Installation instructions for the TBXZ-5-42 pipework package GOLD SD 04-120/GOLD CX 100/120 SILVER C SD 04-120/SILVER C CX 35-120

1. General

The pipework package is used for circulating a mixture of water and glycol between two interconnected heat recovery coils in a closed system.

Parts shown in the basic circuit diagram below are included in the supply. The pipework package, pump and expansion vessel are supplied as separate units. Installation of the piping is not included.

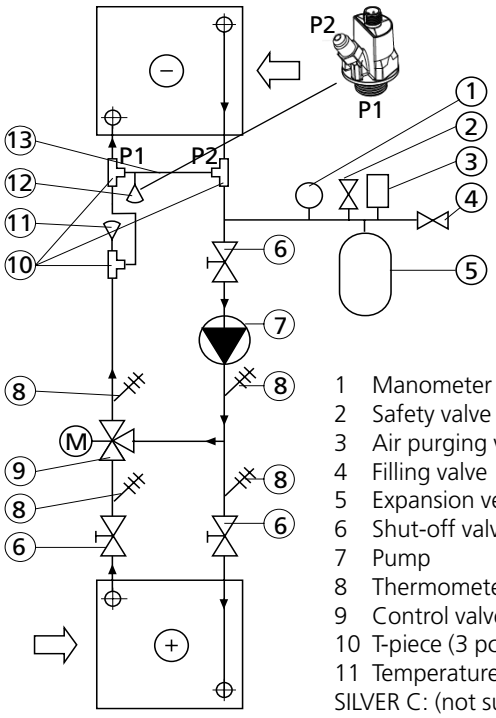
GOLD:

The control box is included in the supply from Swegon; see separate instructions.

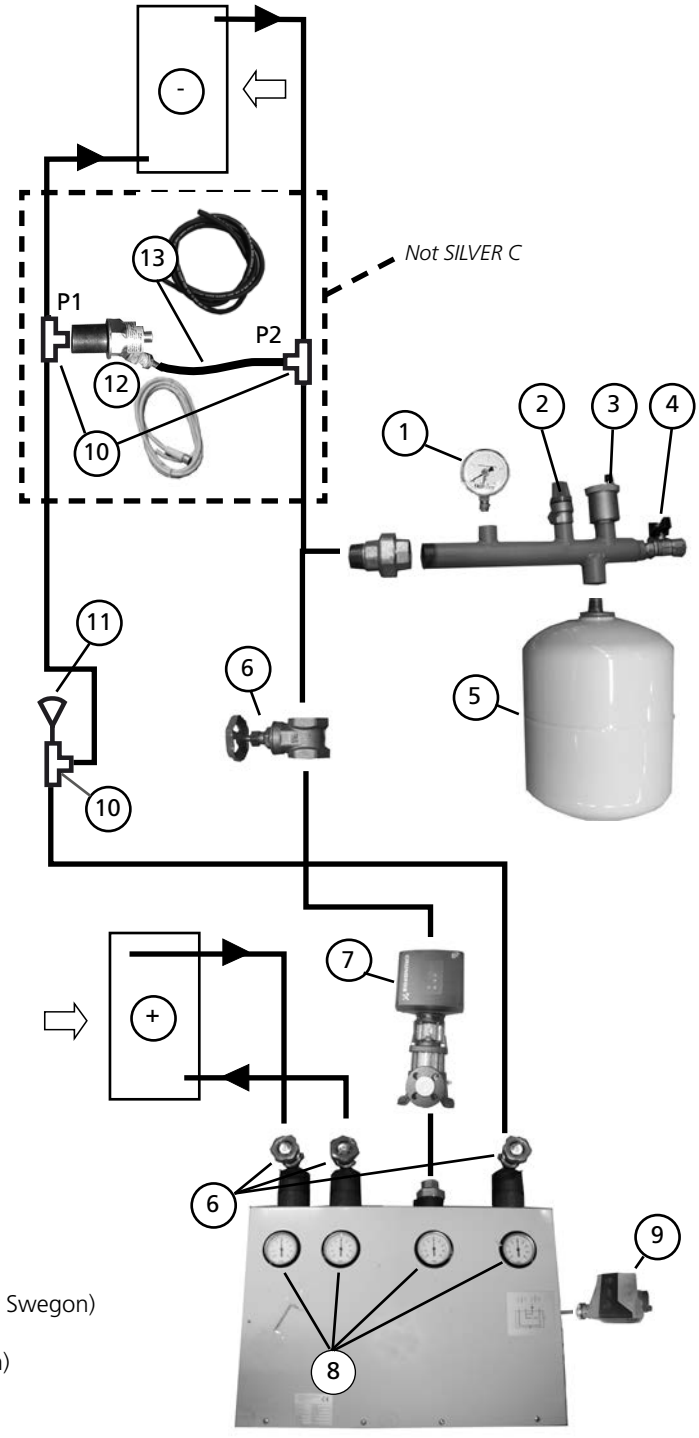
SILVER C:

