A. Nobel & Zn.
FILTRATION & SEPARATION

Model No.: FA9601328-121

INSTRUCTION MANUAL

CJC® Desorber / CJC® Fine Filter system

D10 PV-C3DE2H1V / HDU 27/27 PV-DPVZ

Batch No.: 890149896

Technical Specification

Type	CJC® Desorber / CJC® Fine Filter system					
Model	D10 PV-C3DE2H1V / HDU 27/27 PV-DPVZ					
Filter Insert type	BLA 27/27		**Number of Filter Inserts**	1 pc(s)		
General arrangement	9601328					
P&I diagram	7000818					
Supply Pump / Motor	PVM2-7, 45 l/h@50Hz, 54 l/h@60Hz / 63 4 V18 WEG 400/50 IE3					
Transfer Pump / Motor	PVM4-9, 60 l/h@50Hz, 72 l/h@60Hz / 63 4 V18 WEG 400/50 IE3					
Filter Pump / Motor	PV4-18, 120 l/h@50Hz, 145 l/h@60Hz / 63 4 V18 WEG 400/50 IE3					
Pressure switch	**High pressure cut-out**	2.3 bar	**Filter insert change - ΔP**	n/a		
Control box	Nominal voltage: Nom. frequency: Electrical diagram: Software:	3 x 440-480 V 60 Hz 180807AB4 FP63017v1.7	Overload relay 1: Overload relay 2: Full load: Max. pre-fuse:	 8.5 A 16 A gL		
Air pump	KLEE KB-129L					
Preheater	**kW**	1.25	**Temp. set point**	60ºC / 140ºF		
	Overheat protection		85ºC / 185 ºF			
Additional equipment	n/a					
Paint	CJC® Standard RAL 7035					
Noise level	< 70 dB(A)					
Pressure in main oil system, max.	**PV Pump**	0.5 bar / 7.3 psig	**PVM Pump**	3.5 bar / 50.8 psig		
Design pressure	7 bar / 101 psig		**Design temperature**	60ºC / 140ºF		
Max. ambient temperature	45ºC / 113ºF		**Humidity, max.**	95%		
Weight	170 kg / 374 lbs.					
The gauge pressure is referred as bar in this instruction manual						

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1 GENERAL INFORMATION

1.1 Introduction to CJC® Oil Treatment unit.

Oil contamination causes approximately 80% of all oil system failures. Contamination takes the form of insoluble materials such as metals, dust particles, sand and rubber (hard contaminants), oil degradation products such as varnish, resin and oxidation residues (soft contaminants) and water. The smallest particles, (below 5 µm), free water and deposits from oil degradation products are often responsible for defects.

These contaminants influence equipment reliability and service life, and nearly 100% of all problems related to contamination of oil and other fluids can be prevented.

The CJC® Oil Treatment unit is used for oil maintenance. It is generally used as an off-line system in continuous operation. Maximum allowable contamination of water in oil is 12%

Applying a CJC® Oil Treatment unit to your system will give you the benefit of increased uptime for production machinery and extended service life for system components, by effectively reducing oil contamination from:

- Insoluble particles
- Oil degradation products and oxidation by-products
- Water

1.2 System description

CJC® Oil Treatment unit consist of CJC® Desorber and CJC® Fine Filter

1.2.1 The CJC® Desorber

The CJC® Desorber is based on the principle that heated air can effectively hold large quantities of water. CJC® Desorber pumps oil through the desorber chamber, where an electrical heater maintains a temperature of 60°C. In the desorber chamber oil meets a counter flow of cold, dry air. The air is heated very quickly by the hot oil and absorbs any water present in the oil, until the air is saturated.

From the top of desorber chamber, saturated air enters the cooling system where the saturated air is cooled and the water is condensed. Water is released at water outlet through bottom drain of cooling system; remember to collect water in a bilge tank or dispose it in accordance with local regulations for oil and chemical waste. The air blower draws air from the cooling system, making the CJC® Desorber air system a closed loop.

The transfer pump returns dry oil to main system from desorber chamber.

CJC® Desorber oil inlet is equipped with solenoid valve which opens when CJC® Desorber is running. When CJC® Desorber is not running the solenoid valve closes to ensure desorber chamber is not filled with oil and that oil is not coming out at water outlet if the oil system is pressurized.

CJC® Desorber oil outlet is equipped with a non-return valve which ensures oil not running backwards into the desorber chamber.

The CJC® Desorber includes:

- The CJC® Desorber consists of gear wheel pumps with electric motors, pre-heater, chamber, air blower, cooling system, controls and monitoring accessories.
- Connections for inlet, outlet and drainage.
- Control box.
- Frame with drip pan, drip pan equipped with a leak detection float, which will stop the CJC® Filter System in the event of leaks.
- Please refer to general arrangement and list of components in this instruction manual to see details of the CJC® Filter System supplied.

1.2.2 The CJC® Fine Filter

The CJC® Fine Filter takes suction from the main oil system via inlet connection. After passing through the CJC® Filter Insert from the outside and inwards, the oil is returned to the main oil system via the outlet connection. The CJC® Fine Filter is without a pressure switch, check system pressure regularly.

In order to protect the CJC® Fine Filter, the pump is equipped with an internal bypass valve. The bypass valve protects against pulsating excessive pressure, and is not designed for protection of constant pressure increase.

The CJC® Fine Filter includes:

- The CJC® Fine Filter system consists of a gear wheel pump with electric motor and filter housing and monitoring accessories
- Connections for inlet, outlet and drainage.
- Control box, integrated with CJC® Desorber.
- Drip pan
- Please refer to general arrangement and list of components in this instruction manual to see details of the CJC® Filter System supplied.

1.2.3 The CJC® Filter Insert

- The CJC® Filter Insert is the active filter media that maintains the oil by continuously removing particles, oil degradation products and water from the oil.
- The number of CJC® Filter Inserts varies depending on the specific filter system.
- The type of CJC® Filter Insert is always selected to match the specific application.

To maximise the performance of your CJC® Filter System, it is important that it is in **continuous operation** and is serviced by applying **both** of the following routines.

1.2.4 CJC® Filter insert change based on service time – 12 months

The CJC® Filter Insert will retain oil degradation products and oxidation by-products to a level, at which it becomes saturated. It is not possible to indicate this saturation, since it has insignificant influence on pressure drop across the CJC® Filter Insert.

NOTE!
In order to maintain optimal filter performance, the CJC® Filter Inserts must be changed at least once per year.

1.2.5 CJC® Filter Insert change due to high pressure – 1.8 bar plus the main system pressure.

As particles are deposited in and on the CJC® Filter Insert and water is absorbed the flow resistance increases causing increased pressure drop across the CJC® Filter Insert. The flow resistance is monitored by the pressure gauge.

NOTE!
In order to maintain optimal filter performance the CJC® Filter Insert must be changed before the pressure reaches 1.8 bar plus the main system pressure.

1.2.6 CJC® Oil Treatment unit control box

The control box incorporates below mentioned features:

- Display with
  - CJC® Desorber start/stop and drain buttons.
  - CJC® Fine Filter start/stop button.
- Common alarm button with indicator light and reset function. When the common alarm lamp is lit, the cause of the alarm must be found.
- Main circuit-breaker.

1.3 Symbols and signs used in the documentation

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE!
Point out generally important information.

1.4 Notes, warnings and cautions

1.4.1 General notes

NOTE!
Before installing the CJC® Oil Treatment unit, ensure personnel transporting and installing it are qualified and have read and fully understood this instruction manual.

NOTE!
Installation of the electrical power supply must only be carried out by qualified personnel. Relevant requirements from national standards concerning electrical installation must be applied.

NOTE!
Do NOT attempt to repair or disassemble the CJC® Oil Treatment unit or any of its components within the warranty period, unless special permission has been granted in writing by C.C. JENSEN. Failure to seek said permission will cause the warranty on the said parts to be void.

NOTE!
When ordering spare parts or requesting technical assistance, always state the batch number of the CJC® Oil Treatment unit (see name plate on the unit supplied).
Use only original spare parts.

NOTE!
Do NOT clean the CJC® Oil Treatment unit by using a pressure washer. Use a general purpose cleaner only.

C.C.JENSEN's product liability does not cover technical modifications to the CJC® Oil Treatment unit or its electrical system unless C.C.JENSEN has accepted such extensions of liability in writing.

If any parts of the machinery are modified or if any parts are replaced with other than original parts, a new risk assessment and a new CE declaration must be made.

NOTE!
Never use tapered thread when connecting the CJC® Oil Treatment unit, due to risk of cracks in the material.

NOTE!
Never use fittings or pipes made of copper, copper alloys or with a galvanized surface due to risk of accelerating oil degradation.

NOTE!
All types of oil are potential threats to the environment and as such they must NOT be drained into ordinary sewers or dumped. Always check that all oil-carrying components are sealed and do not leak before operating the CJC® Oil Treatment unit.

NOTE!
Service life can be shortened if exposed to severe vibrations.
Install vibration dampers if relevant.

NOTE!
On completion of installation or service, all safety and protective equipment must be re-installed and made operative again prior to restarting the machine. Never disable, modify, or by-pass any safety locks.

1.4.2 General warnings and cautions

DANGER

EXPLOSIVE ATMOSPHERES

→ **The CJC® Oil Treatment unit must NOT be used in ATEX designated areas.**

DANGER

COMPRESSED AIR OR GASES

Pressurising any part of the CJC® Oil Treatment unit with compressed air or other compressed gases may lead to explosion, causing death or serious injury.

→ **Leak testing of the filter must only be carried out with atmospheric air at a pressure of less than 0.5 bars.**

WARNING

HAZARDOUS VOLTAGE

Contact may cause electric shock or burns.

→ **Turn off and lock primary and control circuit power disconnecting switch before installing or servicing.**

→ **Keep all panels and covers securely in place.**

WARNING

ELECTRICAL SHOCK

Different electrical potential between adjacent machinery may cause electrical shock.

→ **The CJC® Oil Treatment unit must be supplied from the same electrical source as any machinery connected or adjacent machinery must be inter-connected by an equipotential bonding wire.**

WARNING

SLIPPERY FLOORS

Oil spillage may cause injury.

→ **Always clean up spilled oil and repair leaks.**

WARNING

HOT SURFACES

The CJC® Oil Treatment unit may contain hot oil.

Contact may cause burns.

→ **Allow to cool before servicing.**

WARNING

TRANSPORTATION

→ **Use only approved lifting gear.**

→ **The Oil Treatment unit may only be lifted underneath the drip pan.**

WARNING

SKIN CONTACT WITH OIL

Skin contact with oil can cause allergic reaction.

→ **Wear suitable gloves, chemical resistant disposable clothing and goggles when servicing or repairing.**

CAUTION

HIGH AMBIENT TEMPERATURES

High ambient temperature may cause malfunction of the electrical components.

→ **Do NOT expose the CJC® Oil Treatment unit to ambient temperatures higher than stated in this instruction manual.**

CAUTION

HIGH FLUID TEMPERATURES

Excessive fluid temperatures may decompose sealing and hose components.

→ **Do NOT expose the CJC® Oil Treatment unit to fluid temperatures exceeding design temperature as stated in this instruction manual.**

CAUTION

UNINTENDED DRAINAGE OF MACHINERY MAIN SYSTEM OIL RESERVOIR

Erroneous operation, component failure or leaks may drain the main system oil tank.

→ **User must install necessary equipment or apply procedures to monitor oil level in the main system oil tank.**

1.4.3 Intended use and limitations

- The CJC® Oil Treatment unit must NOT be used for other fluids or machinery than intended for at the time of acquisition from C.C.JENSEN A/S. For other application please contact C.C.JENSEN A/S.
- The CJC® Oil Treatment unit must NOT be used on board aircrafts.
- The CJC® Oil Treatment unit must NOT be used for any liquids used in the direct processing of foods.

NOTE!
Type of CJC® Filter Insert is always selected to match the specific application and oil type.

2 Installation

2.1 General

The CJC® Oil Treatment unit must be positioned and secured in place to keeping it in a fixed position under all conditions, use class 8.8 bolts or higher. To ensure that CJC® Oil Treatment unit will stay in place even when vibrations occur, apply glue to bolts.
The installation must allow for safe maintenance of the CJC® Filter System.

The CJC® Oil Treatment unit must be connected to the main system by independent suction and return lines. The suction line should be connected to the lowest and most contaminated position of the system.

In order to facilitate servicing of the CJC® Oil Treatment unit, it is advisable to install isolation valves on suction and return lines.

NOTE!
Installation must always be carried out by qualified personnel

2.2 Taking delivery of a CJC® Oil Treatment unit

2.2.1 Unpacking

Check that the packaging is undamaged.

2.2.2 Inspection upon receipt

Check that the CJC® Oil Treatment unit and all accessories are undamaged. If damage is found, a damage report should be sent to the company responsible for the shipping (include photographs if relevant). Batch number of the CJC® Oil Treatment unit must be included in the damage report.

2.2.3 Storage until installation

NOTE!
If the CJC® Oil Treatment unit is not to be installed immediately after delivery, the CJC® Oil Treatment unit must be stored in its original delivery packaging and in an acceptable condition. A dry storage room with relative humidity not exceeding 60% is considered acceptable.

NOTE!
Outdoor storage under cover is accepted only for a short time and requires adequate protection against all harmful impacts of the climate.

NOTE!
The CJC® Oil Treatment unit must be handled with care, protect against mechanical damage.

NOTE!
Keep the CJC® Filter Insert packaging intact until installation!

2.3 Installation

It is the customer's responsibility that the CJC® Oil Treatment unit is installed correctly.

WARNING

TRANSPORTATION

→ **Use only approved lifting gear.**

→ **The CJC® Oil Treatment unit may only be lifted in frame.**

2.3.1 Piping

CJC® Oil Treatment must be positioned and secured in place, all fluid and electrical connections must be correctly fitted. To ensure that the oil filter system will stay in place even when vibrations occur, apply glue to bolts.

Inner diameter of connections pipes must be at least 3/4" and as short as possible.

NOTE!
Only use fittings with cylindrical thread in filter or pump.

NOTE!
Never use galvanized or copper fittings/pipes when installing the CJC® Filter System.

Torques

NOTE!
Please refer to torque table in appendices.

2.3.2 Oil Connections

Recommend diameter for piping must be at least ¾". The connections should be as short as possible, especially the suction line. In order to avoid large pressure drops, the inner diameter must be increased if the length is more than 3 metres.

- Maximum pressure on in- and outlet connections of CJC® Oil Treatment unit with PV pumps is 0.5 bar/7.3 psig.

- Maximum pressure on in- and outlet connections of CJC® Oil Treatment unit with PVM pumps is 3.5 bar/50.8 psig.

The CJC® Oil Treatment unit must be connected to the main system by independent suction and return lines. The suction line should be connected to the lowest and most contaminated position of the system.

NOTE!
In order to avoid damage to the pumps, make sure all lines are free of metal particles and other contaminations before connecting the CJC® Oil Treatment unit.

2.3.3 Drained water

NOTE!
Before starting the Desorber, remove the cable ties which holds the water outlet hose. Make sure water from water outlet hose can run freely and connected to a non-pressurized tank/container.

CJC® Desorber removes water from the oil and the water is drained via the water outlet. Drained water may contain small amount of oil and must be disposed in accordance with local regulations for oil and chemical waste.

NOTE!
When oil of the main oil system is dry, (water content below 1000ppm) oil will also be drained from water outlet of the CJC® Desorber.

NOTE!
Discharged water is contaminated with oil and must NOT be drained to general sewer, but to a suitable collection tank/bilge or container for proper disposal.

2.3.4 Electrical connection

WARNING

ELECTRICAL SHOCK
Make sure that the power supply is safely disconnected before carrying out any wiring work!
→ **Work on electric equipment must only be carried out by qualified personnel!**

Verify that system voltage matches equipment voltage ratings before connection. Refer to the nameplate on the control panel when sizing power supply wire.

Voltage (AC/DC) tolerance is +/- 5%.
Frequency tolerance is +/- 2%.

Connect the power supply as shown in the wiring diagram in this instruction manual. It is the customer's responsibility that the electrical equipment is connected with a cable of the correct dimension and that the electrical equipment is properly protected.

WARNING

ELECTRICAL SHOCK
Different electrical potential between adjacent machinery may cause electrical shock.
→ **The CJC® Oil Treatment unit must be supplied with power from the same source as the adjacent machinery or connected by an equipotential bonding wire.**

3 Commissioning, operation and service

When CJC® Oil Treatment unit has been positioned and secured in place, all fluid and electrical connections have been correctly fitted, the CJC® Oil Treatment unit main circuit can be powered by turning main switch to ON.

In order to protect the CJC® Oil Treatment unit, the pumps is equipped with an internal bypass valve. The bypass valve protects against pulsating excessive pressure and is not designed for protection of constant pressure increase.

NOTE!
If fluid passes through the bypass valve for a prolonged period, it will cause heating up of the pump and fluid which destroys the pump and fluid.

The following can cause an alarm and will stop the pump:

- High Level
- Low Level
- Leak detection
- Motor protection
- High Temperature
- High Pressure

3.1 Starting the unit

NOTE!
Before starting up, check that valves (if fitted) on in- and outlet are opened.

NOTE!
Before starting up, remove the cable ties which holds the water outlet hose.
Make sure water from water outlet hose can run freely and connected to a non-pressurized tank/container.

NOTE!
Before starting up, make sure the desorber chamber is empty by running the drain sequence. If the unit is started with oil in the desorber chamber it cannot find a steady state between filling and emptying, causing high level alarm.

3.1.1 CJC® Desorber

When CJC® Desorber has been powered on wait a few seconds before starting the CJC® Desorber by pressing “F1” at the display. Blower and supply pump of CJC® Desorber will start. If the LL sensor is reached within 30 seconds, a drain sequence will be initiated. Transfer pump will start up when LL has been reached. Drain sequence will only be initiated if auto drain has been selected.

At initial start-up expect unit to be in operation for approximately 1 - 2 hours before the normal operation temperature of 60ºC has been stabilized (temperature pre-set on electrical heaters).

NOTE!
It may take several hours before any water is separated from the oil and drained. This depends on the water content of the reservoir oil.

Supply pump takes oil from the main system, will start to fill desorber chamber and after starting delay has passed, the whole system will start up.

3.1.2 CJC® Fine Filter

Before starting CJC® Fine Filter ensure that inlet and outlet valves (if fitted) are open and check that drain valve is closed. Start CJC™ Fine Filter pump by pressing “F2” at the display
CJC® Fine Filter is fitted with automatic de-aerator, observe venting process is correctly stopped, indicating filter housing is full, and check for leaks.

3.2 Operating the unit

3.2.1 CJC® Desorber

Oil supply- and transfer pump will run continuously. Solenoid valve is controlled by Low- and High level switch in desorber chamber.
Low level switch is deactivated, solenoid valve opens and transfer pump discharge oil back to desorber chamber and increase oil level in desorber chamber.
High level switch is activated, solenoid valve closes and transfer pump discharge oil back to main system and decrease oil in desorber chamber. The oil level in desorber chamber will decrease until Low level switch is deactivated.

If High level switch has been activated for more than 2 minutes the CJC® Desorber will stop, and COMMON ALARM lamp will be lit and restart CJC® Desorber.

If Low level switch has not been activated for more than 4 minutes, the CJC® Desorber will stop, and COMMON ALARM lamp will be lit and rectify cause to fault.

If the leak detection is activated the CJC® Desorber will stop immediately and light up the “common alarm”. Leak must be rectified and leak detection well must be drained before the unit can be restarted.

The pre-heater in desorber chamber has been pre-set to maintain a temperature of 60ºC. Pre-heater will automatically switch on and off (consecutively) according to the temperature difference between the inlet oil and the pre-set operation temperature. The temperature is measured by the PT100 sensor in the desorber chamber.

Once every 24 hrs. the cooling unit stops for 15 min. for defrosting. The cooling restarts automatically.

List of timer settings in the PLC program

Timer	Setting
Filling during start	15 min
Delay start	30 sec
LL to HL	4 min
Time to high level	30 sec
HL to LL	15 min
Time at low level	30 sec
Time between defrost	23 h 45 min
Defrost time	15 min
Drain time after LL deactivated	10 min

Drains if LL activates within 30 sec. after start

In case of failure, the pump will stop and red common alarm indication will be active. The cause of the failure must be remedied before the unit is restarted.

During normal operation, the display will give the following information:

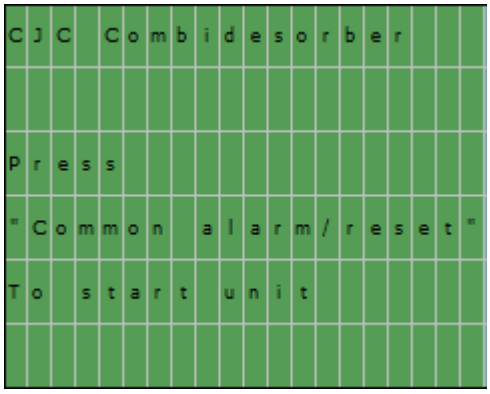
- Total running hours
- Running
- Drain

External signals and controls:

- Common alarm
- Emergency stop

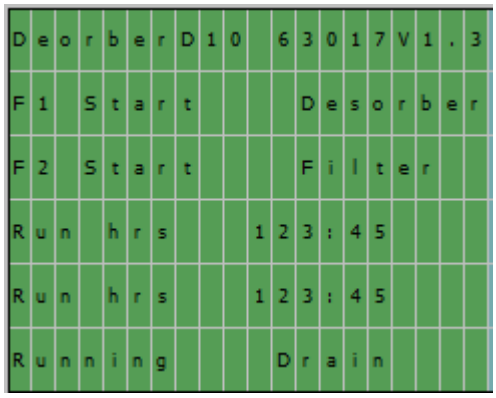
3.2.2 Display

Initial Start Screen



Initial start screen, Press ”Common alarm/reset” button.

Run Screen

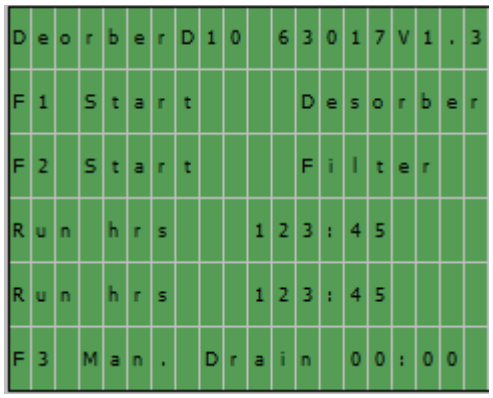


Software version

Press F1 to Start/stop Desorber

Press F2 to Start/stop Filter

Running hour's Desorber. Press F1 more than 10 seconds to reset.
Running hours Filter. Press F2 more than 10 seconds to reset.
Indication of state. Running and/or drain.



Software version

Press F1 to Start/stop Desorber

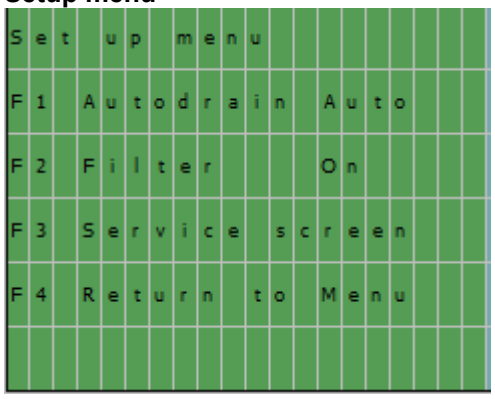
Press F2 to Start/stop Filter

Running hour's Desorber.

Running hours Filter.

Manuel drain selected in set up. Press F3 to initiate draining sequence. Remaining time is indicated.

Setup menu



Accessed by pressing F4 for more than 5 seconds
F1 changes between automatic and manual drain

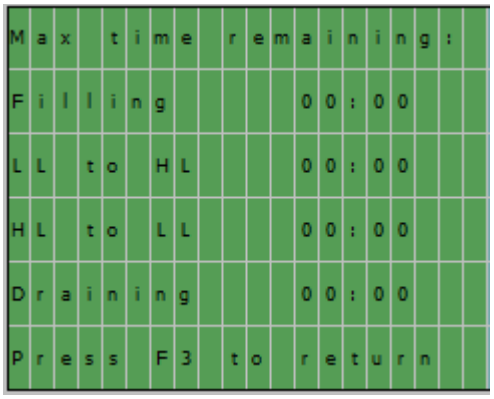
F2 Select if filter is present or not

F3 shows service screen

Press F4 returns to run screen

The setup screen is only intended for initial set up of the unit.

Service screen



Shows various timers

Press F3 returns to setup menu

3.2.3 CJC® Fine Filter

Pressure drop across the CJC® Filter Insert varies with the oil viscosity, but is usually <0.3 bar plus the main system pressure. However, it is not unusual for the pressure to be somewhat higher during the first hour of operation until temperature and flow conditions have stabilized.

It is crucial for the CJC® Fine Filter performance that it is in continuous operation, and that the condition of the CJC® Filter Insert is maintained and monitored by applying **both** of following routines.

3.2.4 CJC® Filter Insert change based on service time – 12 months

The CJC® Filter Insert will retain oil degradation products and oxidation by-products to a level, at which it becomes saturated. It is not possible to indicate this saturation, since it has insignificant influence on pressure drop across the CJC® Filter Insert.

NOTE!
In order to maintain optimal filter performance, the CJC® Filter Inserts must be changed at least once per year.

3.2.5 CJC® Filter Insert change due to high pressure – 1.8 bar plus the main system pressure.

As particles are deposited in and on the CJC® Filter Insert and water is absorbed the flow resistance increases causing increased pressure drop across the CJC® Filter Insert. The flow resistance is monitored by the pressure gauge.

NOTE!
In order to maintain optimal filter performance the CJC® Filter Insert must be changed before the pressure reaches 1.8 bar plus the main system pressure.

3.3 Stopping the unit

When the CJC® Oil Treatment unit is stopped, switch off the power by turning the main switch to position “OFF” and close valves (if fitted) on inlet and outlet line.

NOTE!
Before the CJC® Oil Treatment unit can be moved be sure that all connections and cables have been dismantled and that the valves (if present) on the oil in- and outlet are closed.

3.3.1 CJC® Desorber

Stop the CJC® Desorber System by pressing “F1” at the display. When the desorber is stopped the drain sequence automatically will start and transfer pump is emptying the desorber chamber. The transfer pump will be running for 10 minutes and then it stops automatically.

3.3.2 CJC® Fine Filter

Stop the CJC® Filter System by pressing “F2” at the display. Filter pump will stop

4 Service and maintenance

Inspect the CJC® Oil Treatment unit by applying maintenance routines according to regulations and routines governing the system in which the unit is installed.

- Daily inspection is recommended
- It is recommended to clean the condenser on the cooling system, regularly.

4.1 Service intervals

The design service life of the CJC® Oil Treatment unit is 20 years.

The following service intervals are based on continuous operation of the CJC® Oil Treatment unit.

Service parts and recommended service intervals		
Service parts	**Frequency of replacement/ design service life**	**Instruction**
CJC® Filter Inserts	Every year or when pressure reaches 1.8 bar	See Filter Insert Replacement Guide
Set of O-rings and seals for filter housing	At every filter insert replacement	See drawing
Pumps	5 years	See data sheet
Electrical motors	5 years	See data sheet
Motor contactors	15 years	See electrical diagram
Preheater contactors	5 years	See electrical diagram
Cooling unit	10 years	See data sheet

4.2 Inspection plan

Inspection plan						
Item		**Daily**	**Weekly**	**Monthly**	**Six months**	**Yearly**
CJC® Desorber		X	(X)			
Cooling unit	See § 4.2.1			(X)	X	
CJC® Pump	See § 4.2.2	X	(X)			
Level switch	See § 4.2.3				(X)	X
Electrical inspections	Tighten					X

X CJC recommended Inspection / Cleaning. (X) Alternatively Inspection / Cleaning.

NOTE!
Check of all electrical connections for tightness should be done every year including a visual check of the components.

NOTE!
Depending on operation conditions and fluid medium use, pumps with radial shaft seals may have slight leakage

NOTE!
Service life can be shortened if exposed to severe vibrations

4.2.1 Cooling unit

The refrigerated cooling unit on the CJC® Desorber System is an enclosed unit that cannot be serviced. If the cooling unit fails it must be replaced.
To keep the efficiency of the cooling unit the surface of the condenser must be clean. Condenser must be cleaned regularly by either soft brush or compressed air.

4.2.2 CJC® Pump

Depending on type of pump mounted on the Desorber, the following service must be considered. If the Desorber is equipped with CJC® PVM pumps only regularly inspection is necessary. If the Desorber is equipped with CJC® PV pumps the following must be respected.

The CJC® PV pump is equipped with a shaft seal that among time will be worn and has to be replaced. Depending on operation conditions and used medium pumps with radial shaft seals may have slight leakage however the time has come to replace the shaft seal when oil begins to drip heavily from the pump. Normally the lifetime of the shaft seals is very high up to 10 years, still of course depending on the used type of oil and cleanliness of the oil. To avoid that oil is spilt and may result in a dangerous situation, it is very important to inspect the CJC® PV pump regularly.

To change the shaft seal stop and drain off the CJC® Desorber. When the desorber is empty the pump can be dismounted. Separate the pump and replace the shaft seal with a new one ordered from C.C. Jensen. When the pump has been assembled and mounted on the CJC® Desorber again, it can be started.

4.2.3 Level switch

The level switches mounted in the Desorber chamber may be covered by a layer of dirt over time, depending on the cleanliness of the used oil. This will lead to malfunction of the CJC® Desorber and to make sure that the CJC® Desorber is working properly, the level switches have to be regularly cleaned to avoid failure during operation.

To clean the level switches drain off the desorber chamber and dismount the level switches. Remove any dirt from the level switches with a rag (do not clean with a tool) until the level switches are clean. Remount and start up the CJC® Desorber.

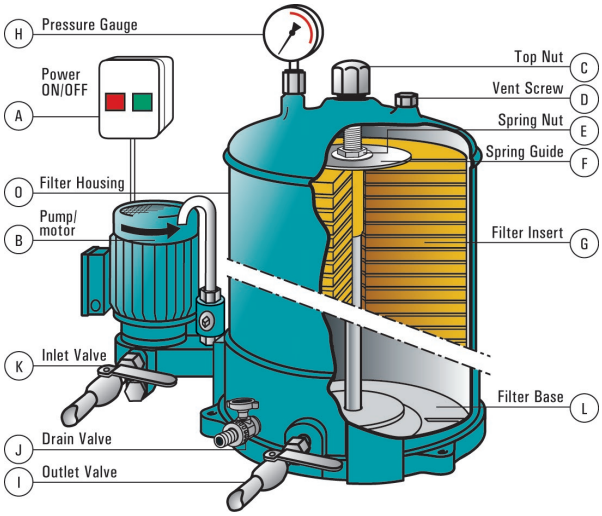
4.3 CJC® Filter insert replacement

Tools

- Spanner 41 mm
- Torque wrench (90 Nm)
- CJC® Insert Extractor (optional)
- Container for draining oil
- Lint free rags or paper towel

Material

- Spare CJC® Filter Insert
- Set of O-rings for CJC® Filter Insert change.



Replacing the CJC® Filter Insert

1. Stop whole unit (se section 3.3). Isolate from external system by closing inlet and outlet valves (if fitted) (K+I)
2. Switch off main power switch on the side of the control panel
3. Open drain valve (J) and vent screw (D) and allow filter to drain into a container
4. When filter is drained, unscrew top nut (C) and lift off filter housing (O)
5. Unscrew spring nut (E) and remove spring and spring guide (F)
6. Lift CJC® Filter Insert (G), using the CJC® Filter Insert Extractor
7. Clean all parts and inside of filter base (L) with lint free rags or paper towels
8. Replace O-rings and seals
9. Place new CJC® Filter Insert (G) in housing
10. Check that O-ring inside spring guide (F) is placed correctly in groove
11. Mount spring guide (F) and spring

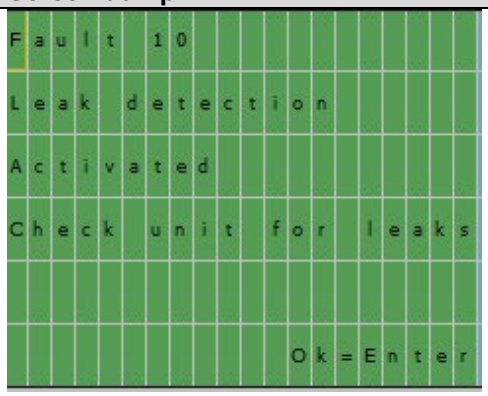
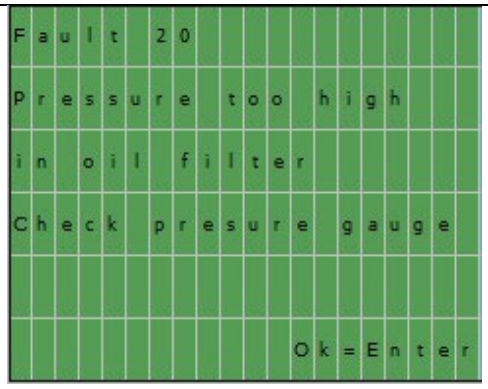
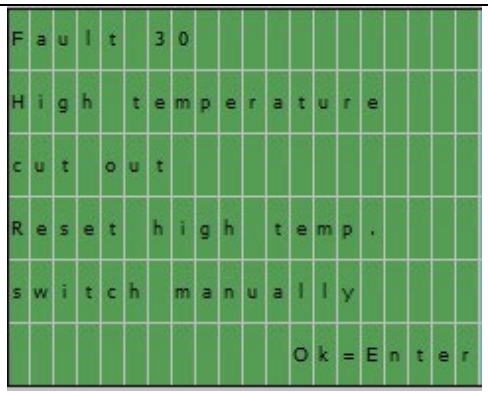
NOTE!
Take care not to damage O-ring on thread of stay bolt when mounting spring guide.

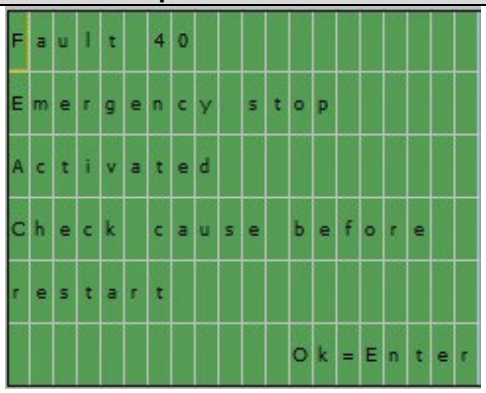
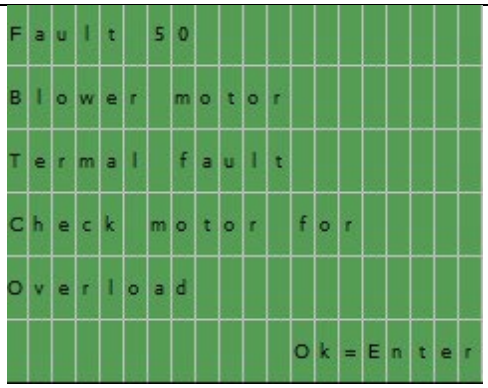
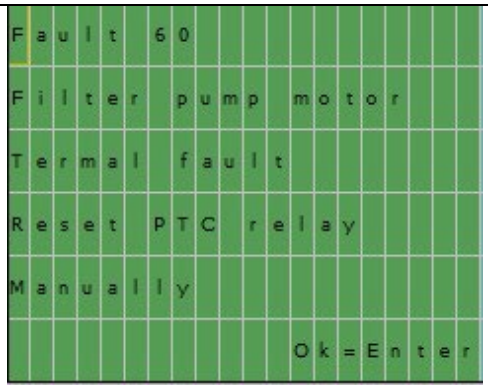
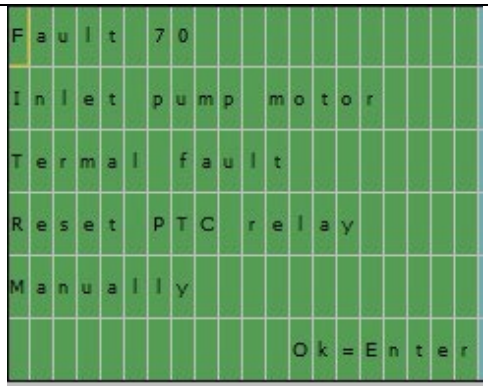
12. Mount spring nut (E) and tighten by hand until it touches the spring guide disc. Apply an additional 4 turns with a spanner to settle insert
13. Check that O-ring at the filter base (L) is placed correctly. Mount filter housing (O)
14. Place top nut seal, mount top nut (C) and tighten with a torque wrench (see torque table)
15. Put filter back into service by applying same procedure as described in chapter 3

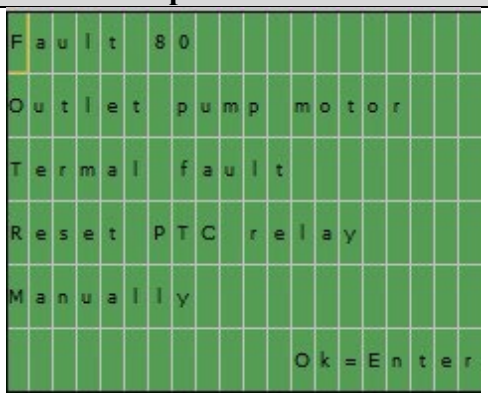
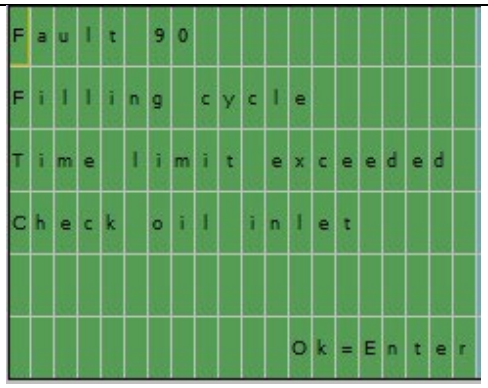
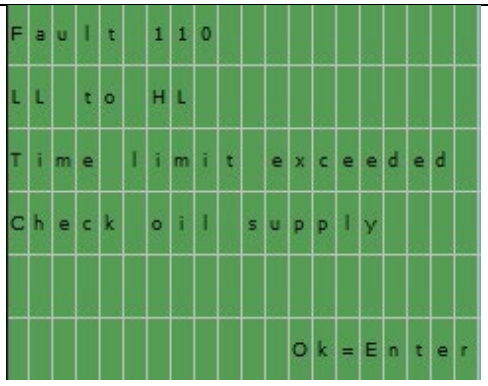
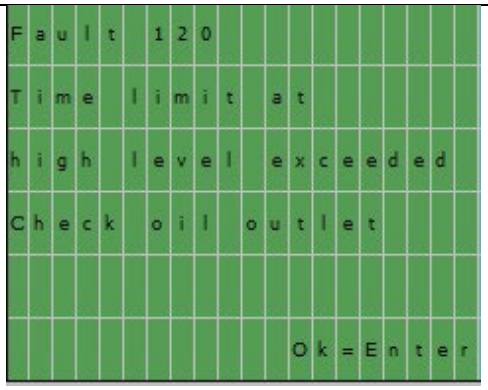
4.4 Trouble shooting

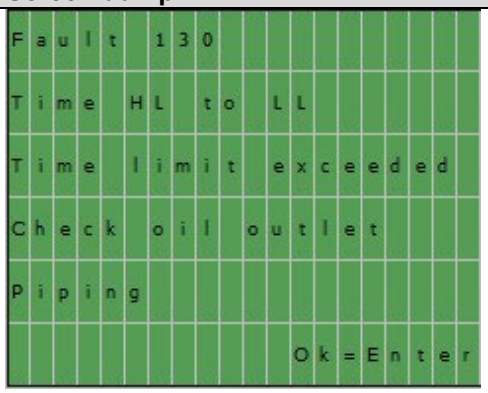
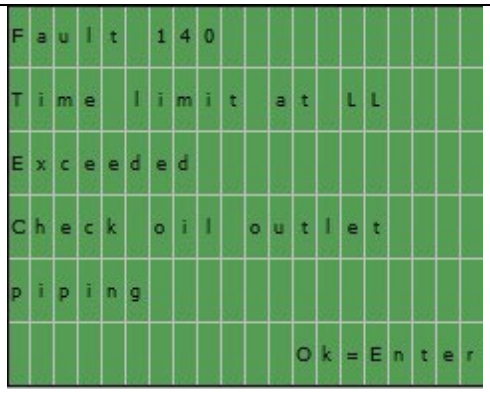
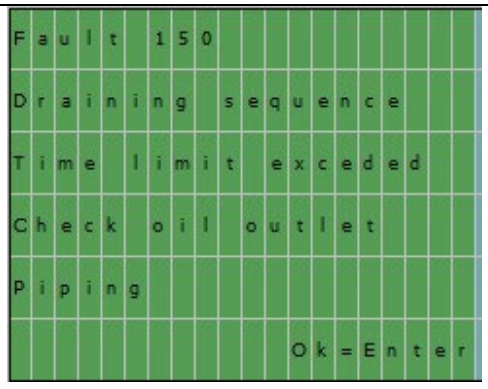
A number of screens indicate abnormal running conditions. Each individual fault has a unique number for easy reference.

Each fault must be reset by pressing the “Enter” button on the display.
The cause of the fault must be remedied before the message can be reset.

Fault no.	Screen dump	Cause	Solution
10		**Leak Detection** Leak detection has been activated.	Check for leaks. Remedy the leaks, empty the leak detection well and restart.
20		**High Pressure** Pressure switch for Fine Filter has been activated.	Check: - Filter Insert - Valve on outlet piping - Oil temperature (oil vis-cosity to high)
30		**High Temperature** Temperature inside the desorber has been too high.	Reset high temperature at display

Fault no.	Screen dump	Cause	Solution
40		**Emergency stop** Emergency stop has been activated.	Find cause and remedy
50		**Blower motor** Blower motor has been overloaded.	Check motor and blower for any blockage or defects
60		**Filter pump motor** Motor has been overloaded	Check motor and pump for any blockage or defects.
70		**Inlet pump motor** Inlet pump motor has been overloaded.	Check pump and motor for any blockage or defects. Reset PTC relay manually. (Placed inside control box)

Fault no.	Screen dump	Cause	Solution
80		**Outlet pump motor** Outlet pump motor has been overloaded.	Check pump and motor for any blockage or defects. Reset PTC relay manually. (Placed inside control box)
90		**Filling cycle** Time cycle has exceeded its time limit.	Check: - Inlet pump - Oil inlet piping - Valves on piping - Level in system oil tank - LL sensor - Solenoid valve on inlet
110		**Control cycle LL-HL** Level control cycle between LL and HL has exceeded its time limit.	Check: - Inlet pump - Oil inlet piping - Valves on piping - Level in system oil tank - LL sensor - Solenoid valve on inlet - Solenoid valve on recirculation line
120		**Control cycle HL** Level control cycle at HL has exceeded its time limit.	Check: - Outlet pump - Oil outlet piping - Valves on outlet piping - Solenoid valve on recirculation line

Fault no.	Screen dump	Cause	Solution
130		**Control cycle HL-LL** Level control cycle between LL and HL has exceeded its time limit.	Check: - Outlet pump - Outlet piping - Valves on outlet piping - Solenoid valve on recir-culation line
140		**Control cycle LL** Level control cycle at LL has exceeded its time limit.	Check: - Inlet pump - Inlet piping - Valves on inlet piping - Solenoid valve on recir-culation line
150		**Drain sequence** Drain sequence has exceeded its time limit.	Check: - Outlet pump - Outlet piping - Valves on outlet piping - Solenoid valve on recir-culation line

Trouble	Cause	Solution
Common alarm		
- High level	Valve closed on outlet	Check main system line.
	Oil foaming caused by high concentration of water	Stop and restart Desorber
	Sensor fouled	Check high level sensor, clean if necessary.
	Dimension of pipes/hoses too small	Replace with correctly dimensioned pipes/hoses.
- Low level	Valve closed on inlet	Check main system line.
	Sensor fouled	Check low level sensor, clean if necessary.
- Motor protection triggered	Blower stocked	Check if blower can be turned by hand. - If blower cannot be turned by hand, check blower for damage.
	Blower - Motor windings defect	
	Blower - Motor overheated	Motor has been overloaded. Check if Pump is stocked.
	Pump stocked	Check if pump can be turned by hand. - If pump cannot be turned by hand, check pump for damage.
	Pump - Motor windings defect	If necessary replace blower.
	Pump - Motor overheated	Motor has been overloaded. Check if Pump is stocked.
- Leak detection	Unit leaking	Rectify leak. Drain leak detection well before restart.
- High oil temperature	Check oil inlet line	Reset at display
- High Pressure	Filter clogged	Replace filter insert (see "Filter Insert Replacement").
	Oil viscosity to high	Check oil temperature
	Valve closed in return line	Check system line

Trouble	Cause	Solution
Low oil temperature	PT100 sensor failure	Check PT100 sensor or cable Replace PT100 sensor or cable
No oil flow	Oil level in system tank below pump suction level	Refill oil in system tank and check suction pipe is correctly fitted (lowest possible point).
	Bypass valve stuck open (pump)	Dismantle and clean bypass valve.
	Valve closed on inlet	Check main system line.
Pump shaft seal leaking	Dry running of pump	Replace shaft seal or replace with new pump.
	Sudden pressure raise in the oil system	Replace shaft seal or replace with new pump.
Low performance	No water in oil	☺
	Cooling plant malfunction	Replace complete cooling plant.
Oil from water outlet (small amount - < 0.5 ltr/day)	Oil mist carry-over from desorber chamber	Normal
Oil from water outlet (excessive amount)	Oil level sensor fouled or defective	Stop Desorber and clean sensor and restart.
	High pressure on inlet	Check Desorber is connected to the correct suction point

5 End of life cycle

Always familiarise yourself with local regulations and make sure that disposal of CJC® products is carried out accordingly.

C.C.JENSEN recommends disposal of waste in accordance with local regulations and the guidelines below.

5.1 Recycling of packaging material

- The wooden box is to be recycled.
- The protective packaging of expanded polystyrene is to be recycled.

5.2 Scrapping

When the CJC® Oil Treatment unit has reached the end of its service life, dismantle and scrap it in accordance with local regulations.

5.3 Material content

All parts of the CJC® Oil Treatment unit should be recycled.

Below is a list of materials for the individual parts and components of the CJC® Oil Treatment unit:

Part	Material
CJC® Desorber	Steel, and Stainless steel
CJC® Fine Filter	Steel, cast iron
Pump	Steel, cast iron and aluminium
Electrical motors	Semi-finished steel plate, grey cast iron, steel, copper and aluminium
Seals	Viton, nitrile rubber and/or steel
Pressure gauge	Plastic, stainless steel and silicone oil
Preheater	Stainless steel, chromium, aluminium, Iron and magnesium oxide
Frame / drip pan	Stainless steel

5.4 Hazardous waste

The drained oil and the used CJC® Oil Treatment unit are hazardous waste and must be handled in accordance with local regulations.

6 Arrangement and drawings

In this section you can find the relevant documents for the components used in the CJC® Oil Treatment unit.

