

Installation

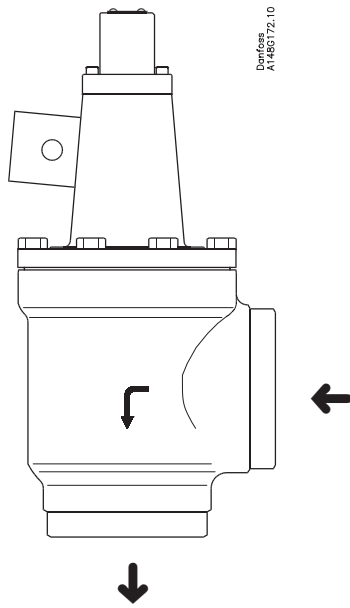


Fig. 1

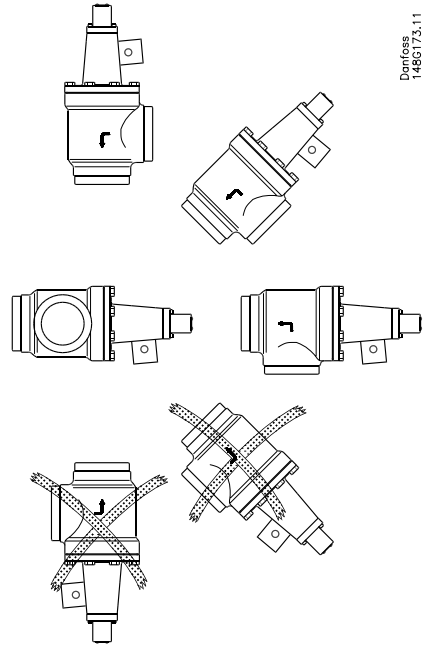


Fig. 2

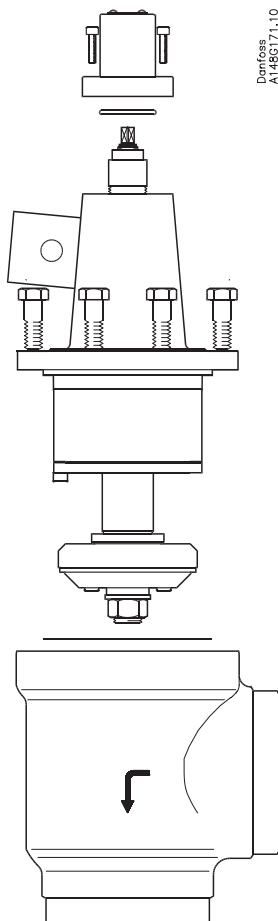


Fig. 3

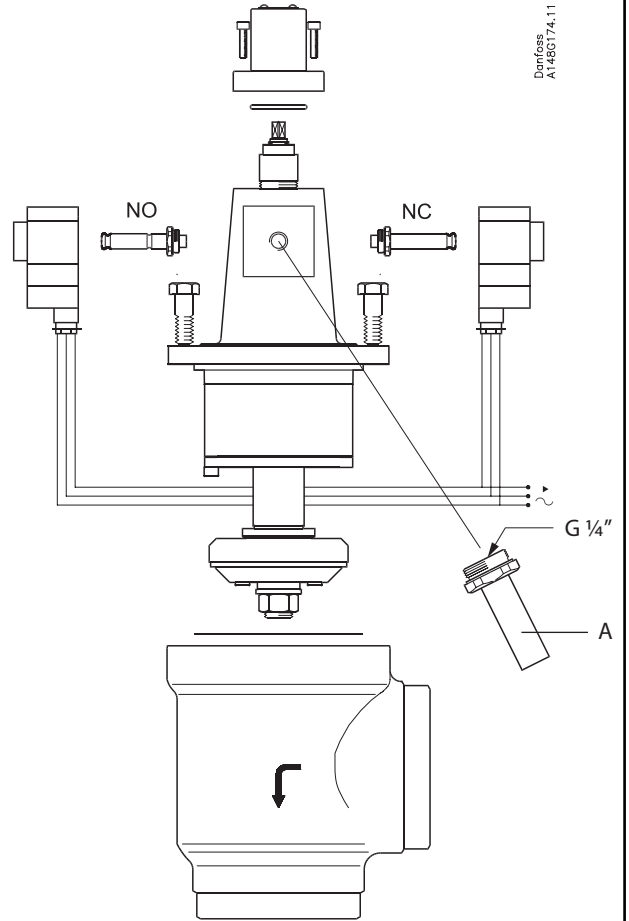
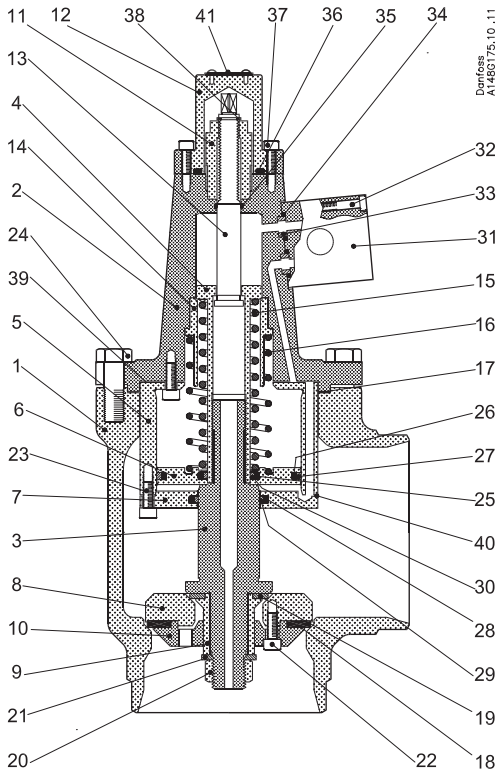


Fig. 4



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| Pos. 4     | Nm | LB-feet |
|------------|----|---------|
