

Installation

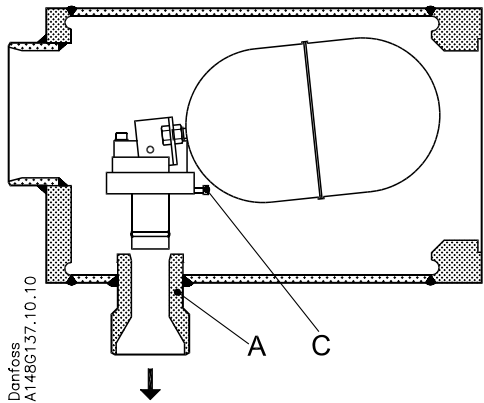


fig. 1

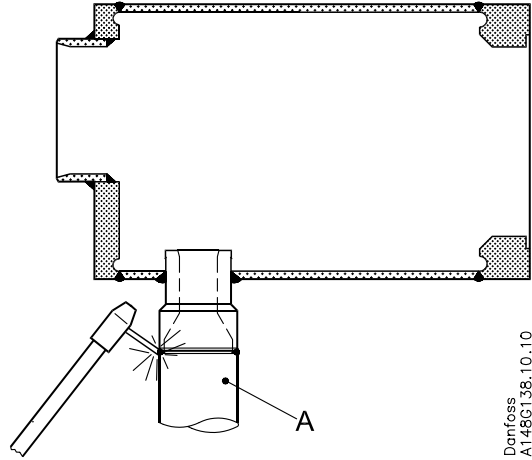


fig. 2

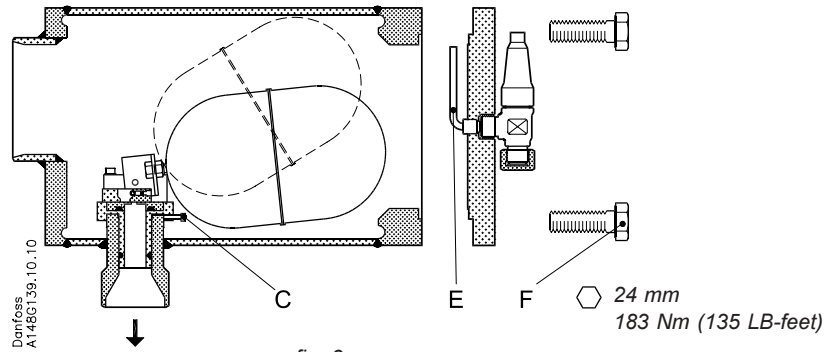


fig. 3

Maintenance

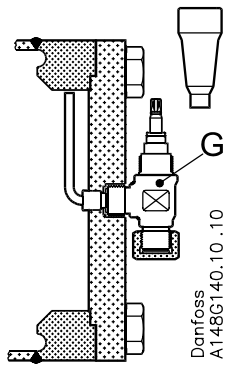


fig. 4

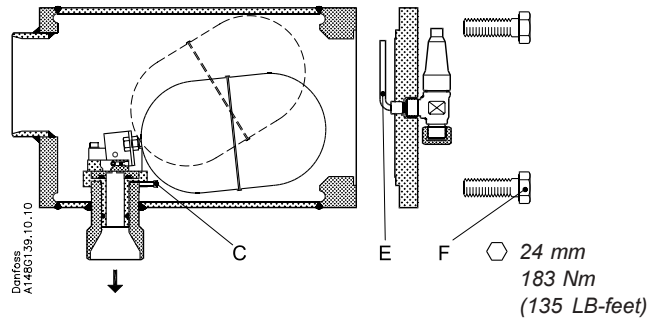


fig. 5

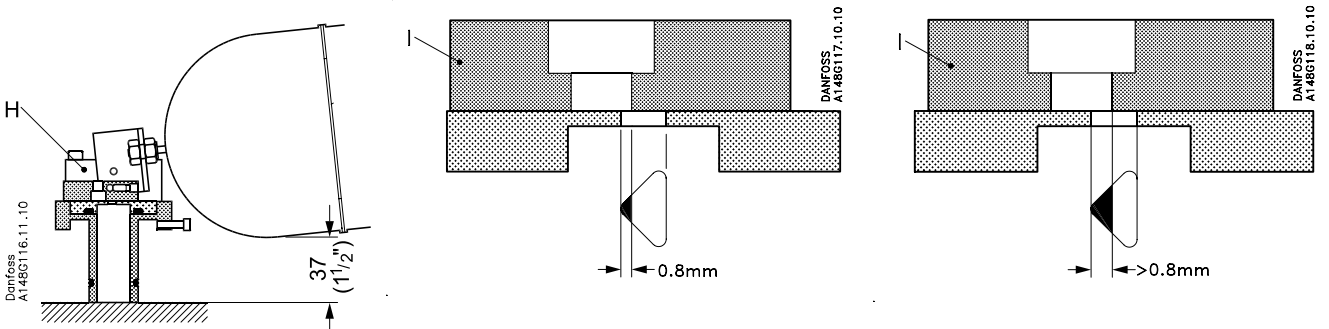


fig. 6

Installation

Refrigerants

Applicable to all common non-flammable refrigerants, including R717 and non-corrosive gases/liquids dependent on sealing material compatibility.

As standard the float ball is designed for R717 with a density of 500 through 700 kg/m³. For refrigerants, which have a density outside this range please contact Danfoss.

Flammable hydrocarbons are not recommended. The valve is only recommended for use in closed circuits. For further information please contact Danfoss.

Temperature range

HFI: -50/+150°C (-58/+302°F)

Pressure range

The float valves are designed for a max. working pressure of 25 bar g(363 psi g).

Installation

Mount the float valve horizontally with the outlet branch pos. A (fig. 1) vertically downwards.

The flow direction has to be from the flanged inlet as indicated with the arrow (fig. 1).

The valve is designed to withstand a high internal pressure. However, the piping system should be designed to avoid liquid traps and reduce the risk of hydraulic pressure caused by thermal expansion. It must be ensured that the valve is protected from pressure transients like "liquid hammer" in the system.

Welding

Remove the float assembly before welding as follows:

- Dismount the bonnet and remove the protection packing.
 - Unscrew the screw pos. C (fig. 1) and lift up the float assembly from the outlet.
 - Weld the outlet branch pos. A (fig. 1) into the plant as shown in fig. 2.
