Danfoss F3 Refrigerating Compressors Instruction Manual

Contents

Danfoss F3 Refrigerating Compressors

Product Specifications

- **Product Name:** Compressor Starter Kit F3, F4, F5
- **Model Numbers:** F3, F4, F5
- **Compatibility:** Reciprocating compressors
- **Function:** Mechanical starter unloader to minimize starting torque

FAQ

- **Q:** What should I do if the compressor does not start smoothly?
  - **A:** If the compressor does not start smoothly, check the mechanical starter unloader for any issues and ensure the motor voltage is set correctly.
- **Q:** Can I use the electronic gentle starter instead of the mechanical starter unloader?
  - **A:** Yes, the electronic gentle starter can be used as an alternative to reduce peak loads during compressor startup.

General

When directly starting a reciprocating compressor, the drive motor has to overcome a very high level of torque. The function of the mechanical starter unloader is to minimize the starting torque.
Alternatively, peak loads can also be reduced by an electronic gentle starter. The motor voltage is continuously increased during a space of time set on the unit. This results in a slow increase in the starting current. A mechanical starter unloader (bypass) is then not necessary.

Important note for drive by combustion engine:

Without unloaed start, the drive units of the engine would be unduly loaded and wear more quickly. Therefore you should always opt for a start unloader!

Delivery ex works for compressor type	**F 3**	**F 4**	**F 5**
Retrofit kits (No.)**	097B08131*	097B08141*	097B08141*
Spare parts			
***** Magnet coil 220-240 V~ (No.)**	auf Anfrage on request sur demande	097B08540*	097B08540*
Valve body incl. knurled nut, washer and O-ring (No.)	–	097B07507*	097B07507*
O-ring (No.)	–	097B05150*	097B05150*
***** Standard voltage 220-240 V~ (Special voltages on request)			

