COOL DX version G, COOL DX Top version G, COOLING UNIT
Installation and Maintenance Instructions
Sizes 005-080

COOL DX

COOL DX Top

The document was originally written in Swedish.

The document can also be downloaded in Finnish, French, Dutch, Italian, Norwegian, Portuguese, Spanish and German from www.swegon.com

CONTENTS

1. GENERAL SURVEY

1.1. General

Cooling unit COOL DX/COOL DX Top

Cooling unit COOL DX/COOL DX Top is a complete cooling unit for comfort cooling in air handling systems. All the components are fully wired, have fully connected refrigeration circuits and are collected inside a common casing. The outer skin is made of galvanized sheet steel, pre-painted in Swegon's grey metallic colour (closest comparable: RAL, 9007). The inner skin material is aluminium-zinc coated sheet steel and Magnelis. Environmental class C4. Panel thickness of 52 mm with intervening insulation consisting of mineral wool.

The cooling coil and condenser are fabricated of copper tubes and profiled aluminium fins; the casing is made of galvanized sheet steel.

The cooing units are tested prior to delivery.

The COOL DX is available in 19 capacity variants spread on nine physical sizes, designed for use with the size 008 - 080 GOLD air handling units.

The COOL DX Top is available in 3 capacity variants spread on three physical sizes, designed for use with the size 004 - 012 GOLD air handling units.

Compressors

The compressor in the COOL DX/COOL DX Top cooling unit is of scroll compressor type and/or rotary compressors.

Completely direct-acting system

The COOL DX/COOL DX Top has a completely direct-acting system. It has an evaporation coil for direct-evaporating refrigerant on the cold side and a condenser coil on the hot side.

Refrigerant

The COOL DX/COOL DX Top has double refrigerant circuits separated from each other. Type R410A refrigerant is used. The refrigerant circuits are charged on the delivery. At present, this refrigerant has no known influence on the ozone layer.

Refrigerant volume

See section 10. General technical data.

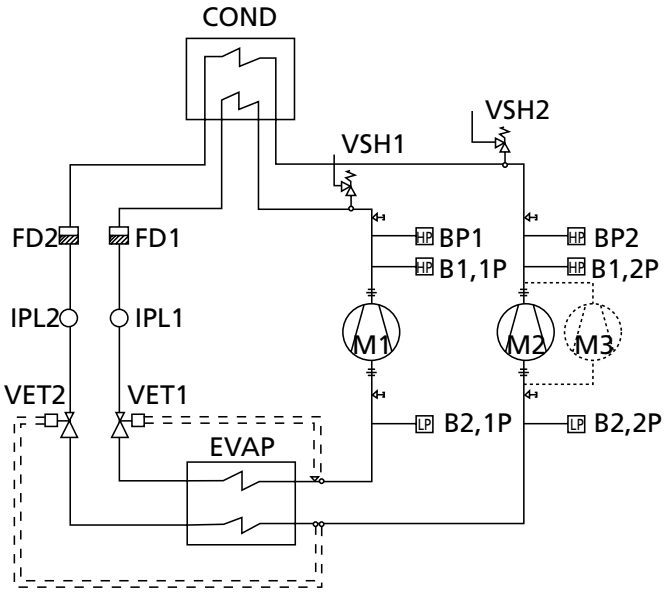
Installation check/Obligation to report/ Leakage tracing interval

Must be carried out according to the F-Gas Regulation EU/2024/573 and associated local legislation. See also Section 3.1.

ISO 9001 Quality Management and ISO 14001 Environmental Management Systems

We at Swegon are deeply involved in the maintenance of our certified quality management system defined by ISO 9001 and our certified environmental management system defined by ISO 14001.

1.2 Basic function diagram



COND	Condenser
VSH1	Overpressure protect. (not COOL DX Top)
VSH2	Overpressure protect. (not COOL DX Top)
B1,1P	High pressure sensor
B2,1P	Low pressure sensor
B1,2P	High pressure sensor
B2,2P	Low pressure sensor
BP1	Alarm pressure switch for high pressure
BP2	Alarm pressure switch for high pressure
M1	Compressor
M2	Compressor
M3	Compressor (size 080 cap.var. 3 only)
EVAP	Evaporator
VET1	Expansion valve with thermostat
VET2	Expansion valve with thermostat
IPL1	Sight glass, refrigerant circuit 1
IPL2	Sight glass, refrigerant circuit 2
FD1	Filter drier
FD2	Filter drier

Operation

There are two refrigerant circuits in the cooling unit. The circuits are separate from one another.

Each circuit is equipped with a finned condenser, a finned evaporator and a compressor.

The two compressors have different capacity, which enables control in 3 steps.

The gaseous refrigerant is compressed by compressors M1 and M2 and from there moves on to condenser COND, where it is chilled by the extract air and is condensed to liquid form.

The pressure and the temperature decrease as the refrigerant in fluid form flows through expansion valves VET1 and VET2.

From the expansion valves the refrigerant moves on to evaporator EVAP, where the refrigerant evaporates and chills the outdoor air.

From evaporator EVAP, the evaporated refrigerant is conveyed further to the suction side of the compressors where it is again compressed.

Control

The cooling capacity is regulated in three binary steps by having one or two compressors in operation.

The cooling compressors are controlled from the GOLD unit via relays on the IQlogic⁺ module mounted in the COOL DX/COOL DX Top.

Step 1: When cooling is needed, Compressor M1 is started.

Step 2: If more cooling is needed, Compressor M2 starts and at the same time Compressor M1 stops. An adjustable time delay (a step duration of 300 seconds) ensures that Compressor M2 will not start until Compressor M1 is operating at full capacity.

Step 3: If even more cooling is needed, Compressor M1 is restarted and is run at the same time as Compressor M2. This third cooling step is also delayed by a preset time delay setting. In addition, the restarting time (300 seconds) for Compressor M1 shall have expired.

If less cooling is needed and the compressors are subsequently switched out step-by-step, there will be no delay between compressors. The restarting time (300 seconds) for Compressor M1 shall have expired to enable it to start again in Step 1 after it has been operated in Step 3.

If any compressor is stopped, the restarting time must expire before a restart can take place. The restart time is calculated from one start to the next start.

Low/high pressure sensors B1/B2 measure the pressure conditions in the system and transmit readings to the control system to ensure that these are within stipulated limits.

If the pressure in the cooling circuit becomes too low, or if the pressure in the condenser circuit becomes too high, the compressor is stopped and the text PRESSURE LIMITING is displayed alternately in the hand-held micro terminal of the GOLD air handling unit.

When the restart time has expired, the compressors will try to restart.

If the pressure continues to increase, the high-pressure switches BP1 and BP2 will trip and stop the cooling unit COOL DX.

Alarms 22:0 and 22:3 are on shown on the GOLD air handling unit's hand-held terminal.

The pressure switches BP1 and BP2 can be manually reset by pressing a button on top of the pressure switch.

2 SAFETY INSTRUCTIONS

2.1 Safety switch/mains power switch

The safety isolating switch is positioned on the inspection side of the cooling unit.

The safety isolating switch should not be used for starting or stopping of the cooling unit.

To ensure that the COOL DX is switched off: stop the air handling unit or briefly switch off the cooling unit via the hand-held micro terminal. See the GOLD Operation and Maintenance Instructions.

On completing the above, the safety isolating switch can be used for switching off the power supply. The safety switch must be switched off in order to make it possible to open the inspection door (not COOL DX Top).

Caution!

Always switch off the safety switch whenever you service the unit, unless otherwise stated in relevant instructions

2.2 Risks

⚠ Warning

Always isolate the power supply before starting any work in the refrigerant circuit or the electrical system.

⚠ Warning

Under no circumstances may the refrigerant circuits be opened by unauthorised personnel, since they contain gas under high pressure.

Risk areas where exposure to refrigerant could occur

Practically the whole area inside the cooling unit is a risk area. For particulars on how to deal with leakage, see Section 7.2. Type R 410A refrigerant is used.

Warning

COOL DX
The inspection doors on the cooling unit must not be opened while the air handling unit is in operation. The door could fly open and cause personal injury. (The safety isolating switch on the COOL DX must be switched off before it will be possible to open the inspection door).

COOL DX Top
The inspection doors on the cooling unit can be opened while the GOLD unit is in operation (not pressurized).

2.3 Electrical equipment

The electrical equipment of the cooling unit is housed in a separate cubicle located behind one of the inspection doors.

2.4 Authorisation

Only qualified and authorised electricians shall be permitted to install electrical wiring in the unit.

Only an accredited refrigeration company shall be permitted to modify or repair the refrigeration circuits.

Other modifications in the unit should only be made by service personnel trained by Swegon.

2.5 Identification decals

The unit identification decal indicating type designation, serial number, refrigerant volume, etc. is affixed to the door of the cooling unit.

Type designation: **COOL DX-aa-G-c-d-e-f-g**

GOLD size

Capacity variant

Type designation: **COOLDXTOP-aa-b-c-d-1**

GOLD size

Version G

Capacity variant

3. INSTALLATION

3.1 Legal requirements

This product relies on the fluorinated gas R410A as the refrigerant. It is known as a greenhouse gas because it contributes to the global warming if released to the atmosphere.

The European Union is committed to reducing emissions of such gases and Regulation EU/2024/573 (F-Gas) must be complied with.

Ensure that you are fully aware of your local regulations and that they are complied with.

The global warming potential (GWP) of greenhouse gases is expressed in equivalent mass of CO_2. R410A has a GWP of 2088 as per IPCC AR4.

The F-Gas regulation requires that all steps are taken to eliminate the release of greenhouse gases to the atmosphere. In accordance with Regulation EU/2024/573, this product is designed and manufactured so that all parts containing the refrigerant gas are made tight by welding, brazing or a similar permanent connection including capped valves and capped service ports that allow proper repair or disposal. The product is leak tested in the factory in accordance with EN 378-2.

If the installation in which this product shall be installed will have a total quantity of green house gas with a total GWP equivalent to 14 tonnes then it must be reported to the relevant authority. This is the responsibility of the operator and must be done prior to the installation.

Regulation EU/2024/573 requires that this product is leak tested periodically. Details are given in the table below. The product shall be leak tested after installation and prior to start-up.

Leak testing and any other service work on the refrigerant circuit must be carried out by an authorised person with the necessary training and certification in accordance with Regulation EU/2024/573.

Note that the Regulations governing refrigerants and their use are subject to change and it is important to follow the latest editions.

COOL DX

Air handling unit	Circuit	Refrigerant (kg)	CO_2e
COOL DX 008-1/2	1 2	1.2 1.3	2.51 2.71
COOL DX 012-1/2	1 2	1.5 1.7	3.13 3.55
COOL DX 020-1	1 2	1.2 1.5	2.51 3.13
COOL DX 020-2	1 2	2.5 2.8	5.22 5.85
COOL DX 020-3	1 2	2.1 2.4	4.38 5.01
COOL DX 030-1	1 2	1.8 2.0	3.76 4.18
COOL DX 030-2	1 2	3.0 3.2	6.26 6.68
COOL DX 030-3	1 2	2.9 3.3	6.06 6.89
COOL DX 040-1	1 2	3.3 4.0	6.89 8.35
COOL DX 040-2	1 2	3.3 4.5	6.89 9.40
COOL DX 040-3	1 2	5.5 4.5	11.48 9.40
COOL DX 060-1	1 2	4.5 5.5	9.40 11.48
COOL DX 060-2	1 2	5.0 5.2	10.44 10.86
COOL DX 060-3	1 2	6.0 7.5	12.53 15.66
COOL DX 080-1	1 2	6.6 7.3	13.78 15.24
COOL DX 080-2	1 2	6.5 9.0	13.57 18.79
COOL DX 080-3	1 2	9.0 11.5	18.79 24.01

Leakage warning system not installed

COOL DX Top

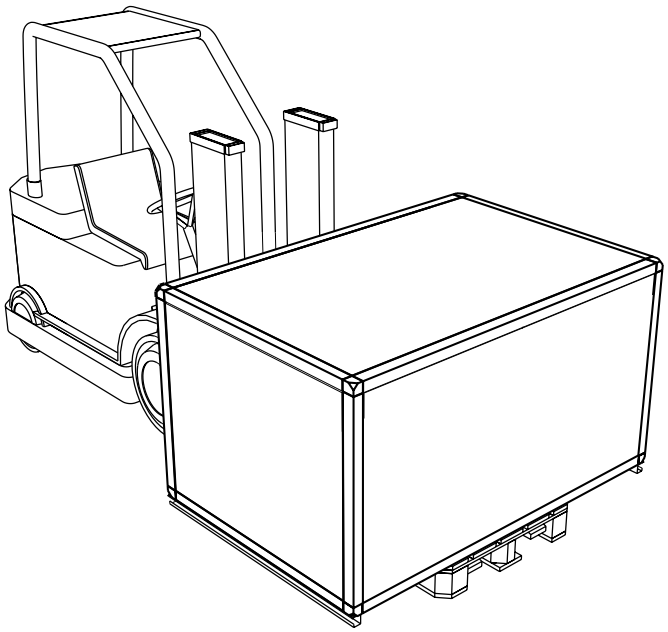
Air handling unit	Circuit	Refrigerant (kg)	CO_2e
COOL DX Top 005-1	1 2	0.95 1.00	1.98 2.09
COOL DX Top 008-1	1 2	1.15 1.20	2.40 2.51
COOL DX Top 012-1	1 2	1.60 1.70	3.34 3.55

Leakage warning system not installed

3.2 Unloading/transport within the building site

Important!
All transport should be carried out with the cooling unit in the horizontal position.

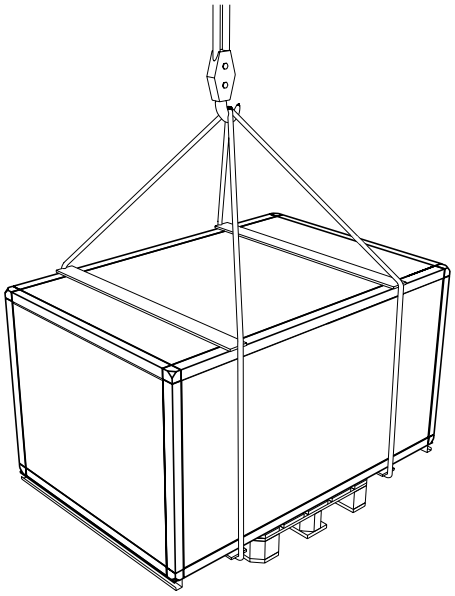
3.2.1 Lifting using a forklift truck



Warning
The unit has a high centre of gravity! Carefully lift the cooling unit!