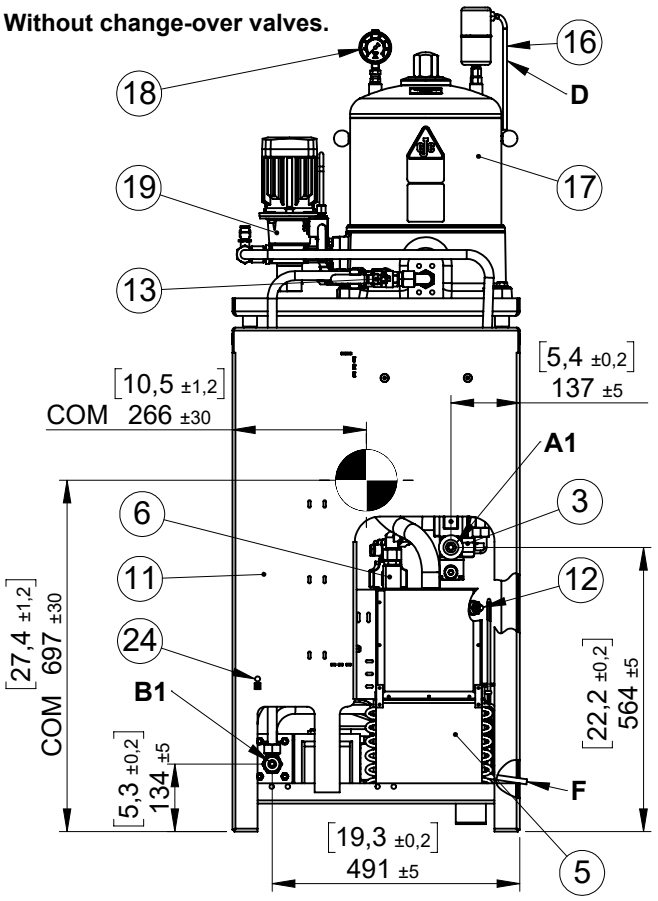
6.1 General arrangement and list of components

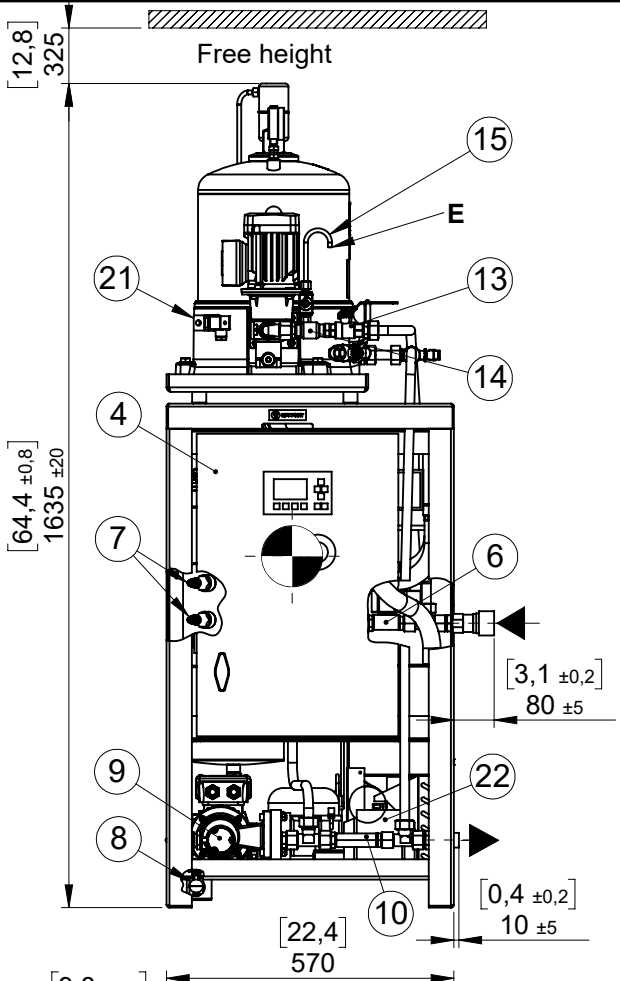
6.2 P&I diagram

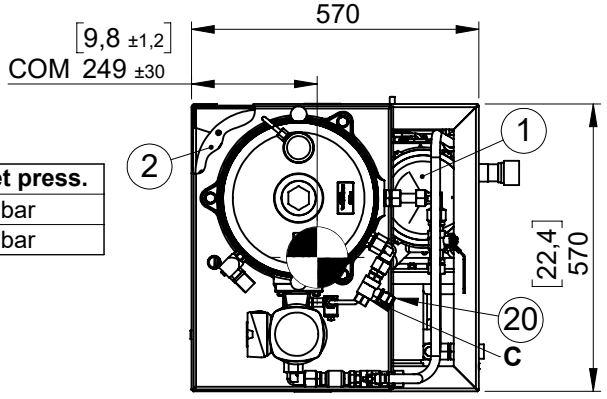
6.3 Spare parts list

FA9601328-XYZ

This sheet shows execution:
Without change-over valves.







X	Execution	Connections
1	Without change-over valves	A1 & B1
2	With change-over valves	A2+3 & B2+3

Y	Voltage - Freq.
1	3x380-420V - 50Hz
2	3x440-480V - 60Hz
3	1x230V - 60Hz
4	1x230V - 50Hz
5	1x208V - 60Hz

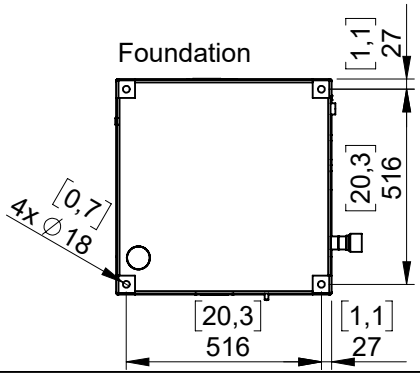
Z	Pump type	Max inlet press.
1	PV	0,5 bar
2	PVM	3,5 bar

Design pressure 7 bar/101,5 psi
Design temp. 60˚C/140˚F
Ambient temp. 45˚C/113˚F
Humidity: Max. 95%
Weight 170 kg/374 lbs

A1 = 3/4" Quick release coupling, female, oil inlet
B1 = 3/4" Quick release coupling, male, oil outlet
C = 1/2" Drain valve, oil
D = Automatic air vent
E = Sampling point
F = ∅6 [0,24] internal, Water drain

P&I Diagram: 7000818

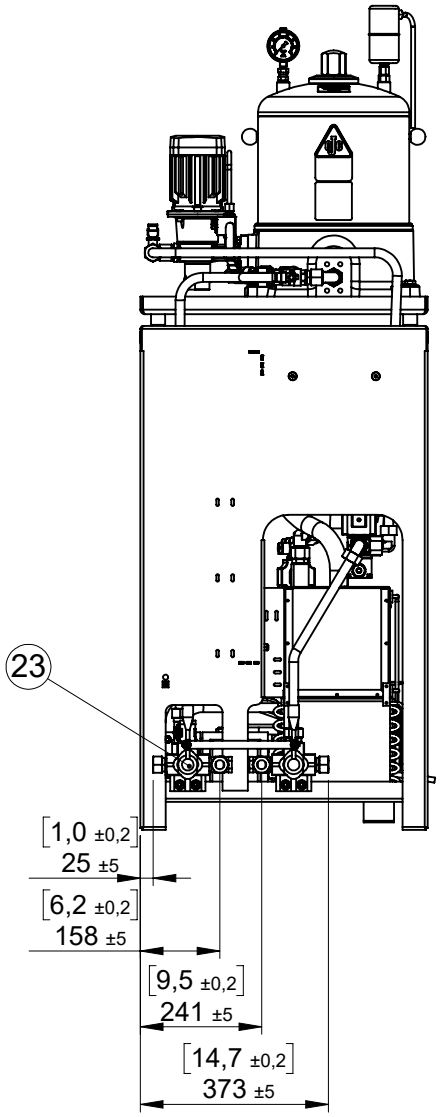
Measurements in mm and [inches].

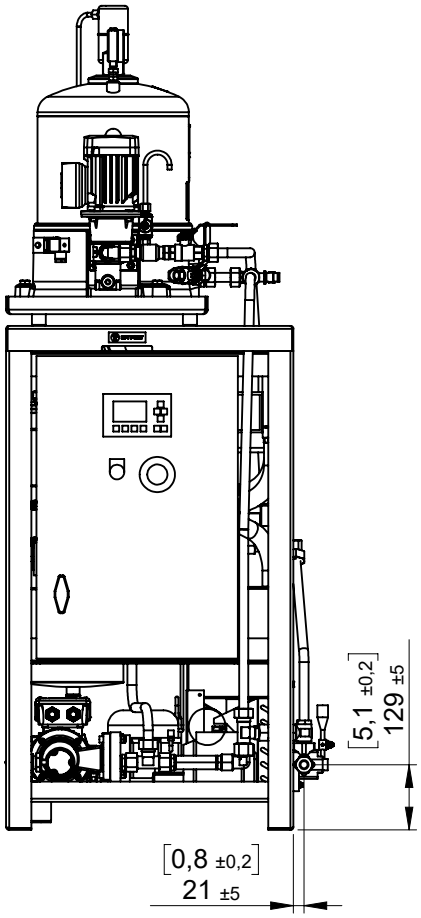


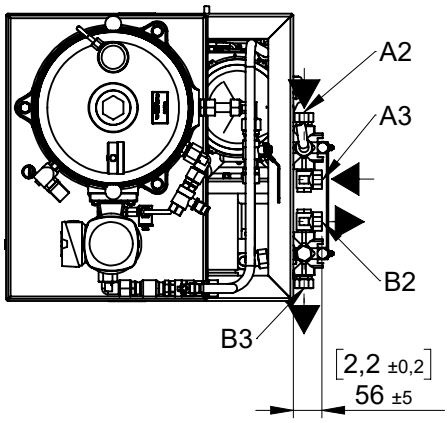
Tolerance: EN ISO 13920-BF	C.C.JENSEN A/S		Sign / Date
Customer:	LØVHOLMEN 13, DK-5700 SVENDBORG, DENMARK Fax +45 62224615 Phone +45 63212014 www.cjc.dk	Constr.	LU 15-07-2011
Project:		Appr.	
Ref:	CJC Desorber type D10 PV-C3DE2H1V/HDU27/27PV-DPVZ General Arrangement	Rev. / Appr. / Date	K / MAL / 23-09-2021
Weight:		Drawing no.	9601328

FA9601328-XYZ

This sheet shows execution:
With change-over valves.

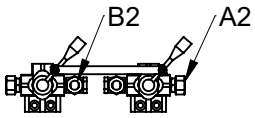




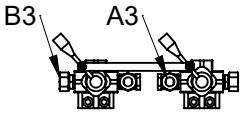


A2+A3 = ∅ 18, oil inlet
B2+B3 = ∅ 18, oil outlet

Correct connections:
A2 (inlet) with B2 (outlet)



A3 (inlet) with B3 (outlet)



Further measurements, see other sheet.

Tolerance: EN ISO 13920-BF	C.C.JENSEN A/S		Sign / Date
Customer:	LØVHOLMEN 13, DK-5700 SVENDBORG, DENMARK Fax +45 62224615 Phone +45 63212014 www.cjc.dk	Constr.	LU 15-07-2011
Project:		Appr.	
Ref:	CJC Desorber type D10 PV-C3DE2H1V/HDU27/27PV-DPVZ General Arrangement	Rev. / Appr. / Date	**K / MAL / 23-09-2021**
Weight:		Drawing no.	9601328

Pos.	Description	Qty.
1	Air blower	1
2	Desorber chamber	1
3	Supply pump type PV2-7 (PVM2-7)	1
4	Control box	1
5	Refrigerated cooling system	1
6	Solenoid valve	2
7	Level switch	2
8	Leak detection	1
9	Transfer pump type PV4-9 (PVM4-9)	1
10	Non return valve	1
11	Frame	1
12	Temperature sensor PT100	1
13	Shut off valve	2
14	Non return valve	1
15	Sampling point	1
16	Automatic air vent	1
17	CJC Fine Filter type HDU 27/27	1
18	Pressure gauge	1
19	Pump type PV4-18 (PVM4-18)	1
20	Drain valve, oil	1
21	Pressure switch	1
22	External power supply for refrigerated cooling system (only for 3-phase variants)	1
23	Change-over valve	2
24	Earthing	1

Tolerance: EN ISO 13920-BF
Customer:
Project:
Ref:
Weight:

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CJC Desorber
type D10 PV-C3DE2H1V/HDU27/27PV-DPVZ
General Arrangement

	Sign	Date
Constr.	LU	15-07-2011
Appr.		

Rev.	Appr.	Date
K	**MAL**	**23-09-2021**

Drawing no. 9601328

REVISIONS

Rev.	Description	Date (DD-MM-YYYY)	Init.
B	Thermostat replaced with sensor PT100.	15-08-2016	LU
C	In type designation: "(M)" deleted, "P" added.	21-02-2017	LU
D	Design pressure changed to 7 bar/101,5 psi	07-03-2017	TP
E	Voltage-Freq., choise 1 and 2: Voltage clarified.	14-03-2017	LU
F	Cover on CJC Fine Filter turned 90°.	10-11-2017	LU
G	Center Of Mass added.	11-01-2018	LU
H	External power supply for refrigerated cooling system added.	01-10-2018	LU
I	Text added: Humidity: Max. 95%, page 1.	08-02-2019	LU
J	Lift point-labels added.	11-04-2019	LU
K	Earthing added.	22-09-2021	LU

Tolerance: EN ISO 13920-BF
Customer:
Project:
Ref:
Weight:

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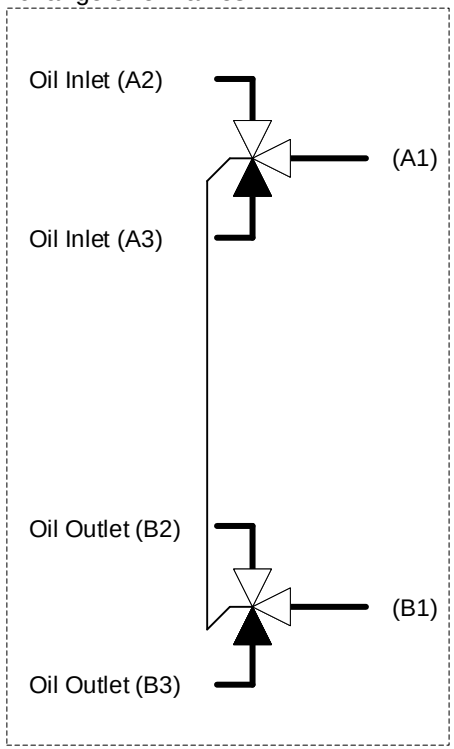
CJC Desorber
type D10 PV-C3DE2H1V/HDU27/27PV-DPVZ
General Arrangement

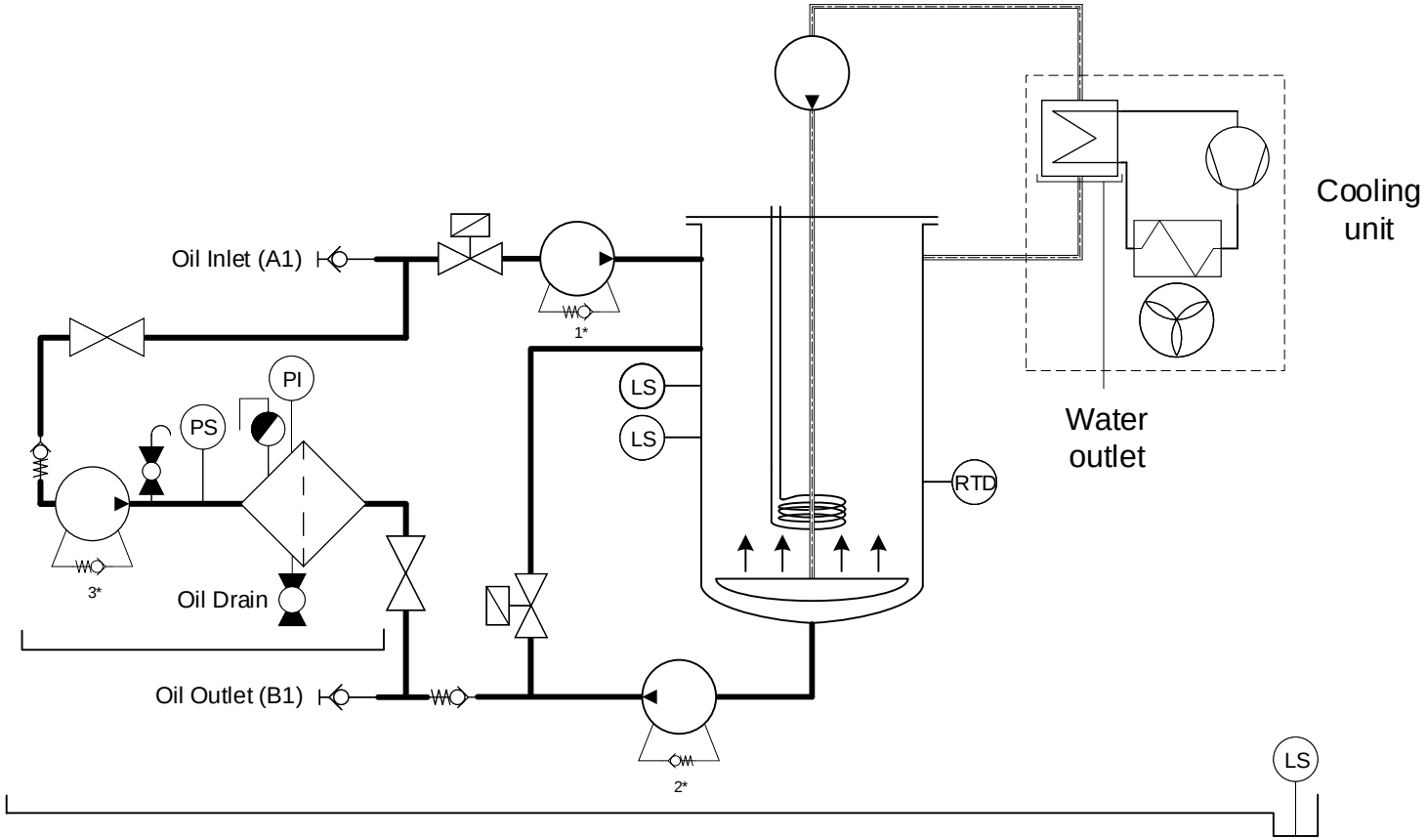
	Sign	Date
Constr.	LU	15-07-2011
Appr.		

Rev.	Appr.	Date
K	**MAL**	**23-09-2021**

Drawing no.
9601328

Optional oil connection to desorber by interconnected change over valves.





By pass valve cracking pressure			
Pump type	Cracking pressure		
	1*	2*	3*
PV	2.8 bar	2.8 bar	2.8 bar
PVM	6.5 bar	6.5 bar	2.8 bar

Tolerance:

Customer:

Project:

Ref.:

Weight:

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CJC Desorber D10 PV(M)-C3DE2H1V / HDU 27/27 PV-DZ
Piping diagram

	Sign	Date
Constr.	TIK	14.07.2016
Appr.	TIK	14.07.2016
Rev.	Appr.	Date.
D	TIK	21.09.2021

Drawing no.
7000818

Spare Part List

D10PV-C3DE2H1V/HDU27/27PV-DPVZ

Article No.: FA9601328-121

Date: 21-02-2023

Article No.	Description	Qty.
FR328032-0000002	Air blower KB-129L 3-phase	1
FR5602213-B00003	Pump PV2-7 w/o motor	1
FD34217	Seal kit f. PV/PVM Pump	1
FR310363-0000004	Elmotor PV 4P 3 Phase IE3	1
FD33300	Coupling e-motor Ø11 PM/PV/LG	1
FD2100704	Coupling f. PM/PV Pump	1
FR5602214-D00001	Pump PV4-9 w/o motor	1
FD34217	Seal kit f. PV/PVM Pump	1
FR310363-0000004	Elmotor PV 4P 3 Phase IE3	1
FD33300	Coupling e-motor Ø11 PM/PV/LG	1
FD2100704	Coupling f. PM/PV Pump	1
FD315036-460	Heating Element D10 440-480V	1
FD2600214/V	Seal for Desorber Chamber D10	1
FD330013	Level sensor Baumer LBFS	1
FD330070	MBT 3270 -50+150°C PT100 G1/2"	1
FR5106301-000001	Cooling unit w/capillary pipe	1
FD33162	Level-switch type FD35 1	1
FD41728	Solenoid Valve EV210SS	1
FD326065	Coil BN024DS 24VDC UL IP65	1
FR1019	Pressure Switch, LAYHER, compl	1

Spare Part List

D10PV-C3DE2H1V/HDU27/27PV-DPVZ

Article No.: FA9601328-121

Date: 21-02-2023

Article No.	Description	Qty.
PA5601320	BLA 27/27 Filter Insert	1
FD34047/V	Seal kit HDU 27/27-54-81 Viton	1
FR1000/V	Filter Plate Set	1
FB1600210-2	Spring Guide komp. Viton	1
FD2300116	Top Nut f. 27/- + 38/-	1
FR330040-0000001	Pressure Gauge CJC 63 7b LM SS	1
FB5200700	CJC Aut. Air Vent Kit	1
FR5602214-H00004	Pump PV4-18 w/o motor	1
FD34217	Seal kit f. PV/PVM Pump	1
FR310363-0000004	Elmotor PV 4P 3 Phase IE3	1
FD33300	Coupling e-motor Ø11 PM/PV/LG	1
FD2100704	Coupling f. PM/PV Pump	1

7 Component Specifications

In this section you can find the relevant documents for the components used in the CJC® Oil Treatment unit.

7.1 Electrical diagram including Start-up and maintenance of switchboards

7.2 Pump type PV2 & PV4 Assembly & List of components

7.3 Motor data sheet

7.4 Motor wiring diagram

7.5 Air blower

7.6 Level switch

7.7 Electric heater

7.8 CJC® Cooling unit D10

7.9 Level switch

7.10 Pressure switch

7.11 Temperature sensor

7.12 Solenoid valve

7.13 HDU 27/- CJC® Fine Filter housing assembly & List of components

7.14 CJC® Filter Insert type BLA 27/27

7.15 CJC® Pressure gauge

7.16 CJC® Aut. Air vent

7.17 Change-over valve (optional)

Start-up and maintenance of Switchboards
delivered by Titech Electric A/S

Before start-up.

1. Visual inspection. Make sure that the switchboard has not been damaged during the transport.
2. All screw terminals on components in the switchboard should be retightened.
3. Visual inspection. Make sure that all wires are connected properly in the terminal strip.
4. Adjust all thermal overload relays, circuit breakers, measuring instruments.
   (All scales are set to lowest value.)

Maintenance instructions.

By preventive maintenance of switchboards, which should be done at least once a year, the checkpoints below could be a guidance.

1. Visual inspection. Check that the switchboard is intact.
2. Cleaning of switchboard/plant. Ventilating apertures should be cleaned for dust and mud, change or vacuum clean filter if necessary.
3. All screw terminals on components and bus-bar connections should be retightened.
4. Actuate all switches. This is very important and should be done frequently.
5. Make a thermo-graphic check of important contact spots on components and bus-bar connections
6. Check switch components for operation time and exchange if any have exceeded maximum operating time.
7. High voltage- and insulation-test. Remember to switch off all electronics, control circuits and outgoing power circuits.
8. Test alarm- and control functions.
9. If the switchboard had been exposed to extreme condition (such as damage by fire or water, lightning or high short-circuit current), it ought to be inspected and checked according to the above checkpoints. Defect components should be changed.

Titech Electric A/S 63 96 65 65 titech@titech.dk www.titech.dk

Ove Gjeddes Vej 11-19 5220 Odense SØ Fax: 63 96 65 67
Hammershusvej 4C 7400 Herning Fax: 97 13 65 67

Customer: **C. C. Jensen A/S**

Control box for Desorber D10
Siemens logo
Thermistor relay
Phase sequence relay
PTC

Voltage:	3 x 380-480V 50/60Hz
Full load:	--A
Largest load:	--A
Max. Ik:	16kA
Min. Ik:	150A
Max. fuse:	16A gL
Degree of protection:	IP65
Ambient temperature:	0-45°C
Actual rev.:	AB4

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Index

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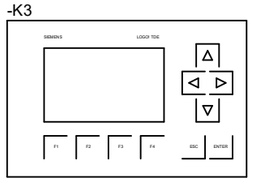
-A1

400mm

-K3



Common alarm/
Reset

-S1

Emergency
stop

-S2

600mm

200mm

200mm

-Q0

Left side

Rev:	Date:	Constr./ Draw.:	Appr.:	Appr. CCJ:
AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant:

Control box for Desorber D10

Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: L1 / 18

Title: Lay-out

C. C. Jensen A/S
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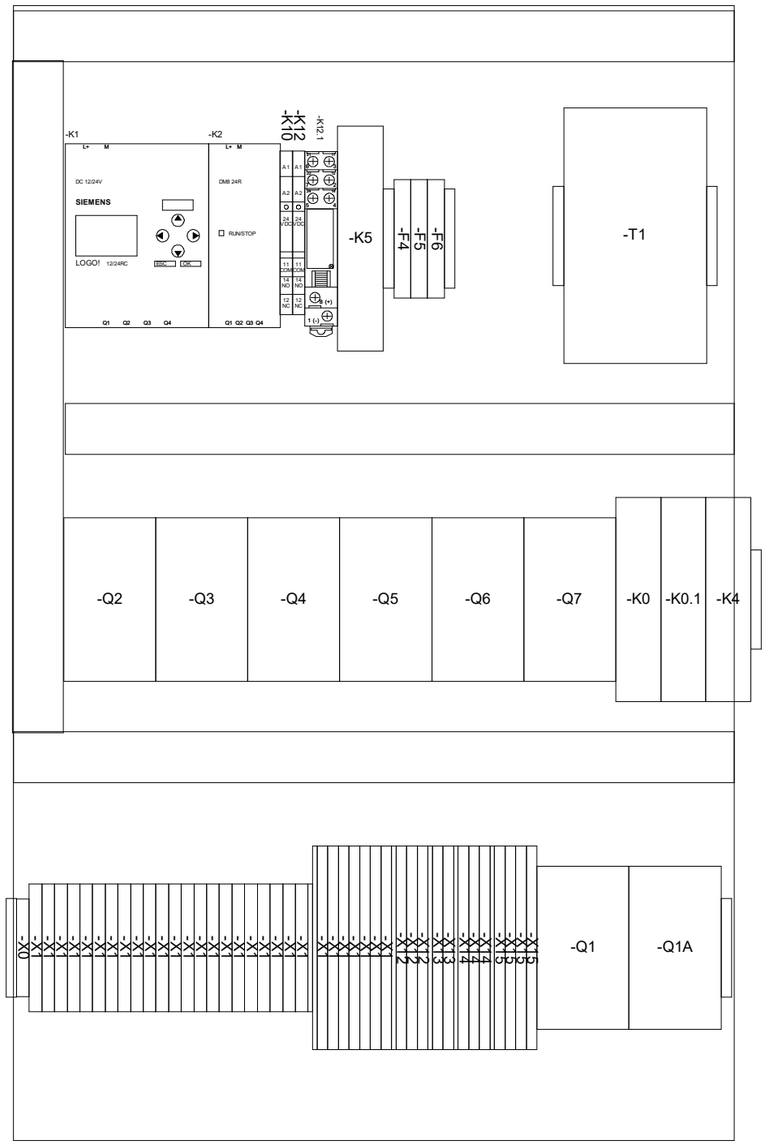

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AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant:

Control box for Desorber D10

Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: L2 / 18

Title: Lay-out baseplate

C. C. Jensen A/S
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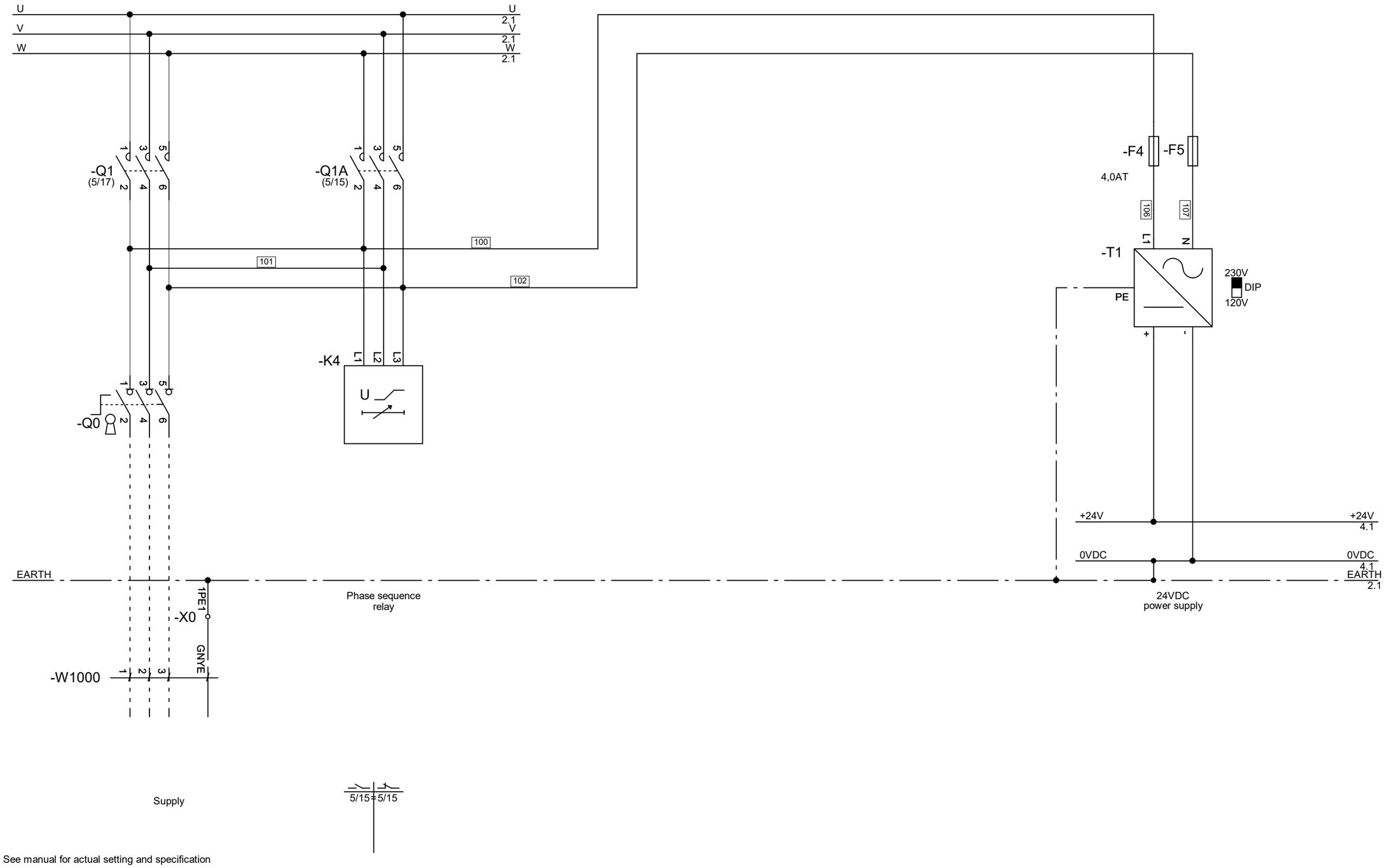

*: See manual for actual setting and specification

Rev:	Date:	Constr./ Draw.:	Appr.:	Appr. CCJ:
AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 1 / 18

Title: Power circuit diagram

C. C. Jensen A/S
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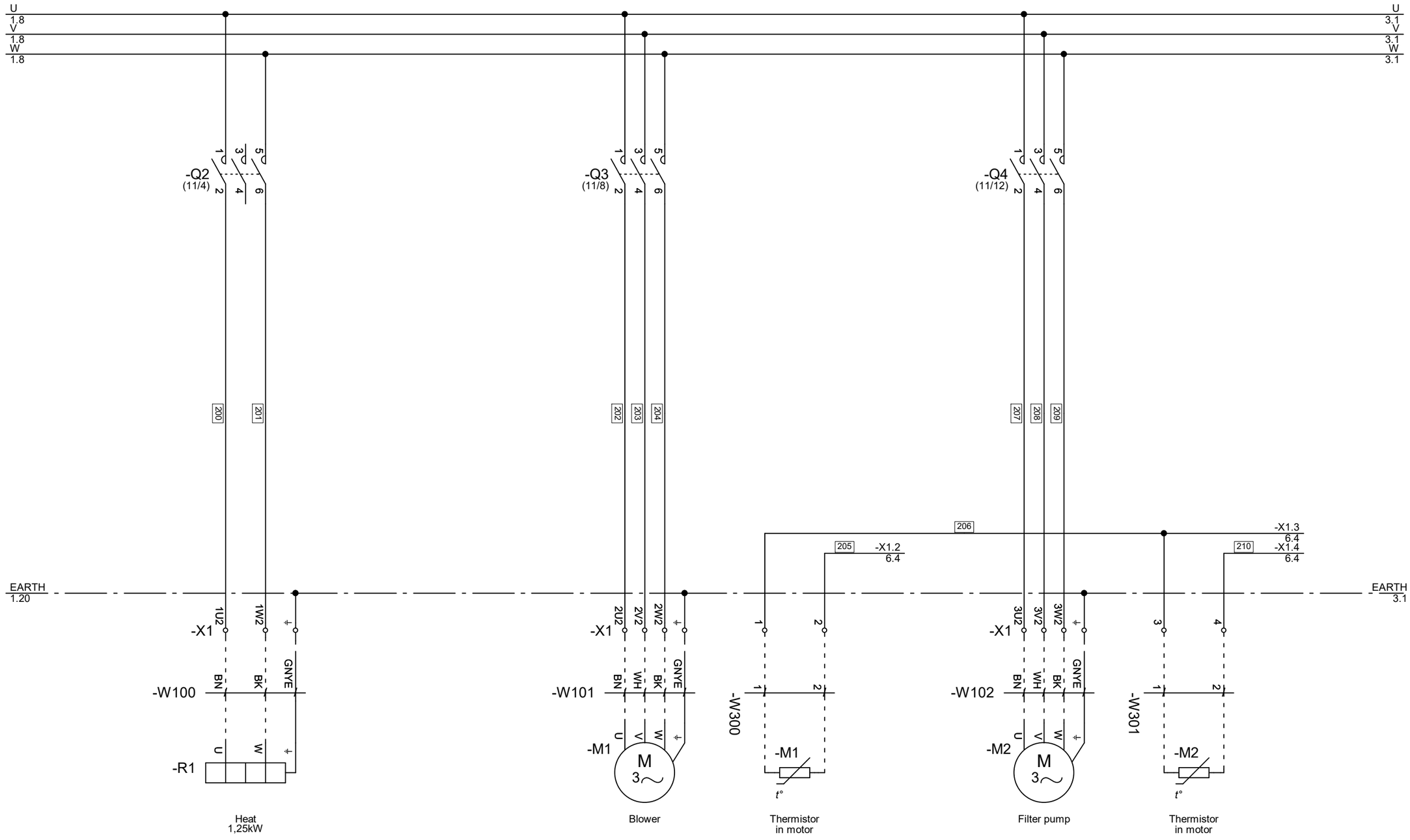

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AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant:

Control box for Desorber D10

Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 2 / 18

Title: Power circuit diagram

C. C. Jensen A/S
Løvholmen 13
DK-5700 Svendborg
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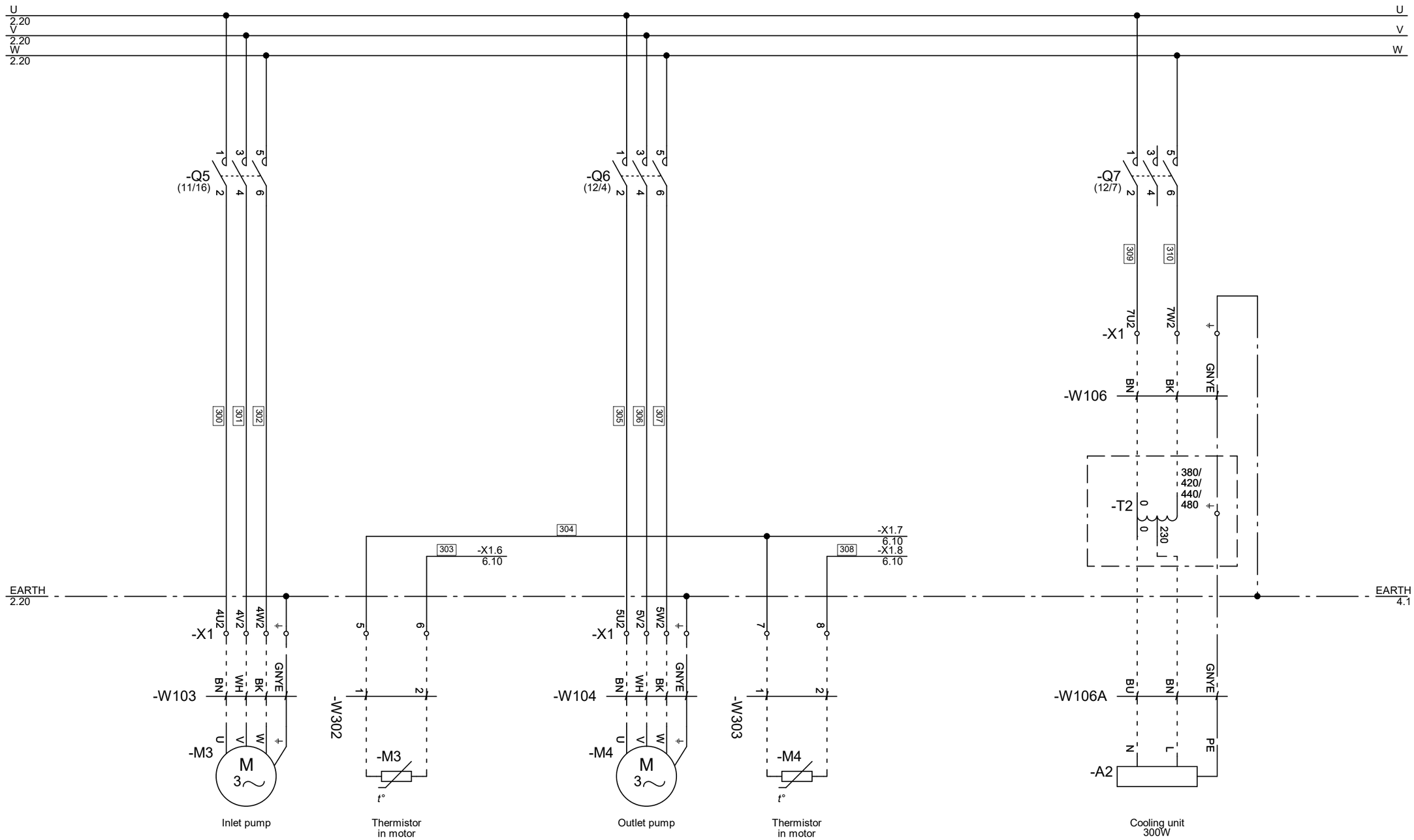

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AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 3 / 18

Title: Power circuit diagram

C. C. Jensen A/S
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DK-5700 Svendborg
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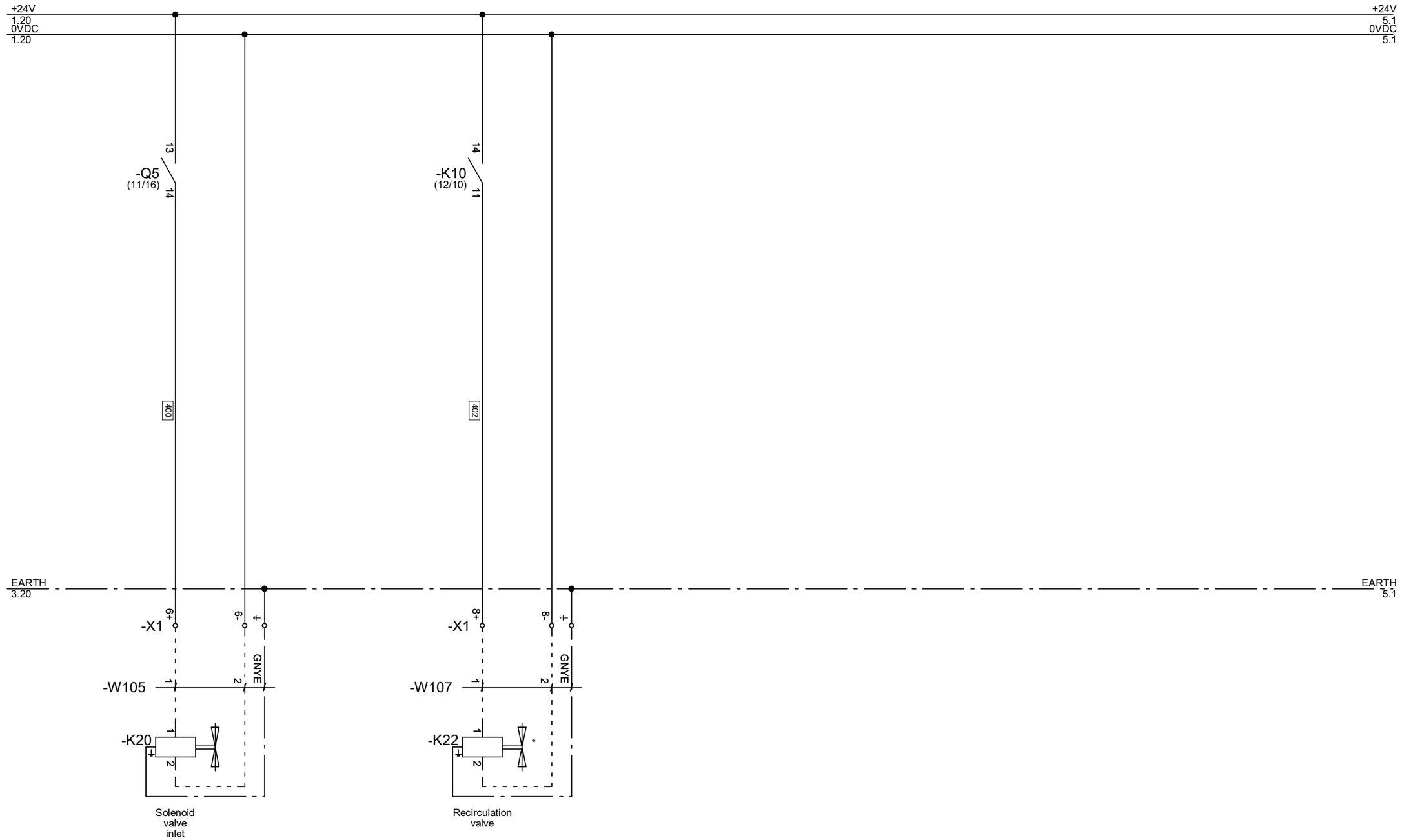

* - Only on modules with filter

Rev:	Date:	Constr./ Draw.:	Appr.:	Appr. CCJ:
AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 4 / 18

Title: Power circuit diagram

C. C. Jensen A/S
Løvholmen 13
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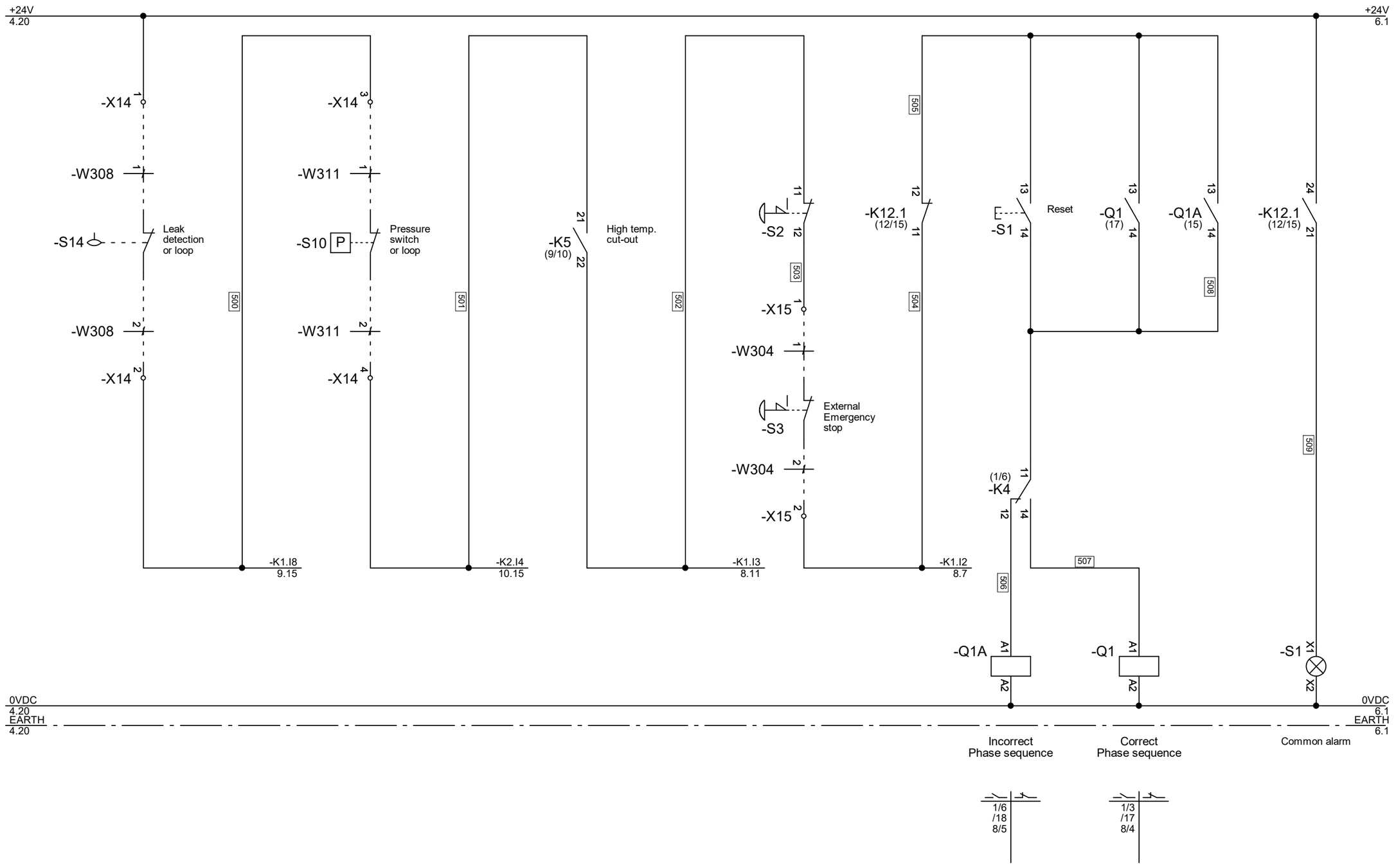

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AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 5 / 18

Title: Start/Stop plant

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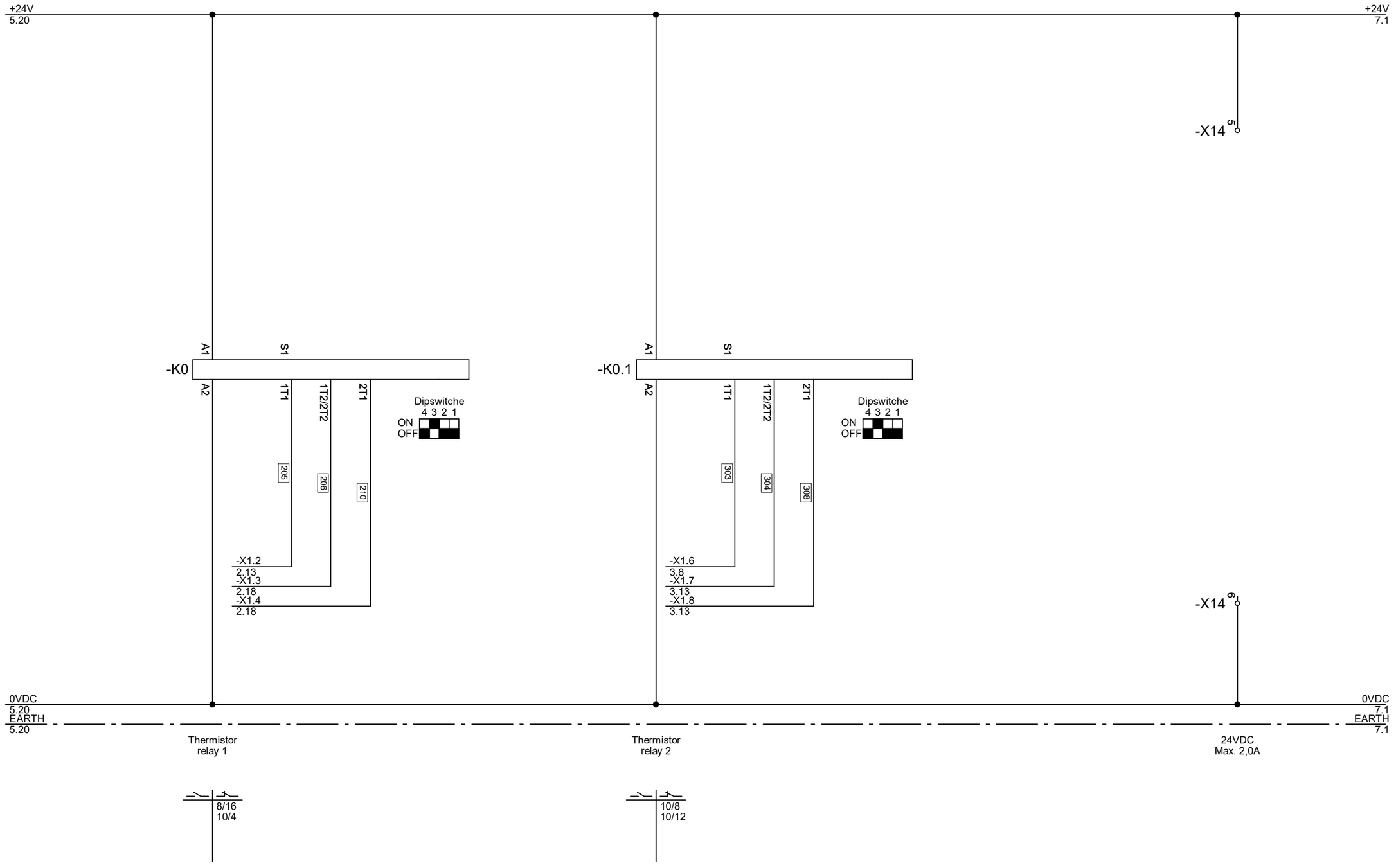

