



## Collection of Instructions

Instructions for Danfoss

Refrigeration & Air conditioning Controls



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**Contents**

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**Safety valves and double stop valves**

BSV 8 .....	489
DSV 1 & 2 .....	492
DSV 15 - 32 .....	497
DSVL/SFVL .....	500
POV .....	502
SFA .....	505
SFV 15 - 25 .....	508

#### Installation

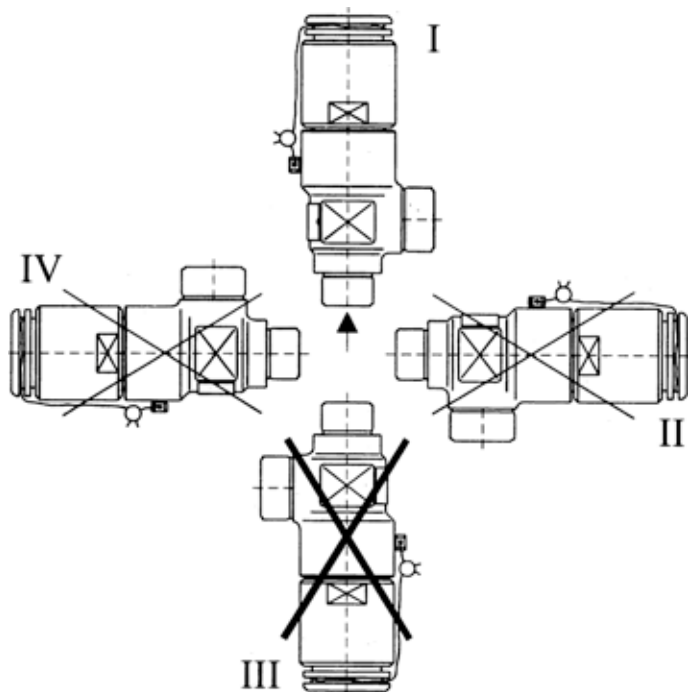


Fig. 1

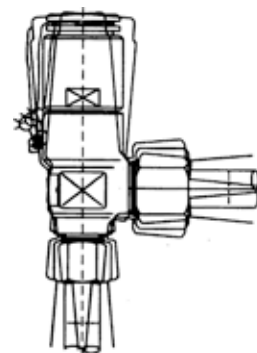


Fig. 2

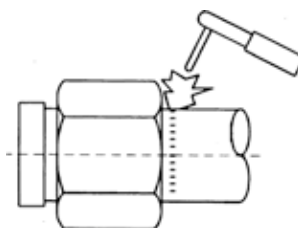
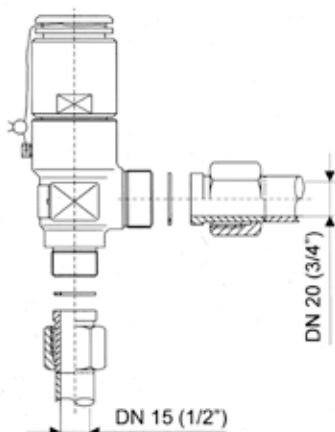


Fig. 3

BSV mounted as safety valve:  
with fitting 2469+004

BSV mounted as pilot valve for POV:  
with fitting 2469+069

Upwards



Upwards

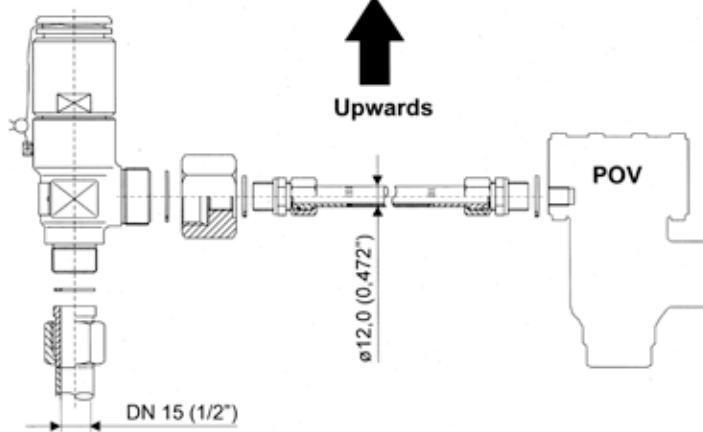


Fig. 4

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**Installation**

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**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**

BSV 8: -30/+100°C (-22/+212°F)

**Pressure range**

The valve is designed for a max. working pressure of 25 bar g (362 psi g). Danfoss Industrial Refrigeration A/S is supplying safety valves adjusted for a certain pressure (indicated on the ID-plate) and sealed.

Danfoss Industrial Refrigeration guarantees correct pressure as long as the seal remains unbroken.

**Installation**

The valve should be installed with the spring housing upwards (fig. 1). By mounting of the safety valve it is important to avoid the influence of thermic and dynamic stress (vibrations) (fig. 2). 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.

**Welding**

If welding fittings are applied, these should be dismantled during the welding process (fig. 3). Only materials and welding methods, compatible with the flange material, must be welded to the flange. Avoid welding debris and dirt in the threads of the housing and pipes.

**Assembly**

Remove welding slag and dirt from tubes and housing before the valve is mounted. Mount the valve as shown in fig. 4.

**Colours and identification**

The valves are Zinc-Chromated in the factory. If further corrosion protection is required, it can be painted. Precise identification of the valve is made via the ID label on the valve housing. 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 safety valve  
**Type BSV 8**

Nominal bore	<b>8 mm</b> (0,315 in.) for BSV 8	
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	BSV 8	-30°C/+100°C (-22°F/+212°F)
Maximum allowable working pressure	BSV 8	<b>10-25 bar</b> (143-362 psi g) -30°C/+100°C (-22°F/+212°F)

**Conformity and Assessment Procedure Followed**

Category	<b>IV</b>	
Module	<b>B + D</b>	
Certificate ID	B: 07 202 0511 Z 0078/1/H-0002 D: 07 202 0511 Z 0009/1/H-0001	
Nominal bore	Standard application	<b>8 mm</b> (0,315 in.) for BSV 8

**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 10222-4

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

prEN 12284      prEN 13136

AD-Merkblätter      DIN 3158

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

**Name:** Morten Steen Hansen

**Title:** Production Manager

**Signature:**

**Date:** 29/11/2001

14889713 - rev. 0

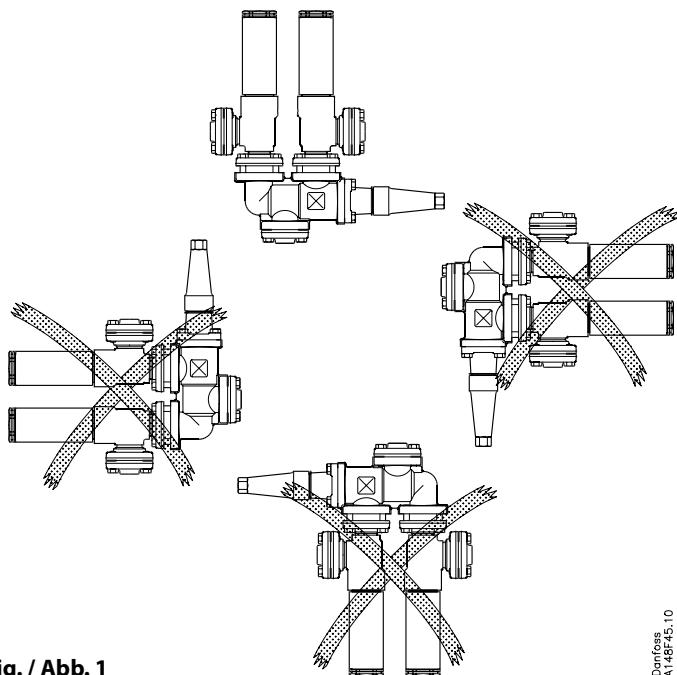


Fig. / Abb. 1

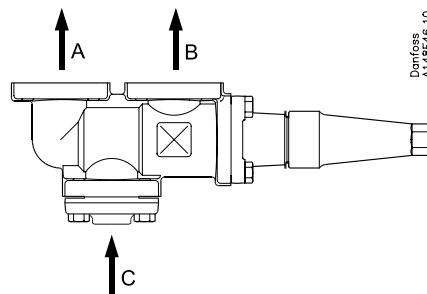
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Fig. / Abb. 2

