Instructions

SVA-HS 15-200 ($^1/_2$-8")

148R9502

148R9502

Installation

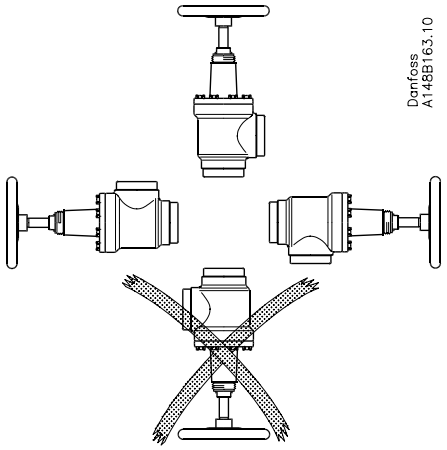

Fig. 1

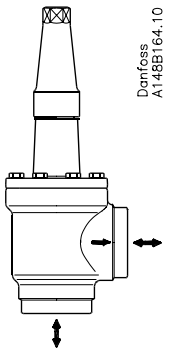

Fig. 2

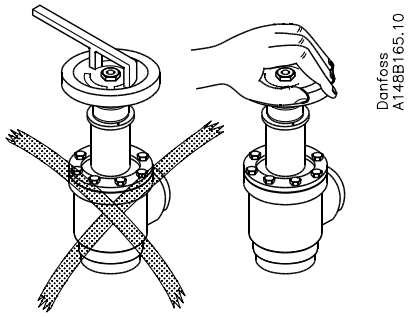

Fig. 3

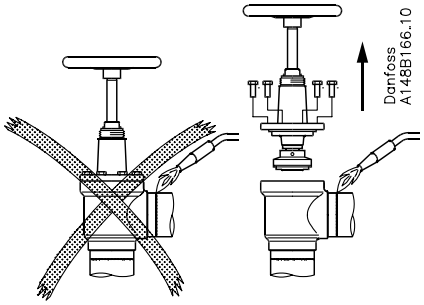

Fig. 4

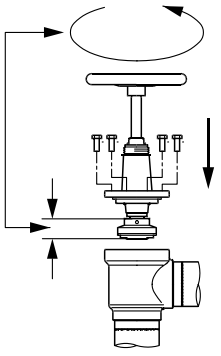

Fig. 5a

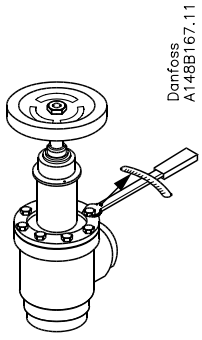

Fig. 5b

	Nm	LB-feet
DN 15 - 20	22	16
DN 25 - 50	44	32
DN 65	74	53
DN 80	44	32
DN 100	74	53
DN 125 - 150	183	135
DN 200	370	272

