



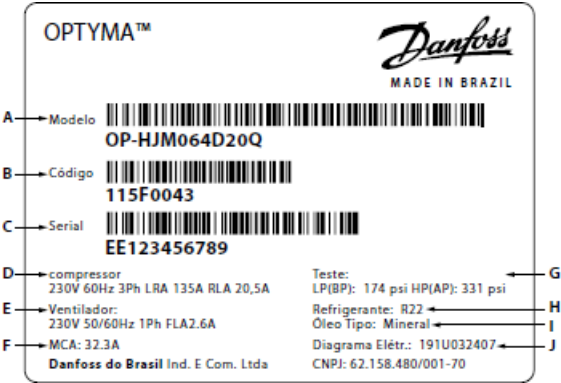
Danfoss OP-HJM064D20Q Optyma Condensing Unit Instructions

[Home](#) » [Danfoss](#) » Danfoss OP-HJM064D20Q Optyma Condensing Unit Instructions 

Contents

- 1 OP-HJM064D20Q Optyma Condensing Unit
 - 1.1 Instructions Condensing Unit Optyma™
 - 1.2 Recommended dimensions
 - 1.3 1 – Introduction
 - 1.4 2 – Handling and storage
 - 1.5 3 – Safety measures before assembly
 - 1.6 4 – Assembly
 - 1.7 5 – Leak detection
 - 1.8 6 – Dehumidification via vacuum
 - 1.9 7 – Electrical connections
 - 1.10 8 – Refrigerant charge in system
 - 1.11 9 – Checking before commissioning
 - 1.12 10 – Commissioning
 - 1.13 12 – Maintenance
 - 1.14 13 – Warranty
 - 1.15 14 – Disposal of waste
 - 1.16 Instructions
 - 1.17 15 – Diagramas GA
 - 1.18 Version
 - 1.19 Instructions
 - 1.20 16 – Wiring Diagram Electrical code G – 230V / 1F / 50Hz
 - 1.21 Electrical code E – 400V / 3F / 50Hz
 - 1.22 Electrical code N – 230 V / 1F / 60 Hz
 - 1.23 Electrical code Q – 230 V / 3F / 60 Hz
 - 1.24 Electrical code V – 380 V / 3F / 60 Hz
- 2 Documents / Resources
- 3 Related Posts

Instructions
Condensing Unit
Optyma™



- A: Model
- B: Code number
- C: Serial number and bar code
- D: Compressor data
- E: Fan Motor information
- F: Maximum applied current
- G: Test conditions
- H: Refrigerant Fluid
- I: Lubricating oil
- J: Electrical diagram

□

Figure 1: Minimum mounting distances

Recommended dimensions

L [mm]	M [mm]	N [mm]	O [mm]
300	650	550	550

Condensing units must only be installed and serviced by qualified personnel. Follow these instructions and best refrigeration practices for assembly, commissioning, maintenance, and servicing

Each condensing unit includes the following components, depending on the version ordered

	D20	D39	D49
Hermetic reciprocating compressor	X	X	X
Liquid receiver	X	X	X
Filter drier	X	X	X
Sight glass	X	X	X
Low pressure switch – Danfoss KP1	X	X	X
High pressure switch – Cartridge design	X	X	X
Oil separator			X
Suction accumulator			X
Crankcase heater	X	X	X
Rotolock valve for suction and discharge	X	X	X
Terminals and electrical connectors	X		
Electrical distribution box with circuit breaker, contactor, and phase failure relay		X	X



Important:

1. The condensing unit must only be used for its intended purpose(s) and within its scope of application.
2. In any case, the requirements of EN378 (or other applicable local safety standards) apply.
3. The condensing unit is delivered under nitrogen gas pressure (1 bar) and as such cannot be connected as is.
See section “Assembly” for more information.

4. The condensing unit must be handled carefully in upright position (maximum offset from vertical: 15°).
5. Caution! During operation, the unit piping, oil separator, and condenser become hot, which can cause burns upon contact with skin.
6. Only authorized personnel are permitted to access the electrical distribution box on condensing units.


1 – Introduction


These instructions refer to Optyma™ condensing units used in refrigeration systems for applications with refrigerants R448A, R449A, R452A, R513A, R22, R134a, R404A, and R507. Furthermore, these instructions provide necessary information on safety and the correct use of this product.


2 – Handling and storage

- We recommend not opening the packaging until bringing it to the intended installation location.
- Handle the unit with care. The packaging is suitable for use with forklifts and loading skids. Use safe, suitable lifting equipment.
- Store and transport the unit in an upright position.
- Store the unit at a temperature between -35°C and 50°C.
- Do not expose the packaging to rain or a corrosive atmosphere.
- After unpacking, check that all unit components are present and undamaged.

3 – Safety measures before assembly

 Do not weld condensing unit while it is pressurized.

 Never install the unit in combustible atmospheres.

 When installing the unit, make sure that it is not blocking or obstructing aisles, doors, windows, and the like.

- Ensure that there is sufficient space around the unit for proper air circulation and for opening the doors. See Figure 1 for the minimum distance values to walls.
- Avoid installing the unit in areas exposed to direct sunlight over long periods.