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AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10
Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 6 / 18

Title: Thermistor relays

C. C. Jensen A/S
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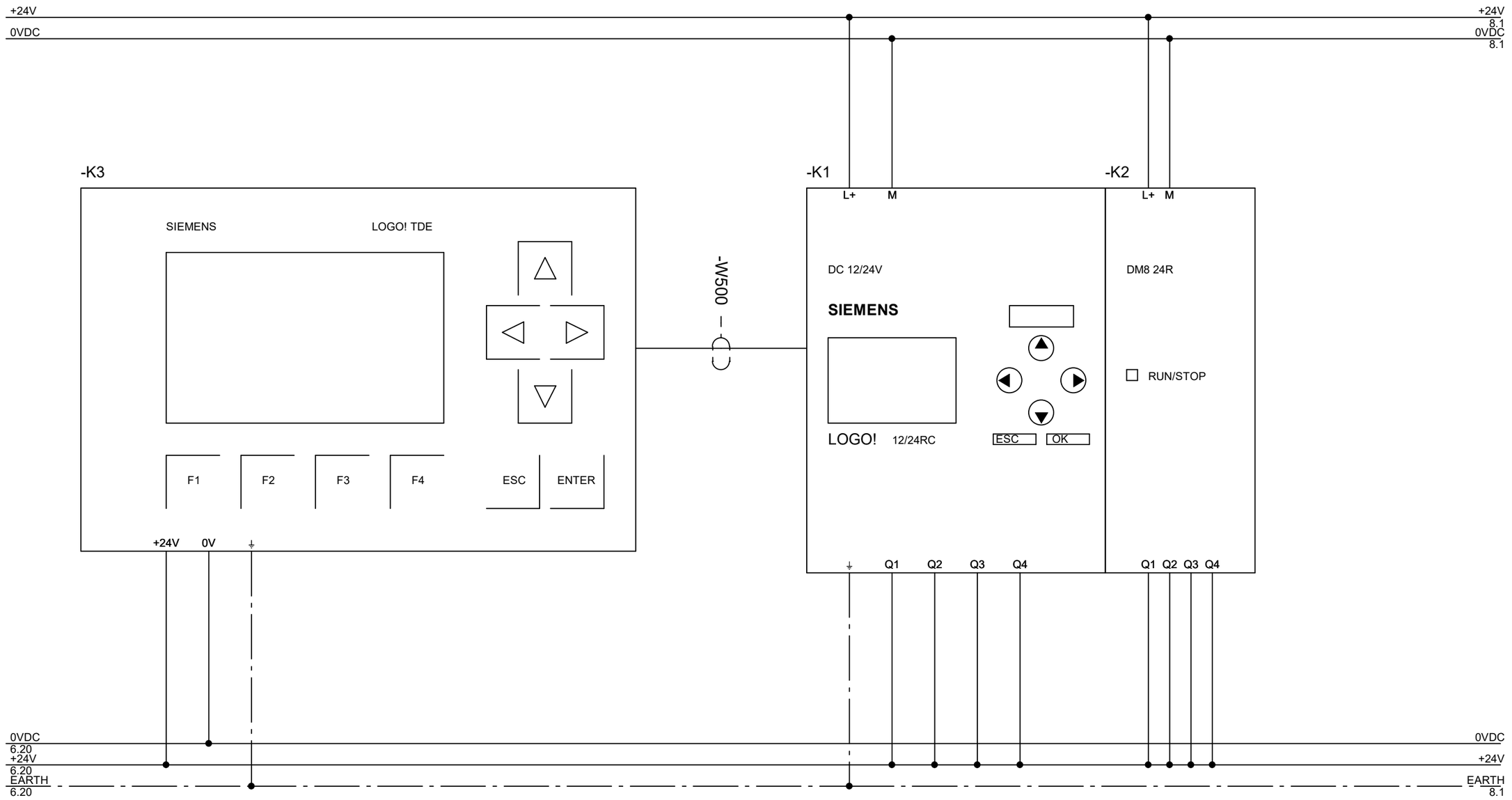

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AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 7 / 18

Title: Lay-out PLC

C. C. Jensen A/S
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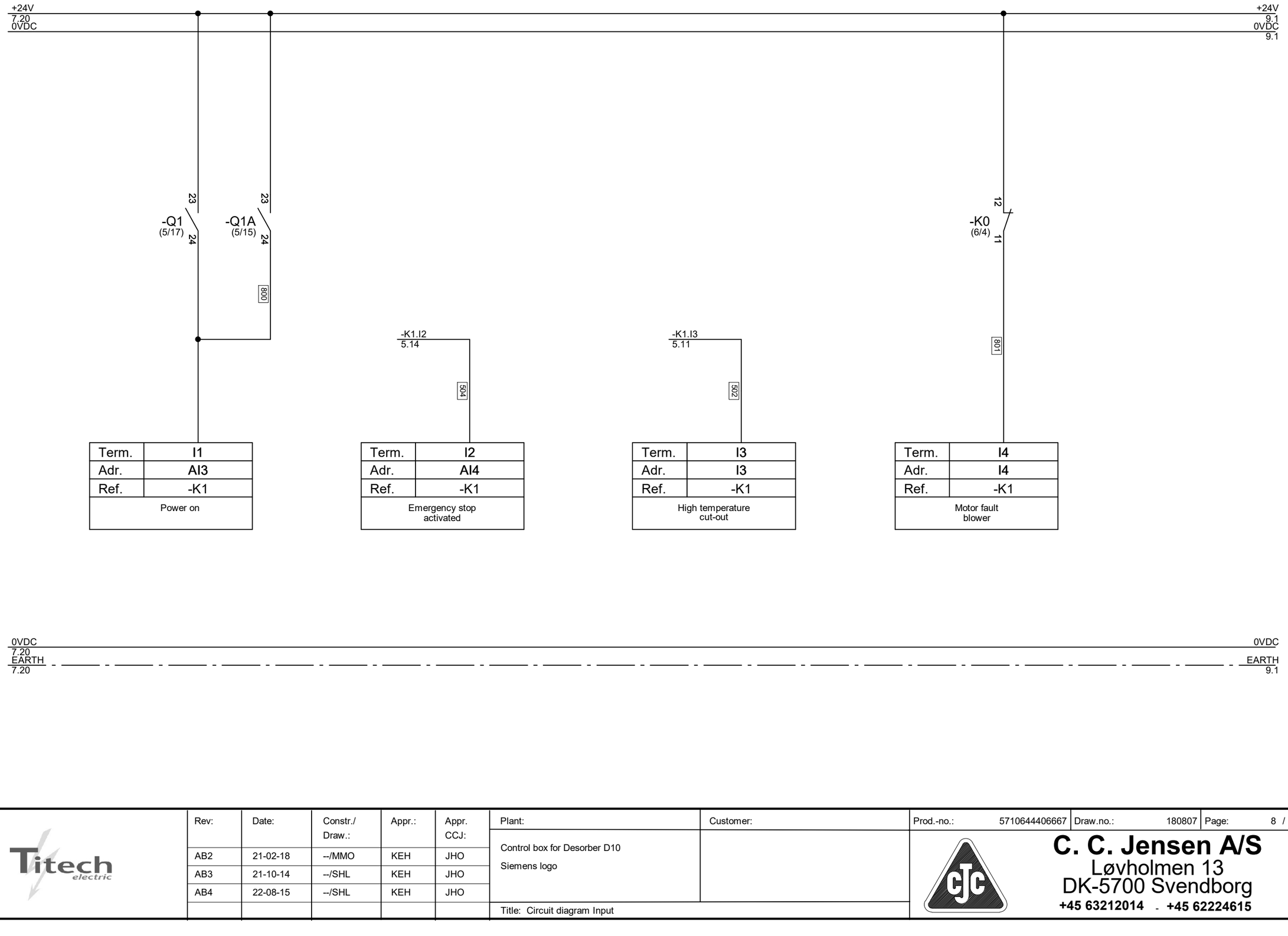

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AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 8 / 18

Title: Circuit diagram Input

C. C. Jensen A/S
Løvholmen 13
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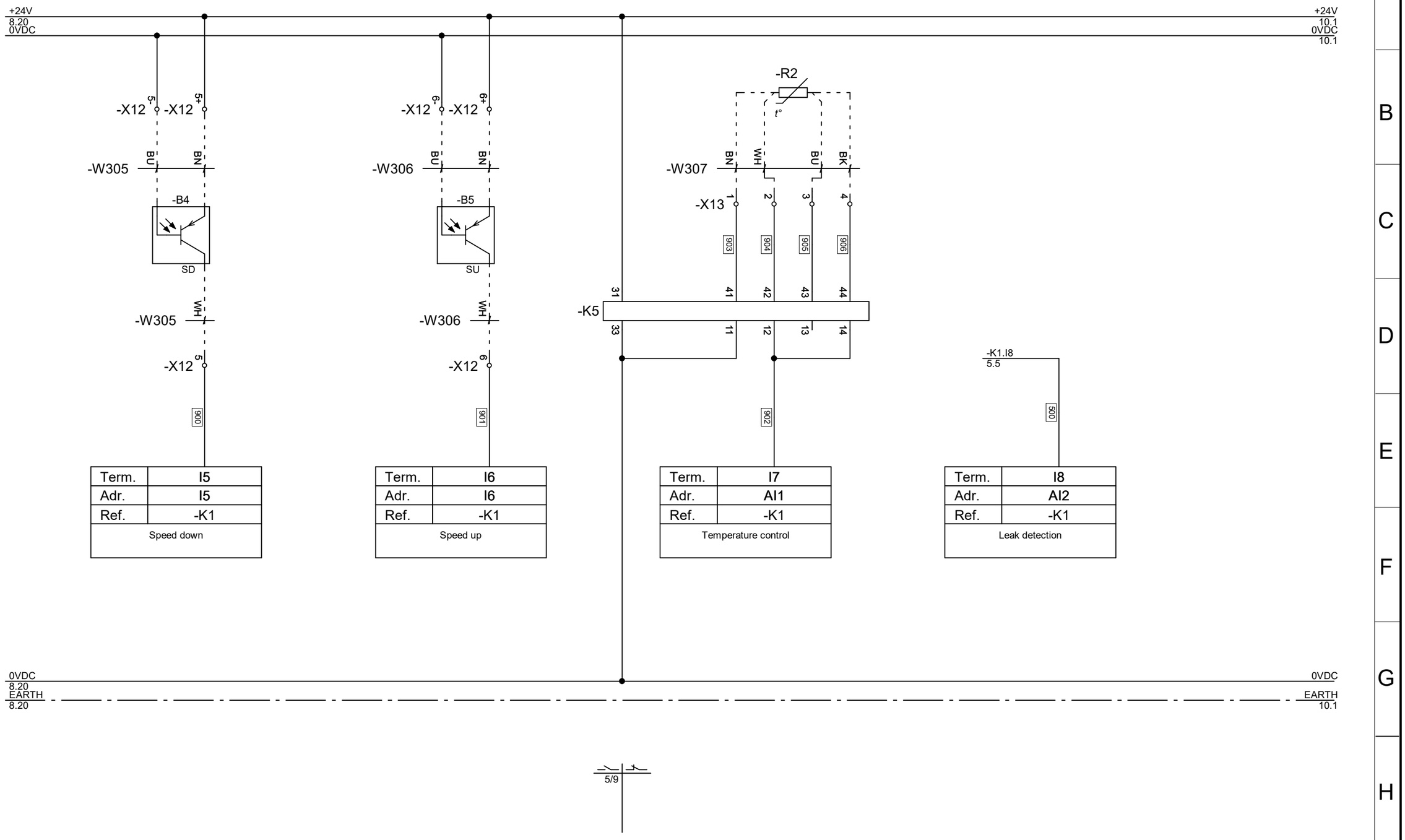

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AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 9 / 18

Title: Circuit diagram Input

C. C. Jensen A/S
Løvholmen 13
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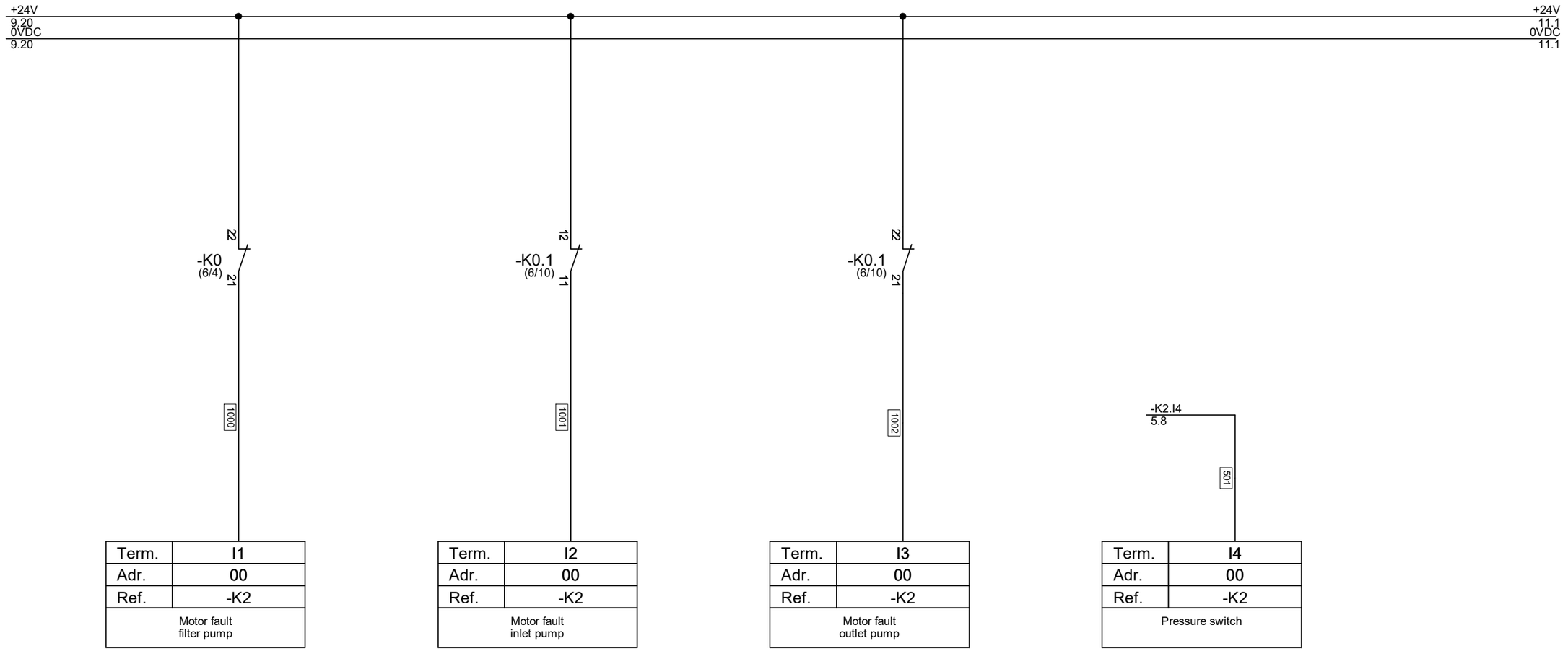

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AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 10 / 18

Title: Circuit diagram Input

C. C. Jensen A/S
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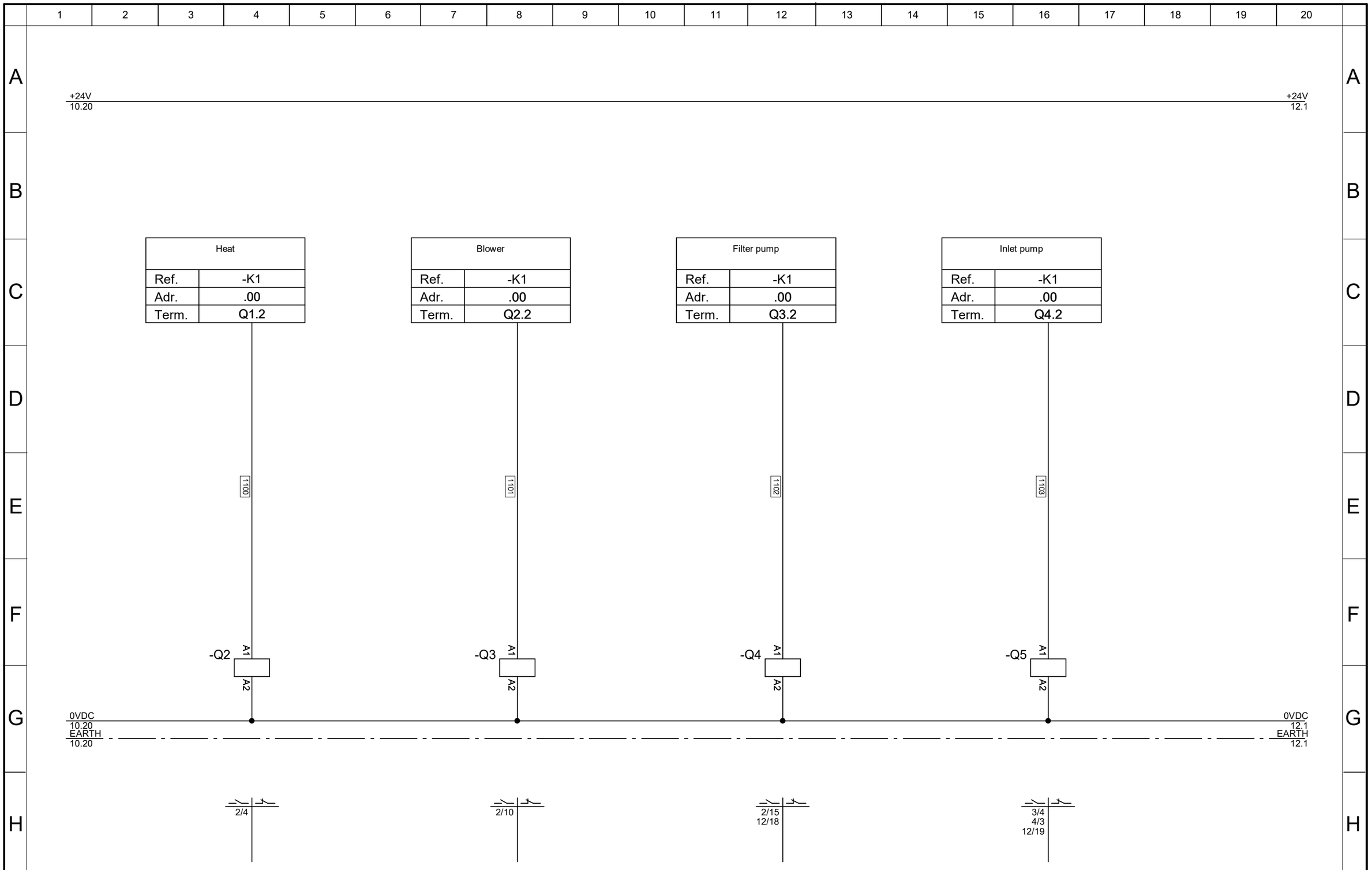

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AB4	22-08-15	--/SHL	KEH	JHO

Plant:

Control box for Desorber D10

Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 11 / 18

Title: Circuit diagram output

C. C. Jensen A/S
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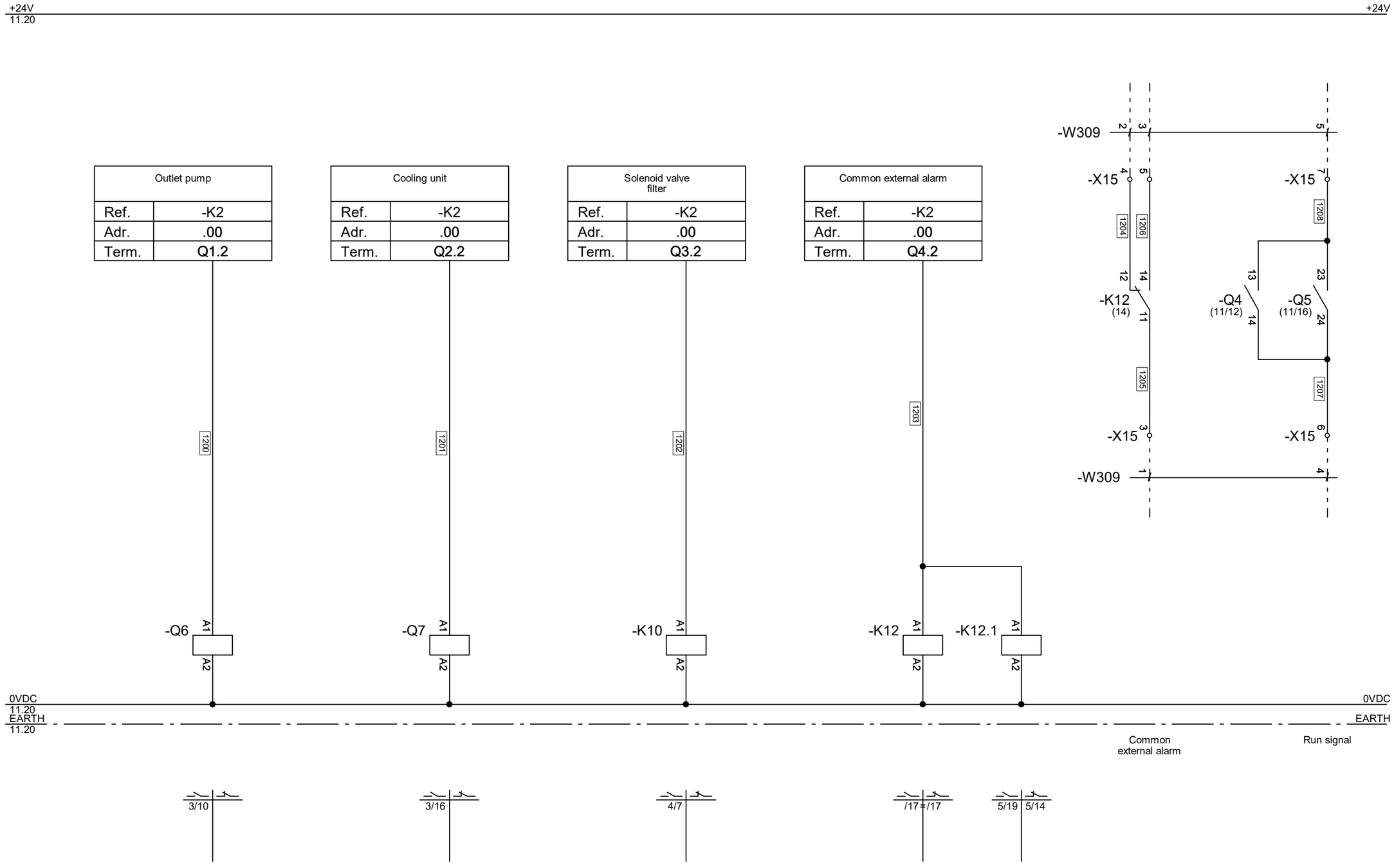

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AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant:
Control box for Desorber D10
Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 12 / 18

Title: Circuit diagram output

C. C. Jensen A/S
Løvholmen 13
DK-5700 Svendborg
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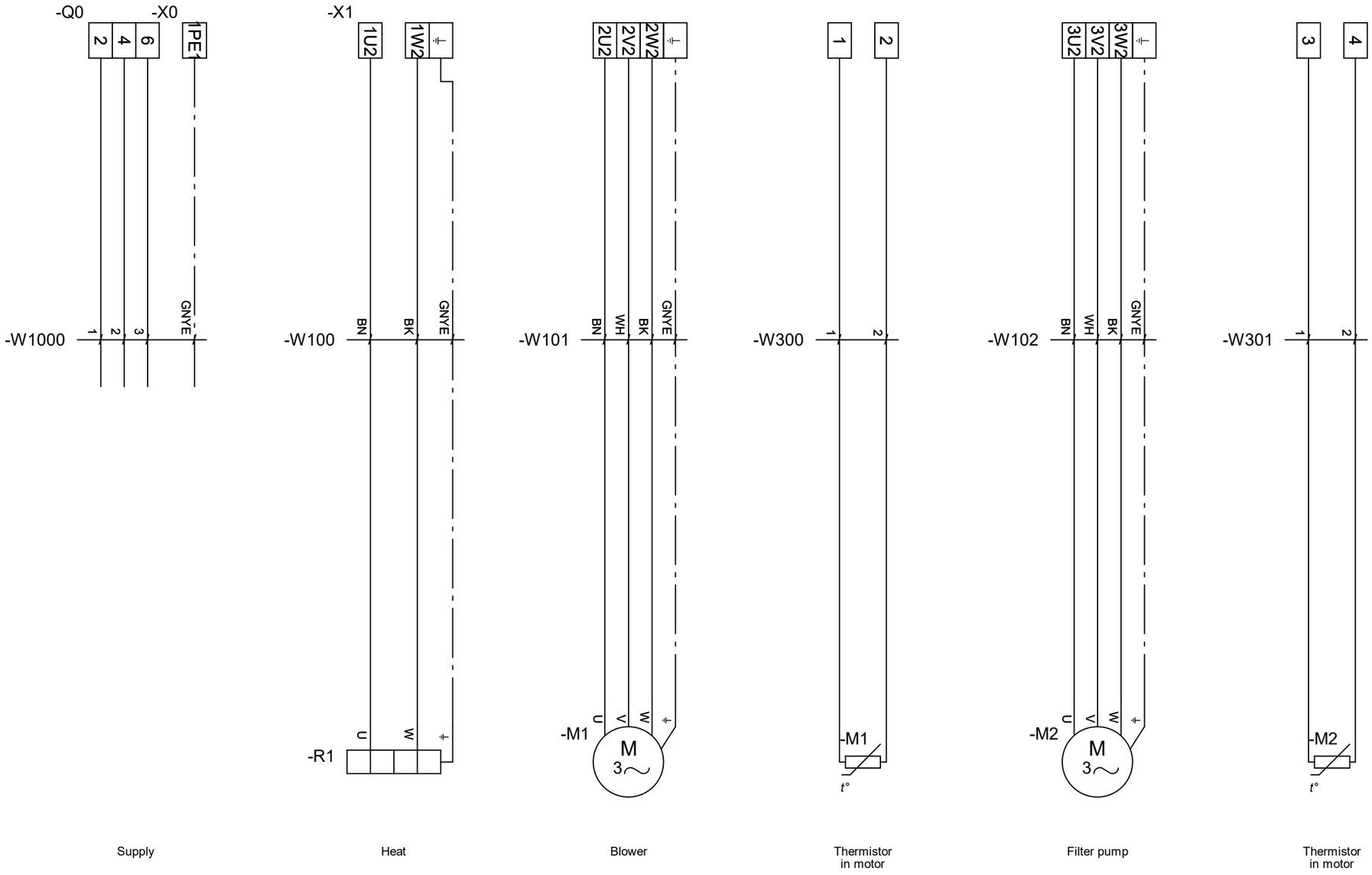

External connection

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AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

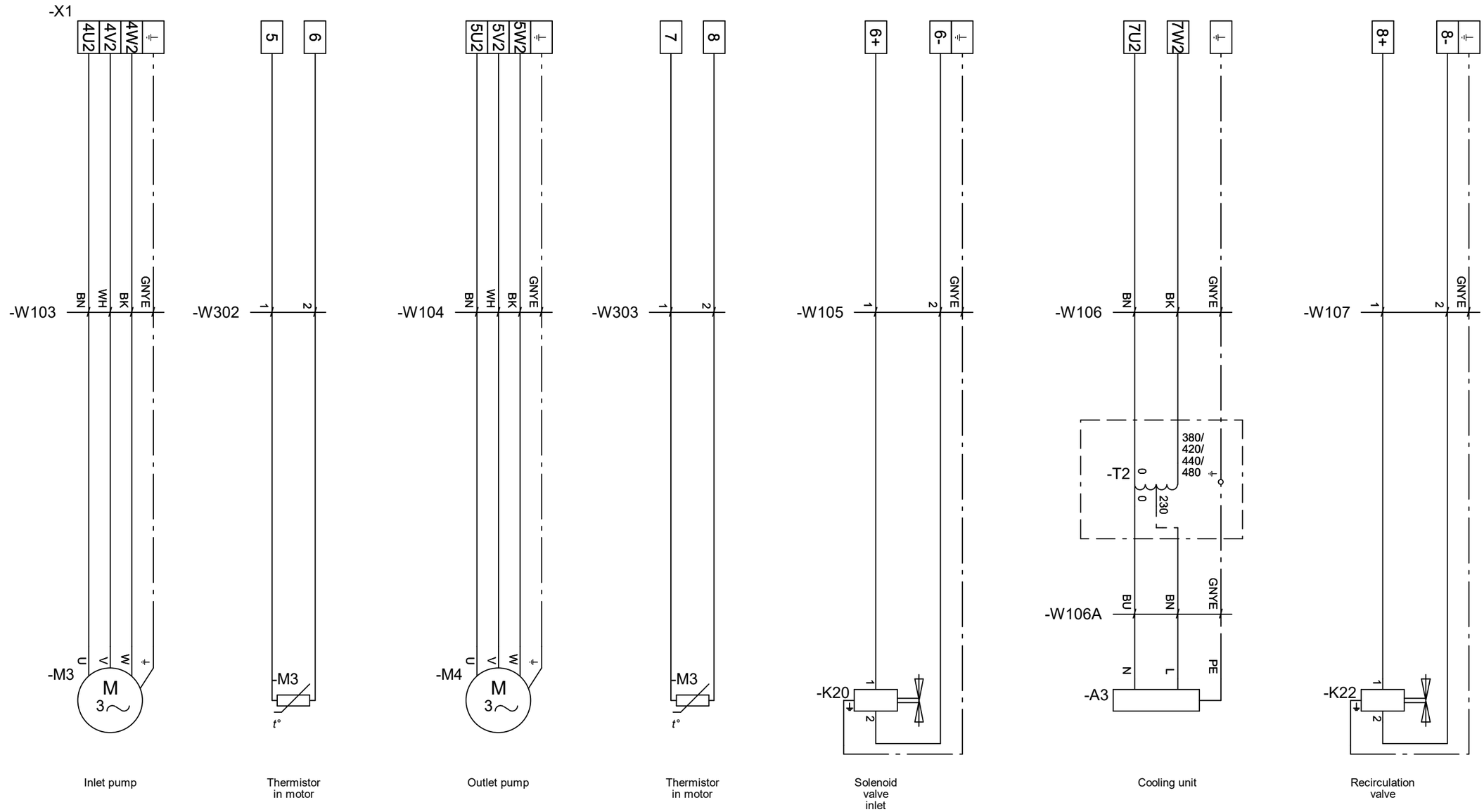
Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 13 / 18

Title: Terminal connection

C. C. Jensen A/S
Løvholmen 13
DK-5700 Svendborg
+45 63212014 - +45 62224615

External connection



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AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 14 / 18

Title: Terminal connection

C. C. Jensen A/S
Løvholmen 13
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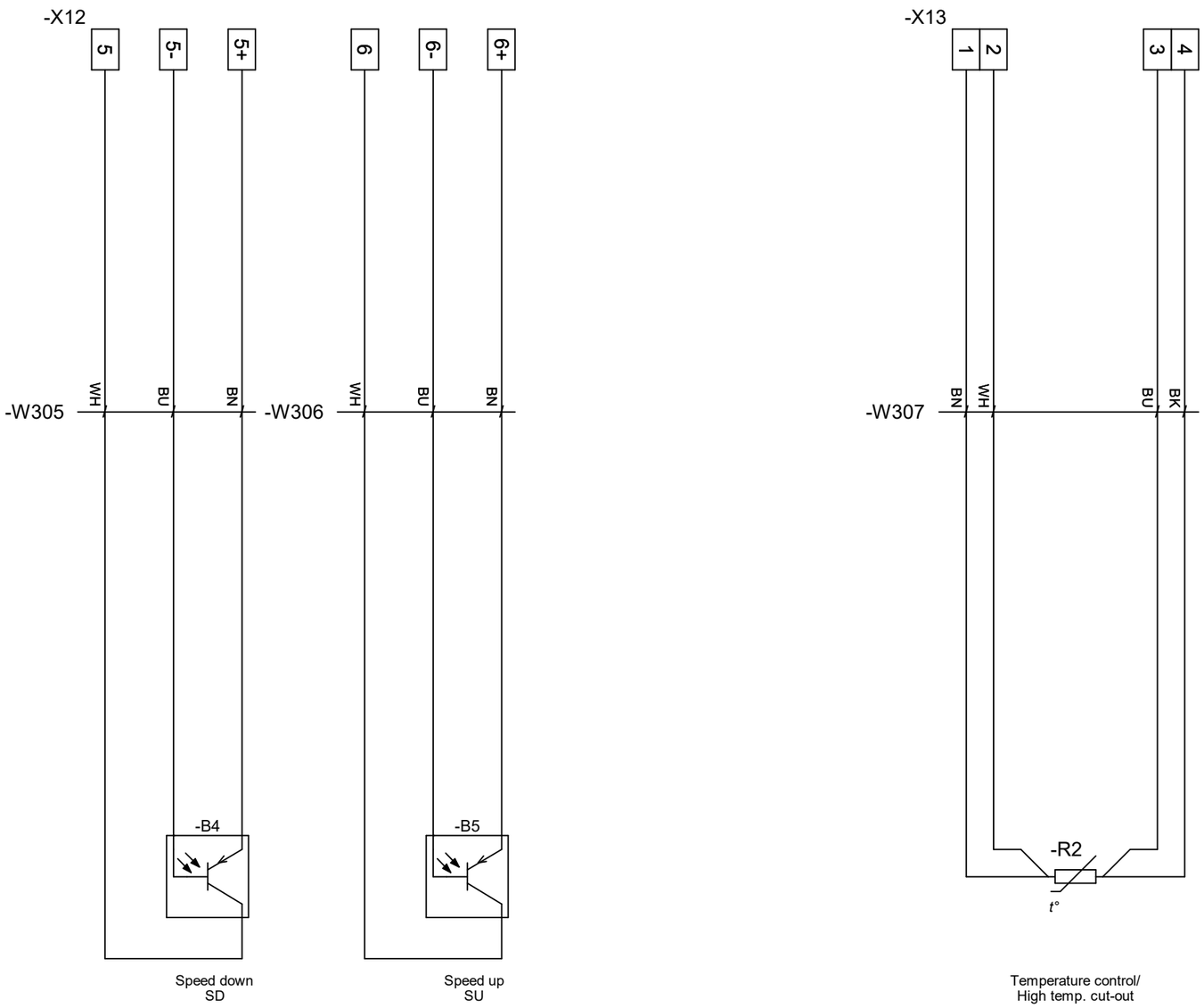
+45 63212014 - +45 62224615



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AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 15 / 18

Title: Terminal connection

C. C. Jensen A/S
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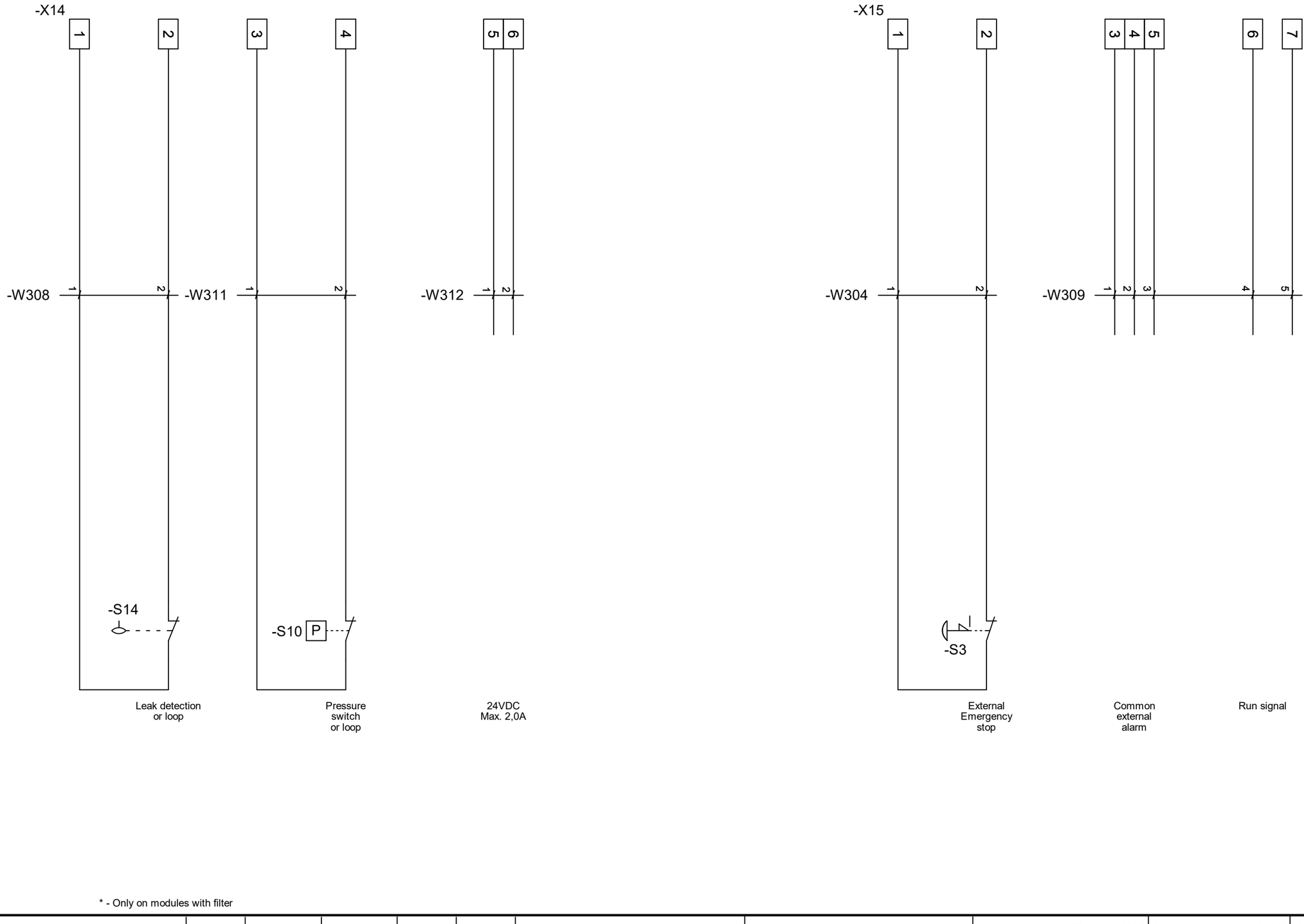
+45 63212014 - +45 62224615



* - Only on modules with filter

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AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 16 / 18

Title: Terminal connection

C. C. Jensen A/S
Løvholmen 13
DK-5700 Svendborg
+45 63212014 - +45 62224615

Parts List

Name	Order number	Description	Type	Maker
-A1	3606480159329	STEEL ENCLOSURE S3D W/MOUNTING PLATE H600xW400xD200mm	NSYS3D6420P	Schneider Electric
-F4	70 065 65-T4A	FUSE 4,0A 500V SLOW-ACTING	6,3X32MM	SIBA
-F4	4046356055802	FUSE MODULAR TERMINAL BLOCK	UK 6-HESI	PHOENIX CONTACT
-F5	70 065 65-T4A	FUSE 4,0A 500V SLOW-ACTING	6,3X32MM	SIBA
-F5	4046356055802	FUSE MODULAR TERMINAL BLOCK	UK 6-HESI	PHOENIX CONTACT
-K0	4013614496660	THERMISTOR MOTOR PROTECTION FOR 2 SENSOR CIRCUITS	CM-MSS.51S	ABB
-K0.1	4013614496660	THERMISTOR MOTOR PROTECTION FOR 2 SENSOR CIRCUITS	CM-MSS.51S	ABB
-K1	4034106033637	LOGO! 12/24RC,LOGIC MOD., DISPL. PU/I/O: 12/24V DC/	6ED1052-1MD08-0BA1	Siemens A/S
-K2	4034106029449	LOGO! DM8 24R EXPANSION MODULE, PU/I/O: 24V/24V/RE	6ED1055-1HB00-0BA2	Siemens A/S
-K3	4034106033620	LOGO! TD TEXTDISPLAY, FOR LOGO! FROM ..0BA8, 6 LINES	6ED1055-4MH08-0BA1	Siemens A/S
-K4	4016779851947	PHASE SEQUENCE/FAILURE MONITORING RELAY 200-500V	CM-PFS.S	ABB
-K5	PR4116	UNIVERSAL TRANSMITTER	PR4116	PR ELECTRONICS
-K5	PR4501	DISPLAY / PROGRAMMING FRONT	PR4501	PR ELECTRONICS
-K10	4017918130725	Single contact relay	PLC-RSC- 24UC/21	PHOENIX CONTACT GmbH & Co. KG
-K12	4017918130725	Single contact relay	PLC-RSC- 24UC/21	PHOENIX CONTACT GmbH & Co. KG
-K12.1	4536854936852	2-P RELAY 24VDC, LED	G2R-2-SN 24DC(S)	OMRON
-K12.1	4549734578547	SOCKET, DIN RAIL/SURFACE MOUNTING, 8-PIN, SCREW	P2RFZ-08-E BY OMZ	OMRON
-Q0	6417019390277	SWITCH-DISCONNECTOR 3-POLET 25A	OT25FT3	ABB
-Q0	6417019411651	HAND LEVER BLACK	OHBS2PJ	ABB
-Q1	3471523110311	CONTACTOR 12A/5,5KW/AC23 3P 24-60V AC/DC	AF12-30-10-11	ABB
-Q1	3471523130005	AUX. BLOCK WITH 1 NO FOR CONTACTOR AF09 - AF38	CA4-10	ABB
-Q1A	3471523110311	CONTACTOR 12A/5,5KW/AC23 3P 24-60V AC/DC	AF12-30-10-11	ABB
-Q1A	3471523130005	AUX. BLOCK WITH 1 NO FOR CONTACTOR AF09 - AF38	CA4-10	ABB
-Q2	3471523110014	CONTACTOR 9A/4KW/AC23 3P 24-60V AC/DC	AF09-30-10-11	ABB
-Q3	3471523110014	CONTACTOR 9A/4KW/AC23 3P 24-60V AC/DC	AF09-30-10-11	ABB
-Q4	3471523110014	CONTACTOR 9A/4KW/AC23 3P 24-60V AC/DC	AF09-30-10-11	ABB
-Q5	3471523110014	CONTACTOR 9A/4KW/AC23 3P 24-60V AC/DC	AF09-30-10-11	ABB
-Q5	3471523130005	AUX. BLOCK WITH 1 NO FOR CONTACTOR AF09 - AF38	CA4-10	ABB

Rev:	Date:	Constr./ Draw.:	Appr.:	Appr. CCJ:
AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10 Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 17 / 18

Title: Parts description

C. C. Jensen A/S
Løvholmen 13
DK-5700 Svendborg
+45 63212014 - +45 62224615

Parts List

Name	Order number	Description	Type	Maker
-Q6	3471523110014	CONTACTOR 9A/4KW/AC23 3P 24-60V AC/DC	AF09-30-10-11	ABB
-Q7	3471523110014	CONTACTOR 9A/4KW/AC23 3P 24-60V AC/DC	AF09-30-10-11	ABB
-S1	7320500376300	ILL. PUSHBUTTON COMPLETE, RED 1NO 24VAC/DC	CP1-11R-10	ABB
-S2	7320500201909	EMERGENCY STOP PLATE	KTC15-1005	ABB
-S2	7320500260715	EMERGENCY STOP 1NC	CE4T-10R-01	ABB
-T1	4025515152873	POWER SUPPLY 120/230-500VAC 24VDC/5A	6EP1333-3BA10	Siemens A/S
-T2	LFA 120-600230	AUTOTRANSFORMER 380-480/230V 600VA	LFA 120-600230	NORATEL
-X0	4017918194154	END BRACKET	CLIPFIX 35-5	PHOENIX CONTACT
-X0	4017918960414	FEED-THROUGH MODULAR TERMINAL BLOCK	UT 6-PE	PHOENIX CONTACT
-X1	4017918932510	FEED-THROUGH MODULAR TERMINAL BLOCK	QTTCB 1,5-PE	PHOENIX CONTACT
-X1	4017918932534	FEED-THROUGH MODULAR TERMINAL BLOCK	QTTCB 1,5	PHOENIX CONTACT
-X1	4017918932572	END COVER FOR MODULAR TERMINAL BLOCKS	D-QTTCB 1,5	PHOENIX CONTACT
-X1	4017918976033	QUICK CONNECTION FEED-THROUGH TERMINAL BLOCK	QTC 2,5	PHOENIX CONTACT
-X1	4017918976057	FEED-THROUGH MODULAR TERMINAL BLOCK	QTC 2,5-PE	PHOENIX CONTACT
-X1	4017918976064	END COVER FOR MODULAR TERMINAL BLOCKS	D-QTC 2,5	PHOENIX CONTACT
-X12	4017918194154	END BRACKET	CLIPFIX 35-5	PHOENIX CONTACT
-X12	4017918932534	FEED-THROUGH MODULAR TERMINAL BLOCK	QTTCB 1,5	PHOENIX CONTACT
-X12	4017918932572	END COVER FOR MODULAR TERMINAL BLOCKS	D-QTTCB 1,5	PHOENIX CONTACT
-X13	4017918932534	FEED-THROUGH MODULAR TERMINAL BLOCK	QTTCB 1,5	PHOENIX CONTACT
-X13	4017918932572	END COVER FOR MODULAR TERMINAL BLOCKS	D-QTTCB 1,5	PHOENIX CONTACT
-X14	4017918932534	FEED-THROUGH MODULAR TERMINAL BLOCK	QTTCB 1,5	PHOENIX CONTACT
-X14	4017918932572	END COVER FOR MODULAR TERMINAL BLOCKS	D-QTTCB 1,5	PHOENIX CONTACT
-X15	4017918932534	FEED-THROUGH MODULAR TERMINAL BLOCK	QTTCB 1,5	PHOENIX CONTACT
-X15	4017918932572	END COVER FOR MODULAR TERMINAL BLOCKS	D-QTTCB 1,5	PHOENIX CONTACT

Rev:	Date:	Constr./ Draw.:	Appr.:	Appr. CCJ:
AB2	21-02-18	--/MMO	KEH	JHO
AB3	21-10-14	--/SHL	KEH	JHO
AB4	22-08-15	--/SHL	KEH	JHO

Plant: Control box for Desorber D10
Siemens logo

Customer:

Prod.-no.: 5710644406667 | Draw.no.: 180807 | Page: 18 / 18

Title: Parts description

C. C. Jensen A/S
Løvholmen 13
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CJC® Pump type PV and PVM.

The PV and PVM Pump is a gear wheel type pump, available in different sizes with a nominal flow from 20 to 300 liters per hour and a maximum outlet pressure of 2.8, 4.0, 5.0 or 6.5 bar, limited by an internal pressure relieve valve. The Pump can be used with fluids in the viscosity range from 5 cSt. to 10,000 cSt. The pump is either available with a 2 hole outlet flange (PV2/PVM2) or a 4 hole outlet flange (PV4/PVM4).