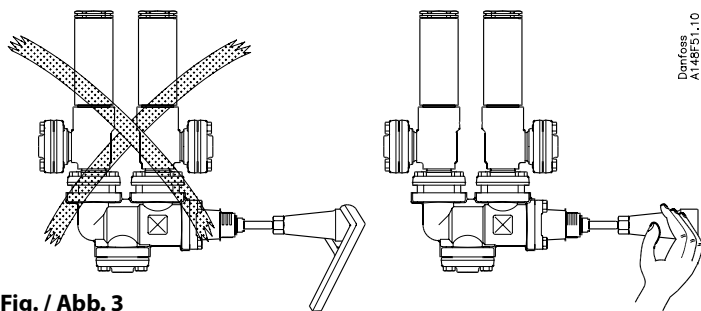
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Fig. / Abb. 3

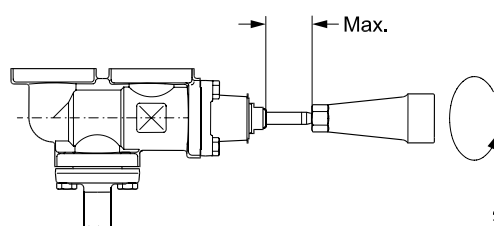
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Fig. / Abb. 6

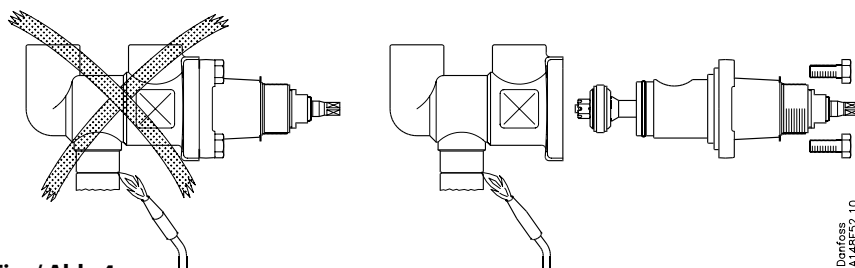
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Fig. / Abb. 4

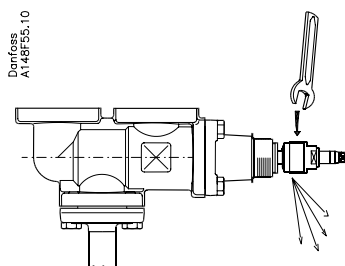
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Fig. / Abb. 7

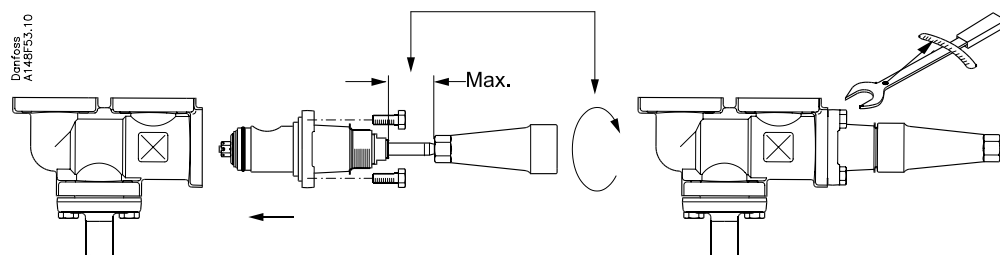
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Fig. / Abb. 5a

Fig. / Abb. 5b

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	Nm	LB-fod LB-feet LB-ft Pieds- livres
DSV 1 / DSV 2	44	32

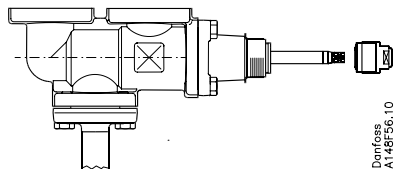


Fig. / Abb. 8

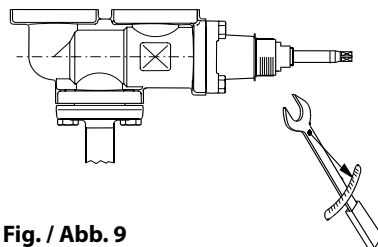
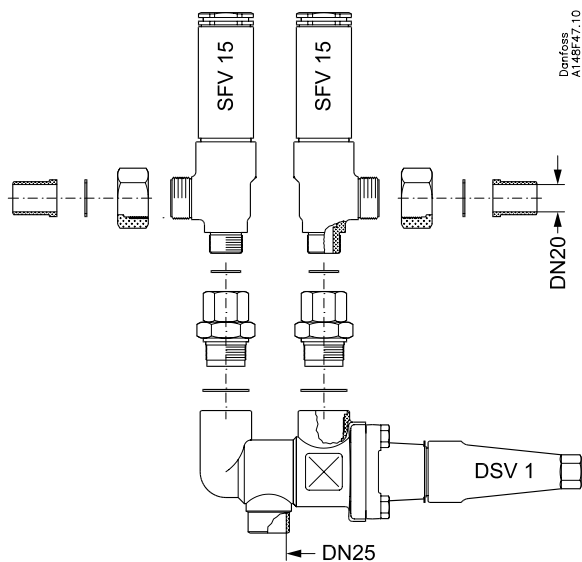
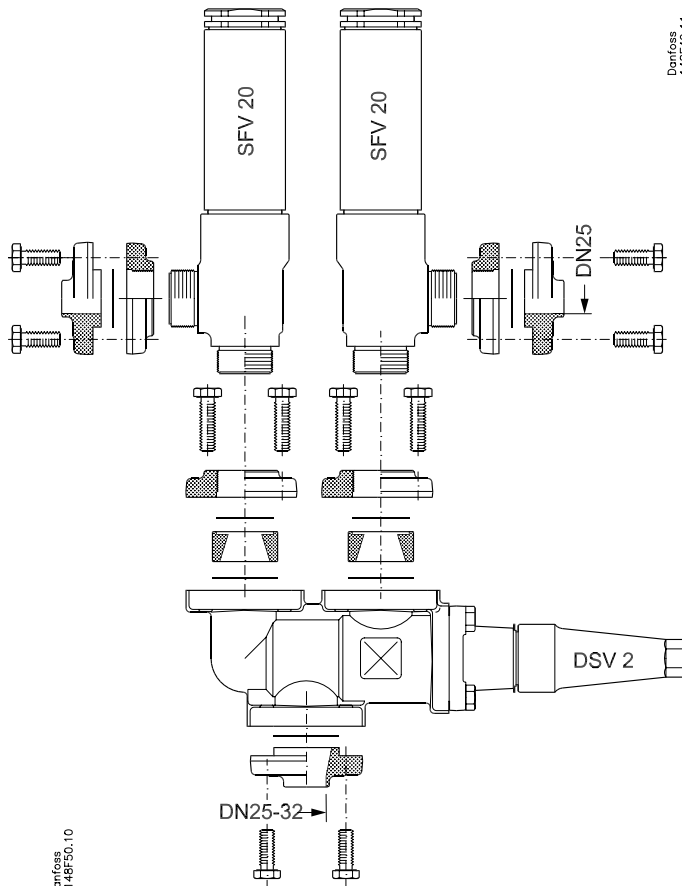