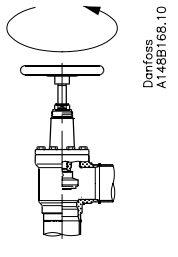

Fig. 6

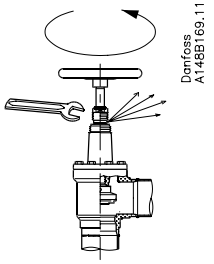

Fig. 7

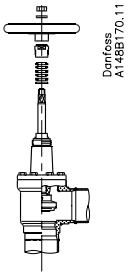

Fig. 8

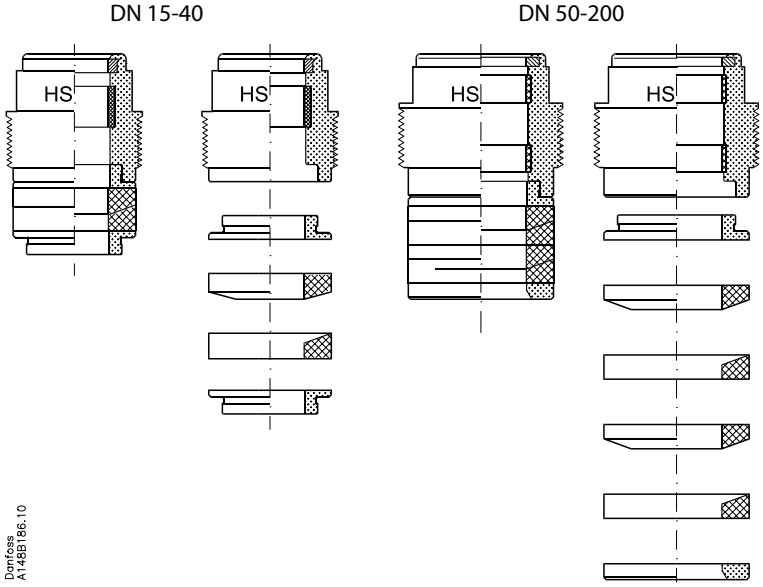

Fig. 9

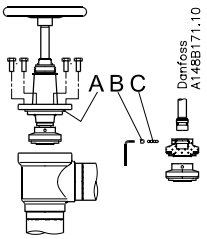

Fig. 10

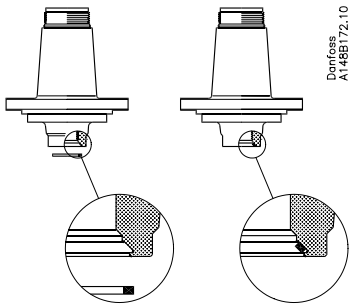

Fig. 11

	Nm	LB-feet
DN 15 - 20	40	30
DN 25 - 40	60	45
DN 50 - 65	60	45
DN 80 - 100	80	60
DN 125 - 150	80	60
DN 200	120	90

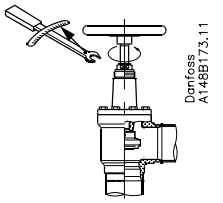

Fig. 12

ENGLISH

Introduction
The SVA-HS valve is designed for use in industrial refrigeration systems.
The following installation and service instructions should be carefully read and fully understood before using the product or servicing it. Only trained and qualified personnel should be responsible for installation, operation, and service.

Installation

Refrigerants
The valve can be used for all refrigerants, including H_2S and flammable hydrocarbons and non-corrosive gases or liquids, with due consideration given to valve materials.

Flammable hydrocarbons
If one of the following refrigerants is used: Propane (R 290), Propylene (R1270), Butane (R600), Iso-Butane (R600a), and Ethan (R170) or mixtures of the mentioned refrigerants, please require additional information from Danfoss.

Temperature range
–60/+150°C (–76/+302°F)

Pressure range
The valves are designed for a maximum working pressure of 40 bar g (580 psi g) throughout the temperature range.

Installation
The valve must be installed with the spindle vertically upwards or in horizontal position (fig. 1). Valves should be operated 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 direction of flow
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.

Operation
Avoid overloading the spindle by the inappropriate use of tools (Fig. 3).

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.

During assembly, check:
- that the seal between valve body and top section (pos. A) is undamaged.
- that the valve spindle is unscratched and has not been damaged by impact.
- that the Teflon gasket on the valve cone is undamaged.

Ensure also that the valve cone is screwed back to the top section before refitting the top section in the body (Fig. 5a).

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

Tightening of the bonnet should be performed according to sound mechanical practice.

Colour and identification
The SVA-HS valves are painted with a black 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

Dismantling the valve
The top section must not be removed while the valve is subject to pressure.
Replacing the spindle seal
During service and maintenance the complete spindle seal can be replaced. Seals can be supplied as spare parts. Normally, the valve should not be subject to pressure when the seal is removed. However, the seal can be removed while there is pressure in the valve if the following precautions are taken:

Reverse sealing (Fig. 6)
The valve is reverse-sealed by turning the spindle anticlockwise until the valve is completely open.