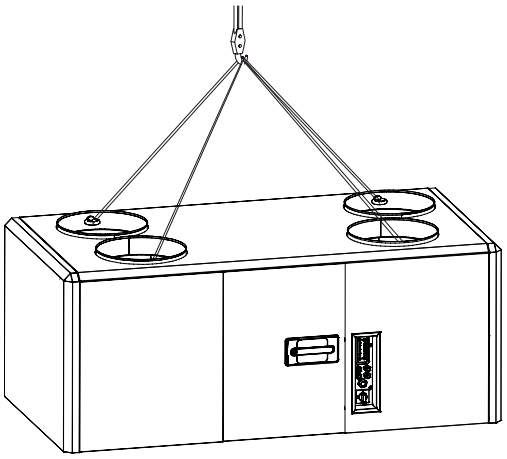
3.2.2 Lifting using a crane

Position two line spreaders at the upper side of the cooling unit and two under the underside of the pallet or under the cooling unit and lift in the pallet (or in the base frame of the cooling unit if the unit is not delivered on a pallet. See sketch



3.2.3 Lifting eye bolts (not COOL DX Top)

The COOL DX Top can be lifted using the four lifting eye bolts located in the cooling unit's duct connections (see illustration). Remove the lifting eye bolts after you've lifted the cooling unit into position.



3.3 Arrangement

Place the COOL DX/COOL DX Top at a suitable location.

Allow an open space around the safety isolating switch/ mains power switch for servicing in accordance with applicable electrical safety regulations.

The unit can be positioned with its backside against a wall; however it is advisable to position it at a distance of approx. 1 metre away from a wall to make it easier to service the rear compressor.

3.4 Docking configurations COOL DX

(For COOL DX Top, see Section 3.5)

Locate the COOL DX cooling unit against the outdoor air and exhaust air side of the GOLD unit. The COOL DX can also be installed as a stand-alone unit. If you order a stand-alone COOL DX, select the variant with end connection panels.

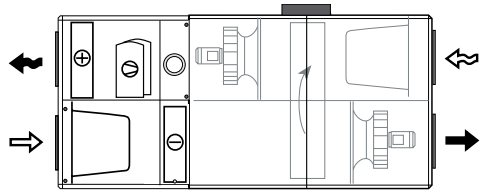
The dimensions and capacities of the COOL DX are designed for connection to size 008-080 GOLD air handling units.

For a list of the cooling unit sizes and capacities that match a given size of GOLD unit, see Section 10. General Technical Data.

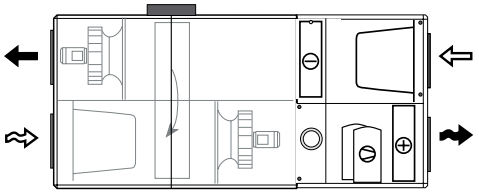
COOL DX 008

Common casing/Split version

Right hand version

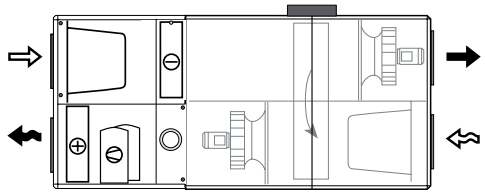


Left hand version



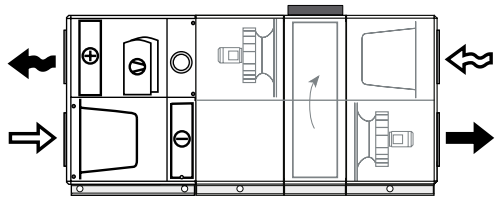
Split version only

Right hand version

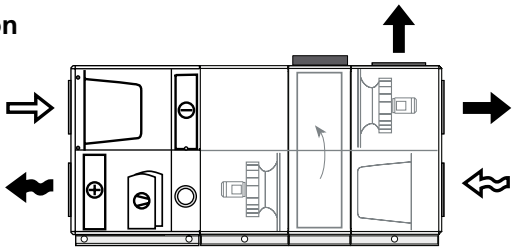


COOL DX 012-080

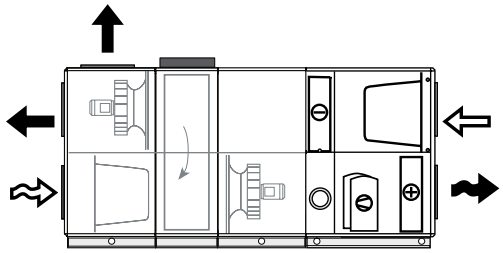
Right hand version



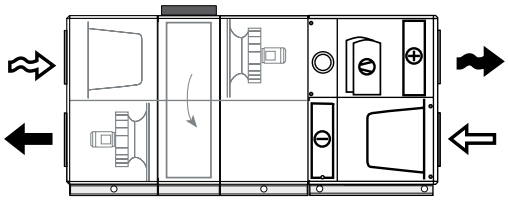
Cooling coil, lower level/GOLD supply air fan, right-hand, bottom



Cooling coil, upper level/GOLD supply air fan, right-hand, top



Cooling coil, upper level/GOLD supply air fan, left-hand, top



Cooling coil, lower level/GOLD supply air fan, left-hand, bottom

Outdoor air Supply air Extract air Exhaust air

3.4.1 Height adjustment to the height of the GOLD/water trap

COOL DX, size 008

In combination with the GOLD RX 008
The GOLD air handling unit can be mounted on base beams, a stand or some other form of foundation. Base beams and stands are available as accessories.

Appropriate base beams and stands are also available as accessories for the COOL DX. The base beams/stands are matched to one another in terms of height. The stands also provide space for accommodating a possible water trap in the lower level (right-hand unit version).

In combination with the GOLD PX 008
The air handling unit is supplied with base beams. A set of legs (accesssory) can be mounted in the base beams.

Appropriate base beams and set of legs are also available as accessories for the COOL DX. The base beams/sets of legs are matched to one another in terms of height. The sets of legs also provide space for accommodating a possible water trap in the lower level (right-hand unit version).

COOL DX, sizes 012-080

The GOLD air handling unit and the COOL DX cooling unit are supplied with a 100 mm high base beam.

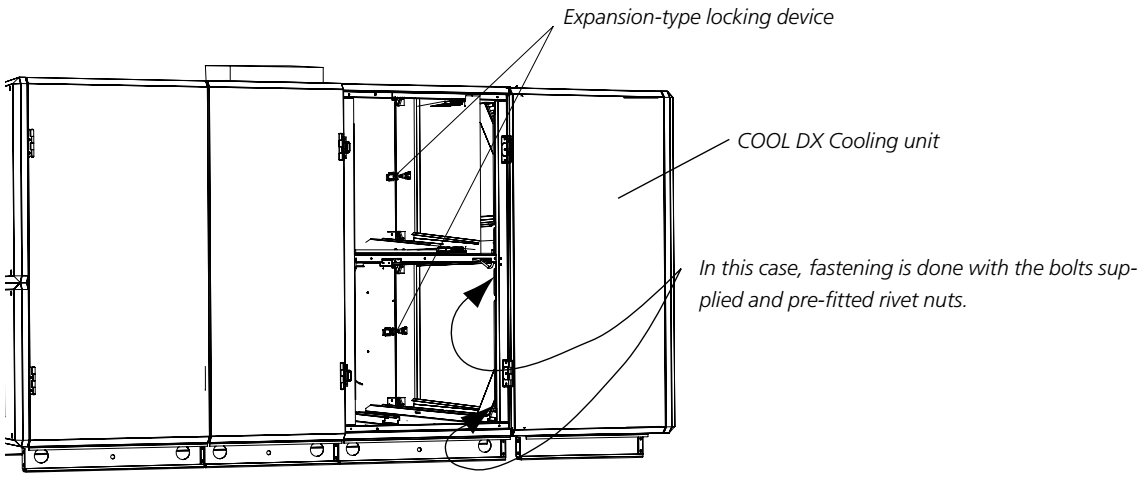
Applicable to a cooling coil in the lower level:
If a water trap (accessory) is fitted, the GOLD air handling unit and the cooling unit must be raised at least 50 mm to provide space for the water trap. Adjustable support feet (accessories) can be appropriately fitted to the base beams for this purpose.

3.4.2 Connection to the GOLD unit, COOL DX, sizes 008-012

The sealing strips are factory-fitted to the unit.

Connect the cooling unit directly to the air handling unit by means of the screws supplied + pre-fitted rivet nuts and 2 expansion locking devices. See figure.

Secure the cooling unit to the air handling unit from the air handling unit's inspection door. It may be necessary to remove the fan assembly or filter cassettes in order to reach the expansion-type locking device.



3.4.3 Connection to the GOLD unit, COOL DX, sizes 020-040

The sealing strips are factory-fitted to the unit.

Dock the cooling unit directly to the GOLD air handling unit by means of the supplied bolts (4 bolts) + pre-fitted rivet nuts.

Alternative 1

If there is sufficient space for working from the rear of the air handling unit, the simplest way to secure the cooling unit at the rear edge of the GOLD unit is by externally jointing it, see Illustration 1.

Secure the cooling unit to the front edge of the GOLD air handling unit from within the unit via the inspection cover, see Illustration 3.

Alternative 2

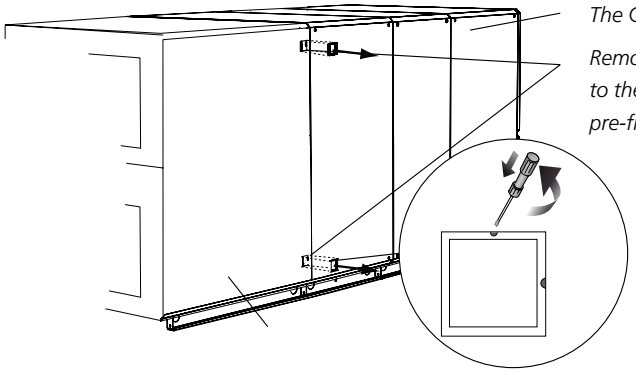
The cooling unit is secured to the back edge of the GOLD unit within the casing, see Illustration 2. This requires removal of the fan assembly and filter cassettes.

Secure the cooling unit to the front edge of the GOLD air handling unit within the unit via the inspection cover, see Illustration 3.

To secure accessories to the rear edge

Alternative 1, External installation

Illustration 1

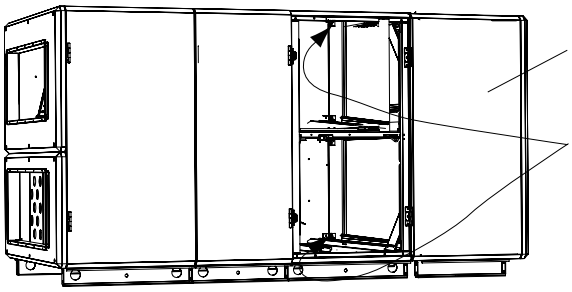


The GOLD unit, rear

Remove the cover and insulation. Secure the cooling unit to the GOLD air handling unit with the bolts supplied and pre-fitted rivet nuts. Refit the cover and the insulation.

Alternative 2, Internal installation

Illustration 2

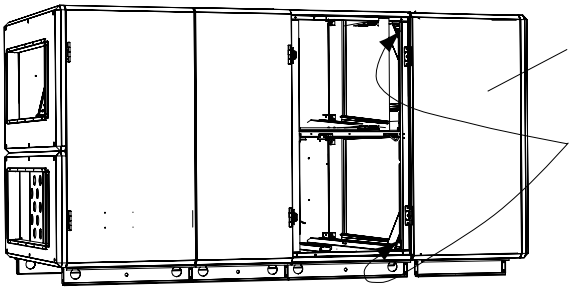


COOL DX Cooling unit

In this case, fastening is done with the bolts supplied and pre-fitted rivet nuts in predrilled holes.

To secure accessories to the front edge

Illustration 3



COOL DX Cooling unit

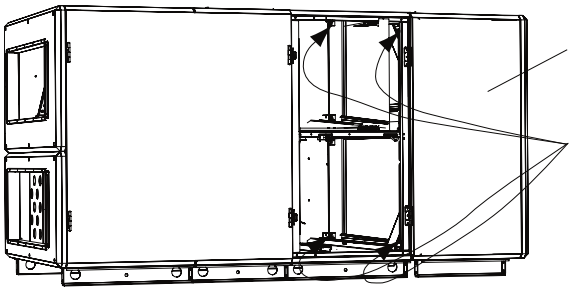
In this case, fastening is done with the bolts supplied and pre-fitted rivet nuts in predrilled holes.

3.4.4 Connection to GOLD units, COOL DX, sizes 060-080

The sealing strips are factory-fitted to the unit.

Dock the cooling unit directly to the GOLD air handling unit by means of the supplied bolts (4 bolts) + pre-fitted rivet nuts, see illustration.

You may need to remove the filter cassettes.



COOL DX Cooling unit

In this case, fastening is done with the bolts supplied and pre-fitted rivet nuts in predrilled holes.

3.4.5 Stand-alone COOL DX

The variant with end connection panel should be selected.

Connect the ducts between the GOLD unit and the COOL DX unit, see Section 3.3 Installation principle COOL DX.

It may be necessary to lengthen the communication cable and the tubes (not included in the supply) depending on the distance between the GOLD unit and the COOL DX unit.

3.4.6 Supply air filter

The supply air filter in the GOLD unit should be dismantled and moved to the COOL DX unit.

The hoses for measuring air pressure drop across the supply air filter are supplied in the COOL DX and are connected inside the COOL DX at the factory. These hoses must however be connected to supply air filter pressure drop measurement hoses inside the GOLD unit.

IN.B.! Do not disconnect tubes from the pressure sensor. Disconnection of the tubes could damage the nipples on the pressure sensor.

N.B.! There are other variants besides those shown in the sketch. See Section 3.3 Docking Configurations COOL DX.

Run and secure the tubes in a safe manner with bundling straps, for instance.

Sizes 008-060:
Run hoses from the COOL DX unit to the space for the GOLD unit's extract air fan.

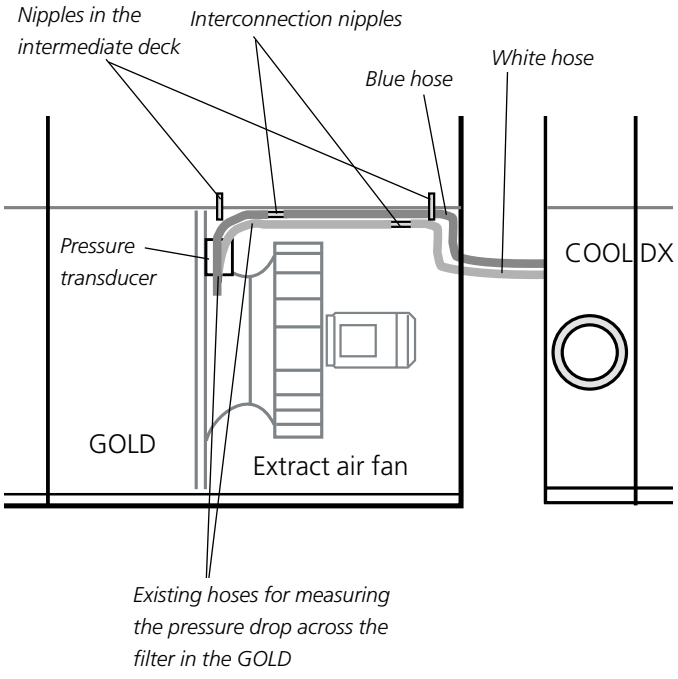
Disconnect the existing tubes for filter pressure drop measurement from the nipples in the GOLD unit's intermediate deck. To prevent leakage, seal the nipples in the intermediate deck in an appropriate manner.

