19,20  | 5,80  | 4,72 | 1000   | 19,51  | 5,84  | 5,05 | 1000   | 19,75  |  |  |
|       |            | 21           | -         | -    | -     | 7,87  | 3,25  | 1350 | 32,89  | 7,84   | 3,78  | 1350 | 32,62  | 7,80   | 4,30  | 1340 | 32,36  | 7,76   | 4,81  | 1330 | 32,09  | 7,74   | 5,07  | 1330 | 31,96  |        |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 9,95  | 3,86 | 1710   | 49,15  | 9,90  | 4,39 | 1700   | 48,78  | 9,86  | 4,91 | 1690   | 48,41  | 9,84  | 5,17 | 1690   | 48,23  |  |  |
|       | 7          | 15           | 1,84      | 1,84 | 230   | 1,41  | 2,28  | 2,28 | 280    | 1,75   | 3,16  | 3,16 | 390    | 2,48   | 3,91  | 3,91 | 480    | 4,45   | 4,53  | 4,53 | 560    | 6,88   | 4,83  | 4,83 | 590    | 7,92   |  |  |
|       |            | 17           | 1,93      | 1,81 | 240   | 1,47  | 2,28  | 2,27 | 280    | 1,75   | 3,17  | 3,17 | 390    | 2,48   | 3,91  | 3,91 | 480    | 4,47   | 4,54  | 4,54 | 560    | 6,90   | 4,84  | 4,84 | 590    | 7,94   |  |  |
|       |            | 19           | 4,80      | 2,43 | 1050  | 7,92  | 4,75  | 3,01 | 580    | 7,65   | 4,54  | 3,38 | 560    | 6,93   | 4,62  | 4,01 | 1050   | 7,16   | 4,87  | 4,57 | 600    | 8,02   | 5,07  | 4,88 | 1050   | 8,62   |  |  |
|       |            | 21           | -         | -    | -     | 6,39  | 2,68  | 790  | 12,91  | 6,36   | 3,22  | 780  | 12,79  | 6,50   | 3,87  | 800  | 13,27  | 6,29   | 4,24  | 1050 | 12,60  | 6,27   | 4,49  | 1050 | 12,48  |        |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 8,56  | 3,32 | 1050   | 21,18  | 8,52  | 3,85 | 1050   | 21,00  | 8,47  | 4,36 | 1040   | 20,83  | 8,45  | 4,62 | 1040   | 20,74  |  |  |
| 9     | 3          | 15           | 2,77      | 2,70 | 790   | 13,10 | 3,34  | 3,34 | 960    | 18,06  | 3,92  | 3,92 | 1120   | 23,71  | 4,49  | 4,49 | 1290   | 29,93  | 5,06  | 5,06 | 1450   | 36,70  | 5,35  | 5,35 | 1530   | 40,28  |  |  |
|       |            | 17           | 4,07      | 2,56 | 1160  | 25,21 | 4,04  | 3,08 | 1160   | 24,94  | 4,11  | 3,71 | 1180   | 25,65  | 4,50  | 4,46 | 1290   | 30,02  | 5,07  | 5,07 | 1450   | 36,77  | 5,35  | 5,35 | 1530   | 40,36  |  |  |
|       |            | 19           | 5,89      | 2,63 | 1680  | 47,58 | 5,86  | 3,15 | 1680   | 47,14  | 5,83  | 3,67 | 1670   | 46,71  | 5,80  | 4,19 | 1660   | 46,28  | 5,77  | 4,70 | 1650   | 45,86  | 5,76  | 4,98 | 1650   | 45,76  |  |  |
|       |            | 21           | -         | -    | -     | 7,81  | 3,22  | 2230 | 77,38  | 7,77   | 3,75  | 2220 | 76,74  | 7,73   | 4,27  | 2210 | 76,11  | 6,25   | 4,22  | 1050 | 20,98  | 7,68   | 5,04  | 2200 | 75,17  |        |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 9,86  | 3,83 | 2820   | 116,16 | 9,82  | 4,35 | 2810   | 115,27 | 9,78  | 4,87 | 2800   | 114,38 | 9,75  | 5,13 | 2790   | 113,95 |  |  |
|       | 5          | 15           | 1,83      | 1,83 | 310   | 1,91  | 2,74  | 2,74 | 470    | 4,33   | 3,36  | 3,36 | 580    | 7,54   | 3,96  | 3,96 | 680    | 10,07  | 4,55  | 4,55 | 780    | 12,72  | 4,84  | 4,84 | 830    | 14,11  |  |  |
|       |            | 17           | 2,28      | 1,90 | 1050  | 2,47  | 2,85  | 2,67 | 490    | 4,98   | 3,37  | 3,33 | 580    | 7,56   | 3,97  | 3,97 | 680    | 10,09  | 4,55  | 4,55 | 780    | 12,74  | 4,84  | 4,84 | 830    | 14,14  |  |  |
|       |            | 19           | 4,43      | 2,07 | 760   | 12,16 | 4,75  | 2,90 | 1050   | 13,29  | 4,48  | 3,21 | 1050   | 12,24  | 4,41  | 3,69 | 760    | 12,07  | 4,73  | 4,43 | 1050   | 13,29  | 4,96  | 4,78 | 1050   | 14,70  |  |  |
|       |            | 21           | -         | -    | -     | 6,44  | 2,69  | 1110 | 22,92  | 6,40   | 3,22  | 1100 | 22,71  | 6,37   | 3,74  | 1090 | 22,50  | 6,25   | 4,22  | 1050 | 20,98  | 6,32   | 4,50  | 1090 | 22,19  |        |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -      | -      | 8,53  | 3,31 | 1470   | 37,14  | 8,49  | 3,83 | 1460   | 36,84  | 8,45  | 4,35 | 1450   | 36,    |       |      |        |        |  |  |

## Cooling performance

### CC2 - 2-pipe system

| 021.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |   |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|---|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |   |  |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25   |      |       |       | 27   |      |       |       | 29   |      |       |       | 30   |      |       |       |   |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |   |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |   |  |
| 11    | 3          | 15           | 2,16      | 2,16 | 620   | 8,52  | 2,76 | 2,76 | 790   | 12,87 | 3,35 | 3,35 | 960   | 17,84 | 3,92 | 3,92 | 1120  | 23,38 | 4,49 | 4,49 | 1290  | 29,49 | 4,78 | 4,78 | 1370  | 32,76 |   |  |
|       |            | 17           | 3,09      | 2,26 | 1050  | 20,95 | 2,83 | 2,66 | 810   | 13,42 | 3,35 | 3,35 | 960   | 17,87 | 3,93 | 3,93 | 1130  | 23,43 | 4,50 | 4,50 | 1290  | 29,56 | 4,78 | 4,78 | 1370  | 32,83 |   |  |
|       |            | 19           | 4,43      | 2,06 | 1270  | 28,81 | 4,40 | 2,59 | 1260  | 28,50 | 4,38 | 3,11 | 1250  | 28,18 | 4,36 | 3,65 | 1250  | 27,96 | 4,59 | 4,36 | 1310  | 30,54 | 4,80 | 4,72 | 1380  | 33,05 |   |  |
|       |            | 21           | -         | -    | -     | -     | 6,37 | 2,66 | 1820  | 53,69 | 6,33 | 3,19 | 1810  | 53,19 | 6,30 | 3,71 | 1800  | 52,69 | 6,26 | 4,22 | 1790  | 52,20 | 6,25 | 4,47 | 1790  | 51,96 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 8,43  | 3,27 | 2420 | 87,36 | 8,39  | 3,79 | 2400 | 86,63 | 8,35  | 4,31 | 2390 | 85,91 | 8,33  | 4,57 | 2390 | 85,55 |       |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | 1,32      | 1,32 | 230   | 1,30  | 2,04 | 2,04 | 350   | 2,03  | 2,77 | 2,77 | 480   | 4,86  | 3,39 | 3,39 | 580   | 7,59  | 3,98 | 3,98 | 680   | 10,00 | 4,27 | 4,27 | 740   | 11,27 |   |  |
|       |            | 19           | 3,17      | 1,90 | 550   | 6,71  | 2,99 | 2,35 | 510   | 5,95  | 2,97 | 2,62 | 1050  | 5,84  | 3,44 | 3,30 | 590   | 7,78  | 3,99 | 3,98 | 690   | 10,03 | 4,28 | 4,28 | 740   | 11,30 |   |  |
|       |            | 21           | -         | -    | -     | -     | 5,06 | 2,31 | 1050  | 14,75 | 4,83 | 2,64 | 830   | 13,83 | 4,81 | 3,16 | 1050  | 13,85 | 4,77 | 3,68 | 820   | 13,54 | 4,81 | 3,99 | 830   | 13,76 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 7,00  | 2,74 | 1200 | 26,08 | 6,96  | 3,27 | 1200 | 25,83 | 6,92  | 3,78 | 1190 | 25,59 | 6,91  | 4,04 | 1190 | 25,47 |       |   |  |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 1,42 | 1,39 | 170   | 0,97  | 1,84 | 1,84 | 230   | 1,26  | 2,41 | 2,41 | 300   | 1,66  | 3,36 | 3,36 | 410   | 3,13  | 3,69 | 3,69 | 450   | 4,27  |   |  |
|       |            | 21           | -         | -    | -     | -     | 3,07 | 1,79 | 1050  | 2,48  | 2,83 | 2,32 | 1050  | 2,01  | 3,22 | 2,84 | 1050  | 2,70  | 3,52 | 3,25 | 1050  | 3,66  | 3,77 | 3,56 | 460   | 4,58  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 5,28 | 2,15 | 650   | 9,02  | 5,46 | 2,83 | 1050  | 9,54  | 5,38 | 3,34 | 1050  | 9,36  | 5,22 | 3,45 | 1050  | 8,94  |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | 1,55      | 1,55 | 450   | 4,06  | 2,18 | 2,18 | 620   | 8,48  | 2,77 | 2,77 | 790   | 12,75 | 3,35 | 3,35 | 960   | 17,63 | 3,93 | 3,93 | 1130  | 23,10 | 4,21 | 4,21 | 1210  | 26,05 |   |  |
|       |            | 19           | 3,06      | 1,77 | 1050  | 13,88 | 3,15 | 2,13 | 1050  | 20,53 | 2,94 | 2,63 | 840   | 14,11 | 3,37 | 3,31 | 970   | 17,76 | 3,93 | 3,93 | 1130  | 23,15 | 4,22 | 4,22 | 1210  | 26,11 |   |  |
|       |            | 21           | -         | -    | -     | -     | 4,81 | 2,09 | 1380  | 32,66 | 4,78 | 2,62 | 1370  | 32,30 | 4,74 | 3,13 | 1360  | 31,94 | 4,71 | 3,65 | 1350  | 31,58 | 4,71 | 3,93 | 1350  | 31,51 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 6,89  | 2,70 | 1980 | 60,78 | 6,85  | 3,22 | 1970 | 60,20 | 6,81  | 3,74 | 1960 | 59,64 | 6,80  | 4,00 | 1950 | 59,35 |       |   |  |
| 15    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 1,32 | 1,32 | 230   | 1,24  | 2,14 | 2,14 | 370   | 2,21  | 2,80 | 2,80 | 480   | 5,19  | 3,41 | 3,41 | 590   | 7,57  | 3,71 | 3,71 | 640   | 8,73  |   |  |
|       |            | 21           | -         | -    | -     | -     | 3,36 | 1,83 | 1050  | 7,31  | 3,28 | 2,29 | 1050  | 7,08  | 3,35 | 2,86 | 1050  | 7,32  | 3,62 | 3,35 | 620   | 8,36  | 3,78 | 3,60 | 650   | 9,02  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 5,32  | 2,16 | 920  | 16,06 | 5,48  | 2,86 | 940  | 16,95 | 5,24  | 3,20 | 900  | 15,70 | 5,23  | 3,45 | 900  | 15,61 |       |   |  |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 1,43 | 1,39 | 180   | 0,93  | 1,84 | 1,84 | 230   | 1,20  | 2,67 | 2,67 | 330   | 1,77  | 3,08 | 3,08 | 380   | 2,50  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,62  | 1,92 | 450  | 4,30  | 3,41  | 2,33 | 420  | 3,60  | 3,55  | 2,91 | 440  | 4,06  | 3,75  | 3,23 | 1050 | 4,72  |       |   |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC2 - 2-pipe system

| 031.0 |            |              |           |      |       |        |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |  |
|-------|------------|--------------|-----------|------|-------|--------|-------|------|--------|--------|-------|------|--------|--------|-------|------|--------|--------|-------|------|--------|--------|-------|------|--------|--------|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |        |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |       |      |        |        |  |
|       |            |              | 21        |      |       |        | 23    |      |        |        | 25    |      |        |        | 27    |      |        |        | 29    |      |        |        | 30    |      |        |        |  |
|       |            |              | TC        | SC   | WF    | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  |  |
| 3     | 15         | 15           | 6,82      | 4,94 | 1950  | 41,77  | 6,79  | 5,65 | 1940   | 41,40  | 7,01  | 6,69 | 2000   | 43,75  | 7,71  | 7,71 | 2200   | 51,56  | 8,49  | 8,49 | 2420   | 60,72  | 8,87  | 8,87 | 2530   | 65,51  |  |
|       |            | 17           | 9,13      | 5,02 | 2600  | 68,78  | 9,09  | 5,74 | 2590   | 68,22  | 9,04  | 6,44 | 2580   | 67,66  | 9,00  | 7,14 | 2570   | 67,11  | 7,95  | 7,60 | 1440   | 24,87  | 9,06  | 8,46 | 2580   | 67,91  |  |
|       |            | 19           | 11,60     | 5,10 | 3310  | 103,96 | 11,55 | 5,82 | 3290   | 103,16 | 11,50 | 6,54 | 3280   | 102,37 | 11,45 | 7,24 | 3260   | 101,58 | 11,40 | 7,94 | 3250   | 100,81 | 11,37 | 8,28 | 3240   | 100,42 |  |
|       |            | 21           | -         | -    | -     | -      | 14,21 | 5,91 | 4050   | 147,67 | 14,15 | 6,63 | 4030   | 146,58 | 14,09 | 7,34 | 4020   | 145,50 | 14,03 | 8,05 | 4000   | 144,44 | 14,00 | 8,40 | 3990   | 143,91 |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 17,02 | 6,74 | 4850   | 201,98 | 16,95 | 7,46 | 4830   | 200,55 | 16,88 | 8,17 | 4810   | 199,13 | 16,84 | 8,52 | 4800   | 198,42 |  |
|       | 5          | 15           | 5,30      | 4,58 | 1440  | 11,14  | 5,39  | 5,14 | 920    | 11,35  | 6,16  | 6,16 | 1060   | 14,66  | 6,96  | 6,96 | 1190   | 18,10  | 7,76  | 7,76 | 1330   | 21,72  | 8,15  | 8,15 | 1400   | 23,61  |  |
|       |            | 17           | 7,32      | 4,24 | 1260  | 19,67  | 7,28  | 4,95 | 1250   | 19,48  | 7,24  | 5,66 | 1440   | 19,29  | 7,41  | 6,61 | 1440   | 19,98  | 7,95  | 7,60 | 1440   | 24,87  | 8,16  | 8,07 | 1400   | 23,66  |  |
|       |            | 19           | 9,88      | 4,35 | 1700  | 32,73  | 9,83  | 5,07 | 1690   | 32,45  | 9,78  | 5,79 | 1680   | 32,18  | 9,74  | 6,49 | 1670   | 31,91  | 9,69  | 7,19 | 1660   | 31,64  | 9,66  | 7,53 | 1660   | 31,51  |  |
|       |            | 21           | -         | -    | -     | 12,54  | 5,18  | 2150 | 49,13  | 12,48  | 5,90  | 2140 | 48,75  | 12,42  | 6,61  | 2130 | 48,37  | 12,37  | 7,32  | 2120 | 47,99  | 12,34  | 7,67  | 2120 | 47,81  |        |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 15,37 | 6,02 | 2640   | 69,69  | 15,30 | 6,74 | 2620   | 69,17  | 15,24 | 7,45 | 2610   | 68,66  | 15,21 | 7,80 | 2610   | 68,41  |  |
|       | 7          | 15           | 3,15      | 3,15 | 390   | 2,26   | 3,78  | 3,78 | 460    | 2,72   | 5,04  | 5,04 | 620    | 3,71   | 6,06  | 6,06 | 740    | 6,07   | 6,92  | 6,92 | 850    | 9,23   | 7,33  | 7,33 | 900    | 10,66  |  |
|       |            | 17           | 5,54      | 4,13 | 1440  | 4,60   | 5,64  | 4,99 | 1440   | 4,84   | 5,11  | 4,87 | 630    | 3,80   | 6,08  | 5,95 | 750    | 6,14   | 7,95  | 7,60 | 1440   | 24,87  | 7,34  | 7,34 | 900    | 10,69  |  |
|       |            | 19           | 7,76      | 3,49 | 1440  | 12,03  | 7,98  | 4,43 | 980    | 12,66  | 7,89  | 5,10 | 1440   | 12,33  | 7,82  | 5,78 | 1440   | 12,27  | 7,93  | 6,65 | 1440   | 12,68  | 7,99  | 7,08 | 1440   | 12,69  |  |
|       |            | 21           | -         | -    | -     | 10,62  | 4,39  | 1300 | 20,70  | 10,56  | 5,11  | 1290 | 20,52  | 10,51  | 5,82  | 1290 | 20,34  | 10,45  | 6,53  | 1280 | 20,17  | 10,43  | 6,87  | 1280 | 20,08  |        |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 13,54 | 5,26 | 1660   | 31,29  | 13,48 | 5,98 | 1650   | 31,05  | 13,42 | 6,69 | 1640   | 30,80  | 13,39 | 7,04 | 1640   | 30,68  |  |
| 3     | 15         | 15           | 5,07      | 4,18 | 1450  | 24,93  | 5,41  | 5,21 | 1550   | 27,86  | 6,15  | 6,15 | 1760   | 34,67  | 6,94  | 6,94 | 1990   | 42,54  | 7,71  | 7,71 | 2210   | 51,01  | 8,10  | 8,10 | 2320   | 55,46  |  |
|       |            | 17           | 7,40      | 4,27 | 2120  | 47,52  | 7,36  | 4,98 | 2110   | 47,09  | 7,32  | 5,69 | 2100   | 46,66  | 7,32  | 6,49 | 2100   | 46,61  | 7,74  | 7,59 | 2220   | 51,33  | 8,11  | 8,11 | 2320   | 55,58  |  |
|       |            | 19           | 9,89      | 4,35 | 2830  | 78,14  | 9,84  | 5,07 | 2820   | 77,49  | 9,79  | 5,78 | 2800   | 76,84  | 9,74  | 6,49 | 2790   | 76,20  | 9,70  | 7,19 | 2780   | 75,56  | 9,67  | 7,53 | 2770   | 75,25  |  |
|       |            | 21           | -         | -    | -     | 12,50  | 5,16  | 3580 | 117,23 | 12,44  | 5,88  | 3560 | 116,31 | 12,39  | 6,59  | 3550 | 115,40 | 12,33  | 7,30  | 3530 | 114,51 | 12,30  | 7,65  | 3520 | 114,06 |        |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 15,32 | 5,99 | 4390   | 166,77 | 15,25 | 6,71 | 4370   | 165,53 | 15,18 | 7,42 | 4350   | 164,30 | 15,15 | 7,77 | 4340   | 163,69 |  |
|       | 5          | 15           | 3,57      | 3,56 | 610   | 3,58   | 4,52  | 4,52 | 780    | 7,38   | 5,37  | 5,37 | 920    | 11,33  | 6,18  | 6,18 | 1060   | 14,57  | 6,98  | 6,98 | 1200   | 17,90  | 7,38  | 7,38 | 1270   | 19,65  |  |
|       |            | 17           | 5,64      | 3,75 | 1440  | 11,79  | 5,56  | 4,44 | 1440   | 11,82  | 5,93  | 5,45 | 1440   | 13,46  | 6,22  | 6,06 | 1070   | 14,70  | 6,99  | 6,99 | 1200   | 17,94  | 7,39  | 7,39 | 1270   | 19,69  |  |
|       |            | 19           | 8,02      | 3,59 | 1380  | 22,63  | 7,98  | 4,31 | 1370   | 22,41  | 8,13  | 5,22 | 1440   | 22,77  | 7,87  | 6,68 | 1440   | 22,30  | 7,85  | 6,44 | 1350   | 21,81  | 7,93  | 6,91 | 1360   | 22,16  |  |
|       |            | 21           | -         | -    | -     | 10,72  | 4,43  | 1840 | 37,02  | 10,66  | 5,15  | 1830 | 36,70  | 10,61  | 5,86  | 1820 | 36,39  | 10,56  | 6,56  | 1810 | 36,08  | 10,53  | 6,91  | 1810 | 35,93  |        |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 13,57 | 5,27 | 2330   | 55,46  | 13,51 | 5,99 | 2320   | 55,03  | 13,44 | 6,70 | 2310   | 54,59  | 13,41 | 7,05 | 2300   | 54,38  |  |
|       | 7          | 15           | 2,55      | 2,55 | 310   | 1,73   | 3,15  | 3,15 | 390    | 2,14   | 3,88  | 3,88 | 480    | 2,64   | 5,24  | 5,24 | 640    | 4,09   | 6,14  | 6,14 | 750    | 6,89   | 6,56  | 6,56 | 810    | 8,36   |  |
|       |            | 17           | 2,68      | 2,49 | 330   | 1,81   | 3,15  | 3,13 | 1440   | 2,14   | 3,88  | 3,88 | 480    | 2,64   | 5,25  | 5,25 | 640    | 4,11   | 6,14  | 6,14 | 750    | 6,91   | 6,57  | 6,57 | 810    | 8,39   |  |
|       |            | 19           | 6,57      | 3,41 | 1440  | 8,42   | 6,16  | 3,97 | 1440   | 6,99   | 5,99  | 4,55 | 1440   | 6,62   | 6,17  | 5,49 | 760    | 7,05   | 6,52  | 6,14 | 1440   | 8,24   | 6,67  | 6,50 | 1440   | 8,33   |  |
|       |            | 21           | -         | -    | -     | 8,60   | 3,61  | 1060 | 14,25  | 8,54   | 4,33  | 1050 | 14,11  | 8,49   | 5,04  | 1040 | 13,96  | 8,44   | 5,74  | 1040 | 13,82  | 8,58   | 6,22  | 1440 | 14,19  |        |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 11,60 | 4,50 | 1420   | 23,69  | 11,54 | 5,22 | 1420   | 23,49  | 11,48 | 5,93 | 1410   | 23,28  | 11,45 | 6,28 | 1410   | 23,18  |  |
| 9     | 3          | 15           | 3,77      | 3,70 | 1080  | 14,80  | 4,57  | 4,57 | 1310   | 20,51  | 5,37  | 5,37 | 1530   | 26,94  | 6,15  | 6,15 | 1760   | 34,01  | 6,93  | 6,93 | 1980   | 41,71  | 7,32  | 7,32 | 2090   | 45,78  |  |
|       |            | 17           | 5,53      | 3,50 | 1580  | 28,31  | 5,49  | 4,21 | 1570   | 27,99  | 5,60  | 5,09 | 1600   | 28,95  | 6,16  | 6,12 | 1760   | 34,10  | 6,94  | 6,94 | 1990   | 41,80  | 7,33  | 7,33 | 2100   | 45,87  |  |
|       |            | 19           | 8,03      | 3,59 | 2300  | 53,70  | 7,99  | 4,31 | 2290   | 53,19  | 7,95  | 5,02 | 2270   | 52,69  | 7,90  | 5,73 | 2260   | 52,20  | 7,86  | 6,42 | 2250   | 51,71  | 7,85  | 6,83 | 2250   | 51,65  |  |
|       |            | 21           | -         | -    | -     | 10,66  | 4,40  | 3050 | 87,48  | 10,61  | 5,12  | 3040 | 86,74  | 10,56  | 5,83  | 3020 | 86,00  | 10,51  | 6,54  | 3010 | 85,27  | 10,48  | 6,89  | 3000 | 84,91  |        |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 13,49 | 5,23 | 3860   | 131,42 | 13,43 | 5,95 | 3840   | 130,38 | 13,36 | 6,66 | 3820   | 129,35 | 13,33 | 7,01 | 3810   | 128,84 |  |
|       | 5          | 15           | 2,43      | 2,43 | 420   | 2,25   | 3,68  | 3,68 | 630    | 3,92   | 4,57  | 4,57 | 780    | 8,00   | 5,40  | 5,40 | 930    | 11,34  | 6,21  | 6,21 | 1070   | 14,40  | 6,60  | 6,60 | 1130   | 15,99  |  |
|       |            | 17           | 5,59      | 3,73 | 1440  | 23,01  | 3,75  | 3,55 | 1440   | 4,20   | 4,57  | 4,55 | 790    | 8,02   | 5,40  | 5,40 | 930    | 11,36  | 6,21  | 6,21 | 1070   | 14,43  | 6,61  | 6,61 | 1140   | 16,03  |  |
|       |            | 19           | 5,96      | 2,79 | 1020  | 13,43  | 6,46  | 3,93 | 1440   | 15,34  | 6,12  | 4,51 | 1440   | 13,53  | 5,95  | 5,03 | 1440   | 13,37  | 6,46  | 6,05 | 1110   | 15,39  | 6,82  | 6,61 | 1440   | 16,91  |  |
|       |            | 21           | -         | -    | -     | 8,74   | 3,66  | 1500 | 25,69  | 8,69   | 4,38  | 1490 | 25,45  | 8,64   | 5,09  | 1480 | 25,20  | 8,59   | 5,79  | 1480 | 24,96  | 8,57   | 6,14  | 1470 | 24,84  |        |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 11,62 | 4,51 | 2000   | 41,83  | 11,57 | 5    |        |        |       |      |        |        |       |      |        |        |  |

## Cooling performance

### CC2 - 2-pipe system

| 031.0 |            |              |           |      |       |       |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |   |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|---|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |       |      |       |       |   |  |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25    |      |       |       | 27    |      |       |       | 29    |      |       |       | 30    |      |       |       |   |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC    | SC   | WF    | WDP   | TC    | SC   | WF    | WDP   | TC    | SC   | WF    | WDP   | TC    | SC   | WF    | WDP   |   |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa] |   |  |
| 11    | 3          | 15           | 2,94      | 2,94 | 840   | 9,50  | 3,77 | 3,77 | 1080  | 14,60 | 4,57  | 4,57 | 1310  | 20,25 | 5,37  | 5,37 | 1540  | 26,57 | 6,15  | 6,15 | 1760  | 33,52 | 6,54  | 6,54 | 1870  | 37,23 |   |  |
|       |            | 17           | 4,28      | 3,22 | 1440  | 23,25 | 3,85 | 3,64 | 1100  | 15,12 | 4,58  | 4,58 | 1310  | 20,29 | 5,37  | 5,37 | 1540  | 26,62 | 6,16  | 6,16 | 1760  | 33,59 | 6,55  | 6,55 | 1880  | 37,31 |   |  |
|       |            | 19           | 6,03      | 2,81 | 1730  | 32,40 | 6,20 | 3,76 | 1440  | 33,01 | 5,95  | 4,24 | 1710  | 31,67 | 5,93  | 4,99 | 1700  | 31,47 | 6,26  | 5,96 | 1790  | 34,58 | 6,57  | 6,47 | 1880  | 37,51 |   |  |
|       |            | 21           | -         | -    | -     | -     | 8,69 | 3,63 | 2490  | 60,60 | 8,64  | 4,35 | 2480  | 60,02 | 8,59  | 5,06 | 2460  | 59,45 | 8,54  | 5,77 | 2450  | 58,88 | 8,52  | 6,11 | 2440  | 58,60 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 11,52 | 4,46 | 3300  | 98,75 | 11,47 | 5,18 | 3290  | 97,91 | 11,41 | 5,89 | 3270  | 97,07 | 11,38 | 6,24 | 3260  | 96,65 |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | 1,83      | 1,83 | 310   | 1,60  | 2,48 | 2,48 | 430   | 2,17  | 3,74  | 3,74 | 640   | 4,52  | 4,61  | 4,61 | 790   | 8,35  | 5,43  | 5,43 | 930   | 11,30 | 5,83  | 5,83 | 1000  | 12,76 |   |  |
|       |            | 19           | 3,71      | 2,26 | 1440  | 4,44  | 3,33 | 2,60 | 570   | 3,13  | 3,98  | 3,61 | 1440  | 5,54  | 4,68  | 4,53 | 810   | 8,64  | 5,44  | 5,44 | 930   | 11,33 | 5,84  | 5,84 | 1000  | 12,79 |   |  |
|       |            | 21           | -         | -    | -     | -     | 6,88 | 3,11 | 1180  | 16,85 | 6,51  | 3,58 | 1120  | 15,35 | 6,46  | 4,28 | 1440  | 15,16 | 6,43  | 5,01 | 1440  | 15,04 | 6,51  | 5,45 | 1120  | 15,36 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 9,51  | 3,73 | 1640  | 29,27 | 9,46  | 4,45 | 1630  | 28,99 | 9,41  | 5,16 | 1620  | 28,71 | 9,38  | 5,51 | 1610  | 28,57 |   |  |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 1,97 | 1,93 | 240   | 1,19  | 2,55  | 2,55 | 310   | 1,55  | 3,17  | 3,17 | 390   | 1,93  | 4,47  | 4,47 | 550   | 2,90  | 4,97  | 4,97 | 610   | 3,94  |   |  |
|       |            | 21           | -         | -    | -     | -     | 4,52 | 2,91 | 1440  | 3,27  | 2,77  | 2,45 | 340   | 1,68  | 4,23  | 4,08 | 1440  | 2,65  | 4,63  | 4,38 | 570   | 3,15  | 5,04  | 4,84 | 620   | 4,14  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 7,03  | 2,88 | 860   | 9,78  | 7,52  | 4,03 | 1440  | 10,82 | 7,25  | 4,53 | 1440  | 10,50 | 7,23  | 4,94 | 1440  | 10,20 |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | 2,09      | 2,09 | 600   | 3,65  | 2,96 | 2,96 | 850   | 9,54  | 3,78  | 3,78 | 1090  | 14,46 | 4,58  | 4,58 | 1320  | 20,03 | 5,37  | 5,37 | 1540  | 26,25 | 5,76  | 5,76 | 1650  | 29,60 |   |  |
|       |            | 19           | 4,64      | 2,74 | 1440  | 20,25 | 4,42 | 3,07 | 1440  | 23,49 | 3,99  | 3,60 | 1150  | 15,85 | 4,60  | 4,54 | 1320  | 20,13 | 5,38  | 5,38 | 1540  | 26,31 | 5,77  | 5,77 | 1660  | 29,67 |   |  |
|       |            | 21           | -         | -    | -     | -     | 6,54 | 2,85 | 1880  | 36,75 | 6,50  | 3,57 | 1870  | 36,33 | 6,46  | 4,28 | 1850  | 35,92 | 6,41  | 4,98 | 1840  | 35,50 | 6,41  | 5,38 | 1840  | 35,47 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 9,40  | 3,69 | 2700  | 68,59 | 9,35  | 4,40 | 2680  | 67,93 | 7,62  | 4,53 | 1440  | 23,22 | 9,27  | 5,46 | 2660  | 66,95 |   |  |
| 15    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 1,83 | 1,83 | 310   | 1,52  | 2,66  | 2,66 | 460   | 2,21  | 3,79  | 3,79 | 650   | 5,15  | 4,64  | 4,64 | 800   | 8,48  | 5,05  | 5,05 | 870   | 9,85  |   |  |
|       |            | 21           | -         | -    | -     | -     | 4,72 | 2,63 | 1440  | 8,74  | 4,41  | 3,25 | 1440  | 7,65  | 4,32  | 3,69 | 1440  | 7,34  | 4,80  | 4,47 | 830   | 9,00  | 5,13  | 4,92 | 880   | 10,11 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 7,19  | 2,93 | 1240  | 17,89 | 7,15  | 3,65 | 1440  | 17,80 | 7,09  | 4,35 | 1220  | 17,48 | 7,06  | 4,70 | 1220  | 17,37 |   |  |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 2,13 | 2,09 | 610   | 4,26  | 2,98  | 2,98 | 860   | 9,51  | 3,79  | 3,79 | 1090  | 14,31 | 4,59  | 4,59 | 1320  | 19,78 | 4,99  | 4,99 | 1430  | 22,76 |   |  |
|       |            | 21           | -         | -    | -     | -     | 4,78 | 2,53 | 1370  | 21,18 | 4,61  | 3,04 | 1440  | 22,49 | 4,21  | 3,56 | 1210  | 17,05 | 4,68  | 4,47 | 1340  | 20,41 | 5,01  | 4,94 | 1440  | 22,91 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 7,10  | 2,89 | 2040  | 41,69 | 7,06  | 3,61 | 2030  | 41,21 | 7,01  | 4,32 | 2010  | 40,74 | 6,98  | 4,67 | 2000  | 40,50 |   |  |
| 17    | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 1,83  | 1,82 | 310   | 1,44  | 2,89  | 2,89 | 500   | 2,35  | 3,83  | 3,83 | 660   | 5,59  | 4,25  | 4,25 | 730   | 7,13  |   |  |
|       | 7          | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 4,87  | 2,49 | 1440  | 8,86  | 4,82  | 3,12 | 1440  | 8,95  | 4,81  | 3,89 | 830   | 8,91  | 4,95  | 4,29 | 1440  | 9,25  |   |  |
|       |            | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |
|       | 7          | 23           | -         | -    | -     | -     | -    | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -     | - |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC2 - 2-pipe system

