ENGINEERING
TOMORROW

Start-up guide

IPS 8, CE, 230V AC, 1ph, 50Hz, code 084H5001
IPS 8, 230V AC, 1ph, 60Hz, code 084H5002

Contents

Mechanical / Refrigeration check

1) Verify that IPS 8 purger is installed, wired, and piped as per Danfoss instructions
2)Horizontal alignment requirements must be within 2 degrees to IPS top cover. See Fig. 1
3)The purger unit should be always kept in an upright position - from receipt to final installation, including possible lift to a high final location. See Fig. 2
4) Leave space around IPS for air circulation flow. Do not install it right up to a wall. See Fig. 3
5) Inspection of possible dirt in gas lines. See Fig. 4
    a. For purge point connect gas line a slope towards the IPS8 purger, must be observed.
    b. No liquid traps
6) Remember to remove rubber plug. See Fig. 5.
7) Carry out proper vacuum on the purge point connect gas line and R717 side of IPS 8 purger. The R717 side of IPS 8 purger must be pressurized prior to the IPS 8 being put into operation.
8) Before connecting power supply to IPS let it stand upright for min. 6 hours after it has been placed at its final location
9) After mechanical installation, but before connecting power supply IPS, please check:
    a. If Danfoss drain valve used (Type SV or ICF with ICFD), then check:
    b. SV: See Fig. 6a
        i. Check throttle valve **A** is opened, and SV is properly assembled.
        ii. Check that port **B** is closed by bolt.
    c. ICFD: See Fig. 6b
        i. Check stop valves
        ii. Check coil is installed on solenoids (Solenoid for ICF w/ICFD (DO6) – if used)
10) Open stop valves **D**, as we have vacuumized the pipes before. Open manually one of purge point solenoids **E**. See Fig. 6a and 6b

    For general mechanical installation guidance/practice. See Fig. 6c

Electrical check

11) Check Main power supply. See Fig. 7
    a. 084H5001, IPS 8: 230 V, AC 50 Hz
    b. 084H5002, IPS 8: 230 V, AC 60 Hz
    c. Power to be connected to Main switch: QS1 and Terminal: XT0
        i. Terminals on QS1
            1. 3, L2 – Line phase
            2. 1, L1 – Neutral
        ii. Terminal XT0
            1. PE – Earth
12) Check connections to field connected Purge point solenoids and ICFD solenoid (if used) See Fig. 8a and 8b
    a. Coils voltage. Same as Main power supply. No further action needed.
    b. At different voltage for field connected solenoids coils. See Fig. 9

IPS controller (MCX15B2) setup

After Mechanical / Refrigeration check, the conditions for startup must be checked.
See Fig. 10 for overview of Electrical Panel and location of Thermal magnetic miniature circuit breakers

13) Switch ON:
    a. QS1, QM2 and QM4. See Fig. 10
14) Before start of compressor, temperatures needs to be checked. Should all be within:
    +/-1 K^0 (OK) – if OK then go to 15)

If Temperatures are not within: +/-1 K^0 then check cables and connections of pressure and temperature sensors. (NOK)

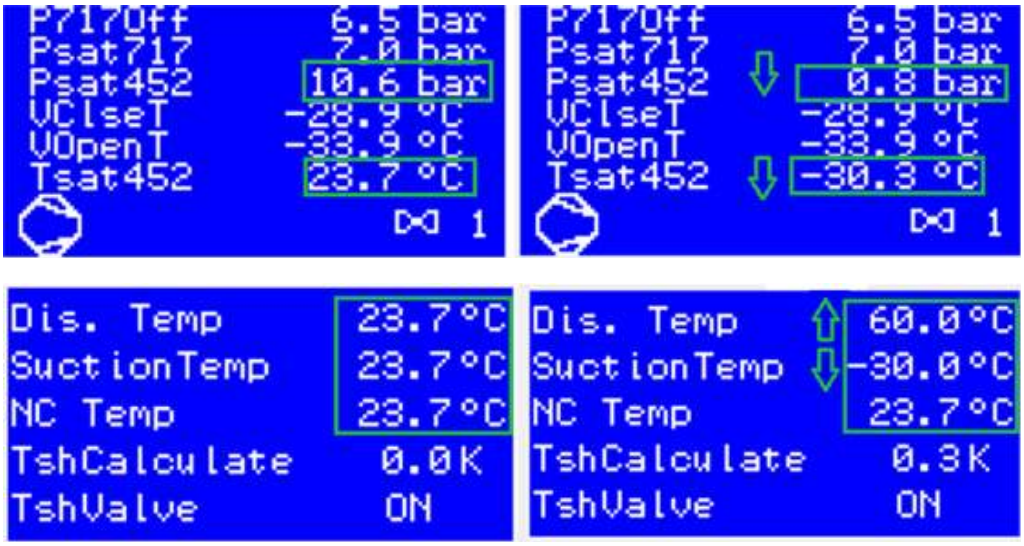
15) Preparation for start compressor
    a. Switch ON – See Fig. 10
        i. QM1 and QM3

Below (E10, System is OFF and the icon ⚠) inform that MainSwitch is OFF

16) Navigation to Main Switch parameter
    a. <Enter>
    b. Select "Start"
    c. Select "Main Switch ON" and <Enter>

Go to Main Screen and watch compressor in operation and pressure/temperature changing.
As compressor is in operation, pressure and temperature is changing, after about 15-25 minutes we should observe changes as reflected on below screens.

See development below from left to right



If the compressor is running for 15-25 minutes, without pressure and temperature really changing (example below) and compressor then becomes very hot [90 ºC-110 ºC] on its surface, - then **STOP IPS and call Danfoss**.

