



## Collection of Instructions

Instructions for Danfoss

Refrigeration & Air conditioning Controls



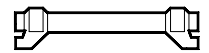
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015R9711

015R9711

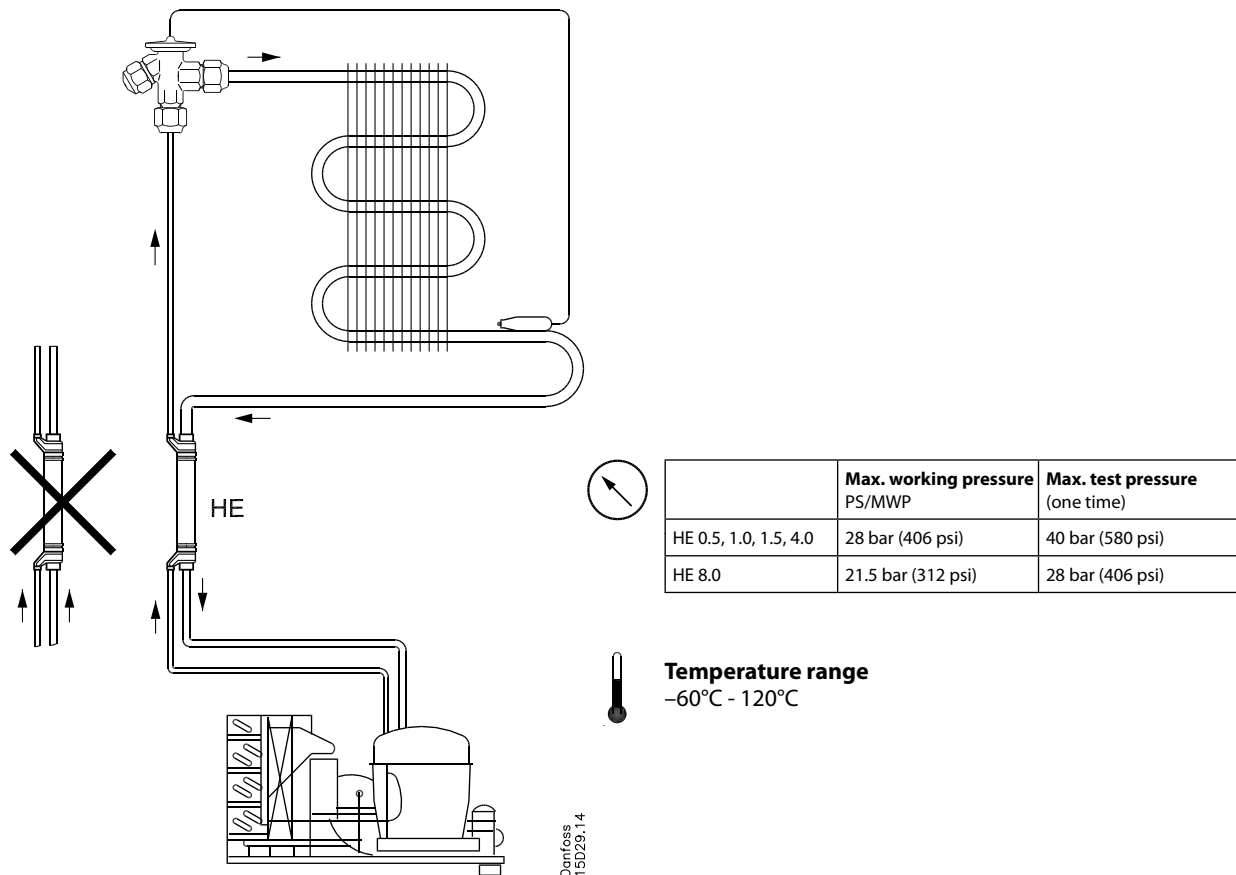


