



Collection of Instructions

Instructions for Danfoss

Refrigeration & Air conditioning Controls



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Stop/check and check valves

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HFC, HCFC, CFC

NRV 6 → 19

NRV 6s → 19s

NRVH 6s → 19s

NRV 22s → 35s

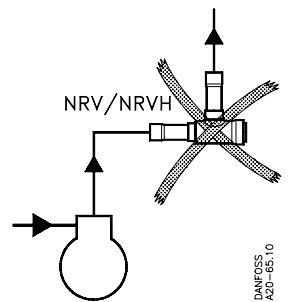
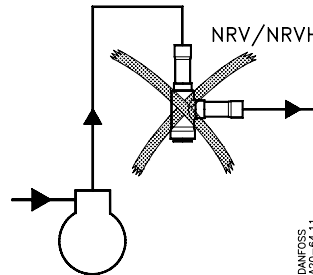
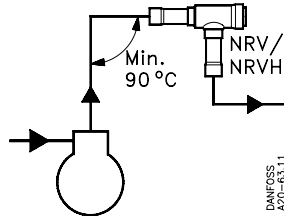
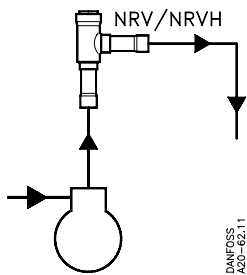
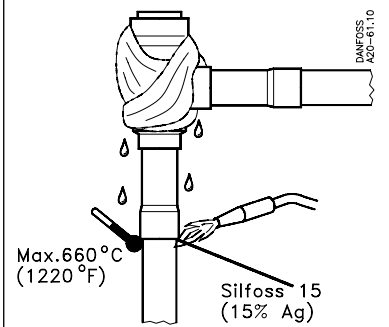
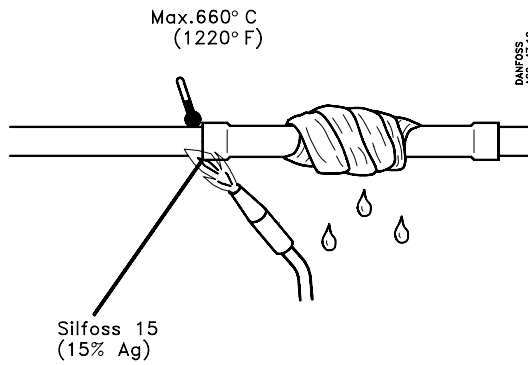
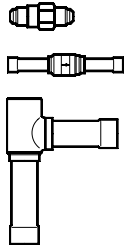
NRVH 22s → 35s

$t_{\min} = -50^{\circ}\text{C} / -58^{\circ}\text{F}$

$t_{\max} = 140^{\circ}\text{C} / 285^{\circ}\text{F}$

PS (MWP):

46 bar / 667 psig



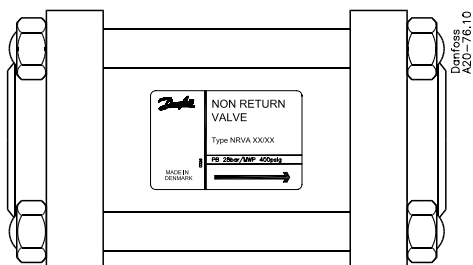


Fig. 1

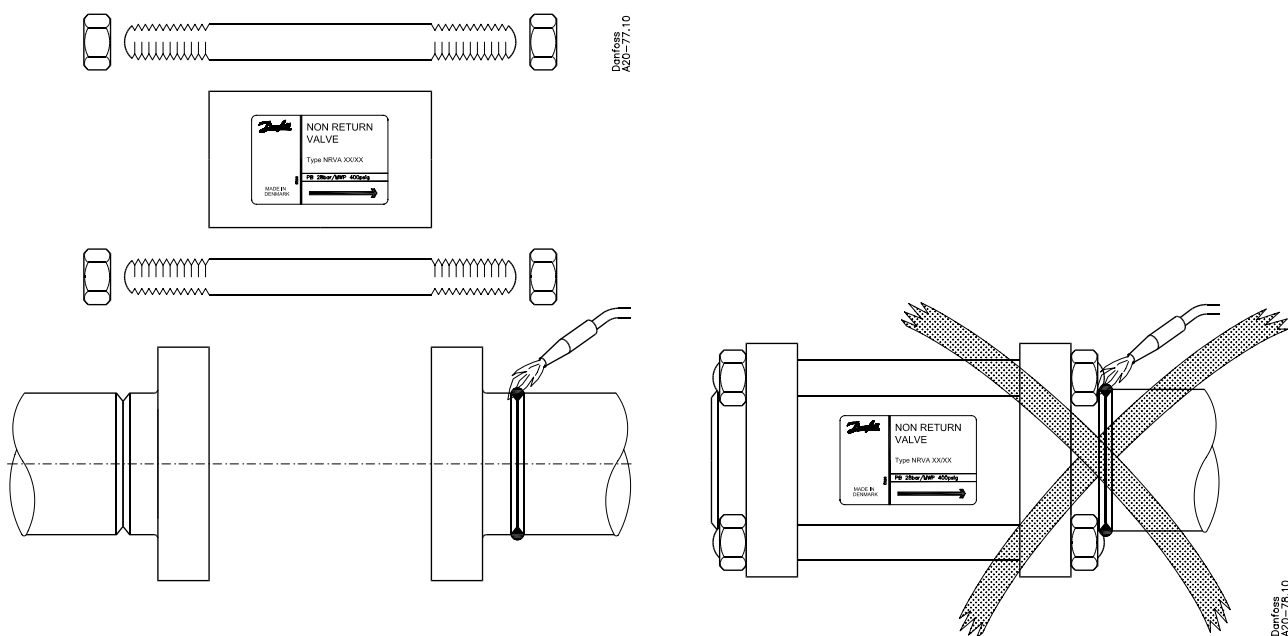
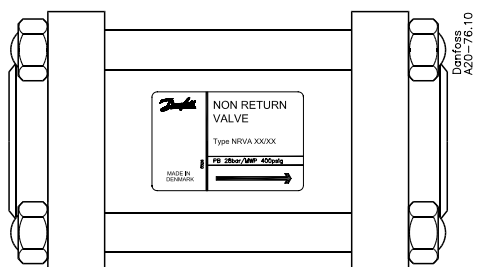