IPS MCX controller – Quick start

Basically, the IPS with the built-in MCX controller, only need one setting, How many Purge points? See steps below for how to navigate to the parameter for entering how many Purge points which is connected.

a) Navigate from the Main Menu to Start by <Enter>
b) Select "Main Switch OFF"
c) Go to Main Menu
d) Navigate from the Main Menu to "Login"
e) Enter password "200"
f) Choose "Parameters"
g) Choose "Unit Config"
h) Choose "Valve Settings"
i) Enter the number of purge solenoid valves connected to the IPS (factory setting is:8)
j) Go back to Start and chose 'Main Switch ON', and go back to main screen

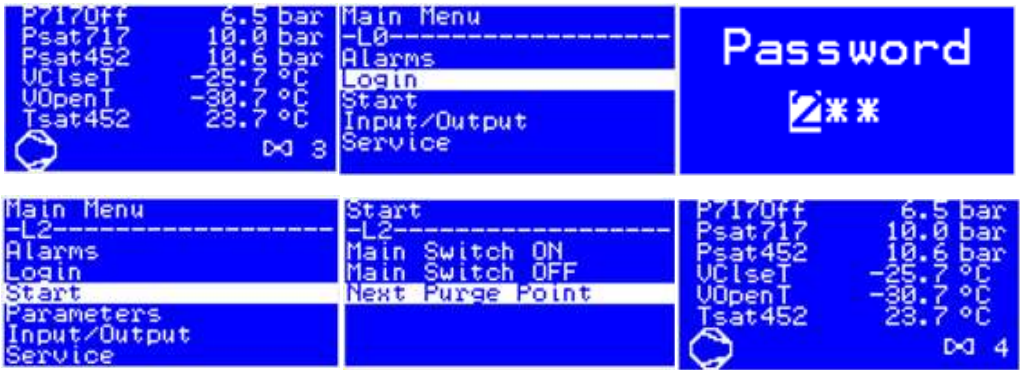
See development below from left to right

IPS MCX controller – Quick start

It can be useful during commissioning to quickly move the next Purge point, in order not to wait to IPS internal time cycle between purge points.
See steps below for how to navigate to the parameter in question.

1. Navigate from the Main Menu to Start by <Enter>
2. Enter password "200"
3. Choose "Start"
4. Choose "Next Purge Point" and <Enter>
5. Press <X>, to go back to main screen
6. Check that Purge Point has been changed to the next one. (below example from Purge Point 3 to Purge Point 4)

See development below from left to right



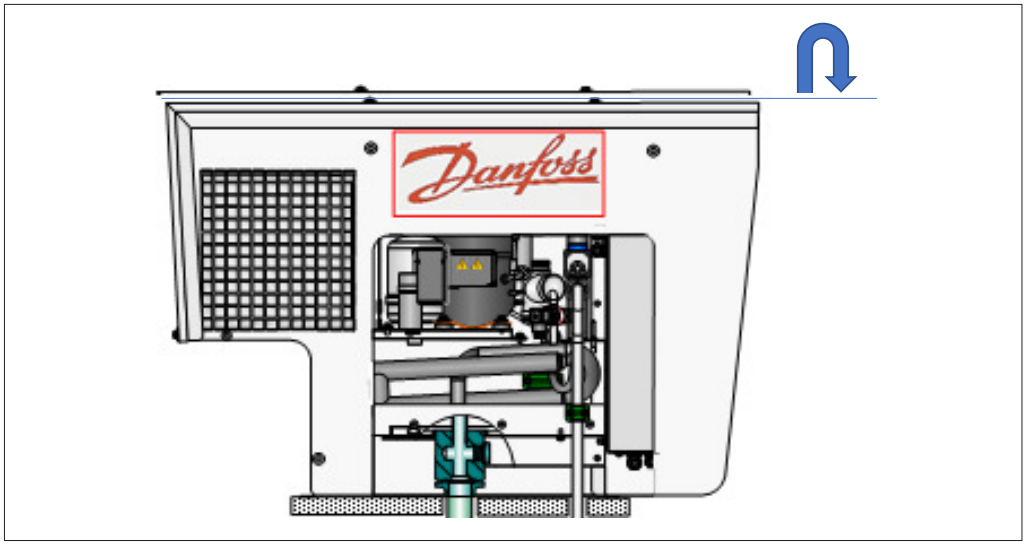


Fig. 1

It is important that the support construction is level to ensure the internal liquid trap is properly filled.
Angle to horizontal < 2 degrees