- Avoid installing the unit in extreme environments or in areas with excessive dust.
- Make sure to install the unit on a horizontal surface (incline of less than 3°) that is firm and stable enough to support the full weight of the unit and to eliminate vibration and interference.
- The ambient temperature at the location where the unit is installed must not exceed 50°C when the unit is switched off or at rest.
- Make sure that the power supply matches the electrical specifications of the unit (see label).
- When installing units for use with HFC refrigerants, use equipment exclusive to them that has never been used for CFC or HCFC refrigerants.
- Use clean, moisture-free copper pipes specific for cooling and silver alloy brazing material.
- Use clean, moisture-free system components.
- The pipes connected to the compressor must be flexible in three dimensions to cushion vibration. In addition, they must be arranged so as to ensure that oil is routed back properly to the compressor as well as to eliminate the risk of liquid hammering in the compressor.

4 – Assembly

- The unit must be installed and secured on a firm, stable base.
- The unit must be installed on rubber wedges or vibration dampers (not supplied).
- Gradually release the nitrogen from the compressor through the Schrader valve on the compressor.
- Connect the unit to the system as soon as possible to avoid contamination of the oil charge due to ambient humidity.
- When cutting piping, make sure that no residue material is able to get into the system. Never drill holes in locations that cannot be deburred.
- Weld with extreme care, following proper practices for chilling and circulation with flowing nitrogen gas.

- Connect the necessary safety and control devices. If the Schrader valve is used for these purposes, remove its core if the device does not have a baffle pin.
- We recommend thermally insulating the suction line up to the compressor inlet.

5 – Leak detection

Never pressurize the circuit with oxygen or dry air. This can cause a fire or explosion.

- Do not use dye for leak detection.
- Perform a leak test on the entire system.
- The maximum test pressure should not exceed 32 bar (464 psi).
- Repair any leaks, then repeat the leak test on the entire circuit.

6 – Dehumidification via vacuum

- Never use the compressor to generate vacuum for the system.
- Connect a vacuum pump to both the LP and HP sides.
- Generate a stable vacuum of 500 $\mu\text{m Hg}$ (0.67 mbar).
- Do not use a megohmmeter or start the compressor while it is under vacuum as this may cause internal damage.

7 – Electrical connections

- Disconnect and isolate the main power supply before connecting any devices.
- Secure the power outlet to prevent accidental connection during installation.
- All electrical components must be selected in accordance with compressor requirements as well as with local rules and regulations.
- Refer to the wiring diagram for more information on electrical connections.
- Make sure that the power supply matches the unit's specifications and that the power supply is stable (nominal voltage $\pm 10\%$ and nominal frequency $\pm 2.5 \text{ Hz}$).
- Dimension supply cables according to the

unit's current and voltage specifications.

- Ensure that power is being supplied and that the unit is properly grounded.
- Install the power outlet in accordance with local rules and regulations.
- The unit is equipped with high and low pressure switches that immediately cut power to the compressor when triggered. The high and low pressure cut-out values are preset on the pressure switches, according to the compressor installed in the unit.

8 – Refrigerant charge in system

- Use personal protective equipment (PPE), such as safety goggles and gloves.
- Never start the compressor while it is under vacuum. Keep the compressor switched off.
- Before charging the system with refrigerant, verify that the oil level is between $\frac{1}{4}$ and $\frac{3}{4}$ using the compressor oil sight glass. If more oil is needed, refer to the compressor label for the correct oil type.
- Use only the refrigerant for which the unit is designed.
- Fill refrigerant in liquid state through the condenser or liquid reservoir. Make sure to slowly charge the system to between 4 and 5 bar for R404A/R507A/R448A/R449A/R452A/R513A or R22, and to approx. 2 bar for R134a.
- Do not charge refrigerant liquid through the suction line.
- Do not mix oil or coolant with additives.
- The remaining charge must be supplied until the system has reached a level where nominal conditions are stable during operation.
- Never leave the charging cylinder connected to the circuit.

9 – Checking before commissioning

If necessary, use safety devices, such as pressure switches or pressure relief valves, in accordance with local legislation and safety regulations. Make sure to select proper, well regulated

safety devices that function normally.

Make sure that the settings of the high pressure switches and pressure relief valves do not exceed the maximum operating pressure of any system component.

- Make sure that all electrical connections are tight and compliant with local codes.
- The crankcase heater must be turned on at least 12 hours before initial commissioning and after long periods of downtime.

10 – Commissioning

- Never start the unit unless the refrigerant liquid has been charged.
- All service valves must be in the open position.
- Make sure that the unit's voltage and frequency match those of the power supply.
- Check that the crankcase heater is working properly.
- Check that the fan can rotate freely.
- Equalize the high and low pressure sides.
- Turn on the unit. It should start immediately.
If not, check the wiring, connections, and terminals.

11 – General function checks for compressor

- Check the rotation direction of the fan. Air must be able to flow from the condenser to the fan.
- Check the power consumption and voltage.
- Check for suction overheating to reduce the risk of water hammering.
- Note the oil level at start-up and during operation, making sure that the oil level gauge remains visible.
- Do not exceed operating limits.
- Check for abnormal vibration. Vibrations greater than 1.5 mm in amplitude require corrective measures, such as pipe clamps.
- Where necessary, a complementary charge of refrigerant can be added on the low pressure side, as far away as possible from the compressor suction, which must be operating

throughout the entire process.

- Do not overcharge the system with refrigerant.
- Never release refrigerant into the atmosphere.
- Before leaving, conduct a general inspection of the installation site, making sure it is clean and that there are no noise or leaks.
- Note down the type and amount of refrigerant charge as well as operating conditions to serve as reference for future inspections.

12 – Maintenance

Always switch off the unit using the main switch before handling the fan.