Fig. 2



Type	Bolt	Nm	LB-Feet
NRVA 15-20	2 × M12	50	37
NRVA 25-32	4 × M12	70	52
NRVA 40-50	4 × M12	70	52
NRVA 65	8 × M16	100	74

Fig. 3

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

NRVA: -50/+140°C (-58/+285°F)

Pressure range

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

Installation

The valve must be installed in the flow direction as indicated by the arrow on the valve housing (fig. 1).

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

The internal parts should be removed before welding (fig. 2) to prevent damage to the gaskets, as well as the teflon gasket in the valve seat.

Only materials and welding methods, compatible with the flange material, must be welded to the flanges. The flanges should be cleaned internally to remove welding debris on completion of welding and before the valve is reassembled.

Be careful not to damage the teflon on the cone.

The valve inclusive flanges must be free from stresses (external loads) after installation.

The valves must not be mounted in systems where the outlet side of the valve is open to atmosphere. Both the inlet and 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.

Tightening

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

Surface protection

The external surface of the flanges must be prevented against corrosion with a suitable protective coating after installation and assembly.

Maintenance**Dismantling the valve**

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

- Check that the gasket has not been damaged.
- Check that the cone is free of scratches and impact marks.
- If the teflon cone ring has been damaged, the whole cone assembly must be replaced.

Assembly

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

Tightening

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

Use only original Danfoss parts, including 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 check valve

Type NRVA

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: Michael Breumsø

Title: Production Manager

Signature:

Date: 13/10/2004

148B9725 - rev. 1

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 check valve

Type NRVA

Nominal bore	DN 32-65 mm. (1 ¹ / ₄ - 2 ¹ / ₂ in.)	
Classified for	Fluid Group I (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	NRVA	-50°C/+140°C (-58°F/+284°F)
Maximum allowable working pressure	NRVA	40 bar (580 psi) -50°C/+140°C (-58°F/+284°F)

Conformity and Assessment Procedure Followed

Category	II	
Module	D1	
Certificate ID	-	
Nominal bore	Standard applications	DN 32-65 mm (1 ¹ / ₄ - 1 ¹ / ₂ 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

References of other Technical Standards and Specifications used

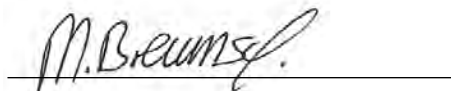
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AD-Merkblätter DIN 17173

Authorised Person for the Manufacturer within the European Community

Name: Michael Breumsø

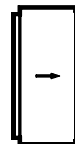
Title: Production Manager

Signature:



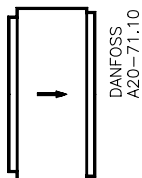
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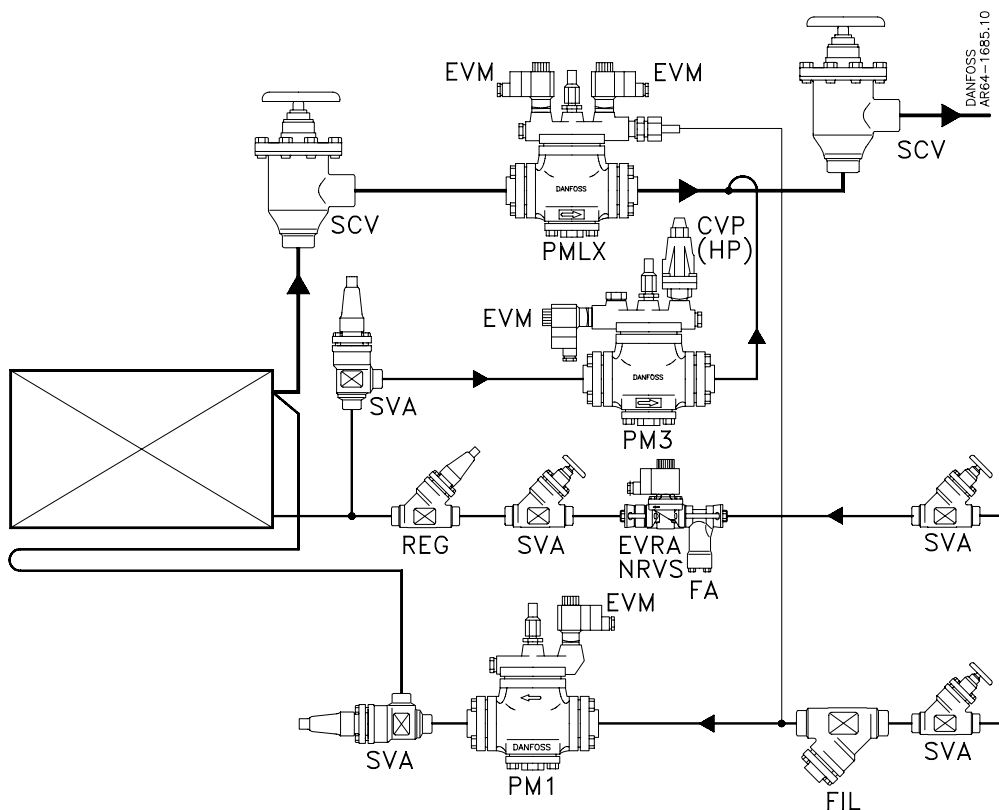
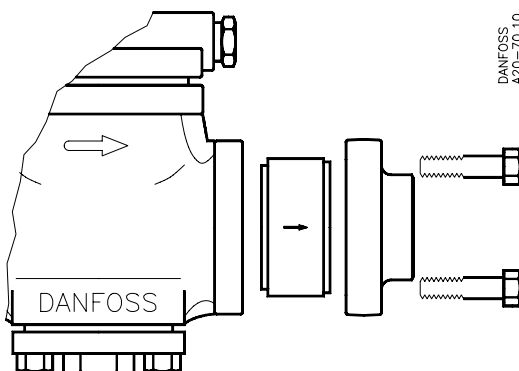
Kun i væskeledninger. Til direkte montering på PM, EVRA og EVRAT.
Only in liquid lines. For direct mounting on PM, EVRA and EVRAT.
Nur in Flüssigkeitsleitungen. Für direkte Montage an PM, EVRA und EVRAT.
Pour les conduites de liquide seulement. Pour montage directement sur PM, EVRA et EVRAT.
Sólo en líneas de líquido. Para montaje directo en PM, EVRA y EVRAT.