Use the connector nipples supplied to interconnect the blue tube from the COOL DX unit with the blue tube from the GOLD unit's pressure sensor. Interconnect the white tubes in the same way. See illustration.

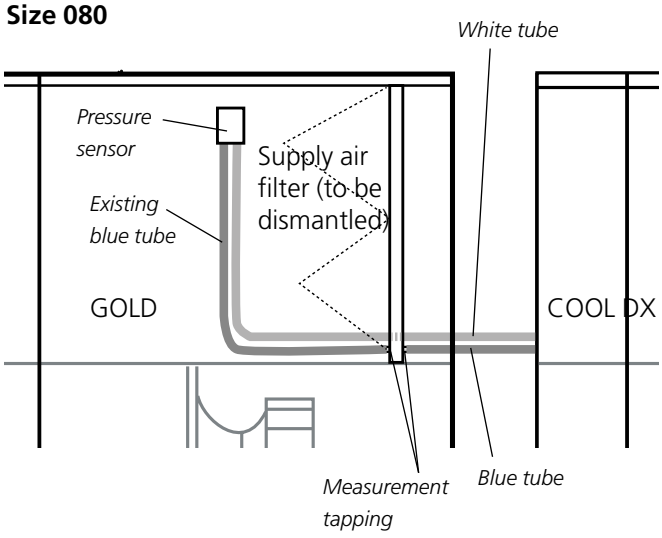
Size 080:
Run the tubes from the COOL DX unit to the space for the GOLD unit's supply air filter.

Interconnect the blue tube from the COOL DX unit with the blue tube from the GOLD unit's pressure sensor, by connecting the blue tube from the COOL DX unit to the nipple mounted under the GOLD unit's filter guide rail. Connect the white tube directly to the pressure sensor.

Sizes 008-060



Size 080



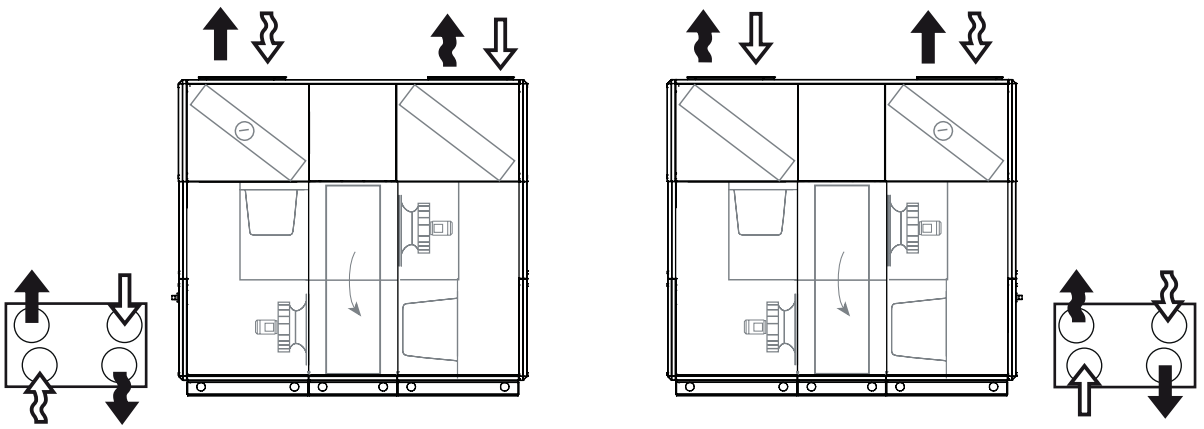
3.5 COOL DX Top
Basic installation diagram

Locate the COOL DX Top cooling unit on top of the air handling unit, see illustration.

The dimensions and capacity of the COOL DX Top cooling unit are designed for connection to the size 004-012 GOLD RX Top air handling units.

For a list of the capacity sizes of cooling units matched to respective air handling unit size, see Section 10. General technical data.

COOL DX Top



Outdoor air Supply air Extract air Exhaust air

3.5.1 Installation on GOLD air handling unit

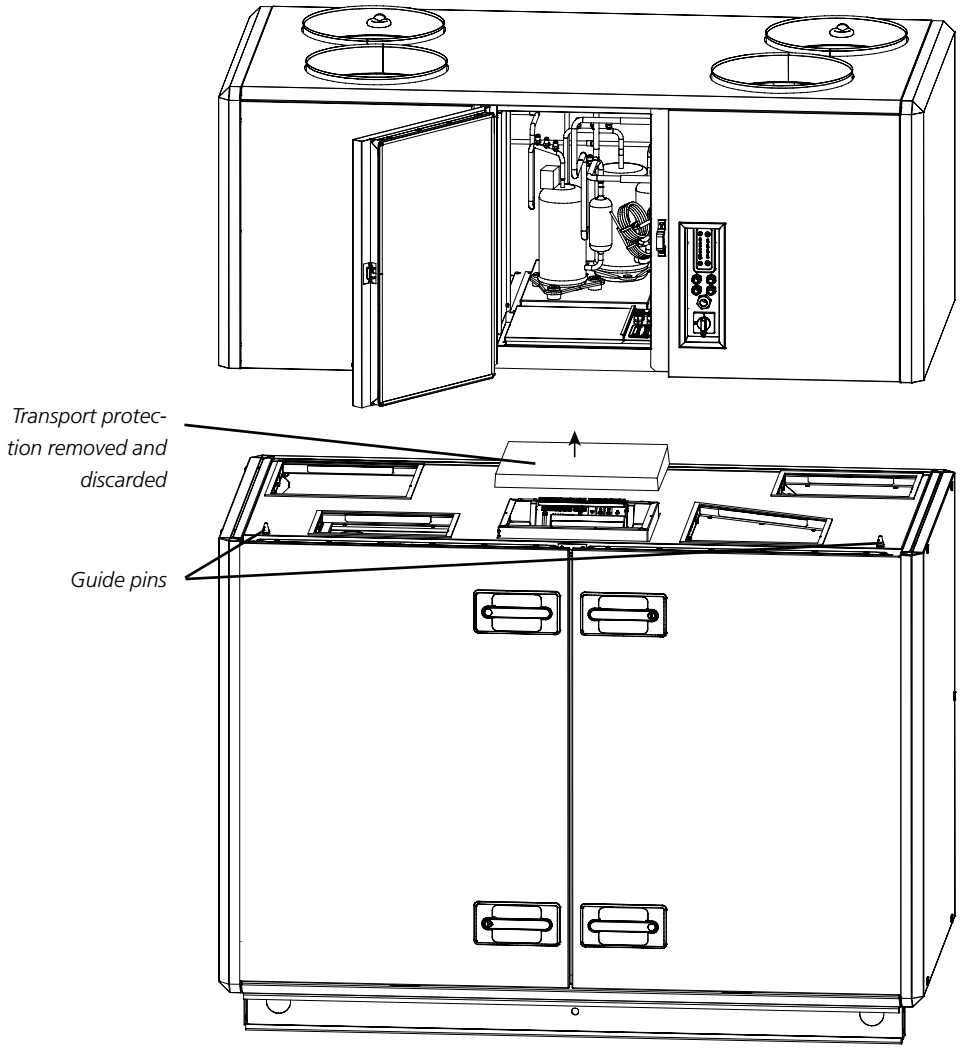
The sealing strips are factory-fitted to the unit.

Transport protection on top of GOLD air handling unit's control equipment is removed prior to installation, see illustration.

COOL DX Top is placed on top of the GOLD air handling unit as per section 3.4 Basic Installation Diagram COOL DX Top.

Use lifting eyes bolts in the duct connections when lifting, see section 3.2.3 Lifting eye bolts. After lifting is complete, remove the lifting eye bolts.

There are guide pins on top of the GOLD air handling unit to facilitate correct placement during installation, see illustration.



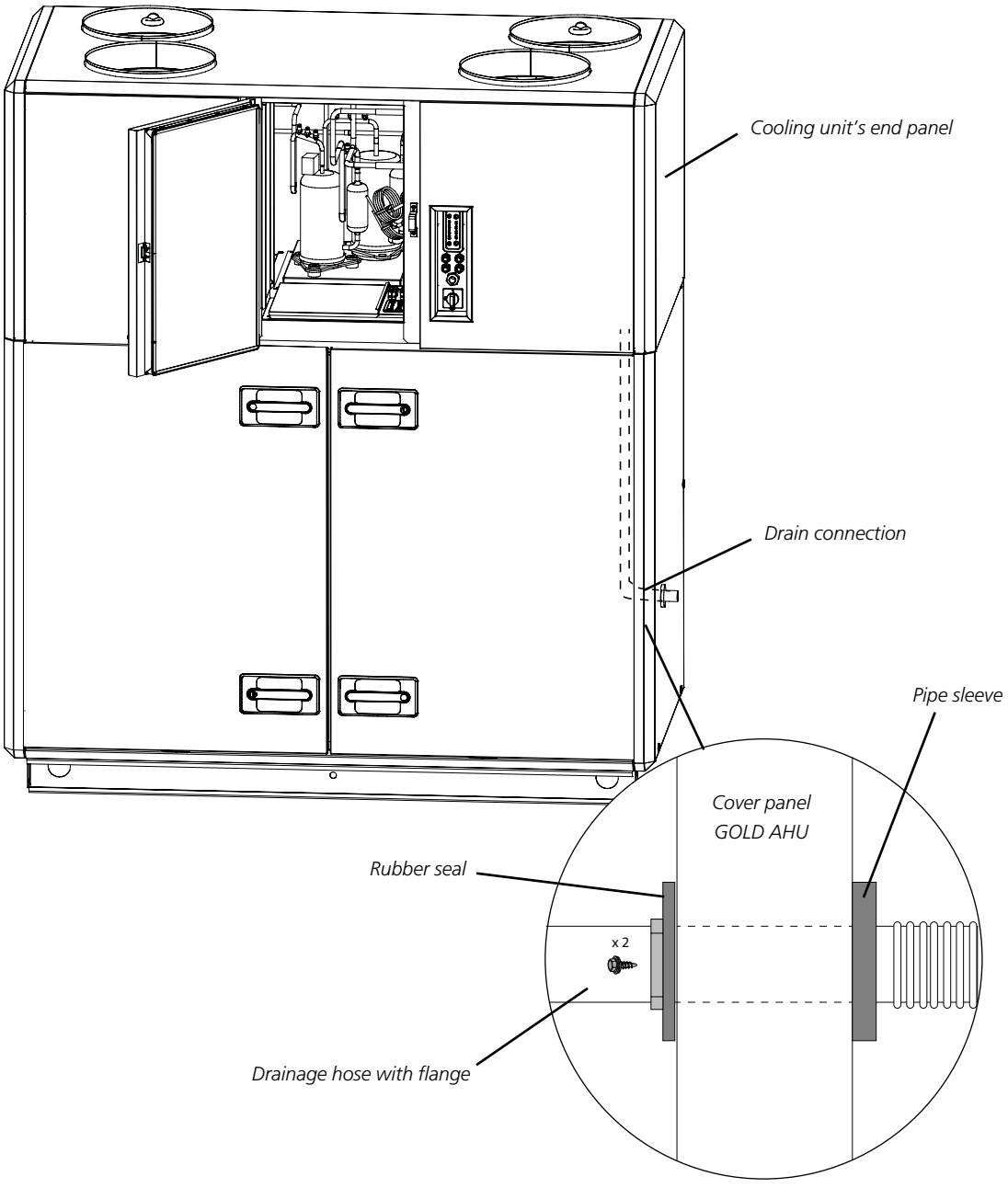
3.5.2 Drainage/Water trap

Drainage hose and hose clips are supplied packed inside the cooling unit's inspection door.

Pipe sleeves, pipe seals and self-tapping screws are supplied packed inside one of the air handling unit's fan/filter parts.

For access, dismantle the cooling unit's end panel and open the cooling unit's inspection hatch. Connect the drainage hose to the drainage pipe on the air cooler's drainage tray and secure with a hose clip. Now route and connect the drainage hose to the drain connection on the end panel of the GOLD air handling unit, see illustration.

The drainage must be connected to a drain via the water trap, see the separate instruction for the water trap TBXZ-1-40.



4 ELECTRICAL CONNECTIONS

The cross sectional dimension of the power supply cable should take into consideration the ambient temperature and the way the cable is run.

Important
Electrical installations must be carried out by an authorised electrician.

4.1 Power connection

4.1.1 COOL DX

Incoming power supply

Sizes 008-020, all capacity variants and size 030, cap. variant 1:

5-wire system, 400 V ±10%.

Size 030, capacity variants 2 and 3, and sizes 040-080, all capacity variants:

4-wire system, 400 V ±10%.

Sizes 008-040, 060-1/2

Open the inspection door in front of the electrical equipment cubicle.

Open the inspection door of the electrical equipment cubicle.

Pull the incoming cable for power supply through pre-drilled hole in the cover panel of the cooling unit (supplied cable gland is mounted), through the space for compressors and through the cable gland of the electrical equipment cubicle. Locate the cable in a safe way. Make sure that the cable does not touch the compressors or other components, since surfaces could be hot or vibrate.

Connect the incoming power supply to the safety switch situated in the electrical equipment cubicle, see the illustration. The wiring terminal for incoming earth is situated right next to the safety switch.

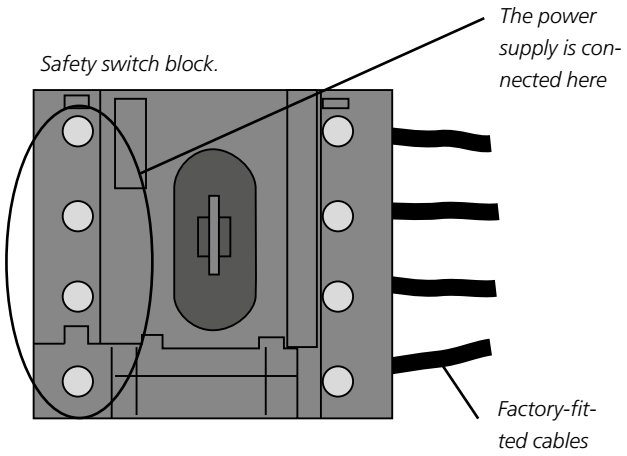
See section 10, Technical data.

Sizes 060-3, 080

Remove the cover on the external safety switch.