The control box and temperature sensor are not included in the supply from Swegon. Supplied by the controls supplier. Insertion-type temperature sensors are recommended.

Basic circuit diagram



1 Manometer
2 Safety valve
3 Air purging valve
4 Filling valve
5 Expansion vessel
6 Shut-off valve
7 Pump
8 Thermometer
9 Control valve with actuator
10 T-piece (3 pcs., not supplied by Swegon)
11 Temperature sensor
SILVER C: (not supplied by Swegon)
12 Differential pressure sensor
(SILVER C: Not used)
13 Pressure tube



2. Installation

2.1 Pipework package.

1. Install the pipework package at a suitable location in the fan room.

Wall mounting
Remove the wall mounting bracket from the pipework package and secure it to a suitable place on a wall. In order to reach and unfasten the wall mounting bracket, you must first dismantle the front panel of the sheet-metal casing.

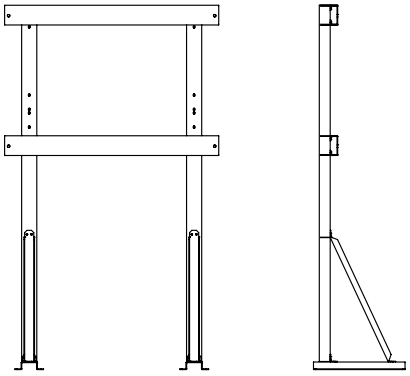
Floor mounting
A stand for floor mounting, TBXZ-2-43, is available as an accessory, see illustration to the right. Secure the stand to a suitable spot on the floor. In order to reach the pipework package and secure it to the stand with screws, you must first dismantle the front panel of the sheet-metal casing.

2. Mount the pipework package onto the wall mounting bracket/floor stand. Refit the front panel.

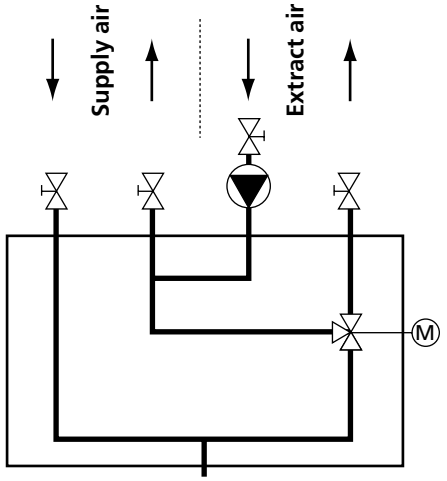
3. Give careful attention to the direction of flow. See the label on the front of the pipework package and the illustration to the right. Install the pump vertically for horizontal flow.

4. Install the pump and shut-off valve with pipework at a suitable location in the fan room.

5. Install the expansion vessel with accessories at a suitable location in the fan room.



The height from floor level to the thermometers on the installed pipework package is 1480 mm.



2.2 Control box (applies to the GOLD only)

The control box is designed for wall mounting should be installed at an appropriate location. Make sure that you position the safety isolating switch on the control unit 0.6 – 1.9 metres above floor level.

2.3 Installing the pipework

The pipework between the heat exchanger coils and the pipework package should be installed and insulated in a professional manner by a ventilation and sanitation fitter, according to customary trade standards and regulations.