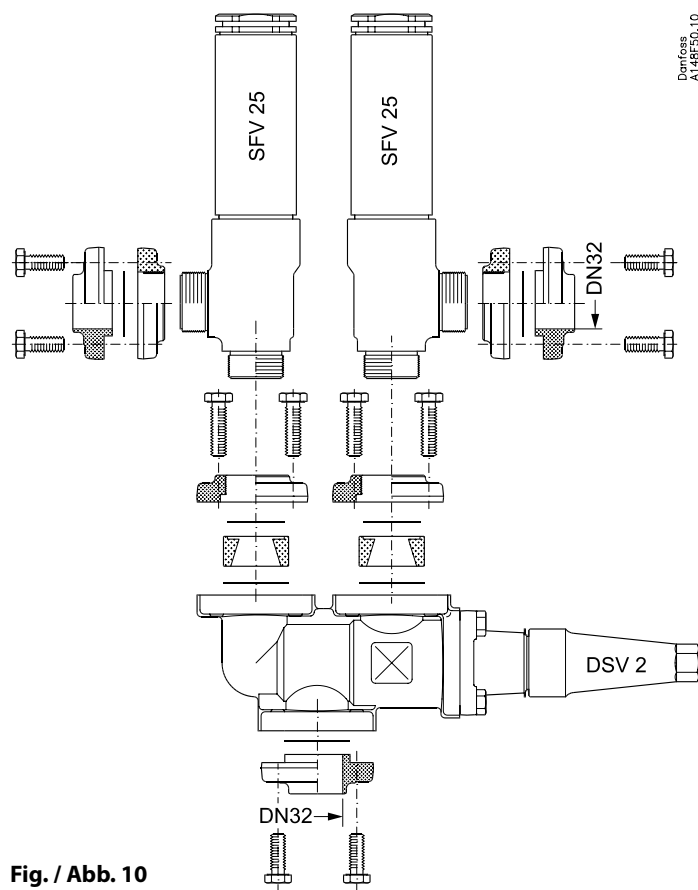
Fig. / Abb. 9



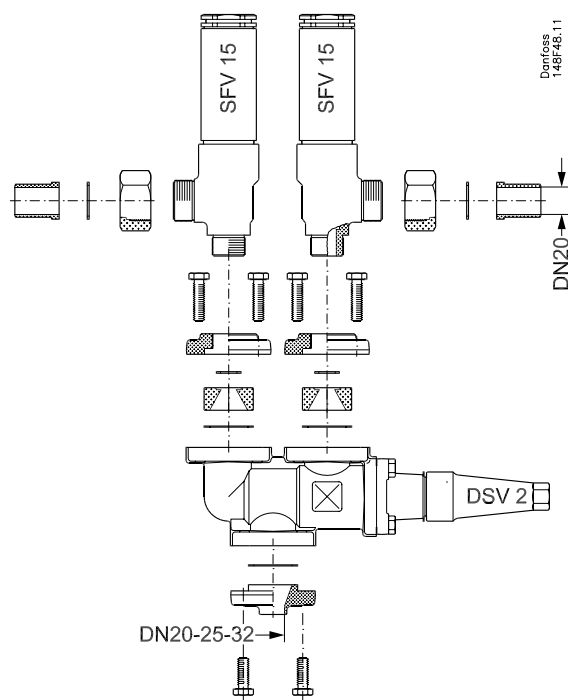
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Danfoss  
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Fig. / Abb. 10

## Installation

### 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

DSV: -50/+100°C (-58/+212°F)

### Pressure range

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

### Installation

Applied in connection with safety valves (SFVs) installation instruction for safety valves must be followed. The double stop valve (DSV) and the two safety valves (SFV) are to be mounted as indicated in fig. 10.

### IMPORTANT:

The inlet/outlet pipe dimensions must not be smaller than those of the safety valves.

The valve must be installed with the spindle 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 (fig. 2)

To achieve optimum flow conditions, the valve should be installed with the flow as indicated by the arrow. Flow in the opposite direction is also acceptable, but slightly reduces the  $K_v$ - /  $C_v$  value.

### Operating instructions (fig. 2)

When the spindle is turned clockwise the inlet socket C is connected to outlet B. When the spindle is turned anticlockwise the inlet socket C is connected to outlet A.

### Welding

If welding fittings are applied, these should be dismantled during the welding process. Welding directly on the valve housing, the bonnet should be removed (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. gets 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.

Double 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 safety valves, 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 DSV 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

### 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 it stops.

### Pressure equalization (fig. 7)

In some cases, pressure forms behind the packing gland. Hence a hand wheel 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)

The packing gland can now be removed.

- Check that the spindle is free of scratches and impact marks.
- If the Teflon cone rings have been damaged, the whole cone assembly 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. 5a). Also check that the O-rings are free of scratches and impact marks.

### 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. 9).

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.



**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.

**Restrictions**

Only for use in conjunction with two SFV 15  
(Max. 3% pressure drop in upstream line according to prEN 13136)

For further details – see Installation Instruction

**Description of Pressure Equipment**

Refrigerant Double stop valve  
Type **DSV 1**

Nominal bore **DN ≤ 25 mm** (1 in.)

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

prEN 12284      prEN 13136  
AD-Merkblätter      DIN 3158

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

**Name:** Morten Steen Hansen

**Title:** Production Manager

**Signature:**



**Date:** 29/08/2002

148B9729 - rev. 0

**DECLARATION OF CONFORMITY**  
The Pressure Equipment Directive 97/23/EC

*Danfoss*

**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 Double stop valve  
**Type DSV 2**

Nominal bore	<b>DN 32</b> (1 1/4 in.)	
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	DSV 2	50°C/+100°C (-58°F/+212°F)
Restrictions	DSV 2	Only for use in systems in conjunction with two SFV 15 or two SFV 20 (Max. 3% pressure drop in upstream line according to prEN13136)
Maximum allowable working pressure	DSV 2	<b>40 bar</b> (580 psi) <b>-50°C/+100°C</b> (-58°F/+212°F)

**Conformity and Assessment Procedure Followed**

Category	<b>II</b>	
Module	<b>D1</b>	
Certificate ID	D1: 07 202 0511 Z 0009/1/H-0002	
Nominal bore	Standard application	DN 32 mm (1 1/4 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 10222-4