Lifting Procedure

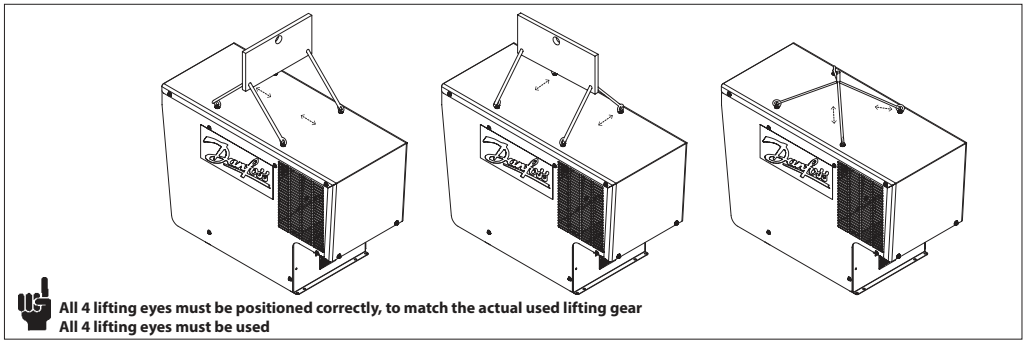


Fig. 2

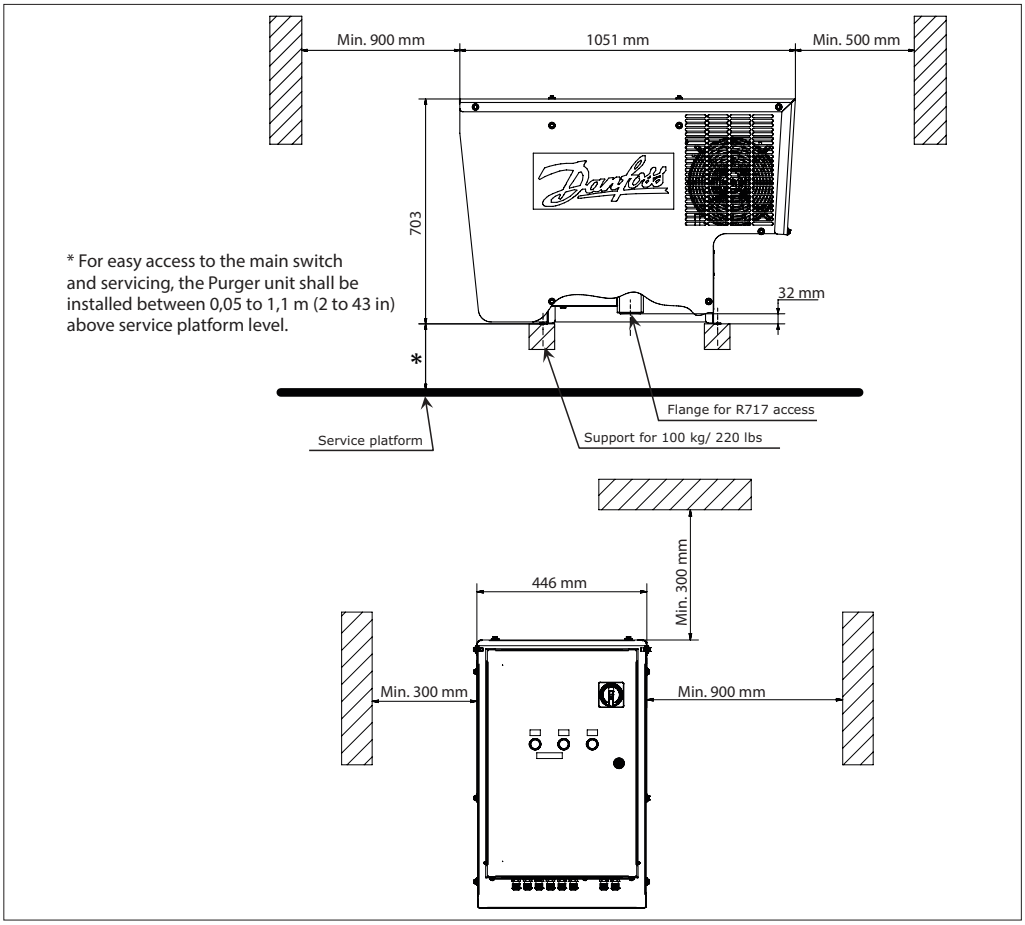


Fig. 3 Installation dimensions

Connection points

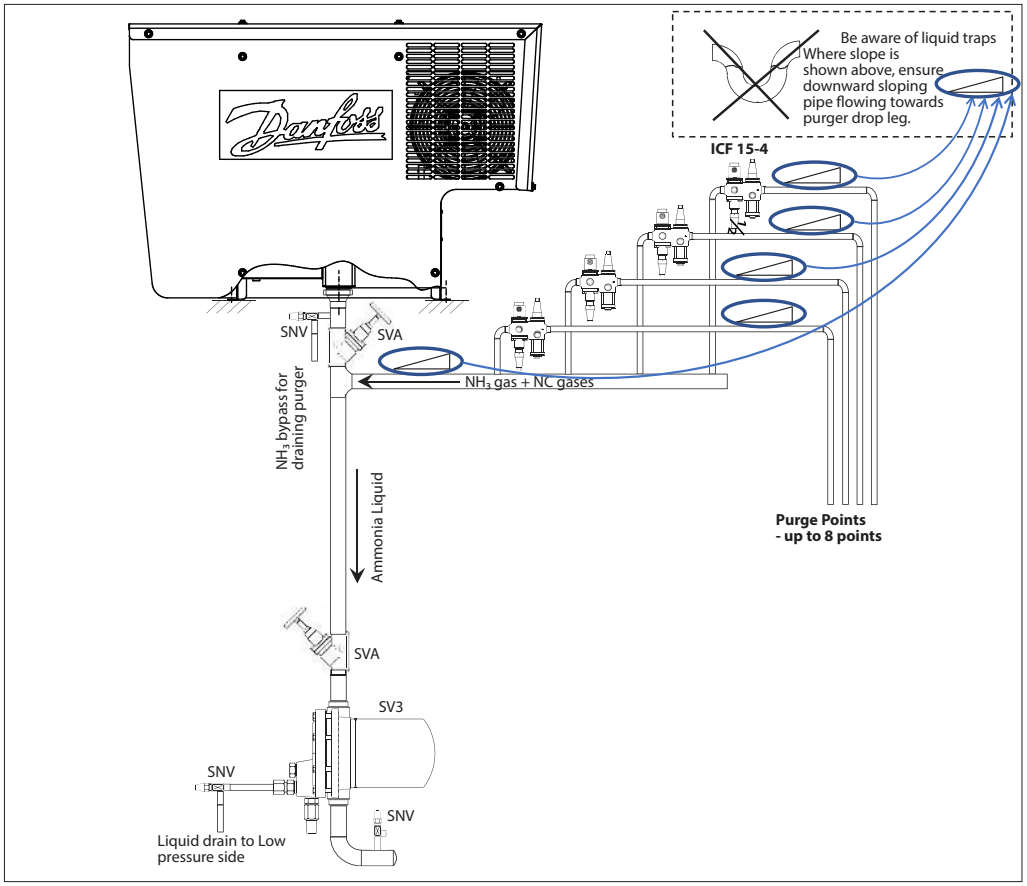


Fig. 4 Multi-point purging from up to 8 purging points

Installation

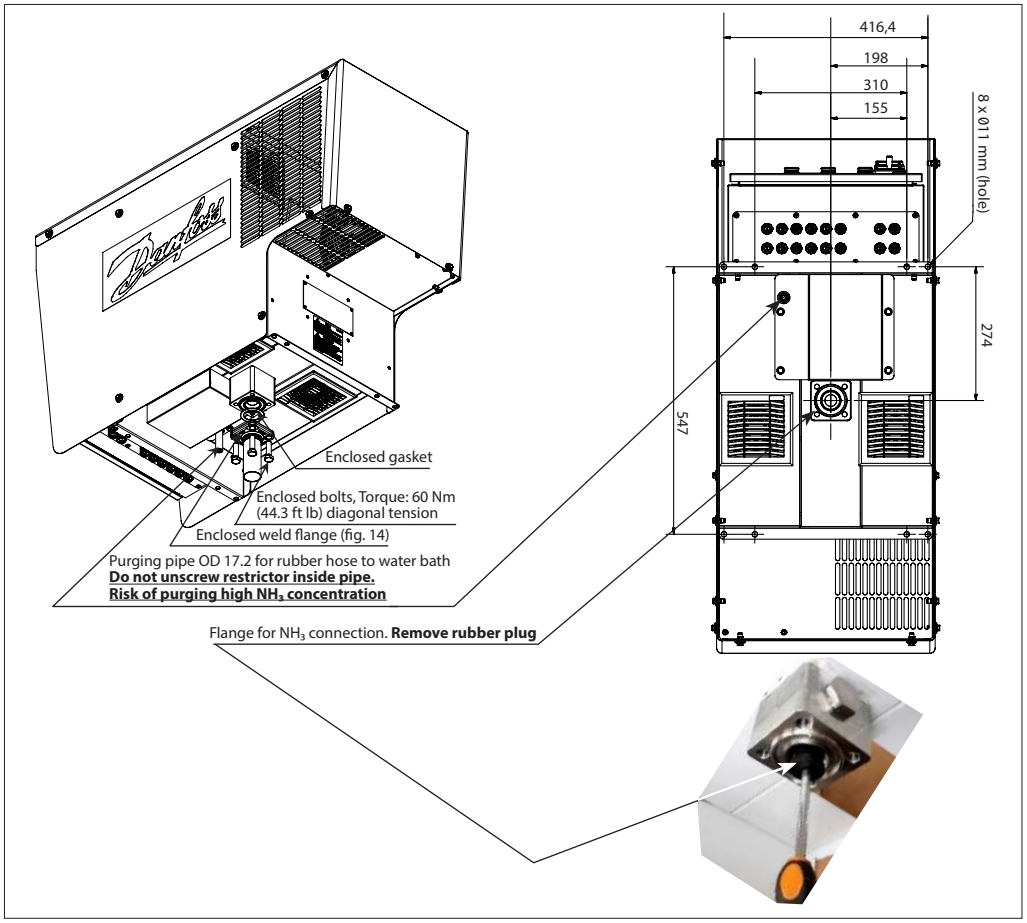