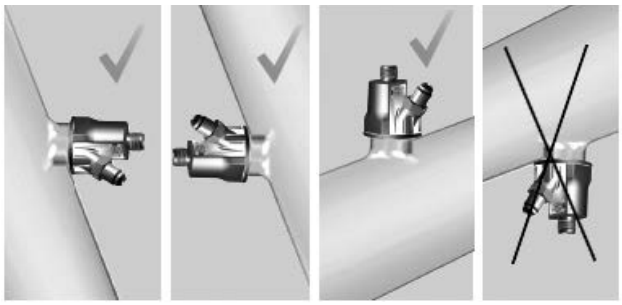
Connect the heat exchanger coils for counter-flow circulation according to the arrows on the coil connection branches. Incorrect connection may cause a reduction in efficiency. Make sure that the pipework package and the connecting pipework do not block inspection of the other functional sections.

Check that the deadweight of the pipework and/or the expansion forces will not be applied to liquid connections. Use an appropriate sealing/jointing compound for sealing the threads on the heat exchanger connections.

Connect the safety valve, appropriately using a hose, to a collecting vessel (not supplied by Swegon).

2.4 Differential pressure sensor

GOLD:
The supplied differential pressure sensor is fitted according to the basic circuit diagram on page 1. The sensor must be installed directly adjacent to the extract air coil's outlet or inlet. The sensor can be mounted towards the sides or upwards, but must not be mounted downwards, see the diagram. **NOTE!** The pressure tube must be mounted with a min. bending radius 50 mm.



Wire the temperature sensor according to separate installation instructions for the coil heat exchanger's control box.

SILVER C:
Differential pressure sensor not used.

2.5 Temperature sensor

GOLD:

The temperature sensor supplied is an insertion-type sensor. Secure it as shown in the basic circuit diagram on page 1. Make sure that the end of the sensor, where the sensing element is, is positioned against the liquid flow. The sensor is used as a limiting sensor to counteract freezing.

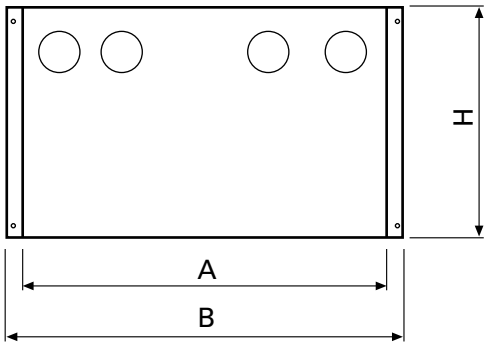
Wire the temperature sensor according to separate installation instructions for the coil heat exchanger's control box.

SILVER C:

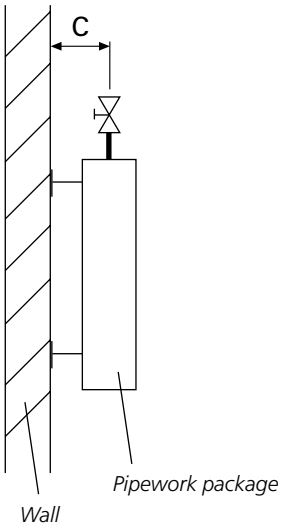
The temperature sensor is not supplied by Swegon. The temperature sensor should be supplied by the control equipment supplier and must be an insertion-type sensor.

3. Data

3.1 Dimensions and weights



GOLD/SILVER C Sizes	TBXZ-42 Size	A	B	H	Coil heat exch. connections	Pipework package connections	kg
04/05	05	601	669	415	DN15	DN15	14
07/08	08	601	669	415	DN15	DN15	14
11/12	12	601	669	415	DN25	DN25	16
14/20	20	601	669	415	DN25	DN32	19
25/30	30	772	839	530	DN32	DN32	25
35/40	40	772	839	530	DN 40	DN 40	26
50/60	60	772	839	530	DN 40	DN 40	27
70/80	80	772	839	530	DN 40	DN 40	27
100/120	120	937	1003	640	DN 50	DN 50	40



GOLD/SILVER C Sizes	TBXZ-42 Size	C
04 - 20	05, 08, 12, 20	130
25 - 80,	30, 40, 60, 80	128
100/120	120	141

3.2 Volume, expansion vessel

GOLD/SILVER C, sizes	TBXZ-42, size	Volume, expansion vessel
04 - 20	05, 08, 12, 20	8 litres
25 - 80	30, 40, 60, 80	18 litres
100/120	120	24 litres

4. Electrical connections

The electrical connections should be wired by a qualified electrician in accordance with local electrical safety regulations.