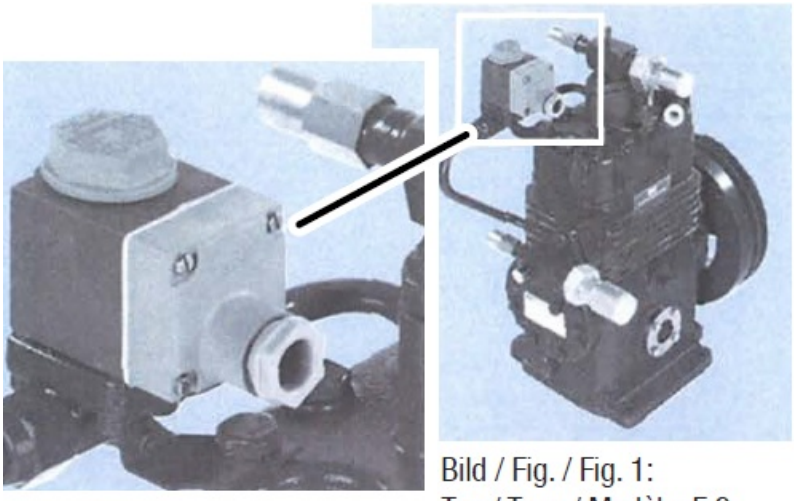


Bild / Fig. / Fig. 1:
Typ / Type / Modèle: F 3

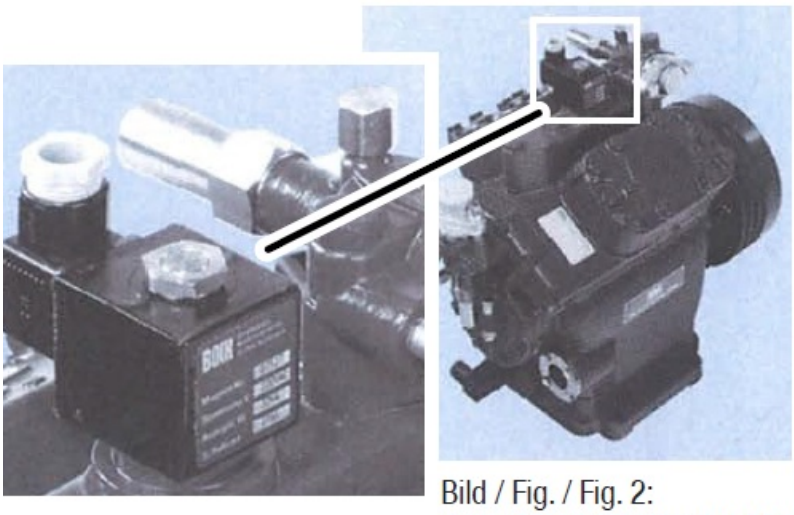


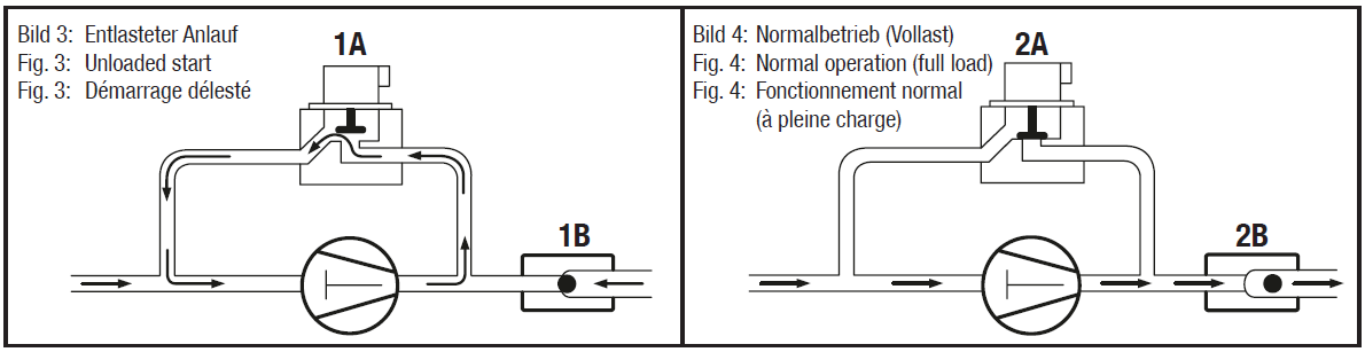
Bild / Fig. / Fig. 2:
Typ / Type / Modèle: F 4 / F 5

*Please note that the legacy BOCK ref. numbers are without 097B.
** All kits are complete and ready for immediate assembly, including gaskets, screws and thermal protective thermostats.

Please always state the following information in your order:

1. Compressor type
2. Article No.
3. The required voltage of the magnetic coil.

Operating Mode



When the compressor is started, a solenoid valve receives power via a time switch and opens a bypass between the discharge and suction sides (1A). At the same time, a non-return valve in the discharge line closes and prevents a backflow of refrigerant from the condenser (1B).

The compressor is now short-circuited and delivers from the outflow directly into the intake. The pressure differential consequently decreases substantially. As a result, the torque on the drive shaft of the compressor is considerably diminished. The drive motor can now start with a low level of starting torque. As soon as the motor and the compressor reach their rated speed, the solenoid valve closes (2A) and the non-return valve opens (2B). The compressor now continues to work under normal load.

Important notes

Only qualified personnel are authorized for installation or repair work!
Observe the following notes to avoid damage caused by thermvael rlooading!

- **General:** The solenoid of the start unloader must not close until 1-2 seconds after changing over to the 2nd start-up phase (via timer). This ensures that both motor and compressor are at rated speed before the start unloader switches over to normal load.
- **Star-delta start:**
  - The motor must not run for longer than 2 seconds in the star phase. In this space of time, it must approximately reach the rated speed..
- **Part-winding start:**
  - The motor must not run for longer than 1 second in the 1st start-up phase.
- Start unloader may only be employed during the starting phase.
- Check solenoid valve and non-return valve regularly for tightness. We advise to replace the solenoid valve after approx. 2-3 years operating time.
- The start unloader is in series furnished with a heat protection thermostat on the discharge side of the

compressor. This protects the compressor against thermal overload.

More Information

Danfoss A/S

- Climate Solutions
- danfoss.com
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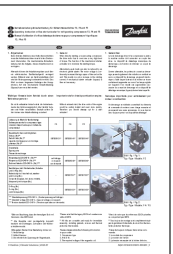
Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if 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.

Documents / Resources

	Danfoss F3 Refrigerating Compressors [pdf] Instruction Manual F3, F4, F5, F3 Refrigerating Compressors, F3, Refrigerating Compressors, Compressors

References

- User Manual