Pressure equalisation (Fig. 7)
Under certain conditions, pressure can build up behind the spindle seal. This pressure can be equalised by slowly unscrewing the seal. During this operation, it is recommended that a handwheel or other adjusting tool be fitted to the end of the spindle in order to maintain the torque for reverse sealing.

Removing the spindle seal (Fig. 8)
The handwheel and other spindle seal components can now be removed.

> **Note!** Teflon gaskets should not be re-used after removing the spindle seal.

Fitting a replacement spindle seal (Fig. 9)
Great care should be taken when fitting a new spindle seal and damage to Teflon gaskets must be avoided.

During fitting, the individual components in the spindle seal should be placed in order and positioned as shown (Fig. 9).

Replacing the cone (Fig. 10)
Remove the screw (Pos. B) from the cone with a hexagon key.

SVA-HS 15-40 (½-1½")	2 mm a/flats
SVA-HS 50-65 (2-2½")	2.5 mm a/flats
SVA-HS 80-100 (3-4")	4 mm a/flats
SVA-HS 125-150 (5-6")	5 mm a/flats
SVA-HS 200 (8")	6 mm a/flats

Hexagonal keys are enclosed in the gasket sets "Complete Cone" and "Complete Repair Kit" from Danfoss Industrial Refrigeration.

The balls (Pos. C) can then be taken out and the cone subsequently removed.

SVA-HS 15-20 (½-¾")	10 pcs.
SVA-HS 25-65 (1½-2½")	14 pcs.
SVA-HS 80-200 (3-8")	13 pcs.

A new cone can now be mounted on the spindle and the balls replaced. Refit the screw and tighten it. If the cone and spindle are detached several times, it may be necessary to use a strong adhesive (e.g. Loctite no. 648) to ensure screw fixing.

Replacing the reverse sealing, DN 80-200 (3-8") (Fig. 11)
The reverse sealing of the valve is in the form of a special Teflon ring DN 80-200 (3-8"). This Teflon ring should be replaced if it becomes damaged. Screw the spindle out of the top section. Carefully remove the original Teflon ring and fit a replacement on the sloping contact surface just inside the opening in the top section.

Avoid folding or damaging the Teflon ring during fitting. In addition, be careful not to damage the contact surface for the ring in the top section.

Assembly (Fig. 5a)
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.

During assembly, check:
- that the seal between the valve body and top section (pos. A) is undamaged.
- that the valve spindle is unscratched and has not been damaged by impact.
- that the Teflon gasket on the valve cone is undamaged.

Ensure also that the valve cone is screwed back to the top section before refitting the top section in the body (Fig. 5a).

Tightening (Fig. 12)
Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 5b). Tightening of the bonnet should be performed according to sound mechanical practice.

Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 12).

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-HS

Nominal bore **DN ≤ 25 mm** (1 in.)

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:** 03/06/2002

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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-HS

Nominal bore	**DN 32-200 mm**. ($1^1/_4$-8 in.)
Classified for	**Fluid Group I** (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.
Temperature range maximum allowable working pressure	**PS40** bar (580 psi) at **–60°C/+60°C** (–76°F/+140°F) **PS36** bar (522 psi) at **+60°C/+80°C** (+140°F/+176°F) **PS32** bar (464 psi) at **+80°C/+120°C** (+176°F/+248°F) **PS30** bar (435 psi) at **+120°C/+150°C** (+248°F/+302°F)

Conformity and Assessment Procedure Followed

Category	**II**	**III**
Module	**D1**	**B1 + D**
Certificate ID	*D1: 07 202 0511 Z 0009/1/H-0002*	*B1: 07 202 0511 Z 0110/1H* *D: 07 202 0511 Z 0009/1/H-0001*
Nominel bore	DN 32-80 mm. ($1^1/_4$ - 3 in.)	DN 100-200 mm. (4 - 8 in.)

Name and Address of the Notified Body which carried out the Inspection
TÜV-Nord e.V.
Grosse Bahnstrasse 31
22525 Hamburg, Germany

CE
(0045)

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:** 04/02/2002

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