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

prEN 12284      prEN 13136  
AD-Merkblätter      DIN 3158

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

**Name:** Morten Steen Hansen

**Title:** Production Manager

**Signature:**

Morten Steen Hansen

**Date:** 29/08/2001

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DSV 15 ND + SFV 15

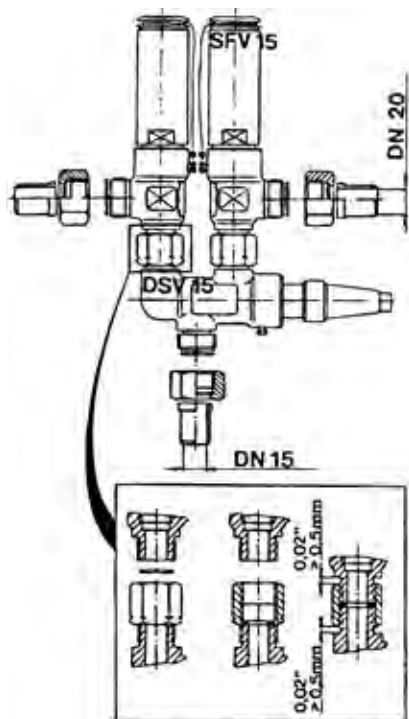


Fig. 1 - I

upwards

DSV 32 FND + SFV 15

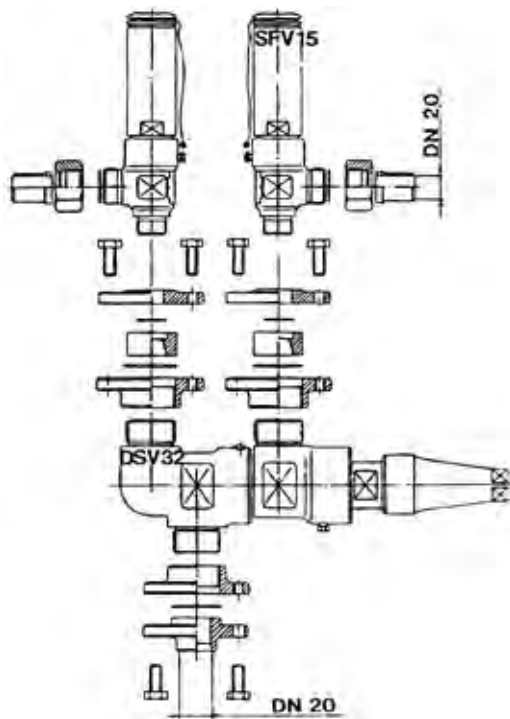


Fig. 1 - II

upwards

DSV 32 FD + SFV 20

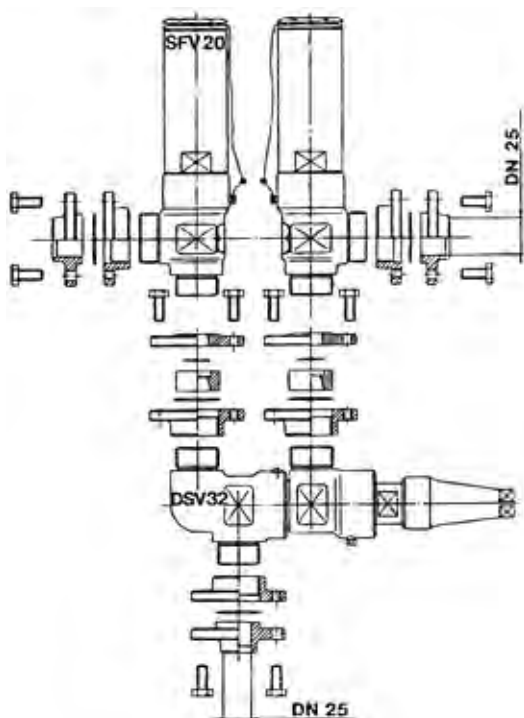


Fig. 1 - III

upwards

DSV 32 FD + SFV 25

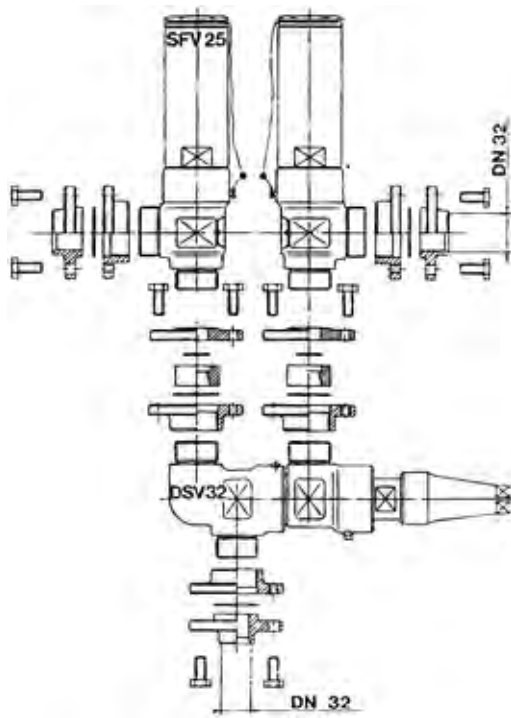


Fig. 1 - IV

upwards

## Installation

### Refrigerants

Applicable to all common non-flammable refrigerants, including R717 and non-corrosive gases/liquids dependent on sealing material compatability. Flammable hydrocarbons are not recommended. The valve is only recommended for use with safety valves type SFV. For further information please contact Danfoss.

### Temperature range

DSV: -50/+100°C (-58/+212°F)

### Pressure range

The valves are designed for a max. working pressure of 25 bar g (363 psi g).

### Installation

Applied in connection with safety valves (SFVs) installation instruction for safety valves must be followed. The double stop valve (DSV) and the two safety valves are to be mounted as indicated on fig. 1.

### IMPORTANT:

**THE INLET/OUTLET PIPE DIMENSIONS MUST NOT BE SMALLER THAN THOSE OF THE SAFETY VALVES.**

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.

### Welding

If welding fittings are applied, these should be dismantled during the welding process (fig. 2).

Only materials and welding methods, compatible with the flange material, must be welded to the flange.

Avoid welding debris and dirt in the threads of the housing and the pipes.

### Assembly

Remove welding slag and dirt from tubes and housing before the valve is mounted.

Mount the valve as shown in fig. 1.

### Operating Instructions

When the spindle is turned clockwise (fig. 3-I) the inlet socket C is connected to outlet B. When the spindle is turned anticlockwise (fig. 3-II) the inlet socket C is connected to outlet A.

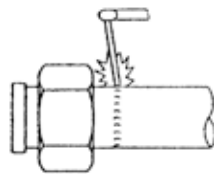
### Colours and identification

The DSV valves are painted with a red oxide primer in the factory. The external surface of the valve housing must be prevented against corrosion with a suitable protective coating after installation and assembly.

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.

DSV 15  
SFV 15



DSV 32  
SFV 20-25



Fig. 2

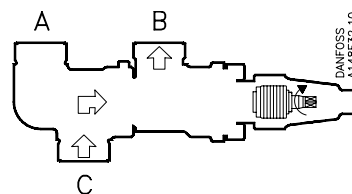


Fig. 3 - I

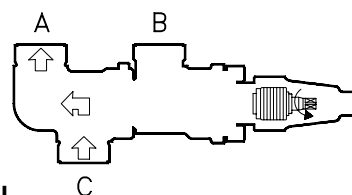


Fig. 3 - II

**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 safety valve  
**Type DSV 32**

Nominal bore	<b>DN 32</b> (1¼ in.)	
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	DSV 32	-30°C/+100°C (-22°F/+212°F)
Restrictions	DSV 32	Only for use in systems in conjunction with two SFV 15 or two SFV 20 (Max. 3% pressure drop in upstream line according to prEN13136)
Maximum allowable working pressure	DSV 32	<b>25 bar</b> (363 psi) <b>-50°C/+100°C</b> (-58°F/+212°F)

**Conformity and Assessment Procedure Followed**

Category		<b>I</b>
Module		<b>A</b>
Nominal bore	Standard application	<b>DN 32</b> (1¼ in.)