Fig. 1

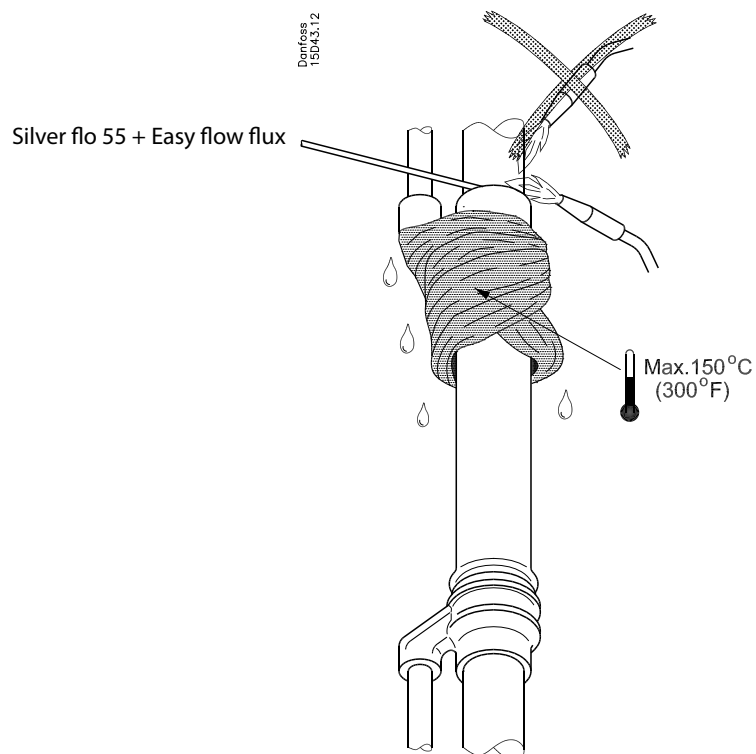
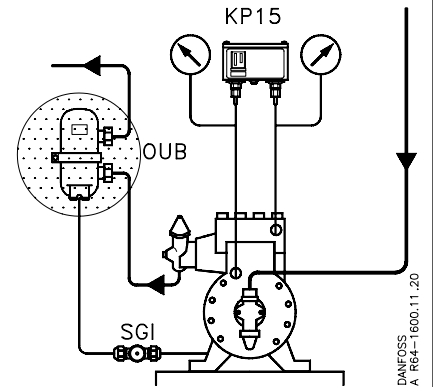
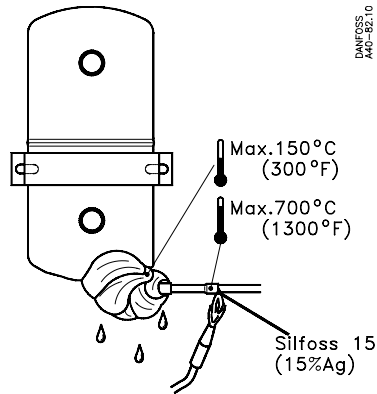
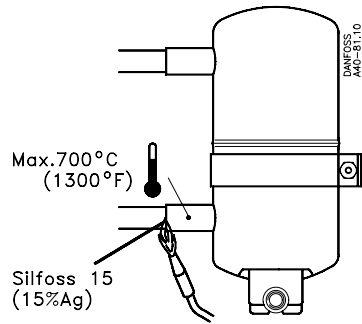
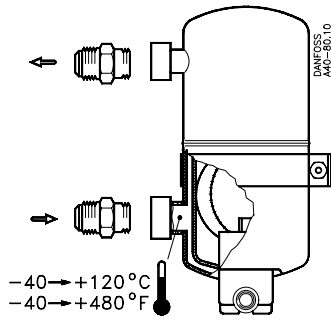


Fig. 2

R 22, R 32, R 134a, R 404A,  
R 502, et al.