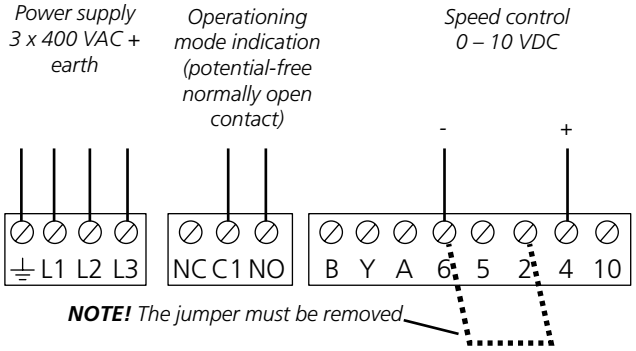
GOLD:

See separate instructions for control box, coil heat exchangers, part no. 809535.

SILVER C:

See below for details on how to connect the circulation pump and valve actuator.

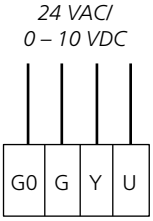
Circulation pump



Recommended fuse protection

SILVER C	Fuse
SD 04-80, CX 35-80	3-pin conn., 10 A, C characteristic
SD 100/120, CX 100/120	3-pin conn., 16 A, C characteristic

Valve actuator



5. Commissioning

1. The height of lift for the control valve is automatically calibrated the first time it is commissioned.

2. Check the pre-pressure by measuring the level difference from the centre of the expansion vessel to the highest point of the pipe connection system. Convert the level difference to bar (1 metre = 0.1 bar). Add another 0.3 bar (for the coil) to this figure to obtain the pre-pressure.

The safety valve must be sized to withstand at least 1 bar above the pre-pressure. The safety valve supplied is sized to withstand 2.5 bar.

Example:
Measured level difference of 2 metres = 0.2 bar
Pre-pressure = 0.2 bar + 0.3 bar (coil) = 0.5 bar
Min. permissible safety valve pressure = 0.5 bar + 1 bar = 1.5 bar
This figure is well below the max. limit of the safety valve supplied, which is 2.5 bar.

Equipped with the safety valve supplied, the pipe connection system will manage a level difference of 12 metres (= 1.2 bar).

If the level difference is more than 12 metres, you will either have to move the expansion vessel with accessories to a higher position or replace the safety valve. Since the expansion vessel manages max. 5 bar, a safety valve sized for a max permissible pressure of 5 bar must be used.

The expansion vessel is factory-rated for a pre-pressure of 0.5 bar, which also is the minimum limit. If the pre-pressure of the expansion vessel threatens to drop below 0.5 bar, fill more air through the nipple on the underside of the expansion vessel.

3. Preset the adjustable red pointer on the manometer, to the corrected pre-pressure in the expansion vessel.

4. Open the "cap" on the automatic air purging valve.

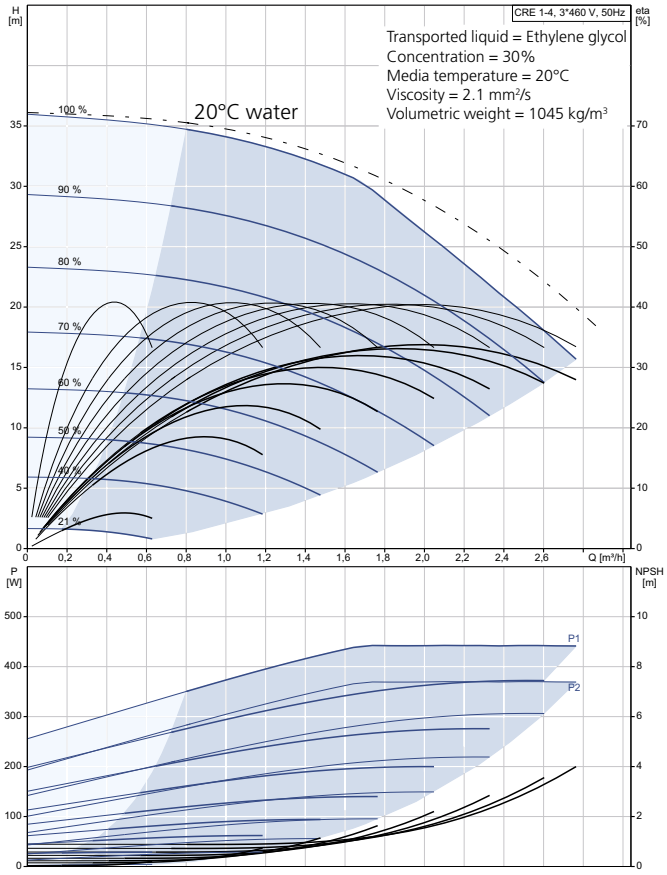
5. Fill the system with water (usually water mixed with glycol). Please note that if glycol is used, it must be meant for cooling medium systems, not motor vehicles. Fill the system slowly. Vent the liquid circuit at the air purging points as you fill it.