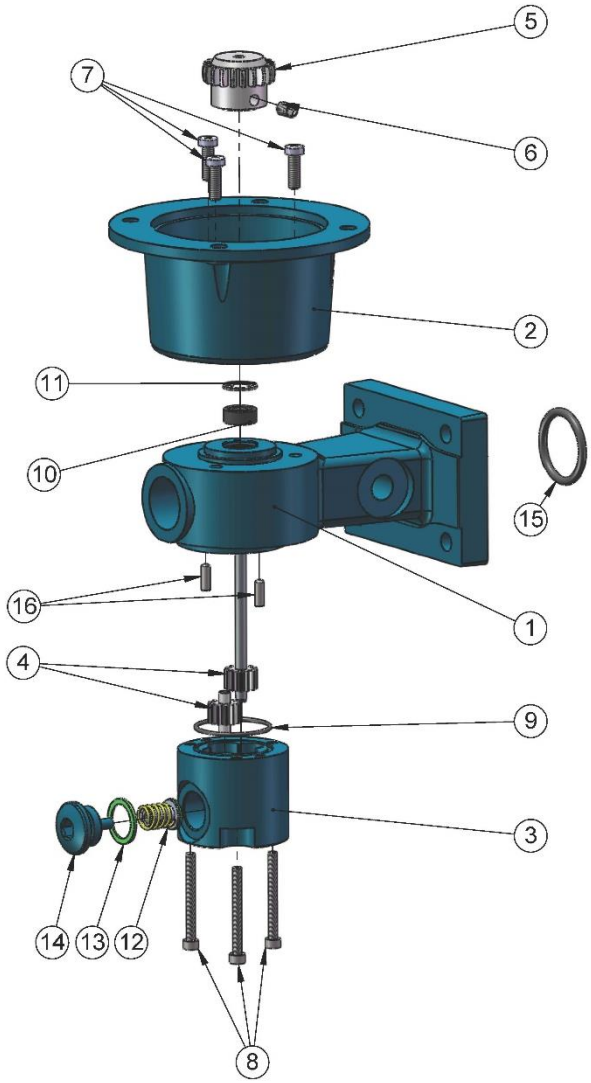
The PV Pump is connected to the electric motor by a gear type coupling and is sealed with a shaft seal around the pump shaft. The PV Pump must only be used with lubricating fluids.

The PVM Pump is connected to the electric motor by a magnetic coupling. The magnetic coupled pump incorporates a static seal that ensures a leak proof assembly. The PVM Pump must only be used with lubricating fluids as well as fuels including Low-Sulphur- and Ultra-Low-Sulphur diesel.

The PVM pump should be used where minor leaks cannot be accepted or inlet pressure is higher than 0.5 bar.

The PV Pump is also available in the following ATEX classes:
- Ex I M2 Ex h I Mb
- Ex II 2G Ex h IIC T5 Gb
- Ex II 2D Ex h IIIC T135°C Db

CJC® Pump type PV		
Pos.	**Qty.**	**Description**
1	1	Pump Bracket
2	1	Bell housing
3	1	Pump housing
4	1	Gear wheel set
5	1	Coupling (pump part)
6	1	Pivot screw
7	3	Screw
8	3	Screw
9	1	O-ring
10	1	Shaft seal
11	1	Seeger ring
12	1	Internal pressure relief valve
13	1	Elastomeric seal
14	1	Plug for pressure relief valve
15	1	O-ring
16	2	Parallel pins



Date: 16 February 2022

Document no. FL14035

www.cjc.dk

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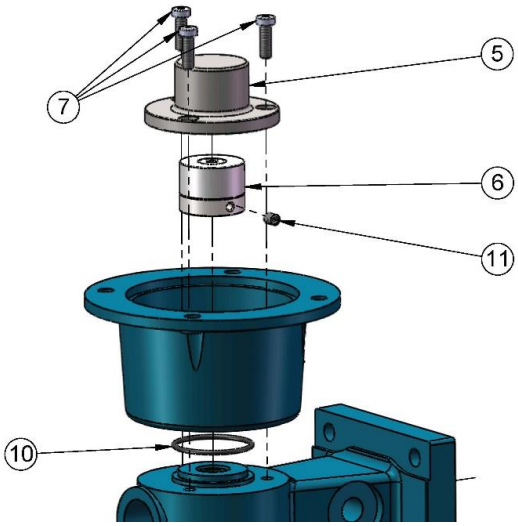
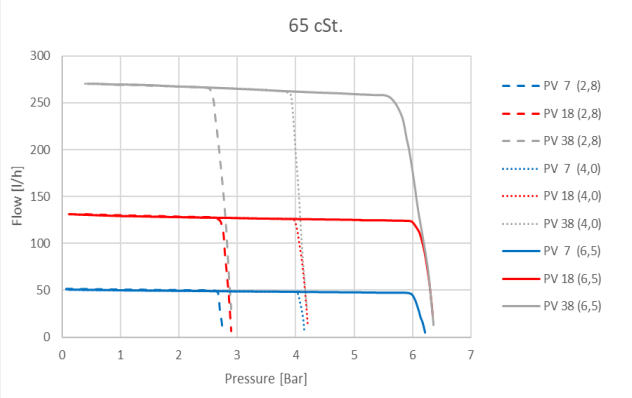
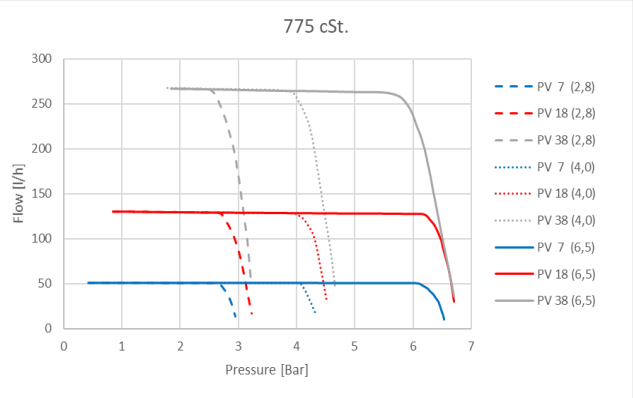


CJC® Pump type PVM		
Pos.	**Qty.**	**Description**
5	1	Cover for magnetic
6	1	Magnetic coupling (pump)
7	3	Screw
10	1	O-ring
11	1	Pivot screw

CJC® Pump type PV and PVM								
Pump size	4	7	9	14	18	23	30	38
Flow - 50Hz [l/h]	20	45	60	90	120	150	200	250
Flow - 60Hz [l/h]	25	55	75	110	145	180	250	300
Electric motor	4 pole							
Voltage / Frequency	Single or 3-phase – 50/60 Hz							
Power consumption	0.18 kW / 0.21 kW							
Motor flange size	B14 FT100							
Coupling	PV: Gear type				PVM: Magnetic			
Pump bracket	Cast iron GG25							
Pump housing	Cast iron GG25							
Shafts	Hardened steel DIN 6325 HRC60							
Gear wheels	Hardened steel 19MnVS6							
Seals	VITON							
Surface treatment	Standard CJC C1 - RAL 5021							
Inlet connection	PV2/PVM2: 3/8" BSP				PV4/PVM4: 3/4" BSP			
Outlet connection	PV2/PVM2: 2 hole flange				PV4/PVM4: 4 hole flange			
Design pressure	10 bar							
Inlet pressure	PV: max -0.5 bar				PVM: max 7 bar			
Outlet pressure [Δp]	2.8 / 4.0 / 5.0 / 6.5 bar							
Fluid temperature	-5 to 150°C							
Fluid	Lubricating fluids, as well as fuels including Low-Sulphur- and Ultra-Low-Sulphur diesel							
Viscosity range	5 to 10,000 cSt.							



Flow/pressure ratio pumping 65 cSt. oil.



Flow/pressure ratio pumping 775 cSt. oil.

Article no.

- **PV2** **FB5602213-X**
- **PV4** **FB5602214-X**
- **PVM2** **FB5609462-X**
- **PVM4** **FB5609465-X**

Date: 16 February 2022

Document no. FL14035

www.cjc.dk

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DATA SHEET

Three Phase Induction Motor - Squirrel Cage

Customer	:
Product line	: W22 - IE3 Premium Efficiency Multivoltage

Frame	: 63	Cooling method	: IC411 - TEFC
Insulation class	: F	Mounting	: V18
Duty cycle	: S1	Direct of rotation[1]	: Both
Ambient temperature	: -20 ℃ to +50 ℃	Starting method	: Direct On Line
Altitude	: 1000 m.a.s.l	Approx. weight[3]	: 8.0 kg
Degree of protection	: IP55	Moment of inertia (J)	: 0.0006 kgm²
Design	: N		

Output		0.18 kW (0.25 HP)	0.18 kW (0.25 HP)	0.18 kW (0.25 HP)	0.18 kW (0.25 HP)
Poles		4	4	4	4
Frequency		50 Hz	50 Hz	50 Hz	60 Hz
Rated voltage		220/380 V	230/400 V	240/415 V	460 V
Rated current		0.902/0.522 A	0.897/0.516 A	0.885/0.512 A	0.468 A
L. R. Amperes		3.79/2.19 A	4.13/2.37 A	4.43/2.56 A	2.57 A
LRC (p.u.)		4.2	4.6	5.0	5.5
No load current		0.605/0.350 A	0.661/0.380 A	0.692/0.400 A	0.360 A
Rated speed		1365 rpm	1380 rpm	1395 rpm	1705 rpm
Slip		9.00 %	8.00 %	7.00 %	5.28 %
Rated torque		1.26 Nm	1.25 Nm	1.23 Nm	1.01 Nm
Locked rotor torque		200 %	220 %	240 %	270 %
Breakdown torque		200 %	220 %	240 %	280 %
Service factor		1.00	1.00	1.00	1.00
Temperature rise[4]		70 K	70 K	70 K	70 K
Noise level[2]		44.0 dB(A)	44.0 dB(A)	44.0 dB(A)	48.0 dB(A)
Locked rotor time		30 s (hot) 54 s (cold)	30 s (hot) 54 s (cold)	30 s (hot) 54 s (cold)	40 s (hot) 72 s (cold)
Efficiency (%)	25%	52.2	51.0	50.1	47.6
	50%	65.0	65.0	65.0	62.0
	75%	67.0	67.0	67.0	66.0
	100%	69.9	69.9	69.9	70.0
Power factor	Start	0.79	0.80	0.80	0.76
	25%	0.39	0.36	0.34	0.34
	50%	0.57	0.53	0.50	0.50
	75%	0.67	0.63	0.61	0.60
	100%	0.75	0.72	0.70	0.69

	Drive end	Non drive end
Bearing type	6201-ZZ	6201-ZZ
Lubrication interval	-	-
Lubricant amount	-	-
Lubricant type	MOBIL POLYREX EM	

Foundation loads

Maximum traction : 79 N

Maximum compression : 158 N

This revision replaces and cancels the previous one, which must be eliminated.

(1) When viewed from the drive end.

(2) Measured at 1m and with tolerance of +3dB(A).

(3) Approximate weight subject to changes after manufacturing process.

(4) At the rated point.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.

Rev.	Summary of changes	Performed	Checked	Date

Performed by	yasmim		358885/2020
Checked by	AUTOMATICO	Page	Revision
Date	11/11/2020	1/2	1

DATA SHEET

Three Phase Induction Motor - Squirrel Cage

Customer	:	
Product line	:	W22 - IE3 Premium Efficiency Multivoltage

Notes:
W22 IE3 Premium Efficiency

Suitable for 2500 m.a.s.l. considering 40℃ ambient temperature

Standards				
	Specification	: IEC 60034-1	Vibration	: IEC 60034-14
	Tests	: IEC 60034-2	Tolerance	: IEC 60034-1
	Noise	: IEC 60034-9		

Rev.	Summary of changes	Performed	Checked	Date

Performed by	yasmim		358885/2020	
Checked by	AUTOMATICO		Page	Revision
Date	11/11/2020		2/2	1

DATA SHEET

Three Phase Induction Motor - Squirrel Cage

Customer	:
Product line	:

Frame	: 63	Locked rotor time	: 18 s (hot) 32 s (cold)
Output	: 0.18 kW (0.25 HP)	Temperature rise[4]	: 70 K
Poles	: 4	Duty cycle	: S1
Frequency	: 60 Hz	Ambient temperature	: -20 ℃ to +50 ℃
Rated voltage	: 254/440 V	Altitude	: 1000 m.a.s.l
Rated current	: 0.835/0.482 A	Degree of protection	: IP55
L. R. Amperes	: 3.26/1.88 A	Cooling method	: TEFC
LRC (p.u.)	: 3.9	Mounting	: V18
No load current	: 0.589/0.340 A	Direct of rotation[1]	: Both
Rated speed	: 1690 rpm		
Slip	: 6.11 %	Starting method	: Direct On Line
Rated torque	: 1.02 Nm	Approx. weight[3]	: 8.0 kg
Locked rotor torque	: 250 %	Design	: N
Pull up torque	: 240 %		
Breakdown torque	: 250 %		
Insulation class	: F		
Service factor	: 1.00		
Moment of inertia (J)	: 0.0006 kgm²		

Output	Start	25%	50%	75%	100%
Efficiency (%)	-	61.7	65.0	68.0	70.0
Power factor	0.74	0.33	0.48	0.61	0.70

Load type: -
Load torque: -
Load inertia (J=GD²/4): -

	Drive end	Non drive end
Bearing type	6201-ZZ	6201-ZZ
Lubrication interval	-	-
Lubricant amount	-	-
Lubricant type	MOBIL POLYREX EM	

Notes:
Derating from material 15726912.

W22 IE3 Premium Efficiency

Standards

Specification	: IEC 60034-1	Vibration	: IEC 60034-14
Tests	: IEC 60034-2	Tolerance	: IEC 60034-1
Noise	: IEC 60034-9		

This revision replaces and cancels the previous one, which must be eliminated.

(1) When viewed from the drive end.

(2) Measured at 1m and with tolerance of +3dB(A).

(3) Approximate weight subject to changes after manufacturing process.

(4) At the rated point.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.

Rev.	Summary of changes	Performed	Checked	Date

Performed by	cariane	063567/2021	
Checked by	esmailon	Page	Revision
Date	08/03/2021	1/1	0

DATA SHEET

Three Phase Induction Motor - Squirrel Cage

Customer	:
Product line	:

Frame	: 63	Locked rotor time	: 18 s (hot) 32 s (cold)
Output	: 0.18 kW (0.25 HP)	Temperature rise[4]	: 70 K
Poles	: 4	Duty cycle	: S1
Frequency	: 60 Hz	Ambient temperature	: -20 ℃ to +50 ℃
Rated voltage	: 275/480 V	Altitude	: 1000 m.a.s.l
Rated current	: 0.818/0.469 A	Degree of protection	: IP55
L. R. Amperes	: 4.66/2.67 A	Cooling method	: TEFC
LRC (p.u.)	: 5.7	Mounting	: V18
No load current	: 0.670/0.384 A	Direct of rotation[1]	: Both
Rated speed	: 1710 rpm		
Slip	: 5.00 %	Starting method	: Direct On Line
Rated torque	: 1.01 Nm	Approx. weight[3]	: 8.0 kg
Locked rotor torque	: 300 %	Design	: N
Pull up torque	: 255 %		
Breakdown torque	: 310 %		
Insulation class	: F		
Service factor	: 1.00		
Moment of inertia (J)	: 0.0006 kgm²		

Output	Start	25%	50%	75%	100%
Efficiency (%)	-	57.8	62.0	67.0	70.0
Power factor	0.76	0.29	0.46	0.58	0.66

Load type: -
Load torque: -
Load inertia (J=GD²/4): -

	Drive end	Non drive end
Bearing type	6201-ZZ	6201-ZZ
Lubrication interval	-	-
Lubricant amount	-	-
Lubricant type	MOBIL POLYREX EM	

Notes:
Derating from material 15726912.

W22 IE3 Premium Efficiency

275/480 V (D/Y)

Standards

Specification	: IEC 60034-1	Vibration	: IEC 60034-14
Tests	: IEC 60034-2	Tolerance	: IEC 60034-1
Noise	: IEC 60034-9		

This revision replaces and cancels the previous one, which must be eliminated.

(1) When viewed from the drive end.

(2) Measured at 1m and with tolerance of +3dB(A).

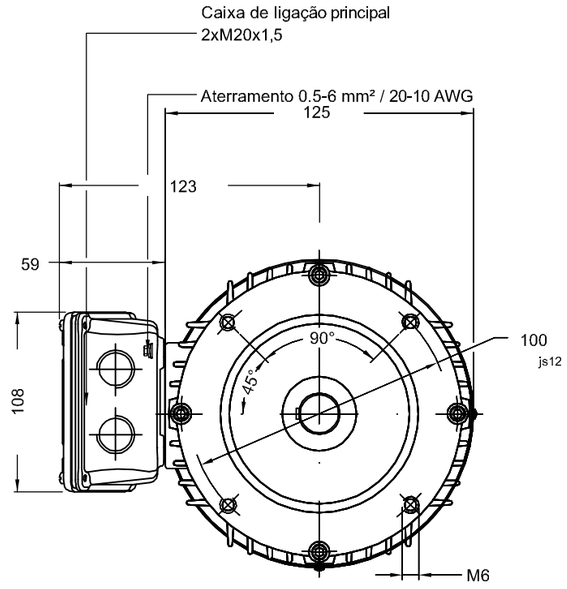
(3) Approximate weight subject to changes after manufacturing process.

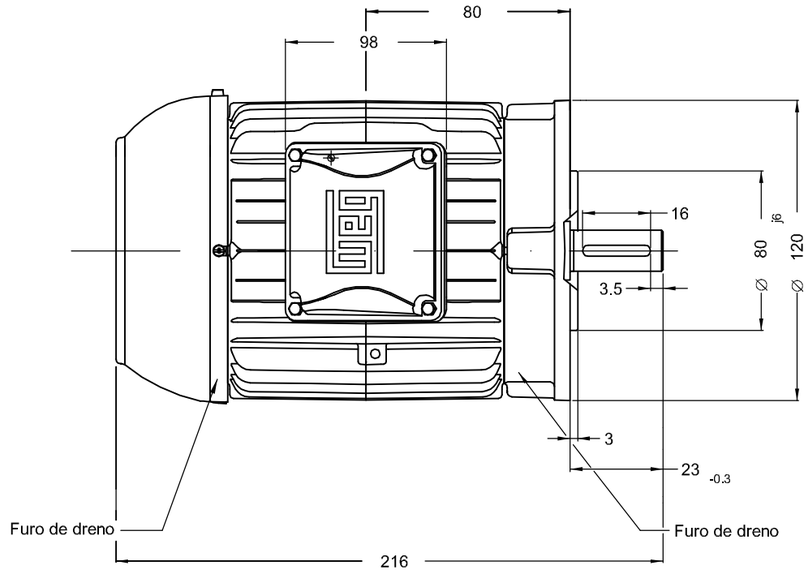
(4) At the rated point.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.

Rev.	Summary of changes	Performed	Checked	Date

Performed by	cariane	066735/2021	
Checked by	esmailon	Page	Revision
Date	10/03/2021	1/1	0

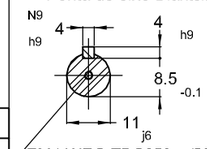




Tampa flangeada especial (C-DIN 120)

Forma construtiva V18

Ponta de eixo Dianteira



EM4 WEG TBG253 (DS DIN332)

0.18 kW 04 Polos 50 Hz | A

C.C. JENSEN A/S

500001841585		INITIAL ISSUE 417536358	DANIELAW	CLEITONGS	JSIMM	30.10.2020	00
ECM	LOC	RESUMO MODIFICAÇÃO	EXECUTADO	VERIFICADO	LIBERADO	DATA	VER

EXECUTOR	DANIELAW	MOTOR TRIFÁSICO W22 - PREMIUM EFF	10008064465	
VERIFICADOR	CLEITONGS	CARCAÇA 63 IP55 TEFC	000 | 00	
LIBERADOR	JSIMM			
DATA LB.	30.10.2020	WMO Jaragua do Sul Engenharia de Produto	FOLHA 1 / 1	

CÓPIA SEM CONTROLE

LIBERADO

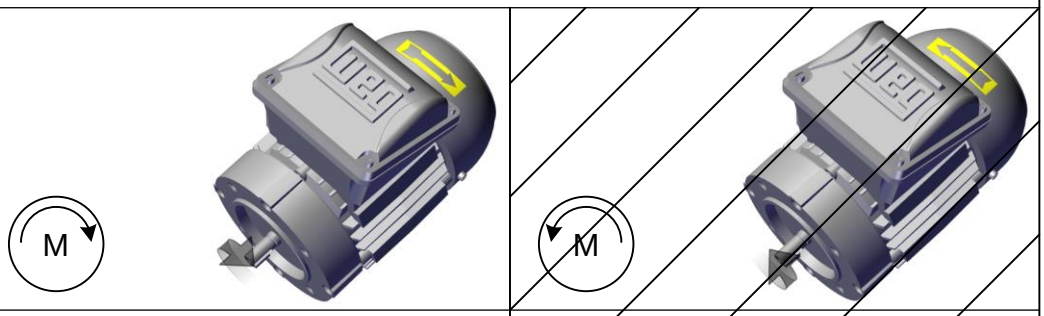
Dimensões em mm

A3

ZME

Electric motor

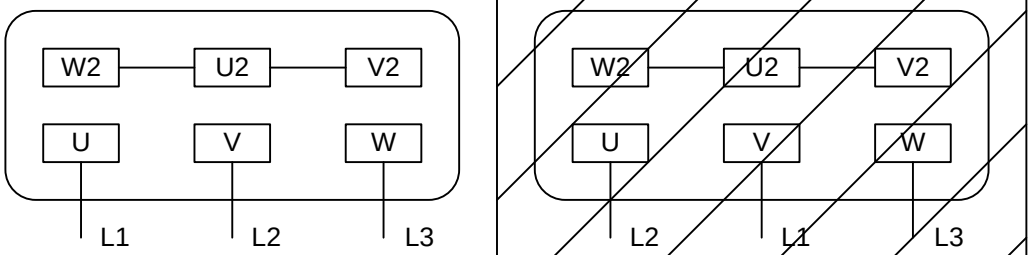
*Only for 400/690V motors



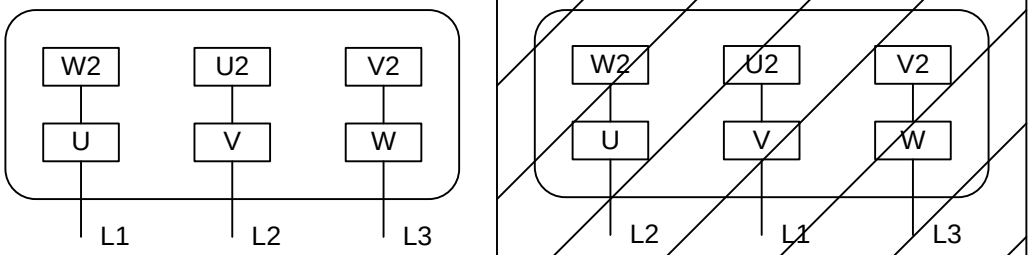
Alternating Current

Three Phase

3x380-415V
3x440-480V
3x690V*

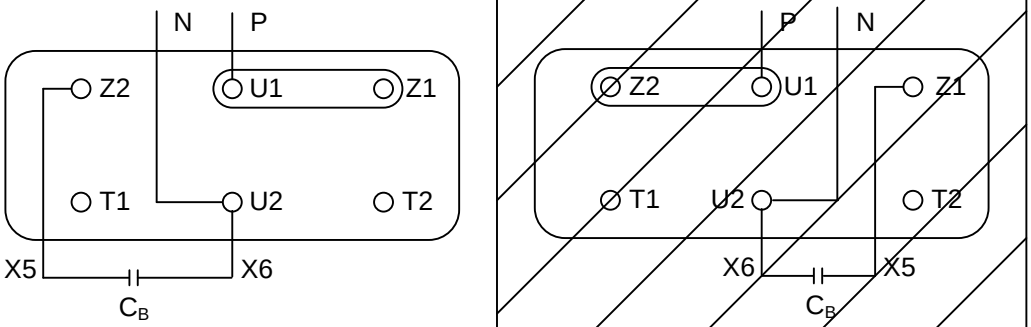


3x220-240V
3x500-600V (IE3 std)
3x208V
3x440-480V (50Hz)
3x400V*



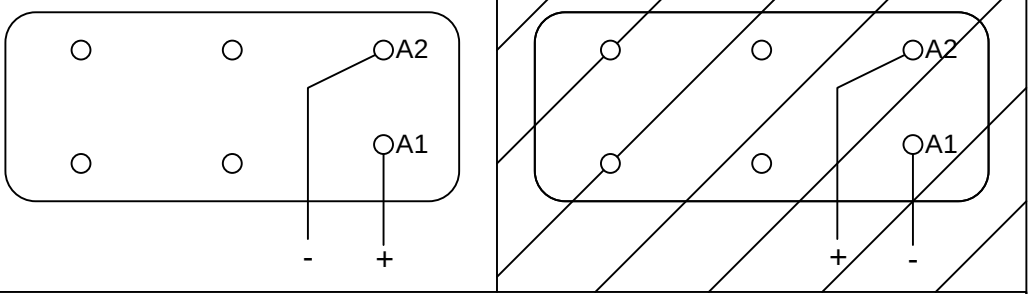
Single Phase

1x110-240V



Direct Current

24 V DC



Tolerance:	C.C.Jensen A/S		Sign / Date
Customer:		Constr.	CKM 04.06.2008
Project:	Løvholmen 13, DK-5700 Svendborg Denmark FAX NO. +45 62 22 46 15 PHONE +45 63 21 20 14	Appr.	CKM 04.06.2008
Weight:		Rev.	Appr. Date
	Wiring diagram for pump type PVM/PV	G	CKM 31.03.2022
		Drawing no.	7500310

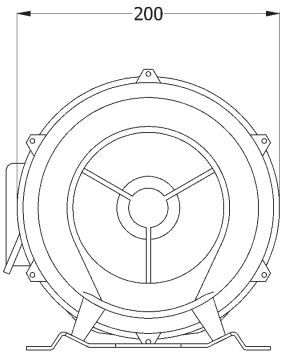
KLEE *blower*®

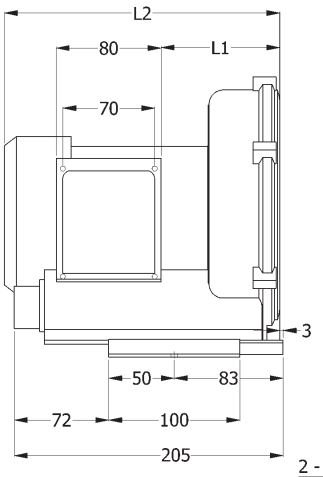
Datasheet type KB 1..

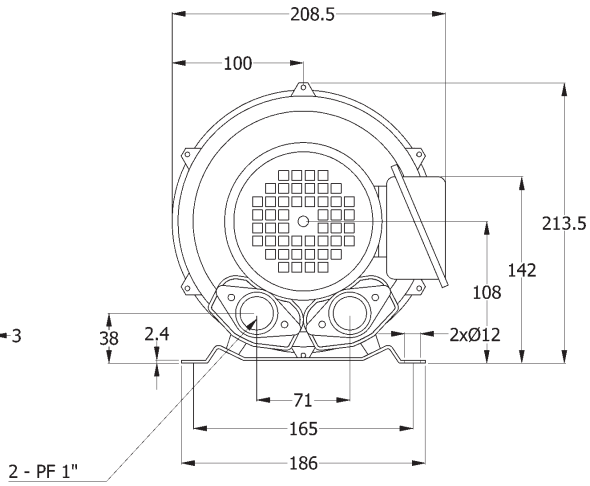
Type no.		KB-129	KB-129-1	KB-129L	KB-129	KB-129-1	KB-129-1
Phases		3	1	3	3	1	1
Output kW	50Hz	0,18	0,18	0,18	0,20	0,20	0,20
	60Hz	0,20	0,20	0,20	0,25	0,25	0,25
Voltage Volt	50Hz	230/400	230	230/400	230/400	230	208
	60Hz	276/480	276	276/480	276/480	230	208
Current Amp	50Hz	0,9/0,52	1,5	0,9/0,52	1,2/0,69	1,7	1,7
	60Hz	0,9/0,52	1,7	0,9/0,52	1,3/0,75	1,8	1,8
Vacuum mbar	50Hz	50	50	50	70	70	70
	60Hz	70	70	70	75	75	75
Pressure mbar	50Hz	60	60	60	70	70	70
	60Hz	70	70	70	80	80	80
Air flow m^3/min	50Hz	0,8	0,8	0,8	0,8	0,8	0,8
	60Hz	1,0	1,0	1,0	1,0	1,0	1,0
Insulation class		F	F	F	F	F	F
L1		90	90	111,5	90	90	90
L2		209,5	209,5	231	209,5	209,5	209,5
Weight	Kg	6,5	6,5	6,5	6,5	6,5	6,5

The high quality grease used in the shield ball bearing (impeller side) resists high temperature for life time usage.
The high reliable grease sealed ball bearing (fan side) resists high temperature for motor coil.

Capacitor for

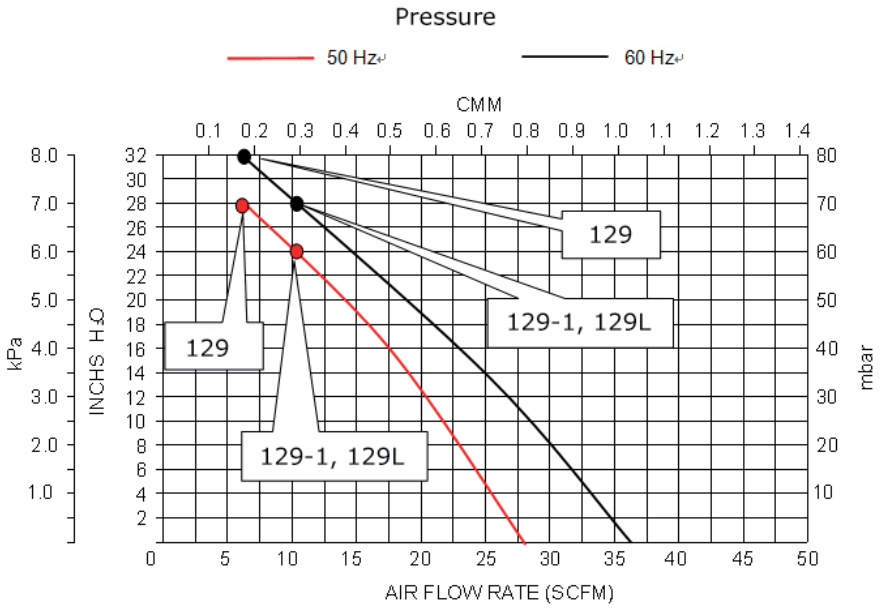






KLEE *blower*®

Datasheet type KB 1..

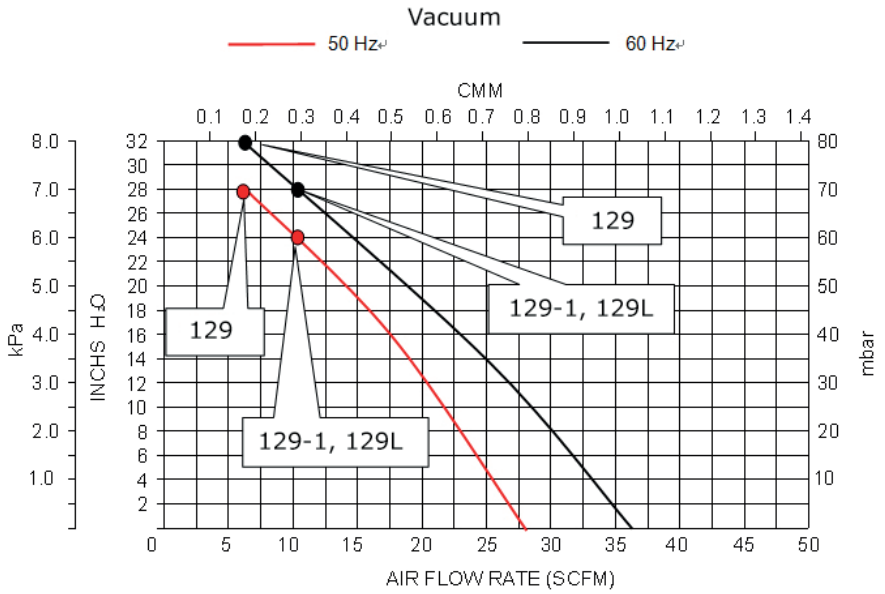


50 Hz pressure											
Series 1		0	10	20	30	40	50	60	70	80	90	100
		mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
KB-129 0.18 kW	Air flow m³/min	0.8	0.72	0.66	0.56	0.48	0.38	0.25	-	-	-	-
KB-129-1 0.18 kW		0.8	0.72	0.66	0.56	0.48	0.38	0.25	-	-	-	-
KB-129L 0.18 kW		0.8	0.72	0.66	0.56	0.48	0.38	0.25	-	-	-	-
KB-129 0.2 kW		0.8	0.72	0.66	0.56	0.48	0.38	0.25	0.12	-	-	-
KB-129-1 0.2 kW		0.8	0.72	0.66	0.56	0.48	0.38	0.25	0.12	-	-	-

60 Hz pressure											
Series 1		0	10	20	30	40	50	60	70	80	90	100
		mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
KB-129 0.2 kW	Air flow m³/min	1.0	0.95	0.9	0.85	0.75	0.68	0.51	0.4	-	-	-
KB-129-1 0.2 kW		1.0	0.95	0.9	0.85	0.75	0.68	0.51	0.4	-	-	-
KB-129L 0.2 kW		1.0	0.95	0.9	0.85	0.75	0.68	0.51	0.4	-	-	-
KB-129 0.25 kW		1.0	0.95	0.9	0.85	0.75	0.68	0.51	0.4	0.2	-	-
KB-129-1 0.25 kW		1.0	0.95	0.9	0.85	0.75	0.68	0.51	0.4	0.2	-	-

BRD. KLEE ENGINEERING & TRADING COMPANY
Phone +45 4386 8333 · Fax +45 4386 8388 · e-mail: klee@klee.dk · www.klee.dk

Datasheet type KB 1..



50 Hz vacuum											
Series 1		0	10	20	30	40	50	60	70	80	90	100
		mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
KB-129 0.18 kW	Air flow m³/min	0.8	0.72	0.66	0.56	0.48	0.38	-	-	-	-	-
KB-129-1 0.18 kW		0.8	0.72	0.66	0.56	0.48	0.38	-	-	-	-	-
KB-129L 0.18 kW		0.8	0.72	0.66	0.56	0.48	0.38	-	-	-	-	-
KB-129 0.2 kW		0.8	0.72	0.66	0.56	0.48	0.38	0.25	0.12	-	-	-
KB-129-1 0.2 kW		0.8	0.72	0.66	0.56	0.48	0.38	0.25	0.12	-	-	-

60 Hz vacuum												
Series 1		0	10	20	30	40	50	60	70	75	80	90
		mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar	mbar
KB-129 0.2 kW	Air flow m³/min	1.0	0.92	0.85	0.8	0.7	0.62	0.47	0.28	-	-	-
KB-129-1 0.2 kW		1.0	0.92	0.85	0.8	0.7	0.62	0.47	0.28	-	-	-
KB-129L 0.0.2 kW		1.0	0.92	0.85	0.8	0.7	0.62	0.47	0.28	-	-	-
KB-129 0.25 kW		1.0	0.92	0.85	0.8	0.7	0.62	0.47	0.28	0.15	-	-
KB-129-1 0.25 kW		1.0	0.92	0.85	0.8	0.7	0.62	0.47	0.28	0.15	-	-

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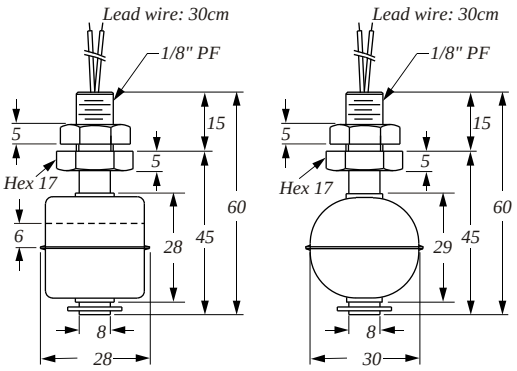
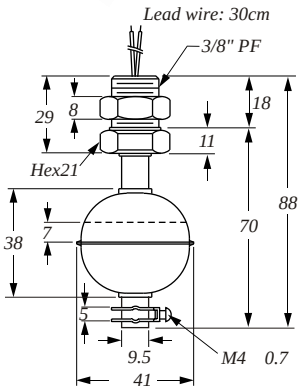
METAL TYPES

▶ FD 30 1/ FD 35 1



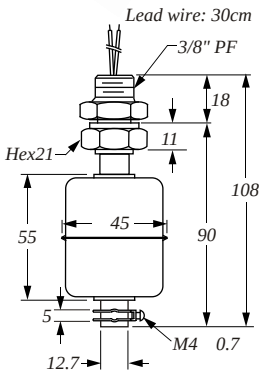
Drill hole 10mm

▶ FD 40 1



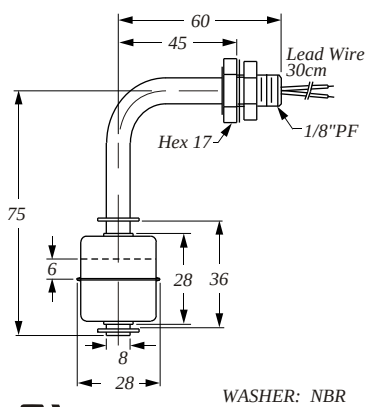
Drill hole 17mm

▶ FD 45 1



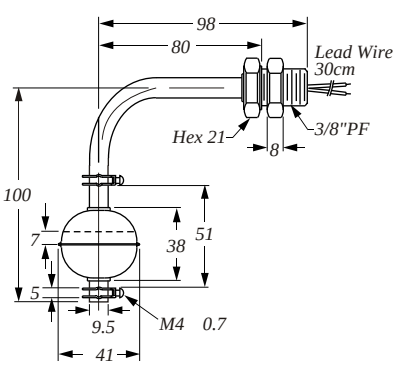
Drill hole 17mm

▶ FD 30 2



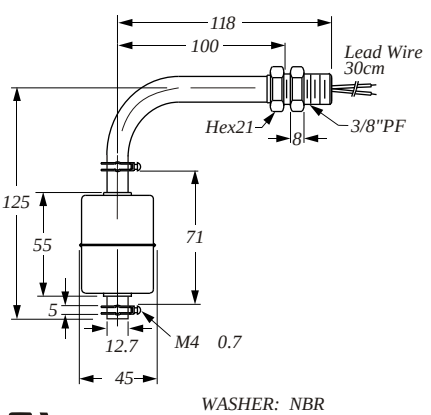
Drill hole 10mm

▶ FD 40 2



Drill hole 17mm

▶ FD 45 2

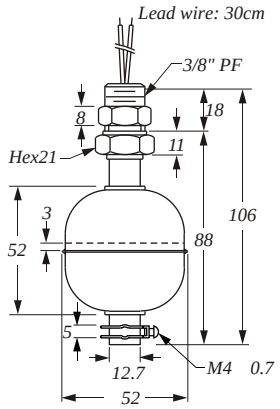


Drill hole 17mm

METAL TYPES

▶ FD 50 1

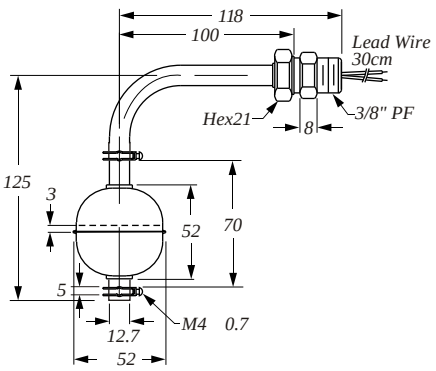
WASHER: NBR



Drill hole 17mm

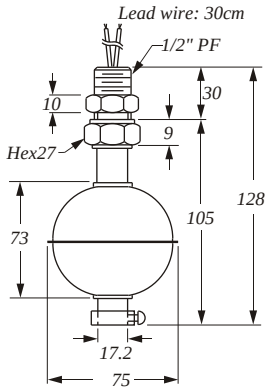
▶ FD 50 2

WASHER: NBR



Drill hole 17mm

▶ FD 75 1



Drill hole 21mm

SPECIFICATIONS

Description \ Type	FD30 1D FD30 2D	FD40 1D FD40 2D	FD45 1D FD45 2D	FD50 1D FD50 2D	FD75 1G	FD10 1G
Switching Capacity Max.	50W SPST	50W SPST	50W SPST	50W SPST	60W SPDT	
Switching Voltage Max.	240Vac/200Vdc				220Vac	
Switching Current Max. (A)	0.5A	0.5A	0.5A	0.5A	2A	
Carry Current Max. (A)	1A	1A	1A	1A	3A	
Lead Wire	XLPE (UL3266, AWG22)					
Reversible Switch Action	YES	YES	YES	YES	NO	NO
Max. Pressure (Kg/cm^2)	10	30	12	30	30	10
Operating Temperature	-10~120 C (OPTION 200 C)					
Material	Stainless Steel SUS304, 316					
Suitable Specific Gravity	0.8	0.7	0.65	0.55	0.55	0.5

ORDER INFORMATION

FD □□ □ □ □ □ □□ □

FD10 Float : **RF-10** 75x108, Screw : 1/2"PF
FD30 Float : **RF-30** 28x28, Screw : 1/8"PF
FD35 Float : **RF-35** x29, Screw : 1/8"PF
FD40 Float : **RF-40** 41x38, Screw : 3/8"PF
FD45 Float : **RF-45** 45x55, Screw : 3/8"PF
FD50 Float : **RF-50** 52x52, Screw : 3/8"PF
FD75 Float : **RF-75** 75x70, Screw : 1/2"PF

Material of Wetted parts

0 : SUS304
6 : SUS316

Mounting

1 : Top or Bottom Mounting
2 : Side Mounting

Switching Capacity Max.