| 041.0 |            |              |           |      |       |        |       |      |        |        |       |      |        |        |       |       |        |        |       |       |        |        |       |       |        |        |  |  |
|-------|------------|--------------|-----------|------|-------|--------|-------|------|--------|--------|-------|------|--------|--------|-------|-------|--------|--------|-------|-------|--------|--------|-------|-------|--------|--------|--|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |        |       |      |        |        |       |      |        |        |       |       |        |        |       |       |        |        |       |       |        |        |  |  |
|       |            |              | 21        |      |       |        | 23    |      |        |        | 25    |      |        |        | 27    |       |        |        | 29    |       |        |        | 30    |       |        |        |  |  |
|       |            |              | TC        | SC   | WF    | WDP    | TC    | SC   | WF     | WDP    | TC    | SC   | WF     | WDP    | TC    | SC    | WF     | WDP    | TC    | SC    | WF     | WDP    | TC    | SC    | WF     | WDP    |  |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW] | [l/h]  | [kPa]  | [kW]  | [kW]  | [l/h]  | [kPa]  | [kW]  | [kW]  | [l/h]  | [kPa]  | [kW]  | [kW]  | [l/h]  | [kPa]  |  |  |
| 3     | 15         | 15           | 9,37      | 6,74 | 2670  | 72,69  | 9,31  | 7,69 | 2650   | 71,88  | 9,58  | 9,08 | 2730   | 75,57  | 10,53 | 10,53 | 3000   | 88,67  | 11,55 | 11,55 | 3290   | 103,96 | 12,06 | 12,06 | 3440   | 111,92 |  |  |
|       |            | 17           | 12,49     | 6,85 | 3560  | 118,81 | 12,42 | 7,80 | 3540   | 117,58 | 12,34 | 8,75 | 3520   | 116,36 | 12,27 | 9,67  | 3500   | 115,16 | 12,20 | 10,61 | 3480   | 114,04 | 12,32 | 11,41 | 3510   | 115,99 |  |  |
|       |            | 19           | 15,84     | 6,95 | 4520  | 178,68 | 15,75 | 7,92 | 4490   | 176,91 | 15,66 | 8,87 | 4460   | 175,16 | 15,57 | 9,81  | 4440   | 173,43 | 15,48 | 10,73 | 4410   | 171,73 | 15,43 | 11,19 | 4400   | 170,88 |  |  |
|       |            | 21           | -         | -    | -     | -      | 19,34 | 8,04 | 5510   | 252,30 | 19,23 | 9,00 | 5480   | 249,89 | 19,13 | 9,95  | 5450   | 247,50 | 19,02 | 10,88 | 5420   | 245,14 | 18,97 | 11,34 | 5410   | 243,97 |  |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 23,10 | 9,14 | 6590   | 343,36 | 22,98 | 10,10 | 6550   | 340,16 | 22,85 | 11,04 | 6520   | 337,00 | 22,79 | 11,50 | 6500   | 335,44 |  |  |
|       | 5          | 15           | 6,99      | 5,86 | 1960  | 15,46  | 7,49  | 7,09 | 1960   | 18,85  | 8,51  | 8,51 | 1460   | 25,53  | 9,59  | 9,59  | 1640   | 31,64  | 10,64 | 10,64 | 1830   | 37,78  | 11,16 | 11,16 | 1910   | 40,95  |  |  |
|       |            | 17           | 10,15     | 5,83 | 1740  | 34,80  | 10,07 | 6,78 | 1730   | 34,39  | 10,00 | 7,72 | 1720   | 33,98  | 10,12 | 8,89  | 1740   | 34,65  | 10,73 | 10,28 | 1840   | 38,32  | 11,19 | 10,99 | 1920   | 41,10  |  |  |
|       |            | 19           | 13,62     | 5,99 | 2340  | 57,31  | 13,53 | 6,95 | 2320   | 56,70  | 13,45 | 7,90 | 2310   | 56,11  | 13,37 | 8,84  | 2290   | 55,51  | 13,28 | 9,76  | 2280   | 54,93  | 13,24 | 10,22 | 2270   | 54,64  |  |  |
|       |            | 21           | -         | -    | -     | 17,19  | 7,10  | 2950 | 85,22  | 17,09  | 8,06  | 2930 | 84,37  | 16,99  | 9,01  | 2910  | 83,53  | 16,89  | 9,94  | 2900  | 82,71  | 16,84  | 10,40 | 2890  | 82,29  |        |  |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 20,99 | 8,22 | 3600   | 119,98 | 20,88 | 9,17  | 3580   | 118,84 | 20,76 | 10,12 | 3560   | 117,70 | 20,70 | 10,58 | 3550   | 117,14 |  |  |
| 7     | 15         | 15           | 4,64      | 4,60 | 570   | 4,50   | 5,53  | 5,53 | 680    | 5,37   | 6,92  | 6,92 | 850    | 6,75   | 8,43  | 8,43  | 1030   | 9,59   | 9,58  | 9,58  | 1170   | 14,68  | 10,14 | 10,14 | 1240   | 17,46  |  |  |
|       |            | 17           | 6,89      | 5,44 | 1960  | 6,62   | 7,56  | 6,55 | 1960   | 7,52   | 7,79  | 7,36 | 1960   | 7,91   | 8,61  | 8,47  | 1960   | 10,11  | 9,60  | 9,60  | 1180   | 14,75  | 10,15 | 10,15 | 1240   | 17,54  |  |  |
|       |            | 19           | 10,86     | 4,85 | 1330  | 20,93  | 10,77 | 5,81 | 1320   | 20,55  | 10,69 | 6,76 | 1310   | 20,17  | 10,60 | 7,70  | 1300   | 19,78  | 10,64 | 8,75  | 1300   | 19,93  | 10,83 | 9,39  | 1330   | 20,81  |  |  |
|       |            | 21           | -         | -    | -     | 14,71  | 6,08  | 1800 | 36,60  | 14,61  | 7,04  | 1790 | 36,20  | 14,52  | 7,98  | 1780  | 35,81  | 14,43  | 8,91  | 1770  | 35,42  | 14,38  | 9,38  | 1760  | 35,22  |        |  |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 18,64 | 7,24 | 2290   | 54,69  | 18,53 | 8,20  | 2270   | 54,14  | 18,42 | 9,14  | 2260   | 53,60  | 18,37 | 9,61  | 2250   | 53,33  |  |  |
|       | 3          | 15           | 7,00      | 5,71 | 2010  | 43,84  | 7,44  | 7,10 | 2130   | 48,56  | 8,43  | 8,43 | 2410   | 60,05  | 9,47  | 9,47  | 2710   | 73,27  | 10,50 | 10,50 | 3010   | 87,43  | 11,01 | 11,01 | 3150   | 94,84  |  |  |
|       |            | 17           | 10,16     | 5,83 | 2910  | 82,58  | 10,09 | 6,78 | 2890   | 81,64  | 10,02 | 7,73 | 2870   | 80,71  | 10,00 | 8,77  | 2860   | 80,34  | 10,54 | 10,28 | 3020   | 88,01  | 11,03 | 11,03 | 3160   | 95,11  |  |  |
|       |            | 19           | 13,52     | 5,94 | 3870  | 134,80 | 13,44 | 6,91 | 3850   | 133,38 | 13,36 | 7,86 | 3830   | 131,97 | 13,27 | 8,79  | 3800   | 130,59 | 13,19 | 9,72  | 3780   | 129,22 | 13,15 | 10,18 | 3770   | 128,54 |  |  |
|       |            | 21           | -         | -    | -     | 17,04  | 7,03  | 4880 | 200,85 | 16,94  | 7,99  | 4850 | 198,83 | 16,84  | 8,94  | 4820  | 196,84 | 16,74  | 9,87  | 4800  | 194,88 | 16,70  | 10,33 | 4780  | 193,90 |        |  |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 20,81 | 8,13 | 5960   | 284,07 | 20,70 | 9,09  | 5930   | 281,33 | 20,58 | 10,03 | 5890   | 278,62 | 20,52 | 10,50 | 5880   | 277,28 |  |  |
| 5     | 15         | 15           | 4,90      | 4,90 | 840   | 6,49   | 6,30  | 6,30 | 1080   | 11,57  | 7,44  | 7,44 | 1280   | 19,33  | 8,53  | 8,53  | 1470   | 25,48  | 9,59  | 9,59  | 1650   | 31,20  | 10,12 | 10,12 | 1740   | 34,14  |  |  |
|       |            | 17           | 7,59      | 4,77 | 1960  | 20,87  | 7,42  | 5,69 | 1280   | 19,28  | 7,79  | 6,95 | 1340   | 21,43  | 8,57  | 8,29  | 1470   | 25,72  | 9,61  | 9,61  | 1650   | 31,28  | 10,13 | 10,13 | 1740   | 34,23  |  |  |
|       |            | 19           | 11,11     | 4,95 | 1910  | 39,97  | 11,04 | 5,91 | 1900   | 39,50  | 10,96 | 6,87 | 1880   | 39,03  | 11,19 | 9,04  | 1960   | 36,60  | 10,81 | 8,74  | 1860   | 38,17  | 10,89 | 9,36  | 1870   | 38,62  |  |  |
|       |            | 21           | -         | -    | -     | 14,74  | 6,08  | 2530 | 64,56  | 14,65  | 7,04  | 2520 | 63,88  | 14,55  | 7,99  | 2500  | 63,20  | 14,46  | 8,92  | 2490  | 62,53  | 14,42  | 9,38  | 2480  | 62,20  |        |  |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 18,57 | 7,20 | 3190   | 95,85  | 18,46 | 8,16  | 3170   | 94,90  | 18,36 | 9,11  | 3150   | 93,95  | 18,30 | 9,57  | 3140   | 93,48  |  |  |
|       | 7          | 15           | 3,78      | 3,78 | 460   | 3,45   | 4,64  | 4,64 | 570    | 4,25   | 5,60  | 5,60 | 690    | 5,14   | 7,25  | 7,25  | 890    | 6,88   | 8,51  | 8,51  | 1050   | 10,71  | 9,08  | 9,08  | 1110   | 13,33  |  |  |
|       |            | 17           | 4,08      | 3,68 | 500   | 3,71   | 4,70  | 4,65 | 580    | 4,30   | 5,61  | 5,61 | 690    | 5,15   | 7,27  | 7,27  | 890    | 6,90   | 8,53  | 8,53  | 1050   | 10,77  | 9,10  | 9,10  | 1120   | 13,40  |  |  |
|       |            | 19           | 8,25      | 3,99 | 1960  | 9,75   | 8,34  | 5,17 | 1020   | 10,02  | 8,26  | 5,92 | 1960   | 10,75  | 8,23  | 7,06  | 1960   | 9,57   | 8,99  | 8,25  | 1960   | 13,95  | 9,33  | 8,91  | 1150   | 14,54  |  |  |
|       |            | 21           | -         | -    | -     | 11,99  | 5,01  | 1470 | 25,44  | 11,90  | 5,97  | 1460 | 25,11  | 11,81  | 6,92  | 1450  | 24,79  | 11,73  | 7,85  | 1440  | 24,46  | 11,68  | 8,31  | 1430  | 24,30  |        |  |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 16,04 | 6,21 | 1970   | 41,70  | 15,93 | 7,17  | 1960   | 41,25  | 15,83 | 8,12  | 1940   | 40,81  | 15,78 | 8,58  | 1940   | 40,59  |  |  |
| 9     | 3          | 15           | 5,21      | 5,08 | 1490  | 26,09  | 6,29  | 6,29 | 1800   | 35,87  | 7,36  | 7,36 | 2110   | 46,78  | 8,41  | 8,41  | 2410   | 58,70  | 9,45  | 9,45  | 2700   | 71,59  | 9,96  | 9,96  | 2850   | 78,38  |  |  |
|       |            | 17           | 7,64      | 4,79 | 1960  | 50,21  | 7,57  | 5,74 | 2170   | 49,04  | 7,69  | 6,91 | 2200   | 50,37  | 8,43  | 8,32  | 2410   | 58,88  | 9,46  | 9,46  | 2710   | 71,79  | 9,98  | 9,98  | 2850   | 78,60  |  |  |
|       |            | 19           | 11,03     | 4,91 | 3150  | 93,20  | 10,95 | 5,88 | 3130   | 92,12  | 10,88 | 6,83 | 3110   | 91,05  | 10,80 | 7,77  | 3090   | 90,00  | 10,73 | 8,69  | 3070   | 88,97  | 10,71 | 9,20  | 3060   | 88,67  |  |  |
|       |            | 21           | -         | -    | -     | 14,57  | 6,00  | 4170 | 150,45 | 14,47  | 6,97  | 4140 | 148,84 | 14,39  | 7,91  | 4120  | 147,25 | 14,30  | 8,85  | 4090  | 145,69 | 14,25  | 9,31  | 4080  | 144,91 |        |  |  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -      | -      | 18,36 | 7,11 | 5250   | 224,46 | 18,25 | 8,07  | 5220   | 222,19 | 18,14 | 9,01  | 5190   | 219,95 | 18,09 | 9,48  | 5170   | 218,84 |  |  |
|       | 5          | 15           | 3,58      | 3,58 | 620   | 4,47   | 5,12  | 5,12 | 880    | 6,61   | 6,34  | 6,34 | 1090   | 12,88  | 7,46  | 7,46  | 1280   | 19,67  | 8,54  | 8,54  | 1470   | 25,14  | 9,07  | 9,07  | 1560   | 27,86  |  |  |
|       |            | 17           | 3,78      | 3,52 | 650   | 4,70   | 5,20  | 4,89 | 1960   | 6,78   | 6,35  | 6,28 | 1090   | 12,92  | 7,47  | 7,47  | 1280   | 19,74  | 8,55  | 8,55  | 1470   | 25,21  | 9,08  | 9,08  | 1560   | 27,93  |  |  |
|       |            | 19           | 8,44      | 3,91 | 1960  | 25,27  | 8,26  | 4,83 | 1420   | 23,69  | 8,19  | 5,78 | 1410   | 23,34  | 8,25  | 6,86  | 1420   | 23,70  | 8,81  | 8,14  | 1510   | 26,49  | 9,19  | 8,79  | 1580   | 28,50  |  |  |
|       |            | 21           | -         | -    | -     | 12,08  | 5,04  | 2070 | 45,20  | 11,99  | 6,00  | 2060 | 44,67  | 11,91  | 6,95  | 2050  | 44,15  | 11,83  |       |       |        |        |       |       |        |        |  |  |

## Cooling performance

### CC2 - 2-pipe system

| 041.0 |            |              |           |      |       |       |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |      |      |       |       |  |  |
|-------|------------|--------------|-----------|------|-------|-------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|------|------|-------|-------|--|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |      |      |       |       |  |  |
|       |            |              | 21        |      |       |       |       | 23   |       |        |       |      | 25    |        |       |      |       | 27     |       |      |       |        | 29    |      |       |        |      | 30   |       |       |  |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC   | SC   | WF    | WDP   |  |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa] |  |  |
| 11    | 3          | 15           | 4,09      | 4,09 | 1170  | 16,35 | 5,21  | 5,21 | 1490  | 25,65  | 6,29  | 6,29 | 1800  | 35,29  | 7,35  | 7,35 | 2100  | 45,97  | 8,39  | 8,39 | 2400  | 57,65  | 8,91  | 8,91 | 2550  | 63,85  |      |      |       |       |  |  |
|       |            | 17           | 4,81      | 3,70 | 1960  | 22,41 | 5,32  | 4,98 | 1530  | 26,65  | 6,30  | 6,30 | 1800  | 35,38  | 7,36  | 7,36 | 2110  | 46,10  | 8,40  | 8,40 | 2410  | 57,81  | 8,92  | 8,92 | 2560  | 64,03  |      |      |       |       |  |  |
|       |            | 19           | 8,32      | 3,86 | 2380  | 56,80 | 8,25  | 4,83 | 2370  | 56,03  | 8,19  | 5,78 | 2350  | 55,28  | 8,14  | 6,76 | 2330  | 54,73  | 8,56  | 8,09 | 2450  | 59,65  | 8,96  | 8,78 | 2570  | 64,45  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 11,90 | 4,97 | 3410  | 104,82 | 11,82 | 5,93 | 3390  | 103,60 | 11,74 | 6,88 | 3360  | 102,39 | 11,66 | 7,81 | 3340  | 101,19 | 11,62 | 8,27 | 3330  | 100,60 |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 15,71 | 6,08 | 4500  | 169,32 | 15,62 | 7,04 | 4470  | 167,50 | 15,52 | 7,98 | 4450  | 165,70 | 15,47 | 8,45 | 4430  | 164,81 |      |      |       |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 17           | 2,71      | 2,70 | 470   | 3,19  | 3,61  | 3,61 | 620   | 4,27   | 5,22  | 5,22 | 900   | 7,13   | 6,38  | 6,38 | 1100  | 13,96  | 7,49  | 7,49 | 1290  | 19,74  | 8,02  | 8,02 | 1380  | 22,29  |      |      |       |       |  |  |
|       |            | 19           | 5,93      | 3,45 | 1960  | 11,33 | 5,37  | 4,06 | 1960  | 8,22   | 5,66  | 5,03 | 970   | 9,51   | 6,46  | 6,19 | 1110  | 14,42  | 7,50  | 7,48 | 1290  | 19,78  | 8,04  | 8,04 | 1380  | 22,35  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 9,13  | 3,96 | 1570  | 27,72  | 9,36  | 5,16 | 1610  | 28,96  | 8,98  | 5,86 | 1540  | 26,96  | 8,92  | 6,81 | 1530  | 26,63  | 9,00  | 7,40 | 1550  | 27,05  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 13,12 | 5,13 | 2260  | 51,29  | 13,03 | 6,09 | 2240  | 50,69  | 12,94 | 7,03 | 2230  | 50,09  | 12,90 | 7,50 | 2220  | 49,80  |      |      |       |       |  |  |
| 13    | 3          | 15           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 17           | 2,93      | 2,93 | 840   | 6,00  | 4,11  | 4,11 | 1180  | 16,70  | 5,21  | 5,21 | 1500  | 25,35  | 6,29  | 6,29 | 1800  | 34,79  | 7,34  | 7,34 | 2110  | 45,29  | 7,87  | 7,87 | 2260  | 50,91  |      |      |       |       |  |  |
|       |            | 19           | 5,78      | 3,11 | 1960  | 31,05 | 5,26  | 3,73 | 1510  | 25,74  | 5,52  | 4,90 | 1580  | 27,93  | 6,31  | 6,19 | 1810  | 35,02  | 7,36  | 7,36 | 2110  | 45,42  | 7,88  | 7,88 | 2260  | 51,07  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 9,01  | 3,91 | 2590  | 64,19  | 8,94  | 4,87 | 2560  | 63,32  | 8,87  | 5,82 | 2540  | 62,46  | 8,80  | 6,75 | 2520  | 61,62  | 8,78  | 7,26 | 2520  | 61,40  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 12,86 | 5,03 | 3690  | 118,28 | 12,77 | 5,99 | 3660  | 116,89 | 12,69 | 6,93 | 3640  | 115,51 | 12,64 | 7,40 | 3630  | 114,84 |      |      |       |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | 2,71  | 2,68 | 470   | 3,03   | 3,73  | 3,73 | 640   | 4,18   | 5,28  | 5,28 | 910   | 8,02   | 6,42  | 6,42 | 1110  | 14,56  | 6,97  | 6,97 | 1200  | 17,18  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 6,37  | 3,35 | 1100  | 14,34  | 5,85  | 4,13 | 1960  | 11,02  | 6,02  | 4,91 | 1960  | 12,99  | 6,66  | 6,11 | 1150  | 15,75  | 7,09  | 6,73 | 1220  | 17,75  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 9,99  | 4,04 | 1720  | 31,80  | 9,91  | 5,00 | 1710  | 31,36  | 9,83  | 5,94 | 1690  | 30,93  | 9,79  | 6,41 | 1690  | 30,72  |      |      |       |       |  |  |
| 15    | 3          | 15           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | 2,98  | 2,90 | 850   | 6,68   | 4,13  | 4,13 | 1180  | 16,72  | 5,22  | 5,22 | 1500  | 25,00  | 6,29  | 6,29 | 1810  | 34,27  | 6,82  | 6,82 | 1960  | 39,29  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 6,05  | 3,08 | 1960  | 30,24  | 5,75  | 3,77 | 1650  | 29,46  | 5,82  | 4,84 | 1670  | 30,05  | 6,42  | 6,09 | 1840  | 35,53  | 6,85  | 6,71 | 1970  | 39,63  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 9,76  | 3,96 | 2800  | 72,58  | 9,69  | 4,92 | 2780  | 71,59  | 9,61  | 5,86 | 2760  | 70,62  | 9,57  | 6,33 | 2750  | 70,13  |      |      |       |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | -      | 2,71  | 2,63 | 470   | 2,88   | 3,96  | 3,96 | 680   | 4,22   | 5,32  | 5,32 | 920   | 8,91   | 5,89  | 5,89 | 1010  | 12,08  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 7,17  | 3,46 | 1230  | 17,81  | 6,61  | 4,07 | 1960  | 15,61  | 6,37  | 4,87 | 1100  | 14,39  | 6,62  | 5,46 | 1140  | 15,49  |      |      |       |       |  |  |
| 7     | 7          | 15           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -    | -    | -     |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | 3,03 | 2,80  | 370    | 2,23  | 3,78 | 3,73  | 470    | 2,80 | 4,22 | 520   | 3,13  |  |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Heating performance

### CC2 - 2-pipe system

| 007.0 |            |           |       |       |      |       |       |      |       |       |      |       |       |      |       |       |      |       |       |
|-------|------------|-----------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| EWT   | $\Delta T$ | Ta (D.B.) |       |       |      |       |       |      |       |       |      |       |       |      |       |       |      |       |       |
|       |            | 16        |       |       | 18   |       |       | 20   |       |       | 22   |       |       | 24   |       |       |      |       |       |
|       |            | TH        | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   |
| [°C]  | [°C]       | [kW]      | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] |
| 35    | 5          | 2,24      | 390   | 5,86  | 1,94 | 340   | 4,57  | 1,64 | 280   | 3,42  | 1,33 | 230   | 2,41  | 1,02 | 180   | 1,52  |      |       |       |
|       | 10         | 1,51      | 130   | 0,61  | 0,96 | 80    | 0,35  | 0,74 | 60    | 0,28  | 0,64 | 640   | 0,27  | 0,54 | 640   | 0,27  |      |       |       |
|       | 15         | 0,94      | 640   | 0,29  | 0,84 | 60    | 0,28  | -    | -     | -     | -    | -     | -     | -    | -     | -     | -    | -     |       |
| 40    | 5          | 2,99      | 520   | 9,37  | 2,69 | 470   | 7,80  | 2,39 | 410   | 6,35  | 2,09 | 360   | 5,04  | 1,79 | 310   | 3,87  |      |       |       |
|       | 10         | 2,39      | 210   | 1,99  | 2,07 | 180   | 1,55  | 1,74 | 150   | 1,07  | 1,38 | 120   | 0,51  | 0,85 | 70    | 0,28  |      |       |       |
|       | 15         | 1,28      | 70    | 0,30  | 1,09 | 60    | 0,26  | 0,99 | 640   | 0,26  | 0,89 | 640   | 0,26  | 0,79 | 60    | 0,25  |      |       |       |
| 45    | 5          | 3,74      | 650   | 13,46 | 3,43 | 600   | 11,61 | 2,61 | 640   | 12,10 | 2,83 | 490   | 8,30  | 2,53 | 440   | 6,84  |      |       |       |
|       | 10         | 3,18      | 280   | 3,13  | 2,87 | 250   | 2,63  | 2,56 | 220   | 2,16  | 2,25 | 190   | 1,74  | 1,93 | 170   | 1,34  |      |       |       |
|       | 15         | 2,49      | 140   | 0,95  | 2,13 | 120   | 0,59  | 1,46 | 80    | 0,31  | 1,17 | 70    | 0,25  | 1,04 | 60    | 0,24  |      |       |       |
| 50    | 5          | 4,48      | 780   | 18,07 | 4,17 | 730   | 15,96 | 3,87 | 670   | 13,98 | 3,57 | 620   | 12,13 | 3,26 | 570   | 10,40 |      |       |       |
|       | 10         | 3,94      | 340   | 4,41  | 3,63 | 320   | 3,83  | 3,33 | 290   | 3,30  | 3,02 | 260   | 2,79  | 2,71 | 240   | 2,33  |      |       |       |
|       | 15         | 3,34      | 190   | 1,69  | 3,02 | 170   | 1,42  | 2,69 | 160   | 1,17  | 2,36 | 140   | 0,88  | 2,01 | 120   | 0,55  |      |       |       |
| 55    | 5          | 5,22      | 910   | 23,18 | 4,91 | 860   | 20,83 | 4,61 | 800   | 18,59 | 4,30 | 750   | 16,49 | 4,00 | 700   | 14,51 |      |       |       |
|       | 10         | 4,70      | 410   | 5,83  | 4,39 | 380   | 5,18  | 4,08 | 350   | 4,57  | 3,77 | 330   | 4,00  | 3,47 | 300   | 3,46  |      |       |       |
|       | 15         | 4,13      | 240   | 2,36  | 3,82 | 220   | 2,07  | 3,50 | 200   | 1,79  | 3,19 | 180   | 1,52  | 2,87 | 170   | 1,28  |      |       |       |
| 60    | 5          | 5,96      | 1040  | 28,76 | 5,65 | 990   | 26,16 | 5,34 | 930   | 23,69 | 5,03 | 880   | 21,34 | 4,73 | 830   | 19,12 |      |       |       |
|       | 10         | 5,45      | 470   | 7,38  | 5,14 | 450   | 6,66  | 4,83 | 420   | 5,98  | 4,52 | 390   | 5,34  | 4,21 | 370   | 4,73  |      |       |       |
|       | 15         | 4,90      | 280   | 3,09  | 4,59 | 270   | 2,76  | 4,28 | 250   | 2,45  | 3,97 | 230   | 2,16  | 3,66 | 210   | 1,88  |      |       |       |
| 65    | 5          | 6,70      | 1170  | 34,79 | 6,39 | 1120  | 31,96 | 6,08 | 1060  | 29,25 | 5,77 | 1010  | 26,67 | 5,46 | 960   | 24,21 |      |       |       |
|       | 10         | 6,19      | 540   | 9,05  | 5,88 | 510   | 8,27  | 5,57 | 490   | 7,52  | 5,26 | 460   | 6,81  | 4,95 | 430   | 6,14  |      |       |       |
|       | 15         | 5,67      | 330   | 3,88  | 5,35 | 310   | 3,52  | 5,04 | 290   | 3,18  | 4,73 | 270   | 2,85  | 4,42 | 260   | 2,54  |      |       |       |
| 70    | 5          | 7,44      | 1300  | 41,23 | 7,13 | 1250  | 38,17 | 6,81 | 1190  | 35,24 | 6,50 | 1140  | 32,42 | 6,19 | 1080  | 29,74 |      |       |       |
|       | 10         | 6,94      | 610   | 10,85 | 6,62 | 580   | 10,00 | 6,31 | 550   | 9,19  | 6,00 | 520   | 8,41  | 5,69 | 500   | 7,67  |      |       |       |
|       | 15         | 6,42      | 370   | 4,73  | 6,11 | 360   | 4,33  | 5,79 | 340   | 3,96  | 5,48 | 320   | 3,60  | 5,17 | 300   | 3,26  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

| 011.0 |            |           |       |       |       |       |       |      |       |       |      |       |       |      |       |       |      |       |       |
|-------|------------|-----------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| EWT   | $\Delta T$ | Ta (D.B.) |       |       |       |       |       |      |       |       |      |       |       |      |       |       |      |       |       |
|       |            | 16        |       |       | 18    |       |       | 20   |       |       | 22   |       |       | 24   |       |       |      |       |       |
|       |            | TH        | WF    | WDP   | TH    | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   |
| [°C]  | [°C]       | [kW]      | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] |
| 35    | 5          | 3,25      | 560   | 5,61  | 2,81  | 490   | 4,38  | 2,37 | 410   | 3,28  | 1,93 | 330   | 2,32  | 1,48 | 260   | 1,46  |      |       |       |
|       | 10         | 2,21      | 190   | 0,59  | 1,51  | 130   | 0,38  | 1,18 | 100   | 0,30  | 0,91 | 80    | 0,24  | 0,77 | 830   | 0,24  |      |       |       |
|       | 15         | 1,34      | 80    | 0,26  | 1,20  | 830   | 0,25  | -    | -     | -     | -    | -     | -     | -    | -     | -     | -    | -     |       |
| 40    | 5          | 4,33      | 750   | 8,93  | 3,89  | 670   | 7,43  | 3,45 | 600   | 6,06  | 3,02 | 520   | 4,81  | 2,58 | 450   | 3,69  |      |       |       |
|       | 10         | 3,48      | 300   | 1,92  | 3,02  | 260   | 1,50  | 2,55 | 220   | 1,01  | 2,02 | 170   | 0,49  | 1,34 | 120   | 0,30  |      |       |       |
|       | 15         | 2,03      | 120   | 0,32  | 1,69  | 100   | 0,27  | 1,40 | 80    | 0,23  | 1,26 | 830   | 0,23  | 1,13 | 80    | 0,22  |      |       |       |
| 45    | 5          | 5,40      | 940   | 12,80 | 4,95  | 860   | 11,04 | 4,63 | 830   | 9,20  | 4,08 | 710   | 7,89  | 3,65 | 630   | 6,50  |      |       |       |
|       | 10         | 4,61      | 400   | 3,00  | 4,16  | 360   | 2,52  | 3,71 | 320   | 2,08  | 3,26 | 280   | 1,67  | 2,81 | 240   | 1,29  |      |       |       |
|       | 15         | 3,64      | 210   | 0,90  | 3,12  | 180   | 0,56  | 2,33 | 130   | 0,34  | 1,86 | 110   | 0,27  | 1,52 | 90    | 0,22  |      |       |       |
| 50    | 5          | 6,46      | 1120  | 17,15 | 6,02  | 1050  | 15,15 | 5,58 | 970   | 13,26 | 5,14 | 890   | 11,50 | 4,70 | 820   | 9,86  |      |       |       |
|       | 10         | 5,71      | 500   | 4,21  | 5,26  | 460   | 3,67  | 4,82 | 420   | 3,15  | 4,37 | 380   | 2,67  | 3,93 | 340   | 2,23  |      |       |       |
|       | 15         | 4,86      | 280   | 1,63  | 4,39  | 250   | 1,38  | 3,92 | 230   | 1,12  | 3,45 | 200   | 0,84  | 2,94 | 170   | 0,51  |      |       |       |
| 55    | 5          | 7,53      | 1310  | 21,98 | 7,08  | 1230  | 19,73 | 6,63 | 1160  | 17,61 | 6,19 | 1080  | 15,61 | 5,75 | 1000  | 13,73 |      |       |       |
|       | 10         | 6,79      | 590   | 5,56  | 6,34  | 550   | 4,94  | 5,90 | 510   | 4,36  | 5,45 | 470   | 3,81  | 5,01 | 440   | 3,30  |      |       |       |
|       | 15         | 5,99      | 350   | 2,27  | 5,54  | 320   | 1,98  | 5,09 | 290   | 1,72  | 4,63 | 270   | 1,47  | 4,17 | 240   | 1,23  |      |       |       |
| 60    | 5          | 8,59      | 1500  | 27,24 | 8,14  | 1420  | 24,76 | 7,69 | 1340  | 22,41 | 7,25 | 1260  | 20,18 | 6,80 | 1190  | 18,06 |      |       |       |
|       | 10         | 7,87      | 690   | 7,02  | 7,42  | 650   | 6,34  | 6,97 | 610   | 5,69  | 6,52 | 570   | 5,08  | 6,08 | 530   | 4,50  |      |       |       |
|       | 15         | 7,10      | 410   | 2,96  | 6,65  | 390   | 2,65  | 6,20 | 360   | 2,35  | 5,75 | 330   | 2,06  | 5,30 | 310   | 1,80  |      |       |       |
| 65    | 5          | 9,66      | 1690  | 32,92 | 9,20  | 1610  | 30,22 | 8,75 | 1530  | 27,64 | 8,30 | 1450  | 25,19 | 7,85 | 1370  | 22,85 |      |       |       |
|       | 10         | 8,94      | 780   | 8,61  | 8,49  | 740   | 7,86  | 8,04 | 700   | 7,15  | 7,59 | 660   | 6,47  | 7,14 | 620   | 5,83  |      |       |       |
|       | 15         | 8,20      | 480   | 3,71  | 7,74  | 450   | 3,36  | 7,29 | 420   | 3,03  | 6,84 | 400   | 2,72  | 6,40 | 370   | 2,42  |      |       |       |
| 70    | 5          | 10,72     | 1880  | 38,99 | 10,26 | 1800  | 36,07 | 9,80 | 1720  | 33,27 | 9,35 | 1640  | 30,60 | 8,90 | 1560  | 28,04 |      |       |       |
|       | 10         | 10,01     | 880   | 10,30 | 9,56  | 840   | 9,49  | 9,10 | 800   | 8,72  | 8,65 | 760   | 7,98  | 8,20 | 720   | 7,27  |      |       |       |
|       | 15         | 9,29      | 540   | 4,51  | 8,83  | 510   | 4,13  | 8,37 | 490   | 3,77  | 7,92 | 460   | 3,43  | 7,47 | 430   | 3,10  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Heating performance

### CC2 - 2-pipe system

| 015.0 |            |           |       |       |       |       |       |       |       |       |       |       |       |      |       |       |      |       |       |
|-------|------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|
| EWT   | $\Delta T$ | Ta (D.B.) |       |       |       |       |       |       |       |       |       |       |       |      |       |       |      |       |       |
|       |            | 16        |       |       | 18    |       |       | 20    |       |       | 22    |       |       | 24   |       |       |      |       |       |
|       |            | TH        | WF    | WDP   | TH    | WF    | WDP   | TH    | WF    | WDP   | TH    | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   |
| [°C]  | [°C]       | [kW]      | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] |
| 35    | 5          | 3,49      | 600   | 5,53  | 3,02  | 520   | 4,31  | 2,54  | 440   | 3,23  | 2,07  | 360   | 2,27  | 1,57 | 270   | 1,31  |      |       |       |
|       | 10         | 2,10      | 180   | 0,51  | 1,62  | 140   | 0,40  | 1,27  | 110   | 0,31  | 0,97  | 90    | 0,25  | 0,82 | 870   | 0,24  |      |       |       |
|       | 15         | 1,41      | 90    | 0,26  | 1,27  | 870   | 0,26  | -     | -     | -     | -     | -     | -     | -    | -     | -     | -    | -     | -     |
| 40    | 5          | 4,66      | 810   | 8,83  | 4,19  | 730   | 7,34  | 3,72  | 640   | 5,98  | 3,25  | 560   | 4,75  | 2,78 | 480   | 3,64  |      |       |       |
|       | 10         | 3,72      | 320   | 1,87  | 3,21  | 280   | 1,40  | 2,69  | 230   | 0,82  | 1,92  | 170   | 0,42  | 1,44 | 120   | 0,32  |      |       |       |
|       | 15         | 2,18      | 130   | 0,34  | 1,82  | 100   | 0,28  | 1,49  | 90    | 0,24  | 1,34  | 870   | 0,23  | 1,19 | 870   | 0,23  |      |       |       |
| 45    | 5          | 5,82      | 1010  | 12,65 | 5,34  | 930   | 10,91 | 4,95  | 870   | 9,40  | 4,40  | 760   | 7,79  | 3,93 | 680   | 6,42  |      |       |       |
|       | 10         | 4,95      | 430   | 2,95  | 4,46  | 390   | 2,48  | 3,98  | 340   | 2,04  | 3,49  | 300   | 1,63  | 2,99 | 260   | 1,23  |      |       |       |
|       | 15         | 3,84      | 220   | 0,75  | 3,14  | 180   | 0,45  | 2,39  | 140   | 0,34  | 2,00  | 120   | 0,28  | 1,63 | 90    | 0,23  |      |       |       |
| 50    | 5          | 6,98      | 1210  | 16,96 | 6,49  | 1130  | 14,98 | 6,02  | 1050  | 13,11 | 5,54  | 960   | 11,37 | 5,07 | 880   | 9,75  |      |       |       |
|       | 10         | 6,14      | 530   | 4,16  | 5,66  | 490   | 3,61  | 5,18  | 450   | 3,11  | 4,70  | 410   | 2,63  | 4,22 | 370   | 2,19  |      |       |       |
|       | 15         | 5,19      | 300   | 1,59  | 4,68  | 270   | 1,33  | 4,17  | 240   | 1,04  | 3,64  | 210   | 0,71  | 3,02 | 170   | 0,41  |      |       |       |
| 55    | 5          | 8,13      | 1420  | 21,73 | 7,64  | 1330  | 19,51 | 7,16  | 1250  | 17,41 | 6,68  | 1160  | 15,43 | 6,21 | 1080  | 13,57 |      |       |       |
|       | 10         | 7,32      | 640   | 5,49  | 6,83  | 590   | 4,88  | 6,35  | 550   | 4,30  | 5,87  | 510   | 3,76  | 5,39 | 470   | 3,25  |      |       |       |
|       | 15         | 6,43      | 370   | 2,23  | 5,94  | 340   | 1,95  | 5,45  | 320   | 1,68  | 4,95  | 290   | 1,43  | 4,46 | 260   | 1,20  |      |       |       |
| 60    | 5          | 9,28      | 1620  | 26,93 | 8,79  | 1530  | 24,48 | 8,30  | 1450  | 22,15 | 7,82  | 1370  | 19,95 | 7,34 | 1280  | 17,86 |      |       |       |
|       | 10         | 8,48      | 740   | 6,94  | 8,00  | 700   | 6,26  | 7,51  | 650   | 5,62  | 7,03  | 610   | 5,02  | 6,55 | 570   | 4,44  |      |       |       |
|       | 15         | 7,64      | 440   | 2,92  | 7,15  | 410   | 2,61  | 6,66  | 390   | 2,31  | 6,17  | 360   | 2,03  | 5,69 | 330   | 1,77  |      |       |       |
| 65    | 5          | 10,43     | 1820  | 32,55 | 9,94  | 1740  | 29,88 | 9,45  | 1650  | 27,33 | 8,96  | 1570  | 24,90 | 8,48 | 1480  | 22,59 |      |       |       |
|       | 10         | 9,65      | 840   | 8,51  | 9,15  | 800   | 7,77  | 8,67  | 760   | 7,06  | 8,18  | 710   | 6,39  | 7,70 | 670   | 5,76  |      |       |       |
|       | 15         | 8,83      | 510   | 3,66  | 8,34  | 480   | 3,32  | 7,85  | 460   | 2,99  | 7,36  | 430   | 2,68  | 6,88 | 400   | 2,39  |      |       |       |
| 70    | 5          | 11,58     | 2030  | 38,54 | 11,08 | 1940  | 35,65 | 10,59 | 1860  | 32,89 | 10,10 | 1770  | 30,25 | 9,61 | 1680  | 27,72 |      |       |       |
|       | 10         | 10,81     | 940   | 10,18 | 10,31 | 900   | 9,38  | 9,82  | 860   | 8,62  | 9,33  | 820   | 7,89  | 8,85 | 770   | 7,19  |      |       |       |
|       | 15         | 10,01     | 580   | 4,45  | 9,51  | 550   | 4,08  | 9,02  | 520   | 3,72  | 8,53  | 500   | 3,38  | 8,05 | 470   | 3,06  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

| 021.0 |            |           |       |        |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |
|-------|------------|-----------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| EWT   | $\Delta T$ | Ta (D.B.) |       |        |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |
|       |            | 16        |       |        | 18    |       |       | 20    |       |       | 22    |       |       | 24    |       |       |      |       |       |
|       |            | TH        | WF    | WDP    | TH    | WF    | WDP   | TH    | WF    | WDP   | TH    | WF    | WDP   | TH    | WF    | WDP   | TH   | WF    | WDP   |
| [°C]  | [°C]       | [kW]      | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW] | [l/h] | [kPa] |
| 35    | 5          | 4,35      | 750   | 14,69  | 3,76  | 650   | 11,45 | 3,17  | 550   | 8,56  | 2,57  | 440   | 6,01  | 1,96  | 340   | 3,70  |      |       |       |
|       | 10         | 2,75      | 240   | 1,35   | 1,91  | 170   | 0,93  | 1,50  | 1300  | 0,73  | 1,30  | 130   | 0,72  | 1,10  | 1300  | 0,71  |      |       |       |
|       | 15         | 1,91      | 1300  | 0,76   | 1,70  | 1300  | 0,75  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -    | -     | -     |
| 40    | 5          | 5,82      | 1010  | 23,60  | 5,23  | 910   | 19,63 | 4,65  | 810   | 15,99 | 4,06  | 700   | 12,69 | 3,47  | 600   | 9,72  |      |       |       |
|       | 10         | 4,61      | 400   | 4,91   | 3,98  | 340   | 3,80  | 3,33  | 290   | 2,48  | 2,55  | 220   | 1,14  | 1,70  | 150   | 0,75  |      |       |       |
|       | 15         | 2,56      | 150   | 0,79   | 2,20  | 130   | 0,70  | 2,01  | 130   | 0,69  | 1,81  | 1300  | 0,68  | 1,60  | 1300  | 0,67  |      |       |       |
| 45    | 5          | 7,29      | 1270  | 33,96  | 6,69  | 1160  | 29,31 | 6,06  | 1300  | 25,90 | 5,52  | 960   | 20,97 | 4,93  | 860   | 17,29 |      |       |       |
|       | 10         | 6,15      | 530   | 7,80   | 5,55  | 480   | 6,55  | 4,94  | 430   | 5,39  | 4,33  | 380   | 4,31  | 3,71  | 320   | 3,31  |      |       |       |
|       | 15         | 4,75      | 270   | 2,20   | 4,01  | 230   | 1,31  | 2,86  | 170   | 0,80  | 2,35  | 140   | 0,66  | 2,11  | 130   | 0,63  |      |       |       |
| 50    | 5          | 8,74      | 1520  | 45,67  | 8,15  | 1420  | 40,38 | 7,55  | 1310  | 35,40 | 6,96  | 1210  | 30,73 | 6,38  | 1110  | 26,37 |      |       |       |
|       | 10         | 7,65      | 660   | 11,05  | 7,05  | 610   | 9,61  | 6,46  | 560   | 8,26  | 5,86  | 510   | 7,00  | 5,26  | 460   | 5,83  |      |       |       |
|       | 15         | 6,43      | 370   | 4,18   | 5,81  | 340   | 3,52  | 5,17  | 300   | 2,85  | 4,52  | 260   | 2,08  | 3,81  | 220   | 1,23  |      |       |       |
| 55    | 5          | 10,20     | 1780  | 58,65  | 9,60  | 1670  | 52,74 | 9,00  | 1570  | 47,14 | 8,41  | 1470  | 41,84 | 7,82  | 1360  | 36,85 |      |       |       |
|       | 10         | 9,14      | 790   | 14,64  | 8,54  | 740   | 13,03 | 7,94  | 690   | 11,50 | 7,34  | 640   | 10,06 | 6,75  | 590   | 8,71  |      |       |       |
|       | 15         | 7,99      | 460   | 5,89   | 7,38  | 430   | 5,15  | 6,77  | 390   | 4,45  | 6,16  | 360   | 3,79  | 5,54  | 320   | 3,17  |      |       |       |
| 60    | 5          | 11,65     | 2030  | 72,82  | 11,05 | 1930  | 66,31 | 10,45 | 1820  | 60,11 | 9,85  | 1720  | 54,21 | 9,26  | 1620  | 48,61 |      |       |       |
|       | 10         | 10,61     | 920   | 18,58  | 10,01 | 870   | 16,79 | 9,41  | 820   | 15,09 | 8,81  | 770   | 13,48 | 8,22  | 720   | 11,95 |      |       |       |
|       | 15         | 9,51      | 550   | 7,74   | 8,91  | 520   | 6,92  | 8,30  | 480   | 6,14  | 7,70  | 450   | 5,40  | 7,09  | 410   | 4,70  |      |       |       |
| 65    | 5          | 13,10     | 2290  | 88,14  | 12,49 | 2190  | 81,06 | 11,89 | 2080  | 74,28 | 11,29 | 1980  | 67,80 | 10,69 | 1870  | 61,61 |      |       |       |
|       | 10         | 12,07     | 1050  | 22,83  | 11,47 | 1000  | 20,88 | 10,87 | 950   | 19,01 | 10,27 | 900   | 17,23 | 9,67  | 840   | 15,54 |      |       |       |
|       | 15         | 11,01     | 640   | 9,74   | 10,40 | 600   | 8,84  | 9,80  | 570   | 7,98  | 9,20  | 530   | 7,16  | 8,60  | 500   | 6,38  |      |       |       |
| 70    | 5          | 14,55     | 2550  | 104,50 | 13,94 | 2440  | 96,86 | 13,33 | 2340  | 89,53 | 12,73 | 2230  | 82,48 | 12,13 | 2130  | 75,74 |      |       |       |
|       | 10         | 13,54     | 1180  | 27,39  | 12,93 | 1130  | 25,28 | 12,32 | 1080  | 23,25 | 11,72 | 1030  | 21,31 | 11,12 | 970   | 19,45 |      |       |       |
|       | 15         | 12,49     | 730   | 11,88  | 11,89 | 690   | 10,90 | 11,28 | 660   | 9,96  | 10,68 | 620   | 9,07  | 10,08 | 590   | 8,21  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