- Only materials and welding methods, compatible with the valve housing material, must be welded to the valve housing. The valve should be cleaned internally to remove welding debris on completion of welding and before the valve is reassembled.

Avoid welding debris and dirt in the housing.

NB! When demand is heavy at low temperature operation, we recommend to check the velocity in the outlet branch. If necessary the diameter of the pipe which is welded on to the outlet branch pos. A (fig. 1) can be increased.

The valve housing must be free from stresses (external loads) after installation.

Assembly

Remove welding debris and any dirt from pipes and valve body before assembly. Replace float assembly in the outlet branch and tighten the screw pos. C (fig 3). Check that the float assembly has gone all the way down the outlet branch and that the float ball is positioned in the middle of the housing, so it can move without any restriction.

End cover with purge valve and pipe is remounted in the housing.

NB! The ventilating pipe pos. E (fig 3) has to be placed vertically up-wards.

Tightening

Use a torque wrench to tighten the screws pos. F (fig. 3). Tighten with torque of 183 Nm (135 Lb-feet).

Colours and identification

The HFI valves are painted with a red oxide primer in the factory. The external surface of the valve housing must be prevented against corrosion with a suitable protective coating after installation and assembly.

Protection of the ID plate when repainting the valve is recommended.

Maintenance

Read this first

If repair is necessary you have 2 choices, either to replace the complete float assembly or to replace only part of it. We strongly recommend the first solution, because the complete float assembly is adjusted from the factory and thus ready for installation.

