

Instructions

Fan-cooled Condensing Units for R290 (Propane)

This instruction applies to fan-cooled condensing units for the refrigerant R290 (or similar inflammable gases).

During service only the refrigerant type stated on the condensing unit must be used.

1. Version

For solder connection, has a helium/dry air holding charge and is designed for use in refrigeration systems with capillary tube.

2. Refrigerant charging

With regard to evacuation and charging an condensing unit is to be treated as a compressor. Refrigerant charging must take place from a charging board not contaminated with refrigerants containing chlorine. No valves or flare connections of any kind must be used.

The condensing unit must be hermetically sealed, i.e. all connections must be soldered. After charging all solderings/connections are to be checked for leaks with a leak detector. *Keep away flammables from the condensing unit.*

3. Installation

Install the condensing unit in the foreseen location. Prepare the tube connections from the evaporator.

Use a drier with 3Å molecular sieves suitable for R290.

Use only dry and clean components and avoid moisture entering the system.

The system components must not contain any chlorine, mineral oil or other oily substances.

3. Electrical connections

Fit the terminal board cover.

Pressure switches and thermostats must also be mounted in an IP64 or higher classified box. Keep away flammables from the electrical equipment.

4. Safety rules

Follow the information given in: EN/IEC 60335-2-89 or similar.

5. Maximum refrigerant charges R290

units without receiver

The maximum charging amount must not exceed 150 g.

It is recommended to charge only the amount necessary for the operation of the refrigeration system.

The charging amount must be adapted to suit each system type.

The condensing temperature must not exceed 55°C for stationary operation and 65°C for peak load.

6. Cold start

The compressor must be allowed to assume a temperature higher than 10°C before it is started for the first time. This will prevent possible start problems caused by too high oil viscosity.

At lower temperatures some tripping of the winding protector may be expected until the viscosity of the oil becomes reduced.

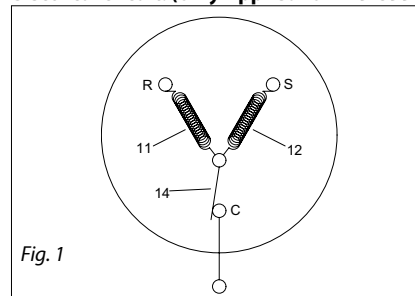
7. Winding Protector (only Applied for 119-3993)

The compressors have a built-in winding protector. If the winding protector cuts out while the compressor is cold it may take approx. 5 minutes for the protector to reset. If the winding protector cuts out while the compressor is hot (compressor housing above 80°C) up to 45 minutes may pass before the protector resets. The winding temperature must never exceed 130°C.

8. Checking the winding protector

In the event of compressor failure a check must be made by resistance measurement directly on the current lead-in to find out whether the fault is due to motor damage or simply a winding protector trip.

9. Location of the winding protector in the electrical circuit. (only Applied for 119-3993)



11: Run winding

12: Start winding

14: Winding protector

If resistance measuring or a test lamp shows that there is a connection through the motor windings from point R to point S, but a broken circuit between points R and C or S and C, this indicates that the winding protector has cut out. *Therefore, wait for the protector to reset.*

10. Service instructions

When emptying a defective system the refrigerant must be collected without mixing in other refrigerants. Evacuation must take place until a vacuum of 1 mbar or lower is reached. Blow through the refrigeration system with dry nitrogen.

The drier must always be replaced when a system is opened.

Service on these installations must only be done by expert installers with thorough knowledge of inflammable gases like e.g. propane.

See also Installation.

11. Approvals

The following approvals must be obtained through authorised institutes like Nemko, Demko, BEAB, LCJE, UL etc. Among others EN 60 335-2-24, IEC 60335-2-89, IEC 60079-15, UL 60335-1 and UL 60335-2-89.