| DN 80-100  | 30 | 22      |
| DN 125-150 | 50 | 37      |

| Pos. 24    | Nm  | LB-feet |
|------------|-----|---------|
| DN 80      | 44  | 32      |
| DN 100     | 75  | 55      |
| DN 125-150 | 183 | 135     |

Fig. 5

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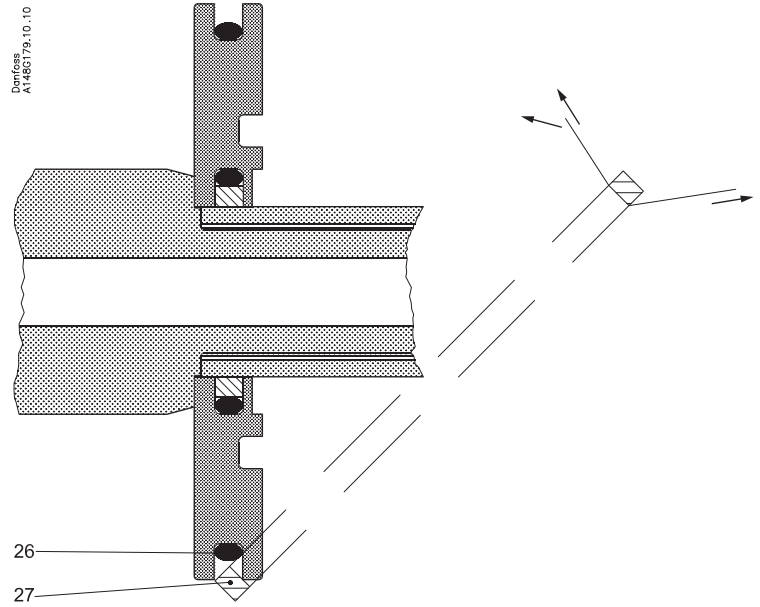
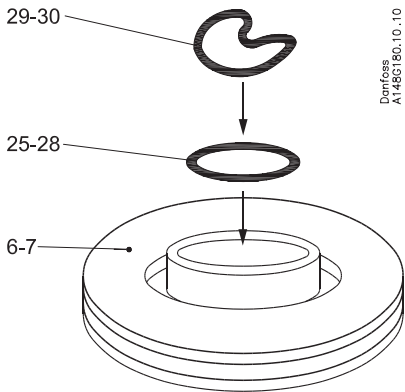
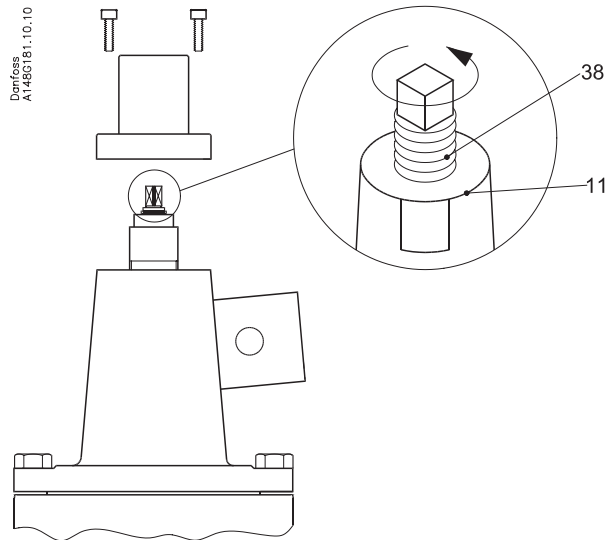


