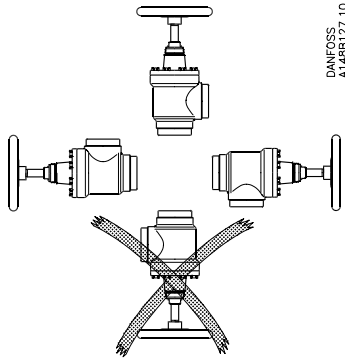


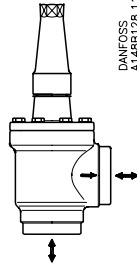
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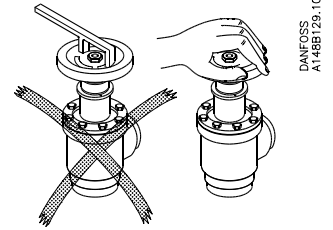
#### Installation



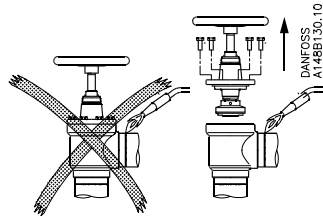
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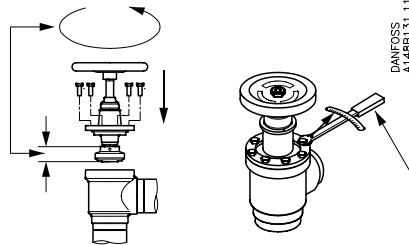
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3



4

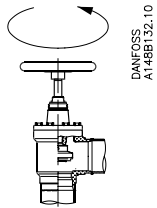


5a

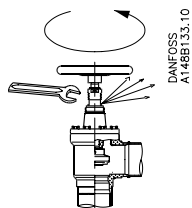
5b

	Nm	LB-feet
DN 15-20-25-32-40	22	16
DN 50	44	32
DN 65	75	53
DN 80	44	32
DN 100	75	53
DN 125-150	183	135
DN 200	370	272

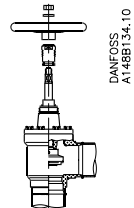
#### Maintenance



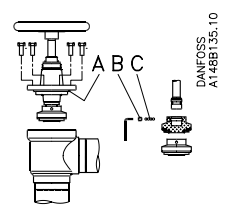
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7

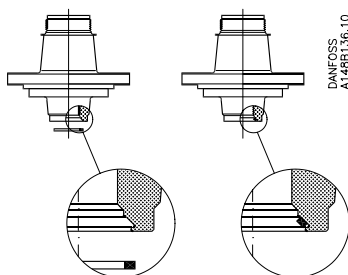


8



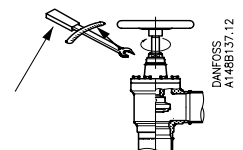
9

Only DN 80 - 200



10

	Nm	LB-feet
DN 15-20	50	37
DN 25-40	70	52
DN 50-65-80-100	60	45
DN 125-150-200	80	60



11

**Refrigerants**

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

**Temperature range**

SVA-ST: -50/+150°C (-58/+302°F)  
SVA-LT: -60/+150°C (-76/+302°F)  
SVA-SS: -60/+150°C (-76/+302°F)

**Pressure range**

The valves are designed for a max. working pressure of 40 bar g (580 psi g), for both standard (SVA-ST) and low temperature versions (SVA-LT, SVA-SS).

**Installation**

The valve must be installed with the spindle vertically upwards or in horizontal position (fig. 1). Valves should be opened by hand without the use of tools or other devices (fig. 3). 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.

**Recommended flow direction**

To achieve optimum flow conditions, the valve should be installed with the flow towards the valve cone as indicated by the arrow on the side of the valve body (fig. 2). Flow in the opposite direction is also acceptable (fig. 2), but slightly reduces the  $k_v$ - /  $C_v$  value.

**Welding**

The bonnet should be removed before welding (fig. 4) 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. 5a).

**Tightening**

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 5b).

**Colours and identification**

The SVA valves are painted with a red oxide primer in the factory. Stainless steel valves are not painted. 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****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. 6)**

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

**Pressure equalization (fig. 7)**

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. 8)**

Handwheel and packing gland can now be removed.