D: 50W 200Vdc /240Vac SPST
F : 10W 125Vac SPST
G: 60W 220Vac SPDT (only use for tude 12.7)
H: 3W 30Vac / 60Vdc SPDT (only use for tude 9.5)

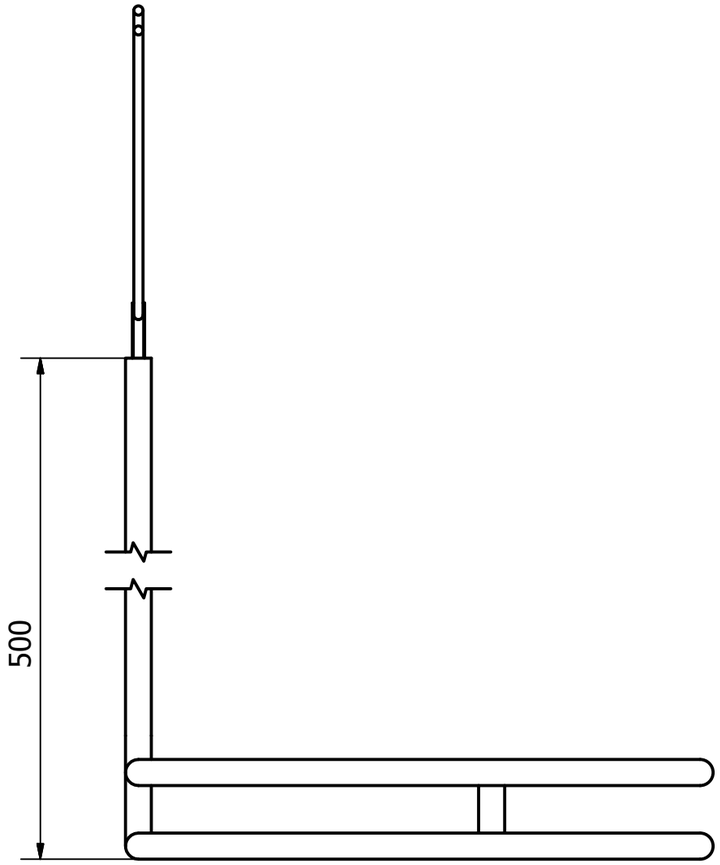
Contact Form

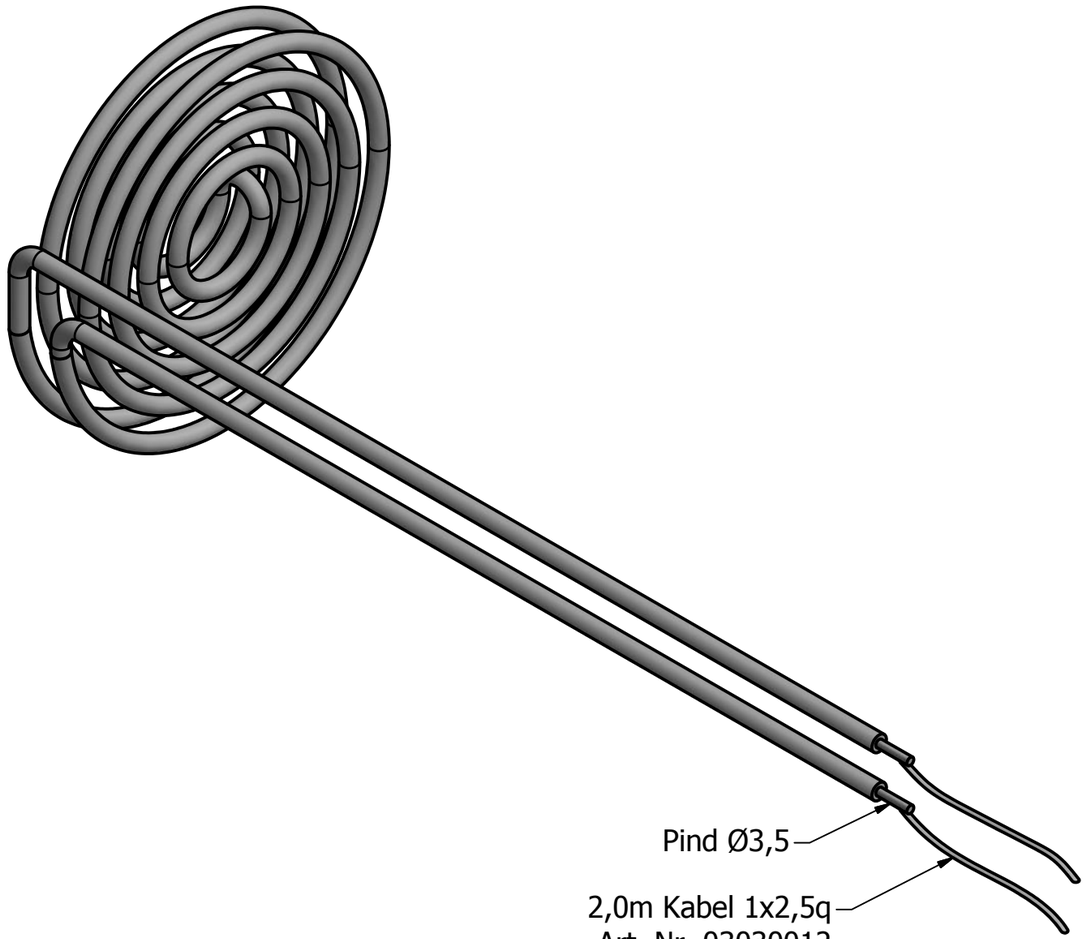
A: Normal Open (N.O.) SPST
B: Normal Close (N.C.) SPST
C: 1C SPDT
D: N.C. Reversible
E: N.O. Reversible

Lead wire Length (XLPE 125 C) **L:** Unit=10cm

03: 30cm (Standard length)
05: 50cm
15: 150cm

REV	REVISION HISTORY	DATE	APPROVED
A	Original version	18-07-2016	CLA





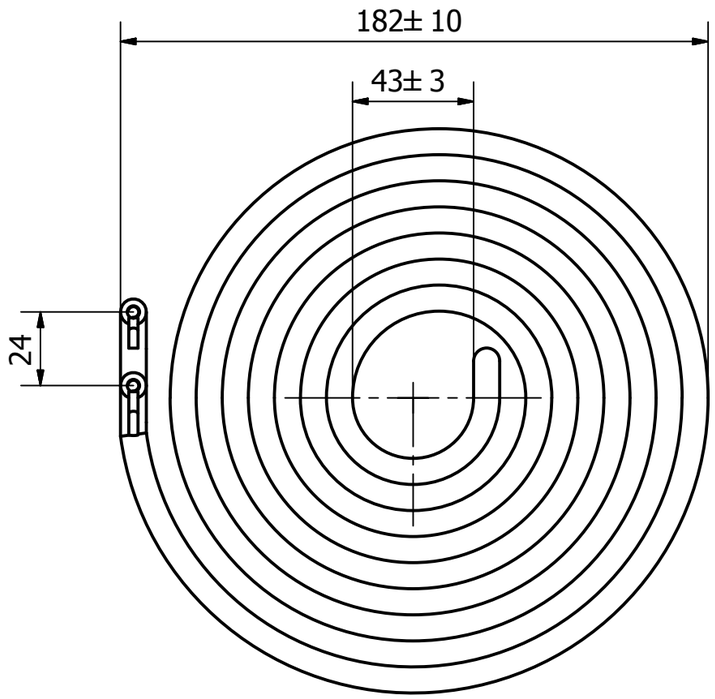


TABLE		
440V	460V	480V
1144W	1250W	1361W

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
4	1	23276848	440/480V 1144/1361W	AISI 304 bright annealed

WWW.JEVI.DK
Tel: +45 7583 0211

- General tolerance for welded constructions
- Dimensions for lengths and angles
- Shape and position
  DS/EN ISO 13920-B
  DS/EN 22768-C

- General tolerance for heating elements ± 2%

TITLE: Varmelegeme
DESC.: 440/480V 1144/1361W
SUBJECT:

MAT.:
FORMAT: A3
SCALE: 1 : 2
SIGN.: CLA
DATE: 18-07-2016
DRAWING NO.: 23276848
REV.: A
PAGE: 1 /1

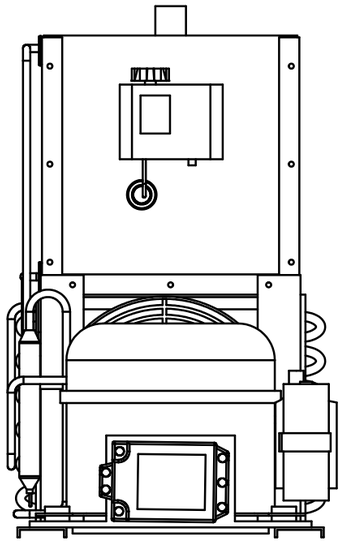
DATA SHEET

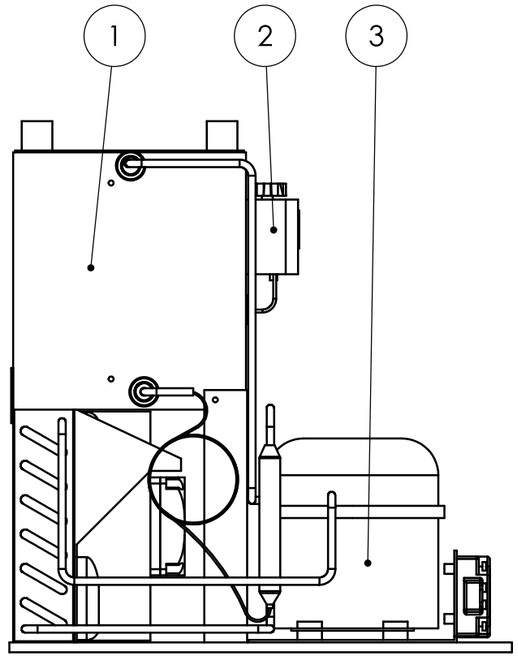
CJC™ Cooling Unit
D10

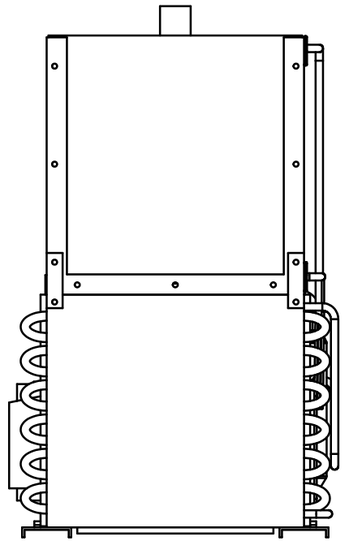
Technical Specifications

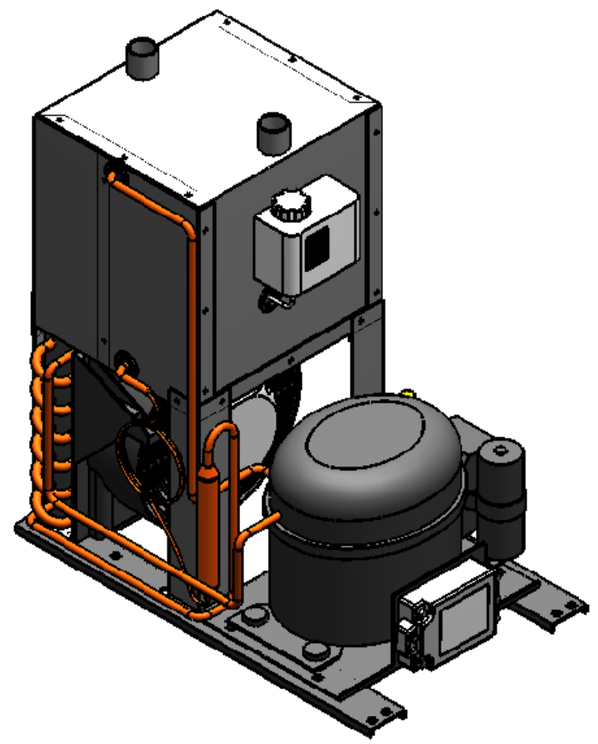
Type	CJC™ Cooling Unit
Model	D10
General Arrangement	51 063 02-6
Compressor Unit	Danfoss TL4GIIXNO
Evaporator	ECO 2512A
Thermostat	Danfoss KP69
Electric Specification	Nominal voltage: 230 V Nominal frequency: 50 / 60 Hz Max. load: 1.25 / 1.35 A
Refrigerant	R134a
Charge of Refrigerant	0.15 kg
Noise level	< 70 dB(A)

Manufacturer
C.C.JENSEN A/S * Løvholmen 13 * DK-5700 Svendborg * Denmark
Phone: +45 63 21 20 14 * Fax: +45 62 22 46 15 * E-mail: ccjensen@cjc.dk









Pos.	Article/Material	Dimension	Drawing no.	Qty.
1	Evaperator box	210x190x210	46 019 01-3	1
2	Danfoss Thermostat			1
3	Danfoss Compressor unit	198x250x410		1

Scale: 1:5

Customer:

Project:

Ref.:

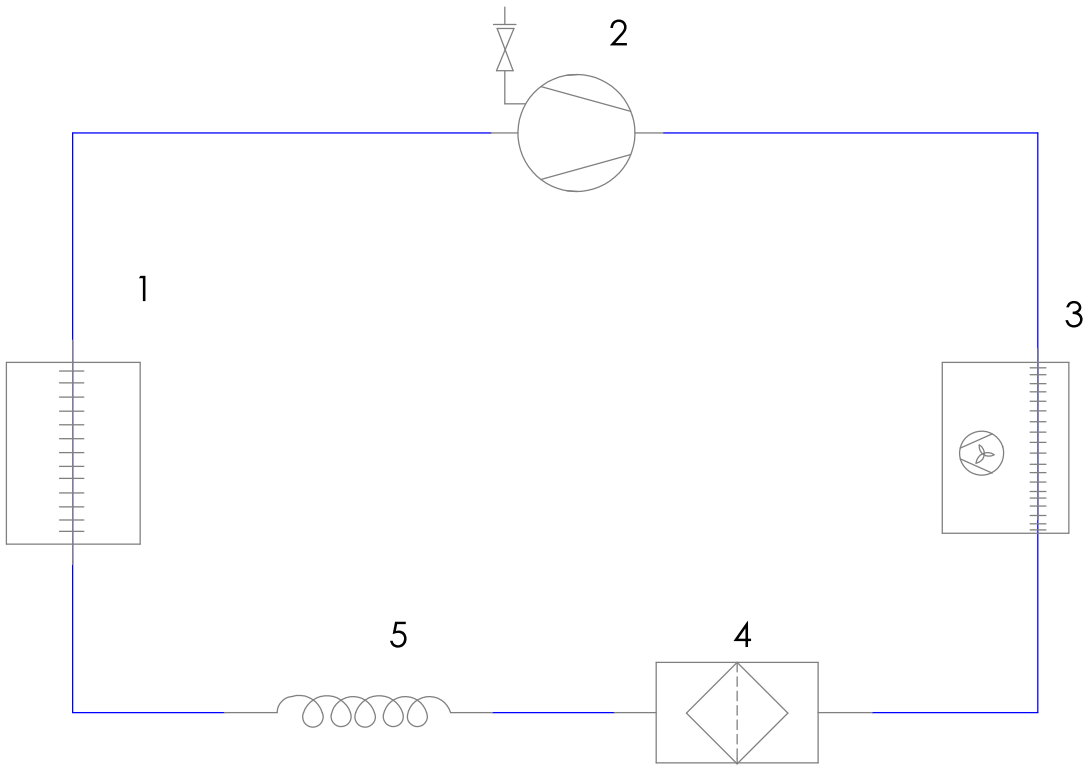
C.C.JENSEN A/S
LØVHOLMEN 13, DK-5700 SVENDBORG, DENMARK
FAX NO +45 62 22 46 15 PHONE +45 63 21 20 14

CJC Cooling Unit
General Arrangement

	Sign	Date
Constr.	TIK	07-01-25
Drawn	ADR	07-01-25
Appr.		
Rev.		

Drawing no.

51 063 01-3



1. Evaporator
2. Service valve
3. Condenser
4. Filter
5. Capillary tube

Scale: 1:2

Customer:

Project:

Ref.:

C.C.JENSEN A/S
LØVHOLMEN 13, DK-5700 SVENDBORG, DENMARK
FAX NO +45 62 22 46 15 PHONE +45 63 21 20 14

Cooling system for D10
Flow diagram

	Sign	Date
Constr.	TIK	07-01-29
Drawn	ADR	07-01-29
Appr.		
Rev.		

Drawing no.

74 004 30-8

TL4GH
Heat Pump Compressor
R134a
220-240V 50/60Hz

Data Sheet (Replaces CD.42.P4.02)

General

Compressor	**TL4GH**
Code number	102G4455

Application

Application		HBP
Evaporating temperature range	°C	-15 to 15
Voltage range	V/Hz	198 - 254 /50
		198 - 254 /60
Motor type		CSIR
Max. ambient temperature	°C	43
Comp. cooling at ambient temp.	32°C	F_2
	38°C	F_2
	43°C	F_2

Design

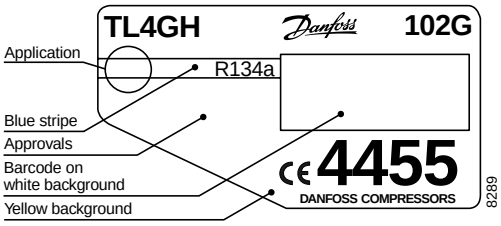
Displacement	cm^3	3.86
Oil quantity	cm^3	280
Maximum refrigerant charge	g	600
Free gas vol. in compressor	cm^3	1690
Weight without electrical equipment	kg	7.5

Motor

Motor size	watt	140
LRA (rated after 4 sec. UL984) HST	A	5.7
Cut-in current HST	A	5.7
Resistance, main and start winding (25°C)	Ω	14.5/14.8
Approvals		EN 60335-2-34, UL984/CSA-C22.2

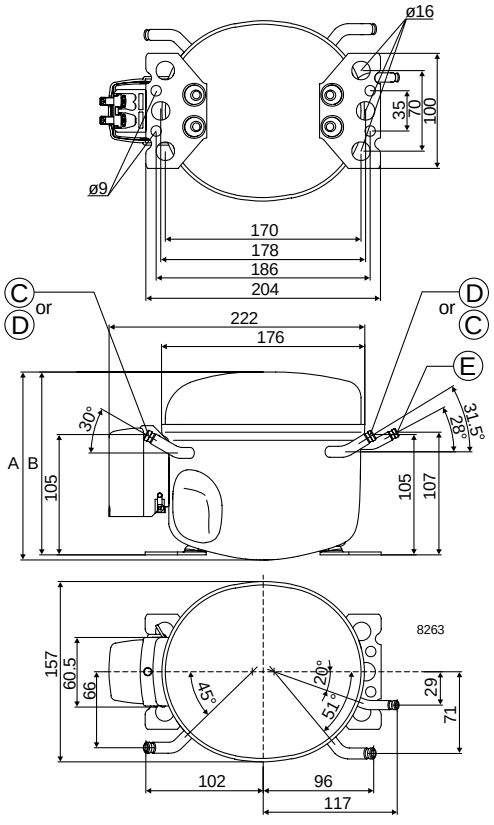
Dimensions

Height	mm	A	173
		B	169
Suction connector	location/I.D. mm	C	6.2 ±0.09
Process connector	location/I.D. mm	D	6.2 ±0.09
Discharge connector	location/I.D. mm	E	5.0 +0.12/+0.20
Compressors on a pallet	pcs.		125



Approval mark

S = Static cooling normally sufficient
O = Oil cooling
F_1 = Fan cooling 1.5 m/s (compressor compartment temperature equal to ambient temperature)
F_2 = Fan cooling 3.0 m/s necessary



Capacity (EN 12900/CECOMAF) watt

Evap. temp in °C	-15	-10	-5	0	5	7.2	10	15
TL4GH, 50Hz	104	140	182	230	287	315	353	429
TL4GH, 60Hz	118	160	208	264	328	360	403	489

Capacity (ASHRAE) watt

Evap. temp in °C	-15	-10	-5	0	5	7.2	10	15
TL4GH, 50Hz	129	173	225	285	356	391	439	535
TL4GH, 60Hz	146	198	257	327	408	447	501	609

Power consumption watt

Evap. temp in °C	-15	-10	-5	0	5	7.2	10	15
TL4GH, 50Hz	109	121	134	146	159	164	171	181
TL4GH, 60Hz	123	139	156	174	193	202	213	232

Current consumption A

Evap. temp in °C	-15	-10	-5	0	5	7.2	10	15
TL4GH, 50Hz	0.97	1.01	1.05	1.09	1.12	1.14	1.16	1.20
TL4GH, 60Hz	0.89	0.95	1.02	1.09	1.16	1.19	1.23	1.31

COP (EN 12900/CECOMAF) W/W

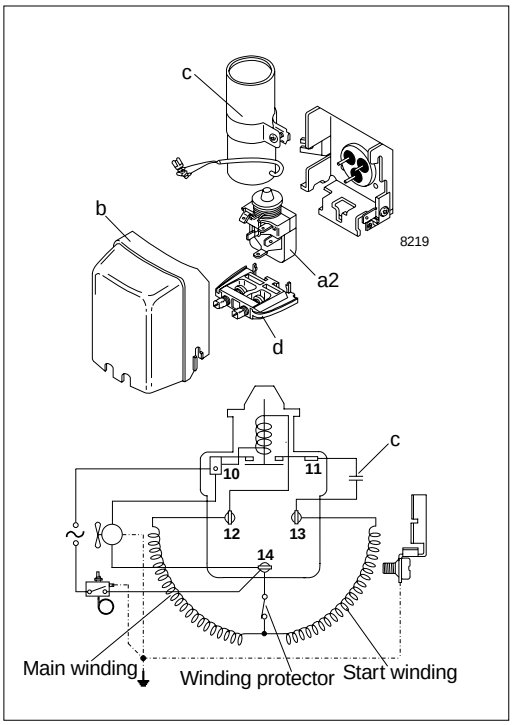
Evap. temp in °C	-15	-10	-5	0	5	7.2	10	15
TL4GH, 50Hz	0.96	1.16	1.36	1.57	1.81	1.92	2.07	2.37
TL4GH, 60Hz	0.96	1.15	1.33	1.51	1.70	1.78	1.90	2.11

COP (ASHRAE) W/W

Evap. temp in °C	-15	-10	-5	0	5	7.2	10	15
TL4GH, 50Hz	1.18	1.43	1.68	1.95	2.24	2.38	2.57	2.95
TL4GH, 60Hz	1.19	1.43	1.65	1.88	2.11	2.22	2.36	2.63

Test conditions	EN 12900/CECOMAF	ASHRAE
Condensing temperature	55°C	55°C
Ambient and suction gas temp.	32°C	32°C
Liquid temperature	55°C	32°C

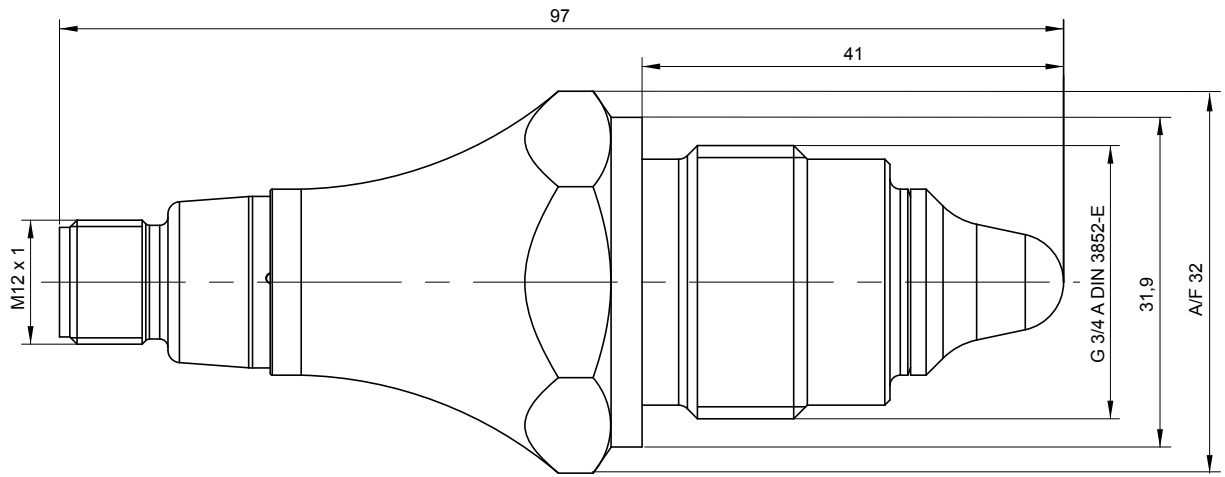
50Hz: Fan cooling F_2, 220V
60Hz: Fan cooling F_2, 220V

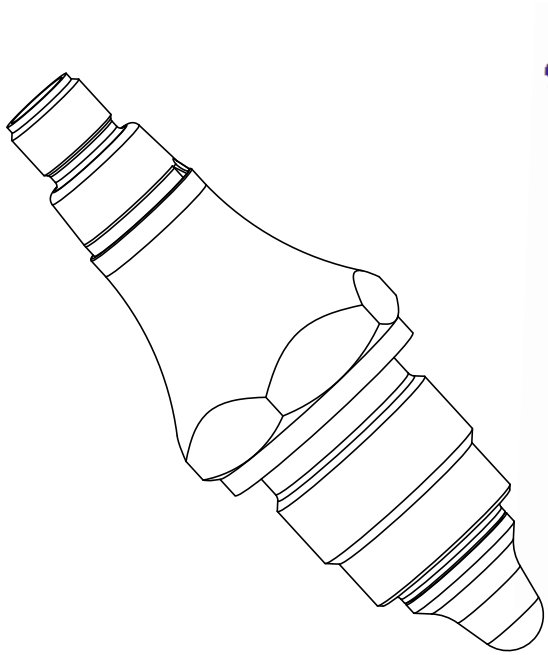


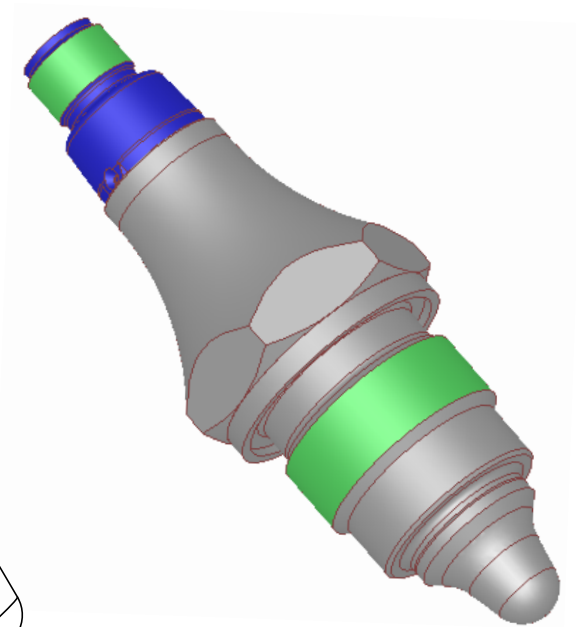
Accessories

Devices	Fig.	TL4GH
Starting relay	a2	117U6000
Cover	b	103N2011
Starting capacitor 60 µF	c	117U5014
Cord relief	d	103N1010
Mounting accessories		
Bolt joint for one compressor		118-1917
Bolt joint in quantities		118-1918
Snap-on in quantities		118-1919

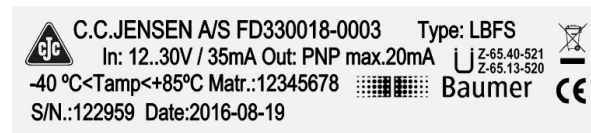
LBFS G 3/4 A DIN 3852-E







Logo (example)



LBFS-01$21.C/8098_9163_9150_9162
SAP number: 11192662

Housing material:		AISI 316 L (1.4404)
Gasket:		FKM (Viton)
El. connection:		M12, 4-pin
El. con. material:		Polycarbonate
Range min:	8081	0%
Range max:	8081	75%
Damping:	8081	0,5 sec.
Process connection:	9162	G 3/4 A DIN 3852-E
Logo:	9163	C. C. Jensen
Item number:	9163	FD 330013
Packing:	9150	20 off box

Baumer
Passion for Sensors

Level Switch LBFS

Special Features

- Wetted parts in stainless steel and PEEK
- Compact design
- Precise switching point with no requirement for calibration
- Process temperature -40... 115 °C
- Measures media with DK-values >1.5 (DK = Dielectrical Constant)
- Blue LED switch indicator
- Maintenance free
- Suitable for media separation
- Configurable by FlexProgrammer 9701
- ATEX approval for gas and dust
- WHG (leakage and overfill) Approval

Technical Data

Sensor	
Radiated signal	100...180 MHZ
Process connection	Refer to dimensional drawings
Insulating material	PEEK
Mechanical data	
Housing	Stainless Steel
Amb. temperature	-40...85 °C
Process temperature	-40...115 °C Max. 130 °C for < 1 hour, T_{amb} 40 °C
Protection class	IP67 (IEC 529)
Media pressure	Max. 100 bar
Vibrations	IEC 60068-2-6, GL test2
Installation	Any position
Surface roughness wetted parts	Stainless Steel Ra < 0.8 µm PEEK Ra < 0.05 µm
Electrical connection	
Cable	5 meter, 4 wire
Plug M12	Plastic or Stainless steel 304
Other electrical data	
Power supply	12...30 VDC, 35 mA max.
Damping	0...10 sec.
Power-up time	<2 sec.
Hysteresis	± 1 mm
Repeatability	± 1 mm
Reaction time	0.1 sec. (100 mS)
Reverse polarity protection	Yes
Disposal of product and packing	
According to national laws or by returning to Baumer	
EMC data and packing	
Immunity	EN 61326
Emission	EN 61326

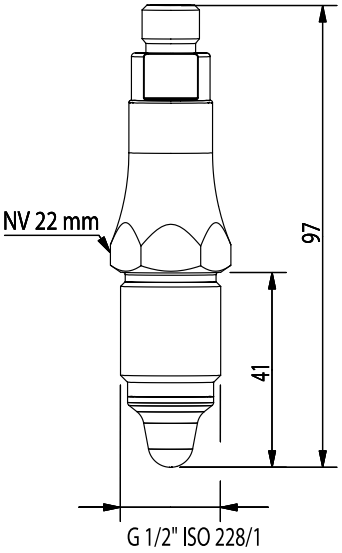
ATEX data	
Internal inductivity	$L_i \leq 10$ µH
Internal capacity	$C_i \leq 43$ nF
Barrier data	U ≤ 30 VDC ; I < 0.1 A ; P < 0.75 W
Approval Ex ia IIC T5, ATEX II 1G	
Supply range	12...30 VDC
Temperature class	T1...T4: -40 < T_{amb} < 85 °C T1...T5: -40 < T_{amb} < 74 °C
Approval Ex ta IIIC T100 Da, ATEX II 1D	
Supply range	12...30 VDC
Temperature class	T100 °C: -40 < T_{amb} < 85 °C
Approval Ex nA II T5, ATEX II 3G	
Supply range	12,5...30 VDC
Temperature class	T1...T5: -40 < T_{amb} < 85 °C
Output	
Output (active)	Max. 20 mA, short-circuit and high-temperature protected
Output type	PNP or NPN
Output polarity	NO and NC
Active “High”	PNP (VDC -1.5V) ± 0.5V ; Rload 10 kOhm
Active “Low”	NPN (-VDC +1.5V) ± 0.5V ; Rload 10 kOhm
Off leak current	± 100µA Max.
Factory Settings	
Damping	0.1 sec.
Approvals/conformities	
Approvals/conformities	EN 1935/2004, EN 10/2011 DNV Marine Approval EN 50155 Railway 3A, EHEDG, FDA, WHG (leakage and overfill) UL listed, E36692

Level Switch LBFS

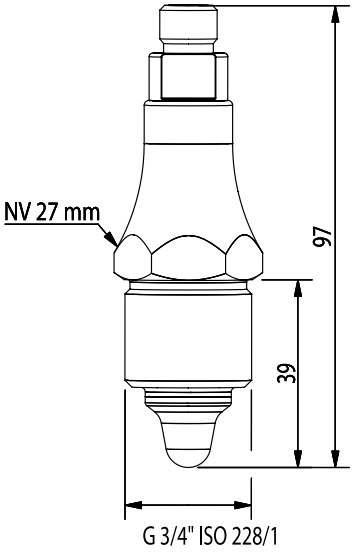
Description

The Level Switch LBFS is designed to detect levels in tanks, for media separation and provide empty-pipe detection or dry-run protection for pumps.
A high frequency sweep signal is radiated from the sensor tip into the tank. The media will act as a virtual capacitor, which together with a coil in the sensor head, will form a circuit creating the switch point signal. This virtual capacitance will depend of the di-electric value DK (Dielectrical Constant) of the media.
Two output signals are available, Normally Open (NO) and Normally Closed (NC). By means of the FlexProgrammer 9701, a damping of the output signal can be activated in case of a fluctuating media level, e.g. during tank filling. Additionally the output signals NO and NC can be reversed.
The measurement is precise and unaffected by the mounting position in the tank. In the Flex-software a compensation for foam, bubbles and condensate as well as sticky media can be set.
The Flex-software also features an adjustment facility making the user able to adjust the sensor to a specific media.
The Level Switch LBFS measures liquids such as water and oil. Even dry media can be measured, eg. coal dust or plastic granulate.
Level Switch LBFS can be delivered with PNP output as well as NPN output.
The process connection can easily be sealed by use of PTFE tape or by use of special welding adapter for the hygienic edition.

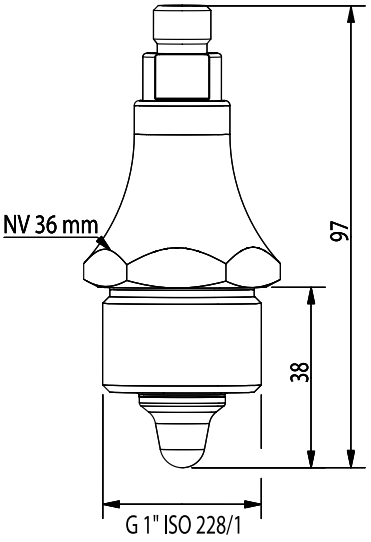
Dimensional Drawings



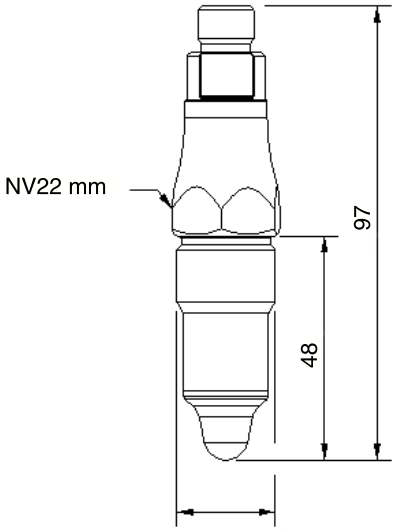
LBFS xx1x x



LBFS xx2x x

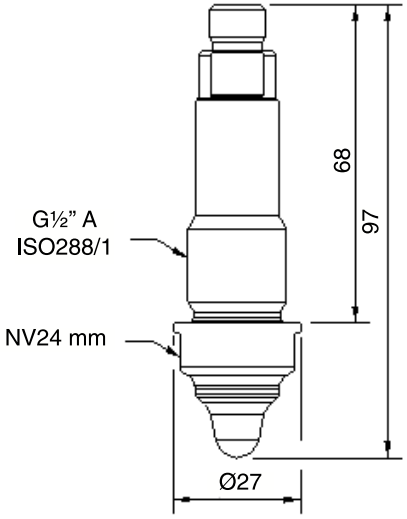


LBFS xx3x x



G½" hygienic

LBFS xx4x x

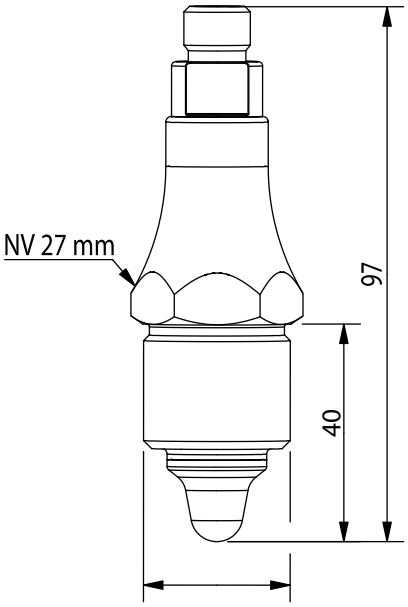


G½" reverse assembly

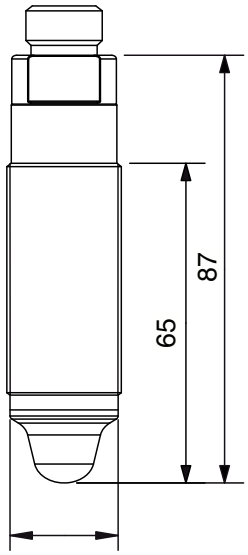
LBFS xx5x x

Level Switch LBFS

Dimensional Drawings

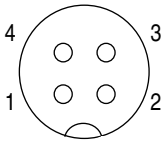


3/4"NPT
LBFS xx6x x



M18x1
LBFS xx7x x

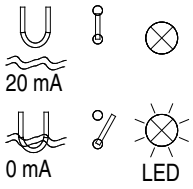
Electrical Connection

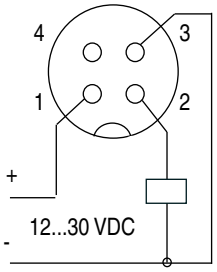


M12 plug	Cable	Function
1	Brown	+ VDC
2	White	Normally closed
3	Blue	- VDC
4	Black	Normally open

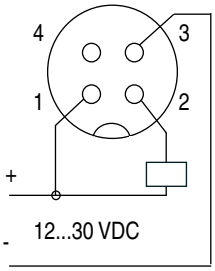
Electrical Installation

Normally Closed

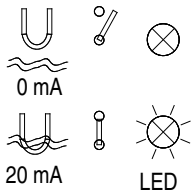


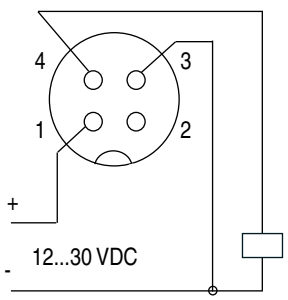


PNP Output
20 mA max.

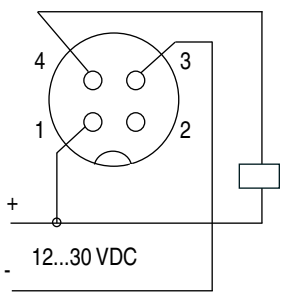


NPN Output
20 mA max.





PNP Output
20 mA max.



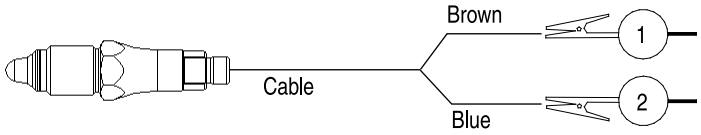
NPN Output
20 mA max.

Level Switch LBFS

Configuration

FlexProgrammer 9701

Note: Ambient temperature range 0...50°C



Disconnect the power supply before connecting the Flex-Programmer 9701 to the Level Switch LBFS

Accessories

FlexProgrammer 9701

The FlexProgrammer 9701 is a dedicated tool to configure Baumer configurable products

Type N° 9701-0001 comprises:
FlexProgrammer
USB cable
CD with the FlexProgram software

Accessories examples

LB020

CAM023

ISO 2852 clamp

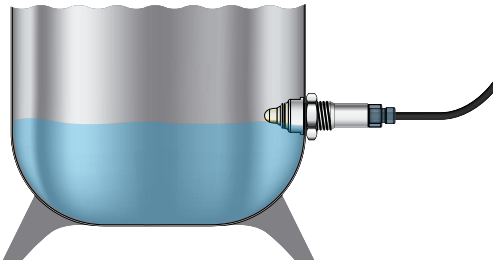
VAM023

Varivent

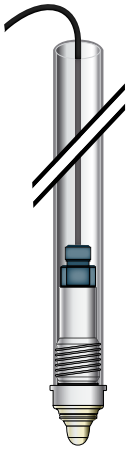
PM023

G½ hygienic welding sleve in AISI 316

Application

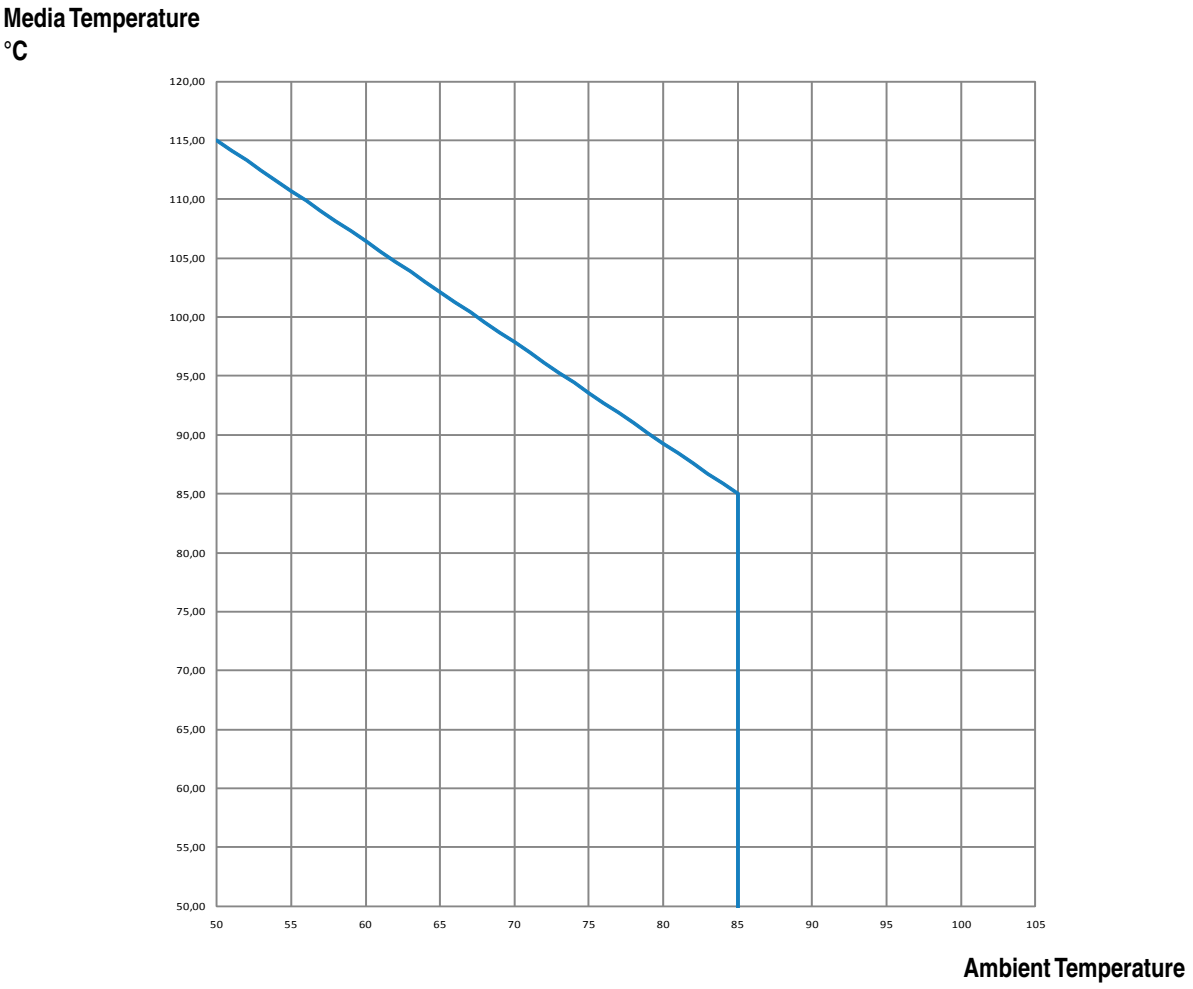


LBFS xx5x x



LBFS xx5x x

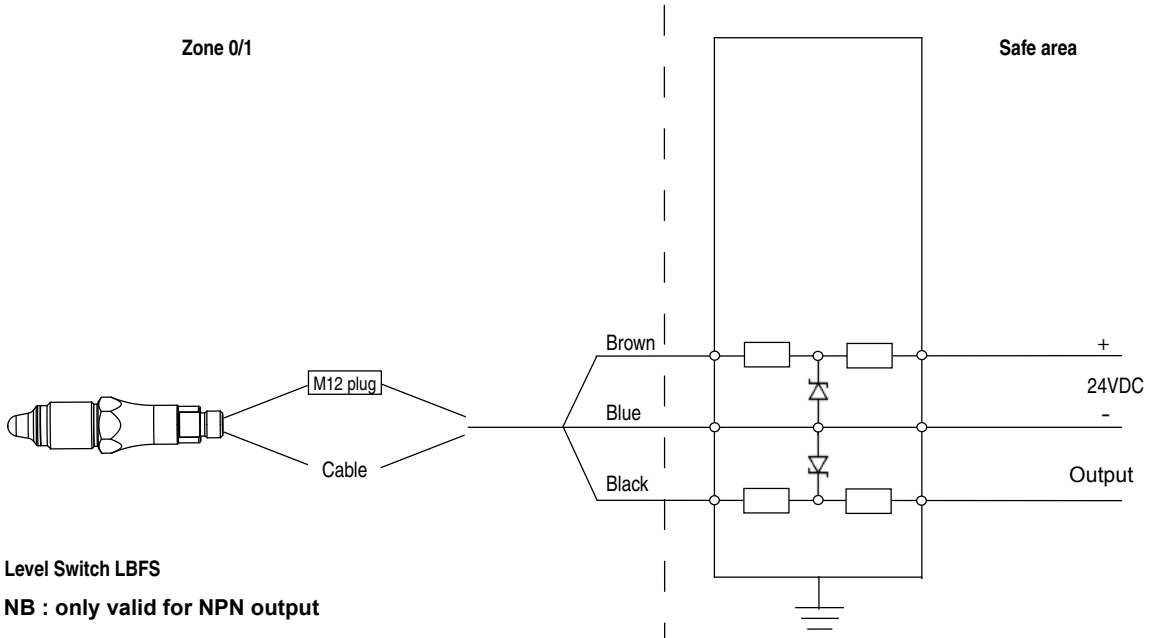
Media Temperature versus Ambient Temperature



Ex ia IIC T5, ATEX II 1G - Installation

A Level Switch LBFS 1xxx x is Ex ia IIC T5, ATEX II 1G approved for application in hazardous areas in accordance with the current EUdirectives. The product must be installed in accordance with prevailing guidelines for zone 0 with a barrier.
A certified Ex ia isolation barrier with the maximum values U_{max} = 30 VDC ; I_{max} = 0.1 A ; P_{max} = 0.75 W must be used. Use the isolating module PROFSI 3-B25100-ALG-LS (for PNP output only) or a ZENER Barrier (for NPN output only) as shown below (see installation manual for special instructions).

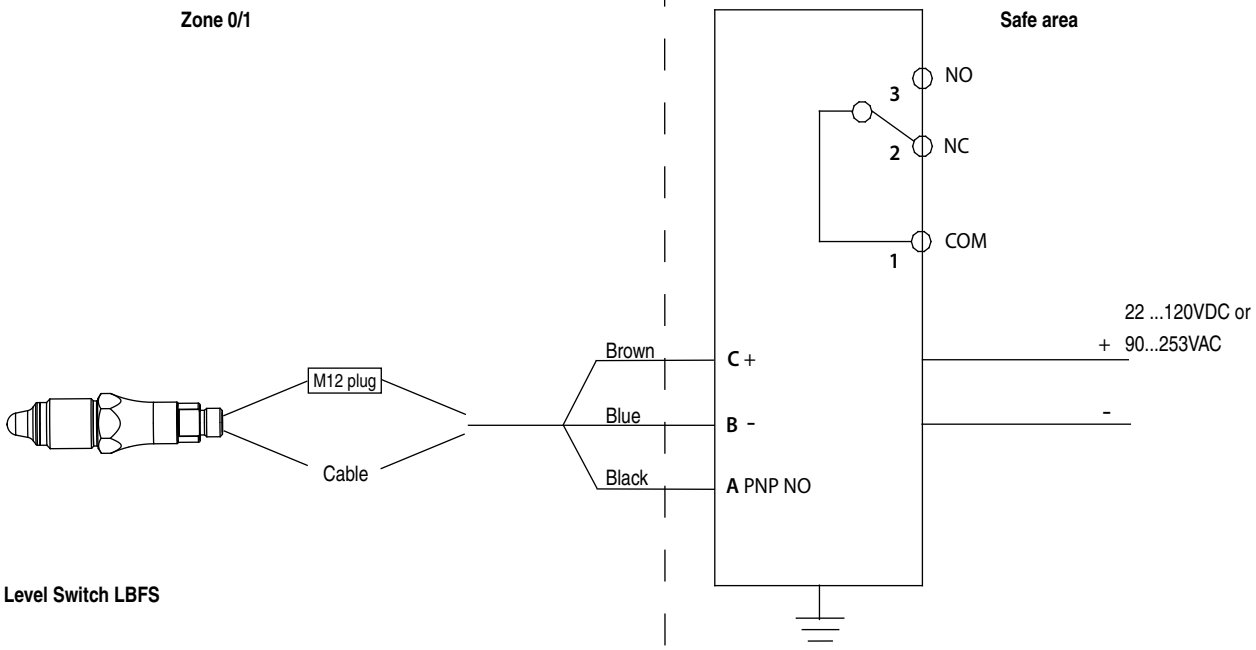
Ex-data	
Supply range	24...30 VDC
Temperature class	T1...T4: -40 < T_{amb} < 85 °C T1...T5: -40 < T_{amb} < 74 °C
Internal inductivity	L_i < 10 µH
Internal capacity	C_i < 43 nF
Barrier data	U < 30 VDC ; I < 0.1 A ; P < 0.75 W



Level Switch LBFS

NB : only valid for NPN output

Two-channel
ZENER BARRIER



Level Switch LBFS

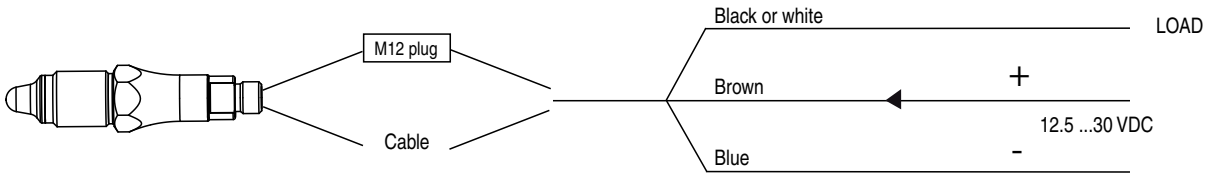
NB: For PNP output the PROFSI3-B25100-ALG-LS barrier must be used.

Isolating Module PROFSI3-B25100-ALG-LS

Ex ta IIIC T100 Da, ATEX II 1D - Installation

A Level Switch LBFS 2xxx x Ex ta IIIC T100 Da, ATEX II 1D approved for application in hazardous areas in accordance with the current EUdirectives.
The product must be installed in accordance with prevailing guidelines for zone 20 without a barrier.

Ex-data	
Supply range	12.5...30 VDC, max. 100 mA
Temperature class	T100



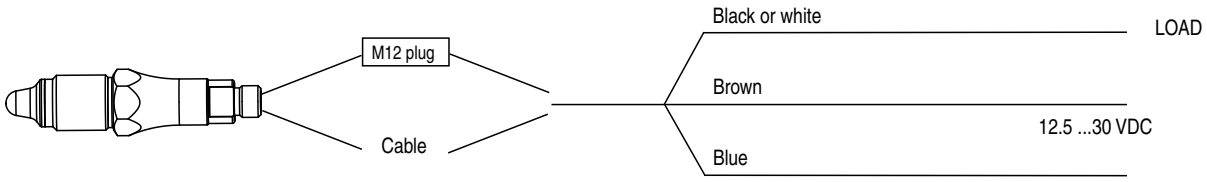
Level Switch LBFS

NB : The cable must be fixed to an external strain relief not more than 5 cm from the Level Switch. Only IP 67 compliant cable must be used for installation.
See below.

Ex nA II T5, ATEX II 3G - Installation

A Level Switch LBFS3 xxx x is Ex nA II T5, ATEX II 3G approved for application in hazardous areas in accordance with the current EUdirectives.
The product must be installed in accordance with prevailing guidelines for zone 2 without a barrier.

Ex-data	
Supply range	12.5...30 VDC, Max. 0.1A
Temperature class	T1...T5



Level Switch LBFS

Level Switch LBFS

Ordering details

		–						
Model								
Level Switch		LBFS						
Safety	5' digit							
Standard			0					
Ex ia IIC T5, ATEX II 1G (Gas) (6)			1					
Ex ta IIIC T100 Da, ATEX IIIC 1D (Dust) (2)			2					
Ex nA II T5, ATEX II 3G			3					
Ex ia IIC T5 / Ex ta IIIC T100 Da (combined gas/dust) (2)			4					
UL listed, E36692 (2)			A					
Electrical Connection	6' digit							
Plug, M12 plastic with LED				1				
Cable 5 meter (3)				2				
Plug, M12, stainless steel, without LED				3				
Process Connection	7' digit							
G1/2"					1			
G3/4"					2			
G1"					3			
G1/2" hygienic (for Acessories Universal) 3A / EHEDG (5)					4			
G1/2" for reverse assembly, glasfiber-aramide-NBR flat seal included (1)					5			
3/4" NPT (4)					6			
M18x1					7			
Process Connection material	8' digit							
Stainless Steel 1.4301 - AISI 304						1		
Stainless Steel 1.4404 - AISI 316L						2		
Output Configuration	9' digit							
PNP output							1	
NPN output							2	
Configuration	10' digit							
No configuration								0
Configuring according to customer specification								C

(1) Max. 85 °C media temperature
(2) Not valid with “cable connection”
(3) Max ambient temperature 70 °C
(4) Only available in AISI 304
(5) Only available in AISI 316L
(6) For PNP output the barrier module PFOFSI3-B25100-ALG-LS is required for funtional purposes. For NPN output a standard barrier may be used.