**Name and Address of the Notified Body which carried out the Inspection**

TÜV-Nord e.V.  
Grosse Bahnstrasse 31  
22525 Hamburg, Germany



(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 10222-4

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

prEN 12284      prEN 13136

AD-Merkblätter      DIN 3158

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

**Name:** Morten Steen Hansen

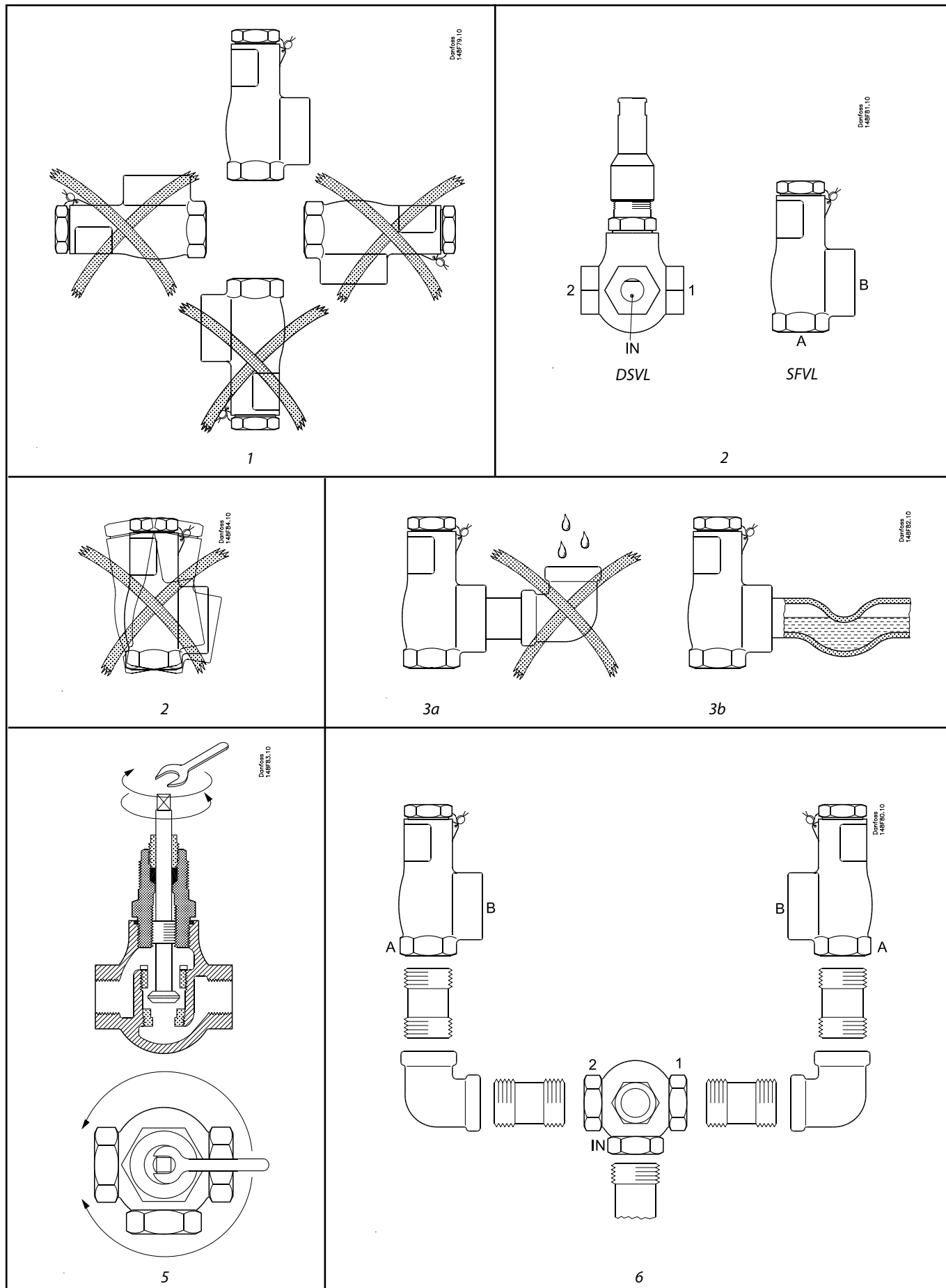
**Title:** Production Manager

**Signature:**

Morten Steen Hansen

**Date:** 29/11/2001

14889712 - rev. 0



**Installation**

The sealing plastic caps should remain in place as supplied by the factory until immediately before installation. This is a precaution to prevent dirt or foreign debris from entering the valve.

The relief valve should be connected as close as possible to the pressure vessel while remaining above the refrigerant liquid level.

To ensure exact operation of the safety relief valve, it should be installed with the spring housing upwards. (Fig. 1)

When the valve is mounted, it is important to avoid the influence of static, dynamic and thermal stress. (Fig. 2)

It is recommended that safety relief valves exhaust into the open air with a U-pipe filled with oil on the discharge branch, to prevent dirt from penetrating into the valve. (Fig. 3b)

The relief valve should not be discharged prior to installation. A very precise technique has been applied for the production of the seat. However, this seat can still be damaged, if dirt is blown from the pipe system into the valve.

It is recommended that the valves be installed in pairs in conjunction with the double stop valve type DSVL. (Fig. 6) DSVL valves are used as changeover valves between two SFVL safety valves. Use of the DSVL assures that both safety valves may not be isolated from the vessel at the same time. A conventional stop valve should not be used to isolate the relief valve from the vessel.

When the spindle is turned counter clockwise (as viewed from the spindle end) to the front seated position, port number one (1) is fully open and port number two (2) is closed. (Fig. 5)

When the spindle is turned clockwise (as viewed from the spindle end) to the back seated position, port number one (1) is fully closed and port number two (2) is open.

**Maintenance and re-calibration**

In certain countries the authorities demand that the valves are calibrated at least once a year (please refer to local rules and regulations). After adjustment of the set pressure in the factory, the valves are sealed. Danfoss can only guarantee correct operation, as long as the seal remains unbroken. Danfoss does not recommend that the relief valves settings be adjusted or changed in the field.