Both the internal pressure and the surface temperature are hazardous and can cause permanent injury. Maintenance technicians and installers must have the necessary skills and tools. The temperature of the pipes can exceed 100°C, which may cause severe burns.

To ensure system reliability, make sure that periodic maintenance inspections are performed in accordance with local regulations.

The following periodic maintenance is recommended to avoid system-related problems:

- Check that safety devices are adjusted correctly and working properly.
- Ensure that the system is leak-tight.
- Check the electrical current to the compressor.
- Confirm that the system functions in a manner consistent with the maintenance records and preceding conditions.
- Check that all electrical connections are tight.
- Keep the unit clean and check for rust on components, pipes, and electrical connections.

The condenser should be checked for soiling at least once a year and cleaned whenever necessary. The microchannel condenser tends to collect dirt on the surface and not inside, making it easier to clean compared to finned tube condensers.

- Turn off the unit using the main circuit breaker before removing any parts of the condensing unit.
- Remove dirt, leaves, fibers, etc. from the surface using a vacuum cleaner

equipped with a brush or similar accessory.
Alternatively, you can use compressed air to blow out the condenser, from inside to outside, then use a soft brush to brush off the condenser.
Do not use a wire brush. Do not rub or scratch the condenser with the suction hose or nozzle.

If the system has been opened, add nitrogen to remove moisture, then install a new filter drier. If it is necessary to put the system under vacuum, this must be done in such a way that no refrigerant escapes into the environment.

13 – Warranty

When making a warranty claim, always state the model and serial number of the product. The product warranty may be voided in the following cases:

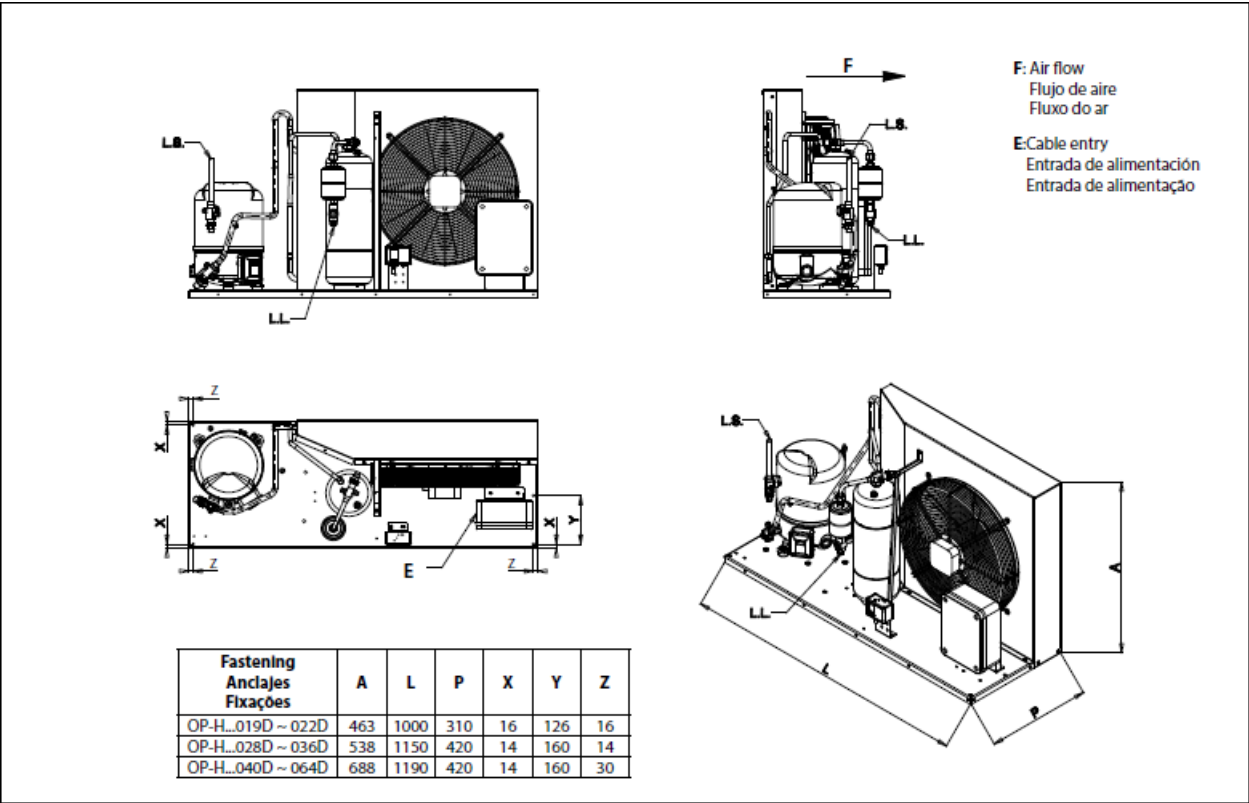
- Missing label bearing the product's serial number and model.
- External modifications, e.g., drilling, welding, broken anchors, and impact marks.
- Compressor unit opened or returned with seal broken.
- Oxidation, water, leak detection dye, or other foreign material inside the compressor.
- Use of a refrigerant or lubricating oil not approved by Danfoss.
- Failure to follow recommendations for installation, maintenance, and operation of the unit.
- Use in mobile applications.
- Use in hazardous areas (explosive atmospheres).
- There is no model or serial number on the warranty claim.
- Check the local warranty policy for additional conditions.