Wechsler | *Change-over Contact*

TECHNISCHE DATEN | ***TECHNICAL DATA***

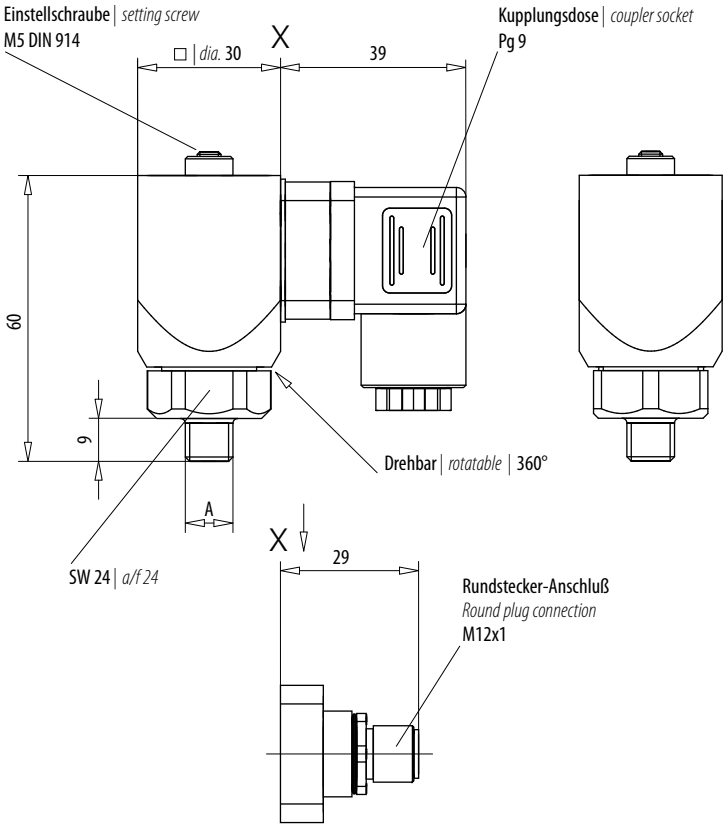
Bestellnummer	*Order no.*	600 002	600 010	600 070	600 200
Druckeinstellbereich	*Pressure setting range*	0,3 - 2 bar	1 - 10 bar	10 - 70 bar	50 - 200 bar
Toleranz	*Tolerance*	± 0,2 bar	± 0,5 bar	± 3,0 bar	± 5,0 bar
Arbeitsdruck max.	*Working pressure max.*	2 bar	10 bar	70 bar	200 bar
Überlastgrenze (statisch)	*Overpressure limit max.(static)*	20 bar	20 bar	250 bar	300 bar
Bauart	*Design*	Membrane federbelastet | *Spring-loaded diaphragm*		Kolben federbelastet | *Spring-loaded piston*	
Membrane / Dichtung	*Diaphragm / seal*	NBR Sonderausführung siehe Rückseite | *NBR Special design see backside*		UR Sonderausführung siehe Rückseite | *UR Special design see backside*	
Befestigungsart	*Manner of fastening*	über Außengewinde | *Male thread*			
Anschlußgewinde >A<	*Fitting thread >A<*	G 1/4", G 1/8", M12x1,5, M10x1 kegelig, andere Gewinde siehe Rückseite | *G 1/4", G 1/8", M12x1,5, M10x1 Cone, Other threads see backside*			
Einbaulage	*Mounting position*	beliebig | *Any*			
Umgebungstemperatur	*Ambient temperature*	-25 °C bis + 85 °C, höhere Temperaturen auf Anfrage | *-25 °C to + 85 °C, higher temperatures on demand*			
Medien	*Medium*	Luft, Hydrauliköl, Ölemulsionen, Wasser, andere Medien auf Anfrage | *Air, hydraulic oil, oil emulsions, water, others on demand*			
Verstellbarkeit	*Adjustability*	unter Druck | *Under pressure*			
Rückschaltdifferenz	*Switch back difference*	15 % – 25%			
Mechanische Lebensdauer	*Mechanical life*	10^6			
Werkstoff	*Material*	Stahl verzinkt, Sonderausführung siehe Rückseite | *Galvanized steel, Special design see backside*			
Gewicht ca.	*Weight approx.*	230 g			
Schaltelement	*Switching element*	Microschalter – Kontakte versilbert, Sonderausführung vergoldet | *Microswitch - silver-plated contacts / special gold-plated contacts*			
Bemessungsspannung	*Reference voltage*	250 V (PG9), 42 V (Rundstecker M12x1)			
Bemessungsfrequenz	*Reference frequency*	nicht über 100 Hz | *Not over 100 Hz*			
Schalthäufigkeit max.	*Switching frequency max.*	200/min.			
Elektrischer Anschluß	*Electrical connection*	Kupplungsdose PG9 DIN EN 175301- 803, wahlweise Rundstecker M12x1 | *Connector PG9 DIN EN 175301- 803, optionally with round plug M12x1*			
Schutzart	*Protective system*	IP 65, Klemmen IP 00 DIN 40 050 | *IP65, terminale IP00 DIN 40 050*			

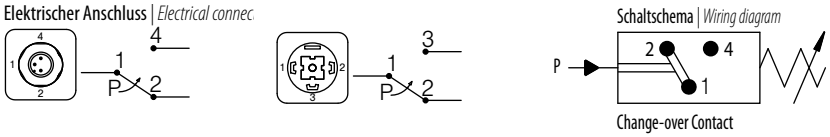
Schaltleistung	**Gebrauchskategorie nach EN60947**	**Wechselstrom**		**Gleichstrom**				
Breaking capacity	***Utilization category according to EN60947***	***AC***		***DC***				
Spannung bis | *Voltage up to*		125 V	250 V	30 V	50 V	75 V	125 V	250 V
Widerstand-Last | *Resistance load*	AC-12, DC-12	5 A	5 A	5 A	2 A	1 A	0,5 A	0,25 A
Induktive-Last | *Inductive load*	AC-14, DC-13	1 A	1 A	2 A	1 A	0,5 A	0,2 A	0,2 A

Weitere Informationen siehe Gebrauchsanweisung (GBA) für Membran- und Kolbendruckschalter | *Further information see Operating Instruction (OI) for Membrane and Piston Pressure Switch*

LAYHER AG, Kalkwerkstr. 23, 71737 Kirchberg, Germany, Tel. +49 (0) 7144 32 04, Fax +49 (0) 7144 3 43 07, info@layher-ag.de, www.layher-ag.de

Wechsler | *Change-over Contact*





Alle Angaben in mm
All specification in mm

Bestellen Sie Ihren individuellen Druckschalter: Als erstes notieren Sie die Bestellnummer, anschließend stellen Sie sich Ihre individuelle Ausführung zusammen.
Order your individual Pressure Switch: *Note first the order number, then combine your individually required type.*

Schaltschema
Wiring diagram

Wechsler | *Change-over Contact* 3

Membrane 1 / Dichtung 2
Membrane 1 / Seal 2

NBR 1 1
VITON 1/2 2
CR 1 3
EPDM 1 4
UR 2 5
KALREZ 1 6
HNBR 1 8

Anschlußgewinde >A<
Fitting thread *>A<*

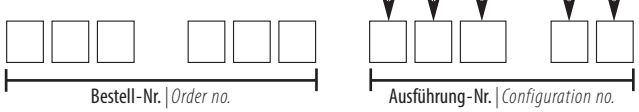
G 1/4" 1
G 1/8" 2
M12x1,5 3
M10x1 kegelig | *Cone* 4
M10x1 8

Kontakte
Contacts

versilbert | *silvered* 1
vergoldet | *gilded* 2

Werkstoff
Material

Stahl verzinkt | *Galvanized steel* 1
VA 1.4305 | *Stainless steel* 2
VA 1.4571 | *Stainless steel* 3
Messing | *Brass* 4



Andere Ausführungen auf Anfrage
Other versions on request

ENGINEERING
TOMORROW

Data sheet

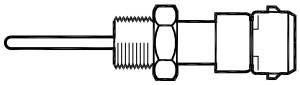
Temperature sensor
Type MBT 3270

The flexible temperature sensor MBT 3270 can be used in many industrial applications such as: Air Compressors, Mobile Hydraulics and Exhaust gas return systems. In other words applications where robustness, size and performance are essentials.
The sensor can be equipped with different sensing elements (RTD, NTC and PTC) and is available with different electrical connections (Cable, Delphi Metri Pack, AMP junior power Timer, Deutch DT04).

Features

- OEM Temperature Sensor program
- Various sensor elements available (RTD, NTC, PTC)
- Robust, high protection against moisture
- Fixed measuring insert
- Brass or stainless steel
- Very low response times
- Temperature range up to 300 °C
- Avaiable with cable or integrated plug (Delphi Metri Pack, AMP junior power Timer, Deutsch DT04)

Technical data,
Integrated Plug version



General data

Ambient temperature	Plug	-40 °C – 125 °C
Media temperature	Pt 1000, Pt 100 NTC PTC	-50 °C – 300 °C -50 °C – 150 °C, special versions up to 300 °C -50 °C – 150 °C
Max. external pressure	Operating pressure	500 bar
	Burst pressure	> 900 bar
Max. tightening torque	M10 M14	17 Nm 24 Nm

Performance

Sensor Element		Pt 100, Pt 1000, NTC, PTC
Process Connection		Refer to ordering standard page 3
Sensor insertion length	Brass	80 mm @ d ≥ 8 mm
		60 mm @ 8 > d > 5 mm
		40 mm @ d ≤ 5 mm
	Stainless steel	70 mm @ d ≥ 8 mm
		50 mm @ 8 > d > 5 mm
		35 mm @ d ≤ 5 mm
Electrical Connection		AMP Junior Power Timer Delphi Metri Pack Deutsch DT04 Other on request
Connection		2-wire

Indicative response times

Material protection tube	**Protection tube**	**Indicative response times**	
		Water 0,2 m/s	
		$t_{0.5}$	**$t_{0.9}$**
Stainless Steel	ø6 mm	6.0 s	18 s
	ø4 mm	2.0 s	6.0 s
	ø3 mm	0.5 s	1.5 s

Response times can vary very much depending on the design of the sensor and the temperature element chosen.

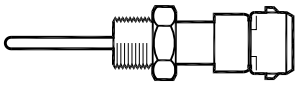
Mechanical and environmental specifications

Sensor Tolerances	Pt 1000 / Pt 100 NTC PTC 2000 (KTY 81 – 210)	EN 60751 Class B On request ± 1% at 25 °C
Vibration stability	Shock	50 g / 6 ms
	Vibrations, x-y-z directions	15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	AMP Junior Power Timer Delphi Metri Pack Deutsch DT04	IP65 according to IEC 60529

Materials

Protection tube in contact with media	AISI 316 Brass
Process connection	AISI 316 Brass
Gasket	Viton, NBR (other on request)
Plug	PPS (Ryton 4)

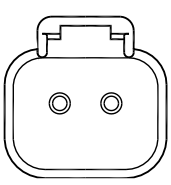
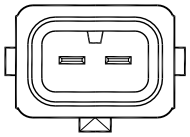
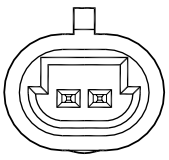
Ordering standard
Integrated Plug version



Type MBT 3270

Measuring range	
-50 – 150 °C	0
-50 – 200 °C	1
-50 – 300 °C	2
Other	9
Resistance value	
1 × Pt 100	0
1 × Pt 1000	2
NTC 2000, B25/85 2880 - 4570	6
NTC 2700, B25/85 2880 - 4570	K
NTC 3000, B25/50 3499	A
NTC 5000, B25/100 3988	L
Other (e.g. NTC)	9
Tolerance	
EN 60751 Class B	0
± 1%	1
± 2%	2
± 3%	3
Other	9
NTC characteristic	
No NTC	0
Other	9
Protection tube	
Brass	0
Acid-Proof Steel, AISI 316	1
Other	9
Insertion length (80 mm max)	
24 mm	0 2 4
28 mm	0 2 8
40 mm	0 4 0
Other (21 – 80)	x x x
Connection	
2-wire	0
Other	9
Plug	
None	0
AMP Junior Power Timer	3
Delphi Metri-pack Integrated – 102	4
Deutsch Integrated DT04 – 2 pin	C
Other	9
Insert	
Fixed	0
Process connection	
G ¼ A	0
G ⅜ A	1
G ½ A	2
M10 × 1	3
M14 × 1.5	B
Other	9

Electrical connections

Deutsch DT04	AMP Junior Power Timer	Delphi Metri Pack 102
		

Technical data, Cable version

General data

Ambient temperature	Cable	PVC Silicon Teflon Polyolefin (oil resistant)	-40 °C – 100 °C -40 °C – 200 °C -40 °C – 200 °C -40 °C – 150 °C
	Plug	AMP spade AMP Junior Power Timer Delphi Metri Pack 102 Deutsch DT04-3P	-40 °C – 200 °C -40 °C – 125 °C -40 °C – 125 °C -40 °C – 125 °C
Media temperature		Pt 100 NTC PTC	-50 °C – 300 °C -50 °C – 150 °C, special versions up to 300 °C -50 °C – 150 °C
Max. external pressure		Operating pressure	500 bar
		Burst pressure	> 900 bar
Max. tightening torque		M10 M14	17 Nm 24 Nm

Performance

Sensor Element		Pt 100, Pt 1000, NTC, PTC
Process Connection		Refer to ordering standard page 5
Sensor insertion length	Brass	80 mm @ d ≥ 8 mm
		60 mm @ 8 > d > 5 mm
		40 mm @ d ≤ 5 mm
	Stainless steel	70 mm @ d ≥ 8 mm
		50 mm @ 8 > d > 5 mm
		35 mm @ d ≤ 5 mm
Electrical Connection		Stripped wire ends Cable with AMP spade (6.35) Cable with AMP Junior Power Timer Cable with Delphi Metri Pack 102 Cable with Deutsch DT04-3P-2P Other on request
Connection		2, 3 or 4 wire (depending on electrical connection)

Indicative response times

Material protection tube	**Protection tube**	**Indicative response times**	
		Water 0,2 m/s	
		$t_{0.5}$	**$t_{0.9}$**
Stainless Steel	ø6 mm	6 s	18 s
	ø4 mm	2 s	6 s
	ø3 mm	0.5 s	1.5 s

Response times can vary very much depending on the design of the sensor and the temperature element chosen.

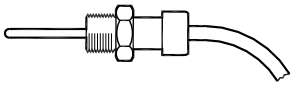
Mechanical and environmental specifications

Sensor tolerances	Pt 1000 / Pt 100 NTC PTC 2000 (KTY 81 – 210)	EN 60751 Class B: ± (0.3 + 0.005 × t) On request ± 1% at 25° C
Vibration stability	Shock	50 g / 6 ms
	Vibrations, x-y-z directions	15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	Sensor only Cable with AMP spade Cable with AMP Junior Timer Cable with Delphi Metri Pack 102 Cable with Deutsch DT04	IP67 according to IEC 60529 IP00 according to IEC 60529 IP65 according to IEC 60529 IP65 according to IEC 60529 IP65 according to IEC 60529

Materials

Protection tube in contact with media	AISI 316 Brass
Process connection	AISI 316 Brass
Cable	PVC, Silicon, Teflon (Other on request)
Gasket	Viton, NBR (Other on request)
Plug	PPS (Ryton 4)

Ordering standard
Cable version



Type MBT 3270

Measuring range

-50 – 150 °C	0
-50 – 200 °C	1
-50 – 300 °C	2
Other	9

Cable length

050	0.5 m
100	1.0 m
200	2.0 m
xxx	x.x m

Resistance value

1 × Pt 100	0
1 × Pt 1000	2
NTC 2000, B25/85 2880 - 4570	6
NTC 2700, B25/85 2880 - 4570	K
NTC 3000, B25/50 3499	A
NTC 5000, B25/100 3988	L
Other (e.g. NTC)	9

Cable

1	Silicone
2	Silicone, screened
3	Teflon
4	Teflon, screened
5	PVC
6	PVC, screened
7	Polyolefine, screened
8	Polyolefine, screened 80 °C
9	Other

Tolerance

EN 60751 Class B	0
± 1%	1
± 2%	2
± 3%	3
Other	9

Connection

0	2-wire
1	3-wire
2	4-wire

NTC characteristic

No NTC	0
Other	9

Protection tube

Brass	0
Acid-Proof Steel, AISI 316	1
Other	9

Plug

0	None
1	AMP (Spade 6.35)
3	AMP Junior Power Timer
5	Deutsch Flying DT04 – 3 pin
D	Deutsch Flying DT04 – 2 pin
E	Delphi Metri Pack flying – 102
9	Other

Insertion length (80 mm max)

24 mm	024
28 mm	028
40 mm	040
Other (21 – 80)	xxx

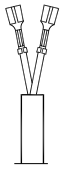
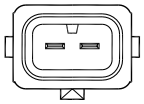
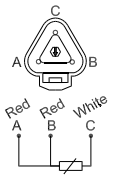
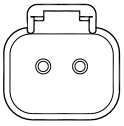
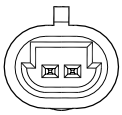
Insert

0	Fixed

Process connection

0	G ¼ A
1	G ⅜ A
2	G ½ A
3	M10 × 1
B	M14 × 1.5
9	Other

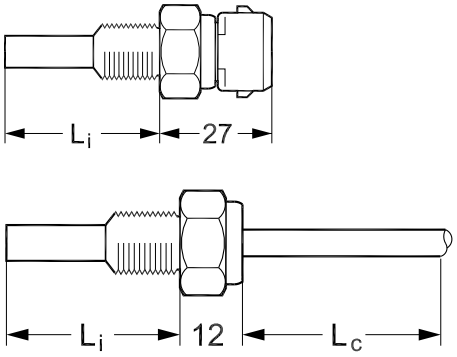
Electrical connections

AMP spade (6.35)	AMP Junior Power Timer	Deutsch DT04 3 pin	Deutsch DT04 2 pin	Delphi Metri Pack 102
				

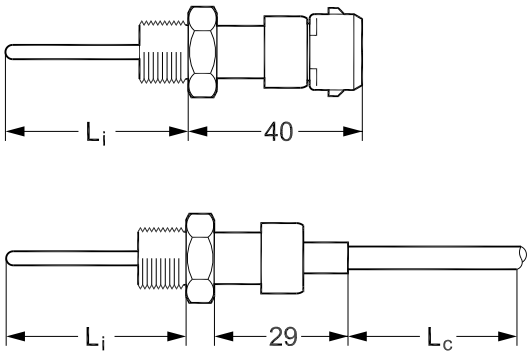
Dimensions

Examples

-50 – 150 °C



-50 –150 °C / 300 °C



Insertion length:
L_i = 21 to xx (max. 80 mm)

Cable length:
L_c = 0.5 m to x.xx m

Tube diameter depends on the chosen sensor element and the wanted response time.

Data sheet

Direct-operated 2/2-way solenoid valves Type EV210B

EV210B covers a wide range of direct-operated 2/2-way solenoid valves for universal use.

EV210B is a very robust valve program with high performance and can be used in all kind of tough working conditions in demanding industrial applications such as control and closage.

Features and versions:

- For water, oil, compressed air and similar neutral media.
- Flow range: 0 – 8 m^3/h
- Differential pressure: 0 – 30 bar
- Media temperature: -30 – 140 °C
- Ambient temperature: Up to 80 °C
- Coil enclosure : Up to IP67
- Tread connections: G $1/8$ – G 1
- DN 1.5 – 25
- Viscosity: Up to 50 cSt
- The valves can be used for vacuum
- EV210B brass version for water, oil, compressed air and similar neutral media
- EV210B stainless steel version for neutral and aggressive liquids and gasses
- Also available with NPT thread. See separate datasheet

EV210B brass valve body, NC

Conn. ISO 228/1	Seal material	Orifice size	K_v value [m^3/h]	Differential pressure min. to max. [bar] /coil type[2]							Media temperature min. to max. [°C]	Code number
				BA 9 [W a.c]	BA 15 [W d.c]	BD 15 [W a.c]	BB 10 [W a.c]	BB 18 [W d.c]	BG 12 [W a.c]	BG 20 [W d.c]		
G 1/8	EPDM [1]	1.5	0.08	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-30 – 120	**032U5701**
	FKM		0.08	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-10 – 100	**032U5702**
	FKM	2.0	0.15	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-10 – 100	**032U5704**
	EPDM [1]	3.0	0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-30 – 120	**032U5705**
	FKM		0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-10 – 100	**032U5706**
G 1/4	FKM	1.5	0.08	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-10 – 100	**032U3629**
	EPDM [1]	2.0	0.15	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-30 – 120	**032U5707**
	FKM		0.15	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-10 – 100	**032U5708**
	EPDM [1]	3.0	0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-30 – 120	**032U5709**
	FKM		0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-10 – 100	**032U5710**
	EPDM [1]	4.5	0.55	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-30 – 120	**032U3600**
	FKM		0.55	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-10 – 100	**032U3601**
	EPDM [1]	6.0	0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	0 – 4.5	-30 – 120	**032U3602**
	FKM		0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	0 – 4.5	-10 – 100	**032U3603**
G 3/8	EPDM [1]	3.0	0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-30 – 120	**032U3642**
	FKM		0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-10 – 100	**032U3643**
	EPDM [1]	4.5	0.55	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-30 – 120	**032U3605**
	FKM		0.55	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-10 – 100	**032U3606**
	EPDM [1]	6.0	0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	0 – 4.5	-30 – 120	**032U3607**
	FKM		0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	0 – 4.5	-10 – 100	**032U3608**
	EPDM [1]	8.0	1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-30 – 120	**032U3609**
	FKM		1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-10 – 100	**032U3610**
	EPDM [1]	10.0	1.50	0 – 0.8	0 – 0.3	0 – 1.1	0 – 1.2	0 – 0.6	0 – 1.6	0 – 1.3	-30 – 120	**032U3611**
	FKM		1.50	0 – 0.8	0 – 0.3	0 – 1.1	0 – 1.2	0 – 0.6	0 – 1.6	0 – 1.3	-10 – 100	**032U3612**
	EPDM [1]	15.0	2.50	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-30 – 120	**032U3613**
	FKM		2.50	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-10 – 100	**032U3614**
G 1/2	EPDM [1]	8.0	1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-30 – 120	**032U3615**
	FKM		1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-10 – 100	**032U3616**
	EPDM [1]	10.0	1.50	0 – 0.8	0 – 0.3	0 – 1.1	0 – 1.2	0 – 0.6	0 – 1.6	0 – 1.3	-30 – 120	**032U3617**
	FKM		1.50	0 – 0.8	0 – 0.3	0 – 1.1	0 – 1.2	0 – 0.6	0 – 1.6	0 – 1.3	-10 – 100	**032U3618**
	EPDM [1]	15.0	2.85	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-30 – 120	**032U3619**
	FKM		2.85	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-10 – 100	**032U3620**
G 3/4	EPDM [1]	20.0	4.50	-	-	-	0 – 0.28	0 – 0.12	0 – 0.4	0 – 0.35	-30 – 120	**032U3621**
	FKM		4.50	-	-	-	0 – 0.28	0 – 0.12	0 – 0.4	0 – 0.35	-10 – 100	**032U3622**
G 1	EPDM [1]	25.0	8.00	-	-	-	0 – 0.25	0 – 0.09	0 – 0.35	0 – 0.2	-30 – 120	**032U3623**
	FKM		8.00	-	-	-	0 – 0.25	0 – 0.09	0 – 0.35	0 – 0.2	-10 – 100	**032U3624**

[1] 140 °C / 3.6 bar low pressure steam, orifice DN 1.5 – 4.5.
- Low pressure steam: DN 1.5 – 3 Use coil type BB or BG.
DN 4.5 Use coil type BG

[2] Pressure range can be extended to use in rough vacuum, typically up to 99% vacuum (10 mbar), depending on the application.

Technical data, EV210B NC

Type	EV210B 1.5 – EV210B 2	EV210B 3 – EV210B 4.5	EV210B 6	EV210B 8 – EV210B 10	EV210B 15	EV210B 20	EV210B 25
Time to open [ms] [1]	10	20	20	20	30	40	40
Time to close [ms] [1]	20	20	20	30	50	50	70
Max test pressure	50 bar	50 bar	50 bar	50 bar	12 bar	12 bar	12 bar

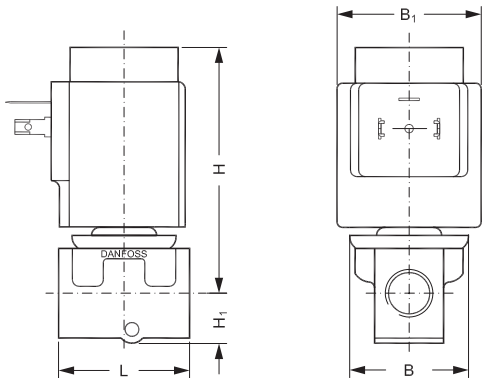
[1] The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Tightness	Internally: Better than 8.3 x 10 – 2 mbar l/sec (5ccm air per min.) Externally: Better than 1 x 10 – 3 mbar l/sec (100% H_e)		
Ambient temperature	Max. 80 °C (depending on coil type)		
Viscosity	Max. 50 cSt		
Materials	Valve body	Brass	W.no.2.0402
	Armature	Stainless steel	W.no.1.4105 / ASIS 430FR
	Armature tube	Stainless steel	W.no.1.4306 / ASIS 304L
	Armature stop	Stainless steel	W.no.1.4105 / ASIS 430FR
	Springs	Stainless steel	W.no.1.4306 / ASIS 301
	Seal material: See specific data in table.		

Dimensions and weight

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B1 [mm]			H1 [mm]	H [mm]
				Coil type BA / BD	Coil type BB / BE	Coil type BG		
EV210B 1.5 / EV210B 2B, NC	0.15	35	34	32	46	67	12	70
EV210B 3 / EV210B 4.5, NC	0.20	38	34	32	46	67	11	70
EV210B 6B, NC	0.22	46	34	32	46	67	16	73
EV210B 8 / EV210B 10B, NC	0.29	49	34	32	46	67	16	73
EV210B 15B, NC	0.45	58	53	32	46	67	13	93
EV210B 20B, NC	1.10	90	58	32	46	67	18	92
EV210B 25B, NC	1.10	90	58	32	46	67	23	96

Dimensions



EV210B brass valve body, NO

Conn. ISO 228/1	Seal material	Orifice size	K_v value [m^3/h]	Differential pressure min. to max. [bar] /coil type [2]							Media temperature min. to max. [°C]	Code number
				BA 9 [W a.c]	BA 15 [W d.c]	BD 15 [W a.c]	BB 10 [W a.c]	BB 18 [W d.c]	BG 12 [W a.c]	BG 20 [W d.c]		
G 1/8	EPDM [1]	1.5	0.08	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-30 – 120	**032U3630**
G 1/8	FKM	1.5	0.08	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-10 – 100	**032U3631**
G 1/8	EPDM [1]	2.0	0.15	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	-30 – 120	**032U3632**
G 1/8	FKM	2.0	0.15	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	-10 – 100	**032U3633**
G 1/8	EPDM [1]	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-30 – 120	**032U3634**
G 1/8	FKM	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-10 – 100	**032U3635**
G 1/4	EPDM [1]	2.0	0.15	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	-30 – 120	**032U3636**
G 1/4	FKM	2.0	0.15	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	-10 – 100	**032U3637**
G 1/4	EPDM [1]	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-30 – 120	**032U3638**
G 1/4	FKM	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-10 – 100	**032U3639**
G 1/4	EPDM [1]	4.5	0.55	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	-30 – 120	**032U3640**
G 1/4	FKM	4.5	0.55	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	-10 – 100	**032U3641**

[1] 140 °C / 3.6 bar low pressure steam, orifice DN 1.5 – 4.5.
- Low pressure steam: DN 1.5 – 3 Use coil type BB or BG.
DN 4.5 Use coil type BG

[2] Pressure range can be extended to use in rough vacuum, typically up to 99% vacuum (10mbar), depending on the application.

Technical data, EV210B NO

Type	EV210B 1.5 – EV210B 4.5
Time to open [ms] [1]	20
Time to close [ms] [1]	20

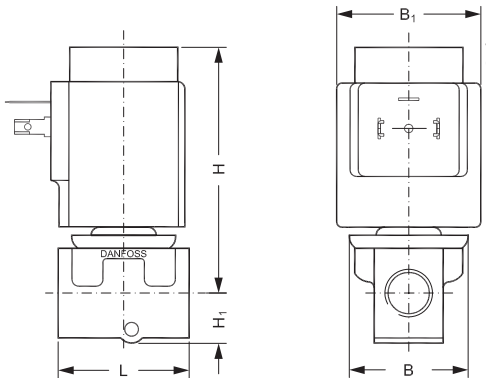
[1] The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Max. test pressure	50 bar		
Tightness	Internally: Better than 8.3 x 10 – 2 mbar l/sec (5ccm air per min)		
	Externally: Better than 1 x 10 – 3 mbar l/sec (100%He)		
Ambient temperature	Max. 80 °C (depending on the coil type, see data for the coil selected)		
Viscosity	Max. 50 cSt		
Materials	Valve body	Brass	W.no. 2.0402
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	Seal material	See specific valve data	

Dimensions and weight

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B1 [mm]			H1 [mm]	H [mm]
				Coil type BA / BD	Coil type BB / BE	Coil type BG		
EV210B 1.5 / EV210B 2B, NO	0.15	35	34	32	46	67	12	70
EV210B 3 / EV210B 4.5, NO	0.20	38	34	32	46	67	11	70

Dimensions



EV210B stainless steel body, NC

Conn. ISO 228/1	Seal material	K_v value [m^3/h]	Orifice size	Permissible differential pressure [bar]							Media temperature min. to max. [°C]	Code number
				BA 9 [W a.c]	BA 15 [W d.c]	BD 15 [W a.c]	BB 10 [W a.c]	BB 18 [W d.c]	BG 12 [W a.c]	BG 20 [W d.c]		
G 1/8	EPDM[1)]	0.15	2.0	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-30 – 120	**032U3647**
G 1/8		0.30	3.0	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-30 – 120	**032U3649**
G 1/4		0.15	2.0	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-30 – 120	**032U3651**
G 1/4		0.30	3.0	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-30 – 120	**032U3653**
G 1/4		0.55	4.5	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-30 – 120	**032U3655**

[1)] 140 °C / 3.6 bar low pressure steam, orifice DN 1.5 – 4.5.
- Low pressure steam: DN 1.5 – 3.0 Use coil type BB or BG.
DN 4.5 Use coil type BG

Technical data, stainless steel

Type	EV210B 2 – EV210B 4.5
Time to open [ms] [1)]	20
Time to close [ms] [1)]	20

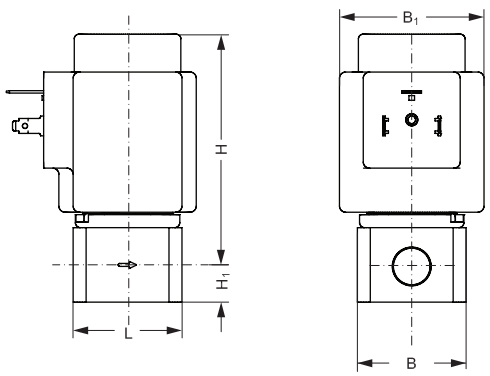
[1)] The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Max. test pressure	50 bar		
Tightness	Internally: Better than 8.3 x 10 – 2 mbar l/sec (5ccm air per min) Externally: Better than 1 x 10 – 3 mbar l/sec (100%He)		
Ambient temperature	Max. 80 °C		
Viscosity	Max. 50 cSt		
Materials	Valve body	Stainless steel	W.no. 1.4404 / AISI 316L
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	Seal material	See specific valve data	

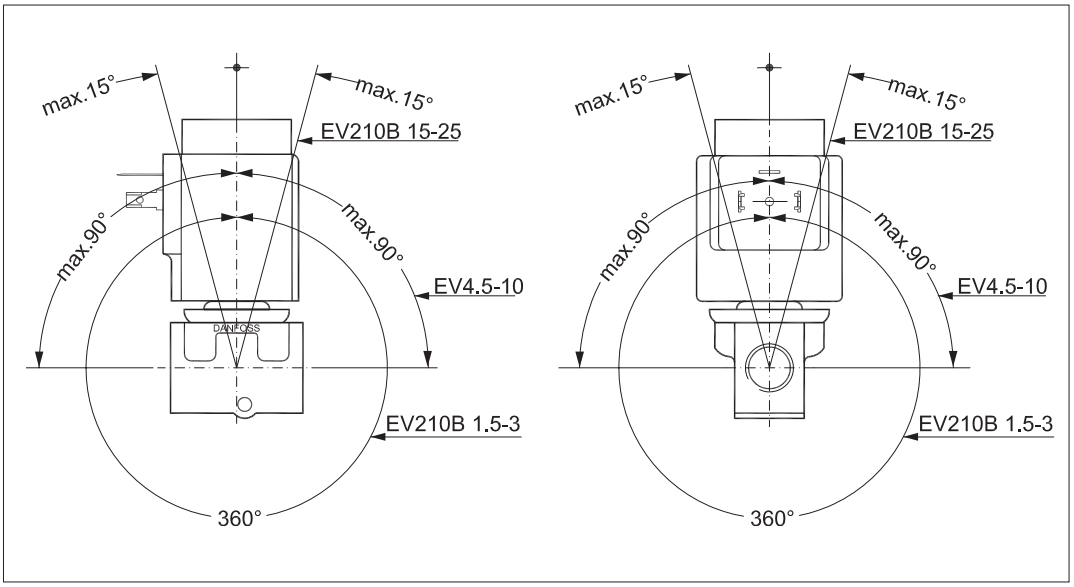
Dimensions and weight

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B1 [mm]			H1 [mm]	H [mm]
				Coil type BA / BD	Coil type BB / BE	Coil type BG		
EV210B 2 / EV210B 3 / EV210B 4.5, NC	0.25	35	35	32	46	67	11.5	75

Dimensions



Mounting angle

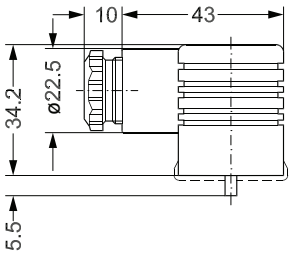


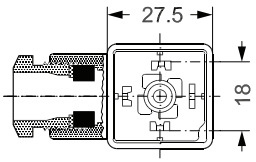
Below coils can be used for EV210B

Coil	Type	Power consumption	Enclosure	Features
	BA / BD, screw on	9 W a.c. 15 W d.c.	IP00 with spade connector	IP20 with protective cap, IP65 with cable plug
	BB, clip on	10 W a.c. 18 W d.c.	IP00 with spade connector	IP20 with protective cap, IP65 with cable plug
	BE, clip on	10 W a.c. 18 W d.c.	IP67	With terminal box
	BG, clip on	12 W a.c. 20 W d.c.	IP67	With terminal box

Accessories: Cable plug

Application	Code number
GDM 2011 (grey) cable plug according to DIN 43650-A PG11	**042N0156**



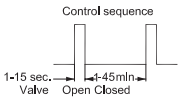


Universal electronic multi-timer, type ETM

Application	Voltage [V a.c]	To use with coil:	Ambient temperature [°C]	Code number
External adjustable timing from 1 to 45 minutes with 1 to 15 seconds drain open. With manual override (test button). Electrical connection DIN 43650 A / EN 175 301-803-A	24 – 240.	BA, BD, BB	-10 – 50	**042N0185**

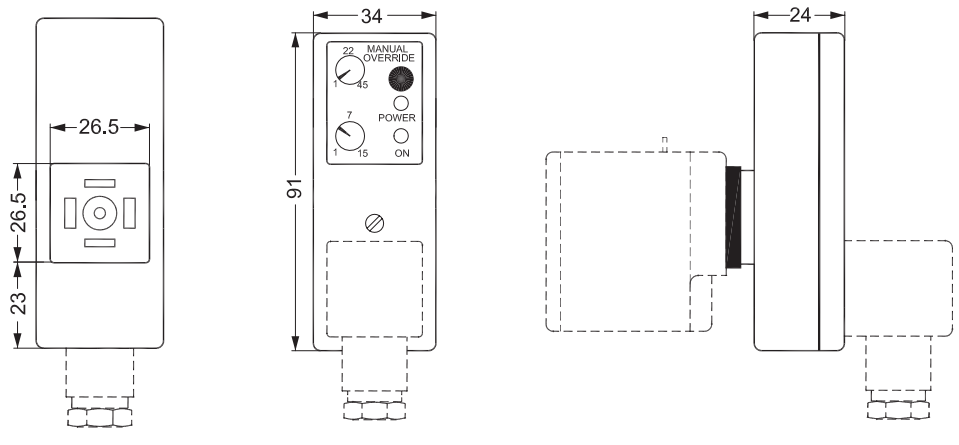
- Outside adjustments
- Light weight and small size
- External adjustable timing from 1 minute to 45 minutes with 1 to 15 seconds drain open
- One solid state timer fits all coil voltages from 24 – 240 V a.c.
- Light diodes for indication
- All in one unit
- Manual override (test button)

Technical data

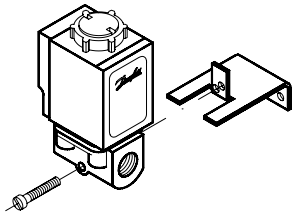


Type	ET 20 M
Voltage	24 – 240 V a.c. / 50 – 60 Hz.
Power rating	Max. 20 Watt
Enclosure	IP00, IP65 with power connector (cable plug)
Electrical connection	DIN connector (DIN 43650-A)
Ambient operating temperature range	-10 – 50 °C
Function	Start with pulse
Interval timer	1 – 45 min.
"On" timer	1 – 15 sec.
Weight	0.084 kg

Dimensions



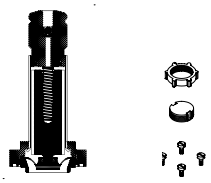
Mounting bracket



Description	Code number
Brackets	**032U1040**

For EV210B 1.5 – 4.5B in connection with synthetic tubes, pipes and similar.

Isolating diaphragm kit for EV210B 1.5 – 4.5 NC

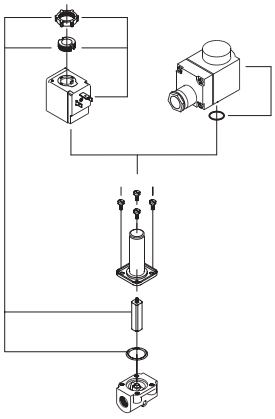


Seal material	Code number
EPDM	**042U1009**
FKM	**042U1010**

Avoids build-up of contaminates that can block movement of the armature. Permits use of more aggressive media that would normally attack the armature. Gel filled; guarantees operation after long periods of inactivity. The kit is suitable for orifice sizes up to DN 3 mm.

The kit consist of:
Assembled isolating unit
O-ring
4 screws
Locking button
Nut for coil

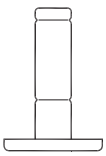
Spare parts kit, NC



Valve type	Seal material	Code number
EV210B 1.5, 2, 3, 4.5	FKM	**032U2003**
EV210B 6, 8, 10	FKM	**032U2011**
	EPDM	**032U2006**
EV210B 15	FKM	**032U2012**
	EPDM	**032U2013**
EV210B 20	FKM	**032U2014**
	EPDM	**032U2017**
EV210B 25	FKM	**032U2018**
	EPDM	**032U2019**

The spare parts kit consists of:
Locking button
Nut for the coil
Armature with valve plate and spring
O-ring

Spare parts kit, NO



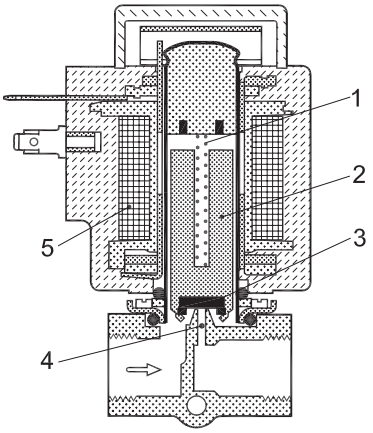
Valve type	Seal material	Code number
EV210B 1.5, 2, 3, 4.5	FKM	**032U2004**
	EPDM	**032U2005**

The spare parts kit consists of:
Armature tube
2 O-rings

Function NC

Coil voltage disconnected (closed):
When the voltage to the coil (5) is disconnected, the armature (2) with the valve plate (3) is pressed down against the valve orifice (4) by the closing spring (1) and the medium's pressure.
The valve will be closed for as long as the voltage to the coil is disconnected.

Coil voltage connected (open):
When voltage is applied to the coil(5), the armature (2) with the valve plate (3) is lifted clear of the valve orifice (4).
The valve is now open for unimpeded flow and will be open for as long as there is voltage to the coil.

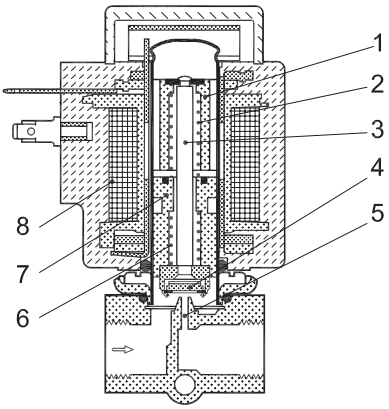


1.Closing spring
2.Armature
3.Valve plate
4.Valve orifice
5.Coil

Function NO

Coil voltage connected (open):
When the voltage to the coil(8) is disconnected, the valve orifice (5) is open, the opening spring (2) lifting the spindle (3) with the valve plate (4) clear of the orifice.
The valve will be open for as long as the supply voltage to the coil is disconnected.

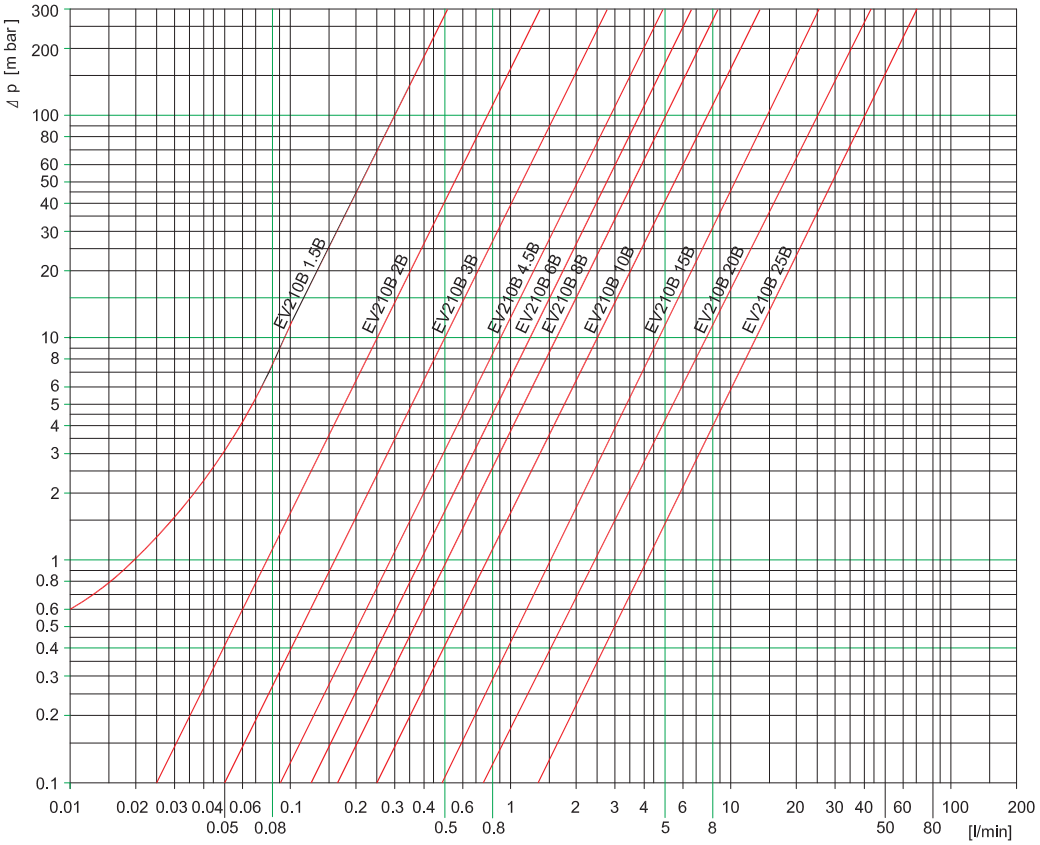
Coil voltage disconnected (closed):
When voltage is applied to the coil (8), the magnetic field draws the valve's armature (1) down to touch the fixed base(7). The spindle (3) with the valve plate (4) is now pressed down against the valve orifice (5) by the closing spring (6).
The valve will be closed for as long as there is voltage to the coil.



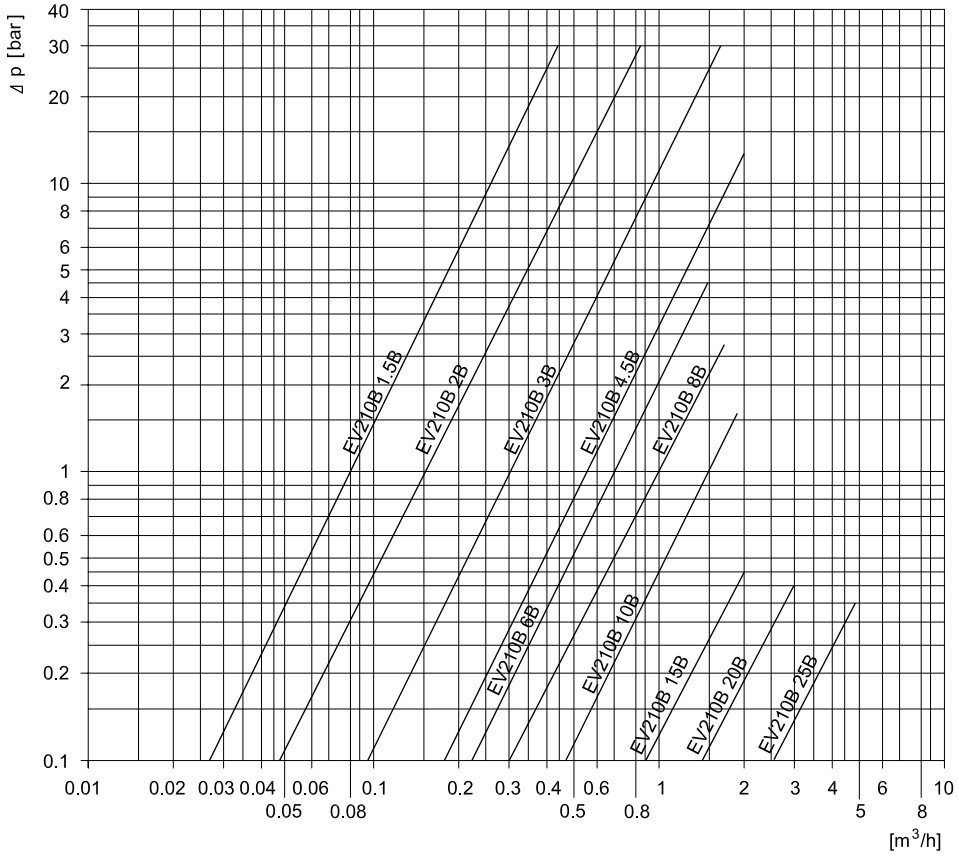
1.Armature
2.Opening spring
3.Spindle
4.Valve plate
5.Valve orifice
6.Closing spring
7.Fixed base
8.Coil

Capacity diagrams:

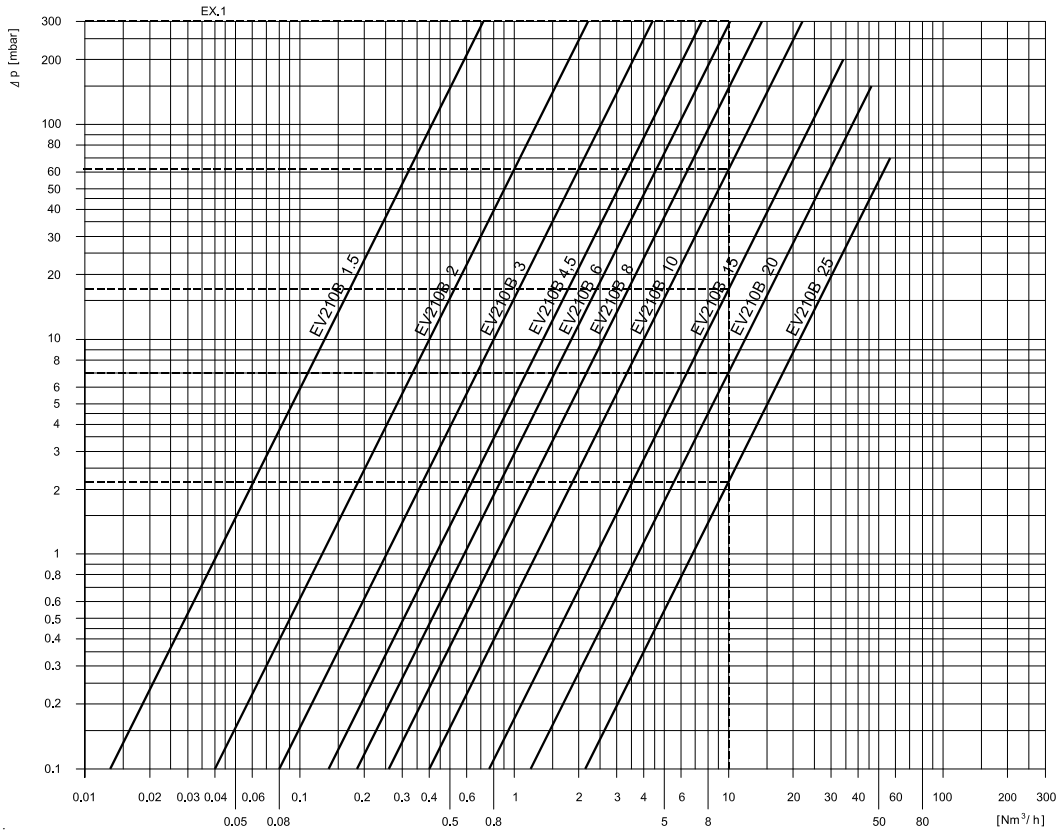
Example, water at low pressure:
Capacity for EV210B 1.5B at differential pressure of 10 mbar. Approx. 0.08 l/min



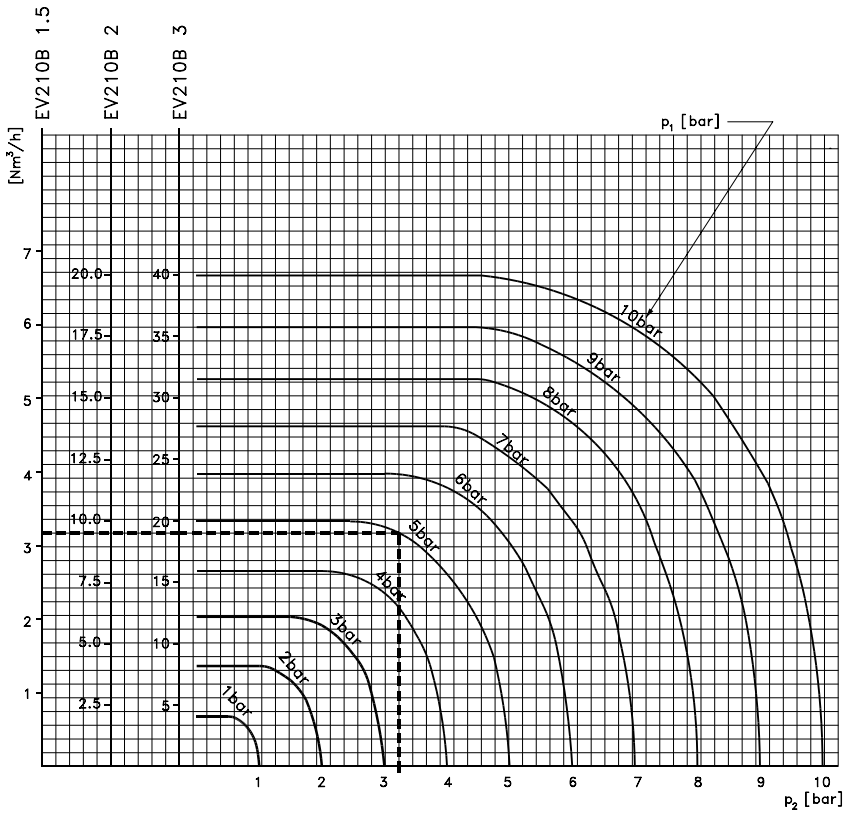
Example, water at higher pressure:
Capacity for EV210B 3B at differential pressure of 0.5 bar. Approx. 0.21 m³/h



Example, air at lower pressure: Capacity for EV210B 15B at differential pressure of 17 mbar. Approx. 10 Nm³/h



Example, air at higher pressure : Capacity for EV210B 2B at inlet pressure (p1) of 5 bar and outlet pressure (p2) of 3.25 bar. Approx. 9 Nm³/h



ENGINEERING
TOMORROW

Data sheet

Solenoid coils

Danfoss solenoid valves and coils are usually ordered separately to allow maximum flexibility, enabling you to select a valve and coil combination to best suit your needs. The Danfoss coil program consists of both the easy-to-handle Clip-On system and traditional coils with threaded fastener. Also, with approvals such as EEx/ATEX and UL, we offer a wide range of application specific coils for e.g. steam or hazardous areas.