# Heating performance

## CC2 - 2-pipe system

| 031.0 |      |           |       |        |       |       |        |       |       |        |       |       |       |       |       |       |      |
|-------|------|-----------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|-------|-------|-------|-------|------|
| EWT   | ΔT   | Ta (D.B.) |       |        |       |       |        |       |       |        |       |       |       |       |       |       |      |
|       |      | 16        |       |        | 18    |       |        | 20    |       |        | 22    |       |       | 24    |       |       |      |
|       |      | TH        | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP   | TH    | WF    | WDP   | TH   |
| [°C]  | [°C] | [kW]      | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa] | [kW]  | [l/h] | [kPa] | [kW] |
| 35    | 5    | 6,36      | 1100  | 17,78  | 5,50  | 950   | 13,88  | 4,64  | 800   | 10,40  | 3,78  | 650   | 7,33  | 2,89  | 500   | 4,52  |      |
|       | 10   | 4,16      | 360   | 1,73   | 2,93  | 250   | 1,20   | 2,29  | 200   | 0,94   | 1,85  | 170   | 0,82  | 1,56  | 1730  | 0,81  |      |
|       | 15   | 2,71      | 170   | 0,87   | 2,42  | 1730  | 0,85   | -     | -     | -      | -     | -     | -     | -     | -     | -     |      |
| 40    | 5    | 8,49      | 1470  | 28,42  | 7,63  | 1320  | 23,65  | 6,78  | 1170  | 19,28  | 5,92  | 1030  | 15,32 | 5,07  | 880   | 11,76 |      |
|       | 10   | 6,78      | 590   | 6,03   | 5,87  | 510   | 4,67   | 4,94  | 430   | 3,03   | 3,83  | 330   | 1,46  | 2,61  | 230   | 0,97  |      |
|       | 15   | 3,93      | 230   | 1,03   | 3,28  | 190   | 0,86   | 2,84  | 170   | 0,79   | 2,57  | 1730  | 0,78  | 2,27  | 1730  | 0,76  |      |
| 45    | 5    | 10,61     | 1840  | 40,79  | 9,74  | 1690  | 35,20  | 9,16  | 1730  | 28,80  | 8,03  | 1390  | 25,20 | 7,18  | 1250  | 20,78 |      |
|       | 10   | 9,01      | 780   | 9,48   | 8,14  | 700   | 7,97   | 7,26  | 630   | 6,57   | 6,37  | 550   | 5,28  | 5,47  | 470   | 4,05  |      |
|       | 15   | 7,05      | 410   | 2,70   | 5,99  | 350   | 1,65   | 4,42  | 250   | 1,05   | 3,61  | 210   | 0,86  | 2,98  | 1730  | 0,71  |      |
| 50    | 5    | 12,71     | 2210  | 54,74  | 11,84 | 2060  | 48,39  | 10,98 | 1910  | 42,41  | 10,12 | 1760  | 36,82 | 9,27  | 1610  | 31,60 |      |
|       | 10   | 11,18     | 970   | 13,36  | 10,31 | 890   | 11,63  | 9,44  | 820   | 10,01  | 8,57  | 740   | 8,49  | 7,70  | 670   | 7,08  |      |
|       | 15   | 9,47      | 550   | 5,12   | 8,56  | 490   | 4,31   | 7,64  | 440   | 3,50   | 6,69  | 390   | 2,54  | 5,68  | 330   | 1,52  |      |
| 55    | 5    | 14,82     | 2580  | 70,19  | 13,94 | 2430  | 63,10  | 13,07 | 2280  | 56,38  | 12,21 | 2130  | 50,03 | 11,35 | 1980  | 44,05 |      |
|       | 10   | 13,32     | 1160  | 17,66  | 12,45 | 1080  | 15,71  | 11,58 | 1010  | 13,87  | 10,71 | 930   | 12,14 | 9,85  | 860   | 10,51 |      |
|       | 15   | 11,72     | 680   | 7,17   | 10,83 | 630   | 6,27   | 9,94  | 580   | 5,42   | 9,05  | 520   | 4,63  | 8,15  | 470   | 3,88  |      |
| 60    | 5    | 16,92     | 2950  | 87,05  | 16,04 | 2800  | 79,24  | 15,16 | 2650  | 71,80  | 14,29 | 2500  | 64,73 | 13,43 | 2340  | 58,02 |      |
|       | 10   | 15,45     | 1350  | 22,35  | 14,58 | 1270  | 20,20  | 13,70 | 1190  | 18,15  | 12,83 | 1120  | 16,21 | 11,97 | 1040  | 14,38 |      |
|       | 15   | 13,91     | 810   | 9,38   | 13,03 | 760   | 8,38   | 12,15 | 700   | 7,44   | 11,27 | 650   | 6,55  | 10,39 | 600   | 5,71  |      |
| 65    | 5    | 19,02     | 3330  | 105,28 | 18,13 | 3170  | 96,77  | 17,25 | 3020  | 88,63  | 16,38 | 2860  | 80,86 | 15,51 | 2710  | 73,45 |      |
|       | 10   | 17,57     | 1530  | 27,42  | 16,69 | 1460  | 25,07  | 15,81 | 1380  | 22,82  | 14,94 | 1300  | 20,68 | 14,07 | 1230  | 18,65 |      |
|       | 15   | 16,08     | 930   | 11,77  | 15,19 | 880   | 10,68  | 14,31 | 830   | 9,64   | 13,43 | 780   | 8,65  | 12,56 | 730   | 7,71  |      |
| 70    | 5    | 21,12     | 3700  | 124,73 | 20,22 | 3550  | 115,55 | 19,34 | 3390  | 106,73 | 18,46 | 3230  | 98,28 | 17,58 | 3080  | 90,20 |      |
|       | 10   | 19,69     | 1720  | 32,85  | 18,80 | 1640  | 30,30  | 17,92 | 1570  | 27,87  | 17,04 | 1490  | 25,53 | 16,17 | 1410  | 23,30 |      |
|       | 15   | 18,22     | 1060  | 14,32  | 17,33 | 1010  | 13,14  | 16,45 | 960   | 12,01  | 15,57 | 910   | 10,92 | 14,70 | 850   | 9,89  |      |

EWT = Exchanger water inlet temperature (°C)

ΔT = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

| 041.0 |      |           |       |        |       |       |        |       |       |        |       |       |        |       |       |        |      |
|-------|------|-----------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|------|
| EWT   | ΔT   | Ta (D.B.) |       |        |       |       |        |       |       |        |       |       |        |       |       |        |      |
|       |      | 16        |       |        | 18    |       |        | 20    |       |        | 22    |       |        | 24    |       |        |      |
|       |      | TH        | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH   |
| [°C]  | [°C] | [kW]      | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW] |
| 35    | 5    | 7,80      | 1350  | 26,40  | 6,73  | 1160  | 20,54  | 5,65  | 980   | 15,29  | 4,56  | 790   | 10,50  | 3,40  | 590   | 4,40   |      |
|       | 10   | 4,39      | 380   | 2,51   | 3,59  | 310   | 2,06   | 2,80  | 240   | 1,61   | 2,40  | 240   | 1,55   | 2,02  | 2350  | 1,52   |      |
|       | 15   | 3,52      | 240   | 1,64   | 3,14  | 2350  | 1,60   | -     | -     | -      | -     | -     | -      | -     | -     | -      |      |
| 40    | 5    | 10,45     | 1810  | 42,35  | 9,38  | 1630  | 35,19  | 8,32  | 1440  | 28,64  | 7,25  | 1260  | 22,70  | 6,19  | 1070  | 17,36  |      |
|       | 10   | 8,16      | 710   | 8,31   | 6,98  | 600   | 5,22   | 5,49  | 470   | 2,85   | 3,98  | 340   | 2,06   | 3,19  | 280   | 1,65   |      |
|       | 15   | 4,82      | 280   | 1,76   | 4,05  | 2350  | 1,49   | 3,70  | 240   | 1,48   | 3,32  | 2350  | 1,45   | 2,95  | 2350  | 1,43   |      |
| 45    | 5    | 13,08     | 2270  | 60,83  | 12,00 | 2080  | 52,45  | 10,07 | 2350  | 49,20  | 9,87  | 1710  | 37,46  | 8,81  | 1530  | 30,85  |      |
|       | 10   | 11,00     | 950   | 14,01  | 9,90  | 860   | 11,73  | 8,79  | 760   | 9,58   | 7,67  | 660   | 7,43   | 6,51  | 560   | 4,74   |      |
|       | 15   | 7,74      | 450   | 2,58   | 6,09  | 350   | 2,01   | 5,21  | 300   | 1,72   | 4,41  | 250   | 1,46   | 3,87  | 2350  | 1,35   |      |
| 50    | 5    | 15,69     | 2730  | 81,63  | 14,61 | 2540  | 72,09  | 13,53 | 2350  | 63,13  | 12,46 | 2170  | 54,75  | 11,40 | 1980  | 46,95  |      |
|       | 10   | 13,72     | 1190  | 19,86  | 12,63 | 1100  | 17,25  | 11,54 | 1000  | 14,80  | 10,46 | 910   | 12,52  | 9,37  | 810   | 10,41  |      |
|       | 15   | 11,43     | 660   | 7,29   | 10,26 | 590   | 5,67   | 9,05  | 520   | 3,88   | 7,60  | 440   | 2,41   | 5,71  | 330   | 1,72   |      |
| 55    | 5    | 18,30     | 3190  | 104,62 | 17,21 | 3000  | 93,97  | 16,12 | 2810  | 83,89  | 15,05 | 2620  | 74,39  | 13,98 | 2440  | 65,45  |      |
|       | 10   | 16,39     | 1430  | 26,29  | 15,30 | 1330  | 23,37  | 14,21 | 1240  | 20,60  | 13,13 | 1140  | 18,00  | 12,06 | 1050  | 15,56  |      |
|       | 15   | 14,30     | 830   | 10,57  | 13,18 | 760   | 9,22   | 12,06 | 700   | 7,93   | 10,93 | 630   | 6,67   | 9,78  | 570   | 5,29   |      |
| 60    | 5    | 20,91     | 3650  | 129,67 | 19,80 | 3460  | 117,95 | 18,71 | 3270  | 106,79 | 17,63 | 3080  | 96,20  | 16,55 | 2890  | 86,17  |      |
|       | 10   | 19,04     | 1660  | 33,30  | 17,94 | 1560  | 30,07  | 16,85 | 1470  | 26,99  | 15,77 | 1370  | 24,08  | 14,69 | 1280  | 21,33  |      |
|       | 15   | 17,05     | 990   | 13,92  | 15,94 | 920   | 12,42  | 14,84 | 860   | 11,00  | 13,74 | 800   | 9,65   | 12,64 | 730   | 8,38   |      |
| 65    | 5    | 23,51     | 4110  | 156,74 | 22,40 | 3920  | 143,96 | 21,30 | 3730  | 131,75 | 20,20 | 3530  | 120,10 | 19,12 | 3340  | 109,02 |      |
|       | 10   | 21,67     | 1890  | 40,87  | 20,57 | 1800  | 37,33  | 19,47 | 1700  | 33,96  | 18,38 | 1600  | 30,74  | 17,30 | 1510  | 27,69  |      |
|       | 15   | 19,75     | 1150  | 17,50  | 18,65 | 1080  | 15,86  | 17,55 | 1020  | 14,29  | 16,45 | 960   | 12,81  | 15,36 | 890   | 11,39  |      |
| 70    | 5    | 26,11     | 4580  | 185,60 | 24,99 | 4380  | 171,80 | 23,88 | 4190  | 158,57 | 22,78 | 3990  | 145,91 | 21,68 | 3800  | 133,80 |      |
|       | 10   | 24,30     | 2120  | 48,95  | 23,18 | 2030  | 45,12  | 22,08 | 1930  | 41,46  | 20,98 | 1830  | 37,95  | 19,89 | 1740  | 34,60  |      |
|       | 15   | 22,43     | 1300  | 21,33  | 21,31 | 1240  | 19,54  | 20,21 | 1180  | 17,84  | 19,11 | 1110  | 16,21  | 18,02 | 1050  | 14,66  |      |

EWT = Exchanger water inlet temperature (°C)

ΔT = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC4 - 4-pipe system

| 007.0 |            |              |           |      |       |       |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |
|       |            |              | 21        |      |       |       | 23   |      |       |        | 25   |      |       |        | 27   |      |       |        | 29   |      |       |        | 30   |      |       |        |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  |
| 3     | 3          | 15           | 2,25      | 1,67 | 640   | 28,54 | 2,24 | 1,92 | 640   | 28,26  | 2,37 | 2,31 | 680   | 31,21  | 2,64 | 2,64 | 750   | 37,40  | 2,90 | 2,90 | 830   | 44,12  | 3,04 | 3,04 | 870   | 47,63  |
|       |            | 17           | 3,06      | 1,69 | 870   | 48,13 | 3,04 | 1,94 | 870   | 47,66  | 3,02 | 2,19 | 860   | 47,19  | 3,00 | 2,43 | 860   | 46,73  | 3,00 | 2,72 | 860   | 46,73  | 3,07 | 2,93 | 870   | 48,40  |
|       |            | 19           | 3,92      | 1,72 | 1120  | 73,80 | 3,89 | 1,97 | 1110  | 73,11  | 3,87 | 2,22 | 1100  | 72,44  | 3,85 | 2,46 | 1100  | 71,77  | 3,83 | 2,70 | 1090  | 71,11  | 3,82 | 2,82 | 1090  | 70,78  |
|       |            | 21           | -         | -    | -     | -     | 4,82 | 2,00 | 1370  | 105,69 | 4,79 | 2,25 | 1370  | 104,75 | 4,77 | 2,49 | 1360  | 103,82 | 4,75 | 2,74 | 1350  | 102,90 | 4,73 | 2,86 | 1350  | 102,45 |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 5,79 | 2,28 | 1650  | 145,38 | 5,76 | 2,53 | 1640  | 144,12 | 5,73 | 2,78 | 1630  | 142,89 | 5,72 | 2,90 | 1630  | 142,28 |
|       | 5          | 15           | 1,58      | 1,46 | 420   | 5,52  | 1,77 | 1,75 | 300   | 7,58   | 2,06 | 2,06 | 350   | 10,25  | 2,34 | 2,34 | 400   | 12,76  | 2,62 | 2,62 | 450   | 15,40  | 2,75 | 2,75 | 470   | 16,78  |
|       |            | 17           | 2,32      | 1,38 | 400   | 12,54 | 2,45 | 1,75 | 420   | 13,79  | 2,42 | 2,00 | 420   | 13,48  | 2,47 | 2,31 | 420   | 13,98  | 2,62 | 2,59 | 450   | 15,42  | 2,76 | 2,76 | 470   | 16,81  |
|       |            | 19           | 3,22      | 1,42 | 550   | 21,92 | 3,20 | 1,67 | 550   | 21,70  | 3,19 | 1,92 | 550   | 21,47  | 3,17 | 2,16 | 540   | 21,26  | 3,15 | 2,40 | 540   | 21,04  | 3,14 | 2,52 | 540   | 20,93  |
|       |            | 21           | -         | -    | -     | 4,15  | 1,71 | 710  | 33,69 | 4,13   | 1,96 | 710  | 33,38 | 4,10   | 2,21 | 700  | 33,06 | 4,08   | 2,45 | 700  | 32,75 | 4,07   | 2,57 | 700  | 32,60 |        |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 5,13 | 2,00 | 880   | 48,50  | 5,10 | 2,25 | 880   | 48,07  | 5,08 | 2,49 | 870   | 47,64  | 5,06 | 2,61 | 870   | 47,43  |
| 7     | 7          | 15           | 0,97      | 0,97 | 120   | 1,45  | 1,16 | 1,16 | 140   | 1,74   | 1,45 | 1,45 | 180   | 2,18   | 1,97 | 1,97 | 240   | 3,85   | 2,28 | 2,28 | 280   | 6,20   | 2,43 | 2,43 | 300   | 7,28   |
|       |            | 17           | 1,67      | 1,54 | 420   | 2,55  | 1,16 | 1,15 | 140   | 1,74   | 1,45 | 1,45 | 180   | 2,19   | 1,97 | 1,97 | 240   | 3,87   | 2,28 | 2,28 | 280   | 6,23   | 2,43 | 2,43 | 300   | 7,30   |
|       |            | 19           | 2,40      | 1,13 | 420   | 7,02  | 2,59 | 1,55 | 420   | 8,32   | 2,55 | 1,79 | 420   | 8,11   | 2,44 | 1,98 | 420   | 7,40   | 2,51 | 2,29 | 420   | 7,76   | 2,55 | 2,39 | 310   | 8,12   |
|       |            | 21           | -         | -    | -     | 3,36  | 1,40 | 410  | 13,18 | 3,34   | 1,64 | 410  | 13,04 | 3,32   | 1,89 | 410  | 12,90 | 3,30   | 2,13 | 400  | 12,76 | 3,29   | 2,25 | 400  | 12,69 |        |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 4,39 | 1,70 | 540   | 20,73  | 4,37 | 1,95 | 540   | 20,53  | 4,34 | 2,20 | 530   | 20,33  | 4,33 | 2,32 | 530   | 20,24  |
|       | 5          | 15           | 1,67      | 1,45 | 420   | 16,57 | 1,82 | 1,79 | 520   | 19,73  | 2,10 | 2,10 | 600   | 25,02  | 2,37 | 2,37 | 680   | 30,80  | 2,64 | 2,64 | 760   | 37,00  | 2,77 | 2,77 | 790   | 40,27  |
|       |            | 17           | 2,45      | 1,43 | 700   | 32,66 | 2,44 | 1,68 | 700   | 32,31  | 2,42 | 1,93 | 690   | 31,95  | 2,44 | 2,23 | 700   | 32,50  | 2,64 | 2,63 | 760   | 37,06  | 2,77 | 2,77 | 790   | 40,35  |
|       |            | 19           | 3,32      | 1,46 | 950   | 54,87 | 3,30 | 1,71 | 940   | 54,33  | 3,28 | 1,96 | 940   | 53,79  | 3,26 | 2,20 | 930   | 53,25  | 3,24 | 2,44 | 930   | 52,72  | 3,23 | 2,56 | 930   | 52,46  |
|       |            | 21           | -         | -    | -     | 4,22  | 1,74 | 1210 | 83,31 | 4,20   | 1,99 | 1200 | 82,53 | 4,18   | 2,24 | 1200 | 81,76 | 4,15   | 2,48 | 1190 | 80,99 | 4,14   | 2,60 | 1190 | 80,61 |        |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 5,19 | 2,03 | 1490  | 119,43 | 5,17 | 2,27 | 1480  | 118,36 | 5,14 | 2,52 | 1470  | 117,30 | 5,13 | 2,64 | 1470  | 116,78 |
| 9     | 7          | 15           | 1,02      | 1,02 | 180   | 2,09  | 1,48 | 1,48 | 250   | 4,86   | 1,79 | 1,79 | 310   | 7,84   | 2,07 | 2,07 | 360   | 10,22  | 2,35 | 2,35 | 400   | 12,65  | 2,49 | 2,49 | 430   | 13,92  |
|       |            | 17           | 1,86      | 1,34 | 320   | 8,42  | 1,82 | 1,60 | 420   | 8,13   | 1,81 | 1,72 | 420   | 8,06   | 2,07 | 2,07 | 360   | 10,23  | 2,35 | 2,35 | 400   | 12,67  | 2,49 | 2,49 | 430   | 13,95  |
|       |            | 19           | 2,57      | 1,16 | 440   | 14,66 | 2,55 | 1,41 | 440   | 14,49  | 2,53 | 1,66 | 430   | 14,32  | 2,40 | 2,08 | 420   | 17,40  | 2,61 | 2,26 | 420   | 15,17  | 2,66 | 2,44 | 420   | 15,56  |
|       |            | 21           | -         | -    | -     | 3,51  | 1,45 | 600  | 24,94 | 3,49   | 1,70 | 600  | 24,68 | 3,47   | 1,95 | 600  | 24,43 | 3,45   | 2,19 | 590  | 24,18 | 3,44   | 2,31 | 590  | 24,06 |        |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 4,50 | 1,74 | 770   | 38,16  | 4,47 | 1,99 | 770   | 37,80  | 4,45 | 2,24 | 760   | 37,44  | 4,44 | 2,36 | 760   | 37,27  |
|       | 5          | 15           | 0,78      | 0,78 | 100   | 1,10  | 0,97 | 0,97 | 120   | 1,37   | 1,17 | 1,17 | 140   | 1,65   | 1,66 | 1,66 | 200   | 2,49   | 2,01 | 2,01 | 250   | 4,50   | 2,16 | 2,16 | 270   | 5,61   |
|       |            | 17           | 0,79      | 0,76 | 100   | 1,11  | 0,97 | 0,97 | 120   | 1,38   | 1,17 | 1,17 | 140   | 1,65   | 1,66 | 1,66 | 200   | 2,50   | 2,01 | 2,01 | 250   | 4,52   | 2,16 | 2,16 | 270   | 5,63   |
|       |            | 19           | 1,82      | 1,16 | 420   | 3,26  | 1,67 | 1,30 | 420   | 2,56   | 1,76 | 1,63 | 420   | 2,88   | 1,71 | 1,64 | 210   | 2,68   | 2,01 | 1,98 | 250   | 4,54   | 2,16 | 2,15 | 270   | 5,63   |
|       |            | 21           | -         | -    | -     | 2,63  | 1,12 | 320  | 8,52  | 2,61   | 1,37 | 320  | 8,40  | 2,77   | 1,76 | 340  | 9,35  | 2,71   | 1,98 | 420  | 8,99  | 2,73   | 2,13 | 340  | 9,12  |        |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 3,70 | 1,44 | 450   | 15,29  | 3,68 | 1,69 | 450   | 15,13  | 3,66 | 1,93 | 450   | 14,96  | 3,65 | 2,05 | 450   | 14,88  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC4 - 4-pipe system

| 007.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |     |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|-----|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |     |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25   |      |       |       | 27   |      |       |       | 29   |      |       |       | 30   |      |       |       |      |     |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |      |     |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |      |     |
| 11    | 3          | 15           | 0,98      | 0,98 | 280   | 6,57  | 1,27 | 1,27 | 360   | 10,32 | 1,55 | 1,55 | 440   | 14,47 | 1,83 | 1,83 | 520   | 19,10 | 2,10 | 2,10 | 600   | 24,20 | 2,23 | 2,23 | 640   | 26,92 |      |     |
|       |            | 17           | 1,08      | 0,91 | 310   | 7,78  | 1,28 | 1,24 | 370   | 10,42 | 1,55 | 1,55 | 440   | 14,50 | 1,83 | 1,83 | 520   | 19,14 | 2,10 | 2,10 | 600   | 24,25 | 2,23 | 2,23 | 640   | 26,97 |      |     |
|       |            | 19           | 1,97      | 0,93 | 560   | 21,68 | 1,95 | 1,18 | 560   | 21,39 | 1,94 | 1,43 | 550   | 21,11 | 1,95 | 1,71 | 560   | 21,35 | 2,11 | 2,06 | 610   | 24,49 | 2,24 | 2,24 | 640   | 27,03 |      |     |
|       |            | 21           | -         | -    | -     | -     | 2,89 | 1,21 | 830   | 41,92 | 2,87 | 1,46 | 820   | 41,45 | 2,85 | 1,71 | 820   | 40,98 | 2,83 | 1,95 | 810   | 40,52 | 2,82 | 2,07 | 810   | 40,30 |      |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,87  | 1,50 | 1110 | 69,50 | 3,85  | 1,75 | 1100 | 68,79 | 3,82  | 1,99 | 1100 | 68,10 | 3,81  | 2,12 | 1090 | 67,75 |       |      |     |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 17           | 0,56      | 0,56 | 100   | 1,02  | 0,75 | 0,75 | 130   | 1,37  | 1,21 | 1,21 | 210   | 2,82  | 1,52 | 1,52 | 260   | 5,71  | 1,81 | 1,81 | 310   | 7,88  | 1,95 | 1,95 | 340   | 8,95  |      |     |
|       |            | 19           | 0,67      | 0,59 | 420   | 1,22  | 1,03 | 0,94 | 420   | 1,98  | 1,24 | 1,20 | 420   | 3,09  | 1,52 | 1,52 | 260   | 5,72  | 1,82 | 1,82 | 310   | 7,90  | 1,96 | 1,96 | 340   | 8,97  |      |     |
|       |            | 21           | -         | -    | -     | -     | 2,13 | 0,97 | 420   | 10,36 | 2,21 | 1,32 | 420   | 11,06 | 2,07 | 1,48 | 420   | 9,81  | 2,11 | 1,78 | 360   | 10,16 | 2,13 | 1,89 | 370   | 10,34 |      |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,07  | 1,21 | 530  | 19,27 | 3,05  | 1,46 | 530  | 19,05 | 3,03  | 1,71 | 520  | 18,83 | 3,02  | 1,83 | 520  | 18,72 |       |      |     |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 19           | -         | -    | -     | -     | 0,59 | 0,59 | 70    | 0,75  | 0,78 | 0,78 | 100   | 0,99  | 0,97 | 0,97 | 120   | 1,23  | 1,34 | 1,34 | 160   | 1,71  | 1,60 | 1,60 | 200   | 2,42  |      |     |
|       |            | 21           | -         | -    | -     | -     | 0,73 | 0,59 | 420   | 0,91  | 0,80 | 0,76 | 100   | 1,02  | 0,97 | 0,97 | 120   | 1,23  | 1,34 | 1,34 | 170   | 1,72  | 1,60 | 1,60 | 200   | 2,43  |      |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 2,39  | 1,13 | 420  | 7,03  | 2,35  | 1,39 | 420  | 6,84  | 2,17  | 1,53 | 420  | 5,92  | 2,20  | 1,68 | 420  | 6,07  |       |      |     |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 17           | 0,67      | 0,67 | 190   | 2,24  | 0,99 | 0,99 | 280   | 6,63  | 1,28 | 1,28 | 370   | 10,24 | 1,55 | 1,55 | 450   | 14,32 | 1,83 | 1,83 | 520   | 18,88 | 1,96 | 1,96 | 560   | 21,33 |      |     |
|       |            | 19           | 1,40      | 0,87 | 420   | 12,00 | 1,17 | 0,90 | 340   | 8,84  | 1,31 | 1,23 | 380   | 10,70 | 1,56 | 1,56 | 450   | 14,35 | 1,83 | 1,83 | 530   | 18,92 | 1,97 | 1,97 | 560   | 21,38 |      |     |
|       |            | 21           | -         | -    | -     | -     | 2,14 | 0,94 | 610   | 24,69 | 2,12 | 1,19 | 610   | 24,36 | 2,11 | 1,44 | 600   | 24,03 | 2,09 | 1,68 | 600   | 23,71 | 2,11 | 1,84 | 610   | 24,10 |      |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,13  | 1,23 | 900  | 47,52 | 3,11  | 1,48 | 890  | 46,99 | 3,09  | 1,73 | 890  | 46,46 | 3,08  | 1,85 | 880  | 46,19 |       |      |     |
| 15    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 19           | -         | -    | -     | -     | 0,56 | 0,56 | 100   | 0,97  | 0,76 | 0,76 | 130   | 1,32  | 1,23 | 1,23 | 210   | 3,31  | 1,54 | 1,54 | 270   | 5,84  | 1,68 | 1,68 | 290   | 6,84  |      |     |
|       |            | 21           | -         | -    | -     | -     | 1,41 | 0,89 | 420   | 5,23  | 1,04 | 0,88 | 420   | 1,91  | 1,38 | 1,29 | 420   | 4,59  | 1,55 | 1,50 | 420   | 5,91  | 1,69 | 1,66 | 290   | 6,87  |      |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 2,25  | 0,93 | 390  | 11,18 | 2,35  | 1,29 | 420  | 11,93 | 2,21  | 1,43 | 380  | 10,86 | 2,20  | 1,55 | 380  | 10,78 |       |      |     |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 19           | -         | -    | -     | -     | 0,69 | 0,69 | 200   | 2,65  | 1,00 | 1,00 | 290   | 6,63  | 1,28 | 1,28 | 370   | 10,15 | 1,56 | 1,56 | 450   | 14,15 | 1,69 | 1,69 | 490   | 16,33 |      |     |
|       |            | 21           | -         | -    | -     | -     | 1,56 | 0,90 | 450   | 14,11 | 1,42 | 1,05 | 410   | 12,01 | 1,36 | 1,21 | 390   | 11,27 | 1,57 | 1,53 | 450   | 14,29 | 1,70 | 1,70 | 490   | 16,37 |      |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 2,33  | 0,96 | 670  | 28,09 | 2,31  | 1,21 | 660  | 27,72 | 2,29  | 1,45 | 660  | 27,34 | 2,28  | 1,57 | 650  | 27,16 |       |      |     |
| 17    | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 0,56 | 0,56 | 100   | 0,92  | 0,80 | 0,80 | 140   | 1,32  | 1,25 | 1,25 | 220   | 3,69  | 1,40 | 1,40 | 240   | 4,87  |      |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 1,51 | 0,89 | 420   | 5,59  | 1,42 | 1,02 | 420   | 5,14  | 1,38 | 1,18 | 420   | 4,67  | 1,49 | 1,34 | 420   | 5,40  |      |     |
|       | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |     |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | 0,60  | 0,59 | 70   | 0,68  | 0,78  | 0,78 | 100  | 0,90  | 0,88  | 0,88 | 110 |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Cooling performance

## CC4 - 4-pipe system

| Ta (D.B.) |      |           |           |      |       |       |      |      |       |       |      |      |        |       |      |      |        |       |      |      |        |       |      |      |        |       |
|-----------|------|-----------|-----------|------|-------|-------|------|------|-------|-------|------|------|--------|-------|------|------|--------|-------|------|------|--------|-------|------|------|--------|-------|
| EWT       | ΔT   | Ta (W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |        |       |      |      |        |       |      |      |        |       |      |      |        |       |
|           |      |           | 21        |      |       |       | 23   |      |       |       | 25   |      |        |       | 27   |      |        |       | 29   |      |        |       | 30   |      |        |       |
|           |      |           | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF     | WDP   | TC   | SC   | WF     | WDP   | TC   | SC   | WF     | WDP   | TC   | SC   | WF     | WDP   |
| [°C]      | [°C] | [°C]      | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h]  | [kPa] | [kW] | [kW] | [l/h]  | [kPa] | [kW] | [kW] | [l/h]  | [kPa] | [kW] | [kW] | [l/h]  | [kPa] |
| 3         | 3    | 15        | 2,90      | 2,21 | 560   | 23,85 | 2,92 | 2,62 | 560   | 24,28 | 3,08 | 3,06 | 880    | 26,57 | 3,45 | 3,45 | 980    | 32,13 | 3,81 | 3,81 | 1090   | 38,04 | 3,98 | 3,98 | 1140   | 41,13 |
|           |      | 17        | 3,91      | 2,18 | 1110  | 39,77 | 3,88 | 2,52 | 1110  | 39,39 | 3,86 | 2,84 | 1100   | 39,02 | 3,10 | 2,95 | 560    | 12,25 | 3,90 | 3,61 | 560    | 41,10 | 4,00 | 3,89 | 1140   | 41,36 |
|           |      | 19        | 5,06      | 2,22 | 1440  | 61,96 | 5,03 | 2,56 | 1430  | 61,40 | 5,00 | 2,89 | 1430   | 60,86 | 4,98 | 3,21 | 1420   | 60,32 | 3,67 | 3,13 | 560    | 12,21 | 4,94 | 3,69 | 1410   | 59,51 |
|           |      | 21        | -         | -    | -     | -     | 6,26 | 2,59 | 1790  | 89,66 | 6,23 | 2,93 | 1780   | 88,89 | 6,20 | 3,26 | 1770   | 88,14 | 6,17 | 3,58 | 1760   | 87,39 | 6,16 | 3,74 | 1760   | 87,02 |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 7,56  | 2,97 | 2160 | 124,23 | 7,53  | 3,31 | 2150 | 123,21 | 7,49  | 3,64 | 2140 | 122,21 | 7,47  | 3,80 | 2130 | 121,71 |       |
| 5         | 5    | 15        | 1,50      | 1,50 | 260   | 2,36  | 2,16 | 2,16 | 370   | 4,30  | 2,58 | 2,58 | 440    | 7,73  | 2,98 | 2,98 | 510    | 10,43 | 3,36 | 3,36 | 580    | 12,84 | 3,54 | 3,54 | 610    | 14,07 |
|           |      | 17        | 3,27      | 2,19 | 560   | 12,14 | 3,08 | 2,38 | 530   | 11,07 | 2,88 | 2,61 | 560    | 9,56  | 2,99 | 2,89 | 510    | 10,51 | 3,36 | 3,36 | 580    | 12,87 | 3,55 | 3,55 | 610    | 14,10 |
|           |      | 19        | 3,97      | 1,76 | 680   | 17,06 | 3,95 | 2,10 | 680   | 16,88 | 3,92 | 2,43 | 670    | 16,71 | 3,90 | 2,75 | 670    | 16,53 | 3,67 | 3,13 | 560    | 12,21 | 3,93 | 3,36 | 560    | 16,25 |
|           |      | 21        | -         | -    | -     | -     | 5,23 | 2,16 | 900   | 27,22 | 5,20 | 2,49 | 890    | 26,97 | 5,17 | 2,82 | 890    | 26,72 | 5,14 | 3,15 | 880    | 26,47 | 5,13 | 3,31 | 880    | 26,35 |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 6,55  | 2,55 | 1120 | 40,00  | 6,52  | 2,88 | 1120 | 39,65  | 6,48  | 3,21 | 1110 | 39,31  | 6,47  | 3,37 | 1110 | 39,14  |       |
| 7         | 7    | 15        | 1,26      | 1,26 | 150   | 1,37  | 1,51 | 1,51 | 190   | 1,64  | 1,76 | 1,76 | 220    | 1,91  | 2,05 | 2,05 | 250    | 2,24  | 2,74 | 2,74 | 340    | 3,32  | 2,97 | 2,97 | 360    | 4,30  |
|           |      | 17        | 1,33      | 1,24 | 160   | 1,44  | 1,51 | 1,51 | 190   | 1,65  | 1,76 | 1,76 | 220    | 1,91  | 3,10 | 2,97 | 560    | 12,27 | 2,74 | 2,74 | 340    | 3,34  | 2,98 | 2,98 | 370    | 4,32  |
|           |      | 19        | 2,65      | 1,61 | 560   | 3,09  | 2,67 | 1,92 | 560   | 3,13  | 2,62 | 2,29 | 320    | 3,02  | 2,06 | 2,06 | 250    | 2,24  | 2,75 | 2,74 | 560    | 3,36  | 2,98 | 2,96 | 370    | 4,32  |
|           |      | 21        | -         | -    | -     | -     | 3,90 | 1,64 | 480   | 9,15  | 3,87 | 1,97 | 470    | 9,01  | 3,85 | 2,30 | 560    | 8,94  | 4,09 | 2,85 | 500    | 10,03 | 4,19 | 3,11 | 560    | 10,45 |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,37  | 2,08 | 660  | 15,96  | 5,34  | 2,42 | 650  | 15,80  | 5,31  | 2,74 | 650  | 15,64  | 5,29  | 2,91 | 650  | 15,57  |       |
| 7         | 7    | 15        | 2,05      | 1,86 | 590   | 13,10 | 2,36 | 2,36 | 670   | 16,64 | 2,73 | 2,73 | 780    | 21,31 | 3,09 | 3,09 | 890    | 26,39 | 3,45 | 3,45 | 990    | 31,86 | 3,63 | 3,63 | 1040   | 34,73 |
|           |      | 17        | 2,74      | 1,90 | 560   | 12,07 | 3,07 | 2,17 | 880   | 26,14 | 2,58 | 2,36 | 560    | 12,09 | 3,17 | 2,99 | 560    | 27,66 | 3,46 | 3,46 | 990    | 31,92 | 3,63 | 3,63 | 1040   | 34,80 |
|           |      | 19        | 4,25      | 1,88 | 1220  | 45,56 | 4,23 | 2,21 | 1210  | 45,11 | 4,20 | 2,54 | 1200   | 44,67 | 4,18 | 2,87 | 1200   | 44,24 | 4,16 | 3,19 | 1190   | 43,82 | 4,15 | 3,35 | 1190   | 43,60 |
|           |      | 21        | -         | -    | -     | -     | 5,47 | 2,25 | 1570  | 70,17 | 5,44 | 2,59 | 1560   | 69,54 | 5,41 | 2,92 | 1550   | 68,91 | 5,38 | 3,24 | 1540   | 68,29 | 5,37 | 3,40 | 1540   | 67,98 |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 6,77  | 2,63 | 1940 | 101,55 | 6,73  | 2,97 | 1930 | 100,68 | 6,70  | 3,30 | 1920 | 99,82  | 6,68  | 3,46 | 1910 | 99,39  |       |
| 7         | 5    | 15        | 1,23      | 1,23 | 210   | 1,82  | 1,66 | 1,66 | 280   | 2,46  | 2,21 | 2,21 | 380    | 5,16  | 2,62 | 2,62 | 450    | 8,15  | 3,00 | 3,00 | 520    | 10,47 | 3,19 | 3,19 | 550    | 11,61 |
|           |      | 17        | 1,74      | 1,57 | 300   | 2,60  | 1,98 | 1,90 | 560   | 3,76  | 2,58 | 2,36 | 560    | 12,09 | 2,62 | 2,62 | 450    | 8,17  | 3,01 | 3,01 | 520    | 10,49 | 3,20 | 3,20 | 550    | 11,64 |
|           |      | 19        | 3,05      | 1,40 | 520   | 10,76 | 3,26 | 1,95 | 560   | 11,88 | 3,34 | 2,34 | 560    | 12,82 | 3,08 | 2,69 | 560    | 13,15 | 3,31 | 3,07 | 570    | 12,31 | 3,35 | 3,21 | 580    | 12,62 |
|           |      | 21        | -         | -    | -     | -     | 4,36 | 1,81 | 750   | 19,68 | 4,33 | 2,15 | 740    | 19,48 | 4,31 | 2,48 | 740    | 19,28 | 4,28 | 2,80 | 740    | 19,08 | 4,27 | 2,96 | 730    | 18,99 |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,70  | 2,21 | 980  | 31,06  | 5,67  | 2,54 | 970  | 30,77  | 5,64  | 2,87 | 970  | 30,49  | 5,62  | 3,03 | 970  | 30,35  |       |
| 7         | 7    | 15        | 1,01      | 1,01 | 120   | 1,04  | 1,26 | 1,26 | 150   | 1,29  | 1,51 | 1,51 | 190    | 1,55  | 1,76 | 1,76 | 220    | 1,81  | 2,24 | 2,24 | 270    | 2,32  | 2,60 | 2,60 | 320    | 3,01  |
|           |      | 17        | 1,02      | 1,00 | 130   | 1,04  | 1,26 | 1,26 | 160   | 1,30  | 2,58 | 2,36 | 560    | 12,09 | 1,76 | 1,76 | 220    | 1,81  | 2,25 | 2,25 | 280    | 2,32  | 2,60 | 2,60 | 320    | 3,02  |
|           |      | 19        | 1,39      | 1,00 | 560   | 1,43  | 1,35 | 1,22 | 170   | 1,38  | 1,52 | 1,49 | 190    | 1,56  | 1,76 | 1,76 | 220    | 1,81  | 2,25 | 2,25 | 280    | 2,33  | 2,60 | 2,60 | 320    | 3,03  |
|           |      | 21        | -         | -    | -     | -     | 3,44 | 1,73 | 560   | 7,06  | 3,19 | 2,00 | 560    | 5,60  | 3,25 | 2,36 | 400    | 6,16  | 3,07 | 2,60 | 560    | 5,27  | 3,13 | 2,83 | 560    | 5,52  |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 4,41  | 1,73 | 540  | 11,25  | 4,38  | 2,06 | 540  | 11,12  | 4,35  | 2,39 | 530  | 10,99  | 4,34  | 2,55 | 530  | 10,93  |       |
| 3         | 3    | 15        | 1,60      | 1,60 | 460   | 8,43  | 1,99 | 1,99 | 570   | 12,25 | 2,36 | 2,36 | 680    | 16,40 | 2,73 | 2,73 | 780    | 20,97 | 3,09 | 3,09 | 890    | 25,93 | 3,27 | 3,27 | 940    | 28,56 |
|           |      | 17        | 2,57      | 1,85 | 560   | 18,69 | 2,31 | 1,96 | 560   | 15,71 | 2,38 | 2,30 | 680    | 16,61 | 2,73 | 2,73 | 780    | 21,01 | 3,10 | 3,10 | 890    | 25,98 | 3,28 | 3,28 | 940    | 28,61 |
|           |      | 19        | 3,38      | 1,53 | 970   | 30,18 | 3,36 | 1,86 | 960   | 29,84 | 3,34 | 2,19 | 950    | 29,52 | 2,79 | 2,50 | 560    | 11,85 | 3,31 | 2,87 | 950    | 29,02 | 3,37 | 3,12 | 960    | 29,95 |
|           |      | 21        | -         | -    | -     | -     | 4,60 | 1,91 | 1320  | 51,24 | 4,58 | 2,24 | 1310   | 50,74 | 4,55 | 2,57 | 1300   | 50,24 | 3,39 | 2,60 | 560    | 11,81 | 4,51 | 3,05 | 1290   | 49,51 |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 5,91  | 2,29 | 1690 | 78,88  | 5,88  | 2,62 | 1680 | 78,16  | 5,85  | 2,95 | 1670 | 77,45  | 5,83  | 3,11 | 1670 | 77,10  |       |
| 5         | 5    | 15        | 0,98      | 0,98 | 170   | 1,37  | 1,22 | 1,22 | 210   | 1,71  | 1,81 | 1,81 | 310    | 2,82  | 2,25 | 2,25 | 390    | 5,80  | 2,65 | 2,65 | 450    | 8,26  | 2,84 | 2,84 | 490    | 9,34  |
|           |      | 17        | 0,98      | 0,98 | 170   | 1,37  | 1,23 | 1,23 | 210   | 1,71  | 1,81 | 1,81 | 310    | 2,83  | 2,25 | 2,25 | 390    | 5,82  | 2,65 | 2,65 | 460    | 8,28  | 2,84 | 2,84 | 490    | 9,35  |
|           |      | 19        | 2,55      | 1,55 | 440   | 7,71  | 2,45 | 1,87 | 420   | 7,13  | 2,19 | 1,94 | 560    | 5,40  | 2,28 | 2,18 | 390    | 6,04  | 2,65 | 2,65 | 460    | 8,30  | 2,84 | 2,84 | 490    | 9,37  |
|           |      | 21        | -         | -    | -     | -     | 3,40 | 1,45 | 580   | 12,68 | 3,38 | 1,79 | 580    | 12,53 | 3,53 | 2,27 | 560    | 13,40 | 3,39 | 2,60 | 560    | 11,81 | 3,50 | 2,78 | 560    | 13,29 |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 4,77  | 1,86 | 820  | 22,56  | 4,75  | 2,19 | 820  | 22,33  | 4,72  | 2,52 | 810  | 22,11  | 4,70  | 2,68 | 810  | 21,99  |       |
| 7         | 7    | 15        | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -      | -     | -    | -    | -      | -     | -    | -    | -      | -     | -    | -    |        |       |
|           |      | 17        | 0,77      | 0,77 | 90    | 0,74  | 1,02 | 1,02 | 120   | 0,98  | 1,26 | 1,26 | 160    | 1,23  | 1,51 | 1,51 | 190    | 1,47  | 1,78 | 1,78 | 220    | 1,73  | 2,06 | 2,06 | 250    | 2,01  |
|           |      | 19        | 0,90      | 0,77 | 110   | 0,86  | 1,03 | 1,00 | 560   | 1,00  | 1,26 | 1,26 | 160    | 1,23  | 1,51 | 1,51 | 190    | 1,47  | 1,78 | 1,78 | 220    | 1,73  | 2,07 | 2,07 | 250    | 2,02  |
|           |      | 21        | -         | -    | -     | -     | 2,17 | 1,55 | 560   | 2,24  | 2,28 | 1,94 | 560    | 2,41  | 1,52 | 1,48 | 560    | 1,48  | 3,39 | 2,60 | 560    | 11,81 | 2,07 | 2,07 | 250    | 2,03  |
|           |      | 23        | -         | -    | -     | -     | -    | -    | -     | 3,46  | 1,47 | 560  | 7,24   | 3,68  | 2,00 | 450  | 8,14   | 3,66  | 2,35 | 450  | 8,04   | 3,70  | 2,56 | 560  | 8,22   |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential ( $^{\circ}\text{C}$ )