6. Adjust (fill / drain) the system so that the pressure in the system will conform to the corrected pre-pressure reading (see the red pointer on the manometer).

7. The system is now ready to be commissioned. Under normal operating conditions, the pressure in the system must not drop below the corrected pre-pressure preset on the manometer (see the red pointer on the manometer) or exceed the red mark.

6. Circulation pumps, wet motor

Sizing diagram
Grundfos CRE 1-4
For the GOLD/SILVER C SD, sizes 04-12



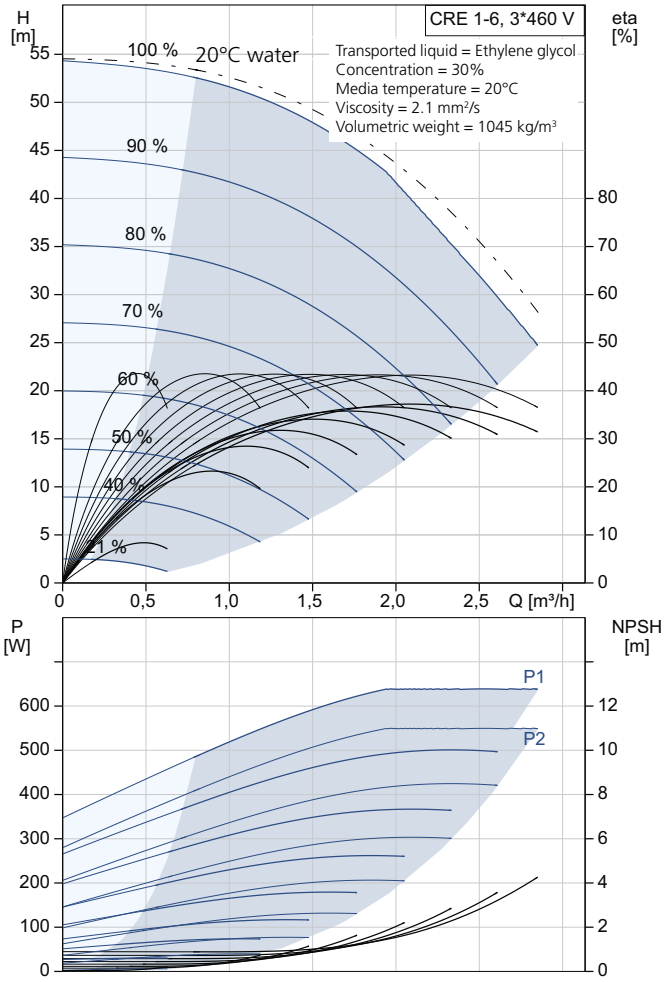
Electrical data

Frequency:	50 Hz
Rated voltage:	3 x 380-500 V
Capacity:	0.37 kW
Rated current:	1.05 – 1.00 A

Survey – Pump data

Temperature range, liquid:	-20...120°C
Max. permissible ambient temp.:	+50°C
Max. pressure at specified temp.:	25 bar/120°C 25 bar/-20°C
Flange standard:	DIN
Size of pipe connections:	DN25/DN32
Pressure stage:	PN16/PN25
Enclosure class:	IP55
Weight:	28 kg

