

Installation guide / Operating instruction

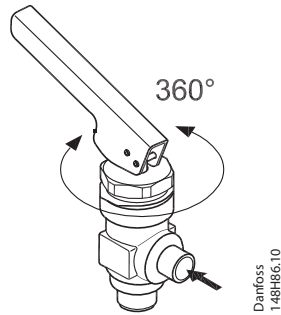
# Valve train

## Type QDV-SVA

148R9542

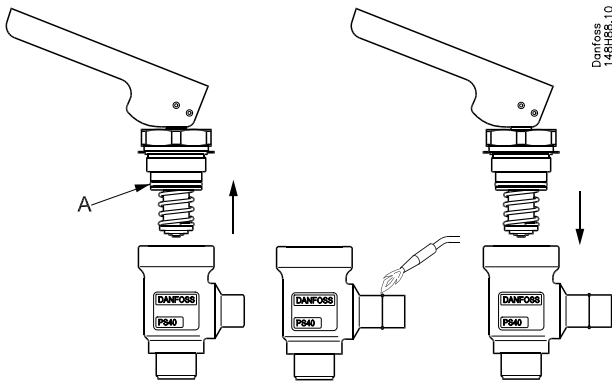
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QDV 15



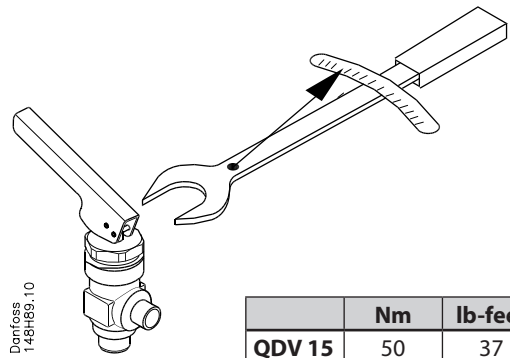
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QDV 15



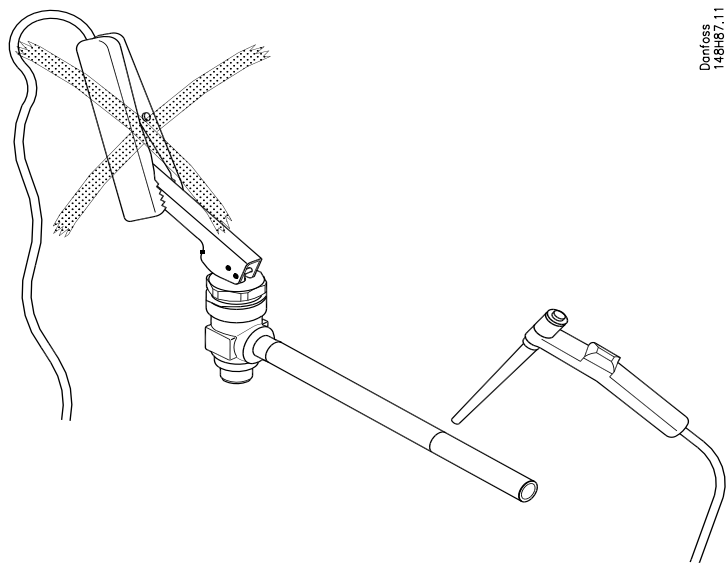
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QDV 15



3

QDV 15



4

SVA-S 15

Danfoss 148B285.10

5

SVA-S 15

Danfoss 148B289.10

7

SVA-S 15

Danfoss 148B291.10

	Nm	lb-feet
DN 15-20	22	16

8

SVA-S 15

Danfoss 148B292.10

9

SVA-S 15

Danfoss 148B293.10

11

SVA-S 15

Danfoss 148B294.10

	Nm	lb-feet
DN 15-20	22	16

13

SVA-S 15

Danfoss 148B295.10

12

SVA-S 15

Danfoss 148B289.10

10

## ENGLISH

### Installation

#### Refrigerants

Applicable to R717 (ammonia).  
Flammable hydrocarbons are not recommended.