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC4 - 4-pipe system

| 011.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |  |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|--|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |  |  |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25   |      |       |       | 27   |      |       |       | 29   |      |       |       | 30   |      |       |       |  |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |  |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |  |  |
| 11    | 3          | 15           | 1,21      | 1,21 | 350   | 4,23  | 1,62 | 1,62 | 460   | 8,48  | 2,00 | 2,00 | 570   | 12,17 | 2,37 | 2,37 | 680   | 16,24 | 2,74 | 2,74 | 780   | 20,72 | 2,92 | 2,92 | 840   | 23,11 |  |  |
|       |            | 17           | 1,25      | 1,15 | 360   | 4,78  | 1,62 | 1,61 | 460   | 8,50  | 2,00 | 2,00 | 570   | 12,19 | 2,37 | 2,37 | 680   | 16,27 | 2,74 | 2,74 | 780   | 20,76 | 2,92 | 2,92 | 840   | 23,16 |  |  |
|       |            | 19           | 2,43      | 1,17 | 700   | 16,95 | 2,73 | 1,77 | 780   | 20,69 | 2,49 | 1,92 | 560   | 18,16 | 2,46 | 2,25 | 560   | 17,19 | 2,74 | 2,72 | 790   | 20,80 | 2,92 | 2,92 | 840   | 23,21 |  |  |
|       |            | 21           | -         | -    | -     | -     | 3,67 | 1,55 | 1050  | 34,31 | 3,65 | 1,89 | 1050  | 33,93 | 3,63 | 2,22 | 1040  | 33,55 | 2,88 | 2,43 | 560   | 11,64 | 3,59 | 2,70 | 1030  | 33,00 |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 4,99  | 1,94 | 1430 | 58,07 | 4,96  | 2,27 | 1420 | 57,50 | 4,93  | 2,60 | 1410 | 56,94 | 4,92  | 2,76 | 1410 | 56,66 |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 17           | 0,73      | 0,73 | 130   | 0,96  | 0,98 | 0,98 | 170   | 1,29  | 1,24 | 1,24 | 210   | 1,64  | 1,86 | 1,86 | 320   | 3,38  | 2,28 | 2,28 | 390   | 6,19  | 2,48 | 2,48 | 430   | 7,28  |  |  |
|       |            | 19           | 0,88      | 0,82 | 150   | 1,15  | 0,98 | 0,97 | 170   | 1,30  | 1,24 | 1,24 | 210   | 1,64  | 1,87 | 1,87 | 320   | 3,39  | 2,29 | 2,29 | 390   | 6,21  | 2,48 | 2,48 | 430   | 7,30  |  |  |
|       |            | 21           | -         | -    | -     | -     | 2,82 | 1,53 | 490   | 9,12  | 2,67 | 1,78 | 560   | 8,38  | 2,63 | 2,12 | 450   | 8,06  | 2,40 | 2,16 | 560   | 6,88  | 2,55 | 2,38 | 440   | 7,63  |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,76  | 1,50 | 650  | 14,81 | 3,73  | 1,83 | 640  | 14,63 | 3,71  | 2,16 | 640  | 14,46 | 3,69  | 2,32 | 640  | 14,37 |       |  |  |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 19           | -         | -    | -     | -     | 0,77 | 0,77 | 90    | 0,71  | 1,02 | 1,02 | 120   | 0,93  | 1,26 | 1,26 | 160   | 1,16  | 1,51 | 1,51 | 190   | 1,39  | 1,64 | 1,64 | 200   | 1,52  |  |  |
|       |            | 21           | -         | -    | -     | -     | 0,92 | 0,75 | 560   | 0,84  | 1,04 | 1,01 | 560   | 0,96  | 1,27 | 1,27 | 160   | 1,16  | 2,88 | 2,43 | 560   | 11,64 | 1,65 | 1,65 | 200   | 1,52  |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 2,53  | 1,59 | 560  | 3,33  | 1,39  | 1,16 | 560  | 1,27  | 2,20  | 2,01 | 560  | 2,20  | 1,65  | 1,62 | 200  | 1,52  |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 17           | 0,69      | 0,69 | 200   | 1,48  | 1,23 | 1,23 | 350   | 4,83  | 1,63 | 1,63 | 470   | 8,49  | 2,01 | 2,01 | 580   | 12,09 | 2,38 | 2,38 | 680   | 16,09 | 2,56 | 2,56 | 730   | 18,24 |  |  |
|       |            | 19           | 1,31      | 0,77 | 380   | 5,66  | 1,35 | 1,15 | 390   | 6,06  | 1,64 | 1,59 | 470   | 8,59  | 2,01 | 2,01 | 580   | 12,11 | 2,38 | 2,38 | 680   | 16,13 | 2,56 | 2,56 | 740   | 18,28 |  |  |
|       |            | 21           | -         | -    | -     | -     | 2,66 | 1,19 | 760   | 19,49 | 2,76 | 1,63 | 790   | 20,69 | 2,79 | 1,91 | 560   | 24,71 | 2,61 | 2,21 | 750   | 18,88 | 2,67 | 2,43 | 560   | 19,42 |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,99  | 1,58 | 1150 | 39,07 | 3,97  | 1,91 | 1140 | 38,63 | 3,94  | 2,24 | 1130 | 38,20 | 3,01  | 2,19 | 560  | 11,44 |       |  |  |
| 15    | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 19           | -         | -    | -     | -     | 0,73 | 0,73 | 130   | 0,91  | 0,98 | 0,98 | 170   | 1,23  | 1,31 | 1,31 | 220   | 1,64  | 1,91 | 1,91 | 330   | 3,96  | 2,11 | 2,11 | 360   | 5,28  |  |  |
|       |            | 21           | -         | -    | -     | -     | 0,89 | 0,79 | 560   | 1,11  | 0,99 | 0,98 | 170   | 1,24  | 1,31 | 1,31 | 230   | 1,65  | 1,91 | 1,91 | 330   | 3,98  | 2,12 | 2,12 | 360   | 5,30  |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,06  | 1,48 | 560  | 10,36 | 2,90  | 1,74 | 500  | 9,43  | 2,79  | 2,01 | 480  | 8,82  | 3,01  | 2,19 | 560  | 11,44 |       |  |  |
|       | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     |  |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | 0,77  | 0,77 | 90   | 0,67  | 1,02  | 1,02 | 130  | 0,89  | 1,27  | 1,27 | 160  | 1,10  | 1,39  | 1,39 | 170  | 1,21  |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 0,93  | 0,73 | 560  | 0,81  | 1,06  | 1,03 | 130  | 0,92  | 1,27  | 1,27 | 160  | 1,11  | 3,01  | 2,19 | 560  | 11,44 |       |  |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC4 - 4-pipe system

| 015.0 |            |              |           |      |       |       |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|------|------|-------|--------|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |      |      |       |        |
|       |            |              | 21        |      |       |       | 23   |      |       |        | 25   |      |       |        | 27   |      |       |        | 29   |      |       |        | 30   |      |       |        |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    | TC   | SC   | WF    | WDP    |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  | [kW] | [kW] | [l/h] | [kPa]  |
| 3     | 3          | 15           | 2,95      | 2,25 | 840   | 30,26 | 2,97 | 2,65 | 540   | 30,50  | 3,24 | 3,23 | 920   | 35,45  | 3,62 | 3,62 | 1030  | 42,84  | 4,00 | 4,00 | 1140  | 50,67  | 4,19 | 4,19 | 1190  | 54,76  |
|       |            | 17           | 4,10      | 2,29 | 1170  | 52,79 | 4,07 | 2,64 | 1160  | 52,25  | 4,05 | 2,98 | 1150  | 51,71  | 4,02 | 3,32 | 1150  | 51,19  | 4,07 | 3,79 | 1160  | 52,19  | 4,20 | 4,09 | 1200  | 54,99  |
|       |            | 19           | 5,31      | 2,33 | 1510  | 82,23 | 5,28 | 2,68 | 1510  | 81,45  | 5,25 | 3,03 | 1500  | 80,67  | 5,22 | 3,37 | 1490  | 79,89  | 5,19 | 3,70 | 1480  | 79,13  | 5,18 | 3,87 | 1480  | 78,76  |
|       |            | 21           | -         | -    | -     | -     | 6,57 | 2,72 | 1870  | 118,87 | 6,54 | 3,07 | 1860  | 117,78 | 6,51 | 3,42 | 1850  | 116,71 | 6,47 | 3,75 | 1850  | 115,64 | 6,45 | 3,92 | 1840  | 115,11 |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 7,93 | 3,12 | 2260  | 164,52 | 7,89 | 3,47 | 2250  | 163,07 | 7,85 | 3,81 | 2240  | 161,63 | 7,83 | 3,98 | 2230  | 160,91 |
|       | 5          | 15           | 1,61      | 1,61 | 280   | 3,45  | 2,18 | 2,18 | 370   | 4,76   | 2,69 | 2,69 | 460   | 8,71   | 3,12 | 3,12 | 530   | 13,36  | 3,52 | 3,52 | 600   | 17,01  | 3,72 | 3,72 | 640   | 18,69  |
|       |            | 17           | 3,36      | 2,22 | 580   | 15,61 | 3,17 | 2,52 | 540   | 13,58  | 3,09 | 2,84 | 530   | 13,16  | 3,12 | 3,05 | 540   | 13,44  | 3,52 | 3,52 | 600   | 17,04  | 3,72 | 3,72 | 640   | 18,73  |
|       |            | 19           | 4,14      | 1,84 | 710   | 22,46 | 4,11 | 2,19 | 710   | 22,20  | 4,08 | 2,53 | 700   | 21,95  | 4,06 | 2,87 | 700   | 21,70  | 4,14 | 3,36 | 540   | 21,53  | 4,17 | 3,55 | 540   | 22,68  |
|       |            | 21           | -         | -    | -     | -     | 5,48 | 2,26 | 940   | 36,05  | 5,44 | 2,61 | 930   | 35,69  | 5,41 | 2,95 | 930   | 35,33  | 5,38 | 3,29 | 920   | 34,98  | 5,36 | 3,46 | 920   | 34,80  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 6,87 | 2,67 | 1180  | 53,02  | 6,83 | 3,02 | 1170  | 52,53  | 6,79 | 3,36 | 1160  | 52,04  | 6,77 | 3,53 | 1160  | 51,79  |
| 7     | 7          | 15           | 1,38      | 1,38 | 170   | 2,04  | 1,65 | 1,65 | 200   | 2,44   | 1,92 | 1,92 | 240   | 2,85   | 2,19 | 2,19 | 270   | 3,26   | 2,63 | 2,63 | 320   | 3,92   | 3,02 | 3,02 | 370   | 4,67   |
|       |            | 17           | 1,44      | 1,28 | 540   | 2,14  | 1,65 | 1,63 | 200   | 2,44   | 1,92 | 1,92 | 240   | 2,85   | 2,19 | 2,19 | 270   | 3,26   | 2,63 | 2,63 | 320   | 3,92   | 3,02 | 3,02 | 370   | 4,69   |
|       |            | 19           | 2,58      | 1,92 | 540   | 3,84  | 2,78 | 2,30 | 540   | 4,15   | 3,26 | 2,86 | 540   | 5,65   | 2,19 | 2,16 | 270   | 3,25   | 2,64 | 2,64 | 320   | 3,93   | 3,03 | 3,03 | 370   | 4,71   |
|       |            | 21           | -         | -    | -     | -     | 3,97 | 1,67 | 490   | 10,64  | 3,94 | 2,02 | 480   | 10,37  | 3,93 | 2,37 | 540   | 10,48  | 4,19 | 2,94 | 540   | 12,37  | 4,24 | 3,17 | 520   | 12,53  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 5,59 | 2,17 | 690   | 20,96  | 5,56 | 2,51 | 680   | 20,73  | 5,52 | 2,86 | 680   | 20,50  | 5,50 | 3,03 | 670   | 20,39  |
|       | 5          | 15           | 2,14      | 1,95 | 610   | 17,28 | 2,48 | 2,48 | 710   | 22,22  | 2,87 | 2,87 | 820   | 28,45  | 3,25 | 3,25 | 930   | 35,19  | 3,63 | 3,63 | 1040  | 42,43  | 3,81 | 3,81 | 1090  | 46,24  |
|       |            | 17           | 3,24      | 1,93 | 930   | 35,02 | 3,22 | 2,27 | 920   | 34,61  | 3,20 | 2,62 | 920   | 34,21  | 3,30 | 3,11 | 540   | 36,13  | 3,63 | 3,63 | 1040  | 42,53  | 3,82 | 3,82 | 1090  | 46,34  |
|       |            | 19           | 4,46      | 1,97 | 1280  | 60,47 | 4,44 | 2,32 | 1270  | 59,84  | 4,41 | 2,67 | 1260  | 59,22  | 4,38 | 3,01 | 1260  | 58,61  | 4,36 | 3,34 | 1250  | 58,01  | 4,34 | 3,51 | 1240  | 57,71  |
|       |            | 21           | -         | -    | -     | -     | 5,74 | 2,36 | 1640  | 93,07  | 5,70 | 2,71 | 1630  | 92,17  | 5,67 | 3,06 | 1620  | 91,28  | 5,64 | 3,40 | 1620  | 90,40  | 5,62 | 3,56 | 1610  | 89,96  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 7,10 | 2,76 | 2030  | 134,53 | 7,06 | 3,11 | 2020  | 133,29 | 7,02 | 3,45 | 2010  | 132,06 | 7,01 | 3,62 | 2010  | 131,45 |
| 9     | 5          | 15           | 1,34      | 1,34 | 230   | 2,71  | 1,63 | 1,63 | 280   | 3,29   | 2,29 | 2,29 | 390   | 5,43   | 2,74 | 2,74 | 470   | 9,91   | 3,15 | 3,15 | 540   | 13,76  | 3,35 | 3,35 | 580   | 15,39  |
|       |            | 17           | 2,04      | 1,80 | 540   | 4,27  | 1,63 | 1,63 | 280   | 3,30   | 2,29 | 2,29 | 390   | 5,46   | 2,74 | 2,74 | 470   | 9,95   | 3,15 | 3,15 | 540   | 13,79  | 3,35 | 3,35 | 580   | 15,42  |
|       |            | 19           | 3,15      | 1,45 | 540   | 13,80 | 3,36 | 2,01 | 540   | 15,24  | 3,39 | 2,41 | 580   | 15,75  | 3,05 | 2,61 | 540   | 16,80  | 3,41 | 3,16 | 590   | 15,90  | 3,49 | 3,36 | 540   | 16,55  |
|       |            | 21           | -         | -    | -     | -     | 4,56 | 1,89 | 780   | 26,01  | 4,53 | 2,24 | 780   | 25,72  | 4,50 | 2,59 | 770   | 25,44  | 4,47 | 2,93 | 770   | 25,15  | 4,45 | 3,09 | 770   | 25,01  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 5,97 | 2,31 | 1030  | 41,16  | 5,94 | 2,66 | 1020  | 40,75  | 5,90 | 3,00 | 1010  | 40,34  | 5,88 | 3,17 | 1010  | 40,14  |
|       | 7          | 15           | 1,11      | 1,11 | 140   | 1,55  | 1,38 | 1,38 | 170   | 1,93   | 1,65 | 1,65 | 200   | 2,31   | 1,91 | 1,91 | 230   | 2,69   | 2,22 | 2,22 | 270   | 3,12   | 2,49 | 2,49 | 310   | 3,51   |
|       |            | 17           | 1,12      | 1,08 | 140   | 1,56  | 1,38 | 1,38 | 170   | 1,93   | 1,65 | 1,65 | 200   | 2,31   | 1,92 | 1,92 | 240   | 2,69   | 2,22 | 2,22 | 270   | 3,12   | 2,50 | 2,50 | 310   | 3,52   |
|       |            | 19           | 1,46      | 0,94 | 540   | 2,03  | 1,48 | 1,28 | 180   | 2,06   | 1,65 | 1,61 | 200   | 2,31   | 1,92 | 1,92 | 240   | 2,69   | 2,22 | 2,22 | 270   | 3,12   | 2,50 | 2,50 | 310   | 3,52   |
|       |            | 21           | -         | -    | -     | -     | 2,37 | 1,56 | 540   | 3,29   | 2,12 | 1,70 | 540   | 2,95   | 3,29 | 2,48 | 540   | 6,30   | 3,06 | 2,72 | 540   | 5,03   | 2,50 | 2,47 | 540   | 3,52   |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -      | 4,56 | 1,79 | 560   | 14,56  | 4,53 | 2,14 | 560   | 14,36  | 4,49 | 2,48 | 550   | 14,17  | 4,48 | 2,65 | 550   | 14,07  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC4 - 4-pipe system

| 015.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25   |      |       |       | 27   |      |       |       | 29   |      |       |       | 30   |      |       |       |      |      |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |      |      |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |      |      |
| 11    | 3          | 15           | 1,25      | 1,25 | 360   | 4,40  | 1,69 | 1,69 | 490   | 11,13 | 2,10 | 2,10 | 600   | 16,23 | 2,49 | 2,49 | 710   | 21,66 | 2,87 | 2,87 | 820   | 27,62 | 3,06 | 3,06 | 880   | 30,79 |      |      |
|       |            | 17           | 1,28      | 1,19 | 370   | 4,74  | 1,70 | 1,70 | 490   | 11,15 | 2,10 | 2,10 | 600   | 16,26 | 2,49 | 2,49 | 710   | 21,71 | 2,88 | 2,88 | 820   | 27,68 | 3,07 | 3,07 | 880   | 30,85 |      |      |
|       |            | 19           | 2,54      | 1,22 | 730   | 22,42 | 2,73 | 1,76 | 780   | 25,32 | 2,51 | 1,92 | 540   | 22,19 | 2,58 | 2,36 | 740   | 23,01 | 2,88 | 2,86 | 830   | 27,72 | 3,07 | 3,07 | 880   | 30,93 |      |      |
|       |            | 21           | -         | -    | -     | -     | 3,85 | 1,63 | 1100  | 45,53 | 3,83 | 1,98 | 1100  | 44,99 | 3,80 | 2,32 | 1090  | 44,47 | 3,78 | 2,66 | 1080  | 43,95 | 2,94 | 2,74 | 540   | 13,41 |      |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 5,23  | 2,03 | 1500 | 77,01 | 5,20  | 2,38 | 1490 | 76,20 | 5,17  | 2,72 | 1480 | 75,40 | 5,15  | 2,89 | 1480 | 75,00 |       |      |      |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 17           | 0,79      | 0,79 | 140   | 1,43  | 1,07 | 1,07 | 180   | 1,93  | 1,33 | 1,33 | 230   | 2,41  | 1,91 | 1,91 | 330   | 3,62  | 2,38 | 2,38 | 410   | 7,35  | 2,59 | 2,59 | 450   | 9,28  |      |      |
|       |            | 19           | 0,95      | 0,82 | 540   | 1,71  | 1,07 | 1,06 | 180   | 1,94  | 1,33 | 1,33 | 230   | 2,41  | 1,91 | 1,91 | 330   | 3,63  | 2,39 | 2,39 | 410   | 7,38  | 2,60 | 2,60 | 450   | 9,31  |      |      |
|       |            | 21           | -         | -    | -     | -     | 2,86 | 1,54 | 490   | 11,35 | 2,79 | 1,89 | 480   | 10,80 | 2,67 | 2,18 | 540   | 9,98  | 2,64 | 2,39 | 540   | 10,27 | 2,65 | 2,50 | 460   | 9,73  |      |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,92  | 1,57 | 680  | 19,52 | 3,89  | 1,91 | 670  | 19,27 | 3,65  | 2,18 | 540  | 15,71 | 3,65  | 2,36 | 540  | 15,79 |       |      |      |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 19           | -         | -    | -     | -     | 0,84 | 0,84 | 100   | 1,05  | 1,11 | 1,11 | 140   | 1,39  | 1,38 | 1,38 | 170   | 1,73  | 1,65 | 1,65 | 200   | 2,07  | 1,78 | 1,78 | 220   | 2,24  |      |      |
|       |            | 21           | -         | -    | -     | -     | 1,04 | 0,83 | 540   | 1,29  | 1,14 | 1,08 | 140   | 1,43  | 1,38 | 1,38 | 170   | 1,73  | 1,65 | 1,65 | 200   | 2,07  | 1,78 | 1,78 | 220   | 2,24  |      |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 2,72  | 1,78 | 540  | 4,09  | 2,30  | 1,88 | 540  | 3,03  | 1,68  | 1,58 | 210  | 2,11  | 1,80  | 1,78 | 220  | 2,26  |       |      |      |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 17           | 0,75      | 0,75 | 220   | 2,20  | 1,28 | 1,28 | 370   | 5,24  | 1,71 | 1,71 | 490   | 11,26 | 2,11 | 2,11 | 610   | 16,12 | 2,50 | 2,50 | 720   | 21,46 | 2,69 | 2,69 | 770   | 24,32 |      |      |
|       |            | 19           | 1,30      | 0,79 | 370   | 5,62  | 1,38 | 1,19 | 400   | 6,89  | 1,72 | 1,68 | 490   | 11,36 | 2,11 | 2,11 | 610   | 16,16 | 2,50 | 2,50 | 720   | 21,51 | 2,69 | 2,69 | 770   | 24,38 |      |      |
|       |            | 21           | -         | -    | -     | -     | 2,79 | 1,25 | 800   | 25,82 | 2,78 | 1,60 | 540   | 26,09 | 2,33 | 1,90 | 540   | 13,24 | 2,74 | 2,31 | 790   | 25,02 | 2,81 | 2,54 | 810   | 26,13 |      |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 4,19  | 1,66 | 1200 | 51,82 | 4,16  | 2,00 | 1190 | 51,21 | 3,00  | 2,06 | 540  | 13,19 | 2,98  | 2,22 | 540  | 13,19 |       |      |      |
| 15    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 19           | -         | -    | -     | -     | 0,80 | 0,80 | 140   | 1,36  | 1,07 | 1,07 | 180   | 1,83  | 1,34 | 1,34 | 230   | 2,30  | 1,98 | 1,98 | 340   | 4,16  | 2,20 | 2,20 | 380   | 6,11  |      |      |
|       |            | 21           | -         | -    | -     | -     | 0,97 | 0,79 | 540   | 1,65  | 1,08 | 1,05 | 190   | 1,85  | 1,34 | 1,34 | 230   | 2,30  | 1,98 | 1,98 | 340   | 4,18  | 2,21 | 2,21 | 380   | 6,14  |      |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 3,22  | 1,62 | 540  | 13,51 | 2,98  | 1,79 | 510  | 12,09 | 3,00  | 2,06 | 540  | 13,19 | 2,98  | 2,22 | 540  | 13,19 |       |      |      |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | 0,84  | 0,84 | 100  | 1,00  | 1,11  | 1,11 | 140  | 1,32  | 1,38  | 1,38 | 170  | 1,64  | 1,51  | 1,51 | 190  | 1,80  |       |      |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 1,06  | 0,85 | 540  | 1,25  | 1,16  | 1,08 | 140  | 1,38  | 3,00  | 2,06 | 540  | 13,19 | 2,98  | 2,22 | 540  | 13,19 |       |      |      |
| 15    | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | 0,80  | 0,80 | 140  | 1,29  | 1,07  | 1,07 | 180  | 1,73  | 1,38  | 1,38 | 240  | 2,24  | 1,78  | 1,78 | 310  | 3,17  |       |      |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | 0,98  | 0,74 | 540  | 1,58  | 1,09  | 1,04 | 190  | 1,77  | 2,44  | 1,88 | 540  | 13,02 | 1,79  | 1,77 | 310  | 3,21  |       |      |      |
|       | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    |      |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | 0,85  | 0,84 | 100  | 0,96  | 2,44  | 1,88 | 540  | 13,02 | 1,25  | 1,50 | 1,41 |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Cooling performance

### CC4 - 4-pipe system

| 021.0 |            |              |           |      |       |       |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |  |
|-------|------------|--------------|-----------|------|-------|-------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |  |
|       |            |              | 21        |      |       |       | 23    |      |       |        | 25    |      |       |        | 27    |      |       |        | 29    |      |       |        | 30    |      |       |        |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  |  |
| 3     | 15         | 15           | 5,04      | 3,86 | 1440  | 28,17 | 5,24  | 4,76 | 990   | 29,98  | 5,27  | 5,24 | 1500  | 30,44  | 5,90  | 5,90 | 1680  | 36,85  | 6,52  | 6,52 | 1860  | 43,65  | 6,83  | 6,83 | 1950  | 47,20  |  |
|       |            | 17           | 6,70      | 3,75 | 1910  | 45,72 | 5,48  | 4,11 | 990   | 14,72  | 5,36  | 4,62 | 990   | 14,69  | 6,59  | 5,43 | 1880  | 44,46  | 6,66  | 6,20 | 990   | 45,18  | 6,85  | 6,68 | 1950  | 47,50  |  |
|       |            | 19           | 8,68      | 3,81 | 2480  | 71,22 | 8,64  | 4,39 | 2460  | 70,60  | 8,60  | 4,96 | 2450  | 69,98  | 8,55  | 5,52 | 2440  | 69,38  | 6,36  | 5,36 | 990   | 14,65  | 8,49  | 6,34 | 2420  | 68,48  |  |
|       |            | 21           | -         | -    | -     | -     | 10,76 | 4,46 | 3070  | 102,99 | 10,71 | 5,03 | 3050  | 102,13 | 10,66 | 5,60 | 3040  | 101,29 | 10,61 | 6,16 | 3020  | 100,46 | 10,58 | 6,43 | 3020  | 100,05 |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 12,99 | 5,11 | 3700  | 142,58 | 12,93 | 5,69 | 3690  | 141,45 | 12,87 | 6,25 | 3670  | 140,33 | 12,84 | 6,53 | 3660  | 139,77 |  |
|       | 5          | 15           | 2,66      | 2,66 | 460   | 3,13  | 3,30  | 3,30 | 570   | 3,88   | 4,33  | 4,33 | 740   | 6,49   | 5,04  | 5,04 | 860   | 10,79  | 5,71  | 5,71 | 980   | 14,40  | 6,03  | 6,03 | 1030  | 15,96  |  |
|       |            | 17           | 5,54      | 3,64 | 990   | 14,08 | 5,30  | 4,24 | 910   | 12,28  | 5,15  | 4,66 | 990   | 11,98  | 5,06  | 4,95 | 870   | 10,89  | 5,71  | 5,71 | 980   | 14,43  | 6,04  | 6,04 | 1040  | 15,99  |  |
|       |            | 19           | 6,75      | 3,00 | 1160  | 19,37 | 6,71  | 3,57 | 1150  | 19,16  | 6,67  | 4,14 | 1140  | 18,96  | 6,63  | 4,70 | 1140  | 18,76  | 6,36  | 5,36 | 990   | 14,66  | 6,80  | 5,77 | 990   | 19,60  |  |
|       |            | 21           | -         | -    | -     | -     | 8,95  | 3,69 | 1540  | 31,22  | 8,90  | 4,27 | 1530  | 30,93  | 8,86  | 4,83 | 1520  | 30,65  | 8,81  | 5,39 | 1510  | 30,37  | 8,78  | 5,67 | 1510  | 30,23  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 11,24 | 4,37 | 1930  | 45,99  | 11,18 | 4,94 | 1920  | 45,60  | 11,13 | 5,51 | 1910  | 45,21  | 11,10 | 5,79 | 1900  | 45,02  |  |
| 7     | 15         | 15           | 2,28      | 2,28 | 280   | 1,85  | 2,73  | 2,73 | 330   | 2,22   | 3,18  | 3,18 | 390   | 2,59   | 3,62  | 3,62 | 440   | 2,95   | 4,16  | 4,16 | 510   | 3,40   | 4,64  | 4,64 | 570   | 3,80   |  |
|       |            | 17           | 4,15      | 3,82 | 990   | 4,05  | 2,74  | 2,68 | 340   | 2,22   | 3,18  | 3,18 | 390   | 2,59   | 3,62  | 3,62 | 440   | 2,95   | 4,17  | 4,17 | 510   | 3,40   | 4,65  | 4,65 | 570   | 3,81   |  |
|       |            | 19           | 4,50      | 3,38 | 990   | 3,65  | 4,55  | 3,96 | 990   | 3,70   | 5,07  | 4,56 | 990   | 4,34   | 3,65  | 3,62 | 450   | 2,97   | 4,17  | 4,17 | 510   | 3,40   | 4,66  | 4,66 | 570   | 3,81   |  |
|       |            | 21           | -         | -    | -     | -     | 6,39  | 2,70 | 780   | 8,19   | 6,33  | 3,26 | 780   | 7,95   | 6,73  | 4,15 | 990   | 9,76   | 6,60  | 4,81 | 990   | 8,36   | 6,92  | 5,23 | 990   | 10,53  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 9,12  | 3,54 | 1120  | 18,08  | 9,07  | 4,11 | 1110  | 17,90  | 9,02  | 4,67 | 1110  | 17,72  | 8,99  | 4,95 | 1100  | 17,63  |  |
|       | 3          | 15           | 3,47      | 3,17 | 990   | 14,76 | 4,02  | 4,02 | 1150  | 19,01  | 4,66  | 4,66 | 1340  | 24,41  | 5,29  | 5,29 | 1520  | 30,26  | 5,91  | 5,91 | 1690  | 36,55  | 6,22  | 6,22 | 1780  | 39,85  |  |
|       |            | 17           | 5,30      | 3,15 | 1520  | 30,32 | 4,65  | 3,77 | 990   | 14,52  | 5,23  | 4,28 | 990   | 29,73  | 5,47  | 5,19 | 990   | 32,11  | 5,92  | 5,92 | 1700  | 36,62  | 6,23  | 6,23 | 1780  | 39,92  |  |
|       |            | 19           | 7,30      | 3,22 | 2090  | 52,38 | 7,26  | 3,80 | 2080  | 51,88  | 7,22  | 4,37 | 2070  | 51,39  | 7,18  | 4,93 | 2060  | 50,90  | 5,65  | 5,17 | 990   | 14,51  | 7,12  | 5,75 | 2040  | 50,19  |  |
|       |            | 21           | -         | -    | -     | -     | 9,39  | 3,87 | 2690  | 80,65  | 9,34  | 4,44 | 2680  | 79,94  | 9,29  | 5,01 | 2660  | 79,24  | 9,25  | 5,57 | 2650  | 78,55  | 9,22  | 5,85 | 2640  | 78,21  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 11,63 | 4,53 | 3330  | 116,62 | 11,57 | 5,10 | 3310  | 115,64 | 11,51 | 5,66 | 3300  | 114,68 | 11,49 | 5,94 | 3290  | 114,21 |  |
| 7     | 15         | 15           | 2,22      | 2,22 | 380   | 2,46  | 2,67  | 2,67 | 460   | 2,96   | 3,63  | 3,63 | 620   | 4,18   | 4,41  | 4,41 | 760   | 7,66   | 5,10  | 5,10 | 880   | 11,50  | 5,43  | 5,43 | 930   | 13,07  |  |
|       |            | 17           | 2,37      | 2,20 | 410   | 2,61  | 3,44  | 3,25 | 990   | 4,38   | 3,64  | 3,64 | 630   | 4,19   | 4,42  | 4,42 | 760   | 7,69   | 5,11  | 5,11 | 880   | 11,53  | 5,44  | 5,44 | 930   | 13,09  |  |
|       |            | 19           | 5,33      | 2,63 | 990   | 11,83 | 5,58  | 3,29 | 990   | 14,28  | 5,78  | 4,13 | 990   | 14,56  | 5,36  | 4,66 | 990   | 14,80  | 5,68  | 5,35 | 980   | 14,19  | 5,64  | 5,40 | 970   | 14,03  |  |
|       |            | 21           | -         | -    | -     | -     | 7,45  | 3,10 | 1280  | 22,50  | 7,40  | 3,67 | 1270  | 22,27  | 7,36  | 4,23 | 1260  | 22,05  | 7,31  | 4,79 | 1260  | 21,82  | 7,29  | 5,07 | 1250  | 21,71  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 9,77  | 3,79 | 1680  | 35,69  | 9,72  | 4,36 | 1670  | 35,37  | 9,67  | 4,92 | 1660  | 35,05  | 9,64  | 5,20 | 1660  | 34,89  |  |
|       | 7          | 15           | 1,84      | 1,84 | 230   | 1,41  | 2,28  | 2,28 | 280   | 1,75   | 2,73  | 2,73 | 340   | 2,10   | 3,18  | 3,18 | 390   | 2,44   | 3,63  | 3,63 | 450   | 2,79   | 3,93  | 3,93 | 480   | 3,03   |  |
|       |            | 17           | 1,86      | 1,78 | 990   | 1,42  | 2,29  | 2,29 | 280   | 1,75   | 2,73  | 2,73 | 340   | 2,10   | 3,18  | 3,18 | 390   | 2,44   | 3,63  | 3,63 | 450   | 2,80   | 3,94  | 3,94 | 480   | 3,03   |  |
|       |            | 19           | 2,69      | 1,89 | 330   | 2,06  | 2,52  | 2,19 | 310   | 1,92   | 2,75  | 2,64 | 340   | 2,11   | 3,18  | 3,18 | 390   | 2,44   | 3,64  | 3,64 | 450   | 2,80   | 3,94  | 3,94 | 480   | 3,04   |  |
|       |            | 21           | -         | -    | -     | -     | 4,76  | 2,76 | 990   | 3,72   | 4,97  | 3,51 | 990   | 3,99   | 4,91  | 3,83 | 990   | 3,97   | 5,49  | 4,67 | 990   | 5,93   | 3,95  | 3,92 | 490   | 3,05   |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 7,42  | 2,91 | 910   | 12,39  | 7,36  | 3,48 | 900   | 12,22  | 7,31  | 4,04 | 900   | 12,05  | 7,28  | 4,32 | 890   | 11,96  |  |
| 9     | 3          | 15           | 2,70      | 2,70 | 770   | 8,51  | 3,39  | 3,39 | 970   | 13,92  | 4,04  | 4,04 | 1160  | 18,77  | 4,67  | 4,67 | 1340  | 24,04  | 5,30  | 5,30 | 1520  | 29,75  | 5,61  | 5,61 | 1600  | 32,76  |  |
|       |            | 17           | 4,45      | 3,21 | 990   | 21,50 | 3,72  | 3,12 | 1060  | 16,31  | 4,07  | 3,93 | 1160  | 19,00  | 4,68  | 4,68 | 1340  | 24,08  | 5,30  | 5,30 | 1520  | 29,80  | 5,61  | 5,61 | 1610  | 32,82  |  |
|       |            | 19           | 5,80      | 2,62 | 1660  | 34,68 | 5,76  | 3,19 | 1650  | 34,30  | 5,73  | 3,76 | 1640  | 33,93  | 5,69  | 4,32 | 1630  | 33,57  | 5,67  | 4,92 | 1620  | 33,35  | 5,77  | 5,34 | 990   | 34,39  |  |
|       |            | 21           | -         | -    | -     | -     | 7,91  | 3,27 | 2260  | 58,94  | 7,86  | 3,85 | 2250  | 58,37  | 7,82  | 4,41 | 2240  | 57,81  | 5,89  | 4,44 | 990   | 14,32  | 7,75  | 5,25 | 2220  | 56,99  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 10,15 | 3,93 | 2900  | 90,64  | 10,10 | 4,50 | 2890  | 89,84  | 10,05 | 5,07 | 2870  | 89,05  | 10,02 | 5,35 | 2870  | 88,66  |  |
|       | 7          | 15           | 1,77      | 1,77 | 300   | 1,84  | 2,22  | 2,22 | 380   | 2,32   | 2,71  | 2,71 | 470   | 2,84   | 3,76  | 3,76 | 650   | 4,75   | 4,48  | 4,48 | 770   | 8,55   | 4,82  | 4,82 | 830   | 10,25  |  |
|       |            | 17           | 1,77      | 1,75 | 300   | 1,85  | 2,22  | 2,22 | 380   | 2,32   | 2,71  | 2,71 | 470   | 2,84   | 3,76  | 3,76 | 650   | 4,77   | 4,48  | 4,48 | 770   | 8,57   | 4,82  | 4,82 | 830   | 10,28  |  |
|       |            | 19           | 4,27      | 2,73 | 990   | 7,48  | 3,25  | 2,67 | 560   | 3,42   | 2,71  | 2,67 | 470   | 2,84   | 3,78  | 3,68 | 650   | 4,85   | 4,49  | 4,49 | 770   | 8,60   | 4,83  | 4,83 | 830   | 10,31  |  |
|       |            | 21           | -         | -    | -     | -     | 5,76  | 2,47 | 990   | 14,32  | 5,72  | 3,04 | 980   | 14,13  | 6,21  | 4,06 | 990   | 16,12  | 5,89  | 4,44 | 990   | 14,32  | 6,13  | 4,92 | 1050  | 15,89  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -      | 8,18  | 3,19 | 1400  | 25,89  | 8,13  | 3,76 | 1400  | 25,63  | 8,08  | 4,32 | 1390  | 25,37  | 8,06  | 4,60 | 1380  | 25,24  |  |
| 7     | 15         | -            | -         | -</  |       |       |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |  |