14 – Disposal of waste

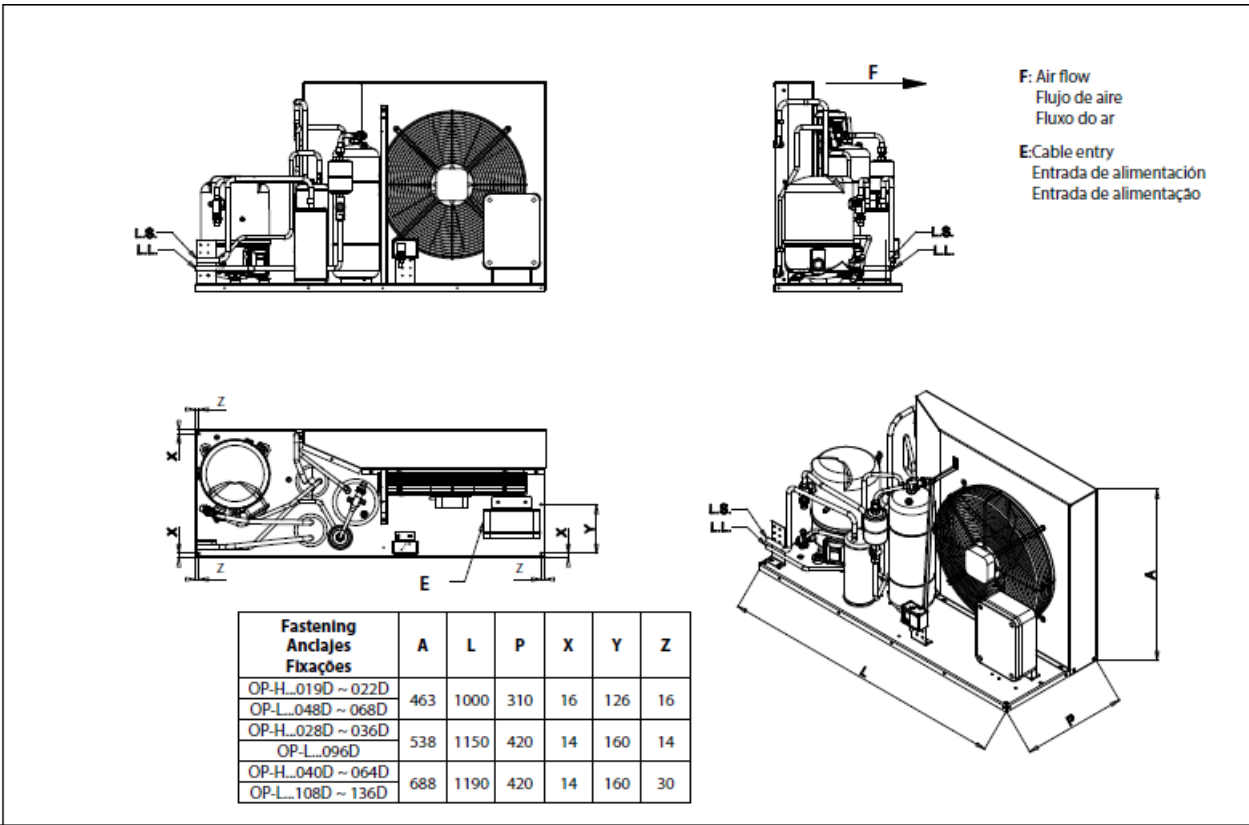
Danfoss recommends having the compressor oil, as well as the parts and components of the condensing unit, recycled by specialized recycling companies at their own facilities.