Sizing diagram
Grundfos CRE 1-6
For the GOLD/SILVER C SD, sizes 14/20



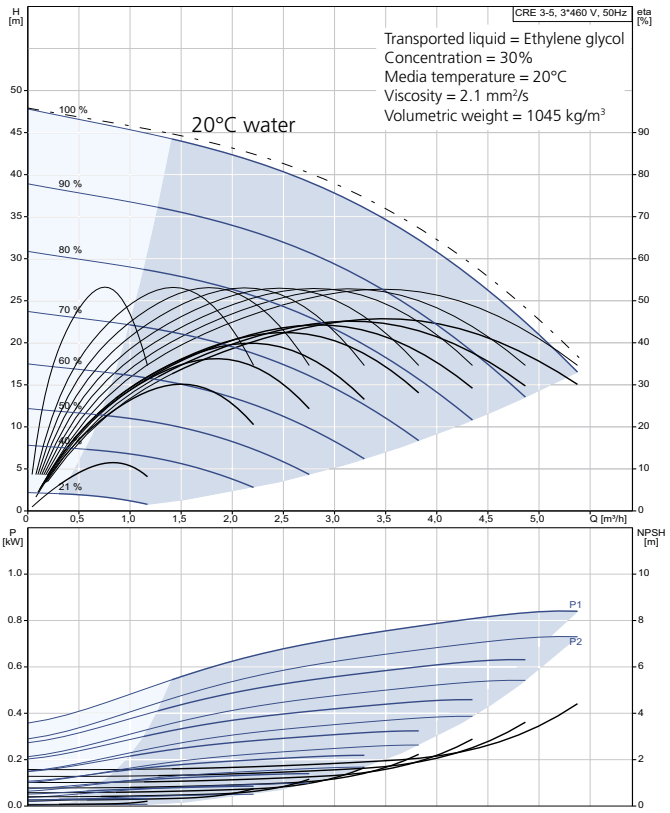
Electrical data

Frequency:	50/60 Hz
Rated voltage:	3 x 380-500 V
Capacity:	0.55 kW
Rated current:	1.35 – 1.30 A

Survey – Pump data

Temperature range, liquid:	-20...120°C
Max. permissible ambient temp.:	+50°C
Max. pressure at specified temp.:	16 bar/120°C 16 bar/-20°C
Flange standard:	OVAL
Size of pipe connections:	Rp 1
Stage:	6
Enclosure class:	IP55
Weight:	27 kg

Sizing diagram Grundfos CRE 3-5 For the GOLD/SILVER C SD, sizes 25/30



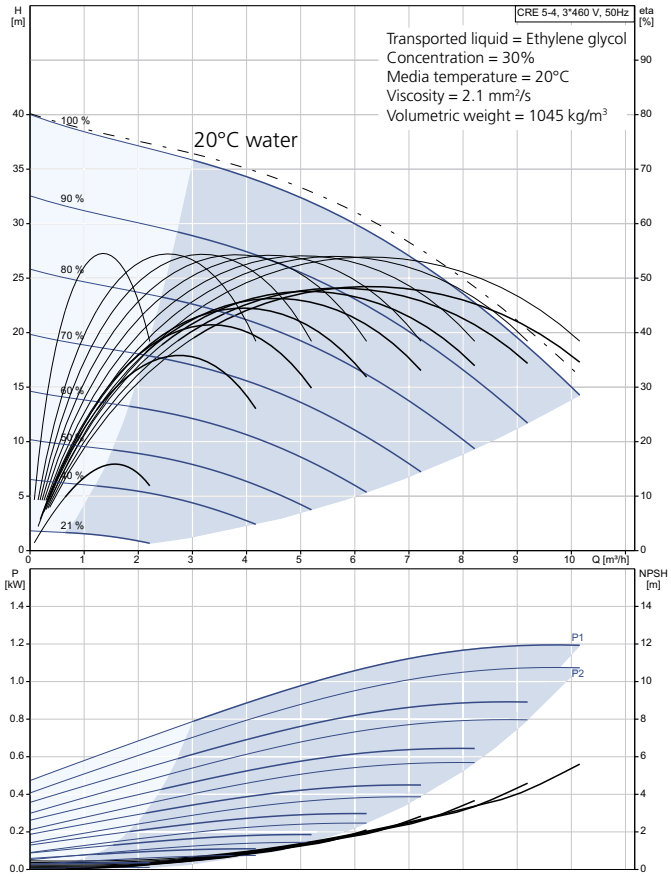
Electrical data

Frequency:	50 Hz
Rated voltage:	3 x 380-500 V
Capacity:	0.75 kW
Rated current:	1.70 – 1.60 A

Survey – Pump data

Temperature range, liquid:	-20...120°C
Max. permissible ambient temp.:	+50°C
Max. pressure at specified temp.:	25 bar/120°C 25 bar/-20°C
Flange standard:	DIN
Size of pipe connections:	DN25/DN32
Pressure stage:	PN16/PN25
Enclosure class:	IP55
Weight:	29 kg