Fig. 6



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Fig. 7



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Fig. 8

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**Installation**


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**Refrigerants**

Applicable to all common non-flammable refrigerants, including R717 and noncorrosive gases/liquids dependent on sealing material compatibility. Flammable hydrocarbons are not recommended. The valves are only recommended for use in closed circuits. For further information please contact Danfoss.

**Temperature range**

GPLX:  $-60^{\circ}/+150^{\circ}\text{C}$  ( $-76^{\circ}/+302^{\circ}\text{F}$ )

**Pressure range**

GPLX: The valves are designed for a max. working pressure of 40 bar g (580 psi g).

**Installation**

GPLX valves in sizes DN 80 to DN 150 can be installed as shown in fig. 2, i.e. in  $90^{\circ}$  from vertical position with pilot valve and side branch downwards. If there is welding slag and/or dirt in the system, it is strongly recommended to install strainers in connection with the GPLX valve.

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.

**It is important always to install strainers in the pipes leading to the pilot valves.****Recommended flow direction (Fig. 1)**

Important:

The flow direction must be from the side branch towards the cone.

**Welding (Fig. 3)**

Remove the actuator before welding to prevent damage to the gasket (pos. 17) between the valve body and bonnet, as well as the teflon gasket (pos. 18, 19) in the valve seat. 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 threads of the housing and the bonnet. Removing the bonnet can be omitted provided that:  
The valve housing must be free from stresses (external loads) after installation.

**OBS: Be sure not to damage the teflon gasket (pos. 18, 19) and the spindle surface (pos. 3). If these parts are damaged the valve will leak.**

Removing the bonnet can be omitted provided that:

The temperature in the area between the valve body and bonnet during welding does not exceed  $+150^{\circ}\text{C}/+302^{\circ}\text{F}$ . This temperature depends on the welding method as well as on any cooling of the valve body during the welding itself. (Cooling can be ensured by, for example, wrapping a wet cloth around the valve body.) Make sure that no dirt, welding debris etc. get into the valve during the welding procedure.

Be careful not to damage the gasket (pos. 17).

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

GPLX valves must not be mounted in systems where the outlet side of the valve is open to atmosphere. The outlet side of the valve must always be connected to the system or properly capped off, for example with a welded-on end plate.

**Assembly (Fig. 5)**

Remove welding slag and dirt from pipes and valve body.

**OBS: Only 1 hot gas supply is required (Pos. A on fig. 4); connect this supply to the pilot valve armature.**

**Colours and identification**

The GPLX valves are painted with a yellow oxide primer in the factory and the external actuator top is zinc-chromated. Precise identification of the valve is made via the ID plate (pos. 41) at the top of the cap (pos. 12), as well as by the stamping on the valve body. 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.