148R9525

Installation

148R9525

Fig. 1

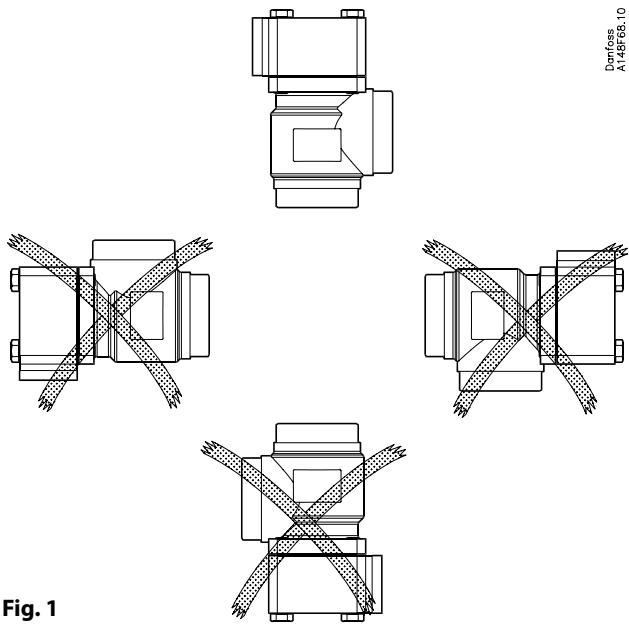


Fig. 2

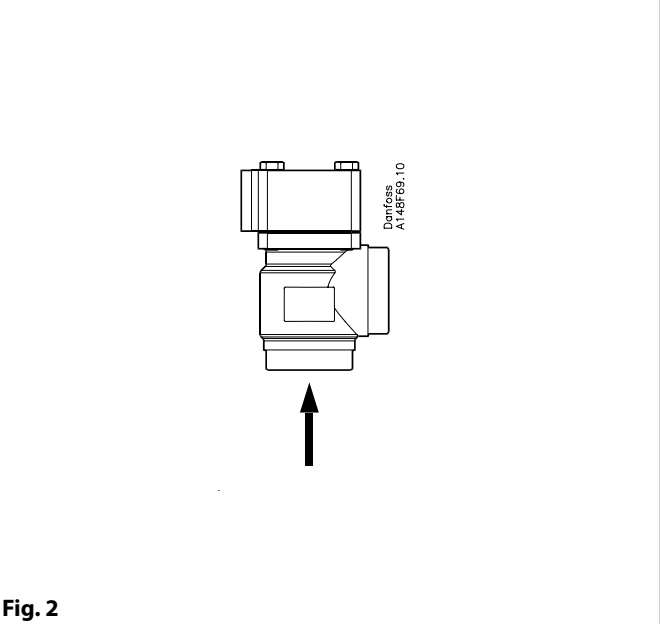


Fig. 3

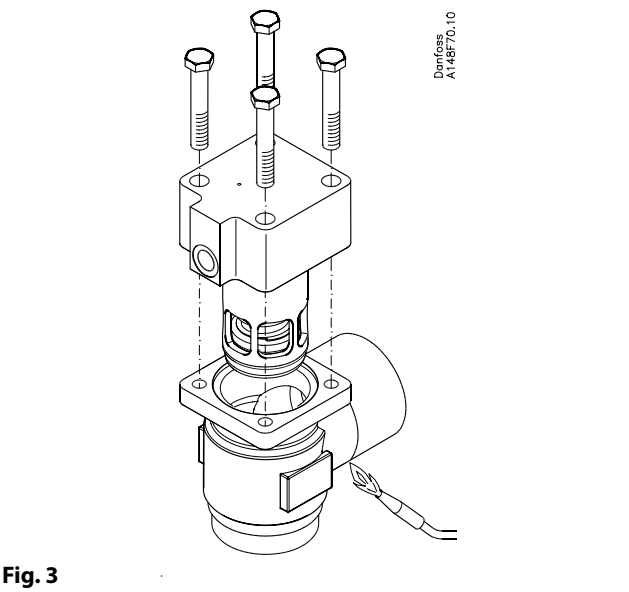


Fig. 4

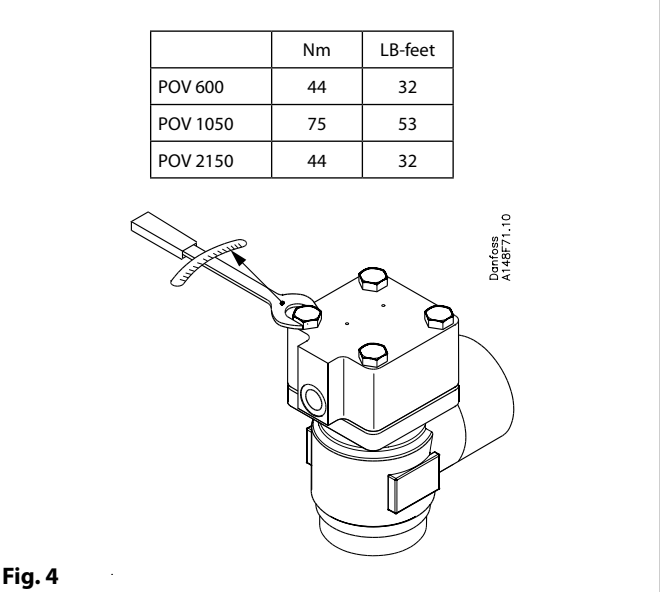
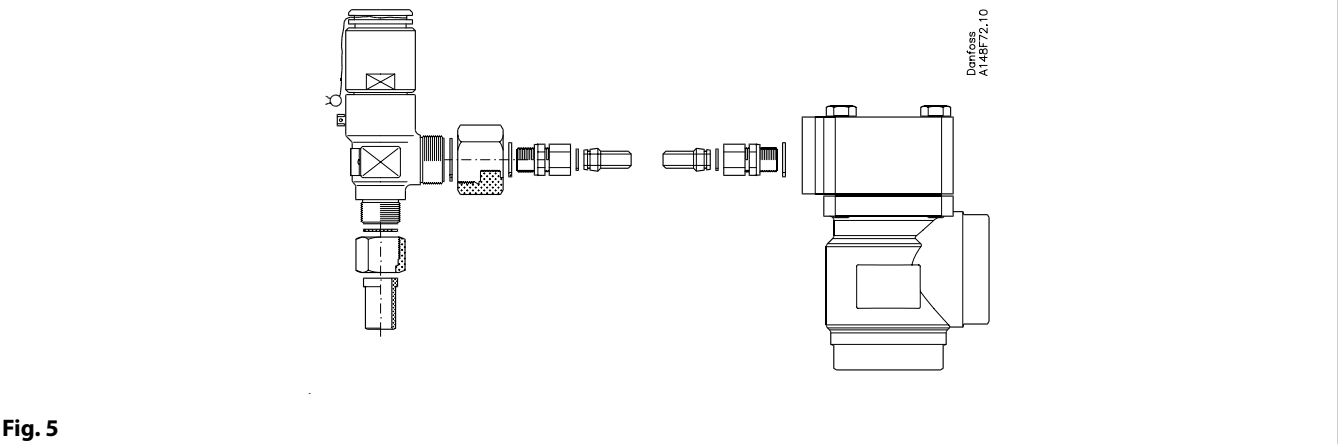


Fig. 5





## Installation

### 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

POV: -50/+150°C (-58/+302°F)

### Pressure range

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

### Installation

The POV pilot operated safety valve is used in conjunction with the BSV back pressure independent safety valve and is specifically designed for protecting compressors against excessive pressure (fig. 5).

See technical leaflet for further installation instructions.

The valve should be installed with the spring housing upwards (fig. 1). By mounting of the valve it is important to avoid the influence of thermic and dynamic stress (vibrations).

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

The valve should be installed with the flow towards the valve cone as indicated by the arrow on fig. 2.

Flow in the opposite direction is not acceptable.

### Welding

The top should be removed before welding (fig. 3) to prevent damage to the O-rings between the valve body and top, as well as the teflon gasket in the valve seat. Do not use high-speed tools for dismantling and reassembling. Be sure that grease on bolts is intact before reassembling. 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 top.

Removing the top can be omitted provided that:

The temperature in the area between the valve body and top as well as in the area

between the seat and the teflon cone 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.

### Assembly

Remove welding debris and any dirt from pipes and valve body before assembly.

### Tightening

Tighten the top with a torque wrench to the values indicated in the table (fig. 4). Do not use high-speed tools for dismantling and reassembling. Be sure that grease on bolts is intact before reassembling.

### Colours and identification

Precise identification of the valve is made via the ID label on the top, 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 label when painting the valve is recommended.

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**

Pilot operated internal safety valve  
**Type POV 600, 1050 and 2150**

Nominal bore	<b>DN 40-80 mm</b> (1½ - 3 in.)	
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	POV 600, 1050 and 2150	-50°C/+150°C (-58°F/+302°F)
Restrictions	POV 600, 1050 and 2150	Only for use in conjunction with BSV 8.
Maximum allowable working pressure	POV 600, 1050 and 2150	<b>40 bar</b> (580 psi) <b>-50°C/+150°C</b> (-58°F/+302°F)

**Conformity and Assessment Procedure Followed**

Category	<b>II</b>	
Module	<b>D1</b>	
Certificate ID	D1: 07 202 0511 Z 0009/1/H-0002	
Nominal bore	Standard application	DN 40-80 mm (1½ - 3 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**