Features

- Encapsulated coils with long operating life, even under extreme conditions
- Standard coils for AC or DC
- Standard coils from 12 V to 400 V, 50, 60 or 50/60 Hz
- Coils can be fitted without use of tools
- Coils can only be removed with use of tools
- Standard coils available with:
  - Cable plugs
  - Industrial plugs
  - Terminal box
  - 3 core cable
  - Junction box
  - Conduit hub

BA, High performance coils

- Ambient temperature: Up to 40 °C
- IP00 version with DIN 43650 A spade connectors
- IP20 version with protective cap
- IP65 version with mounted cable plug

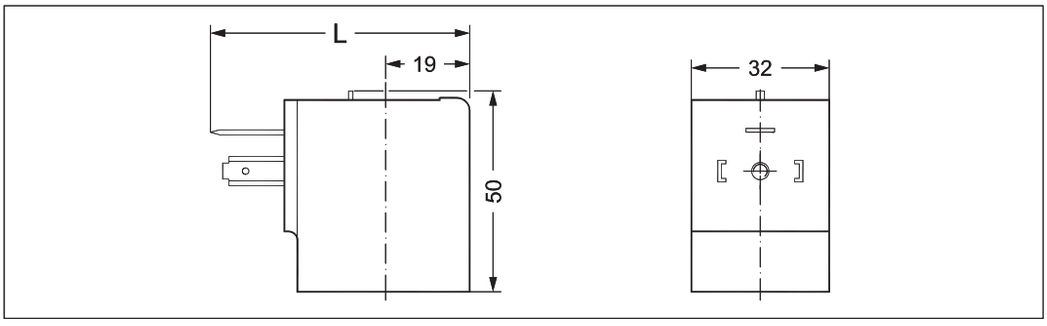
Coil type	Supply voltage [V AC]	Supply voltage [V DC]	Frequency [Hz]	Power consumption holding [W]	Code no.
BA024A	24	–	50	9	**042N7508**
BA048A	48	–	50	9	**042N7510**
BA115A	115	–	50	9	**042N7512**
BA230A	220 – 230	–	50	9	**042N7501**
BA240A	240	–	50	9	**042N7502**
BA400A	380 – 400	–	50	9	**042N7504**
BA024B	24	–	60	9	**042N7520**
BA115B	115	–	60	9	**042N7522**
BA220B	220	–	60	9	**042N7523**
BA012D	–	12	–	15	**042N7550**
BA024D	–	24	–	15	**042N7551**

Technical data

Design	In accordance with VDE 0580	
Voltage variation	220/380 V AC	-15%, +10%
	230/400 V AC	-10%, +6%
	Other AC coils with NC valve	-15%, +10%
	Other AC coils with NO valve and all DC	±10%
Power consumption, cut in	39 VA AC coils only	
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	IP00 with spade connec. IP20 with protective cap, IP65 with cable plug	
Ambient temperature	Max. 40 °C	
Duty rating	Continuous	
Plug type	Cable plug	

Dimensions and weight

Type	L without cable plug [mm]	L with protective cap [mm]	L with cable plug [mm]	Weight [kg]
BA	54	71	79	0.16



BD, High performance coils

- Ambient temperature: Up to 40 °C
- IP00 version with DIN 43650 A spade connectors
- IP20 version with protective cap
- IP65 version with mounted cable plug

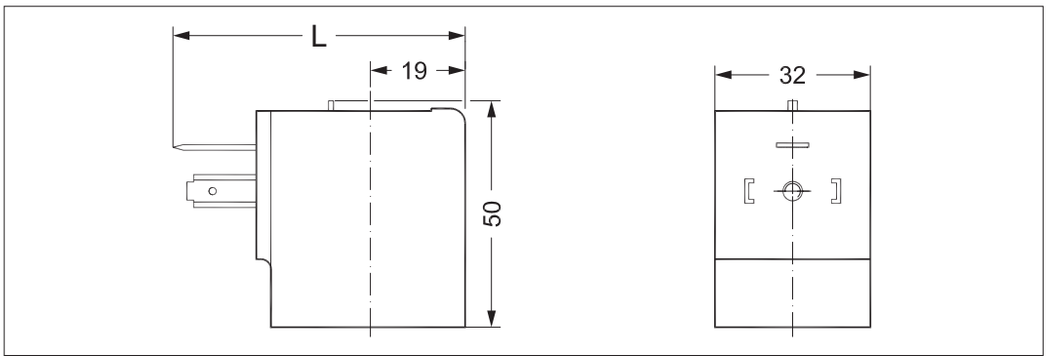
Coil type	Supply voltage [V AC]	Frequency [Hz]	Power consumption holding [W]	Code no.
BD024A	24	50	15	**042N7597**
BD230A	230	50	15	**042N7591**

Technical data

Design	In accordance with VDE 0580	
Voltage variation	230 V AC	-10%, +6%
	Other AC coils with NC valve	-15%, +10%
	Other AC coils with NO valve and all DC	±10%
Power consumption, cut in	54 VA	
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	IP00 with spade connec. IP20 with protective cap, IP65 with cable plug	
Ambient temperature	Max. 40 °C	
Duty rating	Continuous	
Plug type	Cable plug	

Dimensions and weight

Type	L without cable plug [mm]	L with protective cap [mm]	L with cable plug [mm]	Weight [kg]
BD	54	71	79	0.16



BB, High performance coils

- Ambient temperature: Up to 80 °C
- IP00 version with DIN 43650 A spade connectors
- IP20 version with protective cap
- IP65 version with mounted cable plug

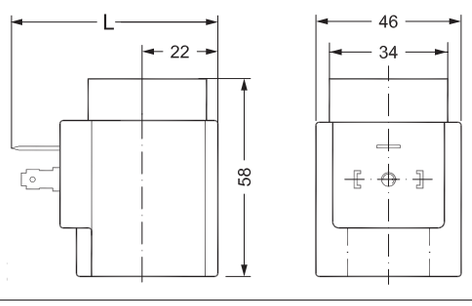
Coil type	Supply voltage [V AC]	Supply voltage [V DC]	Frequency [Hz]	Power consumption holding [W]	Ambient temperature [°C]	Code no.
BB024AS	24	–	50	10	80	**018F7358**
BB115AS	115	–	50	10	80	**018F7361**
BB230AS	220 – 230	–	50	10	80	**018F7351**
BB240AS	240	–	50	10	80	**018F7352**
BB400AS	380 – 400	–	50	10	80	**018F7353**
BB024BS	24	–	60	10	80	**018F7365**
BB110CS	110	–	50 / 60	10	50	**018F7360**
BB230CS	220 – 230	–	50 / 60	10	50	**018F7363**
BB012DS	–	12	–	18	50	**018F7396**
BB024DS	–	24	–	18	50	**018F7397**

Technical data

Design	In accordance with VDE 0580	
Voltage variation	220/380 V AC	-15%, +10%
	230/400 V AC	-10%, +6%
	Other AC coils with NC valve	-15%, +10%
	Other AC coils with NO valve and all DC coils	±10%
Power consumption, cut in	44 VA AC coils only	
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	IP00 with spade connec. IP20 with protective cap, IP65 with cable plug	
Ambient temperature	Max. 50 °C / 80 °C	
Duty rating	Continuous	
Plug type	Cable plug	

Dimensions and weight

Type	L without cable plug [mm]	L with protective cap [mm]	L with cable plug [mm]	Weight [kg]
BB	62	77	85	0.24



BE, High performance coils

- Ambient temperature: Up to 80 °C
- IP67 for moist environments with terminal box

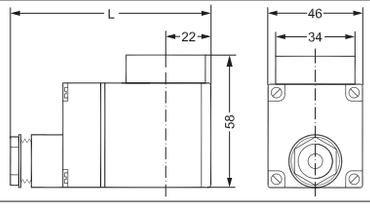
Coil type	Supply voltage [V AC]	Supply voltage [V DC]	Frequency [Hz]	Power consumption holding [W]	Ambient temperature [°C]	Code no.
BE024AS	24	–	50	10	80	**018F6707**
BE048AS	48	–	50	10	80	**018F6709**
BE115AS	115	–	50	10	80	**018F6711**
BE230AS	220 – 230	–	50	10	80	**018F6701**
BE240AS	240	–	50	10	80	**018F6702**
BE400AS	380 – 400	–	50	10	80	**018F6703**
BE024BS	24	–	60	10	80	**018F6715**
BE115BS	115	–	60	10	80	**018F6710**
BE220BS	220	–	60	10	80	**018F6714**
BE110CS	110	–	50 / 60	10	50	**018F6730**
BE230CS	230	–	50 / 60	10	50	**018F6732**
BE012DS	–	12	–	18	50	**018F6756**
BE024DS	–	24	–	18	50	**018F6757**

Technical data

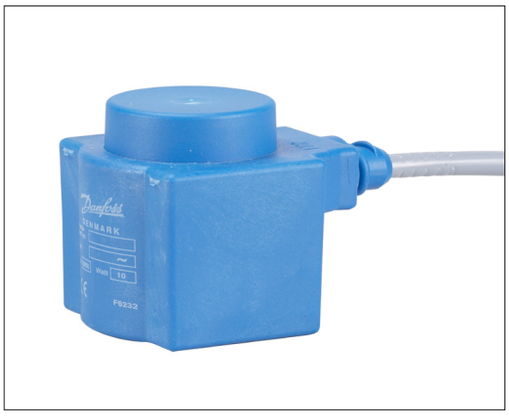
Design	In accordance with VDE 0580	
Voltage variation	220/380 V AC	-15%, +10%
	230/400 V AC	-10%, +6%
	Other AC coils with NC valve	-15%, +10%
	Other AC coils with NO valve and all DC coils	±10%
Power consumption, cut in	44 VA AC coils only	
Insulation of coil windings	Class H according to IEC 85	
Connection	Terminal box	
Enclosure, IEC 529	IP67	
Ambient temperature	Max. 50 °C / 80 °C	
Duty rating	Continuous	
Plug type	Terminal box	

Dimensions and weight

Type	L with terminal box [mm]	L with 1m cable [mm]	Weight [kg]
BE	94	65	0.30



BF, High performance coils



- Ambient temperature: Up to 80 °C
- IP67 for moist environments with molded-in cable

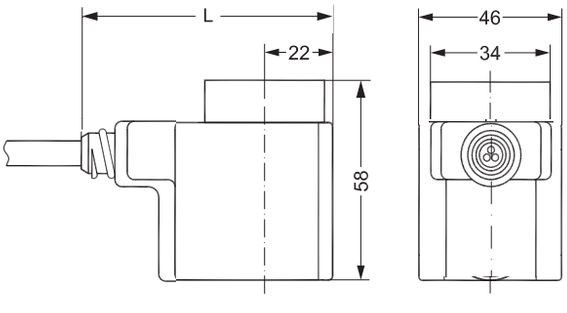
Coil type	Supply voltage [V AC]	Frequency [Hz]	Power consumption holding [W]	Ambient temperature [°C]	Code no.
BF230AS	220 – 230	50	10	80	**018F6251**
BF240AS	240	50	10	80	**018F6252**
BF400AS	380 – 400	50	10	80	**018F6253**
BF024AS	24	50	10	80	**018F6257**
BF115BS	115	60	10	80	**018F6260**
BF220BS	220	60	10	80	**018F6264**
BF024BS	24	60	10	80	**018F6265**
BF110CS	110	50 / 60	10	50	**018F6280**
BF230CS	220 – 230	50 / 60	10	50	**018F6282**

Technical data

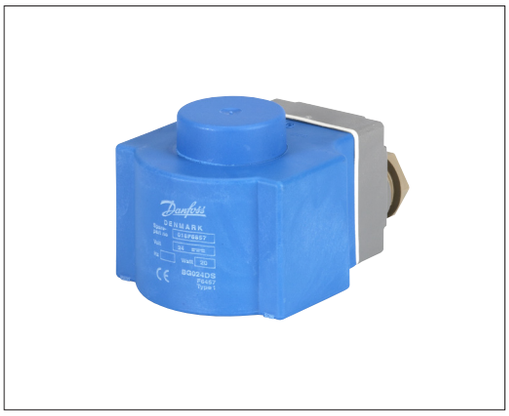
Design	In accordance with VDE 0580	
Voltage variation	220/380 V AC	-15%, +10%
	230/400 V AC	-10%, +6%
	Other AC coils with NC valve	-15%, +10%
	Other AC coils with NO valve and all DC coils	±10%
Power consumption, cut in	44 VA AC coils only	
Insulation of coil windings	Class H according to IEC 85	
Connection	1 m 3-core flying lead	
Enclosure, IEC 529	IP67	
Ambient temperature	Max. 50 °C / 80 °C	
Duty rating	Continuous	

Dimensions and weight

Type	L with 1m cable [mm]	Weight [kg]
BF	67	0.30



BG, High performance coils



- Ambient temperature: Up to 80 °C
- IP67 for moist environments with terminal box

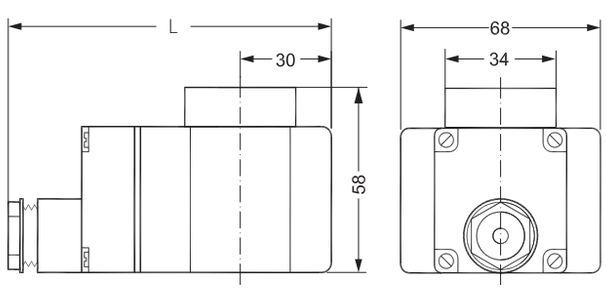
Coil type	Supply voltage [V AC]	Supply voltage [V DC]	Frequency [Hz]	Power consumption holding [W]	Ambient temperature [°C]	Code no.
BG024AS	24	–	50	12	80	**018F6807**
BG110AS	110	–	50	12	80	**018F6811**
BG230AS	220 – 230	–	50	12	80	**018F6801**
BG240AS	240	–	50	12	80	**018F6802**
BG400AS	380 – 400	–	50	12	80	**018F6803**
BG024BS	24	–	60	12	80	**018F6815**
BG110BS	110	–	60	12	80	**018F6813**
BG220BS	220	–	60	12	80	**018F6814**
BG012DS	–	12	–	20	50	**018F6856**
BG024DS	–	24	–	20	50	**018F6857**

Technical data

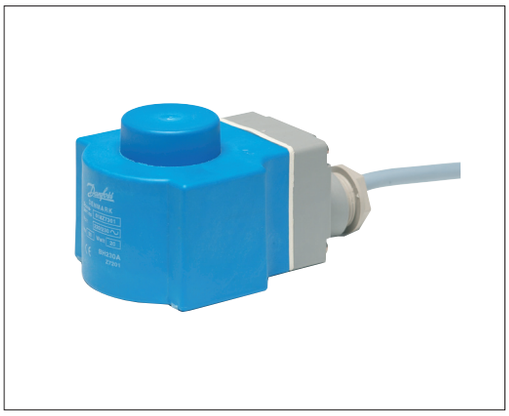
Design	In accordance with VDE 0580	
Voltage variation	220/380 V AC	-15%, +10%
	230/400 V AC	-10%, +6%
	Other AC coils with NC valve	-15%, +10%
	Other AC coils with NO valve and all DC coils	±10%
Power consumption, cut in	55 VA AC coils only	
Insulation of coil windings	Class H according to IEC 85	
Connection	Terminal box	
Enclosure, IEC 529	IP67	
Ambient temperature	Max. 80 °C	
Duty rating	Continuous	
Plug type	Terminal box	

Dimensions and weight

Type	L with terminal box [mm]	Weight [kg]
BG	112	0.50



BN, High performance coils



- Hum-free
- Ambient temperature: Up to 50 °C
- IP67 for moist environments with flying lead

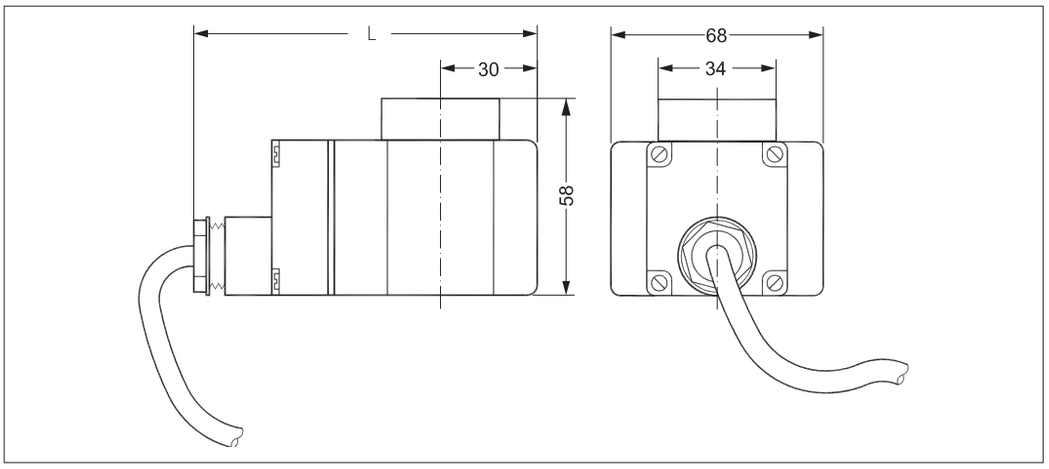
Coil type	Supply voltage [V AC]	Frequency [Hz]	Power consumption holding [W]	Ambient temperature [°C]	Code no.
BN230CS	220 - 230	50/60	20	50	**018F7301**

Technical data

Design	In accordance with VDE 0580	
Voltage variation	220 V AC	-15%, +10%
	230 V AC	-10%, +6%
Power consumption, cut in	24 VA	
Insulation of coil windings	Class H according to IEC 85	
Connection	1 m 3-core flying lead	
Enclosure, IEC 529	IP67	
Ambient temperature	Max. 50 °C	
Duty rating	Continuous	

Dimensions and weight

Type	L with 1m cable [mm]	Weight [kg]
BN	112	0.60



BN, High performance coils

- Center boss
- Ambient temperature: Up to 50 °C
- IP67 for moist environments with terminal box
- IP65 with mounted cable plug

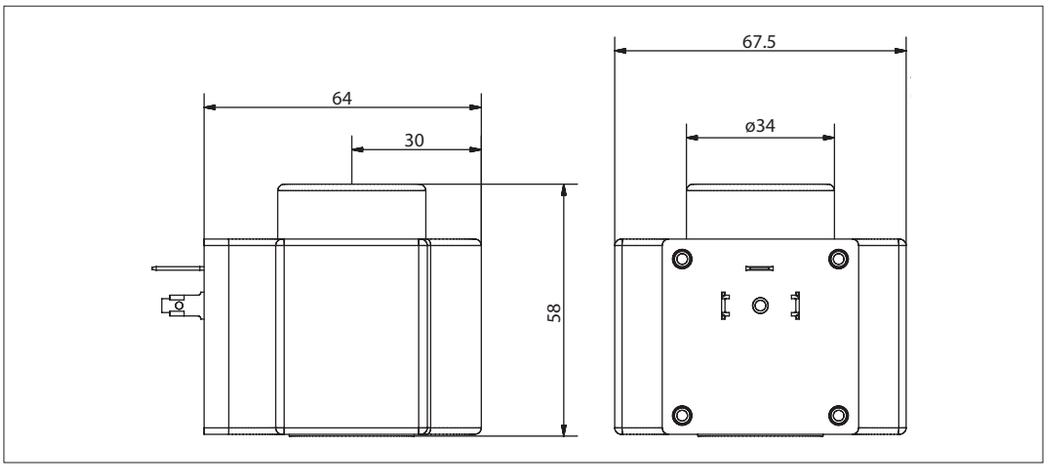
Coil type	Supply voltage [V DC]	Power consumption holding [W]	Ambient temperature [°C]	Code no.
BN024DS	24	19	50	**018F6968**

Technical data

Design	In accordance with VDE 0580
Voltage variation	±10%
Power consumption, cut in	24 VA
Insulation of coil windings	Class H according to IEC 85
Connection	Terminal box or cable plug in accordance with DIN43650 form A
Enclosure, IEC 529	IP65, IP67
Ambient temperature	Max. 50 °C
Duty rating	Continuous

Dimensions and weight

Type	L [mm]	Weight [kg]
BN	64	0.47



BO, High performance coils

- With ATEX 94/9/EC approval
  Ex mb IIC T4 Gb
  ITS 09 ATEX 16835X
- Zone 1
- Ambient temperature: Up to 60 °C
- Medium temperature: Up to 90 °C
- IP67 for moist environments with seal kit
  Seal kit is not included as standard

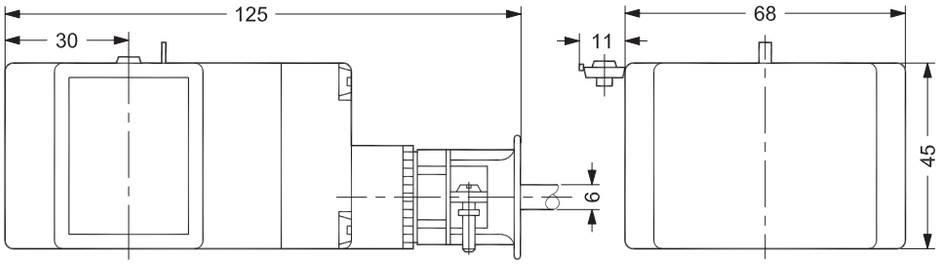
Coil type	Supply voltage [V AC]	Supply voltage [V DC]	Frequency [Hz]	Power consumption holding [W]	Code no.
BO024C	24	–	50 / 60	10	**018Z6595**
BO110C	110	–	50 / 60	10	**018Z6593**
BO230C	230	–	50 / 60	10	**018Z6592**
BO240C	240	–	50 / 60	10	**018Z6591**
BO024D	–	24	–	10	**018Z6596**

Technical data

Voltage variation	±10%
Insulation of coil windings	Class H according to IEC 85
Connection	5 m 3 x 0.75 mm^2 flexible cord
Enclosure, IEC 529	IP67 including seal kit (018Z0090)
Ambient temperature	-40 °C – +60 °C
Media temperature	-40 °C – +90 °C
Duty rating	Continuous
Humidity	0 – 100%
Pollution degree	3 (EN60730-1)
Impulse withstand voltage	2.5 kV (EN60730-1)

Description	Application	Code no.
Seal kit	Wet environment (pollution degree 3)	**018Z0090**

Dimensions and weight



Weight : 0.60 kg

AM coil

- Ambient temperature: Up to 50 °C
- IP00 version with terminals DIN 43650 form A
- IP20 version with protective cap
- IP65 version with mounted cable plug

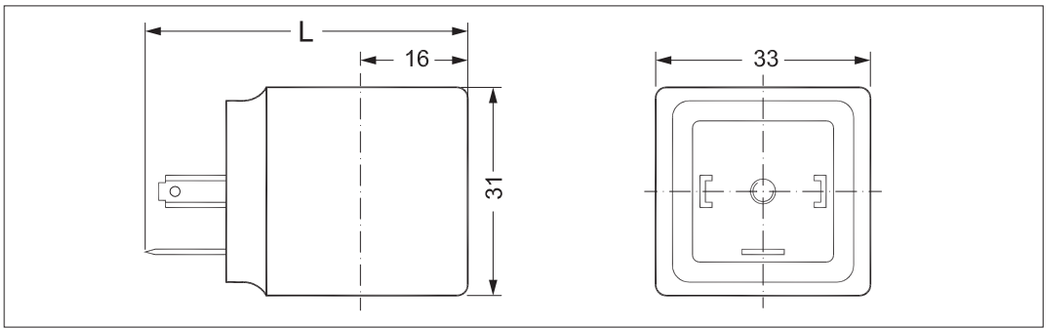
Coil type	Supply voltage [V AC]	Supply voltage [V DC]	Frequency [Hz]	Power consumption holding [W]	Code no.
AM024C	24	–	50 / 60	7.5	**042N0842**
AM110C	110	–	50 / 60	7.5	**042N0845**
AM230C	220 – 230	–	50 / 60	7.5	**042N0840**
AM240C	240	–	50 / 60	7.5	**042N0841**
AM012D	–	12	–	9.5	**042N0848**
AM024D	–	24	–	9.5	**042N0843**

Technical data

Design	In accordance with VDE 0580
Voltage variation	±10%
Power consumption, cut in	22.5 VA AC coils only
Insulation of coil windings	Class H according to IEC 85
Connection	Spade connector in accordance with DIN 43650 form A
Enclosure, IEC 529	IP00 with spade connector, IP65 with cable plug
Ambient temperature	Max. 50 °C
Duty rating	Continuous
Plug type	Cable plug

Dimensions and weight

Type	L without cable plug [mm]	L with cable plug [mm]	L with protective cap [mm]	Weight [kg]
AM	48	72	64	0.10



AP, Compact UL recognised coils

- Ambient temperature: Up to 50 °C / 122 °F
- IP65 / NEMA2
- For UL recognised valves

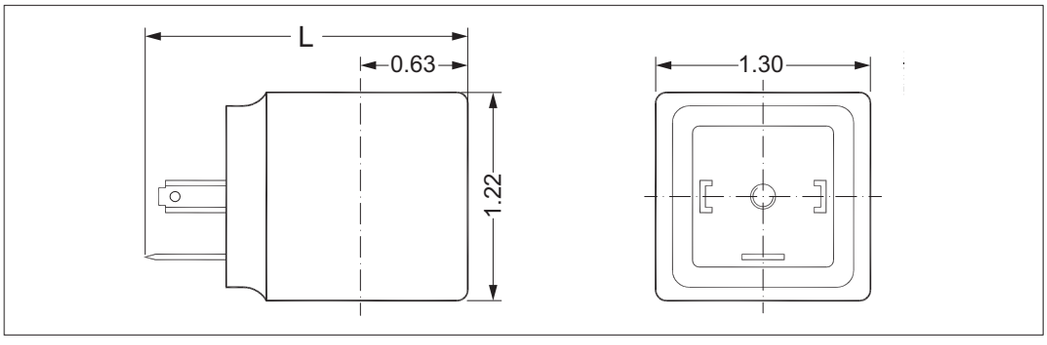
Coil type	Supply voltage [V AC]	Frequency [Hz]	Power consumption holding [W]	Code no.
AP240C	208 – 240	60	5	**042N4191**
AP240C	230	50	7	**042N4191**
AP120B	110 – 120	60	5	**042N4192**
AP024B	24	60	5	**042N4193**

Technical data

Design	In accordance with VDE 0580
Voltage variation	±10%
Power consumption, cut in	15 VA AC coils only
Insulation of coil windings	Class H according to IEC 85
Connection	Spade connector in accordance with DIN 43650 form A
Enclosure, IEC 529	IP00 with spade connector, IP65/NEMA2 with cable plug
Ambient temperature	Max. 50 °C / 122 °F
Duty rating	Continuous
Plug type	Cable plug

Dimensions and weight

Type	L without cable plug [in]	L with cable plug [in]	L with protective cap [in]	Weight [kg / lbs]
AP	1.89	2.83	2.52	0.10 / 0.22



BJ, High performance coils

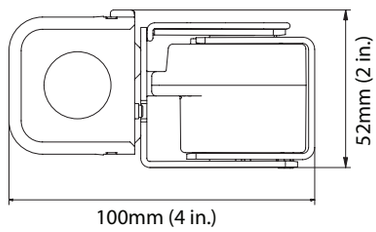
- Ambient temperature: Up to 50 °C / 122 °F
- IP32 / NEMA2 with junction box
- For UL listed valves

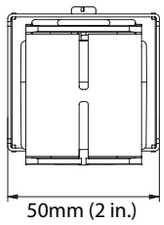
Valve type	Coil type	Supply voltage [V AC]	Frequency [Hz]	Power consumption [W]	Wire length [in.]	Wire length [cm]	Code no.
EV220B 6-50 EV210B EV215B EV225B EV250B	BJ024CS	24	50 / 60	14	7	18	**018F4100**
	BJ120CS	110 120	50 / 60 60	16 15	7	18	**018F4110**
	BJ240CS	208 – 240 230	60 50	14 17	7	18	**018F4120**

Technical data

Design	In accordance with UL 429	
Voltage variation	AC coils	-15%, +10%
Power consumption, cut in	49 VA	
Insulation of coil windings	Class H according to IEC 85	
Connection	Junction box	
Enclosure, IEC 529	Junction box NEMA2 ~ IP12-32	
Ambient temperature	-40 – 50 °C / -40 – 122 °F	

Dimensions and weight





Weight 0.860 lbs / 0.39 kg

BX, High performance coils

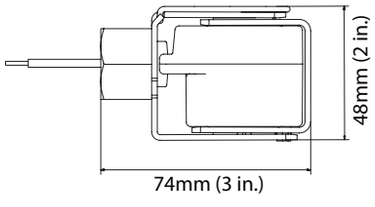
- Ambient temperature: Up to 50 °C / 122 °F
- IP54 / NEMA4 with conduit hub
- For UL listed valves

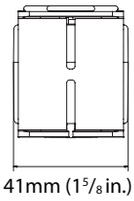
Valve type	Coil type	Supply voltage [V AC]	Frequency [Hz]	Power consumption [W]	Wire length [in.]	Wire length [cm]	Code no.
EV220B 6-50 EV210B EV215B EV225B EV250B	BX024CS	24	50 / 60	14	18	46	**018F4102**
	BX024CS	24	50 / 60	14	71	180	**018F4103**
	BX024CS	24	50 / 60	14	98	250	**018F4104**
	BX120CS	110 120	50 / 60 60	16 15	18	46	**018F4112**
	BX120CS				36	91	**018F4113**
	BX120CS				71	180	**018F4114**
	BX120CS				98	250	**018F4115**
	BX240CS	208 – 240 230	60 50	14 17	18	46	**018F4122**
	BX240CS				98	250	**018F4123**

Technical data

Design	In accordance with UL 429	
Voltage variation	AC coils	-15%, +10%
Power consumption, cut in	49 VA	
Insulation of coil windings	Class H according to IEC 85	
Connection	Conduit hub	
Enclosure, IEC 529	Conduit hub NEMA4 ~ IP54	
Ambient temperature	-40 – 50 °C / -40 – 122 °F	

Dimensions and weight





Danfoss
18F06.10

41mm ($1^{5}/_{8}$ in.)

Weight 0.717 lbs / 0.33 kg

BY, High performance coils

- Ambient temperature: Up to 50 °C / 122 °F
- Up to IP65 / NEMA4
- For UL recognised valves

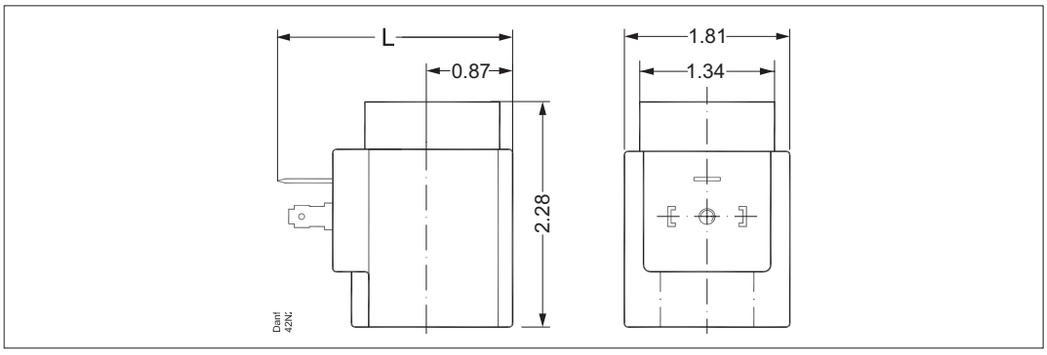
Coil type	Supply voltage [V AC]	Frequency [Hz]	Power consumption holding [W]	Power consumption holding [VA]	Code no.
BY024CS	24	50	15	26	**018F7655**
BY024CS	24	60	13	21	
BY240CS	230	50	16	31	**018F7658**
BY240CS	208 - 240	60	15	27	
BY120CS	110	50	14	28	**018F7663**
BY120CS	110 – 120	60	15	27	

Technical data

Design	In accordance with UL 429	
Voltage variation	AC coils	-15%, +10%
Power consumption, cut in	49 VA	
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	Up to IP65 / NEMA4	
Ambient temperature	-40 – 50 °C / -40 – 122 °F	
Plug type	Cable plug	

Dimensions and weight

Type	L without cable plug [in]	L with protective cap [in]	L with cable plug [in]	Weight [kg / lbs]
BY	2.44	3.03	3.35	0.24 / 0.53

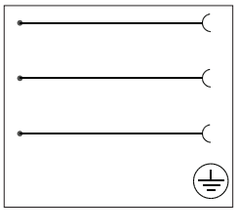


Cable plug

- For use with Danfoss coils type AM, BA, BB, BD and BY
- AC / DC all voltages up to 250 V
- Enclosure: Up to IP65
- Ambient temperature: Up to 90 °C / 194 °F

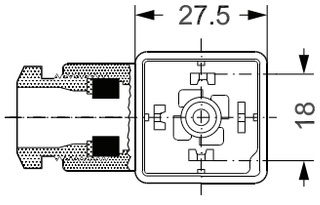
Cable plug size	Description	Suitable for coil types	Code no.
DIN 18	Cable plug according to DIN 43650-A PG 11	AM, BA, BB, BD, BY	**042N0156**

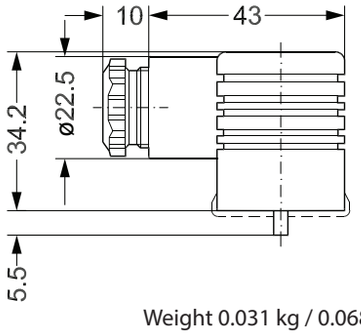
Technical data



Type	GDM 2011 J (Grey)	
Design	DIN 43650-A	
Cable gland	PG 11	
Poles	2 + PE	
Max. voltage	250 V AC / DC	
Approvals	c us CSA, VDE	
Protection class	IP65 (IEC 60529)	
Max. operating current	16 A	
Contact resistance	< 10m Ω	
Cable diameter	ø 4.5 – 11 mm	
Wire cross section	Max. 1.5 mm²	
Ambient temperature	-30 – 90 °C / -22 – 194 °F	
Materials	Contacts:	CuSn (Tin plated)
	Terminal block:	PA 6 GF
	Profiled gasket:	NBR
	Housing:	PA 6 GF

Dimensions and weight





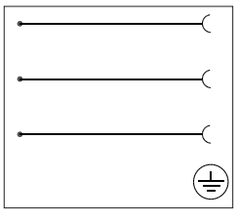
Weight 0.031 kg / 0.068 lbs

Cable plug

- For use with Danfoss coils type AM, BA, BB, BD and BY
- AC / DC all voltages up to 250 V
- Enclosure: Up to IP65
- Ambient temperature: Up to 80 °C / 176 °F

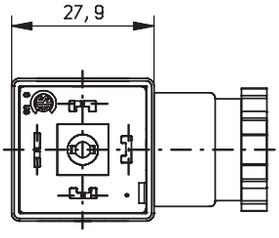
Cable plug size	Description	Suitable for coil types	Code no.
DIN 18	Cable plug with form A	AM, BA, BB, BD, BY	**042N0178**

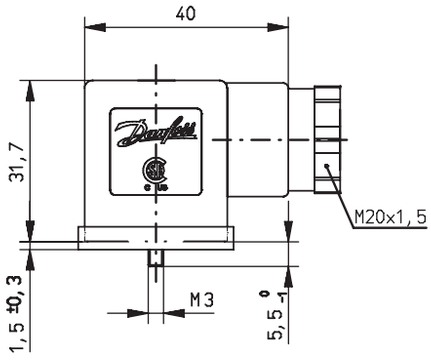
Technical data



Design	EN 175301-803 Form A	
Cable gland	PG 11	
Poles	2 + PE	
Max. voltage	250 V AC / DC	
Approvals	c UL us CSA	
Protection class	IP65	
Max. operating current	16 A	
Contact resistance	< 4m Ω	
Cable diameter	ø6 – 8 / 8 – 10 mm	
Wire cross section	Max. 1.5 mm²	
Ambient temperature	-25 – 80 °C / -13 – 176 °F	
Materials	Contacts:	CuZn, Cu/Sn - plated
	Terminal block:	PA 6 GF
	Profiled gasket:	NBR
	Housing:	PA 6 GF

Dimensions and weight





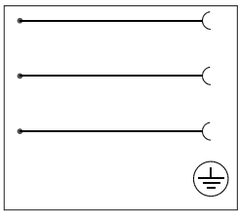
Weight 0.031 kg / 0.068 lbs

Industrial plug

- For use with Danfoss coils type AB and AC
- AC / DC all voltages up to 250 V
- Enclosure: Up to IP65
- Ambient temperature: Up to 90 °C / 194 °F

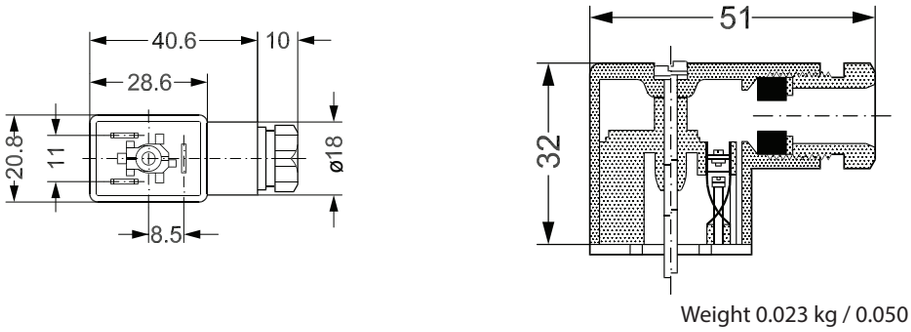
Industrial plug size	Description	Suitable for coil types	Code no.
DIN 11	Cable plug for 6.3 x 0.8 mm spade connectors	AB, AC	**042N0139**

Technical data



Type	GM 209 J (Black)	
Design	DIN 43650-B	
Cable gland	PG 9	
Poles	2 + PE	
Max. voltage	250 V AC / DC	
Approvals	c UL us CSA	
Protection class	IP65 (IEC 60529)	
Max. operating current	16 A	
Contact resistance	< 10m Ω	
Cable diameter	ø4.5 – 7 mm	
Wire cross section	Max. 1.5 mm²	
Ambient temperature	-30 – 90 °C / -22 – 194 °F	
Materials	Contacts:	CuSn (Tin plated)
	Terminal block:	PA 6 GF
	Flat gasket:	NBR
	Housing:	PA 6 GF

Dimensions and weight



Weight 0.023 kg / 0.050 lbs

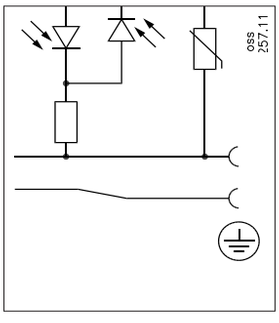
Cable plug (LED + Varistor)

- For use with Danfoss coils type AM, AK, AL, BA, BD, BB and BY
- 24 V AC / DC and 230 V AC version
- Enclosure: Up to IP65
- Ambient temperature: Up to 60 °C / 140 °F
- DIN 18

Cable plug size	Voltage [V AC]	Voltage [V DC]	Suitable for coil types	LED colour	Built-in VDR[1]) resistor	Code no.
DIN 18	24	24	AM, AL, BA, BB, BD, BY	Red	Yes	**042N0263**
DIN 18	230	–	AM, AL, BA, BB, BD, BY	Red	Yes	**042N0265**

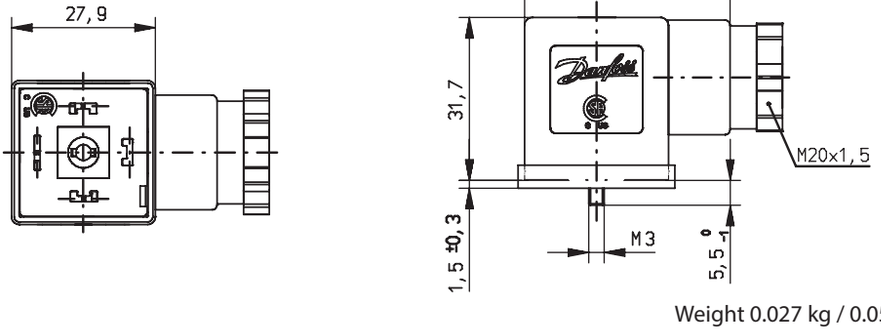
[1]) Protects against voltage peaks

Technical data



Design	EN 175301-803 A	
Supply voltage variation	±10%	
Power consumption	Max. 5 mA	
Protection class	IP65 (IEC 60529)	
Max. operating current	1.5 A clamping contact	
Contact resistance	≤ 4m Ω	
Protection against wrong polarity	Yes	
Cable diameter	6 – 8 mm and 8 – 10 mm	
Wire cross section	Max. 1.5 mm^2	
Ambient temperature	-25 – 60 °C / -13 – 140 °F	
Materials	Contacts:	CuZn, Cu/Sn-plated
	Terminal block:	PA6 + 30% FG, black
	Flat gasket:	NBR LABS-free
	Housing:	PA6
	Wire holder:	PA6.6 + 50% FG P7,5 black

Dimensions and weight



Weight 0.027 kg / 0.059 lbs

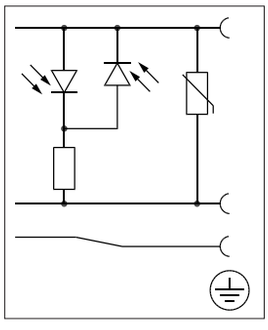
Industrial plug (LED + Varistor)

- For use with Danfoss coils type AB and AC
- 24 V AC / DC and 230 V AC version
- Enclosure: Up to IP65
- Ambient temperature: Up to 60 °C / 140 °F

Industrial plug size	Voltage [V AC]	Voltage [V DC]	Suitable for coil types	LED colour	Built-in VDR[1]) resistor	Code no.
DIN 11	24	24	AB, AC	Red	Yes	**042N0267**
DIN 11	230	–	AB, AC	Red	Yes	**042N0265**

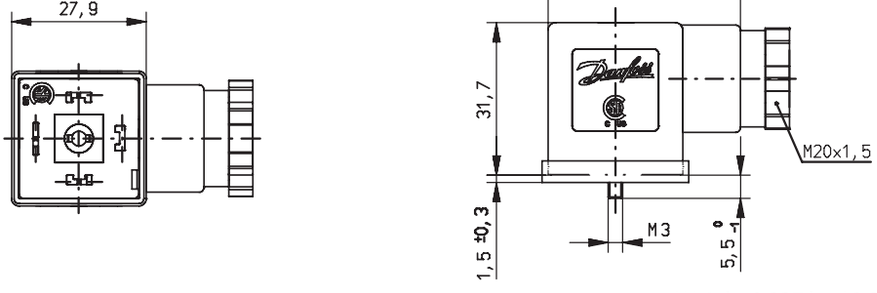
[1]) Protects against voltage peaks

Technical data



Design	Industrial form	
Supply voltage variation	±10%	
Power consumption	Max. 5 mA	
Protection class	IP65 (IEC 60529)	
Max. operating current	1.5 A clamping contact	
Contact resistance	≤ 4m Ω	
Protection against wrong polarity	Yes	
Cable diameter	5 – 6 mm and 6 – 9 mm	
Wire cross section	Max. 1 mm^2	
Ambient temperature	-25 – 60 °C / -13 – 140 °F	
Materials	Contacts:	CuZn, Cu/Sn-plated
	Terminal block:	PA6 + 30% FG, black
	Flat gasket:	NBR LABS-fre
	Housing:	PA6
	Wire holder:	PA6.6 + 50% FG P7,5 black

Dimensions and weight



Weight 0.027 kg / 0.059 lbs

Universal electronic multi-timer Type ET 20 M

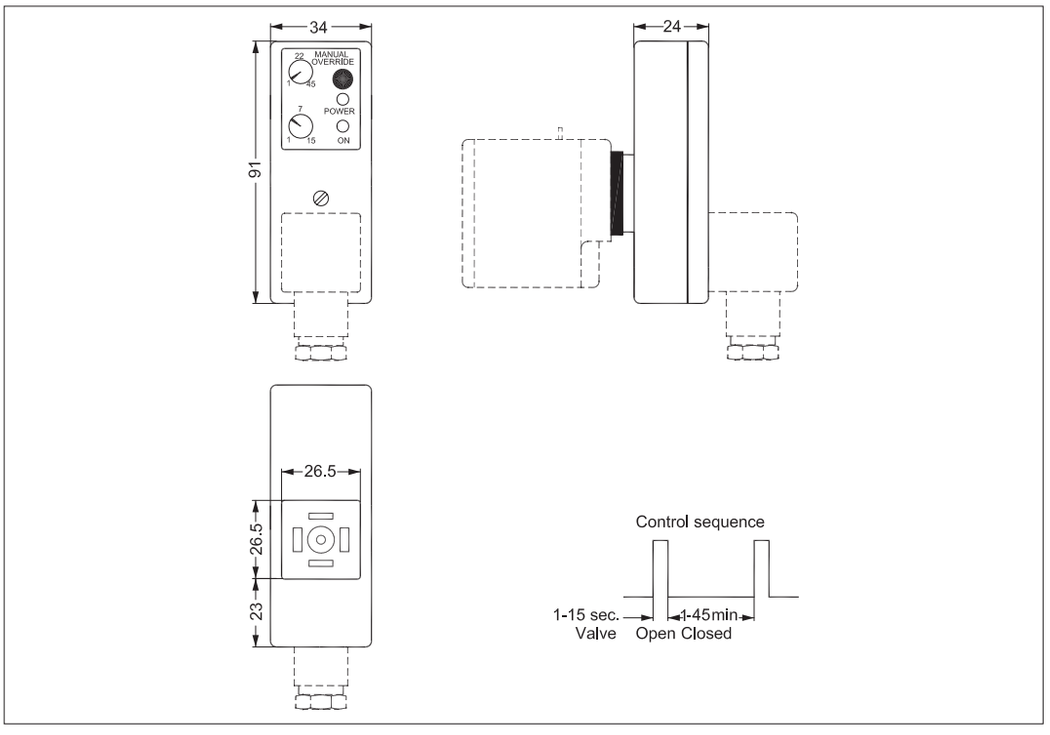
- Outside adjustments
- Light weight and small size
- External adjustable timing from 1 minute to 45 minutes with 1 to 15 seconds drain open
- One solid state timer fits all coil voltages from 24-240 V AC
- Light diodes for indication
- All in one unit
- Manual override (test button).

