

Installation guide

Hand operated regulating valves

REG-SA, REG-SB



148R9552

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Valve size	Max. Nm	Max. LB-feet
DN 15-20	21	15
DN 25-50	44	32
DN 65	74	54

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Valve size	Nm	LB-feet
DN 10	30	22
DN 15-20	50	37
DN 25-40	75	55
DN 50-65	95	70

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Info for UK customers only: Danfoss Ltd., 22 Wycombe End, HP9 1NB, GB

ENGLISH

Installation

Refrigerants

Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO₂), Propane, Butane, Iso-Butane and Ethane.

The valve is only recommended for use in closed circuits. For further information please contact Danfoss.

Temperature range

-60/+150°C (-76/+302°F)

Max. working pressure

The valves are designed for a max. working pressure of 52 bar g (754 psi g).

Installation

The valve must be installed with the spindle vertically upwards or in horizontal position (fig. 1). Valves should be opened by hand. 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. Please ensure that the valve is protected from pressure transients like "liquid hammer" in the system.

Recommended flow direction

Direct the flow towards the cone as indicated by the arrow placed on the valve housing (fig. 2). The force used to open and close the valve must not exceed the force of an ordinary handwheel.

Welding

Remove the bonnet before welding (fig.3) to prevent damage to the O-rings in the packing gland and between the valve body and bonnet, as well as the teflon gasket in the valve seat. Be careful not to damage the teflon cone ring and make sure the complete bonnet is protected from dirt and water while removed.

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 °C/+302 °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.

Only materials and welding methods, compatible with the valve housing material, must be applied to the valve housing. The valve housing must be free from stresses (external loads) after installation.

Clean the valve internally to remove welding debris at completion of welding and before the valve is reassembled. Avoid welding debris and dirt in the threads of the housing and the bonnet.

Do NOT remove or service the dark colored grease between the spindle thread and the bonnet. In case the grease has been contaminated with dirt, debris, particles or water the complete top part must be replaced.

Do not mount REG valves 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

Remove welding debris and any dirt from pipes and valve body before assembly. Check that the cone has been fully screwed back towards the bonnet before it is repositioned in the valve body (REG DN 50-65) (fig. 4).

Tightening

Tighten the bonnet with a torque wrench, to the values listed in the table (fig. 4).

Colours and identification

The REG valves are painted with a red primer in the factory. Precise identification of the valve is made via the yellow ID ring at the top of the bonnet, as well as by the stamping on the valve body. The external surface of the valve housing must be protected against corrosion with a suitable protective coating after installation and assembly. Protection of the ID ring when repainting the valve is recommended.

Maintenance

Packing gland

When performing service and maintenance, replace the complete packing gland only, which is available as a spare part. As a general rule, the packing gland must not be removed if there is internal pressure in the valve. However, if the following precautionary measures are taken, the packing gland can be removed with the valve still under pressure:

Backseating (fig. 5)

To backseat the valve, turn the spindle counter-clockwise until the valve is fully open.

Pressure equalization (fig. 6)

In some cases, pressure forms behind the packing gland. Hence, a handwheel or a large washer (pos. A) should be fastened on top of the spindle while the pressure is equalized. The pressure can be equalized by slowly screwing out the gland.

Removal of packing gland (fig. 7)

Packing gland can now be removed.

Dismantling the valve

- Do not remove the bonnet while the valve is still under pressure.
- Check that the O-ring (fig. 9, pos. A) has not been damaged.
- If the gasket (pos. A) has been exposed to air or other refrigerants than listed in this installation guide for more than 6 months it must be replaced.
- Check that the spindle is free of scratches and impact marks.
- If the teflon cone ring has been damaged, the whole cone assembly must be replaced.
- DN 10-40: Unscrew the adapter (fig. 11, pos. A) to be able to change the cone.

Replacement of the cone (fig. 10)

Unscrew the cone screw (pos. B) with an Allen key. (An Allen key is included in the Danfoss Industrial Refrigeration gasket set).

REG 15-40..... 2.0 mm A/F

REG 50-65..... 2.5 mm A/F

Remove the balls (pos. C).

Number of balls in fig. 10, pos. C:

REG 15-20..... 10 pcs.

REG 25-65..... 14 pcs.

The cone can now be removed. Place the new cone on the spindle and remember to place the disk spring (pos. D) between the spindle and the cone. Compress the disk spring and replace the balls (pos. C).

Refit the cone screw in again using Loctite No. 648, to ensure that the screw is properly fastened. Do NOT remove or service the dark colored grease between the spindle thread and the bonnet. In case the grease has been contaminated with dirt, debris, particles or water the complete top part must be replaced.

Assembly

Remove any dirt from the body before the valve is assembled. Check that the cone has been screwed back towards the bonnet before it is replaced in the valve body (fig. 4).

Note:

For REG SA/SB sizes DN 10-40 it is important to ensure that the lower and upper part of the insert is tightly screwed together (fig. 12) and that this screw connection is kept tight during repositioning of the cone in the housing.

Tightening

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 4). Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 8). Use only original Danfoss parts, including packing glands, O-rings and gaskets for replacement. Materials of new parts are certified for the relevant refrigerant. In cases of doubt, please contact your local Danfoss sales office.

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