Fig. 5 Ammonia connection

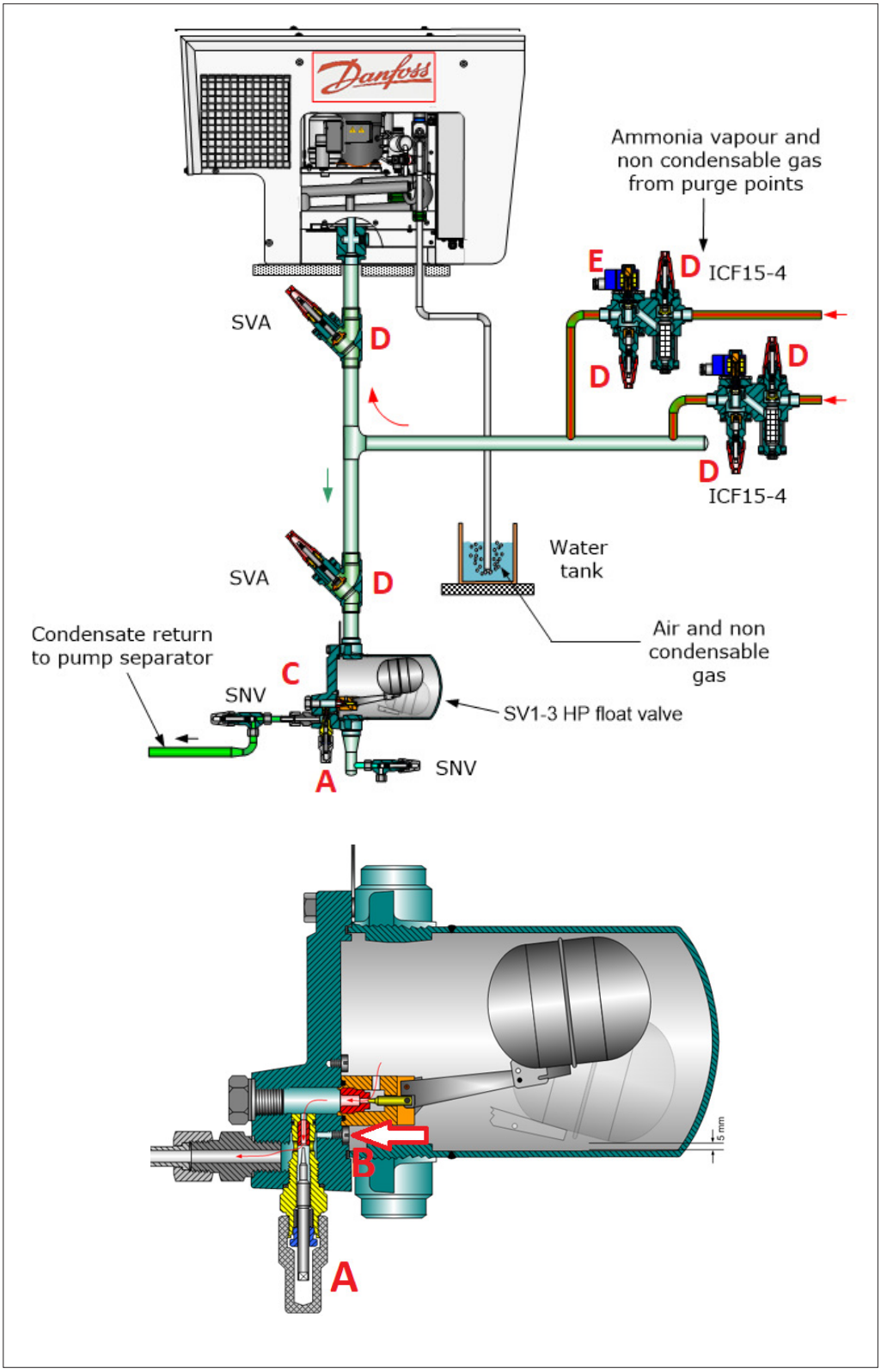


Fig. 6a

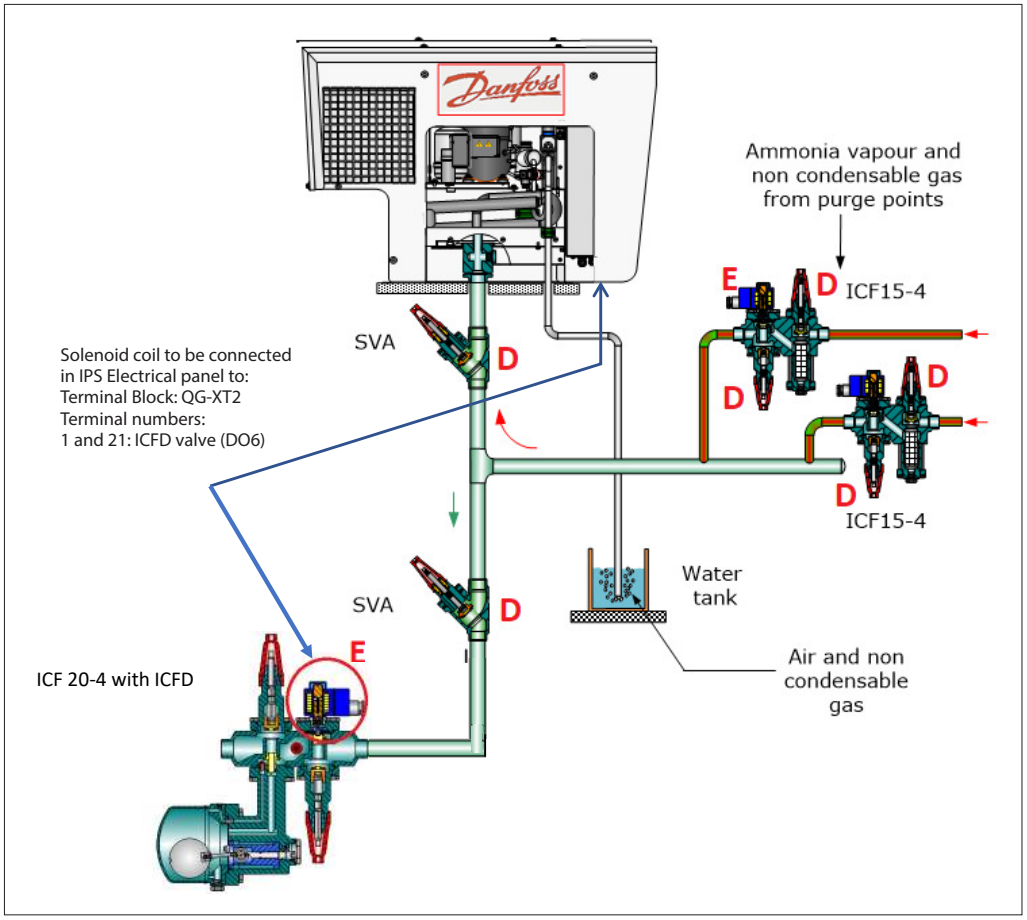

Ammonia vapour and non condensable gas from purge points
E
D
ICF15-4
SVA
D
Solenoid coil to be connected in IPS Electrical panel to:
Terminal Block: QG-XT2
Terminal numbers:
1 and 21: ICFD valve (DO6)
D
D
ICF15-4
Water tank