PS/MWP = 28 bar/400 psig  
p<sub>test</sub> max. = 36.5 bar/525 psig

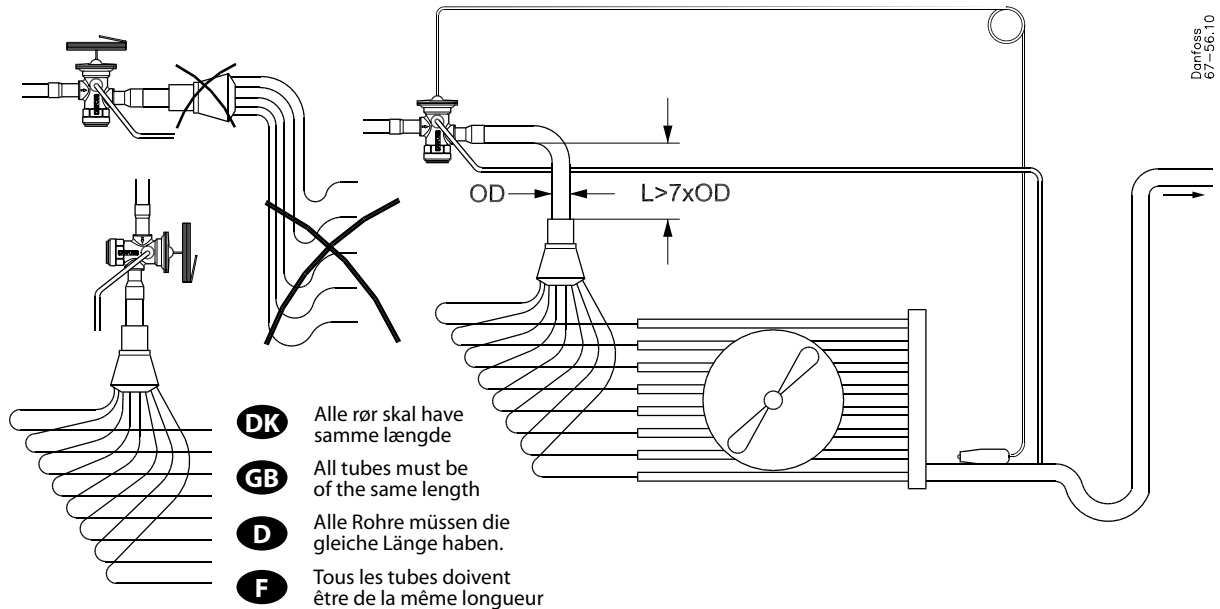


**DK** Anbefalet loddemateriale: Silver-Flo 55 + Easy-flow Flux

**GB** Recommended soldering material: Silver-Flo 55 + Easy-flow Flux

**D** Empfohlenes Lötmaterial: Silver-Flo 55 + Easy-flow Flux

**F** Matériau de brasage recommandé: Silver-Flo 55 + Easy-flow Flux



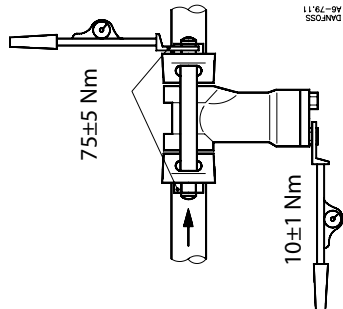
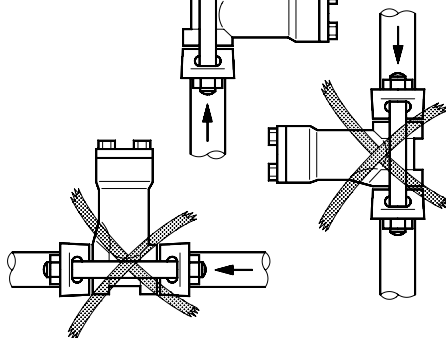


006R9500

006R9500

Tilladeligt driftryk / Max. working pressure /  
Zulässiger Betriebsüberdruck / Pression de service max.: PB / MWP = 28 bar / 400 psig

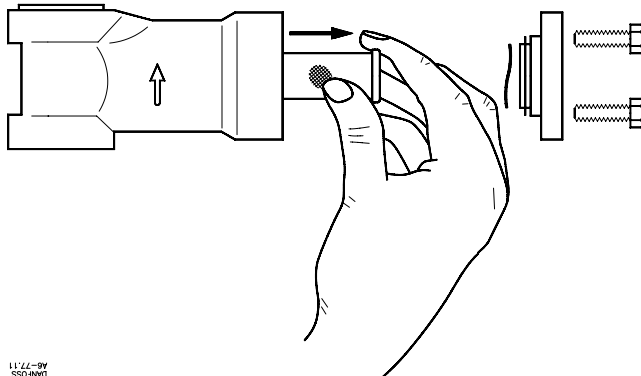
DANFOSS  
AB-78.10



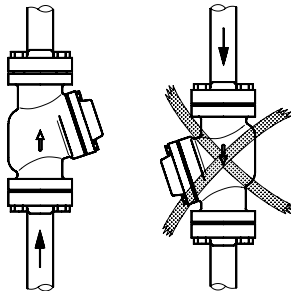
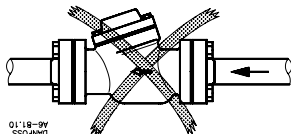
DANFOSS  
AB-79.11