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

EN 12284                      EN 13136  
AD-2000 Merkblatt        DIN 3158

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

**Name:** Michael Breumsø

**Title:** Production Manager

**Signature:**

**Date:** 19/12/2005

148B9741 - rev. 2

#### Installation

148R9530

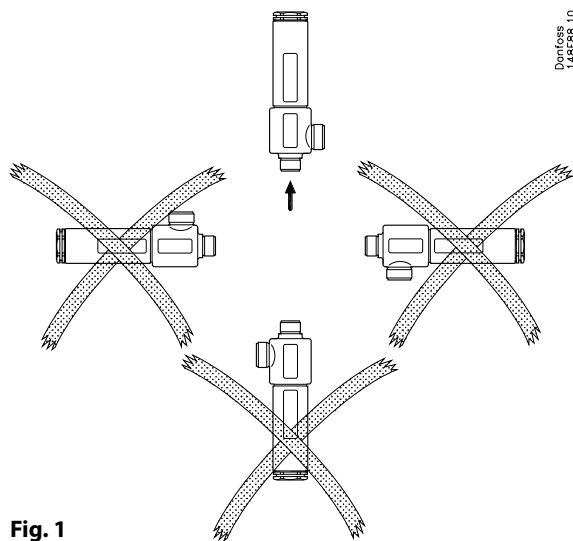


Fig. 1

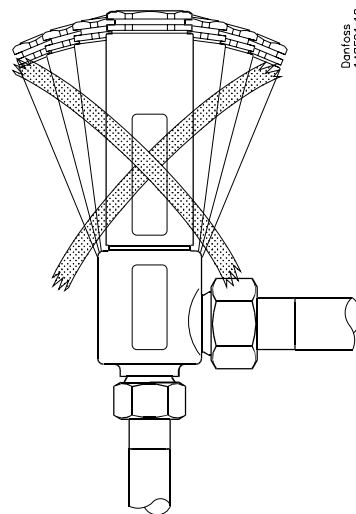


Fig. 2

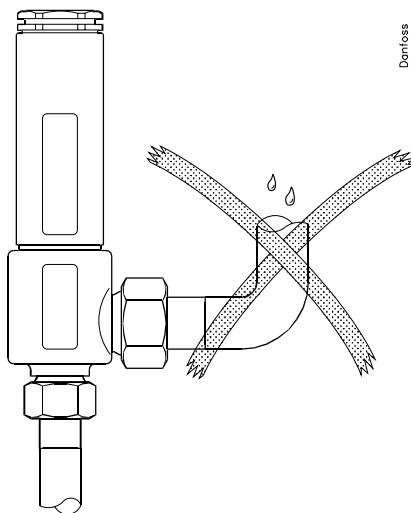


Fig. 3

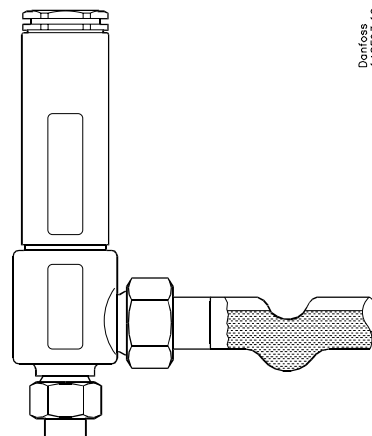


Fig. 4

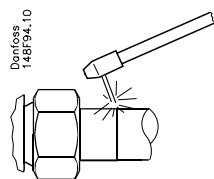


Fig. 5

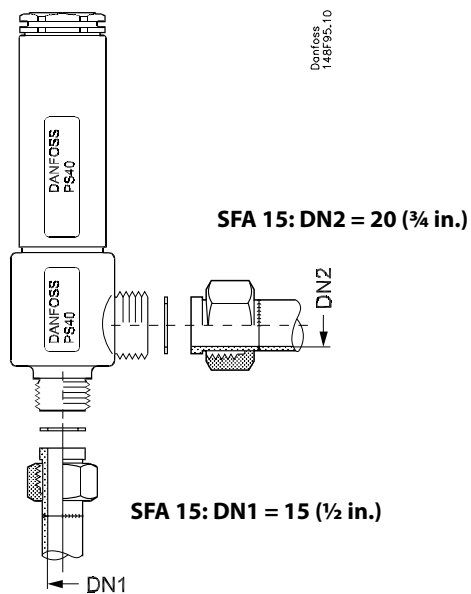


Fig. 6

148R9530

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**Installation**

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**Refrigerants**

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

**Temperature range**

SFA 15: -30/+100°C (-22/+212°F).

**Pressure range**

The valve is designed for a max. working pressure of 40 bar g (580 psi g). Danfoss Industrial Refrigeration A/S is supplying safety valves adjusted for a certain pressure (indicated on the ID-plate) and sealed. Danfoss Industrial Refrigeration guarantees correct pressure as long as the seal remains unbroken.

**Installation**

The valve should be installed with the spring housing upwards (fig. 1). When mounting the safety valve it is important to avoid the influence of thermic and dynamic stress (vibrations) (fig. 2). The outlet pipe of the valve must be designed as to prevent dirt from penetrating into the valve (fig. 3). For valves with outlet in the open air, an oil filled U-pipe is an efficient protection against the entrance of water and dirt (fig. 4). 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.

**Welding**

If welding fittings are applied, these should be dismantled during the welding process (fig. 5). Only materials and welding methods, compatible with the flange material, must be welded to the flange.

Avoid welding debris and dirt in the threads of the housing and pipes.

**Assembly**

Remove welding slag and dirt from tubes and housing before the valve is mounted. Mount the valve as shown in fig. 6.

**Colours and identification**

The valves are Zinc-Chromated in the factory. If further corrosion protection is required, it can be painted. Precise identification of the valve is made via the ID-plate on the valve housing. 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

*Danfoss*

**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 safety valve  
**Type SFA 15**

Nominal bore	<b>13 mm.</b> (0.512 in.)	
Classified for	Fluid Group I (all refrigerants (toxic, nontoxic, flammable and nonflammable)).	
Temperature range	SFA 15	<b>-30°C/+100°C</b> (-22°F/+212°F)
Maximum allowable working pressure	SFA 15	<b>10 - 40 bar</b> (143 - 580 psi)

**Conformity and Assessment Procedure Followed**

Category	<b>IV</b>	
Module	<b>B + D</b>	
Certificate ID	B: 07 202 1837 Z 0004/4/0001 D: 07 202 0511 Z 0009/1/H-0001	
Nominal bore	Standard application	<b>13 mm.</b> (0.512 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 10222-4      EN 10213-3

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

AD 2000-Merkblätter	DIN 3158	prEN 12284
	DIN 3320	
VdTÜV-Merkblatt Sicherheitsventil 100	DIN 3840	prEN 13136

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

**Name:** Morten Steen Hansen

**Title:** Production Manager

**Signature:**

Morten Steen Hansen

**Date:** 08/01/2004

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#### Installation

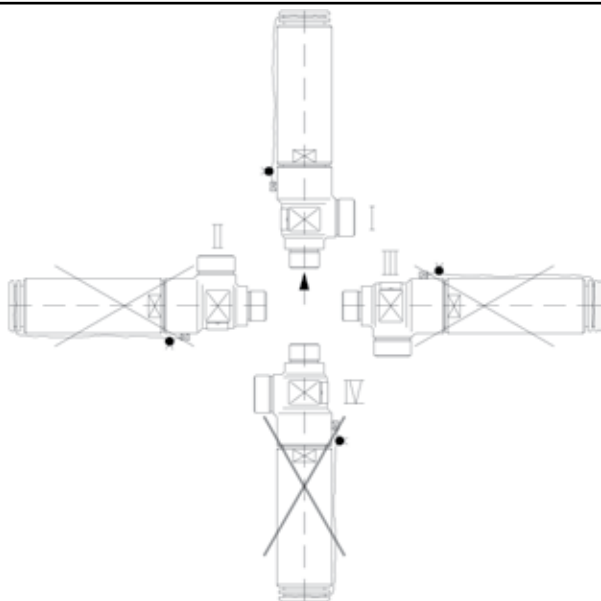


Fig. / Abb. 1



Fig. / Abb. 2



Fig. / Abb. 3

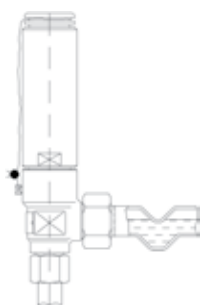


Fig. / Abb. 4

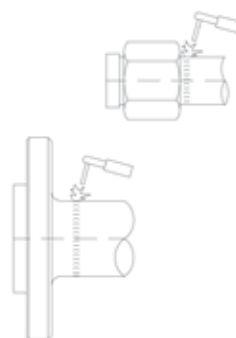


Fig. / Abb. 5

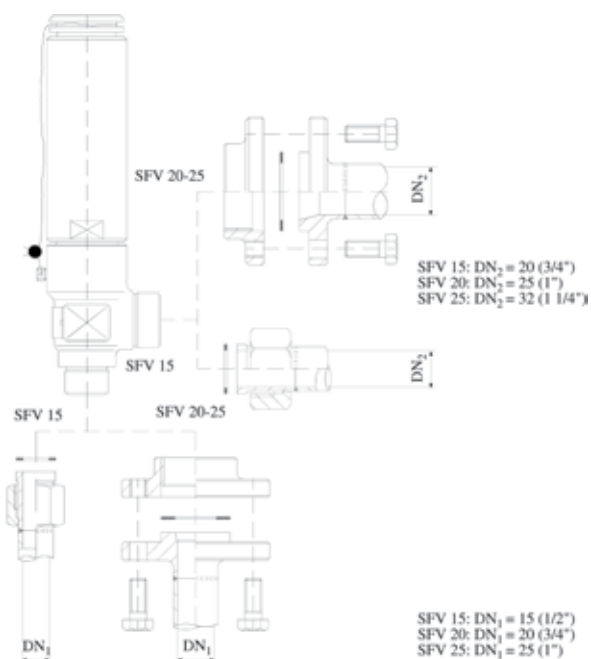


Fig. / Abb. 6

## Installation

**Kølemidler**

Gældende for alle almindelige ikke-brændbare kølemidler, inklusive R717 og ikke-korroderende gasser/væsker, afhængigt af forseglingsmaterialets kompatibilitet. Brændbare kulbrinter anbefales ikke. Ventilen bør kun bruges i lukkede kredsløb. Kontakt venligst Danfoss, hvis du ønsker flere oplysninger.