Sizing diagram Grundfos CRE 5-4 For the GOLD/SILVER C SD, sizes 35/40 SILVER C CX, sizes 35/40



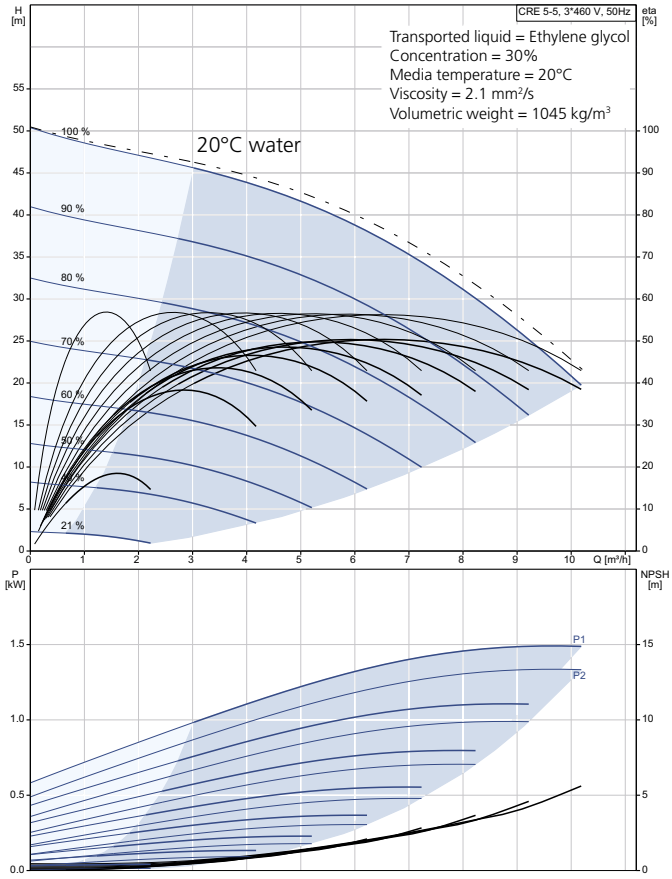
Electrical data

Frequency:	50 Hz
Rated voltage:	3 x 380-500 V
Capacity:	1.1 kW
Rated current:	2.20 – 1.90 A

Survey – Pump data

Temperature range, liquid:	-20...120°C
Max. permissible ambient temp.:	+50°C
Max. pressure at specified temp.:	25 bar/120°C 25 bar/-20°C
Flange standard:	DIN
Size of pipe connections:	DN25/DN32
Pressure stage:	PN16/PN25
Enclosure class:	IP55
Weight:	38 kg

Sizing diagram
Grundfos CRE 5-5
For the GOLD/SILVER C SD, sizes 50/60
SILVER C CX, sizes 50/60