# Cooling performance

## CC4 - 4-pipe system

| 021.0 |            |              |           |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |   |  |
|-------|------------|--------------|-----------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|------|------|-------|-------|---|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |       |       |   |  |
|       |            |              | 21        |      |       |       | 23   |      |       |       | 25   |      |       |       | 27   |      |       |       | 29   |      |       |       | 30   |      |       |       |   |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   | TC   | SC   | WF    | WDP   |   |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] | [kW] | [kW] | [l/h] | [kPa] |   |  |
| 11    | 3          | 15           | 1,98      | 1,98 | 570   | 3,42  | 2,74 | 2,74 | 780   | 9,20  | 3,41 | 3,41 | 980   | 13,88 | 4,05 | 4,05 | 1160  | 18,60 | 4,68 | 4,68 | 1340  | 23,76 | 4,99 | 4,99 | 1430  | 26,51 |   |  |
|       |            | 17           | 2,02      | 1,92 | 580   | 3,55  | 2,74 | 2,74 | 790   | 9,23  | 3,41 | 3,41 | 980   | 13,91 | 4,06 | 4,06 | 1160  | 18,64 | 4,69 | 4,69 | 1340  | 23,81 | 5,00 | 5,00 | 1430  | 26,56 |   |  |
|       |            | 19           | 4,22      | 2,50 | 990   | 14,17 | 4,71 | 3,12 | 990   | 23,98 | 4,48 | 3,55 | 1280  | 22,00 | 3,95 | 3,76 | 990   | 14,19 | 4,69 | 4,66 | 1350  | 23,86 | 5,01 | 5,01 | 1430  | 26,61 |   |  |
|       |            | 21           | -         | -    | -     | -     | 6,31 | 2,67 | 1810  | 39,48 | 5,16 | 3,12 | 990   | 14,13 | 5,07 | 3,62 | 990   | 14,12 | 6,19 | 4,36 | 1770  | 38,20 | 6,17 | 4,64 | 1770  | 38,00 |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 8,57 | 3,33 | 2460  | 66,80 | 8,52 | 3,90 | 2440  | 66,16 | 8,48 | 4,46 | 2430  | 65,52 | 8,45 | 4,74 | 2420  | 65,21 |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | 1,32      | 1,32 | 230   | 1,30  | 1,77 | 1,77 | 300   | 1,75  | 2,21 | 2,21 | 380   | 2,19  | 2,91 | 2,91 | 500   | 2,89  | 3,84 | 3,84 | 660   | 5,60  | 4,19 | 4,19 | 720   | 7,46  |   |  |
|       |            | 19           | 4,22      | 2,50 | 990   | 14,17 | 2,66 | 2,33 | 990   | 3,36  | 2,21 | 2,21 | 380   | 2,19  | 2,92 | 2,92 | 500   | 2,90  | 3,85 | 3,85 | 660   | 5,62  | 4,20 | 4,20 | 720   | 7,49  |   |  |
|       |            | 21           | -         | -    | -     | -     | 3,70 | 1,90 | 990   | 4,71  | 4,02 | 2,71 | 990   | 6,53  | 5,19 | 3,83 | 990   | 14,25 | 4,04 | 3,70 | 990   | 6,62  | 4,28 | 4,05 | 740   | 7,90  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 6,41 | 2,56 | 1100  | 16,89 | 6,37 | 3,13 | 1100  | 16,69 | 6,32 | 3,69 | 1090  | 16,49 | 6,30 | 3,97 | 990   | 16,40 |   |  |
| 13    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 1,40 | 1,40 | 170   | 0,96  | 1,84 | 1,84 | 230   | 1,27  | 2,29 | 2,29 | 280   | 1,57  | 2,73 | 2,73 | 340   | 1,88  | 2,95 | 2,95 | 360   | 2,03  |   |  |
|       |            | 21           | -         | -    | -     | -     | 1,77 | 1,40 | 990   | 1,20  | 1,94 | 1,85 | 990   | 1,33  | 2,29 | 2,28 | 280   | 1,57  | 4,09 | 3,69 | 990   | 7,32  | 2,95 | 2,95 | 360   | 2,03  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 4,04 | 2,66 | 990   | 2,93  | 3,94 | 3,25 | 990   | 2,85  | 4,10 | 3,70 | 990   | 3,05  | 2,98 | 2,89 | 370   | 2,05  |   |  |
|       | 5          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | 1,24      | 1,24 | 360   | 2,00  | 2,05 | 2,05 | 590   | 3,86  | 2,77 | 2,77 | 790   | 9,51  | 3,43 | 3,43 | 980   | 13,82 | 4,07 | 4,07 | 1170  | 18,45 | 4,38 | 4,38 | 1260  | 20,93 |   |  |
|       |            | 19           | 2,05      | 1,26 | 590   | 3,86  | 2,22 | 1,94 | 640   | 5,16  | 2,78 | 2,72 | 800   | 9,61  | 3,43 | 3,43 | 980   | 13,85 | 4,07 | 4,07 | 1170  | 18,48 | 4,39 | 4,39 | 1260  | 20,97 |   |  |
|       |            | 21           | -         | -    | -     | 4,56  | 2,04 | 1310 | 22,38 | 4,84  | 2,87 | 1390 | 24,76 | 4,53  | 3,19 | 990  | 22,58 | 4,42  | 3,77 | 990  | 20,53 | 4,59  | 4,17 | 1320 | 22,61 |       |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 6,86 | 2,72 | 1970  | 44,96 | 6,82 | 3,29 | 1960  | 44,47 | 6,77 | 3,85 | 1940  | 43,98 | 6,75 | 4,13 | 1940  | 43,75 |   |  |
| 15    | 7          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | 1,32 | 1,32 | 230   | 1,24  | 1,77 | 1,77 | 300   | 1,66  | 2,21 | 2,21 | 380   | 2,08  | 3,15 | 3,15 | 540   | 3,16  | 3,55 | 3,55 | 610   | 4,59  |   |  |
|       |            | 21           | -         | -    | -     | -     | 1,73 | 1,50 | 990   | 1,61  | 1,81 | 1,75 | 310   | 1,70  | 2,21 | 2,21 | 380   | 2,08  | 3,16 | 3,16 | 540   | 3,17  | 3,55 | 3,55 | 610   | 4,62  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 5,52 | 2,84 | 990   | 12,79 | 4,96 | 2,98 | 990   | 10,97 | 4,96 | 3,66 | 990   | 10,80 | 4,80 | 3,86 | 990   | 10,18 |   |  |
|       | 3          | 15           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 17           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 19           | -         | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | -    | -    | -     | -     | - |  |
|       |            | 21           | -         | -    | -     | -     | -    | -    | -     | -     | 1,41 | 1,40 | 170   | 0,91  | 1,85 | 1,85 | 230   | 1,20  | 2,29 | 2,29 | 280   | 1,49  | 2,51 | 2,51 | 310   | 1,64  |   |  |
|       |            | 23           | -         | -    | -     | -     | -    | -    | -     | -     | 1,81 | 1,37 | 990   | 1,17  | 1,97 | 1,87 | 240   | 1,28  | 2,29 | 2,26 | 280   | 1,50  | 2,51 | 2,51 | 310   | 1,64  |   |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Cooling performance

## CC4 - 4-pipe system

| 031.0 |            |              |           |      |        |       |      |      |        |       |      |      |        |       |      |      |        |       |       |       |        |       |        |      |        |       |  |  |  |
|-------|------------|--------------|-----------|------|--------|-------|------|------|--------|-------|------|------|--------|-------|------|------|--------|-------|-------|-------|--------|-------|--------|------|--------|-------|--|--|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |        |       |      |      |        |       |      |      |        |       |      |      |        |       |       |       |        |       |        |      |        |       |  |  |  |
|       |            |              | 21        |      |        |       | 23   |      |        |       | 25   |      |        |       | 27   |      |        |       | 29    |       |        |       | 30     |      |        |       |  |  |  |
|       |            |              | TC        | SC   | WF     | WDP   | TC   | SC   | WF     | WDP   | TC   | SC   | WF     | WDP   | TC   | SC   | WF     | WDP   | TC    | SC    | WF     | WDP   | TC     | SC   | WF     | WDP   |  |  |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h]  | [kPa] | [kW] | [kW] | [l/h]  | [kPa] | [kW] | [kW] | [l/h]  | [kPa] | [kW] | [kW] | [l/h]  | [kPa] | [kW]  | [kW]  | [l/h]  | [kPa] | [kW]   | [kW] | [l/h]  | [kPa] |  |  |  |
| 3     | 15         | 8,13         | 6,04      | 2320 | 61,96  | 8,09  | 6,96 | 2310 | 61,43  | 8,64  | 8,45 | 2460 | 68,76  | 9,62  | 9,62 | 2740 | 82,51  | 10,59 | 3020  | 97,13 | 11,07  | 3160  | 104,75 |      |        |       |  |  |  |
|       |            | 11,08        | 6,14      | 3160 | 104,92 | 11,01 | 7,04 | 3140 | 103,78 | 10,94 | 7,92 | 3120 | 102,66 | 8,92  | 8,36 | 1570 | 31,63  | 10,89 | 9,88  | 3110  | 101,91 | 11,14 | 10,66  | 3180 | 105,98 |       |  |  |  |
|       |            | 14,23        | 6,24      | 4060 | 161,05 | 14,14 | 7,15 | 4030 | 159,39 | 14,06 | 8,04 | 4010 | 157,75 | 13,97 | 8,92 | 3980 | 156,13 | 10,30 | 8,27  | 1570  | 31,56  | 13,85 | 10,21  | 3950 | 153,75 |       |  |  |  |
|       |            | -            | -         | -    | -      | 17,51 | 7,26 | 4990 | 230,37 | 17,41 | 8,16 | 4960 | 228,09 | 17,31 | 9,05 | 4940 | 225,84 | 17,21 | 9,92  | 4910  | 223,61 | 17,16 | 10,36  | 4890 | 222,51 |       |  |  |  |
|       |            | -            | -         | -    | -      | -     | -    | -    | -      | 21,03 | 8,29 | 6000 | 316,41 | 20,92 | 9,18 | 5960 | 313,37 | 20,80 | 10,07 | 5930  | 310,37 | 20,74 | 10,51  | 5910 | 308,89 |       |  |  |  |
|       | 17         | 4,65         | 4,65      | 800  | 7,08   | 6,32  | 6,32 | 1080 | 11,54  | 7,45  | 7,45 | 1280 | 20,09  | 8,50  | 8,50 | 1460 | 27,61  | 9,52  | 9,52  | 1630  | 33,87  | 10,02 | 10,02  | 1720 | 36,96  |       |  |  |  |
|       |            | 8,15         | 4,90      | 1400 | 25,33  | 8,23  | 5,99 | 1570 | 25,09  | 8,53  | 7,06 | 1570 | 28,50  | 8,90  | 8,44 | 1570 | 29,99  | 9,52  | 9,46  | 1630  | 33,90  | 10,03 | 10,03  | 1720 | 37,05  |       |  |  |  |
|       |            | 11,59        | 5,12      | 1990 | 47,31  | 11,51 | 6,02 | 1970 | 46,76  | 11,44 | 6,92 | 1960 | 46,22  | 11,59 | 8,00 | 1990 | 47,33  | 10,30 | 8,27  | 1570  | 31,56  | 11,25 | 9,11   | 1930 | 44,94  |       |  |  |  |
|       |            | -            | -         | -    | -      | 15,00 | 6,18 | 2570 | 73,21  | 14,90 | 7,08 | 2560 | 72,43  | 14,81 | 7,97 | 2540 | 71,67  | 14,72 | 8,85  | 2520  | 70,92  | 14,67 | 9,28   | 2520 | 70,55  |       |  |  |  |
|       |            | -            | -         | -    | -      | -     | -    | -    | -      | 18,58 | 7,24 | 3190 | 105,59 | 18,48 | 8,13 | 3170 | 104,53 | 18,37 | 9,02  | 3150  | 103,50 | 18,31 | 9,46   | 3140 | 102,98 |       |  |  |  |
| 5     | 15         | 3,87         | 3,87      | 470  | 4,07   | 4,62  | 4,62 | 570  | 4,86   | 5,36  | 5,36 | 660  | 5,65   | 6,32  | 6,32 | 770  | 6,68   | 8,05  | 8,05  | 990   | 9,18   | 8,67  | 8,67   | 1060 | 11,34  |       |  |  |  |
|       |            | 4,25         | 3,71      | 1570 | 4,45   | 4,66  | 4,53 | 570  | 4,90   | 5,36  | 5,36 | 660  | 5,65   | 6,33  | 6,33 | 780  | 6,69   | 8,06  | 8,06  | 990   | 9,22   | 8,69  | 8,69   | 1060 | 11,39  |       |  |  |  |
|       |            | 8,44         | 4,30      | 1570 | 10,15  | 8,79  | 5,41 | 1080 | 11,83  | 8,54  | 6,32 | 1050 | 10,86  | 8,29  | 7,20 | 1020 | 9,97   | 8,75  | 8,20  | 1070  | 11,72  | 8,98  | 8,65   | 1570 | 12,88  |       |  |  |  |
|       |            | -            | -         | -    | -      | 11,87 | 4,93 | 1450 | 27,32  | 11,78 | 5,83 | 1440 | 26,92  | 12,00 | 7,01 | 1470 | 27,90  | 11,59 | 7,59  | 1420  | 26,11  | 11,55 | 8,02   | 1420 | 25,91  |       |  |  |  |
|       |            | -            | -         | -    | -      | -     | -    | -    | -      | 15,76 | 6,10 | 1930 | 44,60  | 15,65 | 7,00 | 1920 | 44,11  | 15,55 | 7,88  | 1910  | 43,63  | 15,50 | 8,32   | 1900 | 43,39  |       |  |  |  |
|       | 19         | 6,06         | 5,35      | 1570 | 36,08  | 6,65  | 6,56 | 1900 | 43,58  | 7,66  | 7,66 | 2190 | 55,32  | 8,64  | 8,64 | 2470 | 67,96  | 9,61  | 9,61  | 2750  | 81,51  | 10,10 | 10,10  | 2890 | 88,60  |       |  |  |  |
|       |            | 8,87         | 5,19      | 2540 | 71,04  | 9,06  | 6,31 | 2600 | 73,70  | 8,75  | 6,97 | 2500 | 69,34  | 8,86  | 8,11 | 2540 | 70,96  | 9,62  | 9,60  | 2760  | 81,66  | 10,11 | 10,11  | 2900 | 88,83  |       |  |  |  |
|       |            | 12,04        | 5,30      | 3450 | 119,71 | 11,96 | 6,21 | 3430 | 118,40 | 11,88 | 7,10 | 3400 | 117,10 | 11,81 | 7,98 | 3380 | 115,81 | 11,73 | 8,85  | 3360  | 114,55 | 9,27  | 8,61   | 1570 | 30,54  |       |  |  |  |
|       |            | -            | -         | -    | -      | 15,34 | 6,32 | 4390 | 181,62 | 15,25 | 7,22 | 4370 | 179,73 | 15,15 | 8,11 | 4340 | 177,87 | 15,06 | 8,99  | 4310  | 176,03 | 15,02 | 9,42   | 4300 | 175,12 |       |  |  |  |
|       |            | -            | -         | -    | -      | -     | -    | -    | -      | 18,87 | 7,35 | 5410 | 259,97 | 18,77 | 8,25 | 5370 | 257,38 | 18,66 | 9,14  | 5340  | 254,83 | 18,60 | 9,57   | 5330 | 253,56 |       |  |  |  |
| 7     | 15         | 3,74         | 3,74      | 640  | 5,36   | 5,08  | 5,08 | 870  | 7,33   | 6,43  | 6,43 | 1100 | 13,43  | 7,51  | 7,51 | 1290 | 21,45  | 8,54  | 8,54  | 1470  | 27,71  | 9,05  | 9,05   | 1550 | 30,62  |       |  |  |  |
|       |            | 4,05         | 3,55      | 1570 | 5,80   | 5,76  | 5,17 | 1570 | 9,29   | 6,45  | 6,23 | 1110 | 13,64  | 7,52  | 7,52 | 1290 | 21,52  | 8,56  | 8,56  | 1470  | 27,78  | 9,06  | 9,06   | 1560 | 30,70  |       |  |  |  |
|       |            | 9,55         | 4,47      | 1570 | 33,47  | 9,07  | 5,04 | 1560 | 30,72  | 9,00  | 5,93 | 1550 | 30,30  | 8,75  | 7,51 | 1570 | 33,90  | 9,16  | 7,99  | 1570  | 31,33  | 9,38  | 8,69   | 1570 | 31,13  |       |  |  |  |
|       |            | -            | -         | -    | -      | 12,65 | 5,24 | 2170 | 54,01  | 12,57 | 6,14 | 2160 | 53,39  | 12,48 | 7,03 | 2140 | 52,78  | 12,40 | 7,90  | 2130  | 52,18  | 12,36 | 8,34   | 2120 | 51,88  |       |  |  |  |
|       |            | -            | -         | -    | -      | -     | -    | -    | -      | 16,28 | 6,30 | 2800 | 82,98  | 16,18 | 7,20 | 2780 | 82,11  | 16,08 | 8,09  | 2760  | 81,25  | 16,03 | 8,52   | 2750 | 80,82  |       |  |  |  |
|       | 19         | 3,13         | 3,13      | 380  | 3,10   | 3,87  | 3,87 | 470  | 3,84   | 4,61  | 4,61 | 570  | 4,59   | 5,38  | 5,38 | 660  | 5,36   | 6,82  | 6,82  | 840   | 6,84   | 7,63  | 7,63   | 940  | 8,29   |       |  |  |  |
|       |            | 3,20         | 3,03      | 390  | 3,17   | 3,87  | 3,87 | 480  | 3,85   | 4,61  | 4,61 | 570  | 4,59   | 5,38  | 5,38 | 660  | 5,36   | 6,83  | 6,83  | 840   | 6,86   | 7,65  | 7,65   | 940  | 8,33   |       |  |  |  |
|       |            | 7,79         | 4,47      | 1570 | 11,17  | 4,42  | 3,85 | 540  | 4,37   | 4,77  | 4,65 | 590  | 4,73   | 5,39  | 5,39 | 660  | 5,37   | 6,85  | 6,85  | 840   | 6,88   | 8,38  | 8,69   | 1570 | 31,14  |       |  |  |  |
|       |            | -            | -         | -    | -      | 8,92  | 3,84 | 1100 | 13,69  | 8,93  | 5,12 | 1570 | 11,86  | 9,63  | 6,29 | 1180 | 17,31  | 9,27  | 6,95  | 1570  | 15,65  | 9,22  | 7,43   | 1570 | 15,00  |       |  |  |  |
|       |            | -            | -         | -    | -      | -     | -    | -    | -      | 13,20 | 5,14 | 1620 | 32,55  | 13,11 | 6,04 | 1610 | 32,15  | 13,01 | 6,92  | 1600  | 31,76  | 12,96 | 7,36   | 1590 | 31,56  |       |  |  |  |
| 9     | 15         | 4,60         | 4,60      | 1310 | 22,52  | 5,64  | 5,64 | 1610 | 32,38  | 6,66  | 6,66 | 1900 | 42,82  | 7,65  | 7,65 | 2190 | 54,22  | 8,63  | 8,63  | 2470  | 66,54  | 9,12  | 9,12   | 2610 | 73,04  |       |  |  |  |
|       |            | 6,45         | 4,21      | 1570 | 40,66  | 6,39  | 5,12 | 1830 | 39,97  | 6,76  | 6,37 | 1940 | 43,97  | 7,66  | 7,66 | 2190 | 54,35  | 8,64  | 8,64  | 2470  | 66,71  | 9,13  | 9,13   | 2610 | 73,22  |       |  |  |  |
|       |            | 9,67         | 4,34      | 2770 | 80,75  | 9,60  | 5,25 | 2750 | 79,76  | 7,70  | 5,43 | 1570 | 30,71  | 9,46  | 7,02 | 2710 | 77,83  | 8,04  | 7,61  | 1570  | 30,70  | 9,49  | 8,54   | 2720 | 78,20  |       |  |  |  |
|       |            | -            | -         | -    | -      | 13,00 | 5,37 | 3720 | 134,07 | 12,91 | 6,27 | 3690 | 132,58 | 12,83 | 7,16 | 3670 | 131,11 | 12,75 | 8,04  | 3650  | 129,66 | 12,71 | 8,47   | 3630 | 128,95 |       |  |  |  |
|       |            | -            | -         | -    | -      | -     | -    | -    | -      | 16,55 | 6,40 | 4730 | 203,43 | 16,45 | 7,30 | 4710 | 201,31 | 16,35 | 8,19  | 4680  | 199,21 | 16,30 | 8,63   | 4660 | 198,17 |       |  |  |  |
|       | 19         | 2,99         | 2,99      | 510  | 4,05   | 3,75  | 3,75 | 640  | 5,08   | 5,34  | 5,34 | 920  | 7,86   | 6,50  | 6,50 | 1120 | 15,07  | 7,56  | 7,56  | 1300  | 21,89  | 8,07  | 8,07   | 1390 | 24,72  |       |  |  |  |
|       |            | 3,04         | 3,01      | 520  | 4,11   | 5,02  | 4,76 | 1570 | 11,62  | 5,35  | 5,35 | 920  | 7,89   | 6,51  | 6,51 | 1120 | 15,14  | 7,57  | 7,57  | 1300  | 21,95  | 8,08  | 8,08   | 1390 | 24,78  |       |  |  |  |
|       |            | 7,39         | 3,87      | 1570 | 21,41  | 7,35  | 4,87 | 1570 | 21,05  | 7,70  | 5,43 | 1570 | 30,72  | 7,05  | 6,57 | 1570 | 18,26  | 7,59  | 7,    |       |        |       |        |      |        |       |  |  |  |

# Cooling performance

## CC4 - 4-pipe system

| 031.0 |            |              |           |      |       |       |       |      |       |       |       |      |        |       |       |      |        |       |       |      |        |       |       |      |        |       |      |      |       |       |  |  |
|-------|------------|--------------|-----------|------|-------|-------|-------|------|-------|-------|-------|------|--------|-------|-------|------|--------|-------|-------|------|--------|-------|-------|------|--------|-------|------|------|-------|-------|--|--|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |       |      |       |       |       |      |        |       |       |      |        |       |       |      |        |       |       |      |        |       |      |      |       |       |  |  |
|       |            |              | 21        |      |       |       |       | 23   |       |       |       |      | 25     |       |       |      |        | 27    |       |      |        |       | 29    |      |        |       |      | 30   |       |       |  |  |
|       |            |              | TC        | SC   | WF    | WDP   | TC    | SC   | WF    | WDP   | TC    | SC   | WF     | WDP   | TC    | SC   | WF     | WDP   | TC    | SC   | WF     | WDP   | TC    | SC   | WF     | WDP   | TC   | SC   | WF    | WDP   |  |  |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h]  | [kPa] | [kW]  | [kW] | [l/h]  | [kPa] | [kW]  | [kW] | [l/h]  | [kPa] | [kW]  | [kW] | [l/h]  | [kPa] | [kW] | [kW] | [l/h] | [kPa] |  |  |
| 11    | 3          | 15           | 3,52      | 3,52 | 1010  | 11,16 | 4,62  | 4,62 | 1320  | 22,65 | 5,65  | 5,65 | 1620   | 32,00 | 6,66  | 6,66 | 1910   | 42,21 | 7,65  | 7,65 | 2190   | 53,38 | 8,14  | 8,14 | 2330   | 59,31 |      |      |       |       |  |  |
|       |            | 17           | 3,78      | 3,26 | 1080  | 14,24 | 4,63  | 4,53 | 1330  | 22,70 | 5,66  | 5,66 | 1620   | 32,08 | 6,67  | 6,67 | 1910   | 42,31 | 7,66  | 7,66 | 2190   | 53,51 | 8,15  | 8,15 | 2330   | 59,45 |      |      |       |       |  |  |
|       |            | 19           | 7,47      | 3,71 | 2140  | 51,28 | 6,30  | 3,99 | 1570  | 30,28 | 6,97  | 5,16 | 2000   | 45,60 | 7,05  | 6,21 | 2020   | 46,48 | 7,69  | 7,50 | 2200   | 53,88 | 8,16  | 8,16 | 2340   | 59,61 |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 10,47 | 4,40 | 3000  | 91,31 | 10,40 | 5,30 | 2980   | 90,19 | 10,33 | 6,19 | 2960   | 89,08 | 10,25 | 7,07 | 2940   | 87,99 | 10,21 | 7,50 | 2930   | 87,45 |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | 14,05 | 5,44  | 4030 | 151,36 | 13,96 | 6,34  | 4000 | 149,66 | 13,87 | 7,23  | 3970 | 148,00 | 13,83 | 7,67  | 3960 | 147,17 |       |      |      |       |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 17           | 2,24      | 2,24 | 390   | 2,87  | 2,99  | 2,99 | 510   | 3,83  | 3,82  | 3,82 | 660    | 4,91  | 5,46  | 5,46 | 940    | 8,97  | 6,56  | 6,56 | 1130   | 16,28 | 7,09  | 7,09 | 1220   | 19,32 |      |      |       |       |  |  |
|       |            | 19           | 2,85      | 2,33 | 1570  | 3,63  | 3,07  | 2,99 | 530   | 3,93  | 3,83  | 3,83 | 660    | 4,92  | 5,47  | 5,47 | 940    | 9,02  | 6,57  | 6,57 | 1130   | 16,34 | 7,10  | 7,10 | 1220   | 19,38 |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 7,57  | 3,60 | 1570  | 21,53 | 7,81  | 4,68 | 1340   | 23,04 | 7,23  | 5,25 | 1570   | 20,05 | 7,12  | 6,05 | 1570   | 19,26 | 7,59  | 6,82 | 1570   | 21,98 |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | 11,06 | 4,37  | 1900 | 41,57  | 10,97 | 5,27  | 1890 | 41,04  | 11,22 | 6,46  | 1930 | 42,62  | 10,85 | 6,59  | 1870 | 40,25  |       |      |      |       |       |  |  |
| 13    | 7          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | 2,39  | 2,36 | 290   | 2,12  | 3,13  | 3,13 | 380    | 2,78  | 3,87  | 3,87 | 480    | 3,45  | 4,61  | 4,61 | 570    | 4,11  | 5,05  | 5,05 | 620    | 4,51  |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 3,06  | 2,23 | 1570  | 2,70  | 3,26  | 2,91 | 400    | 2,89  | 3,88  | 3,82 | 1570   | 3,45  | 4,61  | 4,61 | 570    | 4,11  | 5,06  | 5,06 | 620    | 4,52  |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | 8,13  | 4,05  | 1000 | 11,64  | 7,46  | 4,69  | 920  | 8,73   | 7,10  | 5,52  | 1570 | 7,39   | 7,19  | 6,01  | 880  | 7,74   |       |      |      |       |       |  |  |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 17           | 2,11      | 2,11 | 610   | 4,40  | 3,57  | 3,57 | 1020  | 12,68 | 4,64  | 4,64 | 1330   | 22,59 | 5,67  | 5,67 | 1630   | 31,67 | 6,67  | 6,67 | 1910   | 41,68 | 7,16  | 7,16 | 2050   | 47,05 |      |      |       |       |  |  |
|       |            | 19           | 5,18      | 3,10 | 1570  | 29,83 | 4,12  | 3,25 | 1180  | 18,18 | 4,73  | 4,45 | 1360   | 23,30 | 5,68  | 5,68 | 1630   | 31,75 | 6,68  | 6,68 | 1920   | 41,79 | 7,17  | 7,17 | 2060   | 47,17 |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 7,73  | 3,41 | 2220  | 53,55 | 6,61  | 3,95 | 1570   | 29,75 | 7,60  | 5,21 | 2180   | 52,01 | 7,54  | 6,09 | 2160   | 51,36 | 7,64  | 6,69 | 2190   | 52,48 |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | 11,36 | 4,47  | 3260 | 103,49 | 11,27 | 5,37  | 3230 | 102,22 | 11,19 | 6,25  | 3210 | 100,96 | 11,15 | 6,69  | 3200 | 100,34 |       |      |      |       |       |  |  |
| 15    | 7          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | 2,24  | 2,24 | 390   | 2,72  | 2,99  | 2,99 | 510    | 3,63  | 4,12  | 4,12 | 710    | 5,03  | 5,54  | 5,54 | 950    | 10,32 | 6,09  | 6,09 | 1050   | 13,86 |      |      |       |       |  |  |
|       |            | 21           | -         | -    | -     | -     | 4,13  | 2,61 | 1570  | 5,42  | 4,33  | 3,42 | 1570   | 5,98  | 4,11  | 4,06 | 710    | 5,01  | 5,55  | 5,44 | 960    | 10,36 | 6,09  | 6,05 | 1050   | 13,86 |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | 7,98  | 3,33  | 1370 | 23,59  | 7,90  | 4,23  | 1570 | 23,21  | 8,50  | 5,33  | 1570 | 29,63  | 7,79  | 5,56  | 1340 | 22,64  |       |      |      |       |       |  |  |
|       | 3          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | 6,61  | 3,95  | 1570 | 29,76  | 3,13  | 3,13  | 380  | 2,64   | 3,87  | 3,87  | 480  | 3,27   | 4,23  | 4,23  | 520  | 3,58   |       |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | 3,10  | 2,10  | 1570 | 2,60   | 3,30  | 2,87  | 410  | 2,78   | 3,88  | 3,76  | 480  | 3,28   | 4,23  | 4,21  | 520  | 3,58   |       |      |      |       |       |  |  |
| 15    | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | 2,24  | 2,24  | 390  | 2,58   | 2,98  | 2,98  | 510  | 3,44   | 4,42  | 4,42  | 760  | 5,34   | 5,04  | 5,04  | 870  | 7,98   |       |      |      |       |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | 4,54  | 2,25  | 1570 | 6,60   | 3,12  | 2,86  | 540  | 3,59   | 4,82  | 4,45  | 1570 | 6,43   | 5,21  | 4,79  | 900  | 8,98   |       |      |      |       |       |  |  |
|       | 7          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -     | -    | -      | -     | -    | -    | -     |       |  |  |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Cooling performance

### CC4 - 4-pipe system

| 041.0 |            |              |           |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |       |       |       |        |       |       |       |        |
|-------|------------|--------------|-----------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|-------|-------|--------|-------|-------|-------|--------|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |       |       |       |        |       |       |       |        |
|       |            |              | 21        |      |       |        | 23    |      |       |        | 25    |      |       |        | 27    |      |       |        | 29    |       |       |        | 30    |       |       |        |
|       |            |              | TC        | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC    | WF    | WDP    | TC    | SC    | WF    | WDP    |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW]  | [l/h] | [kPa]  | [kW]  | [kW]  | [l/h] | [kPa]  |
| 3     | 15         | 15           | 8,24      | 6,14 | 2350  | 58,22  | 8,21  | 7,11 | 2340  | 57,82  | 8,79  | 8,63 | 2510  | 65,00  | 9,80  | 9,80 | 2790  | 78,09  | 10,79 | 10,79 | 3080  | 92,02  | 11,28 | 11,28 | 3220  | 99,30  |
|       |            | 17           | 11,25     | 6,25 | 3210  | 98,95  | 8,68  | 6,09 | 1580  | 29,41  | 8,74  | 7,14 | 1580  | 29,41  | 11,05 | 8,96 | 3150  | 95,84  | 11,08 | 10,10 | 3160  | 96,38  | 11,34 | 10,87 | 3230  | 100,32 |
|       |            | 19           | 14,47     | 6,35 | 4130  | 152,22 | 14,38 | 7,28 | 4100  | 150,69 | 14,30 | 8,19 | 4080  | 149,19 | 14,22 | 9,09 | 4050  | 147,70 | 14,13 | 9,98  | 4030  | 146,23 | 14,09 | 10,42 | 4020  | 145,50 |
|       |            | 21           | -         | -    | -     | -      | 17,82 | 7,39 | 5080  | 218,14 | 17,73 | 8,31 | 5050  | 216,04 | 17,63 | 9,22 | 5030  | 213,97 | 17,53 | 10,12 | 5000  | 211,93 | 17,48 | 10,56 | 4980  | 210,91 |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -     | -      | 21,43 | 8,44 | 6110  | 300,05 | 21,31 | 9,36 | 6080  | 297,25 | 21,20 | 10,27 | 6040  | 294,49 | 21,14 | 10,72 | 6030  | 293,12 |
|       | 5          | 15           | 4,64      | 4,64 | 800   | 6,49   | 6,39  | 6,39 | 1100  | 10,99  | 7,54  | 7,54 | 1290  | 19,15  | 8,62  | 8,62 | 1480  | 26,06  | 9,66  | 9,66  | 1660  | 31,93  | 10,18 | 10,18 | 1750  | 34,86  |
|       |            | 17           | 8,23      | 4,96 | 1580  | 23,90  | 9,01  | 6,47 | 1580  | 29,63  | 8,82  | 7,38 | 1580  | 27,98  | 9,01  | 8,54 | 1550  | 28,26  | 9,68  | 9,65  | 1660  | 32,02  | 10,19 | 10,19 | 1750  | 34,94  |
|       |            | 19           | 11,73     | 5,18 | 2010  | 44,30  | 11,65 | 6,11 | 2000  | 43,80  | 11,57 | 7,02 | 1980  | 43,30  | 11,54 | 7,94 | 1580  | 43,46  | 11,42 | 8,81  | 1960  | 42,34  | 11,39 | 9,27  | 1950  | 42,14  |
|       |            | 21           | -         | -    | -     | -      | 15,21 | 6,27 | 2610  | 68,85  | 15,12 | 7,19 | 2590  | 68,14  | 15,03 | 8,10 | 2580  | 67,44  | 14,93 | 9,00  | 2560  | 66,75  | 14,89 | 9,44  | 2550  | 66,41  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -     | -      | 18,88 | 7,35 | 3240  | 99,58  | 18,77 | 8,27 | 3220  | 98,62  | 18,66 | 9,18  | 3200  | 97,66  | 18,61 | 9,62  | 3190  | 97,19  |
| 7     | 15         | 15           | 3,85      | 3,85 | 470   | 3,72   | 4,60  | 4,60 | 560   | 4,45   | 5,34  | 5,34 | 650   | 5,17   | 6,31  | 6,31 | 770   | 6,13   | 8,14  | 8,14  | 1000  | 8,67   | 8,78  | 8,78  | 1080  | 10,82  |
|       |            | 17           | 4,15      | 3,63 | 510   | 3,99   | 4,63  | 4,55 | 570   | 4,48   | 5,34  | 5,34 | 660   | 5,17   | 6,32  | 6,32 | 780   | 6,14   | 8,16  | 8,16  | 1000  | 8,71   | 8,79  | 8,79  | 1080  | 10,87  |
|       |            | 19           | 8,73      | 4,45 | 1580  | 10,69  | 9,36  | 5,89 | 1150  | 13,44  | 8,51  | 6,37 | 1580  | 9,95   | 8,35  | 7,43 | 1580  | 9,23   | 8,76  | 8,28  | 1580  | 10,85  | 9,13  | 8,82  | 1120  | 12,41  |
|       |            | 21           | -         | -    | -     | -      | 11,95 | 4,97 | 1460  | 25,40  | 12,21 | 6,25 | 1580  | 26,23  | 12,10 | 7,09 | 1580  | 26,07  | 11,67 | 7,69  | 1430  | 24,30  | 11,63 | 8,13  | 1430  | 24,12  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -     | -      | 15,93 | 6,17 | 1950  | 41,72  | 15,83 | 7,09 | 1940  | 41,28  | 15,73 | 7,99  | 1930  | 40,83  | 15,68 | 8,44  | 1920  | 40,62  |
|       | 3          | 15           | 6,00      | 5,27 | 1720  | 33,67  | 6,75  | 6,67 | 1930  | 41,07  | 7,78  | 7,78 | 2230  | 52,26  | 8,79  | 8,79 | 2520  | 64,30  | 9,79  | 9,79  | 2800  | 77,20  | 10,28 | 10,28 | 2950  | 83,96  |
|       |            | 17           | 9,00      | 5,28 | 2580  | 66,81  | 7,38  | 5,56 | 1580  | 29,03  | 7,55  | 6,78 | 1580  | 29,02  | 9,01  | 8,29 | 2580  | 67,00  | 9,80  | 9,80  | 2810  | 77,38  | 10,30 | 10,30 | 2950  | 84,16  |
|       |            | 19           | 12,23     | 5,39 | 3500  | 112,96 | 12,15 | 6,31 | 3480  | 111,75 | 12,08 | 7,23 | 3460  | 110,55 | 12,00 | 8,13 | 3440  | 109,37 | 9,25  | 8,14  | 1580  | 28,90  | 11,90 | 9,46  | 1580  | 107,98 |
|       |            | 21           | -         | -    | -     | -      | 15,60 | 6,43 | 4470  | 171,79 | 15,51 | 7,36 | 4440  | 170,05 | 15,42 | 8,27 | 4420  | 168,33 | 15,33 | 9,16  | 4390  | 166,64 | 15,29 | 9,61  | 4380  | 165,80 |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -     | -      | 19,22 | 7,49 | 5500  | 246,33 | 19,11 | 8,41 | 5470  | 243,95 | 19,01 | 9,31  | 5440  | 241,59 | 18,95 | 9,76  | 5430  | 240,43 |
| 7     | 15         | 15           | 3,73      | 3,73 | 640   | 4,91   | 5,13  | 5,13 | 880   | 6,81   | 6,50  | 6,50 | 1120  | 12,86  | 7,61  | 7,61 | 1310  | 20,32  | 8,67  | 8,67  | 1490  | 26,13  | 9,19  | 9,19  | 1580  | 28,87  |
|       |            | 17           | 6,37      | 4,88 | 1580  | 12,13  | 5,85  | 5,32 | 1580  | 8,80   | 6,53  | 6,32 | 1120  | 13,03  | 7,62  | 7,62 | 1310  | 20,38  | 8,68  | 8,68  | 1490  | 26,19  | 9,20  | 9,20  | 1580  | 28,94  |
|       |            | 19           | 9,64      | 4,53 | 1660  | 31,31  | 9,15  | 5,10 | 1570  | 28,62  | 9,07  | 6,02 | 1580  | 28,24  | 8,76  | 7,70 | 1580  | 33,00  | 9,25  | 8,14  | 1580  | 28,90  | 9,70  | 8,98  | 1670  | 31,64  |
|       |            | 21           | -         | -    | -     | -      | 12,81 | 5,31 | 2200  | 50,65  | 12,73 | 6,23 | 2190  | 50,08  | 12,64 | 7,14 | 2170  | 49,52  | 12,56 | 8,04  | 2160  | 48,97  | 12,74 | 8,72  | 1580  | 49,79  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -     | -      | 16,52 | 6,40 | 2840  | 78,12  | 16,42 | 7,32 | 2820  | 77,32  | 16,32 | 8,22  | 2800  | 76,53  | 16,27 | 8,67  | 2800  | 76,14  |
|       | 7          | 15           | 3,11      | 3,11 | 380   | 2,83   | 3,85  | 3,85 | 470   | 3,51   | 4,59  | 4,59 | 560   | 4,20   | 5,36  | 5,36 | 660   | 4,90   | 6,88  | 6,88  | 850   | 6,36   | 7,72  | 7,72  | 950   | 7,84   |
|       |            | 17           | 3,18      | 3,03 | 390   | 2,89   | 3,85  | 3,85 | 470   | 3,52   | 4,60  | 4,60 | 560   | 4,20   | 5,37  | 5,37 | 660   | 4,91   | 6,90  | 6,90  | 850   | 6,38   | 7,74  | 7,74  | 950   | 7,87   |
|       |            | 19           | 7,31      | 5,35 | 1580  | 7,21   | 4,19  | 3,47 | 1580  | 3,81   | 4,69  | 4,57 | 580   | 4,28   | 5,37  | 5,37 | 660   | 4,91   | 6,92  | 6,92  | 850   | 6,40   | 7,75  | 7,75  | 950   | 7,91   |
|       |            | 21           | -         | -    | -     | -      | 8,90  | 3,84 | 1090  | 12,45  | 9,43  | 5,15 | 1580  | 15,11  | 9,55  | 6,27 | 1580  | 15,59  | 9,47  | 7,25  | 1580  | 15,14  | 9,53  | 7,86  | 1580  | 15,34  |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -     | -      | 13,31 | 5,19 | 1630  | 30,32  | 13,22 | 6,11 | 1620  | 29,95  | 13,13 | 7,01  | 1610  | 29,59  | 13,36 | 7,75  | 1580  | 30,27  |
| 9     | 3          | 15           | 4,66      | 4,66 | 1330  | 21,23  | 5,73  | 5,73 | 1640  | 30,50  | 6,77  | 6,77 | 1940  | 40,42  | 7,79  | 7,79 | 2230  | 51,26  | 8,79  | 8,79  | 2510  | 62,99  | 9,28  | 9,28  | 2660  | 69,18  |
|       |            | 17           | 6,52      | 4,27 | 1580  | 37,97  | 6,04  | 5,08 | 1580  | 28,62  | 6,86  | 6,48 | 1960  | 41,39  | 7,80  | 7,80 | 2230  | 51,38  | 8,80  | 8,80  | 2520  | 63,14  | 9,30  | 9,30  | 2660  | 69,35  |
|       |            | 19           | 9,81      | 4,41 | 2810  | 75,99  | 9,74  | 5,33 | 2790  | 75,08  | 9,67  | 6,25 | 2770  | 74,18  | 9,61  | 7,15 | 2750  | 73,30  | 9,55  | 8,05  | 2730  | 72,53  | 9,65  | 8,73  | 2760  | 73,87  |
|       |            | 21           | -         | -    | -     | -      | 13,21 | 5,46 | 3780  | 126,60 | 13,13 | 6,38 | 3760  | 125,23 | 13,04 | 7,29 | 3730  | 123,87 | 12,96 | 8,19  | 3710  | 122,53 | 12,92 | 8,63  | 3700  | 121,87 |
|       |            | 23           | -         | -    | -     | -      | -     | -    | -     | -      | 16,84 | 6,52 | 4820  | 192,54 | 16,74 | 7,44 | 4790  | 190,58 | 16,65 | 8,35  | 4760  | 188,64 | 16,60 | 8,79  | 4750  | 187,69 |
|       | 7          | 15           | 2,98      | 2,98 | 510   | 3,70   | 3,73  | 3,73 | 640   | 4,65   | 5,40  | 5,40 | 930   | 7,42   | 6,58  | 6,58 | 1130  | 14,39  | 7,67  | 7,67  | 1320  | 20,66  | 8,19  | 8,19  | 1410  | 23,30  |
|       |            | 17           | 2,99      | 2,94 | 510   | 3,72   | 5,98  | 5,23 | 1580  | 25,63  | 5,41  | 5,41 | 930   | 7,45   | 6,59  | 6,59 | 1130  | 14,45  | 7,68  | 7,68  | 1320  | 20,71  | 8,20  | 8,20  | 1410  | 23,35  |
|       |            | 19           | 7,82      | 4,28 | 1340  | 21,45  | 7,20  | 4,91 | 1580  | 18,10  | 6,82  | 5,59 | 1580  | 15,96  | 6,88  | 6,34 | 1580  | 16,14  | 8,11  | 7,90  | 1580  | 25,55  | 8,20  | 8,16  | 1410  | 23,36  |
|       |            | 21           | -         | -    | -     | -      | 10,17 | 4,31 | 1750  | 33,66  | 10,46 | 5,53 | 1800  | 35,28  | 10,02 | 6,14 | 1720  | 32,80  | 9,94  | 7,03  | 1710  | 32,38  | 9,90  | 7,48  | 1700  | 32,17  |
|       |            | 23           | -         | -    | -     |        |       |      |       |        |       |      |       |        |       |      |       |        |       |       |       |        |       |       |       |        |