SVA
D
E
ICF 20-4 with ICFD
Air and non condensable gas

Fig. 6b

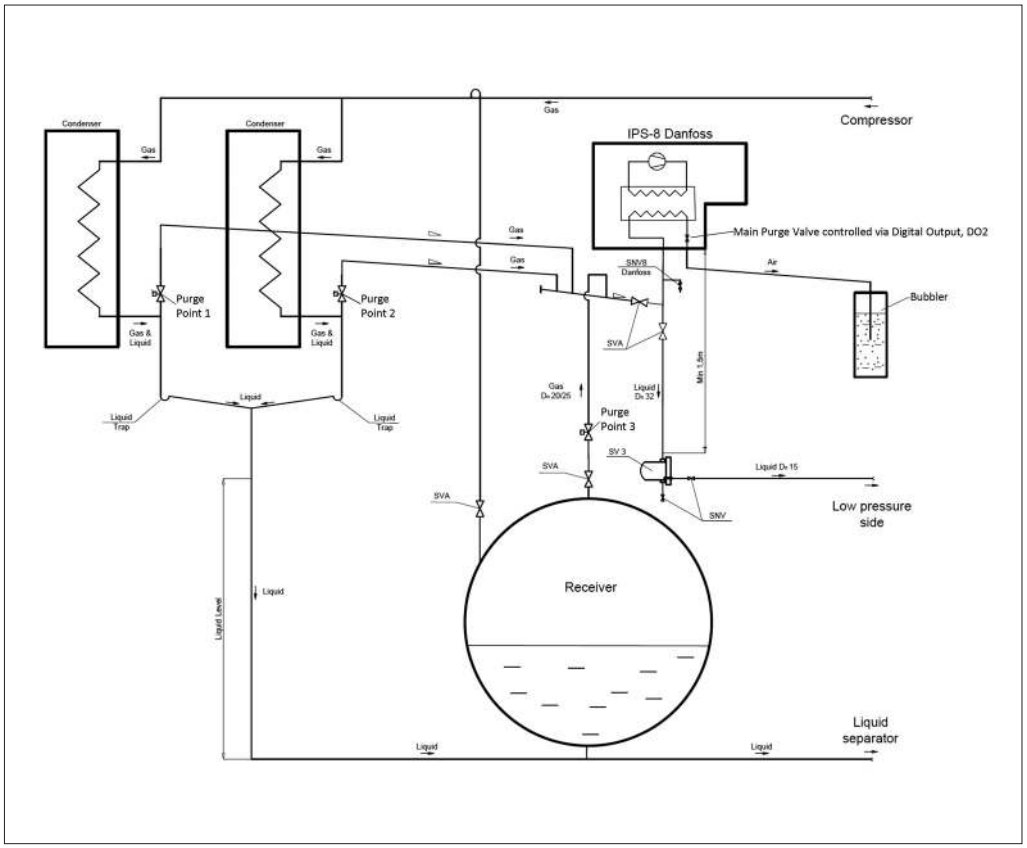

Compressor
IPS-8 Danfoss
Condenser
Condenser
Gas
Main Purge Valve controlled via Digital Output, DO2
Purge Point 1
Purge Point 2
Bubbler
Purge Point 3
Liquid Trap
Liquid Trap
Low pressure side
Receiver
Liquid separator