t _{min}	-50°C/-58°F
t _{max}	140°C/285°F
PB/MWP	28 bar/400psig

Type	Code No.
NRVS 15	020-2032
NRVS 25	020-2033
NRVS 32	020-2034
NRVS 40	020-2035
NRVS 50	020-2036
NRVS 65	020-2037

020R9501



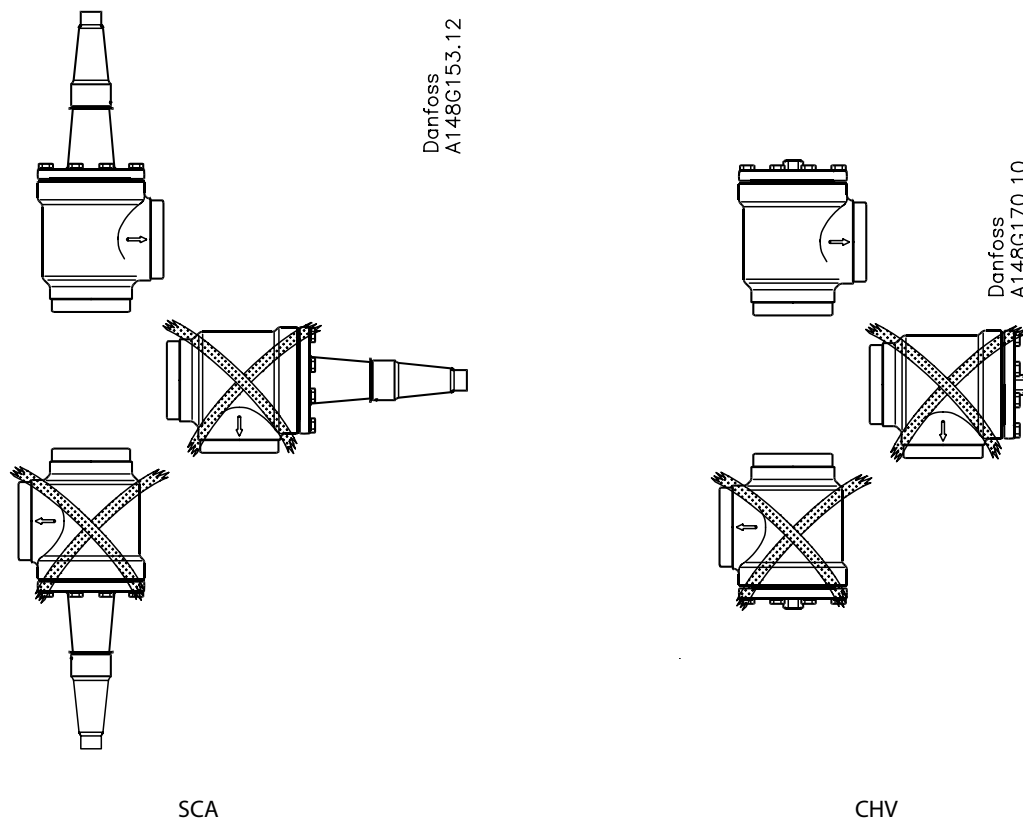


Fig. / Abb. 1

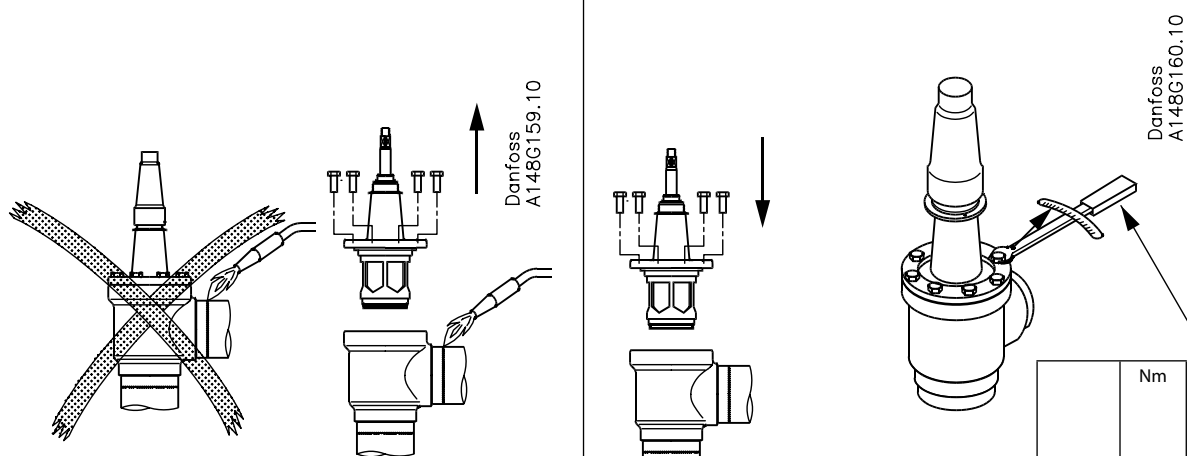


Fig. / Abb. 2

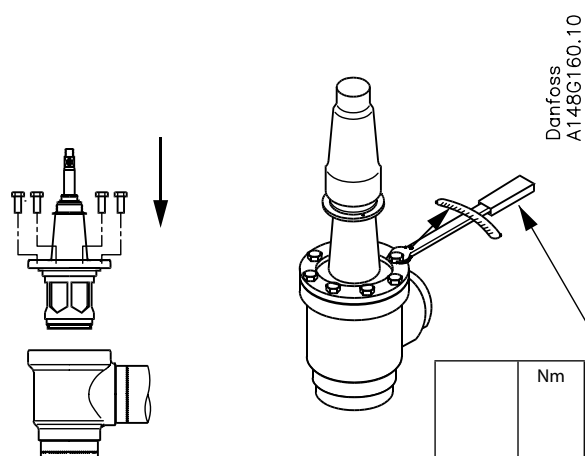


Fig. / Abb. 3

	Nm	LB-fod LB-feet LB-ft Pieds-livres
DN 50	44	32
DN 65	75	53
DN 80	44	32
DN 100	75	53
DN 125	183	135

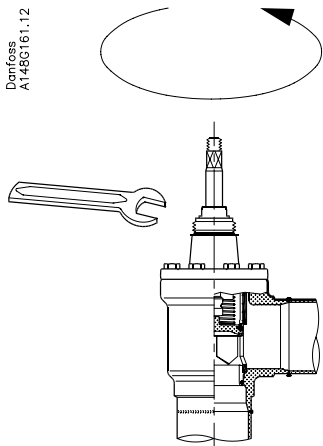


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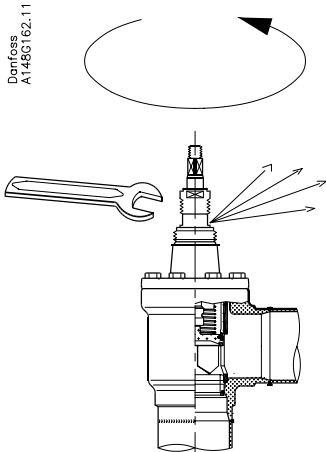


Fig. / Abb. 5

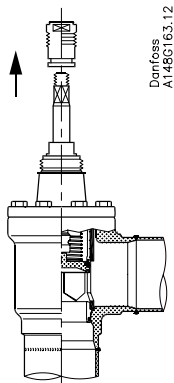


Fig. / Abb. 6