Instructions

15 – Diagramas GA

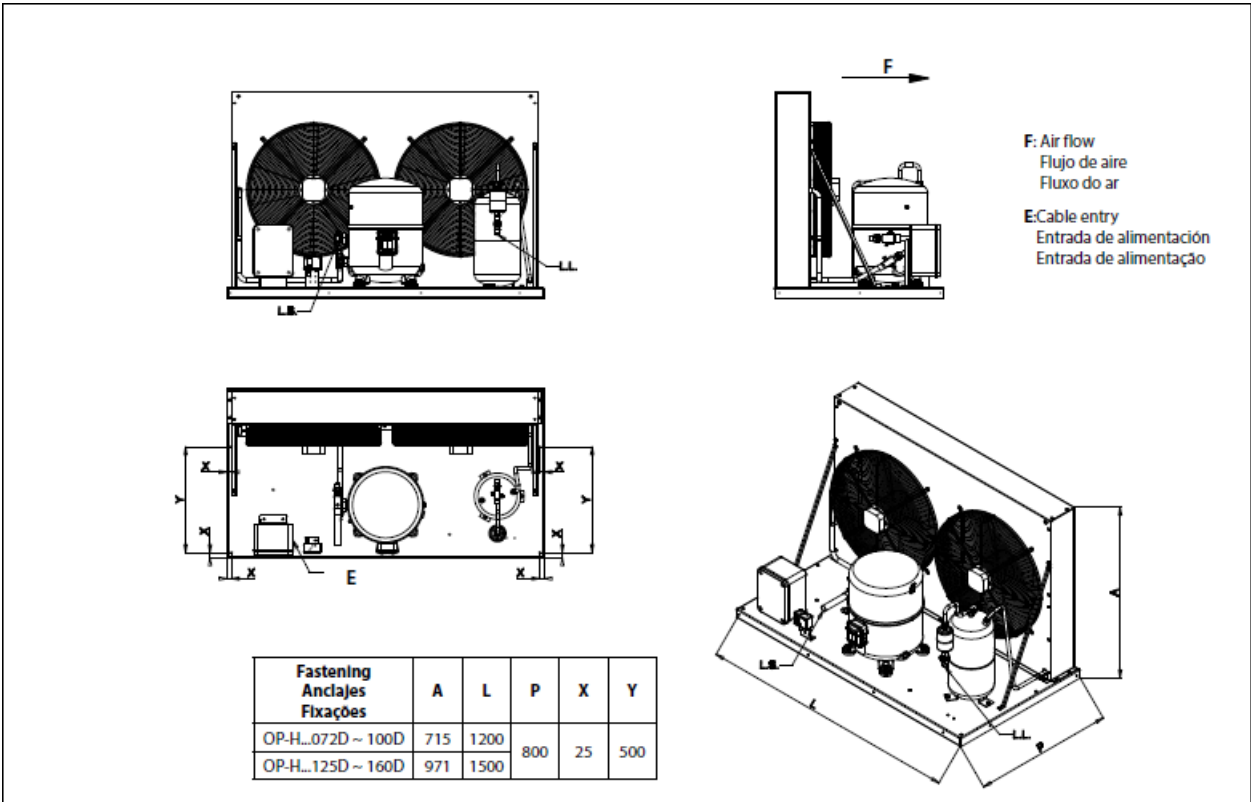


Version

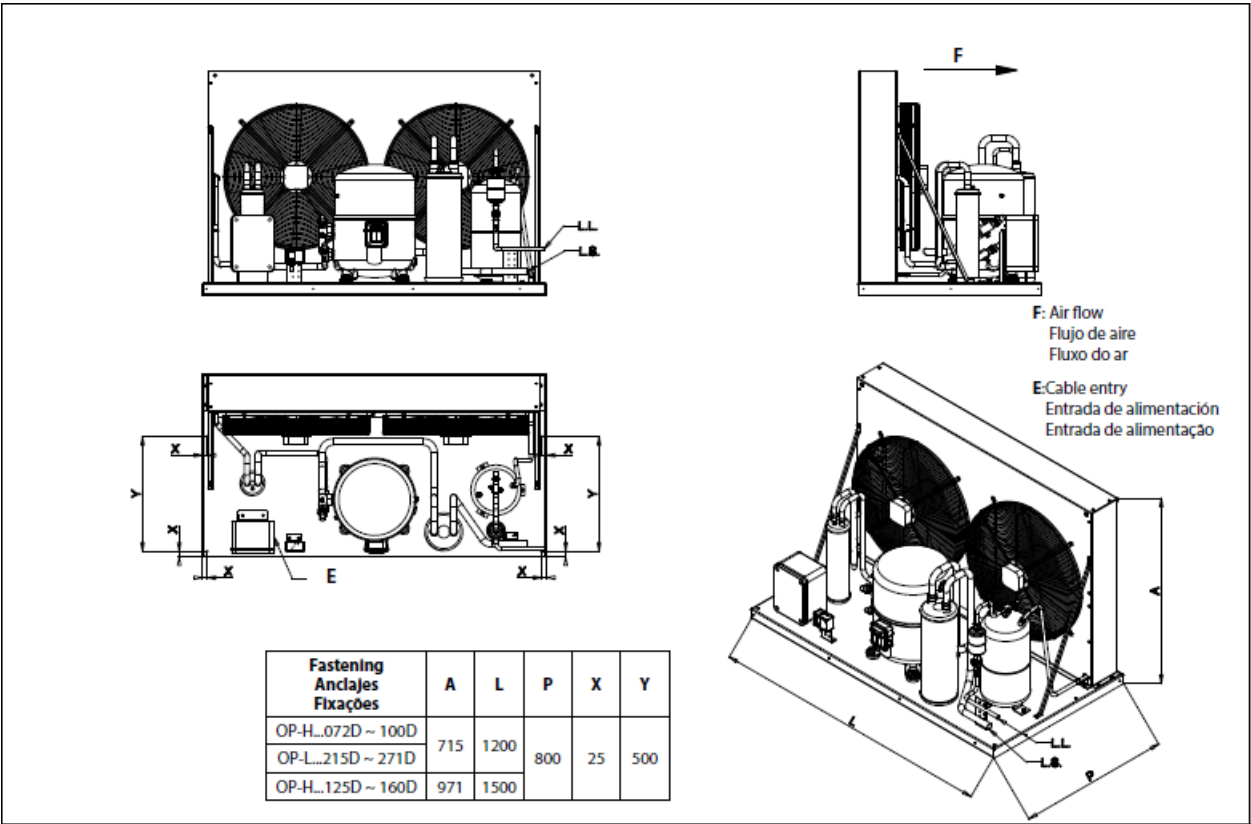