# Cooling performance

## CC4 - 4-pipe system

| 041.0 |            |              |           |      |       |       |       |      |       |       |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |      |
|-------|------------|--------------|-----------|------|-------|-------|-------|------|-------|-------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|------|
| EWT   | $\Delta T$ | Ta<br>(W.B.) | Ta (D.B.) |      |       |       |       |      |       |       |       |      |       |        |       |      |       |        |       |      |       |        |       |      |       |        |      |
|       |            |              | 21        |      |       |       | 23    |      |       |       | 25    |      |       |        | 27    |      |       |        | 29    |      |       |        | 30    |      |       |        |      |
|       |            |              | TC        | SC   | WF    | WDP   | TC    | SC   | WF    | WDP   | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    | TC    | SC   | WF    | WDP    |      |
| [°C]  | [°C]       | [°C]         | [kW]      | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa] | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  | [kW]  | [kW] | [l/h] | [kPa]  |      |
| 11    | 3          | 15           | 3,56      | 3,56 | 1020  | 10,67 | 4,69  | 4,69 | 1340  | 21,32 | 5,74  | 5,74 | 1650  | 30,17  | 6,77  | 6,77 | 1940  | 39,87  | 7,78  | 7,78 | 2230  | 50,50  | 8,28  | 8,28 | 2370  | 56,14  |      |
|       |            | 17           | 3,81      | 3,32 | 1090  | 13,34 | 4,69  | 4,61 | 1340  | 21,37 | 5,75  | 5,75 | 1650  | 30,24  | 6,78  | 6,78 | 1940  | 39,96  | 7,79  | 7,79 | 2230  | 50,62  | 8,30  | 8,30 | 2380  | 56,28  |      |
|       |            | 19           | 7,18      | 3,40 | 2060  | 43,96 | 7,12  | 4,33 | 2040  | 43,33 | 6,56  | 5,07 | 1580  | 32,11  | 7,15  | 6,34 | 2050  | 43,72  | 7,82  | 7,64 | 2240  | 50,89  | 8,31  | 8,31 | 2380  | 56,42  |      |
|       |            | 21           | -         | -    | -     | -     | 10,63 | 4,47 | 3050  | 85,99 | 10,56 | 5,40 | 3020  | 84,96  | 8,15  | 5,46 | 1580  | 27,98  | 10,41 | 7,20 | 2980  | 82,94  | 10,37 | 7,65 | 2970  | 82,44  |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | 14,29 | 5,54 | 4090  | 143,01 | 14,20 | 6,46 | 4070  | 141,46 | 14,11 | 7,36 | 4040  | 139,92 | 14,06 | 7,81 | 4030  | 139,16 |      |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 17           | 2,23      | 2,23 | 380   | 2,62  | 2,98  | 2,98 | 510   | 3,50  | 3,81  | 3,81 | 660   | 4,49   | 5,52  | 5,52 | 950   | 8,57   | 6,65  | 6,65 | 1140  | 15,44  | 7,19  | 7,19 | 1240  | 18,23  |      |
|       |            | 19           | 4,17      | 2,33 | 1580  | 5,97  | 3,02  | 2,93 | 520   | 3,55  | 3,82  | 3,82 | 660   | 4,50   | 5,53  | 5,53 | 950   | 8,61   | 6,66  | 6,66 | 1150  | 15,50  | 7,20  | 7,20 | 1240  | 18,28  |      |
|       |            | 21           | -         | -    | -     | -     | 7,77  | 4,04 | 1580  | 18,55 | 7,85  | 4,83 | 1350  | 21,36  | 8,32  | 5,67 | 1580  | 28,15  | 7,42  | 6,36 | 1580  | 19,54  | 7,80  | 7,11 | 1340  | 21,11  |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | 11,17 | 4,42 | 1920  | 38,85  | 11,09 | 5,34 | 1910  | 38,36  | 11,32 | 6,51 | 1950  | 39,74  | 10,97 | 6,69 | 1890  | 37,65  |      |
| 13    | 7          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 19           | -         | -    | -     | -     | 2,37  | 2,34 | 290   | 1,93  | 3,11  | 3,11 | 380   | 2,54   | 3,85  | 3,85 | 470   | 3,15   | 4,59  | 4,59 | 560   | 3,76   | 5,04  | 5,04 | 620   | 4,13   |      |
|       |            | 21           | -         | -    | -     | -     | 2,90  | 2,05 | 1580  | 2,35  | 3,24  | 2,99 | 400   | 2,64   | 3,86  | 3,84 | 470   | 3,16   | 4,60  | 4,60 | 570   | 3,76   | 5,04  | 5,04 | 620   | 4,14   |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | 8,05  | 3,98 | 1580  | 10,44  | 7,43  | 4,74 | 1580  | 8,07   | 7,30  | 5,72 | 1580  | 7,50   | 7,27  | 6,18 | 890   | 7,36   |      |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 17           | 2,10      | 2,10 | 600   | 4,02  | 3,61  | 3,61 | 1040  | 12,08 | 4,71  | 4,71 | 1350  | 21,26  | 5,76  | 5,76 | 1650  | 29,87  | 6,78  | 6,78 | 1950  | 39,39  | 7,29  | 7,29 | 2090  | 44,50  |      |
|       |            | 19           | 5,14      | 3,28 | 1580  | 24,60 | 4,14  | 3,30 | 1190  | 16,87 | 4,79  | 4,54 | 1370  | 21,87  | 5,77  | 5,77 | 1660  | 29,94  | 6,79  | 6,79 | 1950  | 39,49  | 7,30  | 7,30 | 2090  | 44,61  |      |
|       |            | 21           | -         | -    | -     | -     | 8,21  | 3,85 | 1580  | 53,77 | 7,76  | 4,39 | 2230  | 49,48  | 7,69  | 5,30 | 2210  | 48,77  | 7,64  | 6,21 | 2190  | 48,19  | 7,75  | 6,82 | 2220  | 49,39  |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | 11,53 | 4,54 | 3310  | 97,54  | 11,45 | 5,46 | 3280  | 96,37  | 11,37 | 6,37 | 3260  | 95,21  | 11,33 | 6,82 | 3250  | 94,63  |      |
|       | 7          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | -     | 2,37  | 2,31 | 290   | 1,83   | 3,11  | 3,11 | 380   | 2,41   | 3,85  | 3,85 | 470   | 2,99   | 4,22  | 4,22 | 520   | 3,27   |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | 2,97  | 2,00 | 1580  | 2,29   | 3,28  | 2,96 | 1580  | 2,54   | 3,86  | 3,77 | 470   | 2,99   | 4,22  | 4,22 | 520   | 3,28   |      |
| 15    | 3          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 19           | -         | -    | -     | -     | 2,17  | 2,17 | 620   | 3,94  | 3,65  | 3,65 | 1050  | 12,97  | 4,73  | 4,73 | 1360  | 21,11  | 5,77  | 5,77 | 1660  | 29,52  | 6,29  | 6,29 | 1800  | 34,08  |      |
|       |            | 21           | -         | -    | -     | -     | 5,60  | 3,35 | 1580  | 27,12 | 5,08  | 3,88 | 1460  | 23,71  | 4,97  | 4,47 | 1430  | 22,91  | 5,79  | 5,69 | 1660  | 29,67  | 6,30  | 6,30 | 1810  | 34,18  |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | 8,53  | 3,52 | 2450  | 57,27  | 8,80  | 4,74 | 2530  | 60,48  | 8,38  | 5,35 | 2410  | 55,65  | 8,35  | 5,80 | 2400  | 55,25  |      |
|       | 5          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | -     | 2,23  | 2,23 | 380   | 2,36   | 2,97  | 2,97 | 510   | 3,15   | 4,47  | 4,47 | 770   | 5,01   | 5,10  | 5,10 | 880   | 7,63   |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | 4,77  | 2,56 | 1580  | 7,15   | 4,35  | 3,40 | 1580  | 5,07   | 4,60  | 4,35 | 1580  | 5,05   | 5,28  | 4,88 | 1580  | 8,88   |      |
|       | 7          | 15           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 17           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 19           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 21           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      | -     | -    | -     | -      |      |
|       |            | 23           | -         | -    | -     | -     | -     | -    | -     | -     | -     | -    | -     | -      | -     | -    | -     | 2,39   | 2,34  | 290  | 1,76  | 3,11   | 3,11  | 380  | 2,30  | 3,49   | 3,49 |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

W.B. = Wet bulb

TC = Total cooling capacity (kW)

SC = Sensible cooling capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

## Heating performance

### CC4 - 4-pipe system

| 007.0 |      |           |       |        |      |       |        |      |       |       |      |       |       |      |       |       |      |       |       |
|-------|------|-----------|-------|--------|------|-------|--------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| EWT   | ΔT   | Ta (D.B.) |       |        |      |       |        |      |       |       |      |       |       |      |       |       |      |       |       |
|       |      | 16        |       |        | 18   |       |        | 20   |       |       | 22   |       |       | 24   |       |       |      |       |       |
|       |      | TH        | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   |
| [°C]  | [°C] | [kW]      | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] |
| 35    | 5    | 1,91      | 330   | 15,09  | 1,66 | 290   | 11,79  | 1,40 | 240   | 8,86  | 1,15 | 200   | 6,30  | 0,90 | 160   | 4,12  |      |       |       |
|       | 10   | 1,43      | 120   | 2,82   | 1,16 | 100   | 1,98   | 0,88 | 80    | 1,24  | 0,52 | 420   | 0,33  | 0,41 | 420   | 0,30  |      |       |       |
|       | 15   | 0,77      | 420   | 0,37   | 0,61 | 420   | 0,32   | -    | -     | -     | -    | -     | -     | -    | -     | -     | -    | -     |       |
| 40    | 5    | 2,53      | 440   | 24,20  | 2,28 | 400   | 20,11  | 2,03 | 350   | 16,38 | 1,78 | 310   | 13,01 | 1,53 | 260   | 9,99  |      |       |       |
|       | 10   | 2,08      | 180   | 5,21   | 1,82 | 160   | 4,15   | 1,56 | 140   | 3,19  | 1,30 | 110   | 2,34  | 1,03 | 90    | 1,58  |      |       |       |
|       | 15   | 1,55      | 90    | 1,61   | 1,26 | 70    | 1,13   | 0,94 | 50    | 0,53  | 0,68 | 420   | 0,30  | 0,61 | 420   | 0,29  |      |       |       |
| 45    | 5    | 3,16      | 550   | 34,90  | 2,90 | 500   | 30,08  | 2,65 | 460   | 25,60 | 2,40 | 420   | 21,47 | 2,14 | 370   | 17,68 |      |       |       |
|       | 10   | 2,72      | 240   | 8,07   | 2,46 | 210   | 6,80   | 2,20 | 190   | 5,63  | 1,95 | 170   | 4,55  | 1,69 | 150   | 3,57  |      |       |       |
|       | 15   | 2,24      | 130   | 2,91   | 1,97 | 110   | 2,35   | 1,70 | 100   | 1,83  | 1,43 | 80    | 1,36  | 1,14 | 70    | 0,92  |      |       |       |
| 50    | 5    | 3,78      | 660   | 47,07  | 3,52 | 610   | 41,56  | 3,27 | 570   | 36,37 | 3,01 | 520   | 31,53 | 2,76 | 480   | 27,01 |      |       |       |
|       | 10   | 3,35      | 290   | 11,36  | 3,09 | 270   | 9,88   | 2,84 | 250   | 8,51  | 2,58 | 220   | 7,22  | 2,33 | 200   | 6,04  |      |       |       |
|       | 15   | 2,89      | 170   | 4,42   | 2,63 | 150   | 3,75   | 2,37 | 140   | 3,14  | 2,11 | 120   | 2,57  | 1,84 | 110   | 2,05  |      |       |       |
| 55    | 5    | 4,40      | 770   | 60,61  | 4,14 | 720   | 54,43  | 3,88 | 680   | 48,57 | 3,63 | 630   | 43,05 | 3,37 | 590   | 37,85 |      |       |       |
|       | 10   | 3,98      | 350   | 15,04  | 3,72 | 320   | 13,37  | 3,46 | 300   | 11,80 | 3,21 | 280   | 10,32 | 2,95 | 260   | 8,94  |      |       |       |
|       | 15   | 3,53      | 200   | 6,11   | 3,28 | 190   | 5,35   | 3,02 | 170   | 4,64  | 2,76 | 160   | 3,98  | 2,50 | 140   | 3,36  |      |       |       |
| 60    | 5    | 5,02      | 880   | 75,45  | 4,76 | 830   | 68,63  | 4,50 | 790   | 62,12 | 4,24 | 740   | 55,95 | 3,99 | 700   | 50,10 |      |       |       |
|       | 10   | 4,60      | 400   | 19,09  | 4,34 | 380   | 17,24  | 4,08 | 360   | 15,48 | 3,83 | 330   | 13,81 | 3,57 | 310   | 12,24 |      |       |       |
|       | 15   | 4,17      | 240   | 7,98   | 3,91 | 230   | 7,13   | 3,65 | 210   | 6,33  | 3,39 | 200   | 5,58  | 3,14 | 180   | 4,87  |      |       |       |
| 65    | 5    | 5,64      | 990   | 91,57  | 5,38 | 940   | 84,11  | 5,12 | 900   | 76,97 | 4,86 | 850   | 70,16 | 4,60 | 810   | 63,67 |      |       |       |
|       | 10   | 5,23      | 460   | 23,50  | 4,97 | 430   | 21,47  | 4,24 | 320   | 23,50 | 4,45 | 390   | 17,68 | 4,19 | 370   | 15,93 |      |       |       |
|       | 15   | 4,80      | 280   | 10,02  | 4,54 | 260   | 9,09   | 4,28 | 250   | 8,20  | 4,02 | 230   | 7,36  | 3,77 | 220   | 6,56  |      |       |       |
| 70    | 5    | 6,26      | 1100  | 108,85 | 6,00 | 1050  | 100,77 | 5,73 | 1010  | 93,01 | 5,47 | 960   | 85,58 | 5,22 | 910   | 78,47 |      |       |       |
|       | 10   | 5,85      | 510   | 28,25  | 5,59 | 490   | 26,04  | 3,85 | 320   | 29,80 | 5,07 | 440   | 21,90 | 4,81 | 420   | 19,97 |      |       |       |
|       | 15   | 5,43      | 320   | 12,22  | 5,17 | 300   | 11,20  | 4,91 | 290   | 10,23 | 4,65 | 270   | 9,30  | 4,39 | 260   | 8,42  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

ΔT = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

| 011.0 |      |           |       |        |      |       |        |      |       |        |      |       |        |      |       |       |      |       |       |
|-------|------|-----------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|-------|------|-------|-------|
| EWT   | ΔT   | Ta (D.B.) |       |        |      |       |        |      |       |        |      |       |        |      |       |       |      |       |       |
|       |      | 16        |       |        | 18   |       |        | 20   |       |        | 22   |       |        | 24   |       |       |      |       |       |
|       |      | TH        | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP   | TH   | WF    | WDP   |
| [°C]  | [°C] | [kW]      | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] |
| 35    | 5    | 2,29      | 400   | 17,89  | 1,98 | 340   | 13,96  | 1,68 | 290   | 10,47  | 1,38 | 240   | 7,42   | 1,07 | 190   | 4,83  |      |       |       |
|       | 10   | 1,68      | 150   | 3,25   | 1,36 | 120   | 2,26   | 1,01 | 90    | 1,37   | 0,63 | 60    | 0,41   | 0,54 | 560   | 0,41  |      |       |       |
|       | 15   | 0,90      | 560   | 0,43   | 0,81 | 560   | 0,43   | -    | -     | -      | -    | -     | -      | -    | -     | -     | -    | -     |       |
| 40    | 5    | 3,04      | 530   | 28,82  | 2,74 | 470   | 23,95  | 2,43 | 420   | 19,50  | 2,13 | 370   | 15,47  | 1,83 | 320   | 11,87 |      |       |       |
|       | 10   | 2,47      | 210   | 6,11   | 2,16 | 190   | 4,85   | 1,85 | 160   | 3,72   | 1,54 | 130   | 2,70   | 1,21 | 100   | 1,81  |      |       |       |
|       | 15   | 1,81      | 100   | 1,83   | 1,46 | 80    | 1,25   | 1,03 | 60    | 0,49   | 0,89 | 560   | 0,42   | 0,80 | 560   | 0,42  |      |       |       |
| 45    | 5    | 3,80      | 660   | 41,67  | 3,49 | 610   | 35,93  | 3,18 | 550   | 30,60  | 2,88 | 500   | 25,66  | 2,58 | 450   | 21,13 |      |       |       |
|       | 10   | 3,25      | 280   | 9,53   | 2,94 | 250   | 8,02   | 2,63 | 230   | 6,63   | 2,32 | 200   | 5,35   | 2,02 | 170   | 4,19  |      |       |       |
|       | 15   | 2,64      | 150   | 3,38   | 2,33 | 130   | 2,72   | 2,00 | 120   | 2,11   | 1,67 | 100   | 1,55   | 1,31 | 80    | 1,02  |      |       |       |
| 50    | 5    | 4,55      | 790   | 56,31  | 4,24 | 740   | 49,74  | 3,93 | 680   | 43,57  | 3,63 | 630   | 37,78  | 3,33 | 580   | 32,39 |      |       |       |
|       | 10   | 4,01      | 350   | 13,47  | 3,70 | 320   | 11,72  | 3,40 | 290   | 10,08  | 3,09 | 270   | 8,56   | 2,78 | 240   | 7,15  |      |       |       |
|       | 15   | 3,44      | 200   | 5,18   | 3,13 | 180   | 4,40   | 2,81 | 160   | 3,67   | 2,50 | 140   | 2,99   | 2,18 | 130   | 2,38  |      |       |       |
| 55    | 5    | 5,30      | 920   | 72,62  | 4,99 | 870   | 65,27  | 4,68 | 820   | 58,28  | 4,38 | 760   | 51,69  | 4,07 | 710   | 45,48 |      |       |       |
|       | 10   | 4,77      | 410   | 17,89  | 4,46 | 390   | 15,91  | 4,16 | 360   | 14,04  | 3,85 | 330   | 12,28  | 3,54 | 310   | 10,63 |      |       |       |
|       | 15   | 4,22      | 240   | 7,20   | 3,91 | 230   | 6,31   | 3,60 | 210   | 5,47   | 3,29 | 190   | 4,68   | 2,98 | 170   | 3,95  |      |       |       |
| 60    | 5    | 6,05      | 1060  | 90,51  | 5,74 | 1000  | 82,39  | 5,43 | 950   | 74,65  | 5,12 | 890   | 67,28  | 4,82 | 840   | 60,28 |      |       |       |
|       | 10   | 5,53      | 480   | 22,76  | 5,22 | 450   | 20,56  | 4,91 | 430   | 18,47  | 4,60 | 400   | 16,49  | 4,30 | 370   | 14,62 |      |       |       |
|       | 15   | 4,99      | 290   | 9,44   | 4,68 | 270   | 8,44   | 4,37 | 250   | 7,50   | 4,06 | 240   | 6,60   | 3,75 | 220   | 5,76  |      |       |       |
| 65    | 5    | 6,80      | 1190  | 109,93 | 6,49 | 1140  | 101,07 | 6,18 | 1080  | 92,58  | 5,87 | 1030  | 84,46  | 5,56 | 970   | 76,71 |      |       |       |
|       | 10   | 6,28      | 550   | 28,06  | 5,97 | 520   | 25,65  | 5,52 | 360   | 24,14  | 5,36 | 470   | 21,15  | 5,05 | 440   | 19,06 |      |       |       |
|       | 15   | 5,76      | 330   | 11,89  | 5,45 | 320   | 10,79  | 5,14 | 300   | 9,74   | 4,83 | 280   | 8,74   | 4,52 | 260   | 7,79  |      |       |       |
| 70    | 5    | 7,55      | 1320  | 130,75 | 7,24 | 1270  | 121,17 | 6,93 | 1210  | 111,96 | 6,62 | 1160  | 103,11 | 6,31 | 1110  | 94,63 |      |       |       |
|       | 10   | 7,04      | 620   | 33,77  | 6,73 | 590   | 31,16  | 4,78 | 360   | 30,36  | 6,11 | 530   | 26,24  | 5,80 | 510   | 23,94 |      |       |       |
|       | 15   | 6,52      | 380   | 14,54  | 6,21 | 360   | 13,34  | 5,90 | 340   | 12,19  | 5,59 | 320   | 11,09  | 5,28 | 310   | 10,03 |      |       |       |

EWT = Exchanger water inlet temperature (°C)

ΔT = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

# Heating performance

## CC4 - 4-pipe system

| 015.0 |            |           |       |        |      |       |        |      |       |        |      |       |        |      |       |        |      |       |       |
|-------|------------|-----------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|--------|------|-------|-------|
| EWT   | $\Delta T$ | Ta (D.B.) |       |        |      |       |        |      |       |        |      |       |        |      |       |        |      |       |       |
|       |            | 16        |       |        | 18   |       |        | 20   |       |        | 22   |       |        | 24   |       |        |      |       |       |
|       |            | TH        | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP    | TH   | WF    | WDP   |
| [°C]  | [°C]       | [kW]      | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa]  | [kW] | [l/h] | [kPa] |
| 35    | 5          | 2,24      | 390   | 25,54  | 1,94 | 340   | 19,93  | 1,64 | 280   | 14,95  | 1,35 | 230   | 10,59  | 1,04 | 180   | 6,87   |      |       |       |
|       | 10         | 1,63      | 140   | 4,60   | 1,31 | 110   | 3,17   | 0,96 | 80    | 1,71   | 0,58 | 50    | 0,61   | 0,50 | 540   | 0,60   |      |       |       |
|       | 15         | 0,84      | 540   | 0,65   | 0,76 | 540   | 0,64   | -    | -     | -      | -    | -     | -      | -    | -     | -      | -    | -     | -     |
| 40    | 5          | 2,98      | 520   | 41,14  | 2,68 | 470   | 34,20  | 2,39 | 410   | 27,85  | 2,09 | 360   | 22,10  | 1,79 | 310   | 16,95  |      |       |       |
|       | 10         | 2,42      | 210   | 8,70   | 2,11 | 180   | 6,91   | 1,80 | 160   | 5,28   | 1,49 | 130   | 3,83   | 1,17 | 100   | 2,54   |      |       |       |
|       | 15         | 1,74      | 100   | 2,54   | 1,38 | 80    | 1,54   | 0,91 | 540   | 0,60   | 0,83 | 540   | 0,59   | 0,74 | 540   | 0,58   |      |       |       |
| 45    | 5          | 3,73      | 650   | 59,46  | 3,42 | 590   | 51,29  | 3,13 | 540   | 43,68  | 2,83 | 490   | 36,65  | 2,53 | 440   | 30,18  |      |       |       |
|       | 10         | 3,18      | 280   | 13,60  | 2,88 | 250   | 11,44  | 2,57 | 220   | 9,45   | 2,27 | 200   | 7,63   | 1,97 | 170   | 5,97   |      |       |       |
|       | 15         | 2,58      | 150   | 4,80   | 2,26 | 130   | 3,85   | 1,94 | 110   | 2,97   | 1,61 | 90    | 2,16   | 1,25 | 70    | 1,25   |      |       |       |
| 50    | 5          | 4,47      | 780   | 80,30  | 4,16 | 720   | 70,96  | 3,86 | 670   | 62,17  | 3,56 | 620   | 53,93  | 3,27 | 570   | 46,25  |      |       |       |
|       | 10         | 3,93      | 340   | 19,23  | 3,63 | 320   | 16,73  | 3,33 | 290   | 14,40  | 3,03 | 260   | 12,22  | 2,73 | 240   | 10,20  |      |       |       |
|       | 15         | 3,36      | 190   | 7,38   | 3,06 | 180   | 6,26   | 2,75 | 160   | 5,22   | 2,44 | 140   | 4,26   | 2,12 | 120   | 3,37   |      |       |       |
| 55    | 5          | 5,20      | 910   | 103,52 | 4,90 | 850   | 93,06  | 4,60 | 800   | 83,14  | 4,30 | 750   | 73,76  | 4,00 | 700   | 64,91  |      |       |       |
|       | 10         | 4,68      | 410   | 25,53  | 4,38 | 380   | 22,71  | 4,08 | 350   | 20,05  | 3,77 | 330   | 17,54  | 3,47 | 300   | 15,19  |      |       |       |
|       | 15         | 4,13      | 240   | 10,27  | 3,83 | 220   | 9,00   | 3,52 | 200   | 7,80   | 3,22 | 190   | 6,67   | 2,91 | 170   | 5,63   |      |       |       |
| 60    | 5          | 5,94      | 1040  | 128,98 | 5,64 | 980   | 117,44 | 5,33 | 930   | 106,43 | 5,03 | 880   | 95,95  | 4,73 | 830   | 86,00  |      |       |       |
|       | 10         | 5,43      | 470   | 32,48  | 5,12 | 450   | 29,35  | 4,82 | 420   | 26,37  | 4,52 | 390   | 23,55  | 4,22 | 370   | 20,88  |      |       |       |
|       | 15         | 4,89      | 280   | 13,48  | 4,59 | 270   | 12,05  | 4,28 | 250   | 10,70  | 3,98 | 230   | 9,42   | 3,68 | 210   | 8,22   |      |       |       |
| 65    | 5          | 6,68      | 1170  | 156,63 | 6,38 | 1120  | 144,04 | 6,07 | 1060  | 131,97 | 5,77 | 1010  | 120,42 | 5,46 | 960   | 109,40 |      |       |       |
|       | 10         | 6,17      | 540   | 40,03  | 5,86 | 510   | 36,61  | 5,57 | 390   | 26,80  | 5,26 | 460   | 30,20  | 4,96 | 430   | 27,22  |      |       |       |
|       | 15         | 5,65      | 330   | 16,97  | 5,34 | 310   | 15,40  | 5,04 | 290   | 13,90  | 4,73 | 270   | 12,48  | 4,43 | 260   | 11,12  |      |       |       |
| 70    | 5          | 7,42      | 1300  | 186,24 | 7,11 | 1250  | 172,64 | 6,80 | 1190  | 159,56 | 6,50 | 1140  | 146,98 | 6,20 | 1090  | 134,92 |      |       |       |
|       | 10         | 6,91      | 600   | 48,16  | 6,60 | 580   | 44,45  | 4,90 | 390   | 36,10  | 5,99 | 520   | 37,46  | 5,69 | 500   | 34,19  |      |       |       |
|       | 15         | 6,40      | 370   | 20,74  | 6,09 | 350   | 19,03  | 5,78 | 340   | 17,40  | 5,48 | 320   | 15,83  | 5,18 | 300   | 14,33  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

| 021.0 |            |           |       |        |       |       |        |      |       |       |      |       |       |      |       |       |      |       |       |
|-------|------------|-----------|-------|--------|-------|-------|--------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| EWT   | $\Delta T$ | Ta (D.B.) |       |        |       |       |        |      |       |       |      |       |       |      |       |       |      |       |       |
|       |            | 16        |       |        | 18    |       |        | 20   |       |       | 22   |       |       | 24   |       |       |      |       |       |
|       |            | TH        | WF    | WDP    | TH    | WF    | WDP    | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   | TH   | WF    | WDP   |
| [°C]  | [°C]       | [kW]      | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] | [kW] | [l/h] | [kPa] |
| 35    | 5          | 3,12      | 540   | 15,38  | 2,69  | 470   | 11,94  | 2,26 | 390   | 8,87  | 1,83 | 320   | 6,19  | 1,40 | 240   | 3,90  |      |       |       |
|       | 10         | 2,08      | 180   | 2,34   | 1,50  | 130   | 0,90   | 1,02 | 100   | 0,62  | 0,89 | 990   | 0,62  | 0,76 | 990   | 0,61  |      |       |       |
|       | 15         | 1,30      | 100   | 0,65   | 1,16  | 990   | 0,63   | -    | -     | -     | -    | -     | -     | -    | -     | -     | -    | -     | -     |
| 40    | 5          | 4,19      | 730   | 25,03  | 3,76  | 650   | 20,78  | 3,34 | 580   | 16,88 | 2,91 | 500   | 13,34 | 2,49 | 430   | 10,17 |      |       |       |
|       | 10         | 3,27      | 280   | 5,03   | 2,83  | 240   | 3,93   | 2,38 | 210   | 2,93  | 1,90 | 160   | 1,97  | 1,26 | 990   | 0,64  |      |       |       |
|       | 15         | 1,67      | 990   | 0,60   | 1,55  | 100   | 0,60   | 1,42 | 990   | 0,59  | 1,28 | 990   | 0,58  | 1,14 | 990   | 0,57  |      |       |       |
| 45    | 5          | 5,26      | 910   | 36,38  | 4,83  | 840   | 31,36  | 4,40 | 760   | 26,69 | 3,98 | 690   | 22,37 | 3,55 | 620   | 18,39 |      |       |       |
|       | 10         | 4,39      | 380   | 8,09   | 3,95  | 340   | 6,77   | 3,52 | 300   | 5,55  | 3,08 | 270   | 4,43  | 2,64 | 230   | 3,41  |      |       |       |
|       | 15         | 3,38      | 200   | 2,65   | 2,91  | 170   | 2,03   | 2,40 | 140   | 1,27  | 1,68 | 990   | 0,55  | 1,55 | 990   | 0,55  |      |       |       |
| 50    | 5          | 6,32      | 1100  | 49,27  | 5,89  | 1020  | 43,55  | 5,46 | 950   | 38,16 | 5,04 | 880   | 33,09 | 4,61 | 800   | 28,36 |      |       |       |
|       | 10         | 5,48      | 480   | 11,58  | 5,05  | 440   | 10,06  | 4,62 | 400   | 8,63  | 4,19 | 360   | 7,29  | 3,76 | 330   | 6,06  |      |       |       |
|       | 15         | 4,56      | 260   | 4,28   | 4,12  | 240   | 3,60   | 3,67 | 210   | 2,96  | 3,22 | 190   | 2,37  | 2,75 | 160   | 1,80  |      |       |       |
| 55    | 5          | 7,38      | 1290  | 63,62  | 6,95  | 1210  | 57,22  | 6,52 | 1140  | 51,14 | 6,10 | 1060  | 45,38 | 5,67 | 990   | 39,95 |      |       |       |
|       | 10         | 6,56      | 570   | 15,49  | 6,13  | 530   | 13,77  | 5,70 | 500   | 12,14 | 5,27 | 460   | 10,60 | 4,84 | 420   | 9,16  |      |       |       |
|       | 15         | 5,69      | 330   | 6,09   | 5,25  | 300   | 5,31   | 4,82 | 280   | 4,58  | 4,38 | 250   | 3,89  | 3,94 | 230   | 3,25  |      |       |       |
| 60    | 5          | 8,45      | 1470  | 79,34  | 8,01  | 1400  | 72,29  | 7,58 | 1320  | 65,56 | 7,15 | 1250  | 59,13 | 6,73 | 1170  | 53,03 |      |       |       |
|       | 10         | 7,63      | 660   | 19,79  | 7,20  | 630   | 17,88  | 6,77 | 590   | 16,06 | 6,34 | 550   | 14,33 | 5,92 | 520   | 12,69 |      |       |       |
|       | 15         | 6,79      | 390   | 8,08   | 6,36  | 370   | 7,21   | 5,93 | 340   | 6,39  | 5,49 | 320   | 5,61  | 5,06 | 290   | 4,87  |      |       |       |
| 65    | 5          | 9,51      | 1660  | 96,39  | 9,07  | 1590  | 88,72  | 8,64 | 1510  | 81,35 | 8,21 | 1440  | 74,28 | 7,78 | 1360  | 67,53 |      |       |       |
|       | 10         | 8,71      | 760   | 24,46  | 8,27  | 720   | 22,37  | 7,38 | 610   | 25,30 | 7,41 | 650   | 18,46 | 6,98 | 610   | 16,63 |      |       |       |
|       | 15         | 7,89      | 460   | 10,25  | 7,45  | 430   | 9,29   | 7,02 | 410   | 8,38  | 6,59 | 380   | 7,51  | 6,16 | 360   | 6,68  |      |       |       |
| 70    | 5          | 10,57     | 1850  | 114,65 | 10,13 | 1780  | 106,37 | 9,70 | 1700  | 98,39 | 9,27 | 1620  | 90,71 | 8,83 | 1550  | 83,33 |      |       |       |
|       | 10         | 9,77      | 850   | 29,48  | 9,34  | 820   | 27,22  | 7,66 | 610   | 37,20 | 8,48 | 740   | 22,96 | 8,05 | 700   | 20,95 |      |       |       |
|       | 15         | 8,97      | 520   | 12,58  | 8,54  | 500   | 11,54  | 8,10 | 470   | 10,54 | 7,67 | 450   | 9,59  | 7,24 | 420   | 8,67  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

$\Delta T$  = Temperature differential (°C)

Ta = Ambient temperature (°C)