Connect the incoming power supply to the safety switch, see the illustration. The wiring terminal for incoming earth is situated right next to the safety switch.

See section 10, Technical data.



4.1.2 COOL DX Top

Route the cable safely. Make sure that the cables do not touch the compressors or other components, since surfaces could be hot or vibrate.

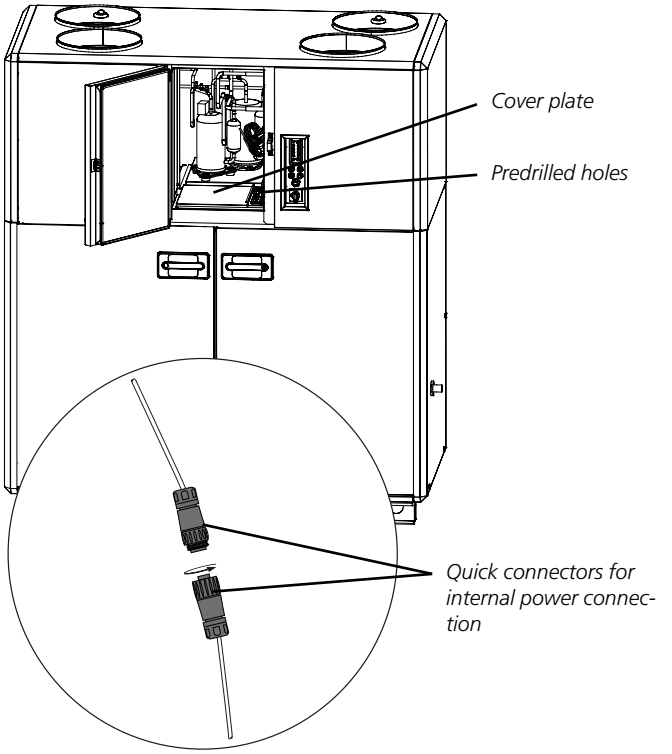
Internal supply connection
Open the cooling unit's inspection door.

Dismantle the cover plate inside the inspection door, see the illustration.

Once the cover plate has been dismantled the cable for the power connection is visible in the space for the GOLD air handling unit's control equipment.

The cable is equipped with quick connector and rubber grommet.

The quick connector with cable is guided through the predrilled hole up to the middle of the cooling unit. Rubber grommet (on the cable) is fitted in the hole. The cable is connected to the equivalent quick connector from the cooling unit's control equipment.

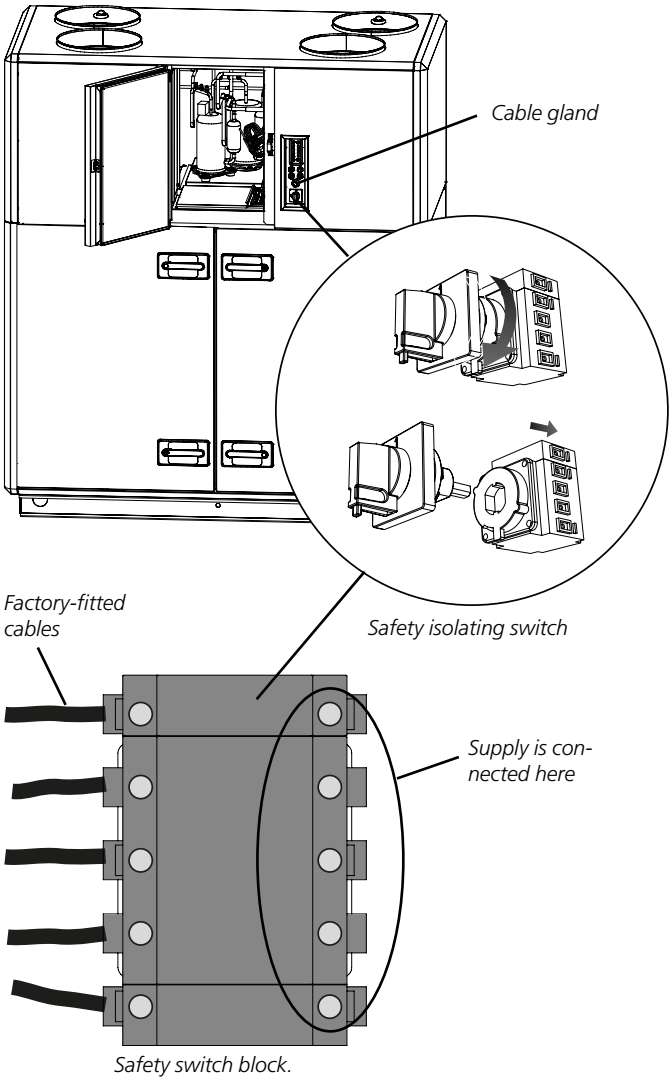


Incoming power supply
Sizes 005-012, all capacity variants:
5-core system, 400 V ±10%.

Pull the incoming cable for power supply to COOL DX Top through the cable gland in the cooling unit's cover plate.

Connect the incoming power supply to the safety switch, see the illustration. Dismantle the safety isolating switch to facilitate connection.

See section 10, Technical data.



4.2 To connect the communication cable

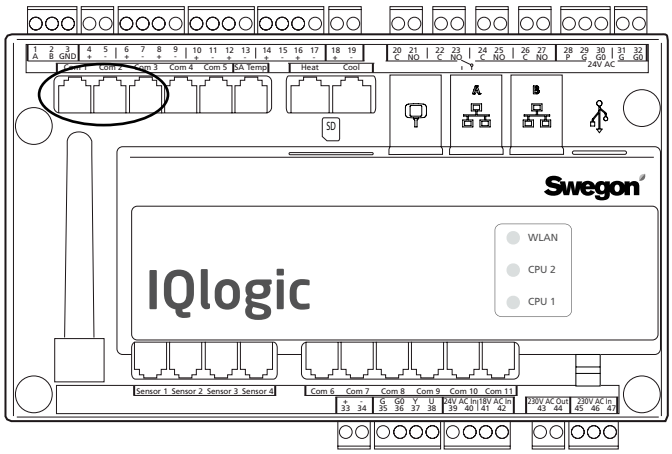
Only a communication cable is required for the transmission of information between the COOL DX and the GOLD control systems. All in-operation status and other information are readily available for viewing in the hand-held terminal of the GOLD air handling unit.

4.2.1 COOL DX

The communication cable is wired to the electric equipment of the COOL DX cooling unit and run to the outside of the COOL DX unit, where it is rolled up and secured. Lay the communications cable in a safe manner from the COOL DX to the GOLD air handling unit.

GOLD installation

The communication cable should be connected to any of the bus ports marked COM1, COM2 or COM3 on the control unit, see encircled area on illustration.



Use one of the holes in the oblong rubber-coated cable gland on the rear side of the connection hood of the electric cubicle or on the inspection side of the air handling unit, through which to feed the cable into controller.

Move part of the cable gland to the side in order to be able to pull the communication cable through. Connect the cable to a bus port on control unit. Adjust the length of the cable inside the electric cubicle and adjust the cable in the cable gland. Refit the cable gland in its correct position again.

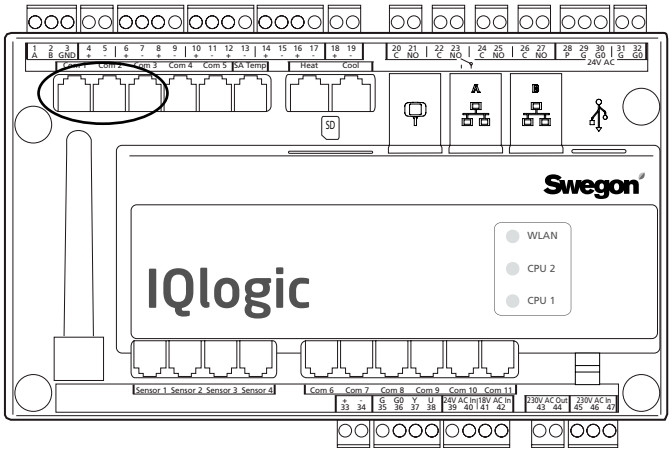
Temperature sensors are installed as standard for the outdoor compensation, cooling stop blocking, boosted cooling, summer night cooling, COOL DX comfort control and pump control functions for heating coils.

4.2.2 COOL DX Top

The communication cable is connected to the COOL DX Top's electric equipment and is lying rolled up in the COOL DX Top. Run and extend the communication cable, in a safe manner, into the electric equipment cubicle of the GOLD unit through the opening in the top of the GOLD unit.

GOLD installation

The communication cable should be connected to any of the bus ports marked COM1, COM2 or COM3 on the control unit, see encircled area on illustration.



The temperature sensors for the outdoor compensation, cooling step blocking, boosted cooling, summer night cooling, COOL DX Comfort control and air heater pump control functions are mounted as standard.

5 COMMISSIONING

5.1 Preparations

5.1.1 Before initial start up

- The power supply must be connected.
- The communication cable to the GOLD air handling unit should be connected to one of the ports marked Internal COM1, COM2 or COM3.
- Check that all the safety switches and motor protection switches are switched on.
- Check that the function selector switch on the IQlogic+ module is set as described in Section 13. Commissioning Record.

The control system of the GOLD has a pre-programmed factory setting, which makes the cooling unit ready to use after basic settings have been entered. The COOL DX function should be activated. The function for COOL DX shall be activated, see the GOLD Function Manual, Installation for particulars on how to handle the menus in the hand-held micro terminal.

5.1.2 Starting up

- Check that light-emitting diode L2 on the IQlogic+ module steadily shines (24 V supply), and that light-emitting diode L1 is flashing (communication).
- Check on the Gold air handling unit's hand terminal during cooling that the COOL DX function is set to economy or comfort (not COOL DX Top).
- Enter the manual test menu via the hand-held terminal of the GOLD unit, see the GOLD Function Manual, Installation Maintenance. Navigate to COOL DX.
- Check: Start one compressor at a time. If any compressor doesn't start, an alarm will be initiated. The direction of rotation in the COOL DX compressors is important, see Section 5.1.4 Phase sequence guard.
- Set the compressors to Off.
- Go back to the main menu.
- COOL DX is now ready for operation and will start when there is a cooling load.

5.1.3 Pressure Sensor

The cooling unit has two in-service pressure switches in each cooling circuit, one for low pressure and one for high pressure.

If the operating pressure, in any of the circuits, exceeds or drops below a limit value, the relevant compressor is switched off. The text COOL DX PRESSURE LIMITING is displayed in the hand-held terminal until the pressure comes within the limit values again.

The compressor is permitted to restart when the restart delay has expired.

Pressure sensor settings:

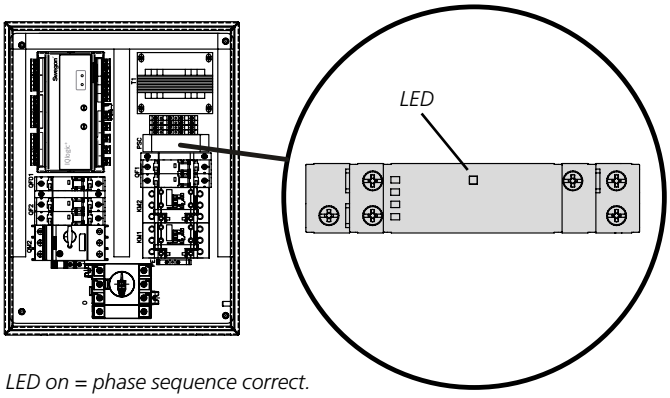
Value	Setting range	Factory setting
Compressors		
Low pressure limitation	1-10 bar	4,0 bar
Low pressure alarm limit	1-10 bar	3.0 bar
High pressure limitation	25-50 bar	39,0 bar
High pressure alarm limit	25-50 bar	40,5 bar

5.1.4 Phase-sequence monitor

The COOL DX/COOL DX Top is equipped with phase sequence guard for compressors (not applicable to sizes 005 and 008, capacity variant 1).

The phase sequence monitor for capacity variant 2 is installed in the electrical equipment cubicle, see illustration.

Alarm no. 21:15 is initiated if the phase sequence is faulty.



LED on = phase sequence correct.
LED flashes = fault indication.

5.1.5 Remedial action if wrong phase sequence

> ***Warning***
>
> May only be carried out by an authorised electrician or trained service personnel.

- Stop COOL DX/COOL DX Top by selecting inactive on the COOL DX menu.
- Set the safety switch to position OFF on the COOL DX/COOL DX Top.
- Isolate the power supply to the COOL DX/COOL DX Top.

> ***Important***
>
> Check that the incoming power supply to the COOL DX/COOL DX Top is isolated by measuring.

- Transpose the two phase wires on the incoming power supply cable in order to obtain correct phase sequence (direction of rotation).
- Reconnect on power supply to the COOL DX/COOL DX Top.
- Set the safety isolating switch to the ON position.
- Start the COOL DX/COOL DX Top as described in Section 5.1.2 Starting up.

5.1.6 Recommended settings

The settings shown below are recommended under normal operating conditions.

The settings can be entered in the hand-held micro terminal of the GOLD unit under Functions/Cooling, see also the GOLD Function Manual, Installation.

COOL DX		Outdoor air, limits, °C [2]		
Size	**Capacity variant**	**Step 1**	**Step 2**	**Step 3**
005 (Top)	1	19	23	28
005 (Top)	2	19	24	28
008	1	19	24	29
008	2	20	26	32
012	1	20	25	30
012	2	20	26	32
020	1	19	22	27
020	2	20	25	30
020	3	20	26	32
030	1	19	22	27
030	2	20	25	30
030	3	20	26	32
040	1	19	22	27
040	2	19	24	29
040	3	20	26	31
060	1	19	23	27
060	2	19	24	29
060	3	20	26	32
080	1	19	22	26
080	2	19	25	30
080	3	20	26	32

[1] The airflows are calculated for an extract air temperature of 26°C and a RH of 50%.

[2] The outdoor air limits are calculated for a RH of 50% and nominal airflow.

6 ALARMS

For a description of the alarms, see the GOLD Manual for Alarms and Information Messages.

7 MAINTENANCE

7.1 Cleaning

Use a vacuum cleaner and a damp cloth to clean the interior of the cooling unit, if needed.

Inspect the unit at least twice a year.

7.2 Handling refrigerant

Type R 410A refrigerant is used.

The refrigerant circuit is already charged when the unit is delivered.

⚠ Warning

Under no circumstances shall unauthorised personnel be permitted to open the refrigerant circuits, as long as gas under high pressure is present in the circuits. Only the technicians of an accredited refrigeration company shall be permitted to modify or repair the refrigerant circuit s.

The COOL DX (not the COOL DX Top) is equipped with a safety valve to prevent excessively high pressure in the system if high temperatures caused by a fire, for example.

Important

Contact Swegon Service if you detect any refrigerant leakage.

⚠ Warning

If refrigerant is exposed to fire or in some other way becomes superheated in the atmosphere, poisonous gases can form.