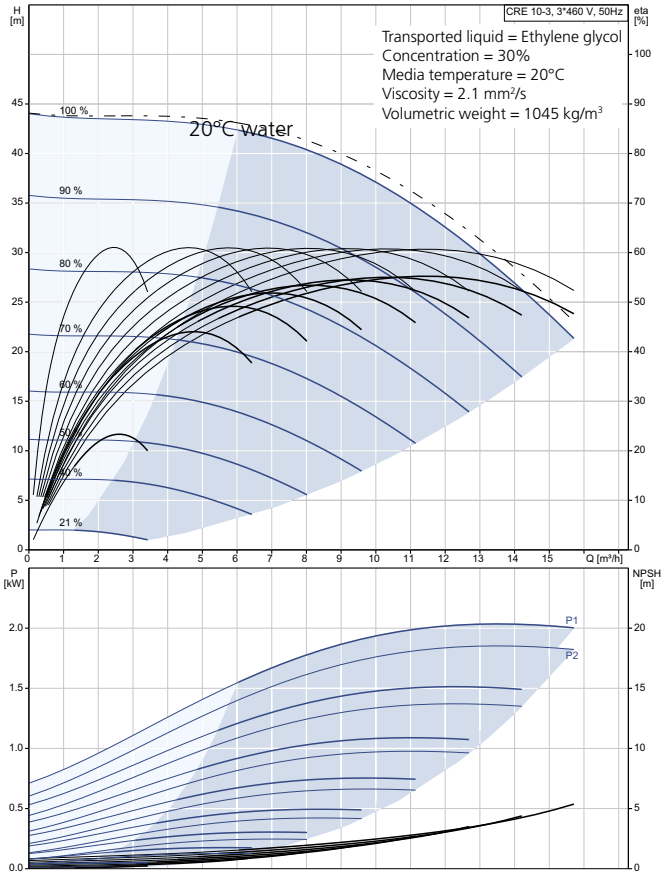
Electrical data

Frequency:	50 Hz
Rated voltage:	3 x 380-500 V
Capacity:	1.5 kW
Rated current:	2.90 – 2.40 A

Survey – Pump data

Temperature range, liquid:	-20...120°C
Max. permissible ambient temp.:	+50°C
Max. pressure at specified temp.:	25 bar/120°C 25 bar/-20°C
Flange standard:	DIN
Size of pipe connections:	DN25/DN32
Pressure stage:	PN16/PN25
Enclosure class:	IP55
Weight:	41 kg

Sizing diagram
Grundfos CRE 10-3
For the GOLD/SILVER C SD, sizes 70/80
GOLD/SILVER C CX, sizes 70/80



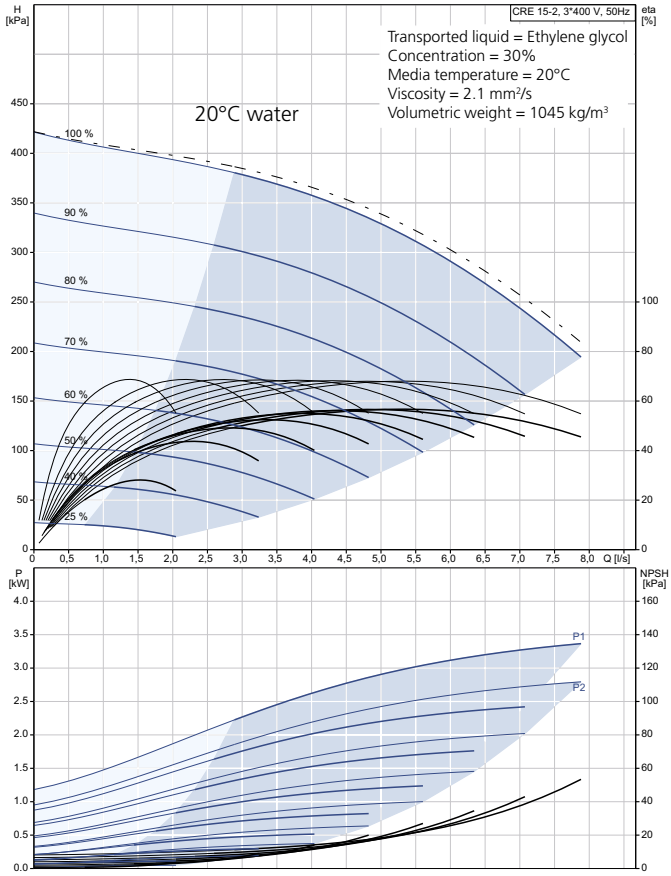
Electrical data

Frequency:	50 Hz
Rated voltage:	3 x 380-500 V
Capacity:	2.2 kW
Rated current:	4.15 – 3.40 A

Survey – Pump data

Temperature range, liquid:	-20...120°C
Max. permissible ambient temp.:	+50°C
Max. pressure at specified temp.:	16 bar/120°C 16 bar/-20°C
Flange standard:	DIN
Size of pipe connections:	DN40
Pressure stage:	PN16
Enclosure class:	IP55
Weight:	45 kg

Sizing diagram
Grundfos CRE 15-2
For the GOLD/SILVER C SD, sizes 100/120
GOLD/SILVER C CX, sizes 100/120



Electrical data

Frequency:	50 Hz
Rated voltage:	3 x 380-480 V
Capacity:	3 kW
Rated current:	6.20 – 5.00 A

Survey – Pump data

Temperature range, liquid:	-20...120°C
Max. permissible ambient temp.:	+40°C
Max. pressure at specified temp.:	16 bar/120°C 16 bar/-20°C
Flange standard:	DIN
Size of pipe connections:	DN50
Pressure stage:	PN16
Enclosure class:	IP55
Weight:	64 kg