D.B. = Dry bulb

## Heating performance

### CC4 - 4-pipe system

| 031.0 |      |           |       |        |       |       |        |       |       |        |       |       |        |       |       |        |      |       |       |
|-------|------|-----------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|------|-------|-------|
| EWT   | ΔT   | Ta (D.B.) |       |        |       |       |        |       |       |        |       |       |        |       |       |        |      |       |       |
|       |      | 16        |       |        | 18    |       |        | 20    |       |        | 22    |       |        | 24    |       |        |      |       |       |
|       |      | TH        | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH   | WF    | WDP   |
| [°C]  | [°C] | [kW]      | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW] | [l/h] | [kPa] |
| 35    | 5    | 4,44      | 770   | 35,88  | 3,83  | 660   | 27,79  | 3,21  | 560   | 20,59  | 2,59  | 450   | 14,30  | 1,96  | 340   | 8,91   |      |       |       |
|       | 10   | 2,87      | 250   | 4,87   | 1,79  | 1570  | 1,69   | 1,59  | 160   | 1,68   | 1,38  | 1570  | 1,65   | 1,18  | 1570  | 1,63   |      |       |       |
|       | 15   | 2,00      | 1570  | 1,72   | 1,80  | 1570  | 1,70   | -     | -     | -      | -     | -     | -      | -     | -     | -      | -    | -     | -     |
| 40    | 5    | 5,99      | 1040  | 58,64  | 5,37  | 930   | 48,63  | 4,76  | 830   | 39,46  | 4,15  | 720   | 31,14  | 3,54  | 610   | 23,69  |      |       |       |
|       | 10   | 4,62      | 400   | 11,59  | 3,98  | 340   | 9,01   | 3,33  | 290   | 6,64   | 2,63  | 230   | 4,14   | 1,77  | 1570  | 1,54   |      |       |       |
|       | 15   | 2,60      | 1570  | 1,62   | 2,41  | 1570  | 1,62   | 2,19  | 1570  | 1,58   | 1,98  | 1570  | 1,56   | 1,77  | 1570  | 1,54   |      |       |       |
| 45    | 5    | 7,52      | 1310  | 85,38  | 6,91  | 1200  | 73,59  | 6,29  | 1090  | 62,60  | 5,68  | 990   | 52,42  | 5,08  | 880   | 43,05  |      |       |       |
|       | 10   | 6,23      | 540   | 18,79  | 5,61  | 490   | 15,70  | 4,99  | 430   | 12,84  | 4,36  | 380   | 10,22  | 3,73  | 320   | 7,83   |      |       |       |
|       | 15   | 4,74      | 270   | 5,99   | 4,04  | 230   | 4,41   | 3,26  | 190   | 2,40   | 2,60  | 160   | 1,53   | 2,41  | 1570  | 1,54   |      |       |       |
| 50    | 5    | 9,05      | 1570  | 115,79 | 8,44  | 1470  | 102,31 | 7,82  | 1360  | 89,61  | 7,21  | 1250  | 77,70  | 6,60  | 1150  | 66,57  |      |       |       |
|       | 10   | 7,81      | 680   | 27,02  | 7,19  | 620   | 23,44  | 6,57  | 570   | 20,09  | 5,96  | 520   | 16,96  | 5,34  | 460   | 14,06  |      |       |       |
|       | 15   | 6,46      | 370   | 9,87   | 5,82  | 340   | 8,27   | 5,17  | 300   | 6,77   | 4,51  | 260   | 5,37   | 3,82  | 220   | 3,98   |      |       |       |
| 55    | 5    | 10,58     | 1840  | 149,63 | 9,96  | 1740  | 134,56 | 9,35  | 1630  | 120,24 | 8,73  | 1520  | 106,68 | 8,12  | 1410  | 93,88  |      |       |       |
|       | 10   | 9,37      | 810   | 36,23  | 8,75  | 760   | 32,19  | 8,13  | 710   | 28,36  | 7,52  | 650   | 24,75  | 6,90  | 600   | 21,37  |      |       |       |
|       | 15   | 8,09      | 470   | 14,13  | 7,46  | 430   | 12,31  | 6,83  | 400   | 10,60  | 6,20  | 360   | 8,99   | 5,57  | 320   | 7,48   |      |       |       |
| 60    | 5    | 12,11     | 2110  | 186,72 | 11,49 | 2010  | 170,12 | 10,87 | 1900  | 154,25 | 10,25 | 1790  | 139,12 | 9,64  | 1680  | 124,73 |      |       |       |
|       | 10   | 10,91     | 950   | 46,37  | 10,29 | 900   | 41,88  | 9,68  | 840   | 37,61  | 9,06  | 790   | 33,54  | 8,45  | 740   | 29,69  |      |       |       |
|       | 15   | 9,68      | 560   | 18,82  | 9,06  | 520   | 16,79  | 8,43  | 490   | 14,85  | 7,81  | 450   | 13,02  | 7,19  | 420   | 11,30  |      |       |       |
| 65    | 5    | 13,64     | 2390  | 226,94 | 13,01 | 2280  | 208,86 | 12,39 | 2170  | 191,50 | 11,77 | 2060  | 174,86 | 11,15 | 1950  | 158,95 |      |       |       |
|       | 10   | 12,45     | 1090  | 57,39  | 11,83 | 1030  | 52,48  | 11,70 | 960   | 42,40  | 10,60 | 920   | 43,27  | 9,98  | 870   | 38,98  |      |       |       |
|       | 15   | 11,25     | 650   | 23,93  | 10,63 | 620   | 21,69  | 10,01 | 580   | 19,55  | 9,39  | 550   | 17,50  | 8,77  | 510   | 15,56  |      |       |       |
| 70    | 5    | 15,16     | 2660  | 270,00 | 14,54 | 2550  | 250,50 | 13,91 | 2440  | 231,70 | 13,29 | 2330  | 213,61 | 12,67 | 2220  | 196,23 |      |       |       |
|       | 10   | 13,99     | 1220  | 69,24  | 13,37 | 1170  | 63,91  | 12,19 | 960   | 52,10  | 12,13 | 1060  | 53,88  | 11,51 | 1010  | 49,17  |      |       |       |
|       | 15   | 12,81     | 750   | 29,44  | 12,19 | 710   | 27,00  | 11,57 | 670   | 24,65  | 10,95 | 640   | 22,41  | 10,33 | 600   | 20,26  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

ΔT = Temperature differential (°C)

Ta = Ambient temperature (°C)

DB = Dry bulb

TH = Total heating capacity (kW)

WF = Water flow-rate (l/h)

WDP = Exchanger pressure drops (kPa)

| 041.0 |      |           |       |        |       |       |        |       |       |        |       |       |        |       |       |        |      |       |       |
|-------|------|-----------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|------|-------|-------|
| EWT   | ΔT   | Ta (D.B.) |       |        |       |       |        |       |       |        |       |       |        |       |       |        |      |       |       |
|       |      | 16        |       |        | 18    |       |        | 20    |       |        | 22    |       |        | 24    |       |        |      |       |       |
|       |      | TH        | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH    | WF    | WDP    | TH   | WF    | WDP   |
| [°C]  | [°C] | [kW]      | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW]  | [l/h] | [kPa]  | [kW] | [l/h] | [kPa] |
| 35    | 5    | 4,62      | 800   | 42,68  | 3,99  | 690   | 33,08  | 3,35  | 580   | 24,54  | 2,71  | 470   | 17,08  | 2,05  | 360   | 10,69  |      |       |       |
|       | 10   | 3,03      | 260   | 6,23   | 1,97  | 170   | 2,05   | 1,63  | 160   | 1,88   | 1,42  | 1580  | 1,85   | 1,21  | 1580  | 1,82   |      |       |       |
|       | 15   | 2,05      | 1580  | 1,93   | 1,84  | 1580  | 1,90   | -     | -     | -      | -     | -     | -      | -     | -     | -      | -    | -     | -     |
| 40    | 5    | 6,23      | 1080  | 69,68  | 5,59  | 970   | 57,80  | 4,96  | 860   | 46,92  | 4,32  | 750   | 37,05  | 3,69  | 640   | 28,20  |      |       |       |
|       | 10   | 4,83      | 420   | 13,86  | 4,17  | 360   | 10,80  | 3,49  | 300   | 8,01   | 2,78  | 240   | 5,26   | 1,81  | 160   | 1,72   |      |       |       |
|       | 15   | 2,66      | 1580  | 1,81   | 2,47  | 160   | 1,81   | 2,27  | 1580  | 1,80   | 2,03  | 1580  | 1,75   | 1,82  | 1580  | 1,73   |      |       |       |
| 45    | 5    | 7,82      | 1360  | 101,41 | 7,18  | 1250  | 87,41  | 6,55  | 1140  | 74,37  | 5,91  | 1030  | 62,29  | 5,28  | 920   | 51,17  |      |       |       |
|       | 10   | 6,50      | 560   | 22,38  | 5,85  | 510   | 18,72  | 5,21  | 450   | 15,33  | 4,56  | 390   | 12,21  | 3,90  | 340   | 9,37   |      |       |       |
|       | 15   | 4,97      | 290   | 7,23   | 4,26  | 250   | 5,48   | 3,48  | 200   | 3,28   | 2,66  | 1580  | 1,71   | 2,47  | 1580  | 1,73   |      |       |       |
| 50    | 5    | 9,41      | 1640  | 137,50 | 8,77  | 1530  | 121,50 | 8,13  | 1410  | 106,43 | 7,50  | 1300  | 92,29  | 6,86  | 1190  | 79,08  |      |       |       |
|       | 10   | 8,13      | 710   | 32,14  | 7,49  | 650   | 27,89  | 6,85  | 590   | 23,91  | 6,21  | 540   | 20,20  | 5,57  | 480   | 16,76  |      |       |       |
|       | 15   | 6,75      | 390   | 11,79  | 6,08  | 350   | 9,89   | 5,41  | 310   | 8,12   | 4,73  | 270   | 6,47   | 4,02  | 230   | 4,89   |      |       |       |
| 55    | 5    | 11,00     | 1920  | 177,66 | 10,36 | 1800  | 159,78 | 9,72  | 1690  | 142,79 | 9,08  | 1580  | 126,69 | 8,44  | 1470  | 111,50 |      |       |       |
|       | 10   | 9,74      | 850   | 43,07  | 9,10  | 790   | 38,27  | 8,46  | 740   | 33,73  | 7,83  | 680   | 29,44  | 7,19  | 620   | 25,42  |      |       |       |
|       | 15   | 8,43      | 490   | 16,84  | 7,78  | 450   | 14,68  | 7,13  | 410   | 12,64  | 6,48  | 370   | 10,73  | 5,82  | 340   | 8,95   |      |       |       |
| 60    | 5    | 12,58     | 2200  | 221,69 | 11,94 | 2080  | 201,99 | 11,30 | 1970  | 183,16 | 10,66 | 1860  | 165,21 | 10,02 | 1750  | 148,13 |      |       |       |
|       | 10   | 11,35     | 990   | 55,09  | 10,71 | 930   | 49,77  | 10,07 | 880   | 44,69  | 9,43  | 820   | 39,87  | 8,79  | 770   | 35,30  |      |       |       |
|       | 15   | 10,08     | 580   | 22,40  | 9,43  | 550   | 19,98  | 8,79  | 510   | 17,69  | 8,14  | 470   | 15,52  | 7,50  | 430   | 13,47  |      |       |       |
| 65    | 5    | 14,17     | 2480  | 269,44 | 13,52 | 2370  | 247,98 | 12,88 | 2250  | 227,38 | 12,23 | 2140  | 207,64 | 11,59 | 2030  | 188,75 |      |       |       |
|       | 10   | 12,95     | 1130  | 68,17  | 12,31 | 1070  | 62,34  | 12,29 | 990   | 48,70  | 11,02 | 960   | 51,42  | 10,38 | 910   | 46,32  |      |       |       |
|       | 15   | 11,71     | 680   | 28,46  | 11,06 | 640   | 25,79  | 10,42 | 610   | 23,25  | 9,78  | 570   | 20,83  | 9,13  | 530   | 18,52  |      |       |       |
| 70    | 5    | 15,75     | 2760  | 320,59 | 15,10 | 2650  | 297,43 | 14,45 | 2530  | 275,12 | 13,81 | 2420  | 253,65 | 13,17 | 2310  | 233,02 |      |       |       |
|       | 10   | 14,55     | 1270  | 82,23  | 13,90 | 1220  | 75,91  | 12,47 | 990   | 62,10  | 12,61 | 1100  | 64,01  | 11,97 | 1050  | 58,41  |      |       |       |
|       | 15   | 13,33     | 780   | 34,99  | 12,68 | 740   | 32,09  | 12,04 | 700   | 29,31  | 11,39 | 660   | 26,64  | 10,75 | 630   | 24,09  |      |       |       |

EWT = Exchanger water inlet temperature (°C)

ΔT = Temperature differential (°C)

Ta = Ambient temperature (°C)

DB = Dry bulb

TH = Total heating capacity (kW)

## Accessories separately supplied

### 360PX - Air return and supply frame with supply at 360° (mandatory accessory)

Return grille, frame and diffusion wings adjustable at 360° in ABS synthetic material, white RAL 9003:

- Dimensions size 007.0÷015.0 = 647 x 647 x 50 mm
- Dimensions size 021.0÷041.0 = 950 x 950 x 45 mm



Mandatory accessory.



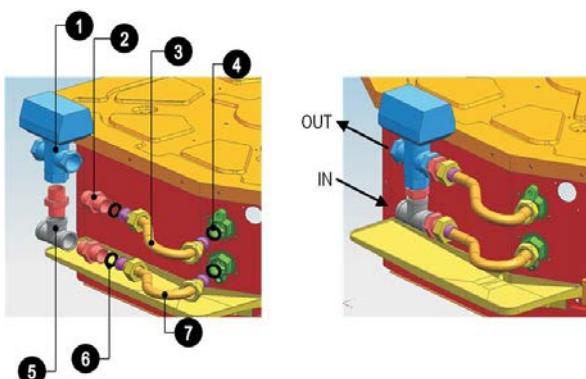
### 3V2X - Three-way valve kit for 2-pipe "on/off" system

Water flowrate control kit with on/off 3-way valve with thermoelectric actuator for 2-pipe installation.



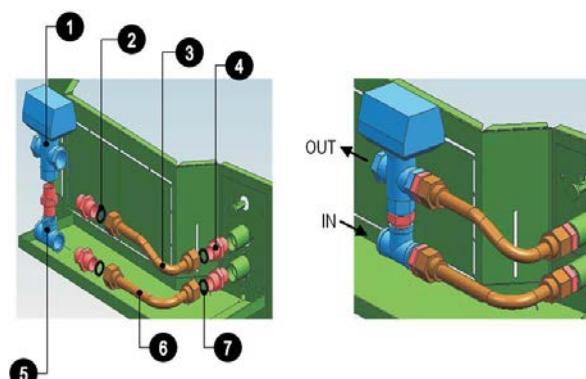
|                                  |                     |
|----------------------------------|---------------------|
| Max. operating pressure          | 16 bar              |
| Max. room temperature            | 50°C                |
| Max water temperature            | 75°C                |
| Min water temperature            | 2°C                 |
| Power supply                     | 230V - (50 - 60 Hz) |
| Absorption (after stabilisation) | 4W                  |
| Opening time                     | < 3 min             |
| Max % of glycol                  | 50%                 |
| Kv (m³/h)                        | 3.2                 |

Size 007.0÷015.0



1. no.1 of 3-way solenoid valve G3/4"
2. no.3 of joints G3/4"
3. no.1 of water outlet connection pipe (diam. Ø16, connection G3/4")
4. no.2 of gaskets Ø23xØ15x2.5
5. no.1 of 3-way joint G3/4"
6. no.2 of gaskets Ø24xØ15x4
7. no.1 of water inlet connection (diam. Ø16, connection G3/4")

Size 021.0÷041.0



1. no.1 of 3-way solenoid valve G3/4"
2. no.2 of gaskets Ø24xØ15x4
3. no.1 of water outlet connection pipe (diam. Ø16, connection G3/4")
4. no.5 of joints G3/4"
5. no.1 of 3-way joint G3/4"
6. no.1 of water inlet connection (diam. Ø16, connection G3/4")
7. no.2 of gaskets Ø24xØ15x4

## 3V4X - Three-way valve kit for 4-pipe "on/off" system

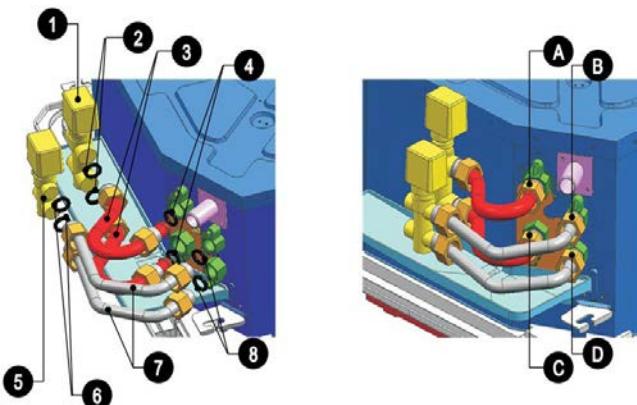
Water flowrate control kit with on/off 3-way valve with thermoelectric actuator for 4-pipe installation.



|                                  |                         |
|----------------------------------|-------------------------|
| Max. operating pressure          | 16 bar                  |
| Max. room temperature            | 50°C                    |
| Max water temperature            | 110°C                   |
| Min water temperature            | 4°C                     |
| Power supply                     | 230V - 24V (50 - 60 Hz) |
| Absorption (after stabilisation) | 4W (230V) - 6W (24V)    |
| Lockshield ip protection degree  | IP44                    |
| Valve ip protection degree       | IP54                    |
| Opening time                     | < 3 min                 |
| Max % of glycol                  | 50%                     |

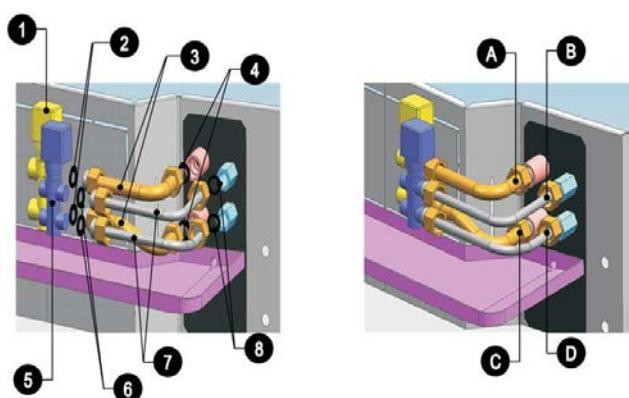


Size 007.0÷015.0



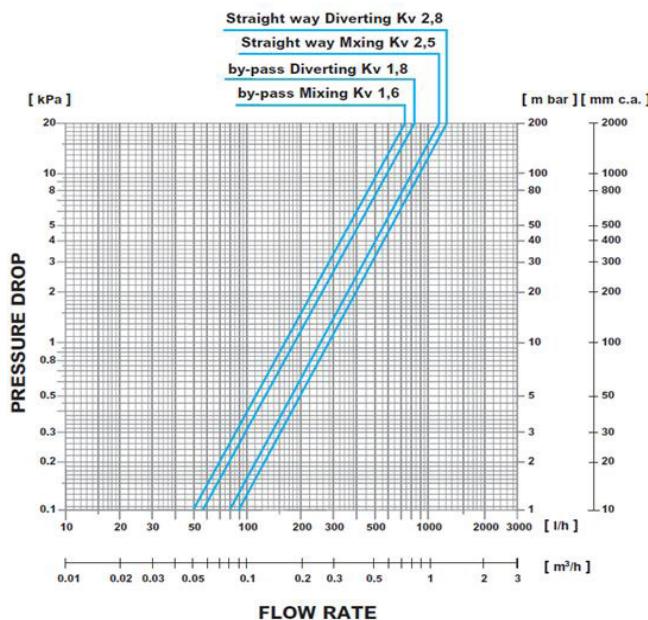
1. no.1 of 3-way valve G3/4" with actuator
  2. no.2 of gaskets Ø16xØ24.5x2
  3. no.2 of cold water connection pipes (diam. Ø19, connection G3/4")
  4. no.2 of gaskets Ø19x2
  5. no.1 of 3-way valve G1/2" with actuator
  6. no.2 of gaskets Ø11xØ19x2
  7. no.2 of hot water connection pipes (diam. Ø14, connection G1/2")
  8. no.2 gaskets Ø13.8x1.8
- A. Cold water outlet  
B. Hot water outlet  
C. Cold water inlet  
D. Hot water inlet

Size 021.0÷041.0

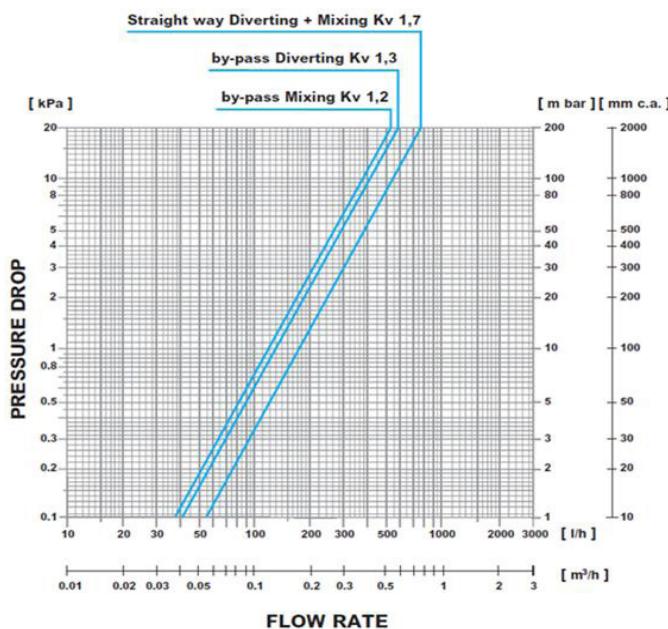


1. no.1 of 3-way valve G3/4" with actuator
  2. no.2 of gaskets Ø11xØ19x2
  3. no.2 of cold water connection pipes (diam. Ø19, connection G3/4")
  4. no.2 of gaskets Ø19x2
  5. no.1 of 3-way valve G1/2" with actuator
  6. no.2 of gaskets Ø16xØ24.5x2
  7. no.2 of hot water connection pipes (diam. Ø14, connection G1/2")
  8. no.2 gaskets Ø13.8x1.8
- A. Cold water outlet  
B. Hot water outlet  
C. Cold water inlet  
D. Hot water inlet

## Pressure drop - Cooling side 3-way valve (G3/4")



## Pressure drop - Heating side 3-way valve (G1/2")



## DTX - Auxiliary condensate collection tray

Valves condensate collection tray.



## KJR90X - Electronic room control for wall installation

KJR90 LCD "touch-key" wall-mounted control.

Functions:

- On/Off
- Operation selection: Auto, Heating, Cooling, Dehumidification, Ventilation
- Temperature setting (temperature range selectable: 17~30°C)
- Set the fan speed (MIN - MED - MAX or AUTO)
- Timer setting
- Setting of deflectors position (swing)

Many additional functions such as:

- ECO mode
- Controller keypad lock
- Timed remainder air filter cleaning

The controller can be easily connected to the internal unit display by means of a connecting cable.

The control can be installed up to a max. distance of 15mt.



## KJR150X - Indoor units' group controller

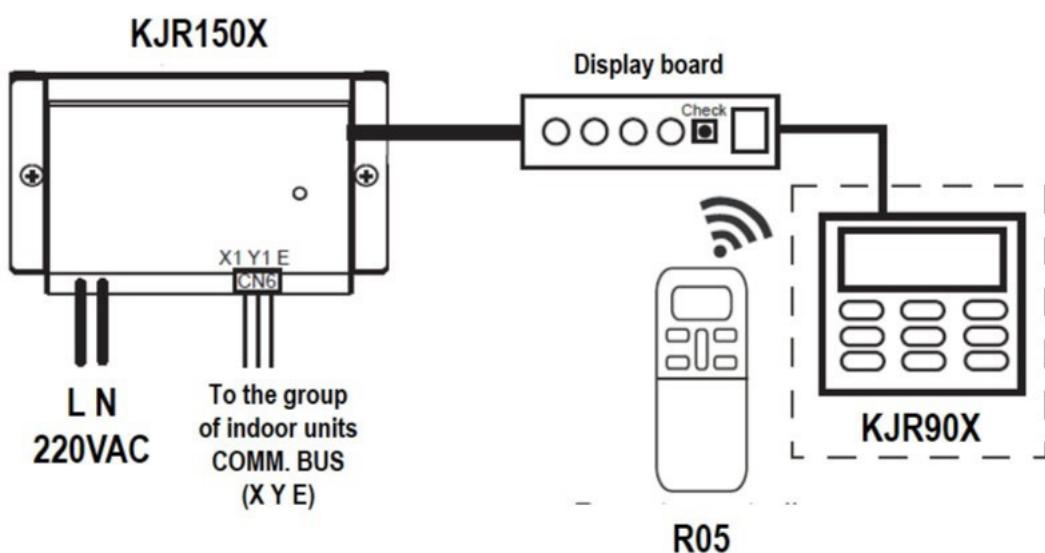
Allows the group control of up to 16 fancoil units from a single wall control KJR90X.

Each unit's operating parameters can also be individually controlled using its own remote controller R05.

| Model                   | KJR150X            |
|-------------------------|--------------------|
| Dimensions (L×A×P) [mm] | 85x150x70          |
| Power supply            | 198-242V (50/60Hz) |



### Installation schematic

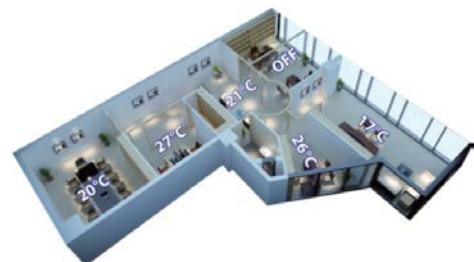


## CCM30BX - Touch-key indoor units' centralized controller (with cover plate)



**CCM30BX**

The centralized controllers are multifunctional devices that can control up to 64 indoor units within a maximum connection length of 1.200m. These controls give the user the opportunity to control multiple units as a single group, or alternatively to assign an individual temperature for each one



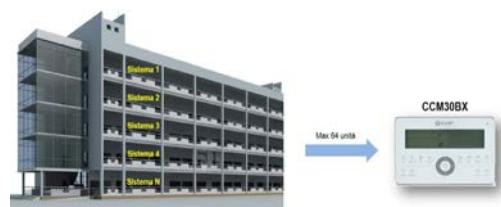
### Single/unified control mode

Controllers can be toggled between unified and single control modes, to enable either unified control of all units or control of a specific unit. Operating mode feedback is used to ensure that all units are operating in the mode specified by the user.



### Multi-system control

Controlled units can be from different VRF/Mini VRF systems, totally up to 64 indoor units: this allows a centralized control that facilitates the building management. Ensure that the address is not repeated for more units.



### Fancoil units operating status display

Error and protection codes are shown directly on centralized controllers' displays, avoiding the need to access outdoor units' PCBs to obtain codes during a system event. A wide range of error and protection codes provide system status information to building management professionals before contacting a service engineer.

| Error code or protection code |     | Connection status matrix |         |            |       |      |        |       |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------------------------|-----|--------------------------|---------|------------|-------|------|--------|-------|---------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Current                       | #   | ALL                      | Protect | Set. temp  | Mode  | Auto | Query  | Set   | Opr. unsucces |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 88                            | #   | Online                   | ON OFF  | Error      | 88    |      |        |       | 00            | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
| T2A                           | T2B | T3                       | Period  | Room. temp |       |      | 16     | 17    | 18            | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |    |    |
| 88:80                         |     |                          | 1 2 3 4 |            | 88:80 |      | 32     | 33    | 34            | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |    |    |
| Week                          | Sun | Mon                      | Tue     | Wed        | Thu   | Fri  | 48     | 49    | 50            | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 |    |    |
| 88                            | 18  | 28                       |         |            | 28:88 |      | Weekly | Timer | Off           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Year                          | Mon | Day                      |         |            |       |      |        |       |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

## Multiple lock modes

In addition to locking the centralized controller's own keyboard, the centralized controller may also be used to lock each unit's operating mode or remote controller.



## Clean filter reminder

The CCM30BX records the total running time of each indoor unit. When the accumulated running time reaches the value pre-set by the user, the system reminds the user to clean the indoor unit's filter, ensuring that the airflow does not become obstructed.



| Model                 | CCM30-B            |
|-----------------------|--------------------|
| Dimensions LxAxP (mm) | 180x122x78         |
| Power supply          | 198-242V (50/60Hz) |

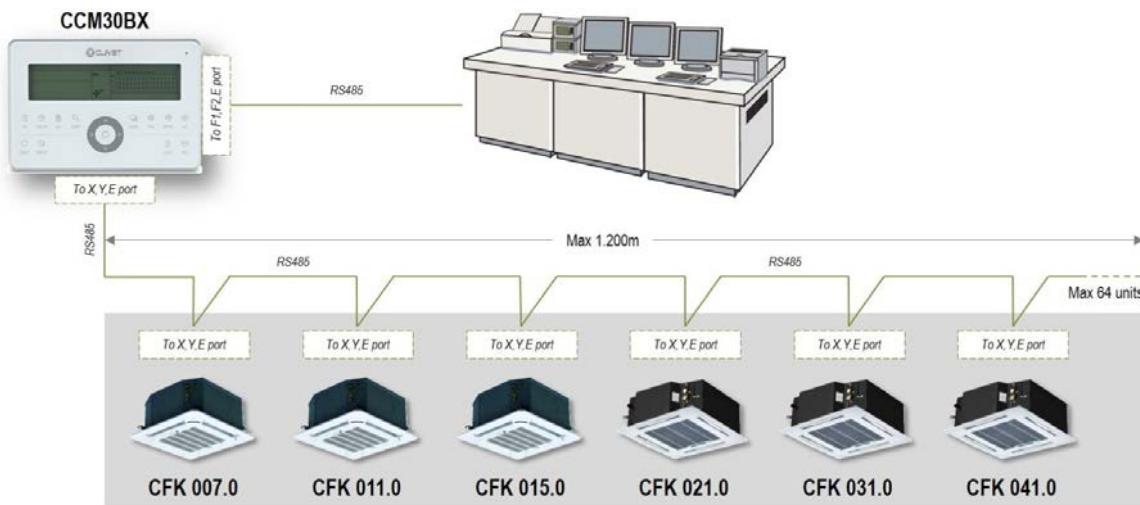
## Main features:

- Setting On/Off
- Setting mode Cool/Heat/Auto/Dry/Fan
- Setting temperature
- Fan speed selection High/Medium/Low/Auto
- Air swing function
- 24h On/Off timer
- Locking the controller buttons
- Air filter cleaning reminder
- Turn On/Off the LCD backlight



## Installation schematic

The centralized controller can connect up to 64 indoor units on the network monitoring and building management systems.



## Connection to BMS systems

Monitoring and control can be integrated into Building Management Systems (BMS), enabling air conditioning to be monitored alongside lightning, power, fire detection, access and security systems. Full compatibility with the four main BMS protocols via gateway devices: BACnet, Modbus and LonWorks.

### CCM08X - BACnet protocol

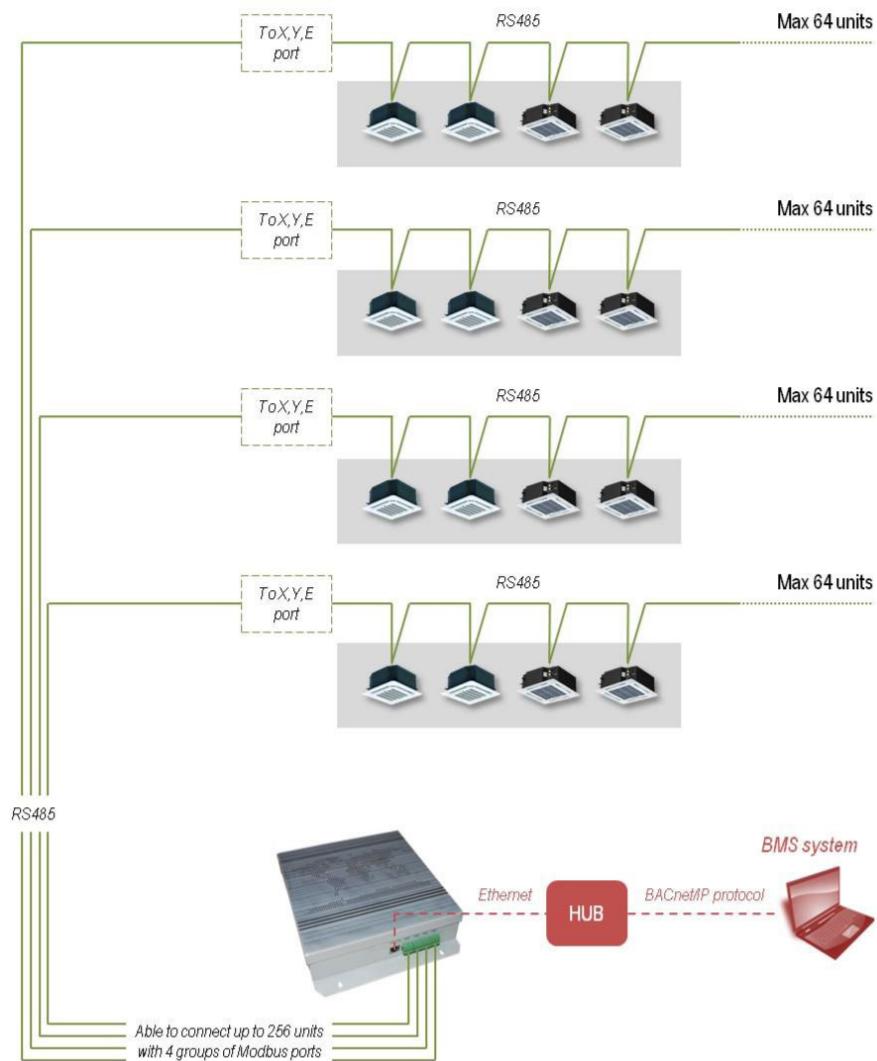
Each gateway can be connected to an fancoil unit's X,Y,E ports (up to 256 units), with built-in IP access.

It is also compatible with connections of up to four CCM30BX centralized controller through F1, F2, E ports.

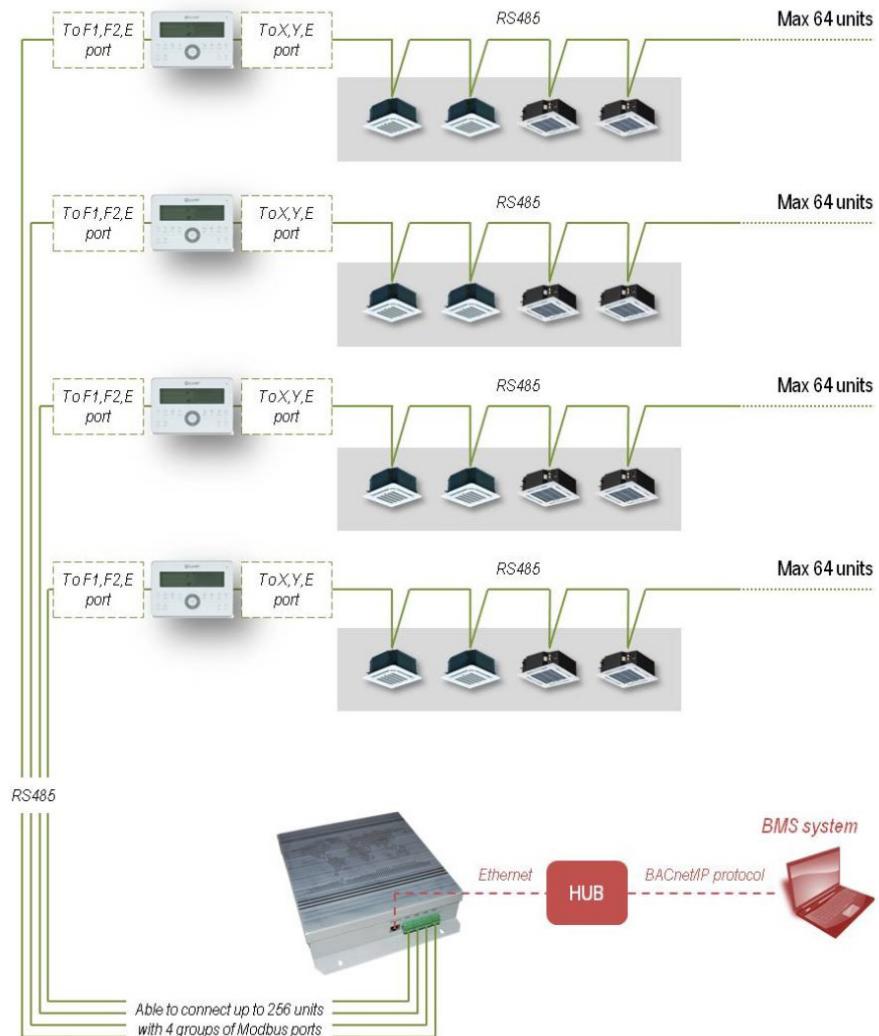
| Model                 | CCM08X          |
|-----------------------|-----------------|
| Dimensions LxAxP (mm) | 319x251x61      |
| Power supply          | AC 220V~50/60Hz |



### Installation schematic - Connecting to fancoil unit port X, Y, E



## Installation schematic - Connection to CCM30BX centralized control



## Wide compatibility

The CCM08X is fully compatible with a wide range of leading Building Management Systems

|   | Company            | Software BMS  | Brand   |
|---|--------------------|---------------|---|
| 1 | Apogee Electronics | APOGEE        |  |
| 2 | Trane              | Tracer Summit |  |
| 3 | Honeywell          | Alerton       |  |
| 4 | Schneider          | Andover       |  |
| 5 | Johnson            | METASYS       |  |

## CCM18X - Modbus protocol for up to 64 fancoil units

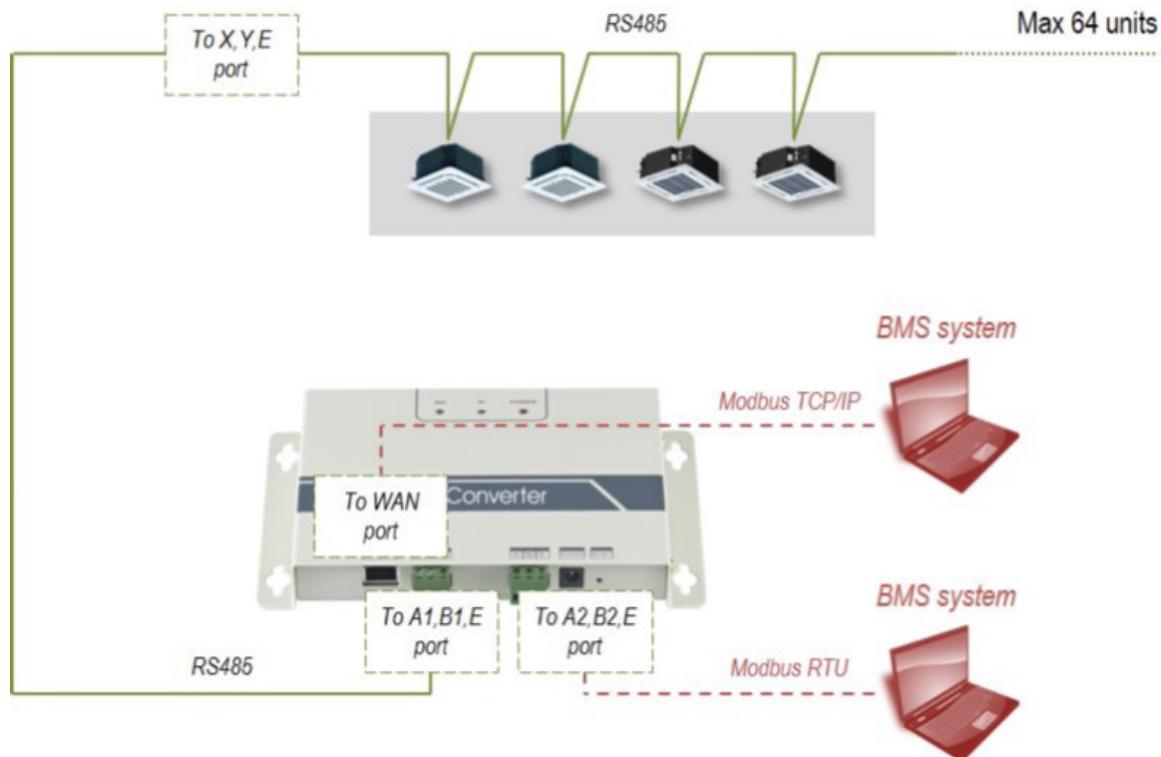
## CCM18UX - Modbus protocol for up to 16 fancoil units