Important

Charging with refrigerant must be carried out according to the recommendations of the refrigerant producer.

Avoid direct skin contact with refrigerant and lubricant.

Use close-fitting protective eyeglasses, protective gloves and protective work clothing that cover the whole body.

Provide adequate ventilation/local extraction.

In the event of eye contact

Flush the eyes using an emergency eye-wash shower (alternating with lukewarm water) for 20 minutes. Seek a doctor.

In the event of skin contact

Thoroughly wash with soap and lukewarm water.

In the event of frostbite

Seek a doctor.

7.3 Leakage tracing interval/ Obligation to report

Must be carried out according to the F-Gas Regulation EU/2024/573 and associated local legislation.

7.4 Servicing

Only service personnel trained by Swegon shall be permitted to modify the cooling unit.

8 TROUBLESHOOTING AND LEAKAGE TRACING

8.1 Troubleshooting Schedule

Symptom	Possible cause	Remedial measure
Compressor is not operating	The voltage has been isolated. Incorrect phase sequence. The compressor safety circuit has been broken. Defective compressor.	Check the operating/safety switch. Check the condition of the fuses. Check and change the phase sequence. Check, reset if needed. Replace the compressor.
Too low cooling capacity	The voltage has been isolated. Incorrect phase sequence. No airflow or too low airflow across the evaporator. Thermostat/control equipment incorrectly set or defective.	Check the operating/safety switch. Check the condition of the fuses. . Check and change the phase sequence. Check the airflow. Adjust the setting or replace faulty components.
The compressor switches off because the low pressure sensor has measured an excessively low value.	Inadequate refrigerant. No airflow or too low airflow across the evaporator. The expansion valve is defective. The low sensor switch is defective.	The cooling system is leaking. Tighten the leak and charge with refrigerant. Check the airflow. Check, replace. Check, replace.
The compressor switches off because the high pressure sensor has measured an excessively high value.	No airflow or too low airflow across the condensor. Excessively high exhaust air temperature The high pressure sensor is defective.	Check the airflow. Check the exhaust air temperature. Check. replace.
Significant freezing on the evaporator.	The expansion valve is defective or incorrectly set. No airflow or too low airflow across the evaporator.	Check. Replace or adjust setting Check the airflow.

8.2 Leakage Tracing

As a preventive measure, the cooling system should be inspected at least once per year to detect possible leakage. The leakage tracing inspection must be documented.

If the cooling system is leaking, this will become apparent firstly by impaired cooling performance, or if the leakage is substantial, when the cooling unit does not operate at all.

If you suspect that the cooling system is leaking refrigerant, check the level of refrigerant in the sight glass located on the liquid line of the cooling unit.

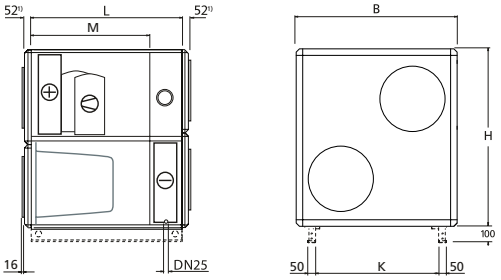
If you see continuous and a substantial amount of bubbling in the sight glass and the cooling unit operates at appreciably lower capacity than normal, the system is probably leaking. One or several bubbles appearing when the cooling unit is started up, operation at reduced capacity or normal operation need not necessarily indicate a refrigerant deficiency.

If it is bubbling in the sight glass and the cooling unit operates at appreciably lower capacity, call for qualified service help.

N.B.! Maintenance work in the refrigerant system is permitted to be carried out only by an accredited inspectorate (a company with requisite authorisation).

9 DIMENSIONS

COOL DX 008

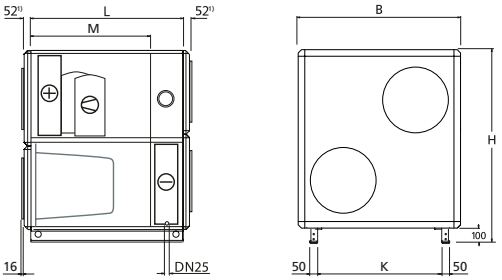


Size	L	B	H	K	M	Duct connection[2)]
008	900	995	1085	749	709	Ø 400

2) For the locations of the duct connections, see the corresponding GOLD air handling unit

Base beams are accessories.
1) End connection panel, optional.

COOL DX 012

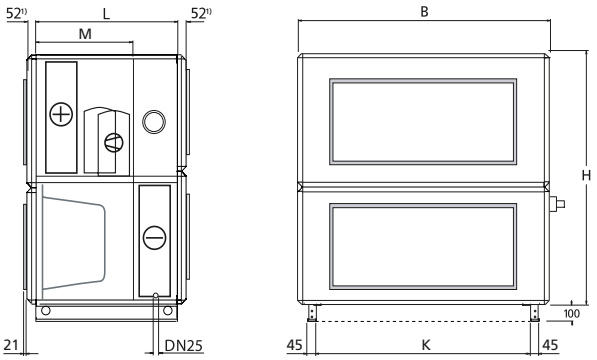


Size	L	B	H	K	M	Duct connection[2)]
012	900	1199	1395	953	709	Ø 500

2) For the locations of the duct connections, see the corresponding GOLD air handling unit

1) End connection panel, optional.

COOL DX 020, 030, 040, 060, 080

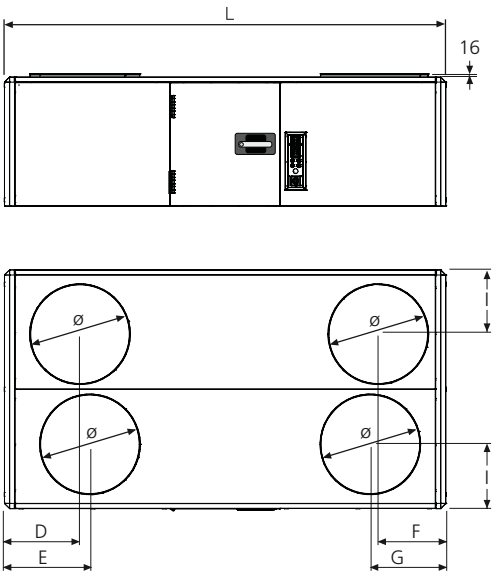


Size	L	B	H	K	M	Duct connection[2)]
020	900	1400	1551	1154	709	1000 x 400
030	900	1600	1811	1354	709	1200 x 500
040	1100	1990	2159	1744	884	1400 x 600
060	1100	2318	2288	2072	884	1600 x 800
080	1100	2637	2640	2395	884	1800 x 1000

2) For the locations of the duct connections, see the corresponding GOLD air handling unit

1) End connection panel, optional.

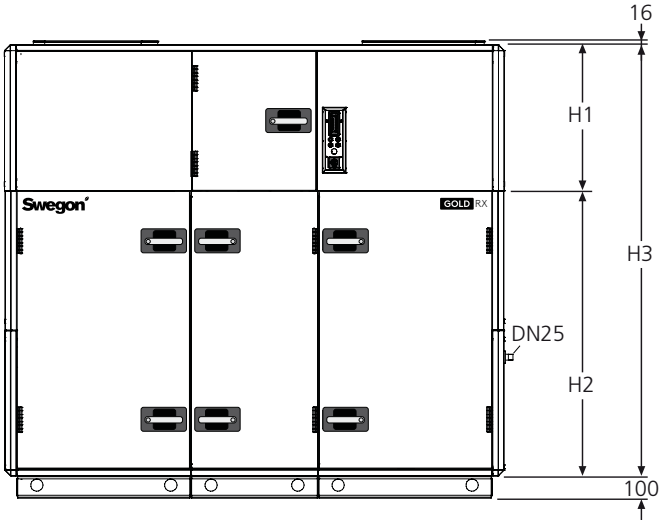
COOL DX Top



Size	L	B	H	D	E	F	G	I	Ø
005	1600	825	650	300	340	250	340	230	315
008	1720	995	650	330	330	272	272	272	400
012	2219	1199	650	380	430	339	379	323	500

COOL DX Top in combination with GOLD RX Top

Cooling unit COOL DX Top installed on top of a GOLD RX Top air handling unit. The air handling unit is specially adapted to the cooling unit, which impacts on the height of the air handling unit, See the illustration and table.



Base beams are optional for sizes 005 and 008, standard for size 012.

Size	H1	H2	H3
005	650	1059	1709
008	650	1269	1919
012	650	1269	1919

H1 corresponds to the height measurement for COOL DX Top.
H2 corresponds to the height measurement for specially adapted GOLD RX Top.
H3 corresponds to the combined height measurement for COOL DX Top and GOLD RX Top.

10 GENERAL TECHNICAL DATA

Cooling system COOL DX

COOL DX Size	Capa-city var.	Nom. air-flow (m^3/s)	Min. air-flow (m^3/s)	Nom. cooling capac-ity[1] (kW)	Nom. power req-uired (kW)	Refrigerant (kg)		Power supply	Weight excl. end conn. panel (kg)	Weight/pc. - end conn. panel, if required[2] (kg)
						Cir-cuit 1	Cir-cuit 2			
008	1	0.55	0.22	9.8	2.39	1,20	1,30	3-ph.+N, 400 V ±10%, 16 A	194	8
	2	0.70	0.3	13.9	4.33	1,20	1,30	3-ph.+N, 400 V ±10%, 20 A	215	8
012	1	0.85	0.35	15.4	3.95	1,50	1,70	3-ph.+N, 400 V ±10%, 20 A	260	10
	2	1.05	0.4	20.9	6.53	1,50	1,70	3-ph.+N, 400 V ±10%, 25 A	287	10
020	1	1.1	0.45	15.4	4.06	1,20	1,50	3-ph.+N, 400 V ±10%, 25 A	247	11
	2	1.3	0.5	23.3	5.73	2,50	2,80	3-ph.+N, 400 V ±10%, 25 A	287	11
	3	1.6	0.6	31.0	9.15	2,10	2,40	3-ph.+N, 400 V ±10%, 40 A	318	11
030	1	1.8	0.7	25.0	6.33	1,80	2,00	3-ph.+N, 400 V ±10%, 32 A	327	17
	2	2.0	0.8	35.8	9.34	3,00	3,20	3-ph., 400 V ±10%, 25 A	379	17
	3	2.4	1.0	46.2	13.5	2,90	3,30	3-ph., 400 V ±10%, 40 A	419	17
040	1	2.9	1.1	38.6	8.40	3,30	4,00	3-ph., 400 V ±10%, 25 A	498	22
	2	3.1	1.3	48.4	12.3	3,30	4,50	3-ph., 400 V ±10%, 40 A	506	22
	3	3.6	1.5	67.0	17.5	5,50	4,50	3-ph., 400 V ±10%, 50 A	559	22
060	1	3.9	1.5	56.2	11.8	4,50	5,50	3-ph., 400 V ±10%, 40 A	708	31
	2	4.1	1.6	66.7	17.1	5,00	5,20	3-ph., 400 V ±10%, 50 A	779	31
	3	5.0	2.0	97.5	26.3	6,00	7,50	3-ph., 400 V ±10%, 80 A	852	31
080	1	5,2	2.0	67.0	13.3	6,60	7,30	3-ph., 400 V ±10%, 50 A	852	38
	2	6,0	2.4	96.5	24.8	6,50	9,00	3-ph., 400 V ±10%, 80 A	979	38
	3	7.0	2.8	134.0	36.4	9,00	11,50	3-ph., 400 V ±10%, 100 A	1035	38

[1] For an outdoor temperature of 26°C, 50% RH (capacity variant 1), 27°C, 50% RH (capacity variant 2) or 28°C, 50% RH (capacity variant 3), and an extract air temperature of 26°C.
[2] The first weight applies to a small end connection panel; the second weight applies to a large end connection panel. COOL DX can be supplied completely without end connection panels or with a maximum of 2 small and two large end connection panels depending on the variant selected.

Cooling system COOL DX Top

COOL DX Top has a common power supply with the air handling unit, which means that the common fuse is dependent on the size/capacity variant of the air handling unit, see below.

COOL DX Top Size	GOLD RX Top Size - capac-ity variant	Nom. air flow (m^3/s)	Min air flow (m^3/s)	Nom. cooling capacity[1] (kW)	Refrigerant (kg)		Power Supply	Weight (kg)
					Cir-cuit 1	Cir-cuit 2		
005	004-1	0.40	0.10	6.77	0.95	1.00	3-phase+N+PE, 400 V ±10%, 16 A	213
	005-1						3-phase+N+PE, 400 V ±10%, 20 A	
	005-2						3-phase+N+PE, 400 V ±10%, 25 A	
008	007-1	0.55	0.22	9.31	1.15	1.20	3-phase+N+PE, 400 V ±10%, 25 A	269
	007-2						3-phase+N+PE, 400 V ±10%, 25 A	
	008-1						3-phase+N+PE, 400 V ±10%, 32 A	
	008-2						3-phase+N+PE, 400 V ±10%, 20 A	
012	011-1	0.85	0.35	14.8	1.60	1.70	3-phase+N+PE, 400 V ±10%, 32 A	332
	011-2						3-phase+N+PE, 400 V ±10%, 20 A	
	012-1						3-phase+N+PE, 400 V ±10%, 20 A	
	012-2						3-phase+N+PE, 400 V ±10%, 25 A	

[1] Outdoor temperature 26 °C, 50% RH. Extract air temperature 26 °C.

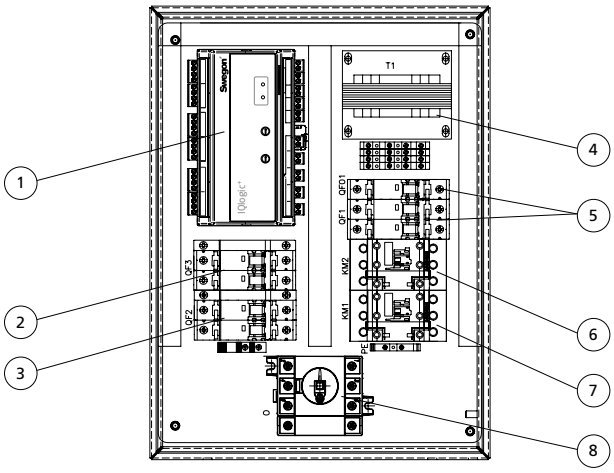
11 ELECTRICAL EQUIPMENT

The electrical equipment in the COOL DX/COOL DX Top is located inside the unit behind the inspection cover.

For a description, see the drawings. Depending on the variant selected, the electrical equipment can be mirror-inverted and/or upside down compared to the illustration. The incorporated components are always the same.