Fig. 6C

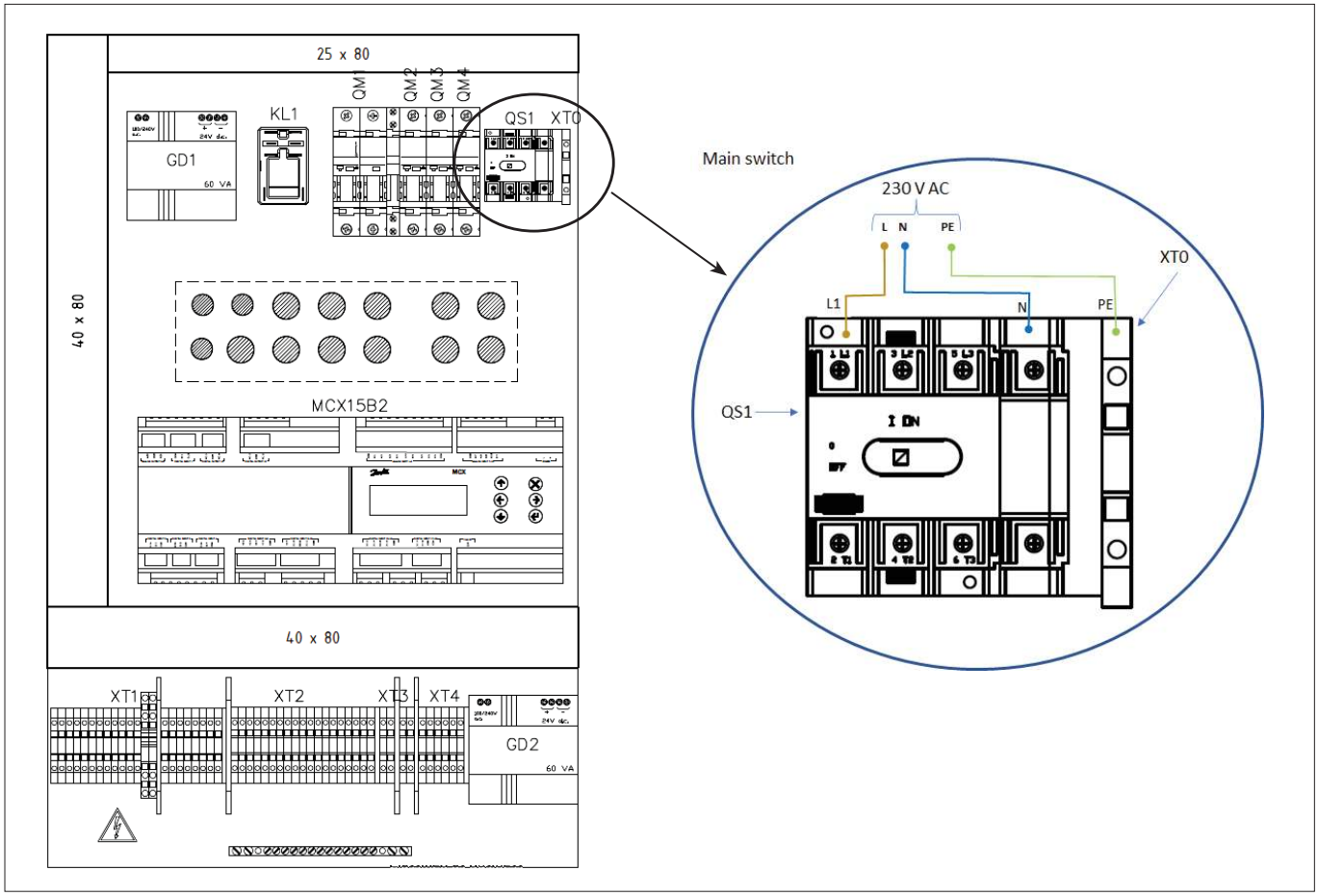


Fig. 7a Controller box internal

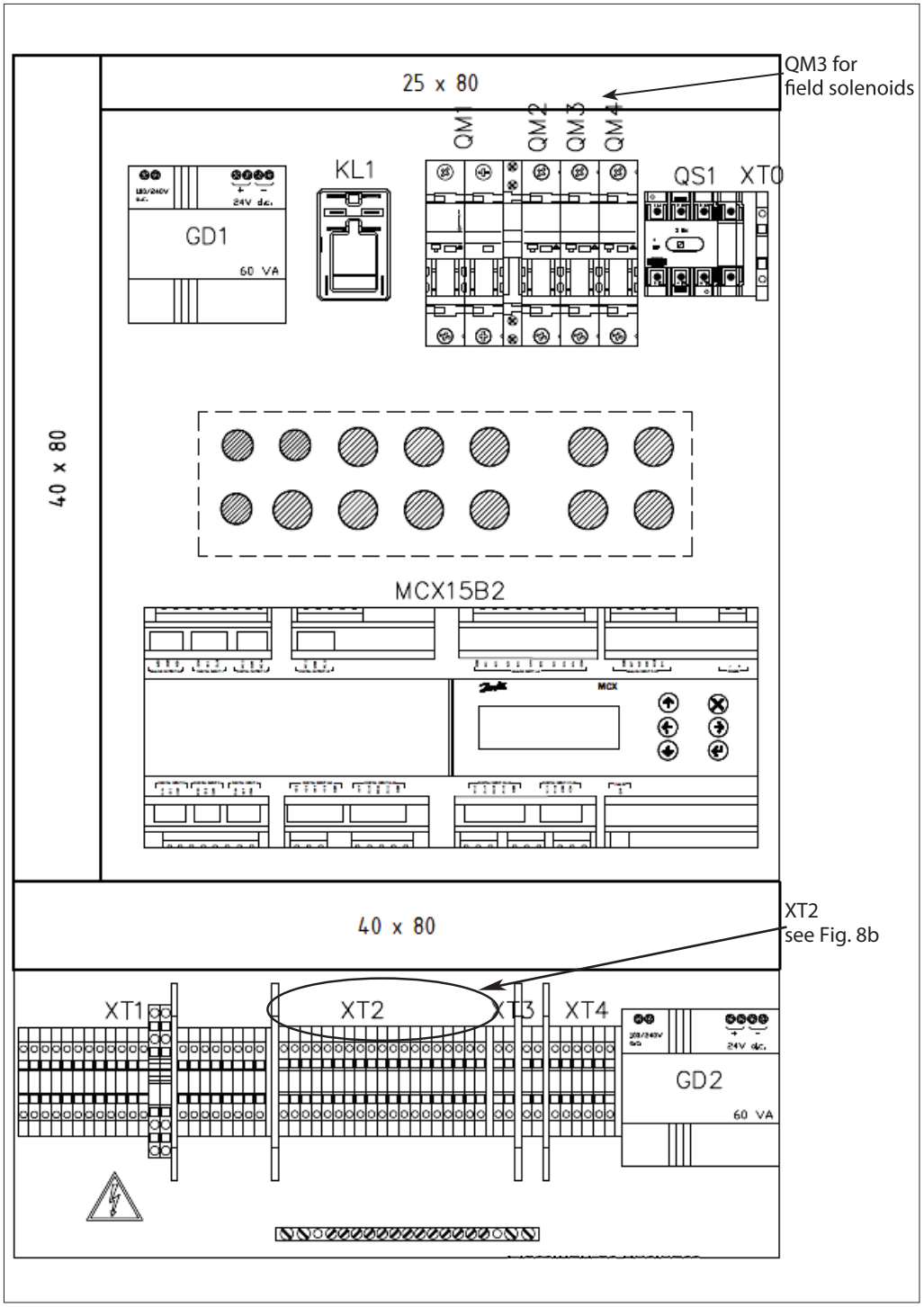


Fig. 8a Controller box internal