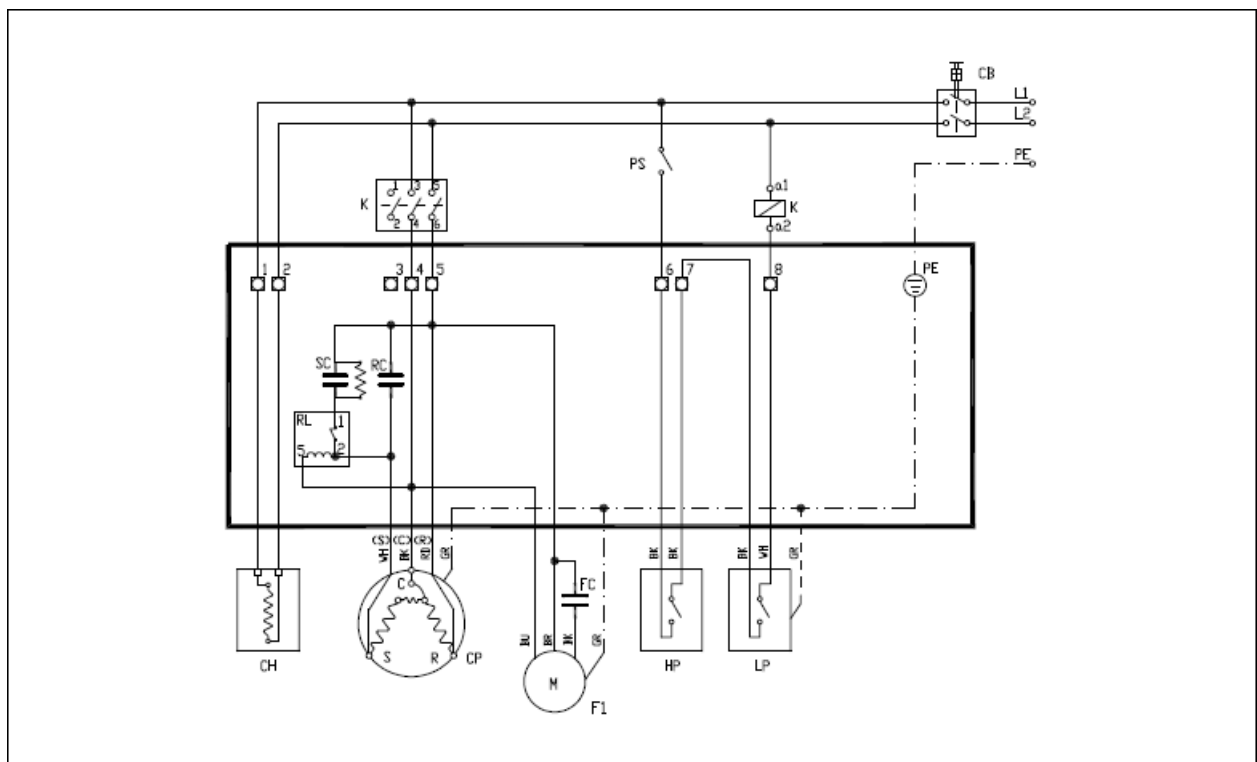
Instructions

Version (2 Fans)

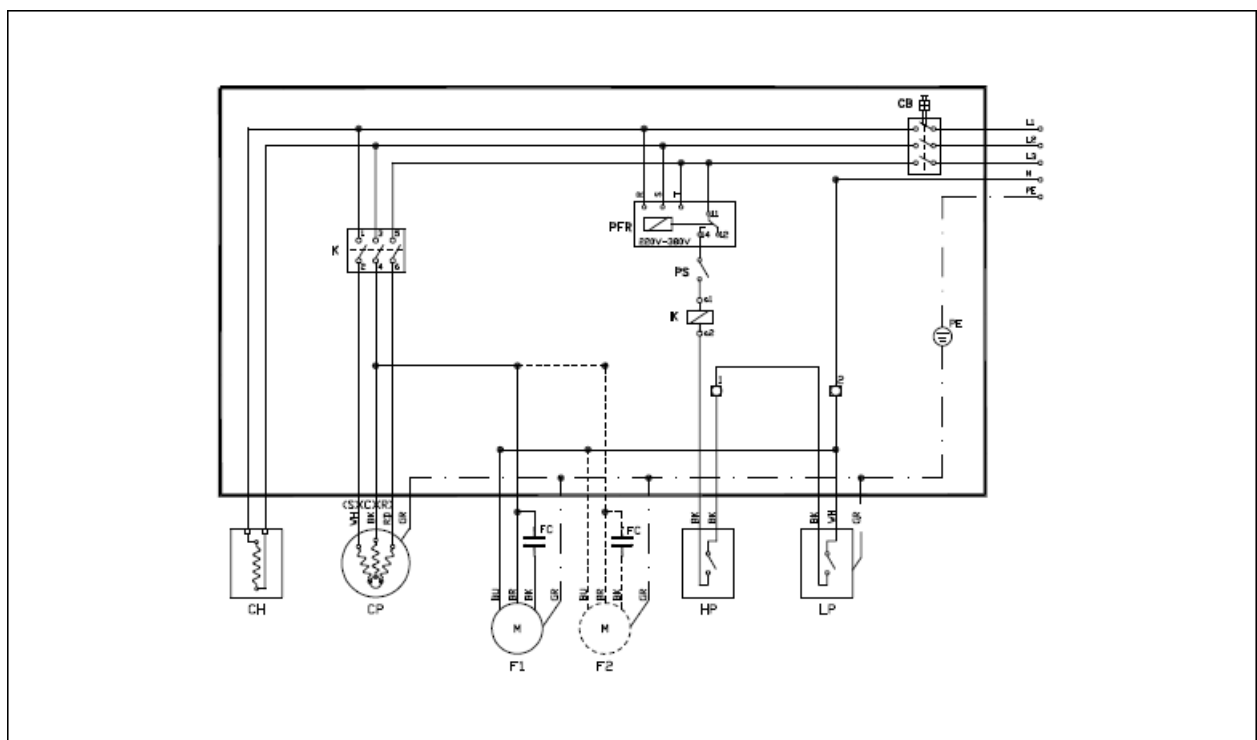


Version (2 Fans)