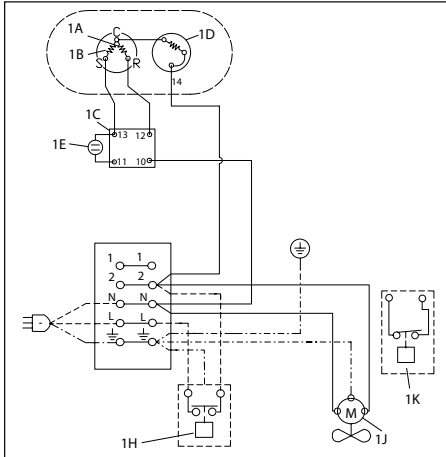
Literature is also available on our internet homepage:

www.danfoss.com/en/products/dcs/condensing-units/condensing-units/

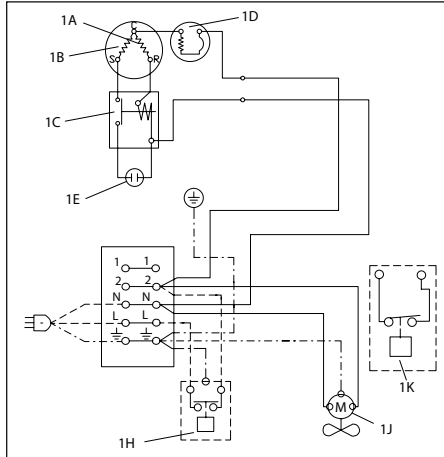
12. Warnings



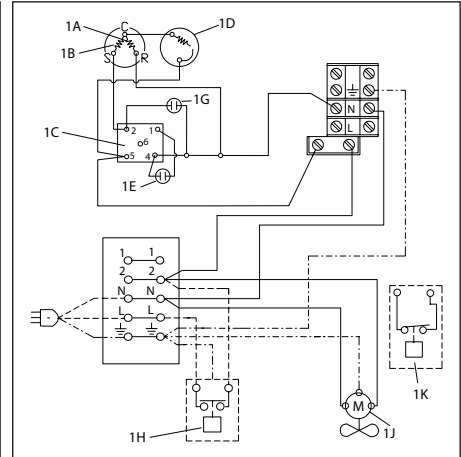
Wiring Diagram 115V (119-3993)



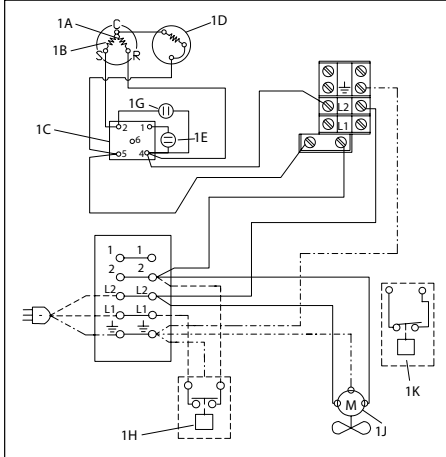
Wiring Diagram 115V (119-9261)



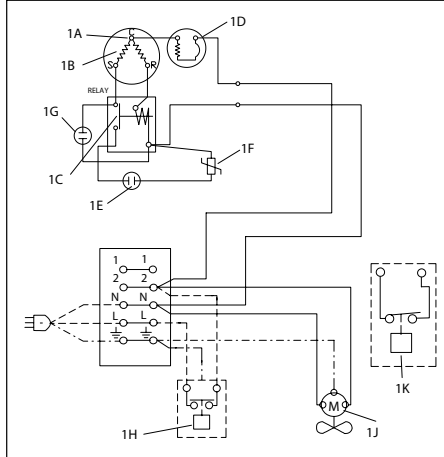
Wiring Diagram 115V (119-3992)



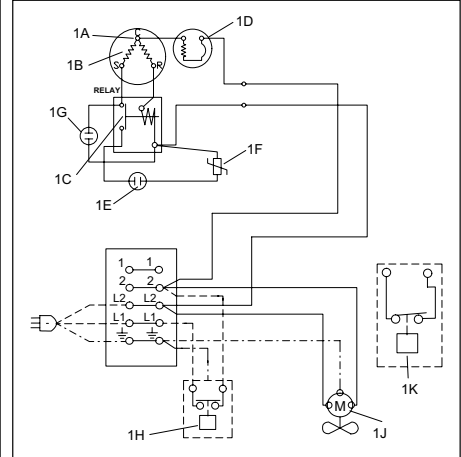
Wiring Diagram 220V (119-3990)



Wiring Diagram 115V (119-9262)



Wiring Diagram 220V (119-9231)



Electrical connections

- 1A: Run Winding
- 1B: Start winding
- 1C: Start relay
- 1D: Winding protector
- 1E: Start capacitor
- 1F: Bleeder resistance
- 1G: Run capacitor
- 1H: Thermostat
- 1J: Fan
- 1K: Pressure control
- 1L: PTC

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Climate Solutions • danfoss.com • +45 7488 2222

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