FA 15, 20

DANFOSS  
AB-77.11



DANFOSS  
AB-81.10



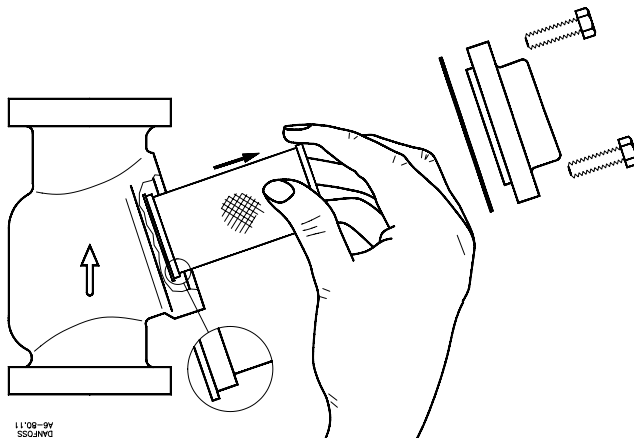
10±1 Nm

75±5 Nm

DANFOSS  
AB-82.11

FA 25

DANFOSS  
AB-80.11



#### Installation



##### Bemærk:

Ved levering er filterhuset ikke udstyret med filterindsats eller tilbehør.

##### Note:

At delivery the filter housing is not equipped with filter element or accessories

##### Hinweis:

Das Filtergehäuse ist bei Lieferung nicht mit Filtersieb oder Zubehör ausgestattet.

##### Remarque :

le boîtier de filtre est livré sans élément filtrant et sans accessoires.