**Dismantling the valve (fig. 9)**

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. 9)**

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

SVA-ST/LT/SS 15-40 .....	2.0 mm A/F
SVA-ST/LT 50-65 .....	2.5 mm A/F
SVA-ST/LT 80-100 .....	4 mm A/F
SVA-ST/LT 125-150 .....	5 mm A/F
SVA-ST/LT 200 .....	6 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-ST/LT/SS 10-20 .....	10 pcs.
SVA-ST/LT/SS 25-65 .....	14 pcs.
SVA-ST/LT 80-200 .....	13 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.

**Replacement of backseat seal (fig. 10)**

For sizes DN 80-200 only:

The valve backseat is a special teflon ring. If this is damaged, it must be replaced. Screw the spindle out of the bonnet. Carefully remove the original backseat seal and mount a new one in the angled contact surface directly inside the opening in the bonnet. Avoid folding and damage to the teflon ring, or damage to the contact surface at the top of the valve during assembly.

**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. 5a).

**Tightening**

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 5b). Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 11).

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.

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

**Declaration**

We hereby declare that below-mentioned equipment are Classified for Fluid Group I (all refrigerants (toxic, non-toxic, flammable and non-flammable)), and that all are covered by Article 3, paragraph 3.

For further details / restrictions - see Installation Instruction

**Description of Pressure Equipment**

Refrigerant stop valve, with straight or angled bonnet arrangement  
Type **SVA and SVA-SS**

Nominal bore	<b>DN ≤ 25 mm. (1 in.)</b>
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**References of other Technical Standards and Specifications used**

prEN 12284                                  DIN 3158  
AD-Merkblätter

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

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

**Signature:** *Morten Steen Hansen*                                  **Date:** 07/01/2003

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**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 stop valve, with straight or angled bonnet arrangement

**Type SVA-ST, SVA-LT, and SVA-SS**

Nominal bore	<b>SVA-ST, -LT DN32-200 mm.</b> (1¼ - 8 in.); <b>SVA-SS DN32-40 mm.</b> (1¼ - 1½ in.)	
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	SVA-ST SVA-LT, SVA-SS	-50°C/+150°C (-58°F/+302°F) -60°C/+150°C (-76°F/+302°F)
Maximum allowable working pressure	SVA-ST DN32-65 mm. (1¼ - 2½ in.)	<b>40 bar</b> (580 psi) <b>-50°C/+150°C</b> (-58°F/+302°F)
	SVA-ST DN80-200 mm. (3 - 8 in.)	<b>40 bar</b> (580 psi) <b>-50°C/+60°C</b> (-58°F/+140°F) <b>36 bar</b> (522 psi) <b>+60°C/+80°C</b> (+140°F/+176°F) <b>32 bar</b> (464 psi) <b>+80°C/+120°C</b> (+176°F/+248°F) <b>30 bar</b> (435 psi) <b>+120°C/+150°C</b> (+248°F/+302°F)
	SVA-LT DN32-65 mm. (1¼ - 2½ in.)	<b>40 bar</b> (580 psi) <b>-60°C/+150°C</b> (-76°F/+302°F)
	SVA-LT DN80-200 mm. (3 - 8 in.)	<b>40 bar</b> (580 psi) <b>-60°C/+60°C</b> (-76°F/+140°F) <b>36 bar</b> (522 psi) <b>+60°C/+80°C</b> (+140°F/+176°F) <b>32 bar</b> (464 psi) <b>+80°C/+120°C</b> (+176°F/+248°F) <b>30 bar</b> (435 psi) <b>+120°C/+150°C</b> (+248°F/+302°F)
	SVA-SS DN32-40 mm. (1¼ - 1½ in.)	<b>50 bar</b> (725 psi) <b>-60°C/+50°C</b> (-76°F/+122°F) <b>40 bar</b> (580 psi) <b>-60°C/+150°C</b> (-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	<i>D1: 07 202 0511 Z 0009/1/H-0002</i>	<i>B1: 07 202 0511 Z 0058/1/H-0001</i> <i>D: 07 202 0511 Z 0009/1/H-0001</i>
Nominal bore	DN32-80 mm. (1¼-3 in.)	DN100-200 mm. (4-8 in.)
Standard applications		

**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

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

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

**Signature:** Morten Steen Hansen    **Date:** 07/01/2003