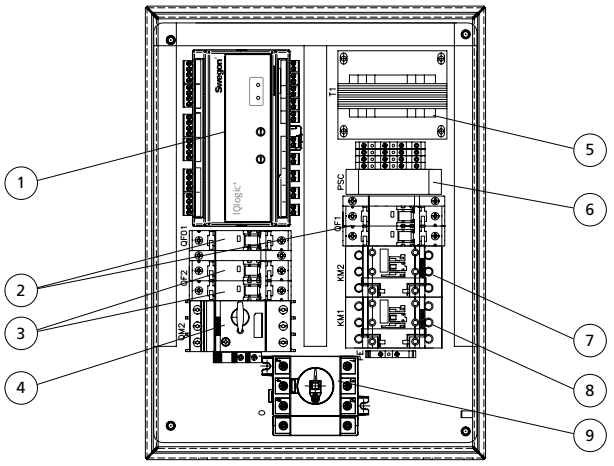
11.1 COOL DX

Size 008, capacity variant 1



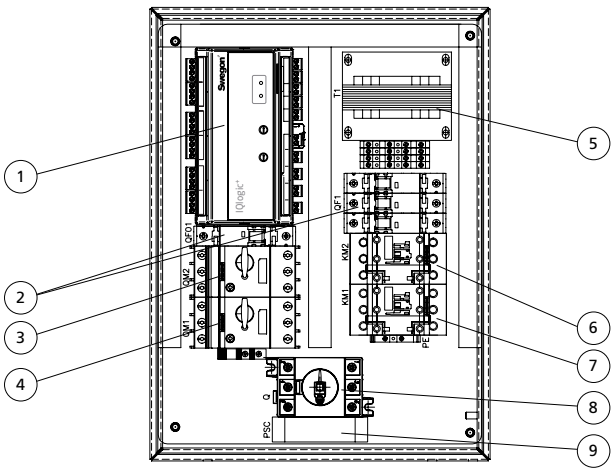
1. IQlogic+, Control unit.
2. Safety fuses, Compressor 2.
3. Safety fuses, Compressor 1.
4. Transformer.
5. Control circuit fuse.
6. Contactor with auxiliary contact for Compressor 2.
7. Contactor with auxiliary contact for Compressor 1.
8. Safety isolating switch

Size 008 capacity variant 2, sizes 012, 020 all capacity variants and size 030 capacity variant 1



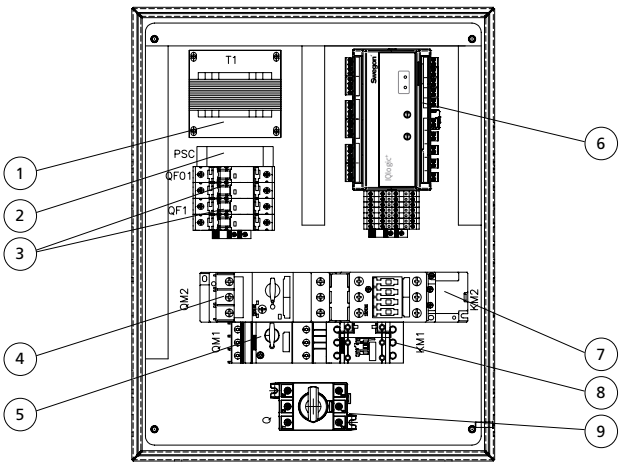
1. IQlogic+, Control unit.
2. Control circuit fuse.
3. Safety fuses, Compressor 1.
4. Protective motor switch, Compressor 2.
5. Transformer.
6. Phase sequence monitor.
7. Contactor with auxiliary contact for Compressor 2.
8. Contactor with auxiliary contact for Compressor 1.
9. Safety isolating switch

Size 030 capacity variants 2 and 3, size 040, all capacity variants



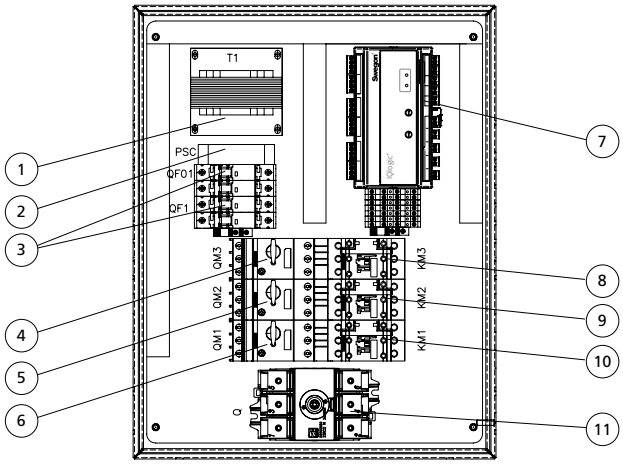
1. IQlogic+, Control unit.
2. Control circuit fuse.
3. Protective motor switch, Compressor 2.
4. Protective motor switch, Compressor 1.
5. Transformer.
6. Contactor with auxiliary contact for Compressor 2.
7. Contactor with auxiliary contact for Compressor 1.
8. Safety isolating switch
9. Phase sequence monitor.

Size 060, all capacity variants, and size 080, capacity variants 1 and 2



1. Transformer.
2. Phase sequence monitor.
3. Control circuit fuse.
4. Protective motor switch, Compressor 2.
5. Protective motor switch, Compressor 1.
6. IQlogic+, Control unit.
7. Contactor with auxiliary contact for Compressor 2.
8. Contactor with auxiliary contact for Compressor 1.
9. Safety isolating switch

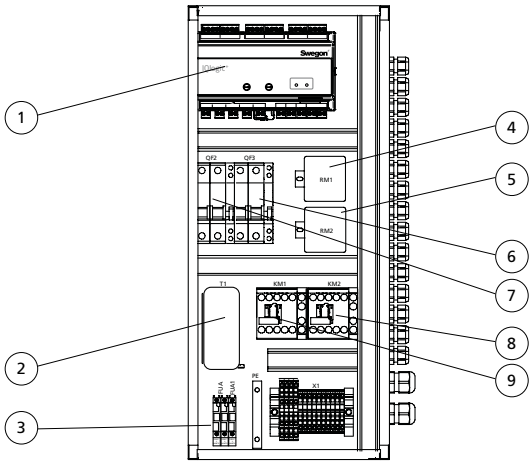
Size 080, capacity variant 3



1. Transformer.
2. Phase sequence monitor.
3. Control circuit fuses.
4. Protective motor switch, Compressor 3.
5. Protective motor switch, Compressor 2.
6. Protective motor switch, Compressor 1.
7. IQlogic⁺, Control unit.
8. Contactor with auxiliary contact for Compressor 3.
9. Contactor with auxiliary contact for Compressor 2.
10. Contactor with auxiliary contact for Compressor 1.
11. Safety isolating switch

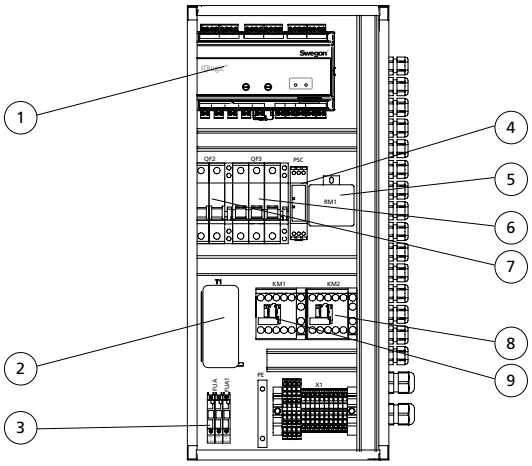
11.2 COOL DX Top

Sizes 005, 008



1. IQlogic⁺, controller.
2. Transformer.
3. Control circuit fuse.
4. Start relay 1.
5. Start relay 2.
6. Fuses compressor 2.
7. Safety fuses, compressor 1.
8. Contactor with auxiliary contact for compressor 2.
9. Contactor with auxiliary contact for compressor 1.

Size 012

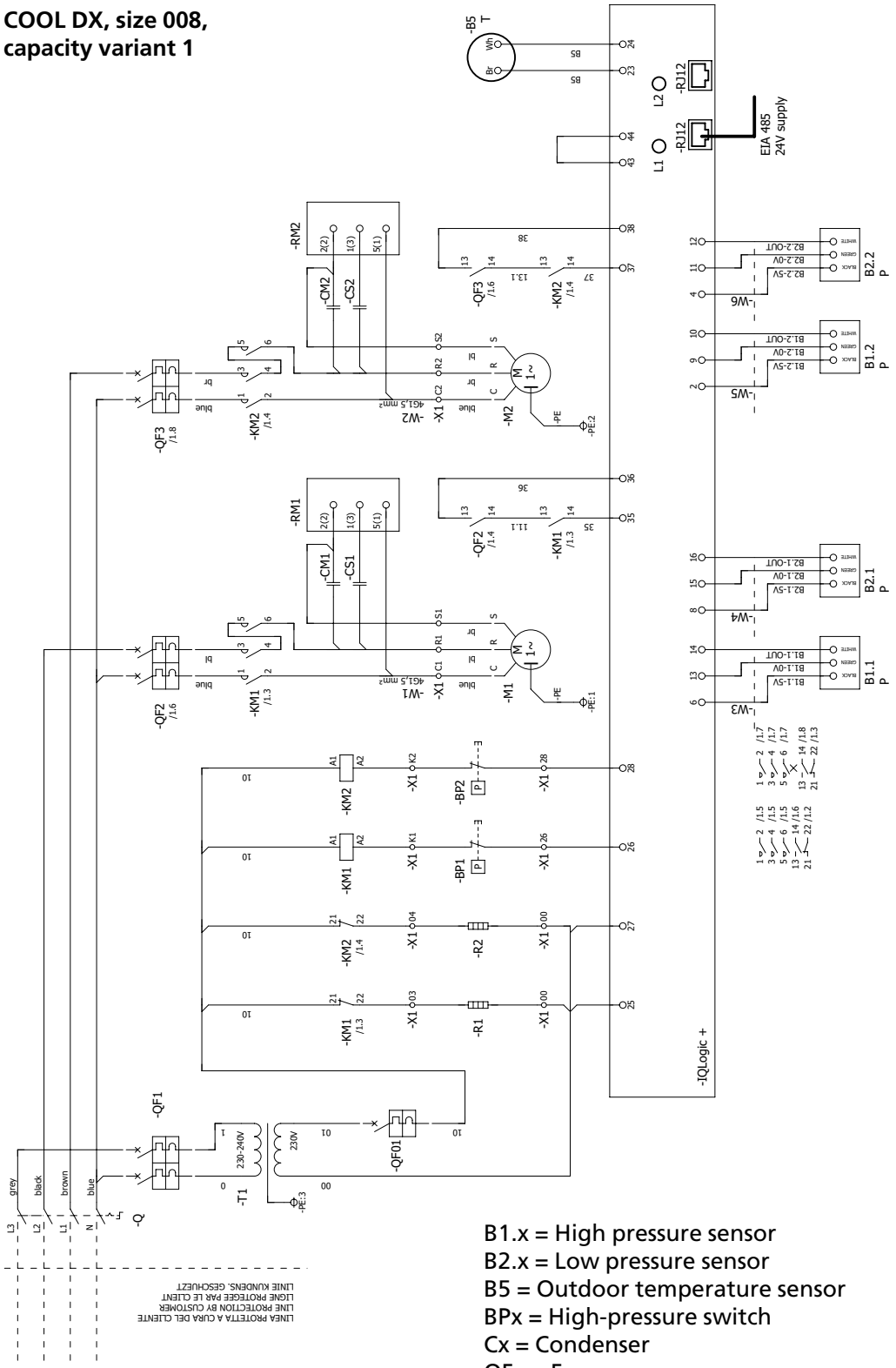


1. IQlogic⁺, controller.
2. Transformer.
3. Control circuit fuse.
4. Phase sequence monitor.
5. Start relay.
6. Fuses compressor 2.
7. Safety fuses, compressor 1.
8. Contactor with auxiliary contact for compressor 2.
9. Contactor with auxiliary contact for compressor 1.