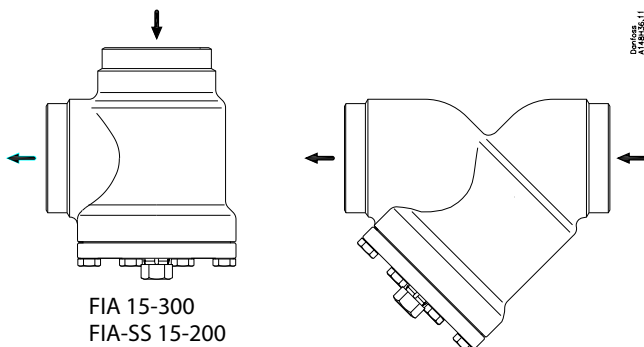


Fig. / Abb. 1

FIA 15-200

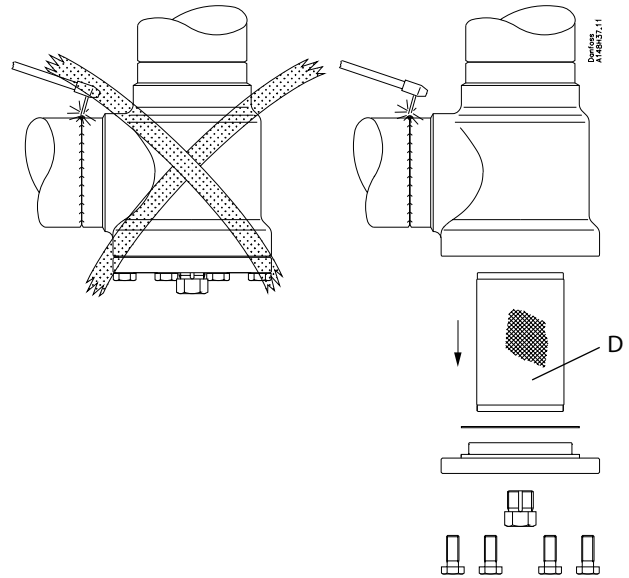


Fig. / Abb. 2

#### Vedligeholdelse / Maintenance / Wartung / Maintenance

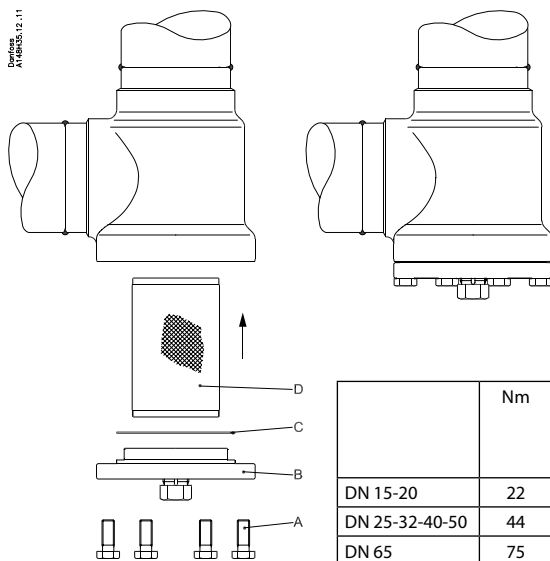


Fig. / Abb. 3

	Nm	LB-fod LB-feet LB-ft Pieds-livres
DN 15-20	22	16
DN 25-32-40-50	44	32
DN 65	75	53
DN 80	44	32
DN 100	75	53
DN 125-150	183	135
DN 200-300	370	272



##### Filterpose Strømretning

##### Filter bag Flow direction

##### Filtersack Durchflussrichtung

##### Manchon filtrant Sens du débit

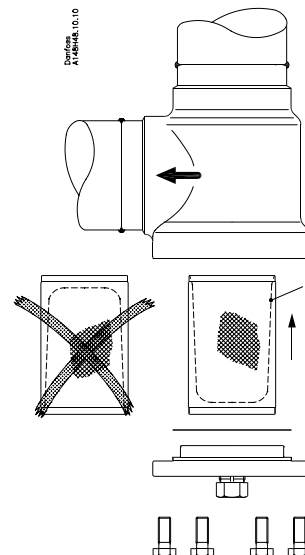


Fig. / Abb. 4

## Installation

### Refrigerants

Applicable to all common refrigerants, including R717 and non-corrosive gases/liquids dependent on sealing material compatibility.

The filter is only recommended for use in closed circuits. For further information please contact Danfoss.

### Pressure and temperature range

–60/+150°C (–76/+302°F)

*FIA 15-300:*

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

*FIA 15-65 (special), FIA-SS 15-65:*

The filters are designed for a max. working pressure of 52 bar (754 psi g)

*FIA 80-200 (special), FIA-SS 80-200:*

The filters are designed for a max. working pressure of 50 bar (725 psi g)

*FIA 15-300, FIA 15-200 (special), FIA-SS:*

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

### Installation



#### Note:

At delivery the filter housing is not equipped with filter element or accessories

The filter must be installed with the top cover downwards, and the flow must be directed towards the top cover as indicated by the arrow on the filter housing (fig. 1). The filter element must be inserted after welding.

The filter 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 filter is protected from pressure transients like "liquid hammer" in the system.

### Recommended flow direction

The filter must be installed with the flow towards the top cover as indicated by the arrow on the side of the valve body (fig. 1). Flow in the opposite direction is not acceptable.

### Welding

The top cover should be removed before welding (fig. 2) to prevent damage to the gasket between the filter body and top cover. Only materials and welding methods, compatible with the valve housing material, must be welded to the valve housing. The filter should be cleaned internally to remove welding debris on completion of welding and before the valve is reassembled.

Removing the top cover can be omitted provided that:

The temperature in the area between the valve body and top cover during welding does not exceed +150°C/+302°F. This temperature depends on the welding method as well as on any cooling of the filter body during the welding itself.

(Cooling can be ensured by, for example, wrapping a wet cloth around the filter body.) Make sure that no dirt, welding debris etc. get into the filter during the welding procedure.

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

Filters must not be mounted in systems where the outlet side of the filter is open to atmosphere. The outlet side of the filter 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 filter body before assembly. Check that the filter element has the right size before it is inserted in the top cover. And check that there is no damage on the gasket.

Place the filter element (pos. D) from underneath. The element has a slight force fit into the housing, no gaskets or O-rings are used.

If magnets have been chosen as accessory, these should be fitted on the top cover before replacing the cover.

### Tightening

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

If the drain valve has been chosen as accessory, the drain plug should be replaced by the drain valve.

### Colours and identification

The FIA valves are painted with a red oxide primer in the factory. Stainless steel valves are not painted. Precise identification of the valve is made via the ID plate on the top cover, 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 plate when repainting the valve is recommended.