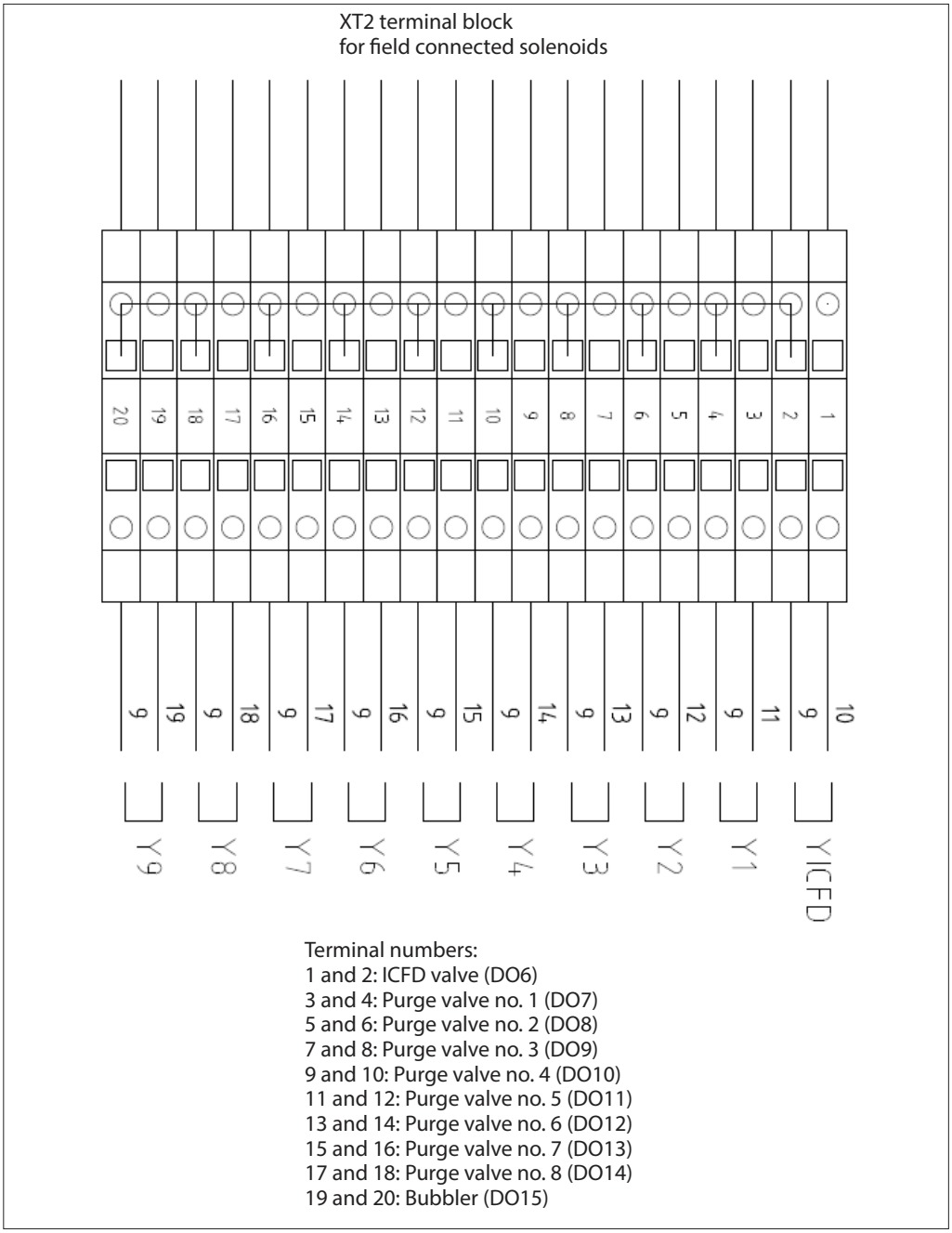


Fig. 8b XT2 terminal block

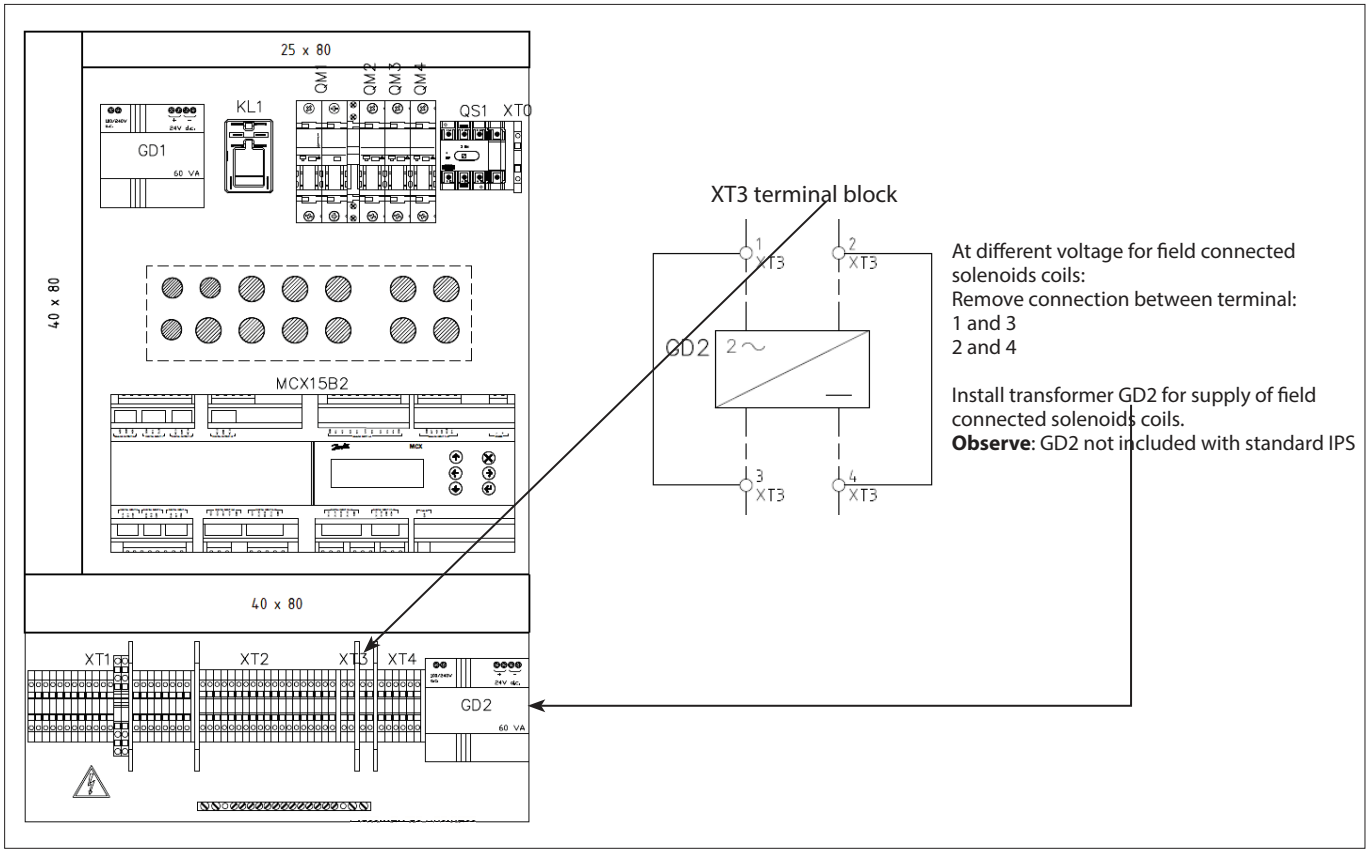