	Nm	LB-fod LB-feet LB-ft Pieds-livres
DN 50-65-80-100	60	45
DN 125	80	60

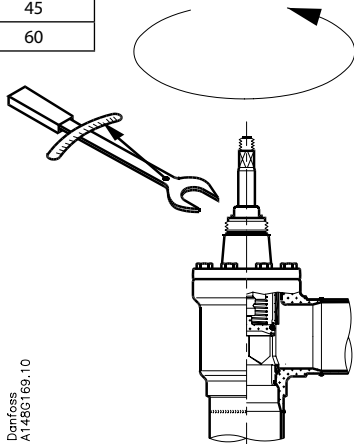


Fig. / Abb. 7

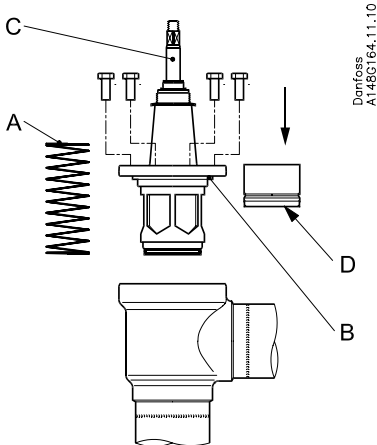


Fig. / Abb. 8a

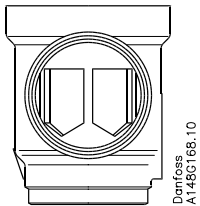


Fig. / Abb. 8b

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

SCA: -60/+150°C (-76/+302°F)

CHV: -60/+150°C (-76/+302°F)

Pressure range

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

Installation

The valve must be installed with the spindle on top vertically upwards position (fig. 1). Stop check valves should be opened by hand without the use of tools or other devices. 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.