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**Maintenance**


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**Replacement of sealing elements - disassembling of GPLX**

Evacuate the pipe system in which the valve is installed. Switch off the pilot current and the hot gas supply. Remove the bolts (pos. 24). Remove the valve top (actuator).

**Replacement of teflon rings in the seat (Pos. 18 and pos. 19)**

Remove the nut (pos. 20), the screw (pos. 22), the valve cone (pos. 8 and pos. 10), and remove the bushing (pos. 9). Replace the Teflon rings (pos. 18) and (pos. 19) and assemble the parts in reverse order.

**Replacement of sealing rings (pos. 27), (pos. 29) and (pos. 30)**

**A.** Remove the cap (pos. 12) and the lock ring (pos. 38). Unscrew the spindle (pos. 13) clockwise till it is disengaged from the thread.

**B.** Unscrew the bolts (pos. 23), Pull the spindle (pos. 3) out of the valve top. Unscrew the bolt (pos. 4) clockwise. Remove the springs (pos. 15 and 16) and the spindle (pos. 13) and bushing (pos. 14). Pull out the piston (pos. 6) and guide (pos. 7)

**C.** NB: Handle the valve spindle very carefully, as any damage (e.g. scratches and marks) to the spindle may cause valve leakage.

**D.** Remove the sealing rings (pos. 27, 29 and 30).  
At renovation of the valve Danfoss recommends replacement of all sealing elements. The spare parts set for the GPLX valves includes all sealing elements.

**E.** Mount the O-ring (pos. 25, 28) and then the sealing ring (pos. 29, 30) as shown in fig 7. Important:  
Fold the sealing ring as shown. Be certain that there are no sharp folds and do not use tools to mount the sealing ring.

**F.** Mount the O-ring (pos. 26) and then the sealing ring (pos. 27) as shown in fig 6. In order not to damage the ring use 2 plastic strips to pull the ring to the right place.

**G.** Reassemble the actuator in reverse order: C-B-A. NB. Turn the piston (pos. 6) as shown on fig. 5.

**Manual opening (Fig. 8)**

In case of power loss the GPLX valve will close (NC). The valve can be opened by hand, if the cap (pos. 12) is removed and the spindle (pos. 13) is turned anti-clockwise. To close the valve, turn the spindle (pos. 13) clockwise. The spindle (pos. 13) must be screwed to the lowest possible position (contact between spring ring (pos. 38) and thread bushing (pos. 11) during normal operation.

**Tightening (Fig. 4)**

Tighten the bonnet with a torque wrench, to the values indicated in the table. Use only original Danfoss parts, O-rings and gaskets 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**

Refrigerant two step gas powered stop valve

**Type GPLX**

|  |  |   |
|--|--|---|
| Nominal bore   | <b>DN 80-150 mm.</b> (3 - 6 in.)   |   |
| Classified for   | <b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)).<br>For further details / restrictions – see Installation Instruction. |   |
| Temperature range and maximum allowable working pressure | Standard application   | PS40 bar (580 psi) at -60°C/+150°C (-76°F/+302°F) |

**Conformity and Assessment Procedure Followed**

|                |   |                  |   |
|----------------|---|------------------|---|
| Category       | <b>II</b>                                 |                  | <b>III</b>  |
| Module         | <b>D1</b>                                 |                  | <b>B1+D</b>   |
| Certificate ID | <b>D1:</b><br>07 202 0511 Z 0009/1/H-0002 |                  | <b>B1:</b><br>07 202 0124 Z 0289/2/0001<br><b>D:</b><br>07 202 0511 Z 0009/1/H-0001 |
| Normal bore    | Standard application                      | DN 80 mm (3 in.) | DN100-150 mm (4-6 in.)  |
|                | High pressure application                 | DN 80 mm (3 in.) | DN100-150 mm (4-6 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**

EN 10028-3      EN 10213-3      EN 10222-4

**References of other Technical Standards and Specifications used**

prEN 12284      DIN 3158  
AD-Merkblätter      DIN 2840

**Authorised Person for the Manufacturer within the European Community**

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

**Signature:** Morten Steen Hansen      **Date:** 05/07/2002

148B9727 - rev. 0