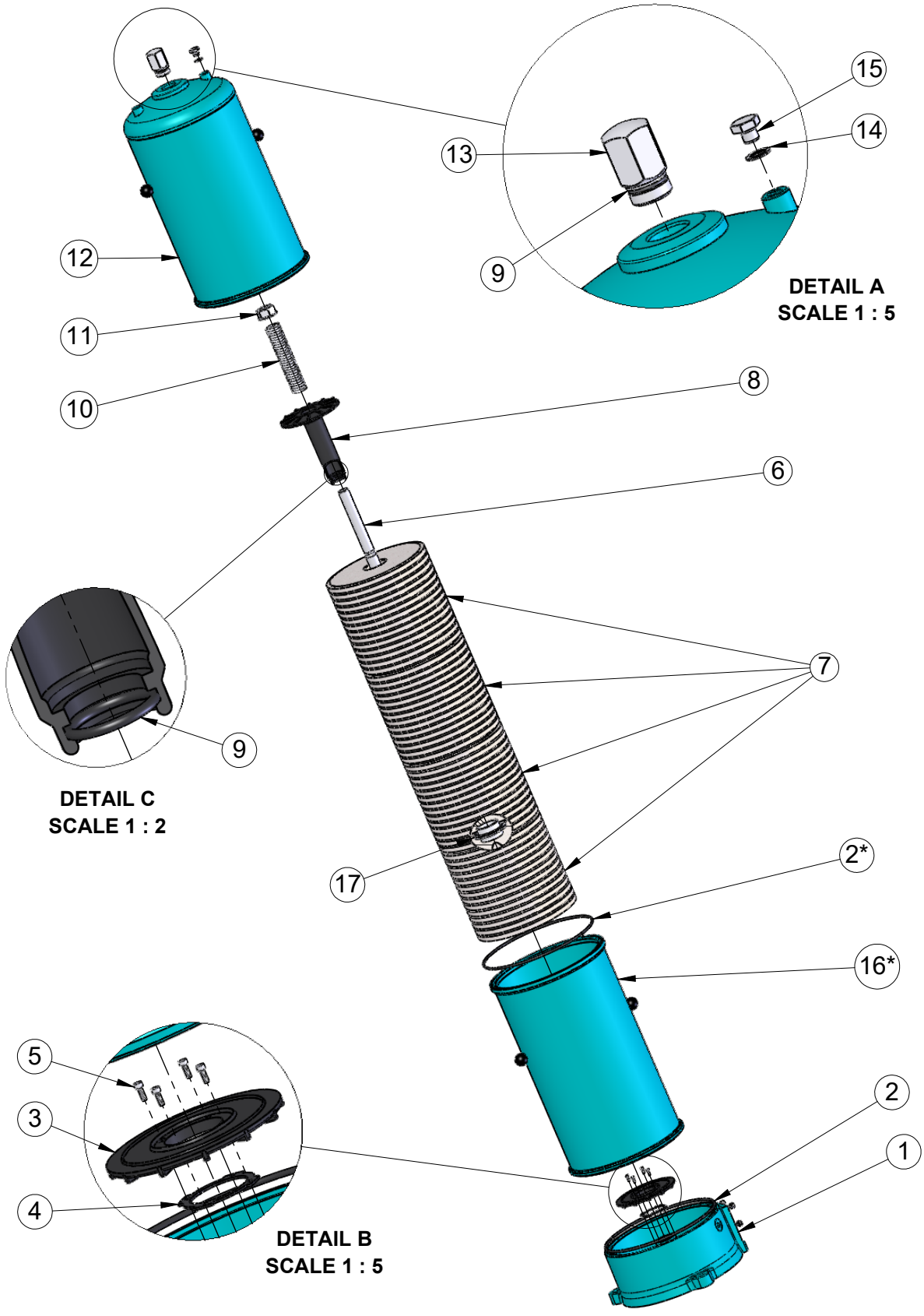
Type	Voltage [V AC]	Suitable for coil types	Code no.
BA024A	24 – 240	AM, BA, BD, BB	**042N0185**

Technical data

Type	ET 20 M
Voltage	24 – 240 V AC / 50 – 60 Hz
Power rating	Max. 20 W
Enclosure	IP00, IP65 with cable plug
Electrical connection	DIN connector (DIN 43650-A)
Ambient operating temperature range	-10 – 50 °C
Function	Start with pulse
Interval timer	0 – 45 min.
"On" timer	0 – 15 sec.

Dimensions and weight





Tolerance:	N/A
Customer:	
Project:	
Ref:	
Weight:	

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CJC Fine Filter type HDU 27/ -
Assembly Drawing

	Sign	Date
Constr.	vb	31-03-2009
Appr.		

Rev.	Appr.	Date
E	**TP**	**19-04-2022**

Drawing no.
4615137

Pos.	Object	Qty.
17	Guide f. B-inserts for 27/54 (not used with A-inserts)	1
17	Guide f. B-inserts for 27/81 (not used with A-inserts)	2
17	Guide f. B-inserts for 27/108 (not used with A-inserts)	3
16	Lower housing (only for 27/108)	1*
15	Vent screw 1/4" BSP	1
14	Usit ring 14,7x22x1,5	1
13	Top nut	1
12	Filter housing	1
11	Nut for spring	1
10	Spring 4x38x300	1
9	O-ring 28,17x3,53	2
8	Spring guide	1
7	Filter insert for 27/27	1
7	Filter insert for 27/54	2
7	Filter insert for 27/81	3
7	Filter insert for 27/108	4
6	Stay bolt 27/ -	1
5	Screw M4x12	4
4	Packing for filter plate	1
3	Filter plate	1
2	O-ring 295x5,0	2*
1	Filter base for HDU 27/-	1

Tolerance: N/A
Customer:
Project:
Ref:
Weight:

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CJC Fine Filter type HDU 27/ -
Assembly Drawing

	Sign	Date
Constr.	vb	31-03-2009
Appr.		

Rev.	Appr.	Date
E	**TP**	**19-04-2022**

Drawing no.
4615137

Product Sheet

CJC®Filter Inserts, type BLA

Specially designed for filtration of water containing oils & fluids

CJC® BLA FILTER INSERTS

The CJC® BLA Filter Inserts are designed for fine filtration of lubricants containing water. The BLA Filter Inserts will allow water to pass through, but will retain particles and varnish.
The BLA Filter Inserts are mainly used in CJC® Fine Filter HDU series, but also in CJC® Filter Separators PTU 15/- series.
A CJC® Desorber can, if required, remove the water from the specialised lubricant.

Used for maintenance of below oils and fluids:

- EALs, MorgOils, paper machine lube oils
- Water glycol-based fluid (PEG)
- Water based fire resistant fluid (HFA, HFB)
- Water based machine tooling fluid

BLA 15/12 *BLA 15/25* *BLA 27/27*

CONTAMINATION CAPACITY

Based on field experience we have observed that the total Dirt Holding Capacity (DHC) is dependent on shape and density of particles and other variables within an oil system.

When saturated, the total weight of accumulated contamination depends on the application, the combination of contaminants, as well as the density of the captured contamination.

Contamination Capacities	Size		
	15/12	15/25	27/27
Solids, kg	1	2	4
Varnish, kg	0.5	1	4

COMPONENTS

CJC® Filter Inserts consist of cellulose bonded discs, **made of natural cellulose fibres.**

DISPOSAL OF USED CJC® FILTER INSERTS

CJC® Oil Filters are green solutions, and at C.C.JENSEN one of our objectives is caring for the environment. Therefore, please arrange proper disposal of used filter inserts in accordance with your own local legislation.

IDENTIFICATION

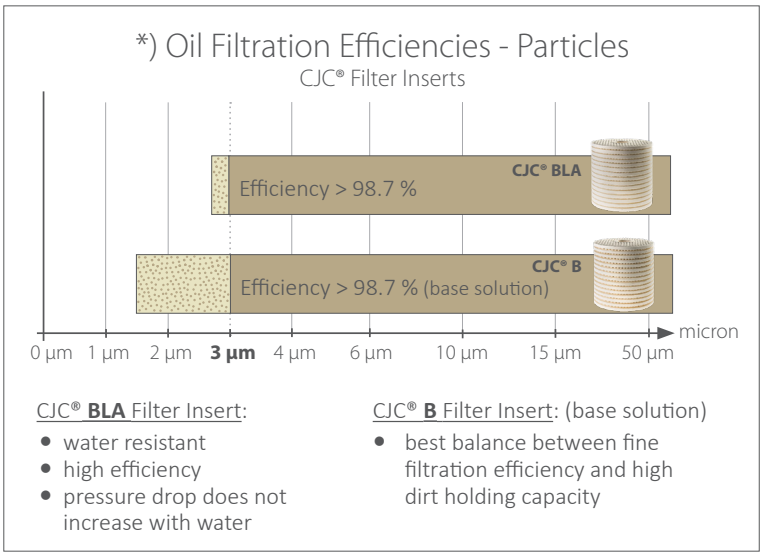
To order the BLA Filter Inserts, please use:

Article No.:

- 1 x BLA 15/12: PA5601327
- 1 x BLA 15/25: PA5601326
- 1 x BLA 27/27: PA5601320

FILTRATION TECHNOLOGIES

- **Oil filtration degree**
  *Particles can be removed according to the illustration below *)*
  For offline oil filtration, the dirt holding capacity is paramount because the offline process will have time to remove contaminants, unlike in-line filtration. Our focus is on removing the smallest and most harmful particles.
- **Oxidation and oil degradation products**
  The cellulose material retains oxidation by-products, resins, sludge, and varnish. The huge surface area of the filter media removes contamination through absorption and adsorption. By effectively removing contaminants we can slow down the rate of oil degradation.
- **Water resistancy**
  BLA Filter Inserts are designed to let water pass through. After the initial absorption of some water, the filter insert will allow water to pass through without increasing the differential pressure.
- **Acidity stabilisation**
  Acidity is a natural part of the oil degradation process and will be retained by the CJC® Filter Insert using absorption technology.



CJC® **BLA** Filter Insert:

- water resistant
- high efficiency
- pressure drop does not increase with water

CJC® **B** Filter Insert: (base solution)

- best balance between fine filtration efficiency and high dirt holding capacity

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BENEFITS in general

C.C.JENSEN DEPTH FILTER EFFICIENCY TEST

CJC® Filter Inserts are designed to last for one year, therefore testing of a high density depth filter for a few hours does not make sense. The C.C.JENSEN test is inspired by a modified ISO 16889, using finer test dust (UFTD), which resembles real dust and wear particles better than the coarse MTD test dust used in the standard Multi-pass test - designed for thin pleated filter media. The test modification also includes a much longer test time to get close to a real-life application scenario. The main advantage of CJC® Filter Inserts is the huge surface area, which distributes the oil flow and particles evenly and ensures stable low velocity for optimum retention of contamination. The large filter mass makes this unmatched high dirt holding capacity possible.

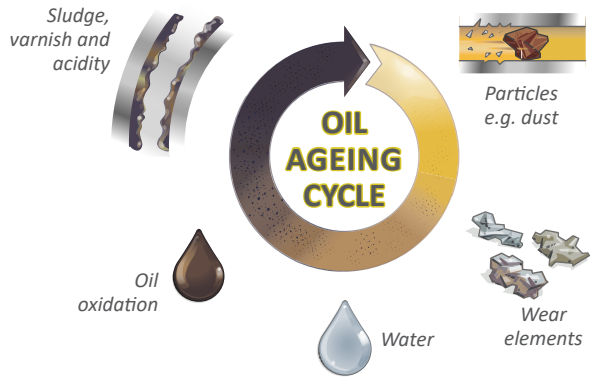
DIRT HOLDING CAPACITY CREATES VALUE

Competitive Filter Insert costs divided by dirt holding in kg:

3-micron filtration	Example 1	Example 2
Filter Insert type	Competitive pleated filter	CJC® cellulose depth media
Cost of element vs. Filter Insert	1 x €	4 x €
Dirt holding capacity	0.100 kg	4 kg
Cost per kg removed contamination	10 x € per kg	1 x € per kg

SLOW DOWN OIL AGEING

By removing all four contamination types (particles, water, acidity, and varnish), the CJC® Filter Inserts can slow down the oil ageing process and prolong the oil lifetime (see ill. 1). CJC® often results in 2-5 times longer oil lifetime, leading to considerable savings and reduction of CO_2 emissions. Field experiences show that removing particles of 3 µm and below with CJC® Filter Inserts has a significant effect on oil and component lifetime.



ill. 1)

CJC® Filter Inserts remove all catalyst in the "oil ageing cycle" and will slow down the oil degradation process. If contaminants are not removed, a vicious circle starts and the oil degradation process speeds up.

YOUR BENEFITS WITH CJC®

CJC® Filter Inserts have the highest dirt holding capacity on the market due to special cellulose-based material. Furthermore, the unique construction of the bonded discs, creates a large filtration area (see ill. 2) resulting in reduced costs of ownership. The CJC® Filter Inserts are a modular design, which allows them to fit any applications and requirements.

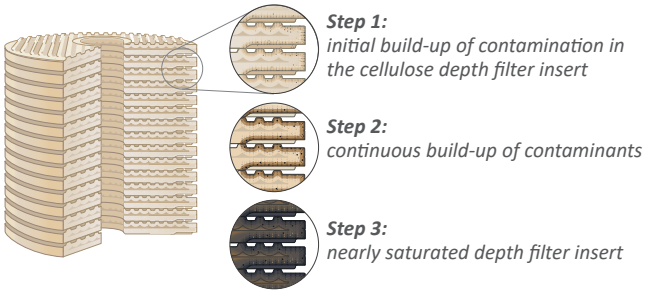
1. **The CJC® Filter Insert features:**
   a. Depth media of moulded cellulose
   b. Highest Dirt Holding Capacities (DHC)
   c. **100% natural cellulose fibres**

2. **Removal of contaminants, 4-in-1:**
   a. **Particles:**
   Lifetime of both oil and component are increased considerably.
   b. **Oil degradation products:**
   Avoid sticking valves, lacquering, and varnish on metal surfaces.
   c. **Water:**
   Reduce the risk of micro-pitting, bacterial growth, sludge etc.
   d. **Acidity/TAN:**
   Reduce oil ageing and wear on equipment.

3. **OEM requirements**
   Experience and application knowledge of C.C.JENSEN ensure that CJC® solutions can meet specifications from OEMs on oil cleanliness.

All helping to minimise further degradation of the oil.

CJC® DEPTH FILTRATION EFFICIENCY



ill. 2)

This graphic describes the technology and the efficiency of depth Filter Inserts removing contaminants by adsorption & absorption.

MAINTENANCE RECOMMENDATIONS

To achieve the highest possible oil cleanliness level, the CJC® Filter Inserts need to be changed at least once a year. Because of accumulated oil degradation products (oxidation, acids, and varnish) no matter what the pressure gauge indicates the used Filter Inserts should be replaced annually. Leaving filter media in service for longer than one year will result in decreased oil filtration efficiency and increased risk of breakdowns and component wear.

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CLEAN OIL
BRIGHT IDEAS

CJC™ Pressure Gauge

For CJC™ Fine Filter and Filter Separators

CJC™ Product Sheet - Accessories

APPLICATION

The CJC™ Pressure Gauge is used to monitor when it's time to replace the CJC™ Filter Insert. The CJC™ Filter Insert has to be replaced at least once a year, or when the needle on the Pressure Gauge enters the red zone.
The Pressure Gauge is suitable for use on CJC™ Fine Filters and CJC™ Filter Separators.
The Pressure Gauge kit for Mini Mess can be used on CJC™ Oil Filters that are equipped with a Mini Mess test coupling.

FUNCTION

The CJC™ Pressure Gauge provides an indication of pressure build up, caused by contamination accumulated in the CJC™ Oil Filter.
During the filtering process the pressure will increase to a maximum level, where the CJC™ Filter Insert has to be changed. To indicate starting level and maximum level, **a sticker** is supplied with the Pressure Gauge. During commissioning, the starting level must be set. Before setting the starting point, pressure and temperature has to be stable.

Remember: Before the Pressure Gauge is pressurised, the pressure equalisation port on top of the housing must be set open.

DIMENSIONS

- Diameter 2.7" / 68 mm
- Depth 1.3" / 32 mm
- Height
  - Pressure Gauge 3.6" / 92 mm
  - Kit for Mini Mess 4.7" / 121 mm

IDENTIFICATION

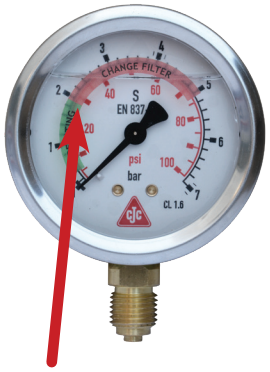
To order the CJC™ Pressure Gauge, please use:
Article No:

0-7 bar, Ø 63 mm, 1/4 connection:	
Stainless steel housing, brass connection, lower mount:	
CJC logo	FR330038-0000001
No Logo	FR330039-0000001
Stainless steel housing and connection, safety glass, lower mount:	
CJC logo	FR330040-0000001
No logo	FR330041-0000001
Stainless steel housing and connection, safety glass, back mount:	
CJC logo	FR330042-0000001
No logo	FR330043-0000001
0-4 bar, Ø 40 mm, 1/4 connection:	
Stainless steel housing, brass connection, lower mount, no rotatable scale:	
CJC logo	FR330045-0000001
Kit for Mini Mess	
	FB5300402

CJC™ Pressure Gauge

CJC™ Pressure Gauge Kit for Mini Mess

CJC™ Filter Insert Change Sticker
The sticker is placed next to the pressure gauge. Follow the guide, how to place the sticker.



CJC™ Pressure Gauge WITH the sticker indicating when to change the CJC™ Filter Insert

TECHNICAL DATA		
Dial size	inch / mm	2.5 / 63.5
Pressure range	bar / psi	0-7 / 0-100
Figure interval	bar / psi	0.2 / 5
Accuracy (EN 837-1)		within 1.6% of maximum graduation
Pressure gauge casing		Stainless Steel
Case filling fluid		Silicon Oil M50
Media temperature	°C / °F	-20 - 85 / -4 - 185
Ambient temperature	°C / °F	-20 - 60 / -4 - 140
Connection		
Pressure gauge		1/4" BSP
Kit for Mini Mess		Mini Mess test coupling connection

PSAC5003-UK
08.12.2020

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CLEAN OIL
BRIGHT IDEAS

Automatic Air Vent

Bleeding and Venting Valve

CJC™ Product Sheet - Accessories

APPLICATION

The CJC™ Automatic Air Vent is used to release air from the CJC™ Filter Housing.

It is controlled by a float-controlled valve closing by rising oil level (bleeding) and opening by falling oil level (venting).
Venting can be prevented by using a check valve.

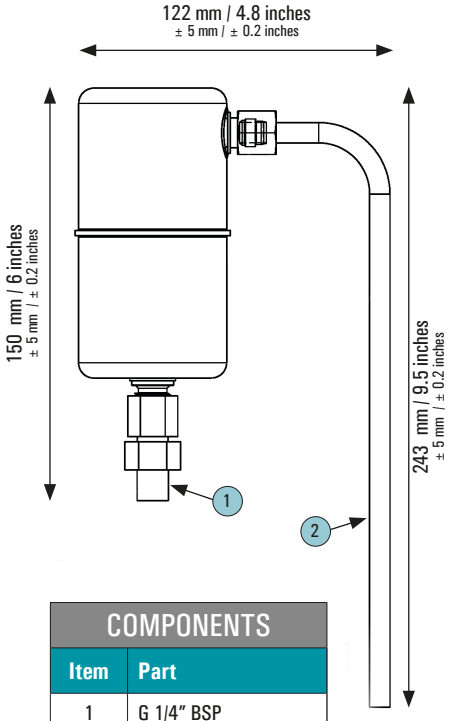
The CJC™ Automatic Air Vent reduces the need for supervision and maintenance of the CJC™ Filters even further.

IDENTIFICATION

To order the Automatic Air Vent, please use:

Article No: FB5200700

The CJC ™ Automatic Air Vent



COMPONENTS	
Item	**Part**
1	G 1/4" BSP
2	Ø8mm Hydraulic Pipe

TECHNICAL DATA	
Area	**Features**
Fluids	Liquids
Pressure	7 bar
Connection	G 1/4 A
Working pressure	0 - 7 bar
Temperature	Max. 120 °C
Capacity	Up to 11 Nm^3/h
Quality	Stainless steel AISI 304

CAPACITY in Nm^3/h							
P (bar)	0.1	0.2	0.5	1.0	2.0	4.0	7.0
Air flow (Nm^3/h)	1.0	1.4	2.2	2.8	4.2	7.0	11.0

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filter@cjc.dk • www.cjc.dk

8 EC Declaration of Conformity

EC-Declaration of Conformity
Directive 2006/42/EC, Annex II A

Manufacturer: **C.C.JENSEN A/S**

Address: Løvholmen 13
DK-5700 Svendborg
Denmark

Phone: +45 63 21 20 14
Fax: +45 62 22 46 15
E-mail: ccjensen@cjc.dk

This declaration of conformity is issued under the sole responsibility of the manufacturer

CJC® Desorber System

Product type: **D10 PV-C3DE2H1V / HDU 27/27 PV-DPVZ**

Batch No.: 890149896

is in conformity with

- the provisions of the **Machinery Directive 2006/ 42/EC**, incl. the Annex 1: Essential health and safety Requirements,
- the **Pressure Equipment Directive 2014/68/EU** on material exposed to pressure > 0.5 bar, ref. to the regulations of the Annex 1, article 4, part 3.
- the **EMC Directive 2014/30/EU** on Electromagnetic Compatibility

Signed for and on behalf of C.C.JENSEN A/S:

12.04.2024

Jens Fich (Technical Director)

9 Guides

In this section you can find guides relevant for use and maintenance of the CJC® Oil Treatment unit.

9.1 Installation Guide for Desorber D10

9.2 Filter Insert Replacement Guide

9.3 Quick Oil Sampling Guide

Date: 08.06.2020

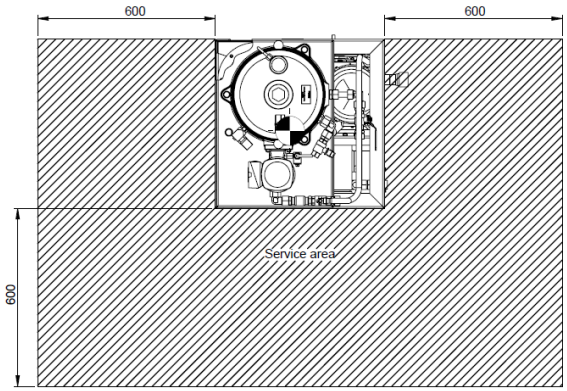
Quick installation guide for Desorber D10.

By following below sections in this installation guide, the customer ensures that the Desorber D10 and also the Combi D10 is installed in a safe way and that the system will runs optimally and without any problems.

It is the customer's responsibility that the Desorber D10 is installed correctly and that the installation is carried out by qualified personnel.

1. Service area around the Desorber D10

It is recommended that the Desorber D10 is placed so there are sufficient free space around and also above the unit, to freely change the filter insert and also for carrying out regularly maintenance.

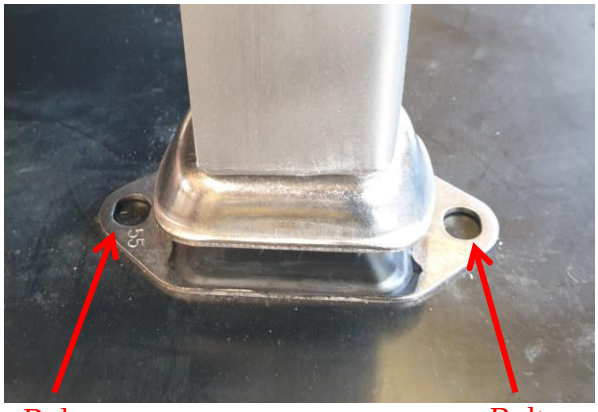


2. Transportation of Desorber D10

For transportation of the Desorber D10, use only approved lifting gear. Transport the Desorber D10 in the crate until unpacking is necessary. Lift the Desorber D10 in place, by using slings and lifting yoke connected to the marked lifting points on Desorber D10.

3. Installation of Desorber D10

The Desorber D10 must be positioned and secured in place to keeping it in a fixed position under all conditions, use up to 12 pcs. of class 8.8 bolts or higher. Please refer to torque table in instruction manual. To ensure that Desorber D10 will stay in place even when vibrations occur, apply glue to bolts.
Example shown with vibration damper, may also be without.



4. Connection of oil lines to Desorber D10

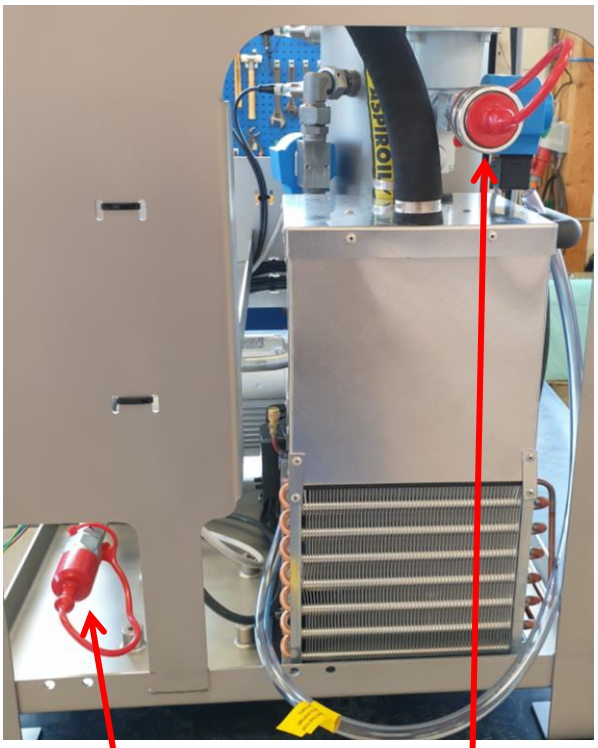
The Desorber D10 must be connected to the main system by independent suction and return lines. The suction line should be connected to the lowest and most contaminated position of the system. The connections should be as short as possible, especially the suction line in order to avoid large pressure drops.

Below mentioned pressures are a combination of pressure loss in the piping or hose and the lifting hight of oil.

- Minimum inlet pressure on Desorber D10 is -0.5 bar/-7.3 psig.
- Maximum inlet pressure on Desorber D10 with PV pumps is 0.5 bar/7.3 psig.
- Maximum inlet pressure on Desorber D10 with PVM pumps is 3.5 bar/50 psig.
- Maximum outlet pressure on Desorber D10 is 5.0 bar/72 psig.

Recommend diameter for piping or hoses must be at least ¾", the inner diameter must be increased if the length is more than 3 metres.

In order to facilitate servicing of the Desorber D10, it is advisable to install isolation valves on suction and return lines.

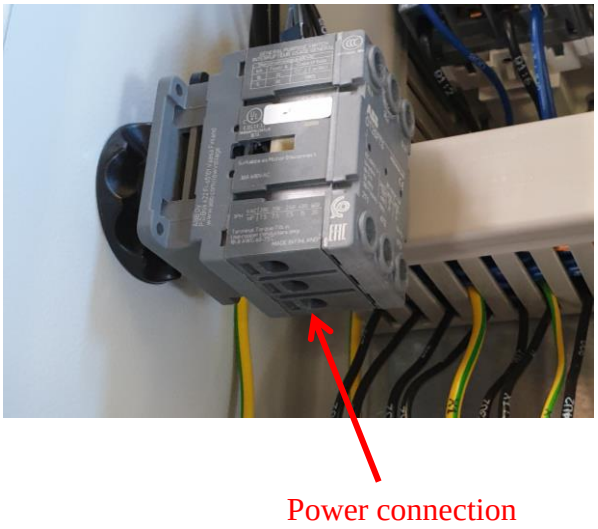


5. Electrical connection of Desorber D10

Verify that system voltage matches equipment voltage ratings before connection. Refer to the nameplate on the control panel when sizing power supply wire.

Connect the power supply as shown on the wiring diagram in the instruction manual. Short-circuit levels are also listed on the front of the electrical diagram.

We recommend a max. fuse of 16A gL.



It is the customer's responsibility that the electrical equipment is connected with a cable of the correct dimension and that the electrical equipment is properly protected.

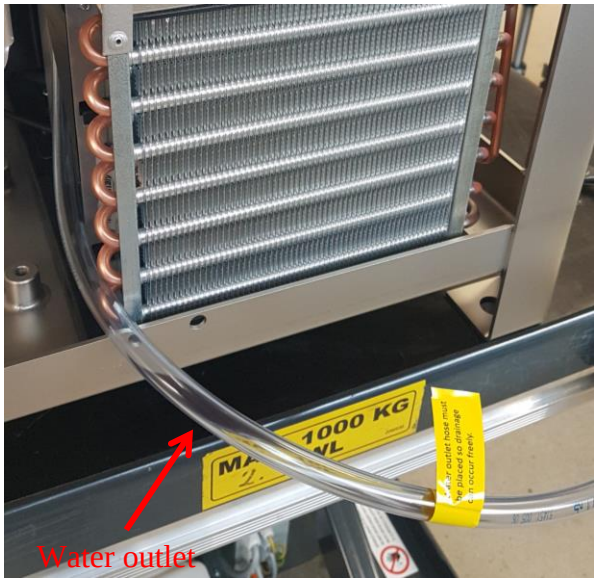
When connected ensure that the motor has the same direction of rotation as the arrow on the fan cover.

Max. Ik:	16kA
Min. Ik:	150A
Max. fuse:	16A gL

6. Water outlet port on Desorber D10

Desorber D10 removes water from the oil and the released water is drained via the water outlet port. Before starting the Desorber D10, remove the cable ties which holds the water outlet hose and connect it to a non-pressurized tank or container, ensure water from water outlet hose can run freely.

NOTE! Discharged water is contaminated with oil and must NOT be drained to general sewer, but to a suitable collection tank/bilge or container for proper disposal.



7. Starting the Desorber D10

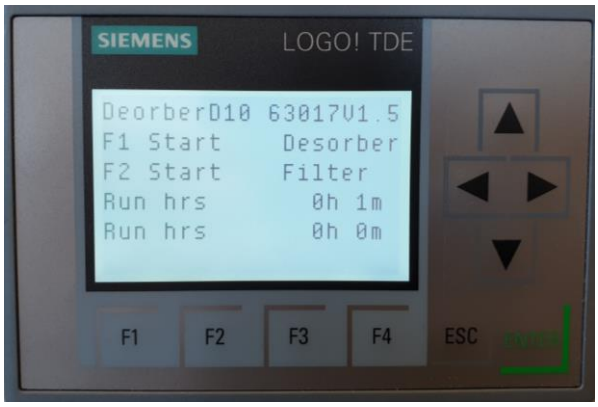
Before starting the Desorber D10, ensure all piping/hoses are connected and valves on inlet and outlet lines are open.

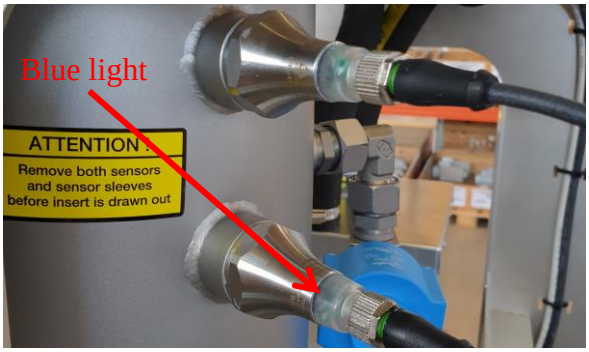
Start the Desorber D10 by pressing F1 on the panel.

The pump will now fill the Desorber chamber, check on level sensors (lit blue when detecting oil) that oil is coming into Desorber chamber.

If the Desorber is equipped with a Filter (Combi unit), the Filter is started by pressing F2.

Both Desorber and Filter are stopped by pressing F1 and F2 again.

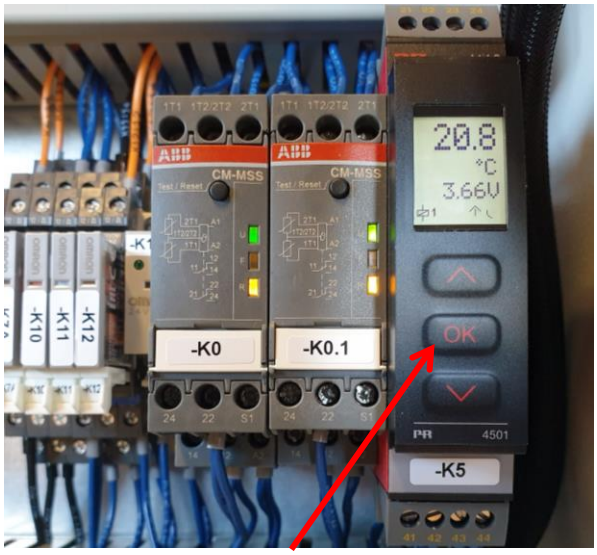




After 15 minutes of running check that electric heater is heating the oil, Desorber chamber becomes warm.

If electric heater is not active, reset high temperature cut-out thermostat, PR module next to the thermistor relays inside the control box.

Water will be released after 1 - 2 hour of running, depending on water level in oil.

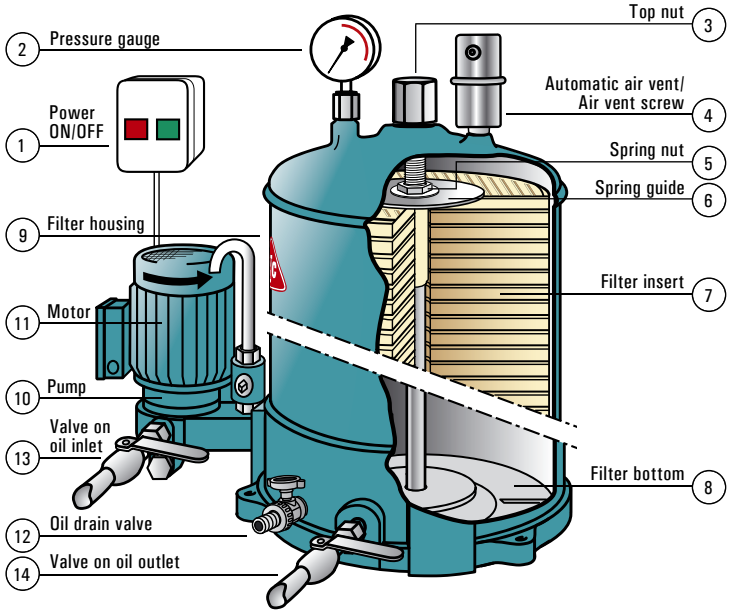


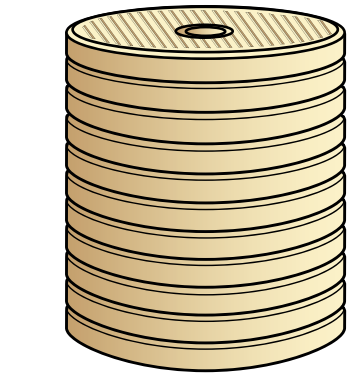
Reset high temperature cut-out thermostat

The Desorber D10 or Combi D10 is now installed and running.

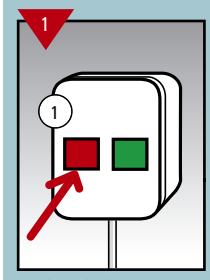
Filter Insert Replacement

CJC™ Fine Filter HDU 27/-

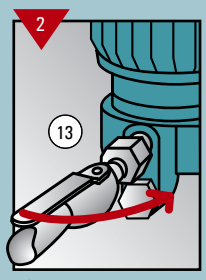




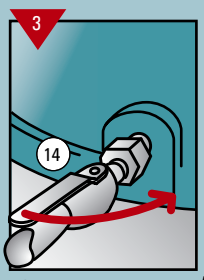
FILTER INSERT REPLACEMENT



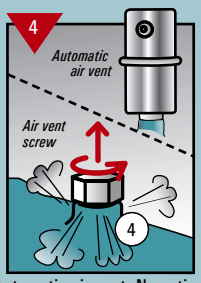
Stop CJC™ Filter



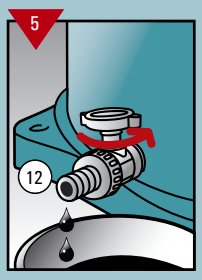
Close valve on oil inlet



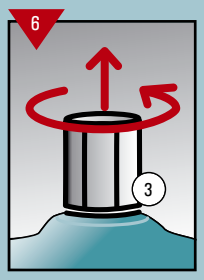
Close valve on oil outlet



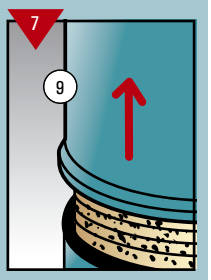
Automatic air vent: No action
Air vent screw: Open screw



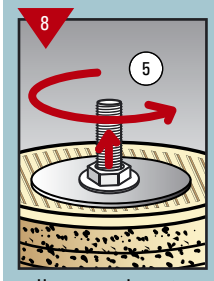
Open oil drain valve. Drain acc. to environmental precautions!



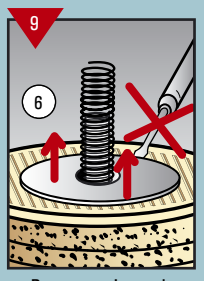
When filter housing is drained, unscrew top nut



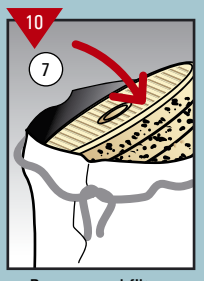
Lift off filter housing



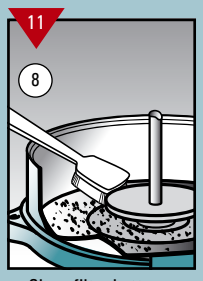
Unscrew spring nut



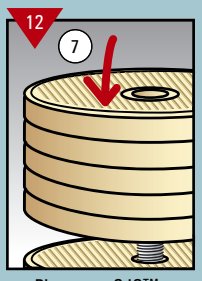
Remove spring and spring guide



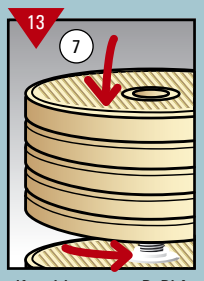
Remove used filter insert(s). Deposit according to national legislation



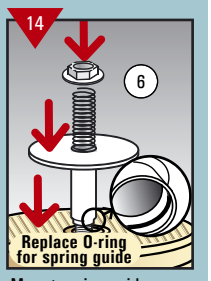
Clean filter bottom.



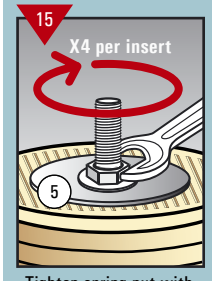
Place new CJC™ Filter Insert(s)



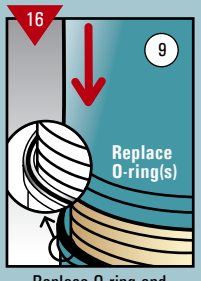
If > 1 insert type B, BLA or BLAT, use insert guide between filter inserts



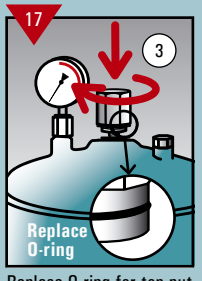
Mount spring guide carefully - make sure there is no contact between O-ring and thread



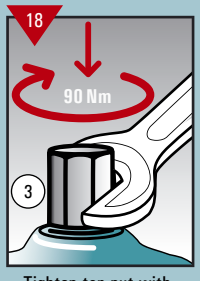
Tighten spring nut with hand until contact with spring guide. Then tighten spring nut 4 turns per filter insert



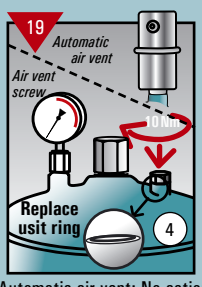
Replace O-ring and place filter housing. If type 27/108, replace both O-rings



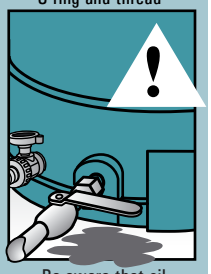
Replace O-ring for top nut



Tighten top nut with torque of 90 Nm



Automatic air vent: No action
Air vent screw: Replace usit ring for air vent screw, and tighten with torque of 10 Nm



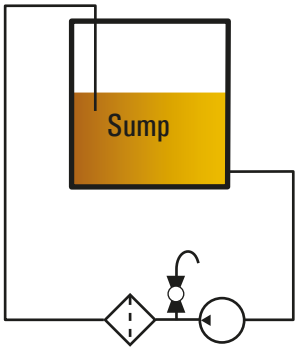
Be aware that oil spillage is a serious safety risk - keep clean!

PF1202 - 11.11.2009

Manufacturer: C.C.JENSEN A/S • Løvholmen 13 • DK-5700 Svendborg • Phone +45 6321 2014 • Fax +45 6222 4615 • filter@cjc.dk • www.cjc.dk

Quick Oil Sampling Guide

The quality of analysis results depends on correct sampling and handling of the sample!



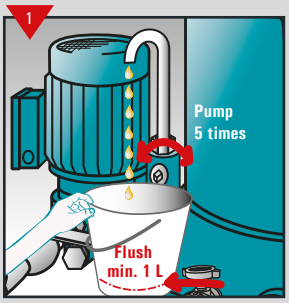
How to take an oil sample - between the pump and the filter

To take an oil sample, the following is required:

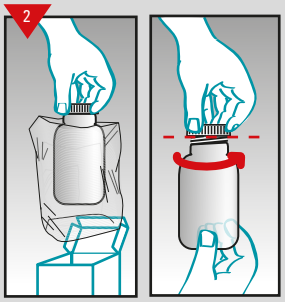
- a 200 mL particle free glass bottle
- a cloth
- a 5 L (1 1/2 US gallon), open oil container
- label + pen

Pump must be in stable running condition before taking the oil sample

Note: Always take oil samples according to this guide in order to achieve valuable information about your equipment. If the oil sample is not taken properly, your money will be wasted!

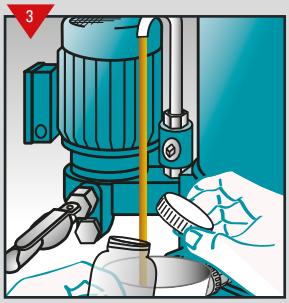


1. Place the oil container beneath the sampling valve.
2. Open and close the valve 5 times and leave it open.
3. Flush the pipe by draining 1 litre (1 US quart) into the container. Leave the oil running.



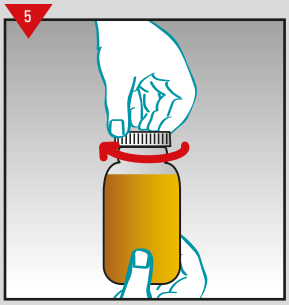
4. Open plastic bag and take out sampling bottle.

5. Unscrew lid completely, without removing the lid from the sampling bottle.



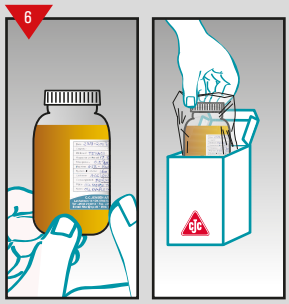
6. Hold the sampling bottle close to the oil flow and remove lid from the bottle.

7. Fill the sampling bottle to 80%, while holding the lid in one hand, without the bottle touching the samling valve.



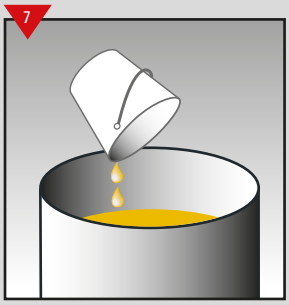
8. Screw on lid immediately, so that no unwanted particles can contaminate the oil sample.

9. Close oil sampling valve.



10. Fill in label and stick it onto the sampling bottle.

11. Pack the sampling bottle in plastic bag and cardboard container, and send via mail or courier.



12. Dispose of flushing oil according to environmental requirements and rules and if necessary refill the oil in the system.

FL12006 - 10.02.2015

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10 Appendices

10.1 Torque table

10.2 Log book

CLEAN OIL
BRIGHT IDEAS

Torques overview

Flange connections		
DIN Flange size		Tightening torque [Nm / ft lbf]
DN 10	3/8"	10 / 7
DN 15	1/2"	12 / 9
DN 20	3/4"	17 / 13
DN 25	1"	23 / 17
DN 32	1 1/4"	35 / 26
DN 40	1 1/2"	47 / 35
DN 50	2"	93 / 69
DN 65	2 1/2"	109 / 80
DN 80	3"	97 / 72
DN 100	4"	113 / 83

Vent Screw	
Thread size	Tightening torque [Nm / ft lbf]
G1/4"	15 / 11

Coalescer	
Filter size	Tightening torque [Nm / ft lbf]
PTU 15/12	8 / 6

Clamp ring	
Filter size	Tightening torque [Nm / ft lbf]
HPS 27/-	12 / 9

Hose union nut	
Spanner size	Tightening torque [Nm / ft lbf]
17	25 / 18.5

Back Pressure block	
Screw	Tightening torque [Nm / ft lbf]
CH 10x80	43 / 32

Top Nut	
Filter size	Tightening torque [Nm / ft lbf]
15/12	30 / 20
15/25 & 15/50	70 / 50
27/- & 38/-	90 / 65
427/- & 727/-	150 / 110

Pressure gauge	
Thread size	Tightening torque [Nm / ft lbf]
G1/8" brass	20 / 15
G1/4" brass	25 / 18
G1/2" brass	50 / 37
G1/4" SS	65 / 48
G1/2" SS	

Key filter	
Allen key size	Tightening torque [Nm / ft lbf]
Filter housing lid - Allen key 8mm	15 / 11
Drain plug 3/4” - Allen key 10mm	70 / 52
Connection 1/4” - Allen key 8mm	15 / 11
Connection 1/2” - Allen key 12mm	50 / 37

Terminal Board – 3 phase motor	
Bolt Thread	Tightening torque [Nm / ft lbf]
M4	1.7 / 1.25
M5	2.5 / 1.84

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06.05.2022
FL12205

CLEAN OIL
BRIGHT IDEAS

Model:_____ Date of commissioning:_____

Prod./Batch No.:_____

Fill in the log book for repair, service and maintenance.

For Recommended service intervals refer to the section “Service and maintenance” in the Instruction Manual.

Service parts	Comments	Date	Signature
Example *Change of filter insert*	*Changed due to high pressure*	*01.01.2022*	

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