Flow direction

Direct the flow towards the cone as indicated by an arrow on the valve housing (fig. 1).

Welding

The bonnet should be removed before welding (fig. 2) 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.

Be careful not to damage the teflon cone ring.

The valve housing must be free from stresses (external loads) after installation. Check and stop/check 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. 3).

Important for the SCA valves:

Full capacity is only obtained when the spindle is screwed outward, "into bonnet", i.e. counterclockwise (fig. 3).

Tightening

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

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

Colours and identification

The SCA and CHV valves are painted with a yellow 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 name plate when repainting the valve is recommended.

Maintenance

Packing gland (only SCA)

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. 4)

To backseat the valve, turn the spindle counterclockwise until the valve is fully open.

Pressure equalization (fig. 5)

In some cases, pressure forms behind the packing gland. Hence, a handwheel or a large washer 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. 6)

Handwheel and packing gland can now be removed.

Dismantling the valve (fig. 8a)

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

- Check that the spring (pos. A) is intact.
- Check that the O-ring (pos. B) has not been damaged.

- Check that the spindle (pos. C) is free of scratches and impact marks.
- If the teflon cone ring (pos. D) has been damaged, the whole cone assembly must be replaced.

Assembly (fig. 8a)

Remove dirt, if any, from pipes and housing before assembly. Important for the SCA valves: Full capacity is only obtained when the spindle is screwed outward, "into the bonnet", i.e. counterclockwise (fig. 3).

Rotate the V-port cylinder until placed as shown in fig. 8b. The kv value is optimal in this position.

Use a torque wrench to tighten the bonnet (fig. 3).

Tightening

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 3). Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 7).

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

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

Description of Pressure Equipment

Refrigerant Check and Stop/Check valve, with straight or angled arrangement
Type CHV, SCA

Nominal bore	DN 50-125 mm. (2-5 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	Standard application	PS40 bar (580 psi) at -60°C/+150°C (-76°F/302°F)
	High pressure application	PS50 bar (725 psi) at -90°C/+50°C (-130°F/122°F) PS40 bar (580 psi) at +50°C/+150°C (+122°F/302°F)

Conformity and Assessment Procedure Followed

Category		II	III
Module		D1	B1 + D
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	Standard applications	DN 50-80 mm. (2-3 in.)	DN 100-125 mm. (4-5 in.)
	High pressure application	DN 50-65 mm. (2-2½ in.)	DN 80-125 mm. (3-5 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 10028-3 EN 10213-3 EN 10222-4

References of other Technical Standards and Specifications used

DIN 3840
AD-Merkblätter

Authorised Person for the Manufacturer within the European Community

Name: Morten Steen Hansen

Title: Production Manager

Signature:

Date: 03/07/2002

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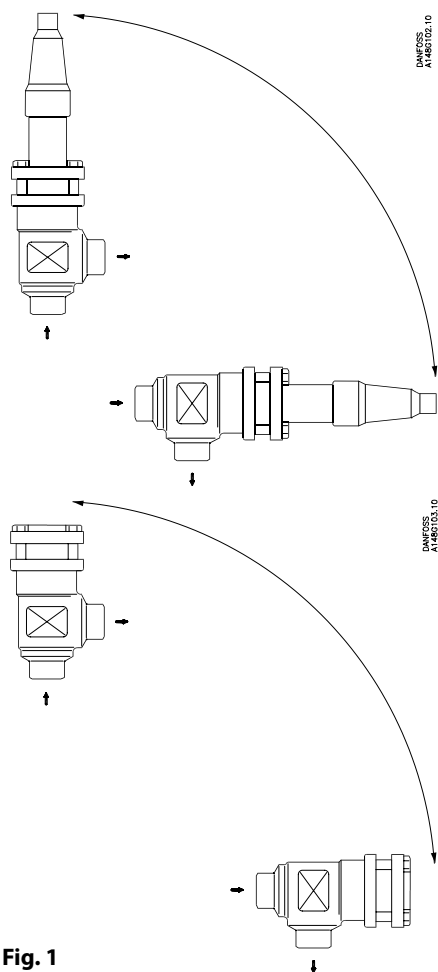