12 INTERNAL WIRING DIAGRAM

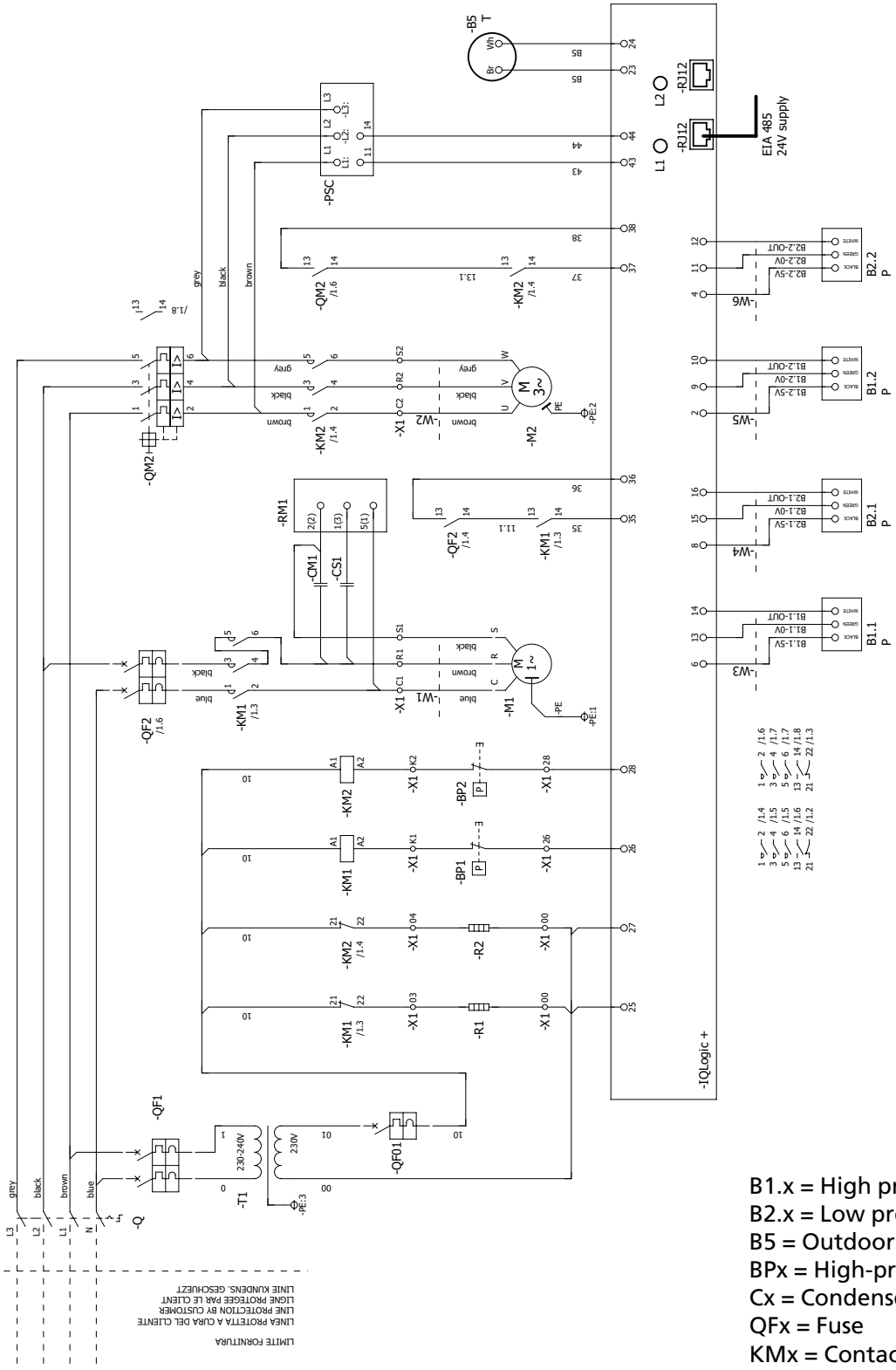
12.1 COOL DX

**COOL DX, size 008,
capacity variant 1**



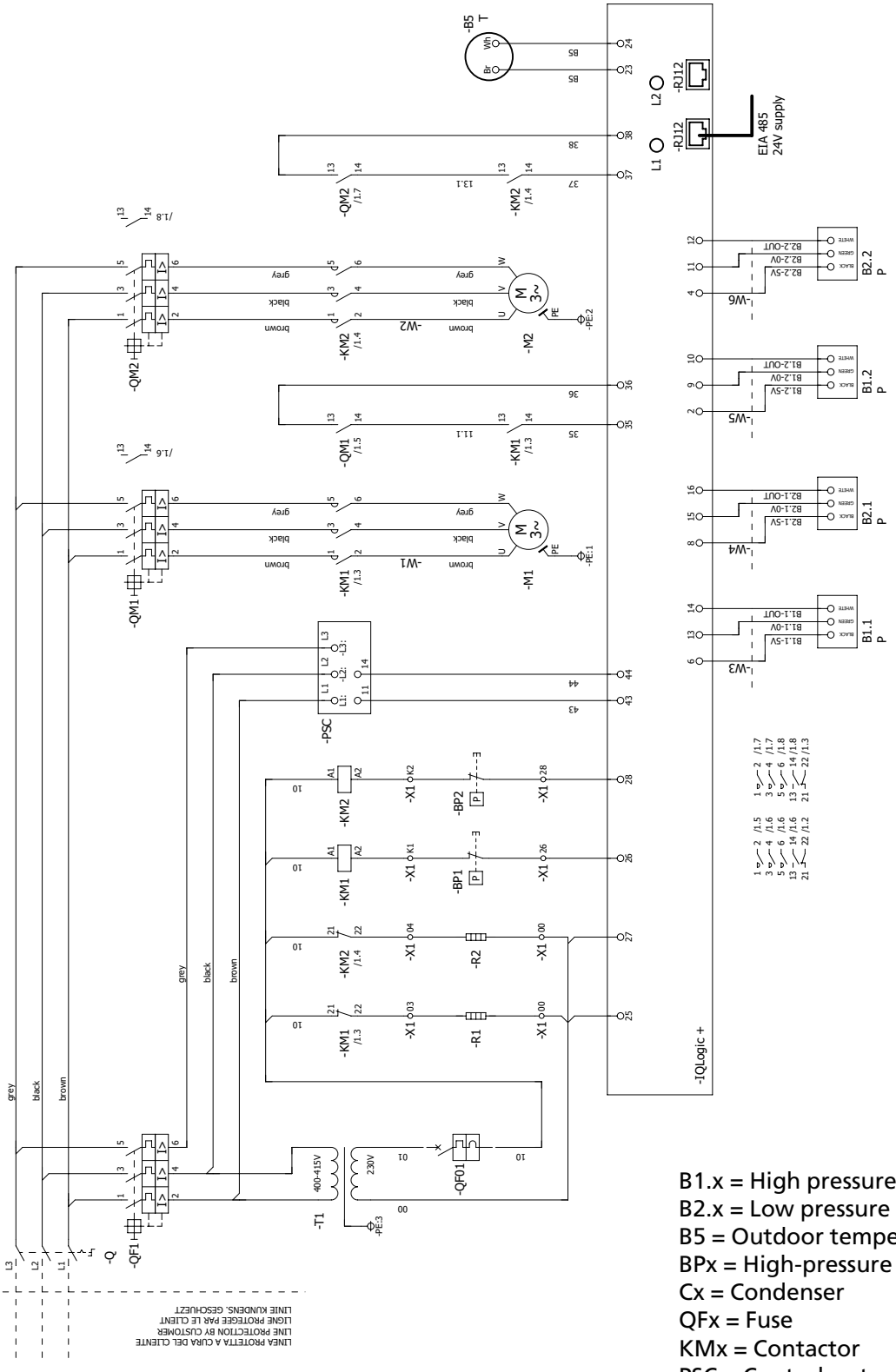
B1.x = High pressure sensor
B2.x = Low pressure sensor
B5 = Outdoor temperature sensor
BPx = High-pressure switch
Cx = Condenser
QFx = Fuse
KMx = Contactor
PSC = Control system for phase sequence
QMx = Motor protector
Q = Load separator
Rx = Crankcase heater

COOL DX, size 008 capacity variant 2, sizes 012 and 020 all capacity variants, and size 030 capacity variant 1



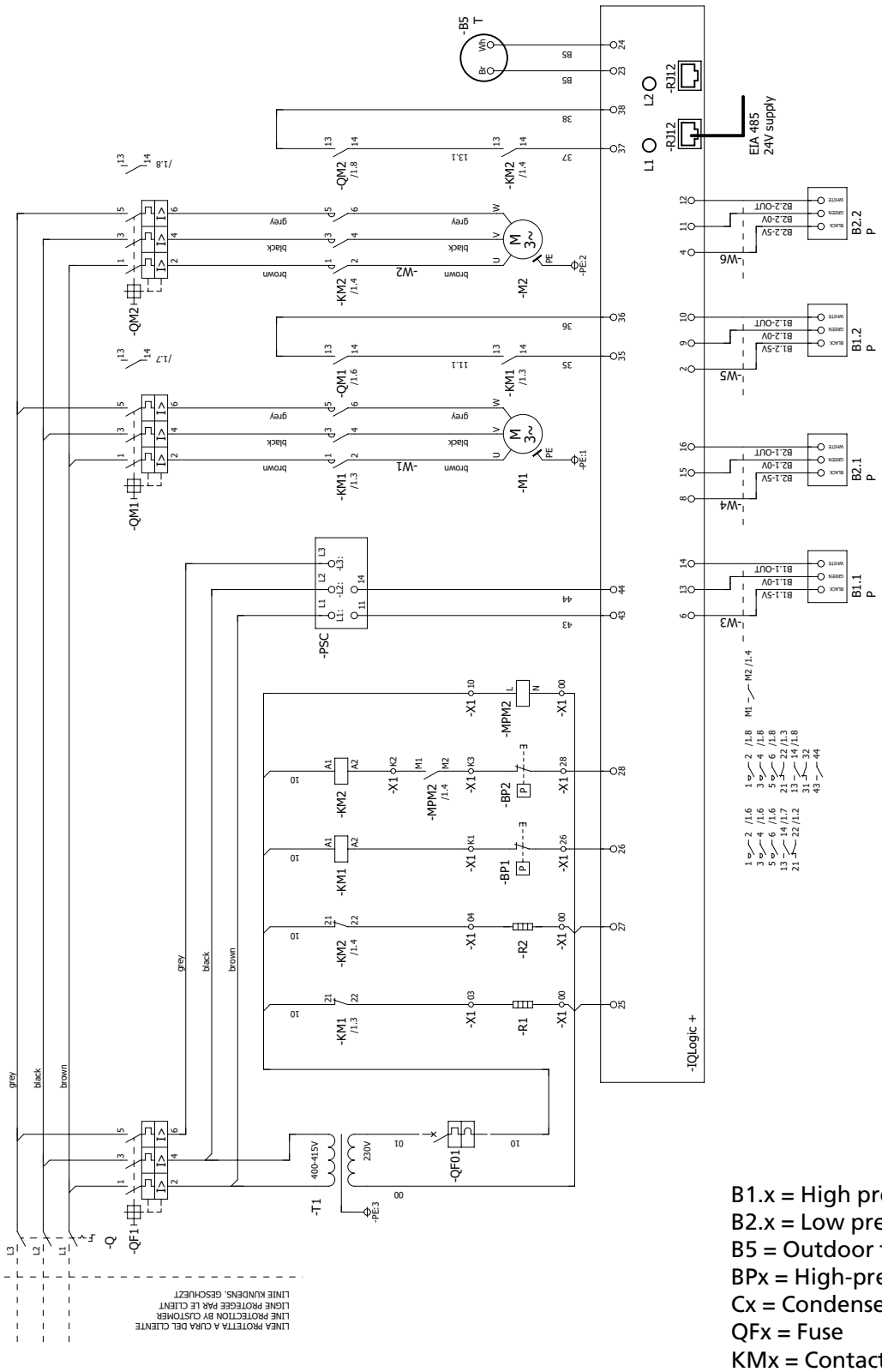
B1.x = High pressure sensor
B2.x = Low pressure sensor
B5 = Outdoor temperature sensor
BPx = High-pressure switch
Cx = Condenser
QFx = Fuse
KMx = Contactor
PSC = Control system for phase sequence
QMx = Motor protector
Q = Load separator
Rx = Crankcase heater

COOL DX, size 030, capacity variants 2 and 3, size 040, all capacity variants and size 060, capacity variants 1 and 2, size 080, capacity variant 1



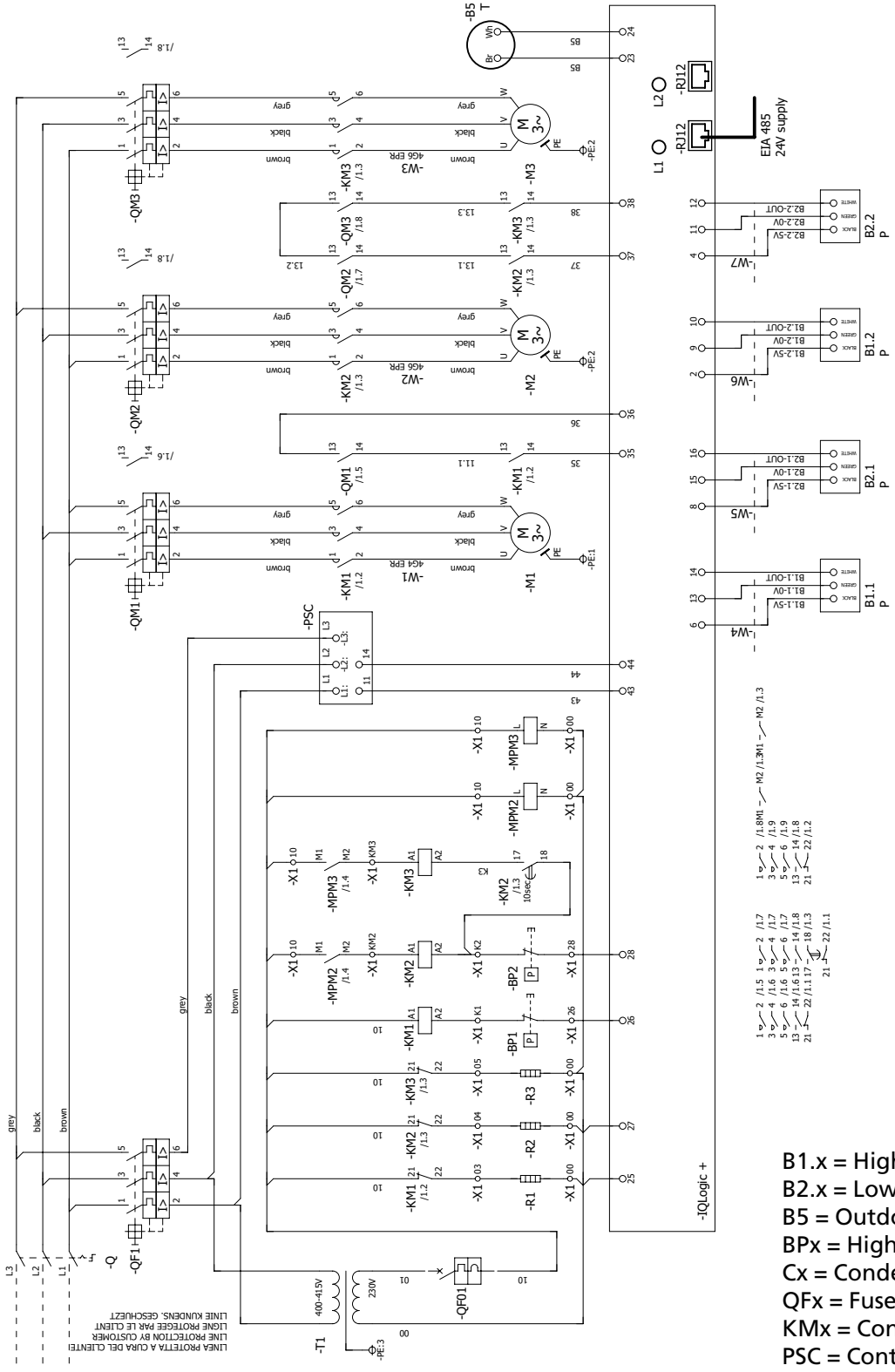
B1.x = High pressure sensor
B2.x = Low pressure sensor
B5 = Outdoor temperature sensor
BPx = High-pressure switch
Cx = Condenser
QFx = Fuse
KMx = Contactor
PSC = Control system for phase sequence
QMx = Motor protector
Q = Load separator
Rx = Crankcase heater

COOL DX, size 060 capacity variant 3, size: 080 capacity variant 2



B1.x = High pressure sensor
B2.x = Low pressure sensor
B5 = Outdoor temperature sensor
BPx = High-pressure switch
Cx = Condenser
QFx = Fuse
KMx = Contactor
PSC = Control system for phase sequence
QMx = Motor protector
Q = Load separator
Rx = Crankcase heater