**Temperaturområde**

SFV 15 - 25: -30/+100°C.

**Temperaturområde**

Ventilerne er konstrueret til at kunne klare et maksimalt arbejdstryk på 25 bar g (362 psi g). Danfoss Industrial Refrigeration A/S leverer sikkerhedsventiler, der er justeret til at kunne klare et vist tryk (angivet på ID-pladen) og forsejlet. Danfoss Industrial Refrigeration garanterer et korrekt tryk, så længe sejlet ikke er brudt.

Ventilen skal installeres med fjederhuset i oprejst position (fig. 1). Når sikkerhedsventilen installeres, er det vigtigt at undgå termisk og dynamisk tryk (vibrationer) (fig. 2). Ventilens afgangsrør skal konstrueres således, at der ikke kan trænge snavs ind i ventilen (fig. 3).

Et U-rør fyldt med olie beskytter effektivt mod, at vand og snavs trænger ind, i tilfælde, hvor ventilerens afgangsrør fører ud til omgivelserne (fig. 4).

Ventilen er konstrueret til at kunne modstå et højt indre tryk. Uanset hvilket system, der er tale om, skal det være konstrueret til at undgå væskefælder og reducere risikoen for hydraulisk tryk forårsaget af termisk ekspansion. Sørg for, at ventilen er beskyttet mod kortvarige tryk såsom "væskeslag" i systemet.

**Svejsning**

Hvis svejsefittings anvendes, bør disse afmonteres, mens der svejdes (fig. 5). Kun materialer og svejsemetoder, der er kompatible med flangens materialer, kan bruges til svejsning på flangen.

Undgå svejserester og snavs i husets og rørens gevind.

**Montering**

Fjern svejserester og snavs fra rør og huset, før ventilerne monteres. Monter ventilerne som vist i fig. 6.

**Farver og identifikation**

Ventilerne er belagt med zink-krom fra fabrikkens side. Hvis der er behov for yderligere rustbeskyttelse, kan ventilerne males. Nøjagtig identificering af ventilen udføres ved hjælp af ID-pladen på ventilhuset. Kontakt Danfoss i tilfælde af tvivl.

Danfoss påtager sig intet ansvar for fejl eller mangler. Danfoss Industrial Refrigeration forbeholder sig ret til at ændre produkter og specifikationer uden forudgående varsel.

## Installation

**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**

SFV 15 - 25: -30/+100°C (-22/+212°F).

**Pressure range**

The valve is designed for a max. working pressure of 25 bar g (362 psi g). Danfoss Industrial Refrigeration A/S is supplying safety valves adjusted for a certain pressure (indicated on the ID-plate) and sealed. Danfoss Industrial Refrigeration guarantees correct pressure as long as the seal remains unbroken.

The valve should be installed with the spring housing upwards (fig. 1). By mounting of the safety valve it is important to avoid the influence of thermic and dynamic stress (vibrations) (fig. 2). The outlet pipe of the valve must be designed as to prevent dirt from penetrating into the valve (fig. 3).

For valves with outlet in the open air, an oil filled U-pipe is an efficient protection against the entrance of water and dirt (fig. 4). 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.

**Welding**

If welding fittings are applied, these should be dismantled during the welding process (fig. 5). Only materials and welding methods, compatible with the flange material, must be welded to the flange.

Avoid welding debris and dirt in the threads of the housing and pipes.

**Assembly**

Remove welding slag and dirt from tubes and housing before the valve is mounted. Mount the valve as shown in fig. 6.

**Colours and identification**

The valves are Zinc-Chromated in the factory. If further corrosion protection is required, it can be painted. Precise identification of the valve is made via the ID-plate on the valve housing. 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.

## Installation

**Kältemittel**

Anwendbar für alle herkömmlichen, nicht entflammenden Kältemittel einschließlich R717 und nicht aggressive Gase/Flüssigkeiten je nach Verträglichkeit mit Dichtwerkstoff. Der Einsatz mit brennbaren Kohlenwasserstoffen wird untersagt. Das Ventil ist nur für die Verwendung in geschlossenen Kreisläufen empfohlen. Für weitere Informationen wenden Sie sich bitte an Danfoss.

**Temperaturbereich**

SFV 15 - 25: -30/+100 °C

**Druckbereich**

Das Ventil ist für einen max. Betriebsdruck von 25 bar g (362 psi g) ausgelegt. Danfoss Industrial Refrigeration A/S liefert Sicherheitsventile, die auf einen bestimmten Druck (angegeben auf dem Kennschild) eingestellt und versiegelt sind. Danfoss Industrial Refrigeration garantiert den richtigen Druck, solange die Versiegelung nicht aufgebrochen wird.

Das Ventil sollte mit dem Federgehäuse nach oben (Abb. 1) eingebaut werden. Beim Einbau des Sicherheitsventils ist es wichtig, den Einfluss von thermischer und dynamischer Beanspruchung (Vibrationen) zu vermeiden (Abb. 2). Das Auslassrohr des Ventils muss so konstruiert sein, dass Schmutz nicht in das Ventil eindringen kann (Abb. 3).

Für Ventile mit einem Auslass an die freie Luft ist ein ölgefüllter U-Stutzen ein wirksamer Schutz gegen das Eindringen von Wasser und Schmutz (Abb. 4).

Das Ventil ist für einen hohen Innendruck ausgelegt. Das Verrohrungssystem sollte jedoch ausgelegt sein, um Flüssigkeitseinschlüsse zu verhindern und das Risiko von Hydraulikdruck, verursacht durch Wärmeausdehnung, zu senken. Es muss sichergestellt werden, dass das Ventil vor Druckstößen wie Wasserschlag im System geschützt ist.

**Schweißen**

Bei Verwendung von Schweißfittings sollten diese während des Schweißvorgangs abgenommen werden (Abb. 5). Nur mit dem Flanschwerkstoff kompatible Werkstoffe und Schweißverfahren dürfen beim Schweißen des Flansches verwendet werden.

Schweißüberreste und Schmutz in den Gewinden des Gehäuses und in den Rohrleitungen sind zu vermeiden.

**Zusammenbau**

Schweißschlacke und Schmutz von Rohren und Gehäusen entfernen, bevor das Ventil eingebaut wird. Das Ventil wie in Abb. 6 gezeigt einbauen.

**Farben und Kennzeichnungen**

Die Ventile sind ab Werk zinkchromatisiert. Falls weiterer Korrosionsschutz erforderlich ist, können sie lackiert werden. Das Ventil lässt sich über das Kennschild am Ventilgehäuse genau identifizieren. Wenden Sie sich im Zweifelsfall bitte an Danfoss.

Danfoss übernimmt keine Verantwortung für Fehler und Auslassungen. Danfoss Industrial Refrigeration behält sich das Recht zu Änderungen an Produkten und technischen Daten ohne Vorankündigung vor.

**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 safety valve

**Type SFV 15, 20 and 25**

Nominal bore	<b>13 mm</b> (0,512 in.) for SFV 15 <b>18 mm</b> (0,709 in.) for SFV 20 <b>23 mm</b> (0,906 in.) for SFV 25	
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	SFV 15-25	-30°C/+100°C (-22°F/+212°F)
Maximum allowable working pressure	SFV 15-25	<b>10 - 25 bar</b> (143 - 362 psi g) <b>-30°C/+100°C</b> (-22°F/+212°F)

**Conformity and Assessment Procedure Followed**

Category	<b>IV</b>	
Module	<b>B + D</b>	
Certificate ID	B: 07 202 0511 Z 0078/1/H-0001 D: 07 202 0511 Z 0009/1/H-0001	
Nominal bore	Standard application	<b>13 mm</b> (0,512 in.) for SFV 15 <b>18 mm</b> (0,709 in.) for SFV 20 <b>23 mm</b> (0,906 in.) for SFV 25

**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 10222-4

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

prEN 12284 prEN 13136

AD-Merkblätter DIN 3158

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

**Name:** Morten Steen Hansen

**Title:** Production Manager

**Signature:**

**Date:** 29/11/2001

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