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

#### Temperature range

SVA-S 15: -60/+150 °C (-76/+302 °F)  
QDV 15: -50/+150 °C (-58/+302 °F)

#### Pressure

The valves are designed for a max. working pressure (PS/MWP):

SVA-S 15: 52 bar (754 psig)  
QDV 15: 40 bar (580 psig)

In order to prevent hydraulic pressure building up between the stop valve and the QDV an integral relief device is included opening the valve slowly if the pressure exceeds 16 bar (232 psig).

#### Installation

QDV must be installed with the spindle vertically upwards and SVA with the spindle in horizontal position (fig. 5). Valves should be opened by hand without the use of tools or other devices.

The valves are 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.

**If any tube or hose is mounted on the outlet of the QDV it has to be calculated to prevent backpressure building up when relieving.** Blocking the outlet of the QDV will cause danger (hydraulic pressure building up).

QDV handle can be turned 360° for optimizing operation position (fig. 1). An outlet hose of the same size as the outlet connection of the QDV valve must be used.

#### Recommended flow direction

The valve must be installed with flow direction from the side branch (fig. 1 and 6).

#### Welding

The bonnet should be removed before welding (fig. 7) 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. 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 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.

Be careful not to damage the teflon cone ring.

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

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 replaced in the valve body (fig. 8).

SVA and QDV valves are assembled by means of FPT (self tightening) thread. For better tightness a Teflon tape could be applied. QDV valve is screwed on SVA valve with the torque min 80 Nm, and than QDV valve is aligned to vertical position.

**Note!**  
**it is not allowed to turn QDV in anti-clockwise direction, after tightening it to the required torque.**

**Fig. 5**  
**Never use QDV or any other Danfoss product to get an earth connection for welding as it might cause damage to the product.**

#### Tightening

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 8).

#### Colours and identification

QDV and SVA valves are painted with a red oxide primer in the factory. Precise identification of the valve is made via the 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 prevented against corrosion with a suitable protective coating after installation and assembly. Protection of the ID ring when repainting the valve is recommended.

### Maintenance

#### SVA

##### 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. 9)

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

##### Pressure equalization (fig. 10)

In some cases, pressure forms behind the packing gland. Hence a handwheel or similar 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. 11)

Handwheel and packing gland can now be removed.

##### Dismantling the valve (fig. 12)

Do not remove the bonnet while the valve is still under pressure.

- Check that the O-ring (pos. A) has not been damaged.
- 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.

##### Replacement of the cone (fig. 13)

Unscrew the cone screw (pos. B) with an Allen key.

SVA 15 .....2.0 mm A/F  
(An Allen key is included in the Danfoss Industrial Refrigeration gasket set).

Remove the balls (pos. C).

Number of balls in pos. C:

SVA 15 .....10 pcs.

The cone can then be removed. Place the new cone on the spindle and replace the balls. Refit the cone screw in again using Loctite No. 648. to ensure that the screw is properly fastened.

### 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. 8).

### Tightening

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 8). Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 13).

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 Danfoss.

### QDV

#### Dismantling the valve (fig. 7):

Do not remove the bonnet while the valve is still under pressure. Always close the stop valve before the QDV. Then proceed with activation of the QDV valve to make sure that it is not under pressure.

- Check that the O-ring (pos. A) has not been damaged.
- Check that the spindle is free of scratches and impact marks.
- Check that the Teflon cone ring is without marks or scratches.

#### Replacement of the O-ring between the bonnet and the valve body (fig. 2):

The QDV 15 is delivered with an extra O-ring.

Remove the damaged O-ring (pos. A) from the bonnet and carefully install the new O-ring.

#### Assembly:

Remove any dirt from the body before the valve is assembled.

Check that the O-ring between the valve body and bonnet, as well as the Teflon gasket in the valve seat is without marks or scratches.

#### Tightening:

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 3).

Use only original Danfoss parts for replacement. New parts must be made of certified materials applicable for the refrigerant used.

A possible issue with our quick oil drain valves type QDV which may not fully close off during an oil draining process.

This may present itself when a drainage pipe is installed on the outlet of the valve which generates a back pressure to the valve such that the valve is unable to fully close. This will not present itself if there is no drainage pipe installed on the valve outlet. Max. back pressure 10 bar.

In applications where a QDV valve is installed in a system and is normally operating with an outlet pipe, please ensure that full safety precautions are taken when draining oil and make sure the inlet to the vessel is isolated during the oil draining process.