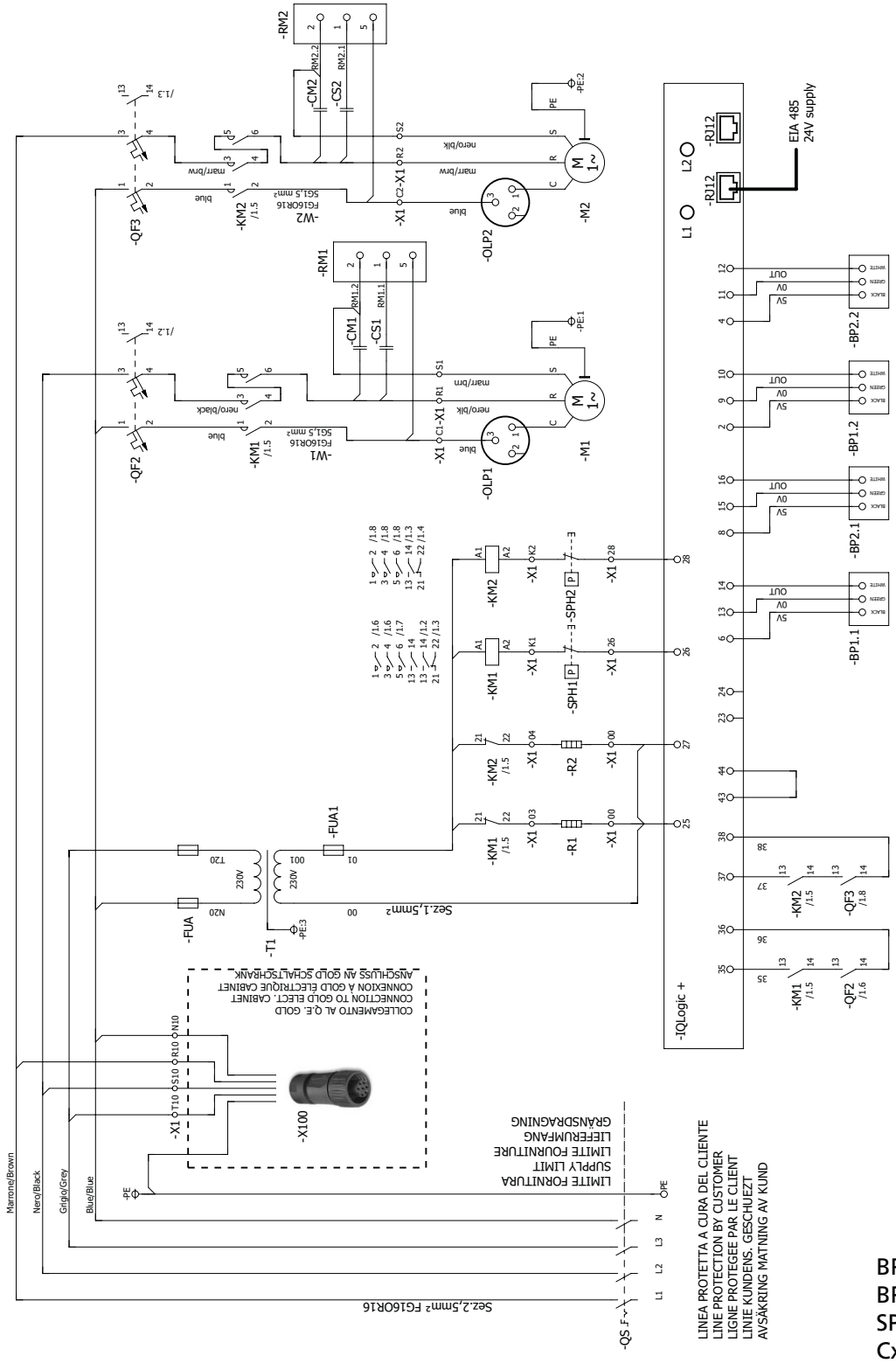
COOL DX, size 080 capacity variant 3



B1.x = High pressure sensor
B2.x = Low pressure sensor
B5 = Outdoor temperature sensor
BPx = High-pressure switch
Cx = Condenser
QFx = Fuse
KMx = Contactor
PSC = Control system for phase sequence
QMx = Motor protector
Q = Load separator
Rx = Crankcase heater

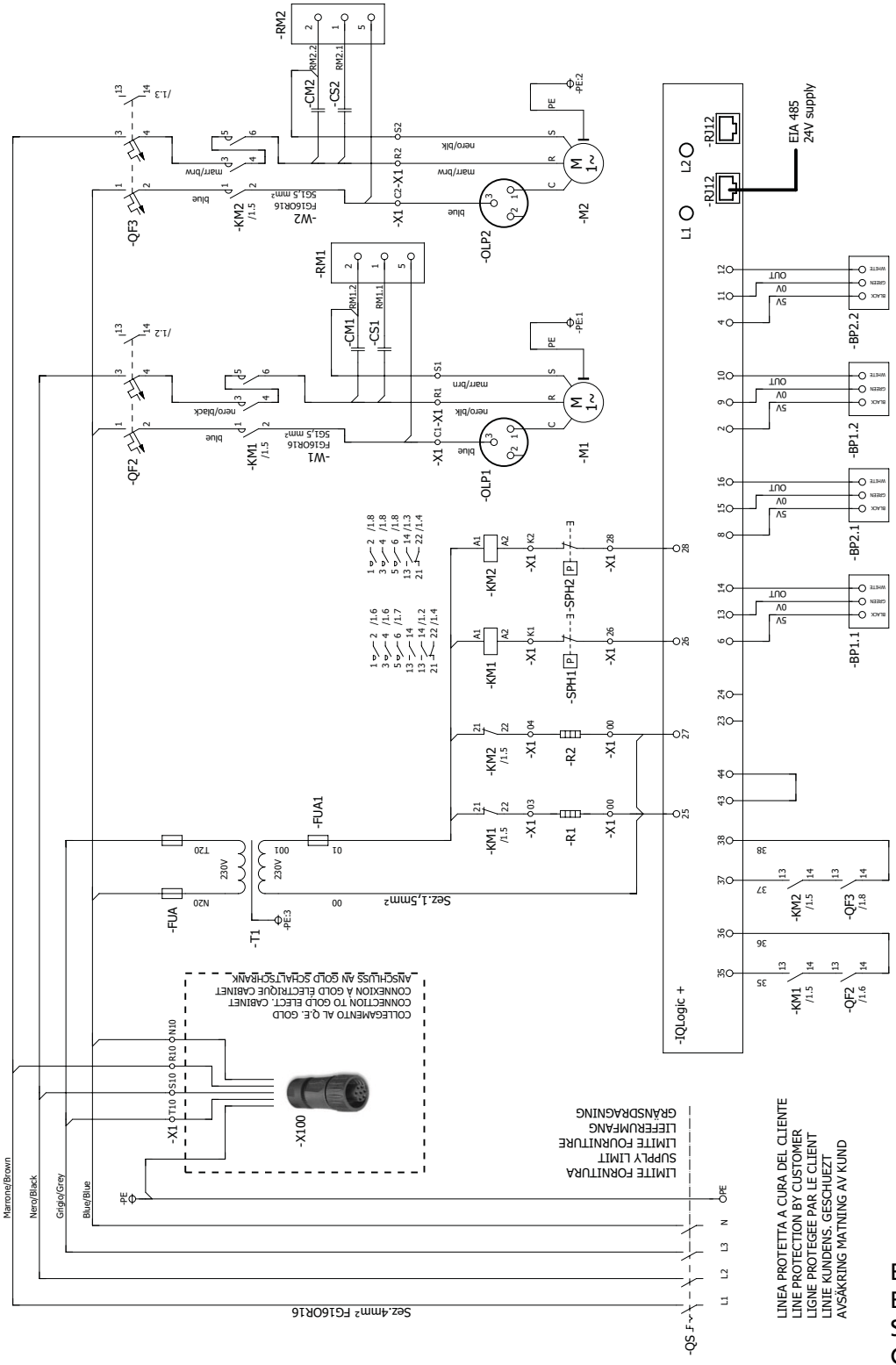
12.2 COOL DX Top

COOL DX Top size 005



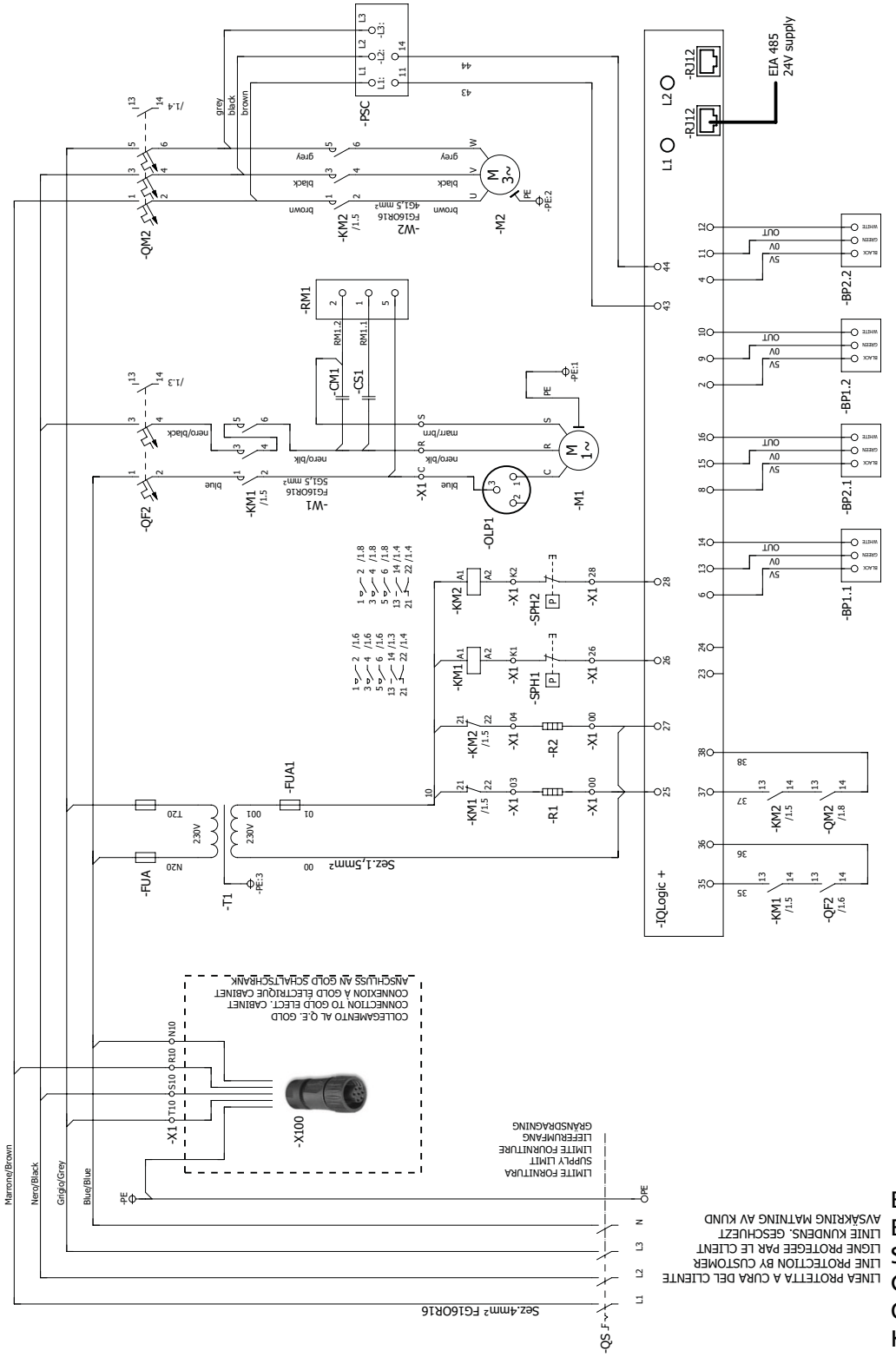
BP1.x = High-pressure sensor
BP2.x = Low-pressure sensor
SPHx = High-pressure switch
Cx = Condenser
QFx = Fuse
KMx = Contactor
Qmx = Motor protection
Rx = Crankcase heater

COOL DX Top size 008



BP1.x = High-pressure sensor
BP2.x = Low-pressure sensor
SPHx = High-pressure switch
Cx = Condenser
QFx = Fuse
KMx = Contactor
Qmx = Motor protection
Rx = Crankcase heater

COOL DX Top size 012



13 Commissioning Record

Company

Our reference

Client	Date	SO No.
Plant	**Project/Air handling unit**	**Subject No.**
Plant address	**Type/Size**	

Installation/Connections

Inspection measure	Approved/ Done	Remarks
Installation according to instructions	☐	
Condensate drain correctly connected, water trap filled with water	☐	
The supply air filter in the GOLD unit has been moved to the COOL DX unit. (not Top)	☐	
Air hoses for filter in COOL DX fitted according to instructions (not Top)	☐	
Electrical connections installed according to instructions	☐	
Control cable from COOL DX/COOL DX Top to GOLD conn. according toinstructions	☐	

COOL DX

Item inspected	COOL DX, size	Factory-preset value	Checked value
Safety switch, Compressor 1 Safety switch, Compressor 2	☐ 008-1	D10 D13	
Safety switch, Compressor 1 Prot. motor switch, Compressor 2	☐ 008-2	D10 8,5 A	
	☐ 012-1	D10 8,5 A	
	☐ 012-2	D16 14,4 A	
	☐ 020-1	D10 13,0 A	
	☐ 020-2	D16 14,4 A	
	☐ 020-3	D16 18,0 A	
	☐ 030-1	D16 14,4 A	
Prot. motor switch, Compressor 1 Prot. motor switch, Compressor 2	☐ 030-2	13,0 A 18,0 A	
	☐ 030-3	14,4 A 21,0 A	
	☐ 040-1	13,0 A 18,0 A	
	☐ 040-2	14,4 A 21,0 A	
	☐ 040-3	18,0 A 27,0 A	
	☐ 060-1	14,4 A 21,0 A	
	☐ 060-2	18,0 A 27,0 A	
	☐ 060-3	21,0 A 45,0 A	
	☐ 080-1	14,4 A 27,0 A	
	☐ 080-2	21,0 A 45,0 A	
Prot. motor switch, Compressor 3	☐ 080-3	27,0 A 33,0 A 33,0 A	

COOL DX Top

Inspection		COOL DX Top, size	Factory-preset value	Checked value
Safety switch, Compressor 1	☐	005-1	D8	
Safety switch, Compressor 2			D13	
	☐	008-1	D8	
			D13	
Safety switch, Compressor 1	☐	012-1	D13	
Prot. motor switch, Compressor 2			7,2 A	

COOL DX/COOL DX Top

Inspection		COOL DX, size	Factory-preset value	Checked value
IQlogic+, Function selector switch 1	☐	005-1	2	
IQlogic+, Function selector switch 2			1	
	☐	005-2	2	
			2	
	☐	008-1	2	
			1	
	☐	008-2	2	
			2	
	☐	012-1	2	
			1	
	☐	012-2	2	
			2	
	☐	020-1	2	
			1	
	☐	020-2	2	
			2	
	☐	020-3	2	
			3	
	☐	030-1	2	
			1	
	☐	030-2	2	
			2	
	☐	030-3	2	
			3	
	☐	040-1	2	
			1	
	☐	040-2	2	
			2	
	☐	040-3	2	
			3	
	☐	060-1	2	
			1	
	☐	060-2	2	
			2	
	☐	060-3	2	
			3	
	☐	080-1	2	
			1	
	☐	080-2	2	
			2	
	☐	080-3	2	
			3	