Fig. 1

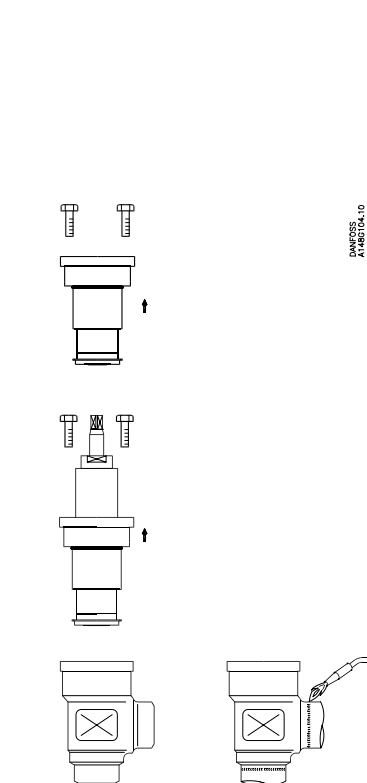


Fig. 2

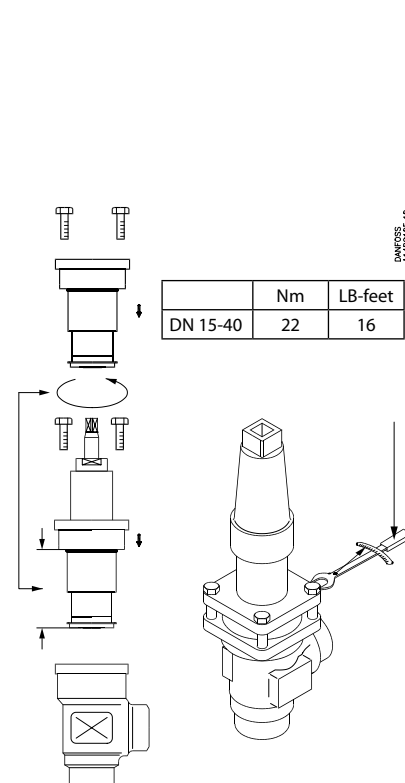


Fig. 3

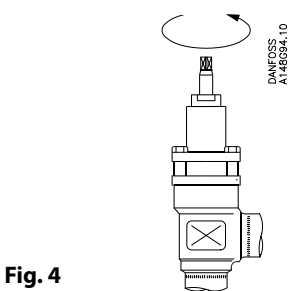


Fig. 4

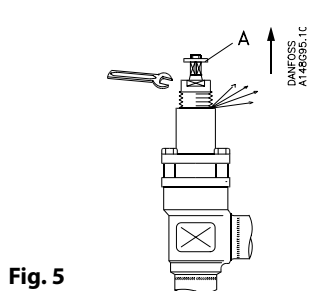


Fig. 5

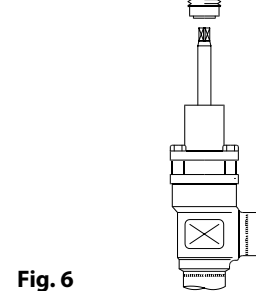


Fig. 6

	Nm	LB-feet
DN 15-25	50	37
DN 25-40	70	52

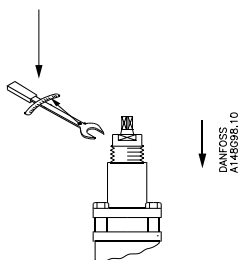


Fig. 7

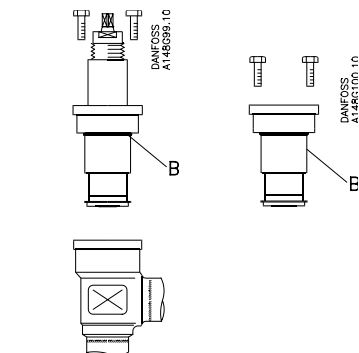


Fig. 8

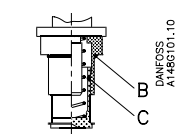


Fig. 9

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

SCA: -60/+150°C (-76/+302°F)
CHV: -60/+150°C (-76/+302°F)
SCA-SS: -60/+150°C (-76/+302°F)
CHV-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 and low temperature versions.

Installation

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

Flow direction

Direct the flow towards the cone as indicated by an arrow on the valve housing (fig. 1).

Welding

The bonnet should be removed before welding (fig. 2) to prevent damage to the O-rings in the packing gland and the gasket 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.

Be careful not to damage the teflon cone ring.
The valve housing must be free from stresses (external loads) after installation.

Stop check 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. 3).

Important for the SCA valves:

Full capacity is only obtained when the spindle is screwed outward, "into bonnet", i.e. counterclockwise (fig. 3).

Tightening

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

Colours and identification

The SCA and CHV valves are painted with a yellow 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 name plate when repainting the valve is recommended.

Maintenance

Packing gland (only SCA types)

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. 4)

To backseat the valve, turn the spindle counterclockwise until the valve is fully open.

Pressure equalization (fig. 5)

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. 6)

Handwheel and packing gland can now be removed.

Dismantling the valve (fig. 8)

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

- Check that the gasket (pos. B) 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)

O-ring (pos. C) prevents the cone from falling out. Pull the cone clear of the bonnet. Be careful not to loose the spring. Remove dirt, if any. Mount O-ring (pos. C) on cone. Mount spring and cone in bonnet.

Assembly

Remove dirt, if any, from pipes and housing before assembly. Important for the SCA valves: Full capacity is only obtained when the spindle is screwed outward, "into the bonnet", i.e. counterclockwise (fig. 3). Use a torque wrench to tighten the bonnet (fig. 3).

Tightening

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 3). Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 7).

Use only original Danfoss parts, including packing glands 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.

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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 SCA/CHV, SCA-SS/CHV-SS

Nominal bore	DN ≤ 25 mm (1 in.)
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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:

Date: 07/01/2003

148B9718 - rev. 1

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/check valve, with straight or angled arrangement

Type SCA/CHV, SCA-SS/CHV-SS

Nominal bore	DN 32-40 mm (1 $\frac{1}{4}$ - 1 $\frac{1}{2}$ 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	SCA/CHV	PS40 bar (580 psi) at -60°C/+150°C (-76°F/+302°F)
	SCA-SS/CHV-SS	PS40 bar (580 psi) at -60°C/+150°C (-76°F/+302°F)

Conformity and Assessment Procedure Followed

Category	II
Module	D1
Certificate ID	D: 07 202 0511 Z 0009/1/H-0002

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 N 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:

Date: 07/01/2003

148B9719 - rev. 1

148R9523

148R9523

1

2

	Nm	LB-feet
DN 15, 20	22	16
DN 25, 32, 40, 50	44	32
DN 65	75	53

3

4

5

6

	Nm	LB-feet
DN 15, 20	50	37
DN 25, 32, 40	70	52
DN 50, 65	60	45

7

DN 15-40

8a

DN 50-65

8b

DN 15-40

9

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

SCA: -60/+150°C (-76/+302°F)
CHV: -60/+150°C (-76/+302°F)
SCA-SS: -60/+150°C (-76/+302°F)
CHV-SS: -60/+150°C (-76/+302°F)

Pressure range

The valves are designed for a max. working pressure of 52 bar g (754 psi g) for both standard and low temperature versions.