Purging of incondensable gases

Incondensable gases might accumulate in the upper part of the float valve. Purge these gases by means of the purge valve pos. G (fig. 4).

Replacement of complete float assembly (adjusted from factory), follow the steps below:

- 1) **NB!** Before opening up the float valve, the system must be evacuated and the pressure equalized to atmospheric pressure by using the purge valve pos. G (fig. 4)
- 2) Remove the endcover
- 3) Remove float valve assembly by untightening the screw pos. C (fig. 5) and lifting up the complete float valve assembly.
- 4) Place new float assembly in the outlet branch and tighten the screw pos. C (fig. 5)
- 5) Endcover with purge valve and pipe is remounted in the housing.
NB! Ventilating pipe pos. E (fig. 5) has to be placed vertically upwards.

6) Use a torque wrench to tighten the screws pos. F (fig. 5). Tighten with torque of 183 Nm (135 LB-feet).

NB! Check that the purge valve is closed before you pressurize the float valve.

Adjustment of nozzle slide

If, for special or urgent matters, it is decided to replace the nozzle, or the nozzle slide has to be adjusted. Please follow the steps below:

- 1) Position the float assembly on a smooth surface e.g. a table
- 2) Position float as shown in fig. 6, 37 mm (1 ½") from the surface of the table. We recommend that you make a 37 mm (1 ½") high chock to place under the float.
- 3) Untighten the 4 screws pos. H (fig 6).
- 4) Place the slide pos. I (fig 6) so that the nozzle has an opening of 0.8 mm and at the same time so that the opening degree of the nozzle will increase immediately when the float is moved further upwards as illustrated in fig. 6. The 0.8 mm opening is easily set by using a calibrated wire/needle.
- 5) When the slide is placed correctly, tighten the 4 screws pos. H (fig. 6)

If a minimum bypass is required the minimum opening of the nozzle may be adjusted to a smaller value.

Use only original Danfoss parts for replacement. Materials of new parts are certified for the relevant refrigerant.

In cases of doubt, please contact Danfoss. Danfoss accepts no responsibility for errors and omissions. Danfoss Industrial Refrigeration reserves the right to make changes to products and specifications without prior notice.

DECLARATION OF CONFORMITY
The Pressure Equipment Directive 97/23/EC



Name and Address of Manufacturer within the European Community

Danfoss Industrial Refrigeration A/S
Stormosevej 10
PO Box 60
DK-8361 Hasselager
Denmark

Description of Pressure Equipment

High pressure float valve
Type HFI DN 100 and DN 150

Nominal bore	DN 100 and 150 mm. (4 in. and 6 in.)	
Classified for	Fluid Group I (All refrigerants (toxic, non-toxic, flammable and non-flammable)).	
Temperature range for Maximum allowable working pressure	All	Type 1: Ps 28 bar at -50°C (-58°F) to 80°C (176°F)

Conformity and Assessment Procedure Followed

Category	III
Module	B1+D
Certificate ID	07 202 0511 Z 0094/1/H (B1 = 0124 P 0201/1/0)
Nominal bore	DN 100 and DN 150 mm (4 in. and 6 in.)

Name and Address of the Notified Body which carried out the Inspection

TÜV-Nord e.V.
Grosse Bahnstrasse 31
22525 Hamburg, Germany



Name and Address of the Notified Body monitoring the Manufacturer's Quality Assurance System

TÜV-Nord e.V.
Grosse Bahnstrasse 31
22525 Hamburg, Germany

References of Harmonised Standards used

References of other Technical Standards and Specifications used

EN 10028-3 DIN 3840
AD-Merkblätter DIN 17173

Authorised Person for the Manufacturer within the European Community

Name: Morten Steen Hansen **Title:** Production Manager

Signature: Morten Steen Hansen **Date:** 05/02/2002

148B9707 – rev. 0