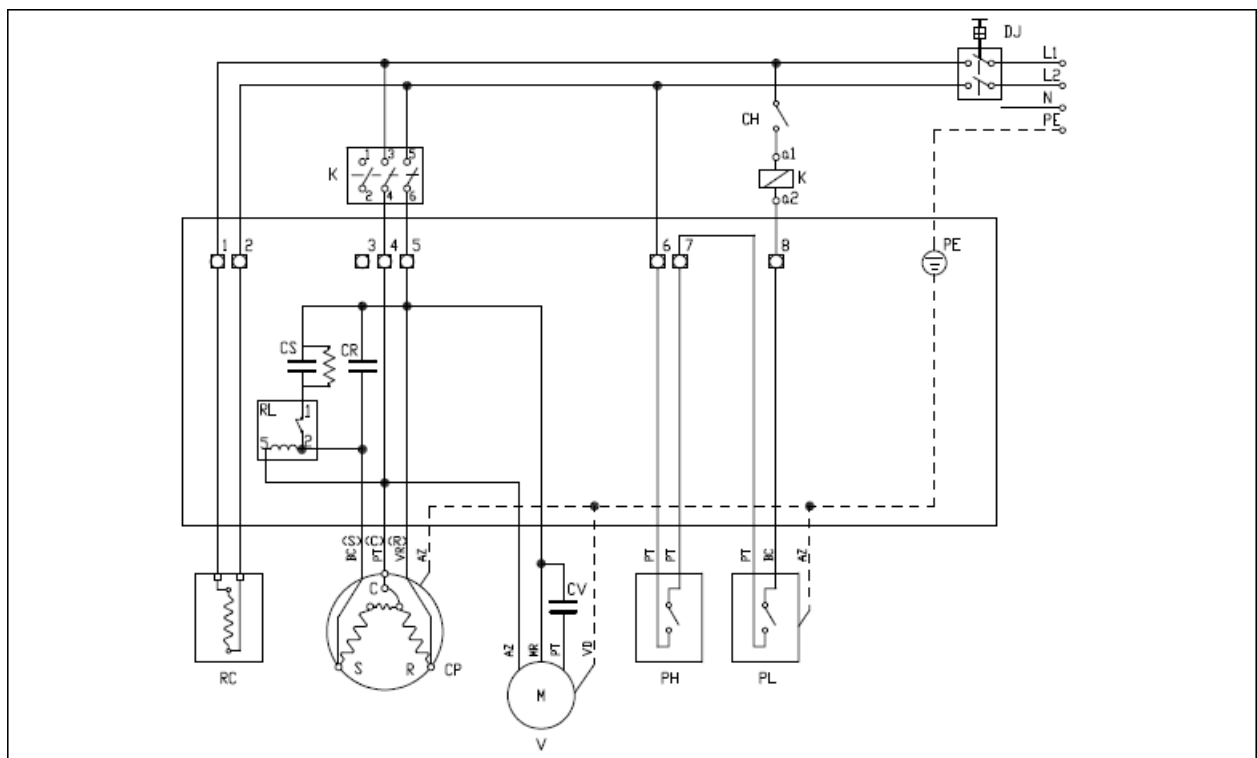




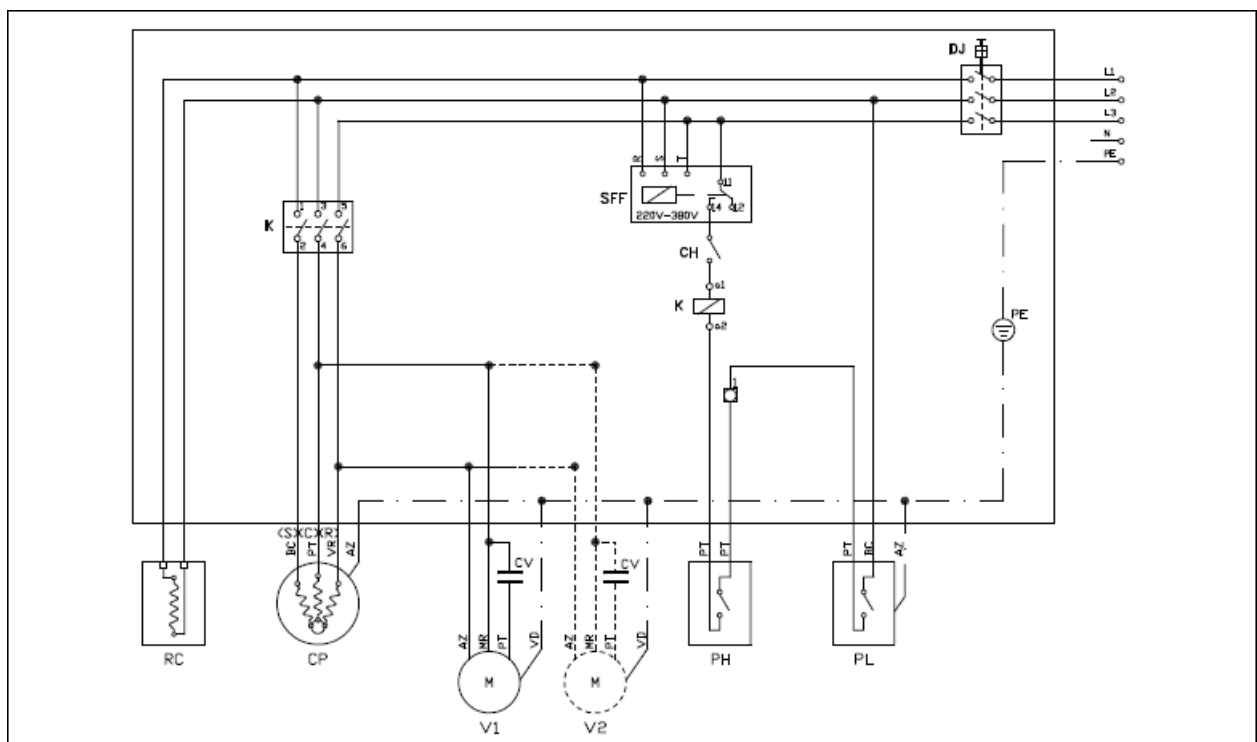
Electrical code E – 400V / 3F / 50Hz



Electrical code N – 230 V / 1F / 60 Hz



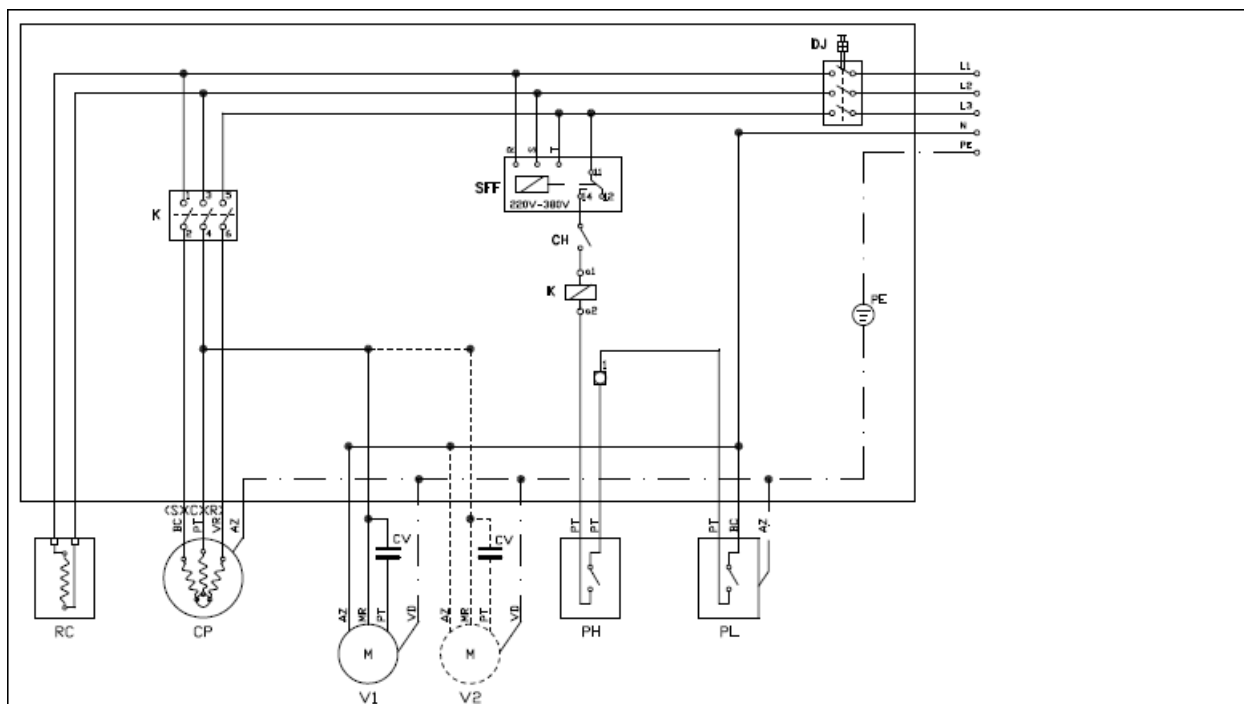
Electrical code Q – 230 V / 3F / 60 Hz



Electrical code V – 380 V / 3F / 60 Hz

ENGINEERING
TOMORROW





Acronyms		Legend / Leyenda / Legenda
		English
(#)	(#)	Identification ring
K*	K*	Contactor
CB*	DJ*	Circuit breaker
PFR*	SFF*	Phase failure relay
PE	PE	Electrical protection
PS	CH	Power switch (ON/OFF)
CP	CP	Compressor
CH	RC	Crankcase heater
HP	PH	High pressure switch
LP	PL	Low pressure switch
RC	CR	Run capacitor
SC	CS	Start capacitor
RL	RL	Start relay
FC	CV	Fan capacitor
F1-F2	V-V1-V2	Fan motor

* Components not available for D20 version.

Acronyms		Cable ID
		English
BK	PT	Black
WH	BC	White
BR	MR	Brown
RD	VR	Red
GR	VD	Green
BU	AZ	Blue


Danfoss A/S

Climate Solutions + danfoss.us « +1 888 326 3677 – heating.cs.na@danfoss.com

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, Catalogues descriptions, advertisements, etc. and whether made available in writing, oral, electronically, online or via downtown shall be considered Informative, and is only binding in and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product.

All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.

Documents / Resources

	<p>Danfoss OP-HJM064D20Q Optyma Condensing Unit [pdf] Instructions OP-HJM064D20Q, OP-HJM064D20Q Optyma Condensing Unit, Optyma Condensing Unit, Condensing Unit</p>
---	--