Installation

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

Flow direction

Direct the flow towards the cone as indicated by an arrow on the valve housing (fig. 1).

Welding

The bonnet should be removed before welding (fig. 2) to prevent damage to the O-rings in the packing gland and the gasket 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.

Be careful not to damage the teflon cone ring.

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

Stop check 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. 3).

Important for the SCA valves:

Full capacity is only obtained when the spindle is screwed outward, "into bonnet", i.e. counterclockwise (fig. 3).

Tightening

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

Colours and identification

The SCA and CHV valves are painted with a yellow 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 name plate when repainting the valve is recommended.

Maintenance

Packing gland (only SCA types)

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. 4)

To backseat the valve, turn the spindle counterclockwise until the valve is fully open.

Pressure equalization (fig. 5)

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. 6)

Handwheel and packing gland can now be removed.

Dismantling the valve (fig. 8)

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

DN 15-40 (fig. 8a):

- Check that the gasket (pos. B) 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.

DN 50-65 (fig. 8b):

- Check that the spring (pos. A) is intact.
- Check that the o-ring (pos. B) has not been damaged.
- Check that the spindle (pos. C) is free of scratches and impact marks.
- If the teflon cone ring (pos. D) has been damaged, the whole cone assembly must be replaced.

Replacement of the cone (fig. 9)

DN 15-40:

O-ring (pos. C) prevents the cone from falling out. Pull the cone clear of the bonnet. Be careful not to loose the spring. Remove dirt, if any. Mount O-ring (pos. C) on cone. Mount spring and cone in bonnet.

Assembly

Remove dirt, if any, from pipes and housing before assembly. Important for the SCA valves: Full capacity is only obtained when the spindle is screwed outward, "into the bonnet", i.e. counterclockwise (fig. 3). Use a torque wrench to tighten the bonnet (fig. 3).

Tightening

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 3). Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 7).

Use only original Danfoss parts, including packing glands 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.

Danfoss Industrial Refrigeration A/S
Stormosevej 10
PO Box 60
DK-8361 Hasselager
Denmark

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

Refrigerant stop valve, with straight or angled bonnet arrangement
Type **SCA/CHV** and **SCA-SS/CHV-SS**

Nominal bore	DN ≤ 25 mm (1 in.)
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prEN 12284
AD-Merkblätter

Signature: Morten Steen Hansen Date: 15/05/2004

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 SCA/CHV and SCA-SS/CHV-SS

Nominal bore	SCA/CHV DN 32-125 mm (1¼ - 5 in.); SCA-SS/CHV-SS DN 32-40 mm (1¼ - 1½ in.);	
Classified for	Fluid Group I (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	SCA/CHV SCA-SS/CHV-SS	-60°C/+150°C (-76°F/+302°F) -60°C/+150°C (-76°F/+302°F)
Maximum allowable working pressure	Standard applications High pressure applications	40 bar (580 psi) 52 bar (754 psi)

Conformity and Assessment Procedure Followed

Category	II		III
Module	D1		B1 + D
Certificate ID	<i>D1: 07 202 0511 Z 0009/1/H-0002</i>		<i>B1: 07 202 0124 Z 0182/2/0001</i> <i>D: 07 202 0511 Z 0009/1/H-0001</i>
Nominal bore	Standard applications	DN 32-80 mm (1¼ - 3 in.)	DN 100-125 mm (4 - 5 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 10028-3 EN 10213-3 EN 10222-4

References of other Technical Standards and Specifications used

prEN 12284 DIN 3158
AD-Merkblätter 2000 DIN 3840

Authorised Person for the Manufacturer within the European Community

Name: Morten Steen Hansen

Title: Production Manager

Signature:

Date: 11/05/2004

148B9728 - rev. 2

148R9511

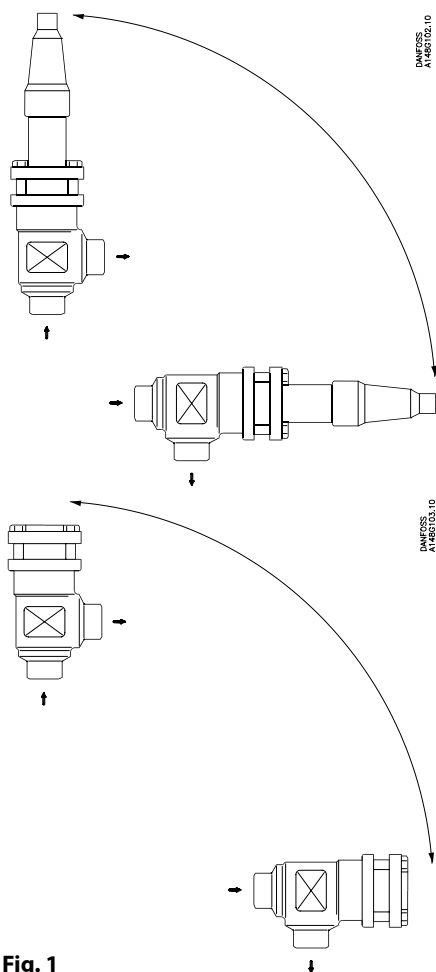


Fig. 1

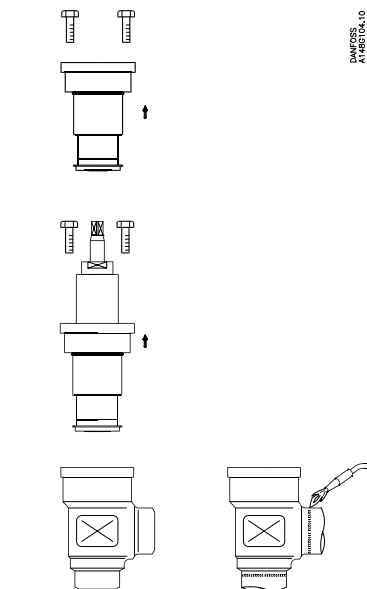


Fig. 2

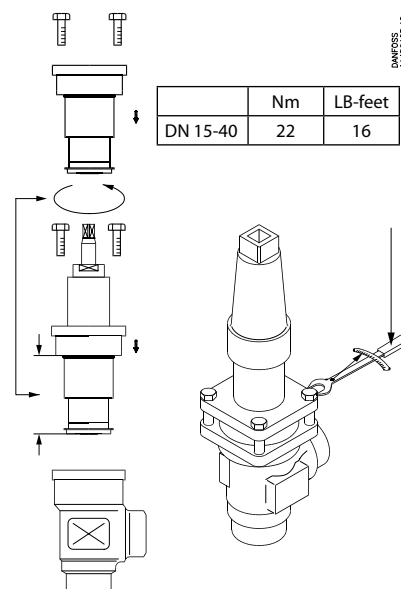


Fig. 3

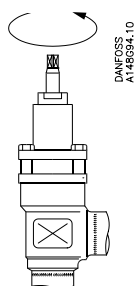


Fig. 4

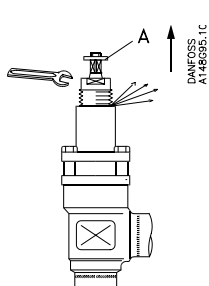


Fig. 5

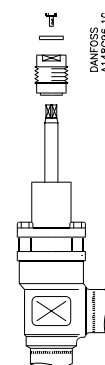


Fig. 6

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

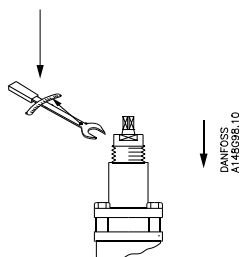


Fig. 7

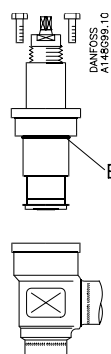


Fig. 8

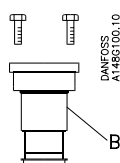
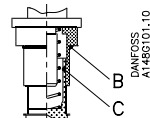


Fig. 9



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

-50/+150°C (-58/+302°F)

Pressure range

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

Installation

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

Flow direction

Direct the flow towards the cone as indicated by an arrow on the valve housing (fig. 1).

Welding

The bonnet should be removed before welding (fig. 2) 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.

Be careful not to damage the teflon cone ring.

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

Stop check 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. 3).

Important for the SCH valves:

Full capacity is only obtained when the spindle is screwed outward, "into bonnet", i.e. counterclockwise (fig. 3).

Tightening

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

Colours and identification

The SCH and CHV valves are painted with a yellow 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 name plate when repainting the valve is recommended.

Maintenance

Packing gland (only SCH)

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. 4)

To backseat the valve, turn the spindle counterclockwise until the valve is fully open.

Pressure equalization (fig. 5)

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. 6)

Handwheel and packing gland can now be removed.

Dismantling the valve (fig. 8)

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

- Check that the O-ring (pos. B) 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)

O-ring (pos. C) prevents the cone from falling out. Pull the cone clear of the bonnet. Be careful not to loose the spring. Remove dirt, if any. Mount O-ring (pos. C) on cone. Mount spring and cone in bonnet.

Assembly

Remove dirt, if any, from pipes and housing before assembly. Important for the SCH valves: Full capacity is only obtained when the spindle is screwed outward, "into the bonnet", i.e. counterclockwise (fig. 3). Use a torque wrench to tighten the bonnet (fig. 3).

Tightening

Tighten the bonnet with a torque wrench, to the values indicated in the table (fig. 3). Tighten the packing gland with a torque wrench, to the values indicated in the table (fig. 7).

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 SCH/CHV

Nominal bore	DN ≤ 25 mm (1 in.)
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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:

Date: 31/01/2002

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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/check valve, with straight or angled arrangement

Type SCH/CHV

Nominal bore	DN 32-40 mm (1 $\frac{1}{4}$ - 1 $\frac{1}{2}$ 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	SCH/CHV	-50°C/+150°C (-58°F/+302°F)
	SCH/CHV	25 bar

Conformity and Assessment Procedure Followed

Category	I
Module	A

References of Harmonised Standards used

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:

Date: 31/01/2002

148B9719 - rev. 0