Fig. 9 Controller box internal

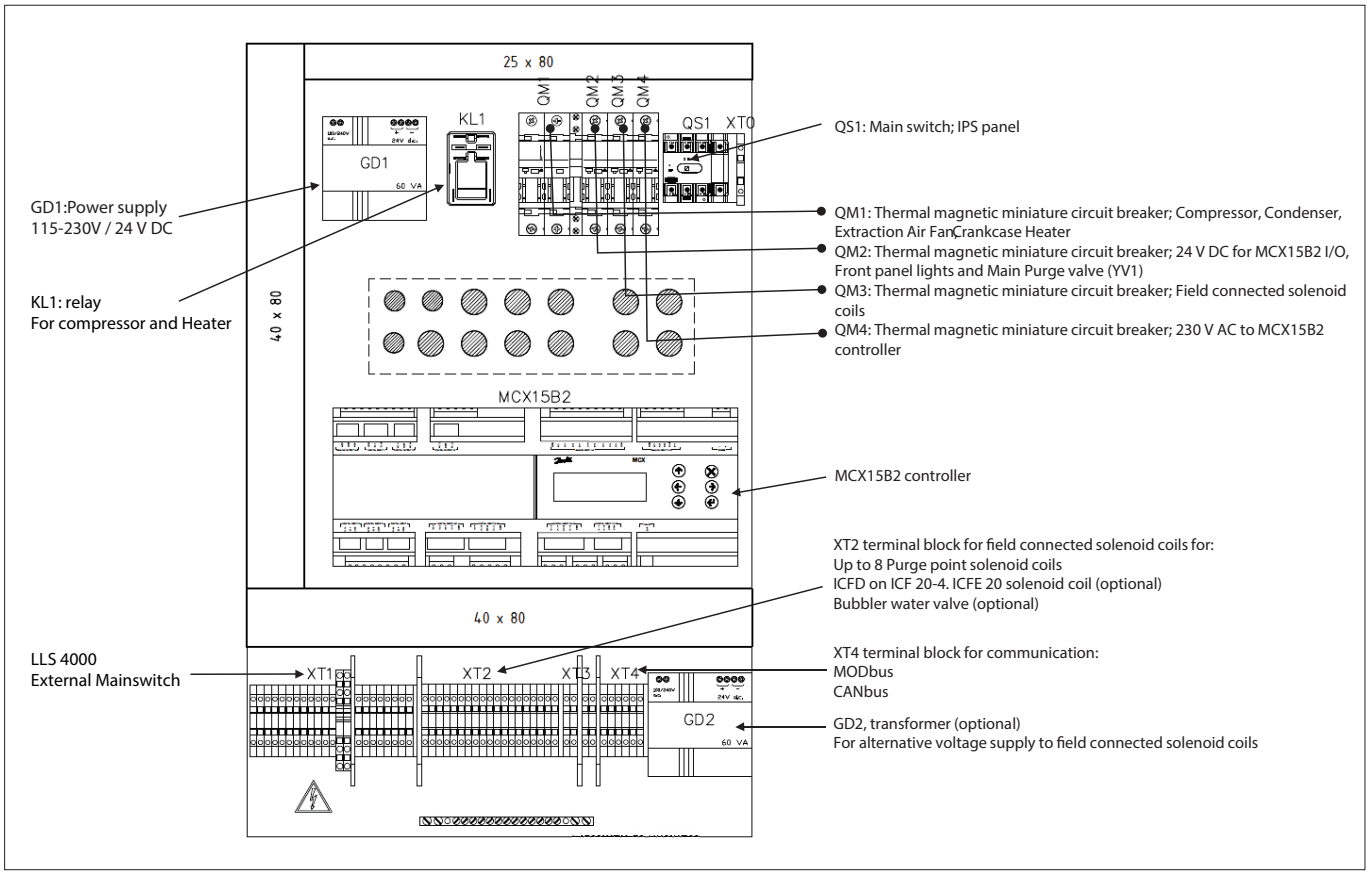


Fig. 10 Controller box internal

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