Each gateway can connect up to 16 indoor units (CCM18UX) or up to 64 indoor units and up to 4 outdoor units of the same system (CCM18X) with BMS through either TCP/IP or RTU. Built-in IP access.



| Model                 | CCM18A / CCM18ANU |
|-----------------------|-------------------|
| Dimensions LxAxP (mm) | 319×251×61        |
| Power supply          | AC 220V~50/60Hz   |

### Installation schematic - Connecting to fancoil unit port X, Y, E



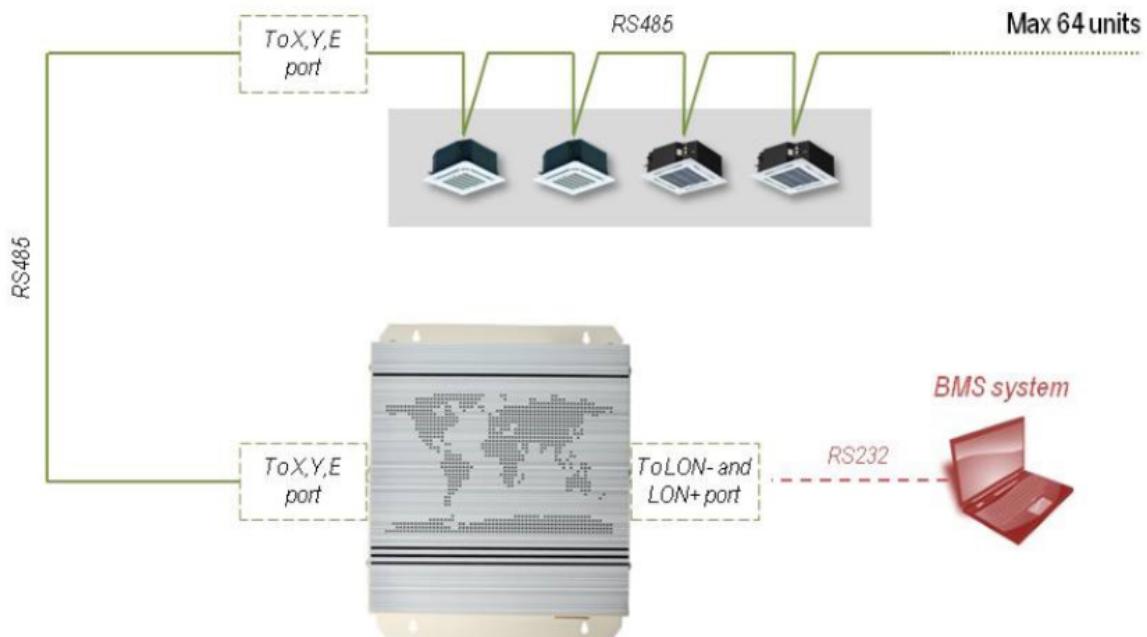
## LONGWX - LowWorks protocol

Each gateway can connect up to 64 indoor units, directly to their XYE ports or through outdoor unit.

| Model                 | LONGWX          |
|-----------------------|-----------------|
| Dimensions LxAxP (mm) | 319x251x61      |
| Power supply          | AC 220V~50/60Hz |

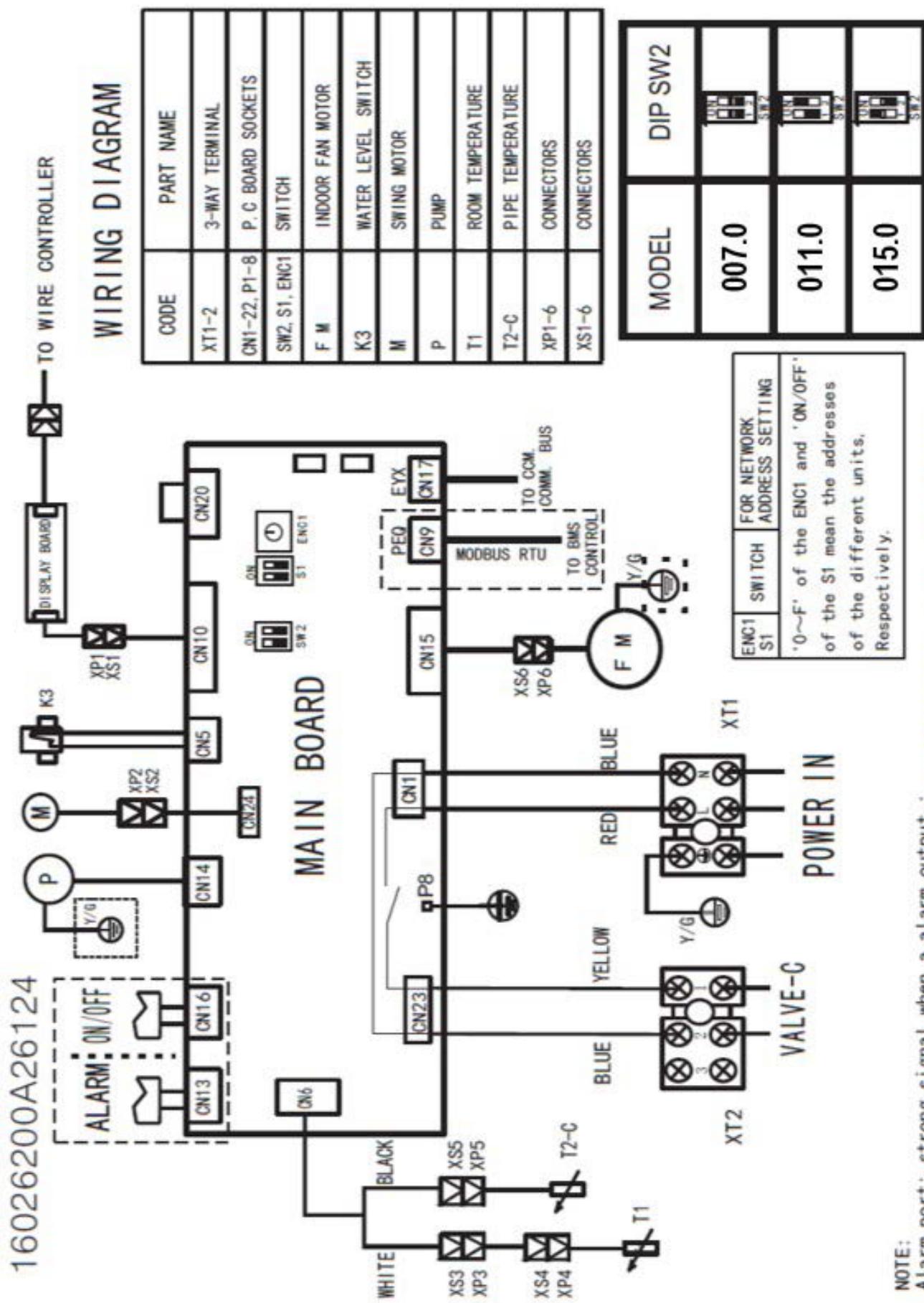


### Installation schematic - Connecting to fancoil unit port X, Y, E



# Wiring diagrams with XYE port (BUS communication)

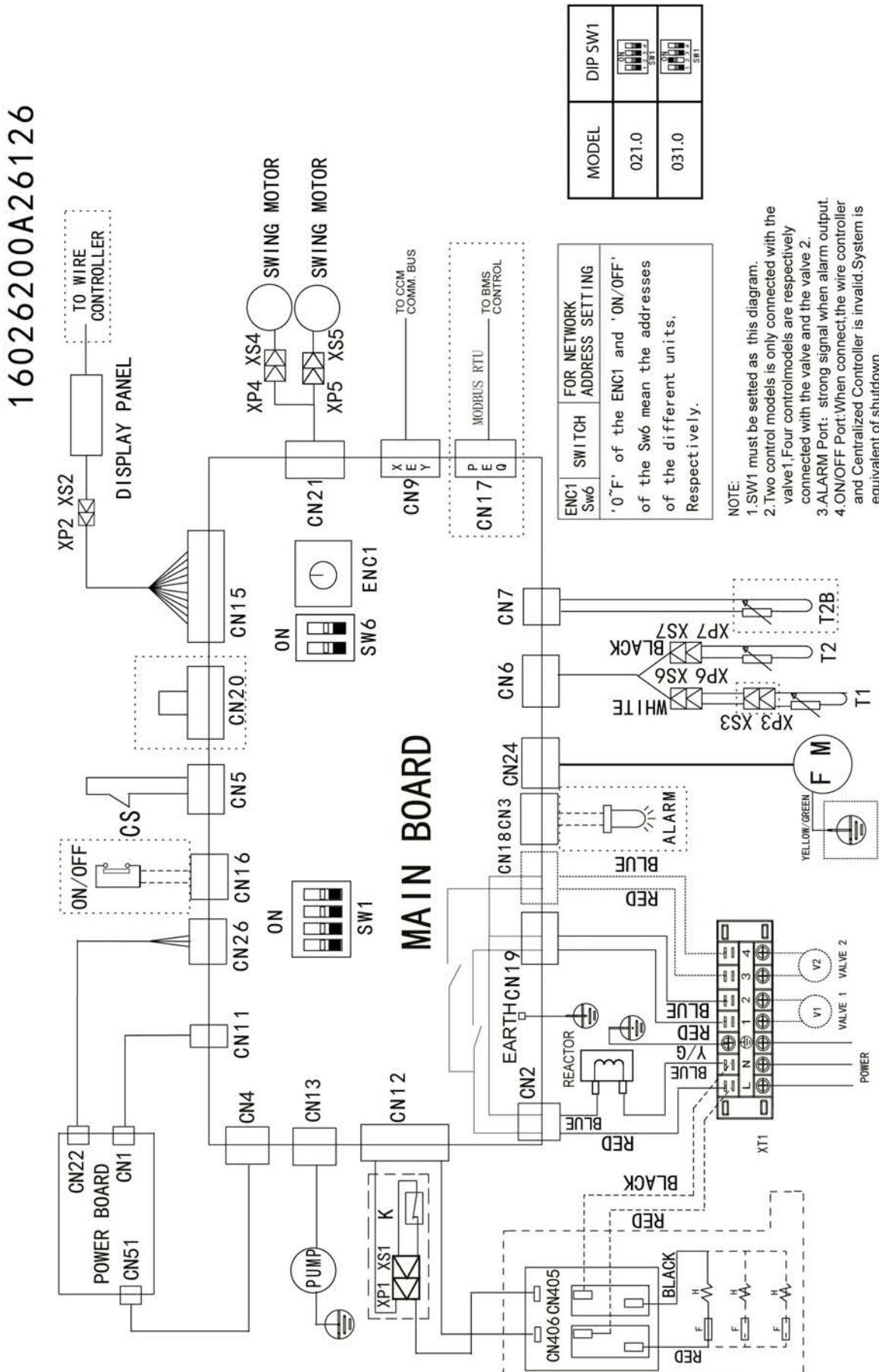
CC2 - 2-pipe system (size 007.0, 011.0 and 015.0)



## Wiring diagrams with XYE port (BUS communication)

## **CC2 - 2-pipe system (size 021.0 and 031.0)**

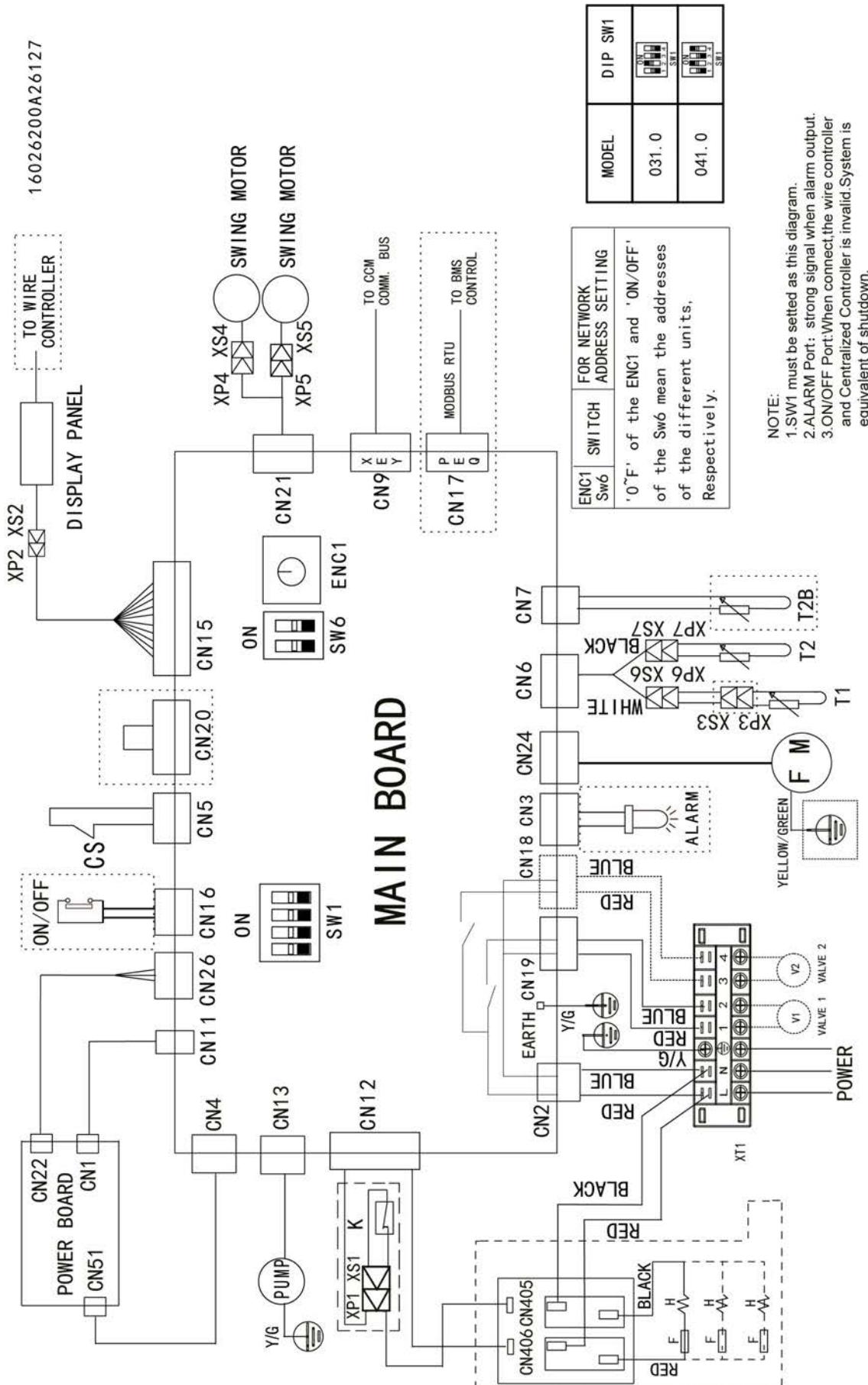
**CC4 - 4-pipe system (size 021.0)**



## Wiring diagrams with XYE port (BUS communication)

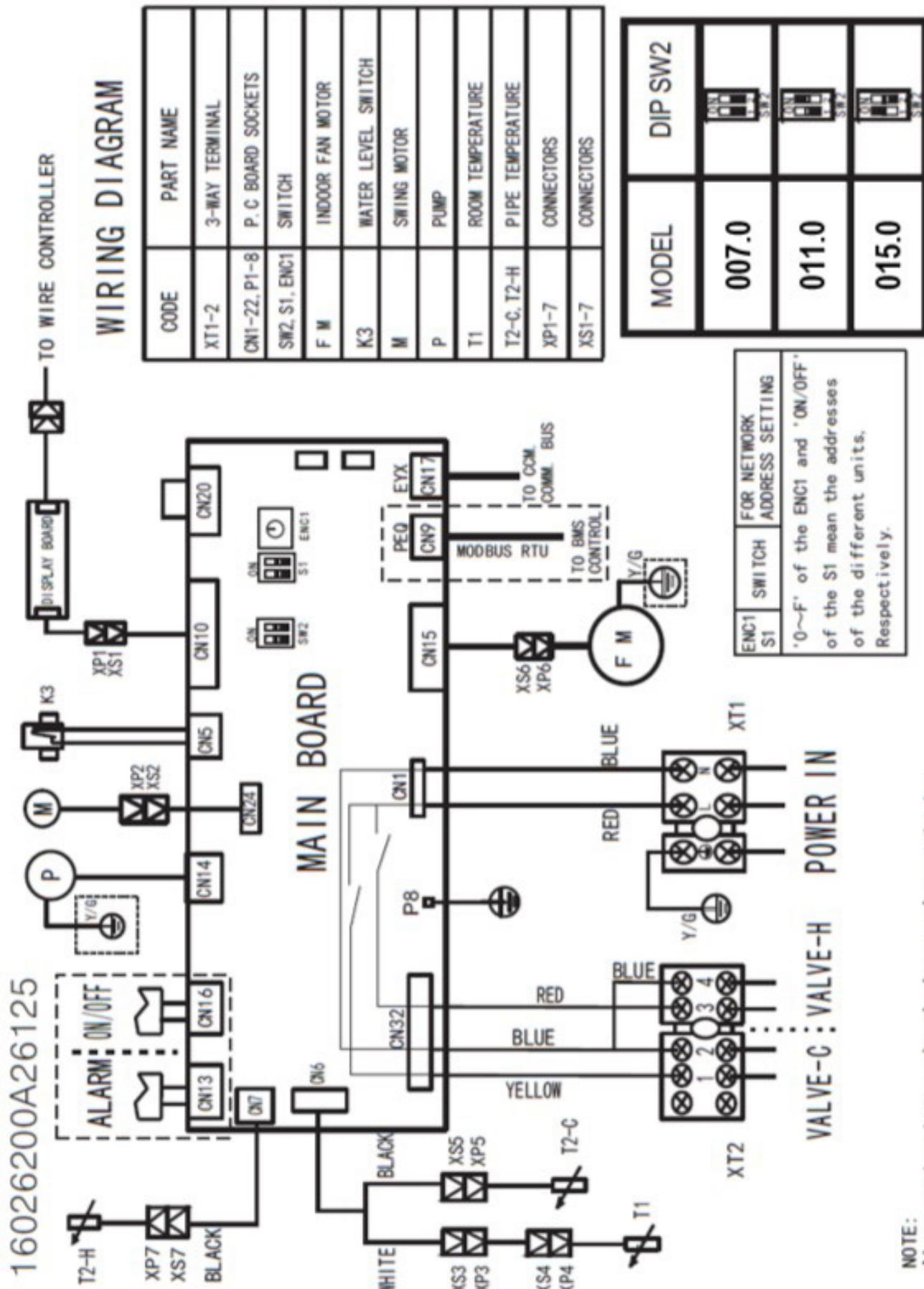
CC2 - 2-pipe system (size 041.0)

## **CC4 - 4-pipe system (size 031.0 and 041.0)**



# Wiring diagrams with XYE port (BUS communication)

CC4 - 4-pipe system (size 007.0, 011.0 and 015.0)

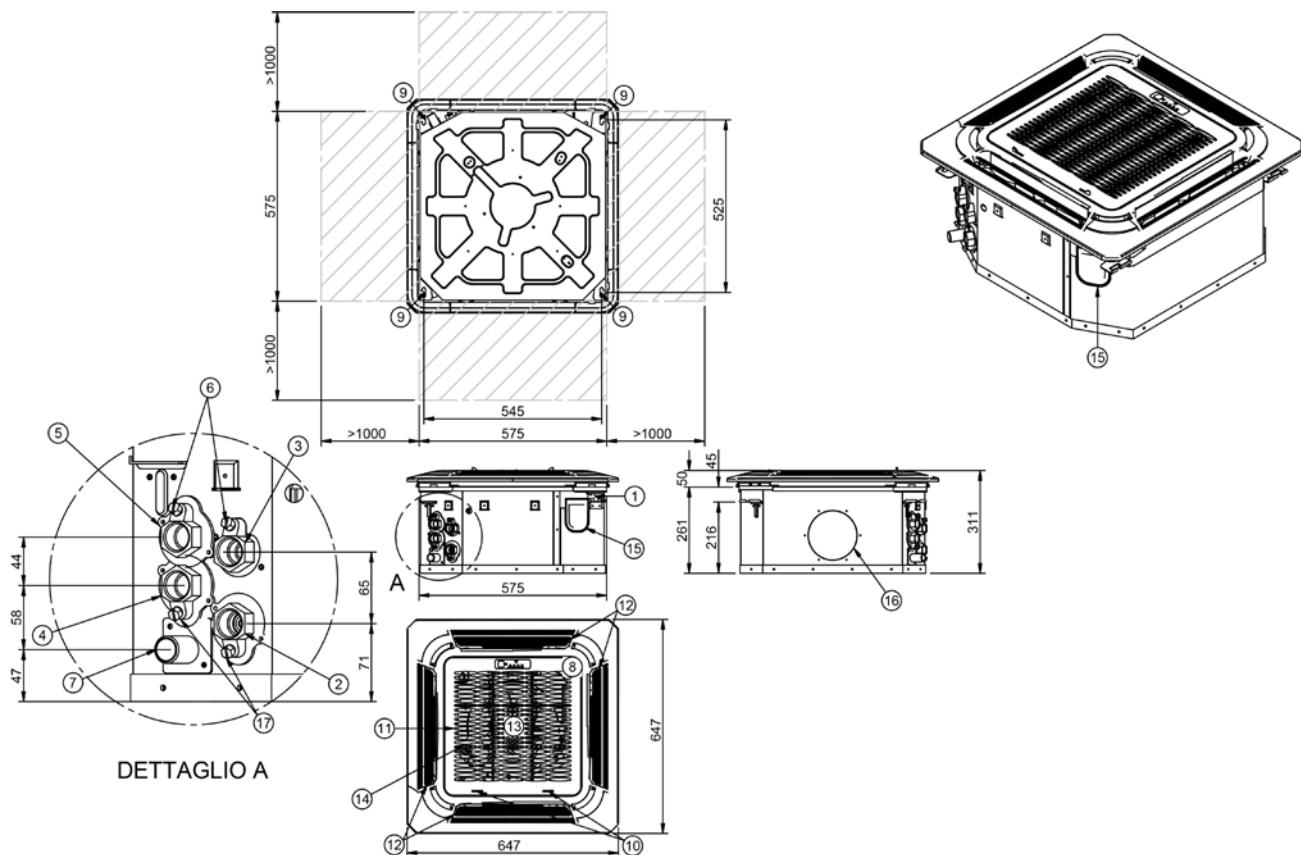


# Dimensional drawings

**CFK 007.0 ÷ 015.0 (CC2 - CC4)**

DAAMC007.0\_1 REV01

Data/Date 21/12/2016



- 1. Power input
- 2. Water outlet (standard unit) Ø3/4"
- 3. Water inlet (standard unit) Ø3/4"
- 4. Additional coil water outlet Ø1/2"
- 5. Additional coil water inlet Ø1/2"
- 6. Water bleeds
- 7. Condensate drain by pump Ø25
- 8. Electrical panel
- 9. Suspension brakets
- 10. Filter access lungs
- 11. Return air inlet
- 12. Air flaps
- 13. Fan
- 14. Filter
- 15. Fresh air spigot
- 16. Branch duct spigot Ø150mm
- 17. Air discharge

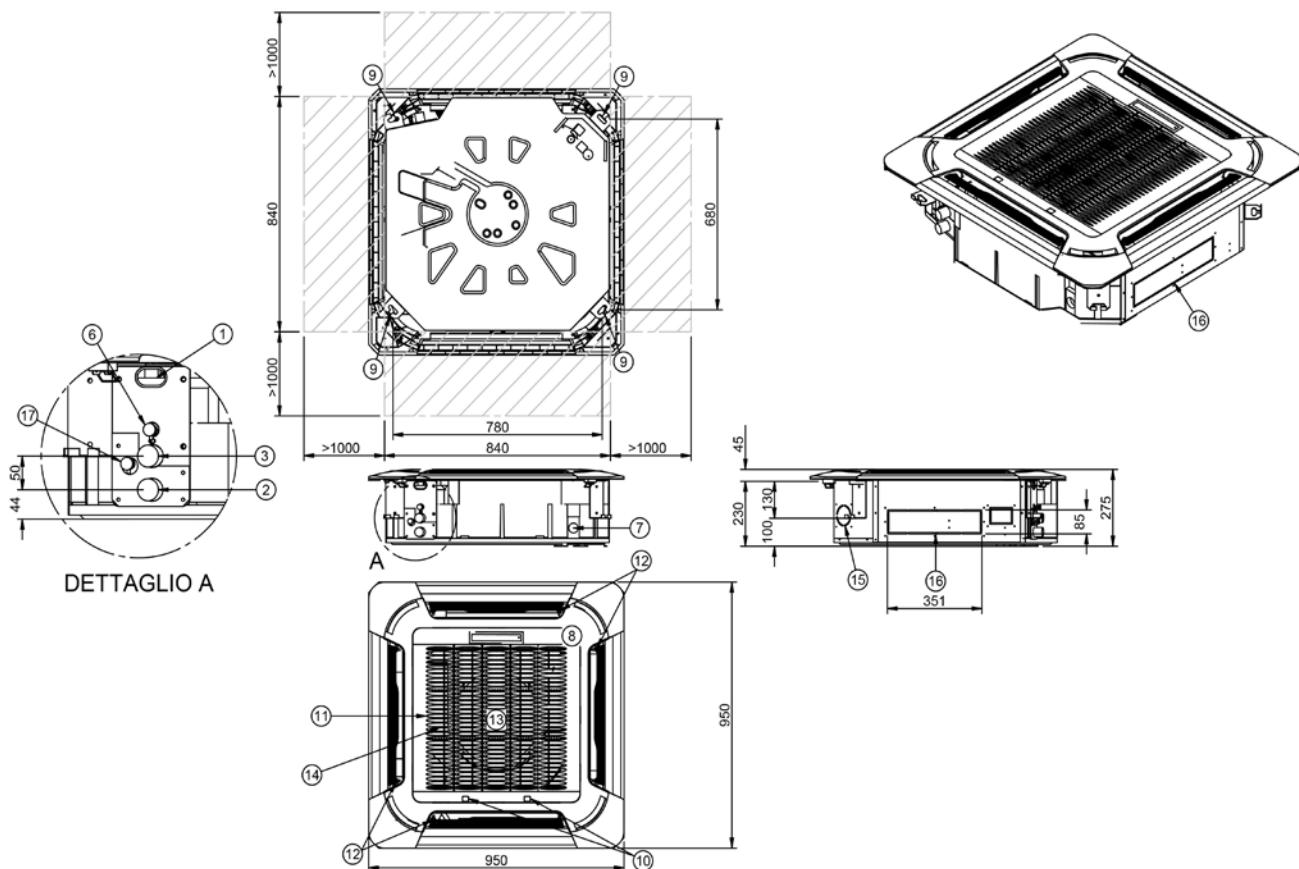
| Coil configuration |            | CC2   |       |       | CC4   |       |       |
|--------------------|------------|-------|-------|-------|-------|-------|-------|
| Size               |            | 007.0 | 011.0 | 015.0 | 007.0 | 011.0 | 015.0 |
| <b>Unit</b>        |            |       |       |       |       |       |       |
| Net dimensions     | Width (W)  | [mm]  | 575   | 575   | 575   | 575   | 575   |
|                    | Height (H) | [mm]  | 261   | 261   | 261   | 261   | 261   |
|                    | Depth (D)  | [mm]  | 575   | 575   | 575   | 575   | 575   |
| Packing            | Width (W)  | [mm]  | 675   | 675   | 675   | 675   | 675   |
|                    | Height (H) | [mm]  | 320   | 320   | 320   | 320   | 320   |
|                    | Depth (D)  | [mm]  | 675   | 675   | 675   | 675   | 675   |
| Net weight         |            | [kg]  | 16,5  | 16,5  | 16,5  | 16,7  | 16,7  |
| Gross weight       |            | [kg]  | 22,5  | 22,5  | 22,5  | 22,7  | 22,7  |
| <b>Panel</b>       |            |       |       |       |       |       |       |
| Net dimensions     | Width (W)  | [mm]  | 647   | 647   | 647   | 647   | 647   |
|                    | Height (H) | [mm]  | 50    | 50    | 50    | 50    | 50    |
|                    | Depth (D)  | [mm]  | 647   | 647   | 647   | 647   | 647   |
| Packing            | Width (W)  | [mm]  | 715   | 715   | 715   | 715   | 715   |
|                    | Height (H) | [mm]  | 123   | 123   | 123   | 123   | 123   |
|                    | Depth (D)  | [mm]  | 715   | 715   | 715   | 715   | 715   |
| Net weight         |            | [kg]  | 2,5   | 2,5   | 2,5   | 2,5   | 2,5   |
| Gross weight       |            | [kg]  | 4,5   | 4,5   | 4,5   | 4,5   | 4,5   |

The presence of optional accessories may result in a substantial variation of the weights shown in the table.

# Dimensional drawings

**CFK 021.0 (CC2)**

DAAMC021.1\_0 REV01  
Data/Date 21/12/2016



- 1. Power input
- 2. Water outlet (standard unit) Ø3/4"
- 3. Water inlet (standard unit) Ø3/4"
- 6. Water bleeds
- 7. Condensate drain by pump Ø32
- 8. Electrical panel
- 9. Suspension brakets
- 10. Filter access lugs
- 11. Return air inlet
- 12. Air flaps
- 13. Fan
- 14. Filter
- 15. Fresh air spigot Ø75mm
- 16. Branch duct spigot
- 17. Air discharge

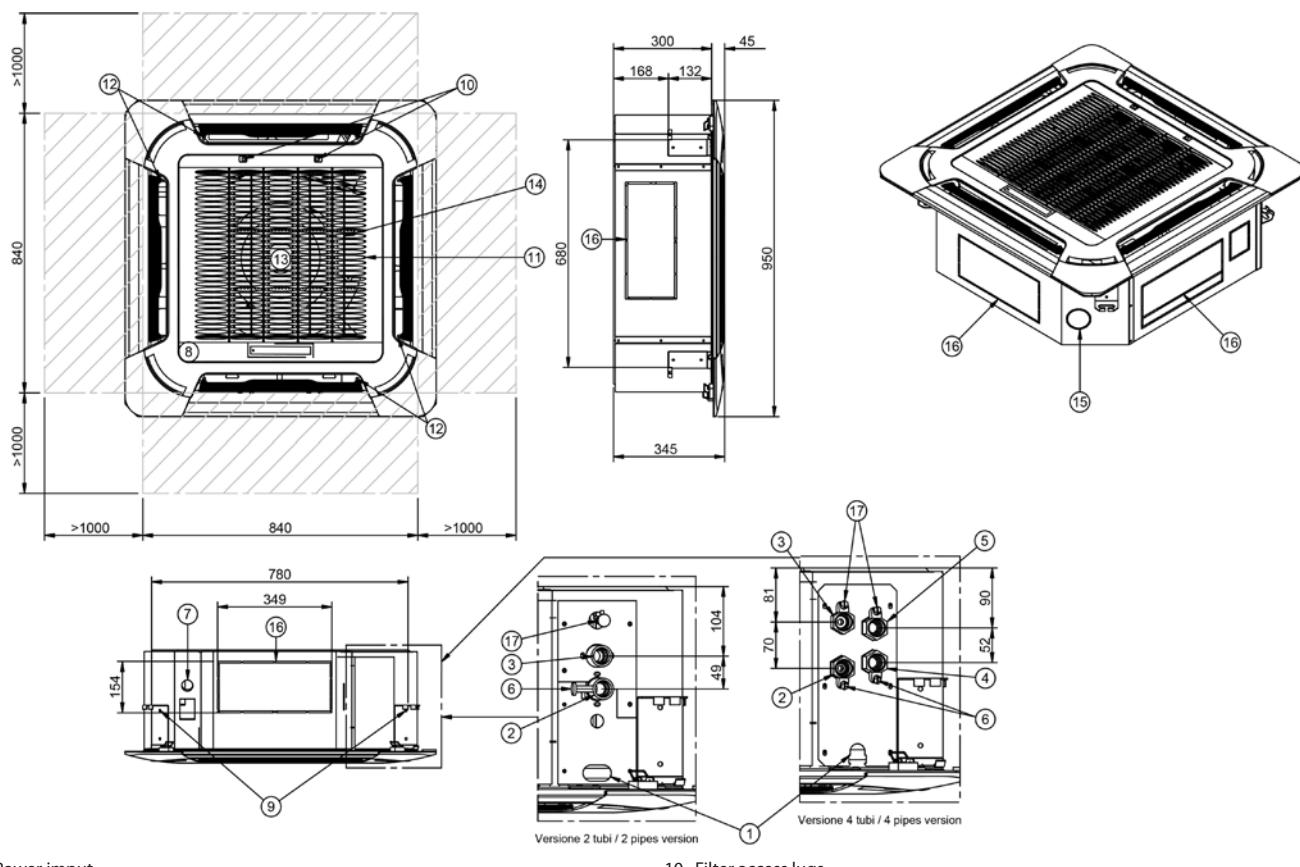
| Coil configuration | CC2        |      |      |
|--------------------|------------|------|------|
| Size               | 021.0      |      |      |
| Unit               |            |      |      |
| Net dimensions     | Width (W)  | [mm] | 840  |
|                    | Height (H) | [mm] | 230  |
|                    | Depth (D)  | [mm] | 840  |
| Packing            | Width (W)  | [mm] | 900  |
|                    | Height (H) | [mm] | 260  |
|                    | Depth (D)  | [mm] | 900  |
| Net weight         | [kg]       | 23   |      |
| Gross weight       | [kg]       | 28   |      |
| Panel              |            |      |      |
| Net dimensions     | Width (W)  | [mm] | 950  |
|                    | Height (H) | [mm] | 45   |
|                    | Depth (D)  | [mm] | 950  |
| Packing            | Width (W)  | [mm] | 1035 |
|                    | Height (H) | [mm] | 90   |
|                    | Depth (D)  | [mm] | 1035 |
| Net weight         | [kg]       | 6    |      |
| Gross weight       | [kg]       | 9    |      |

The presence of optional accessories may result in a substantial variation of the weights shown in the table.

# Dimensional drawings

## CFK 021.0 (CC4) and 031.0 ÷ 041.0 (CC2 - CC4)

DAAMC031.0\_041.0\_01 REV01  
Data/Date 21/12/2016

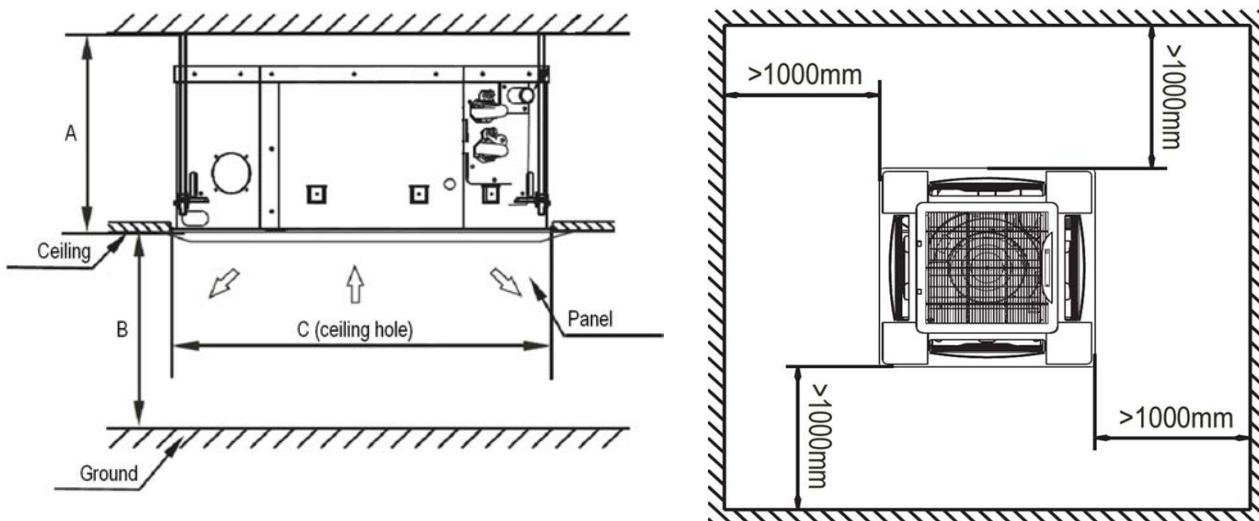


1. Power input
2. Water inlet (standard unit) Ø3/4"
3. Water outlet (standard unit) Ø3/4"
4. Additional coil water inlet Ø1/2"
5. Additional coil water outlet Ø1/2"
6. Water bleeds
7. Condensate drain by pump Ø32
8. Electrical panel
9. Suspension brackets
10. Filter access lugs
11. Return air inlet
12. Air flaps
13. Fan
14. Filter
15. Fresh air spigot Ø75mm
16. Branch duct spigot
17. Air discharge

| Coil configuration |            | CC2   |       | CC4   |       |
|--------------------|------------|-------|-------|-------|-------|
| Size               |            | 031.0 | 041.0 | 021.0 | 031.0 |
| <b>Unit</b>        |            |       |       |       |       |
| Net dimensions     | Width (W)  | [mm]  | 840   | 840   | 840   |
|                    | Height (H) | [mm]  | 300   | 300   | 300   |
|                    | Depth (D)  | [mm]  | 840   | 840   | 840   |
| Packing            | Width (W)  | [mm]  | 900   | 900   | 900   |
|                    | Height (H) | [mm]  | 330   | 330   | 330   |
|                    | Depth (D)  | [mm]  | 900   | 900   | 900   |
| Net weight         |            | [kg]  | 27    | 27,5  | 30    |
| Gross weight       |            | [kg]  | 33    | 33,5  | 35    |
| <b>Panel</b>       |            |       |       |       |       |
| Net dimensions     | Width (W)  | [mm]  | 950   | 950   | 950   |
|                    | Height (H) | [mm]  | 45    | 45    | 45    |
|                    | Depth (D)  | [mm]  | 950   | 950   | 950   |
| Packing            | Width (W)  | [mm]  | 1035  | 1035  | 1035  |
|                    | Height (H) | [mm]  | 90    | 90    | 90    |
|                    | Depth (D)  | [mm]  | 1035  | 1035  | 1035  |
| Net weight         |            | [kg]  | 6     | 6     | 6     |
| Gross weight       |            | [kg]  | 9     | 9     | 9     |

La presenza di accessori opzionali può comportare una variazione significativa dei pesi riportati in tabella.

## Functional spaces



| Size |      | 007.0       | 011.0       | 015.0       | 021.0   | 031.0   | 041.0   |
|------|------|-------------|-------------|-------------|---------|---------|---------|
| A    | [mm] | > 300       | > 300       | > 300       | > 300   | > 300   | > 300   |
| B    | [mm] | 2.800~2.300 | 2.800~2.300 | 2.800~2.300 | > 2.500 | > 2.500 | > 2.500 |
| C    | [mm] | 600         | 600         | 600         | 880     | 880     | 880     |

## Specifications

Supply and installation of water terminal units for indoor installation, "cassette" type, with self-contained control system built-in. It consists of a high efficiency copper/aluminium exchange coil with a finned heating element fitted with a spindle and equipped with an hydrophilic coating, unit structure realised in electrogalvanized steel sheet and coated with insulating material, standard condensate discharge pump built-in installed. Standard infrared remote control to manage the unit remotely through a receiver placed in the air supply and return ceiling. Electrical panel inside the unit with a complete accessibility from below for an easy maintenance. Ambient primary air set up through a pre-sheared off hole. Set up for air introduction in adjacent rooms through specific pre-sheared off holes placed on the unit sides. High efficiency radial fan with standard DC Brushless motor with airflow control minute by minute according to the requested heating load. Air supply and return ceiling at 360° in self-extinguishing ABS equipped with motorised fins and with a washable renewable synthetic class G2 filter, easily accessible.

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