FIA-SS filters are not painted and do not require any protective coating.

## Maintenance

### Mounting of accessory:

#### Filter bag (fig. 4)

A 50µ filter bag (pos. E), especially for commissioning of the plant, can replace the normal filter element.

When mounting the filter bag, which is held in place by a filter holder, the utmost care must be taken to place the filter bag correctly in the filter as shown in fig. 4. The flow must go into the filter bag cavity and out or else the bag will not function properly.

Above described function will only be valid depending that the proper flow direction of the filter valve has been used.

### Dismantling the valve (fig. 3)

Before servicing the filter valves, isolate it from the system and remove all refrigerant by evacuation to zero pressure. Check for refrigerant pressure before unscrewing and removal of the top cover.

The filter element should be removed without any use of tools

### Cleaning

Clean the filter element using an appropriate solvent by flushing and brushing. The use of strong acids cannot be recommended. The filter element should be wiped or blown dry before inspection. If the element is damaged or the sediments cannot be removed, the filter element should be replaced.

### Assembly

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

### Replacement of gasket

It is recommended to always change the gasket for the top cover (pos. C) and drain plug.

Check that the filter element is correctly placed before remounting the top cover and bolts (pos. A).

### Tightening (fig. 3)

Tighten the top cover bolts (pos. A) with a torque wrench according to the table in 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.



**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 regulating valve, with straight or angled bonnet arrangement

**Type FIA, FIA-SS**

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

prEN 12284      DIN 3158  
AD-Merkblätter      DIN 3840

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

**Name:** Morten Steen Hansen

**Title:** Production Manager

**Signature:**



**Date:** 07/01/2003

148B9722 - 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 filter valve, with straight or angled bonnet arrangement

**Type FIA and FIA-SS**

Nominal bore	<b>FIA DN 32-200 mm</b> (1¼ - 8 in.); <b>FIA-SS DN 32-200 mm</b> (1¼ - 8 in.)	
Classified for	Fluid Group I (all refrigerants (toxic, nontoxic, flammable and nonflammable)). For further details / restrictions - see Installation Instruction.	
Temperature range	FIA FIA-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	<b>II</b>		<b>III</b>
Module	<b>D1</b>		<b>B1 + D</b>
Certificate ID	<i>D1: 07 202 0511 Z 0111/1/H</i>		<i>B1: 0124 P 0201/1/O</i> <i>D: 07 202 0511 Z 0111/1/H</i>
Nominal bore	Standard applications	DN 32-80 mm (1¼ - 3 in.)	DN 100-200 mm (4-8 in.)

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

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



**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

148B9723 - rev. 2

**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 filter valve, with straight or angled bonnet arrangement

**Type FIA**

Nominal bore	<b>DN250 - 300 mm.</b> (10 - 12 in.)
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)) For further details / restrictions - see Installation Instruction
Temperature range Maximum allowable working pressure	PS36 bar (522 psi) at -90°C → -60°C (-130°F → -76°F) PS40 bar (580 psi) at -60°C → +60°C (-76°F → +140°F) PS36 bar (522 psi) at +60°C → +80°C (+140°F → +176°F) PS32 bar (464 psi) at +80°C → +120°C (+176°F → +248°F) PS28 bar (406 psi) at +120°C → +150°C (+248°F → +302°F)

**Conformity and Assessment Procedure Followed**

Category		III	IV
Module		B1 + D	B + D
Certificate ID		B1: D: 07 202 0511 Z 0009/H-0001	B1: D: 07 202 0511 Z 0009/H-0001
Nominal bore	Standard application	DN250 mm. (10 in.)	DN 300 mm. (12 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      DIN 3840

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

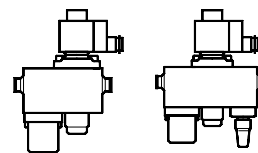
**Name:** Morten Steen Hansen

**Title:** Production Manager

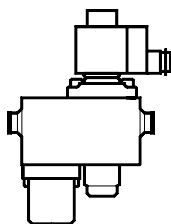
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**Date:** 04/10/2002

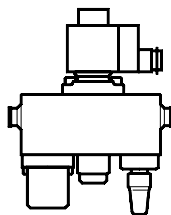
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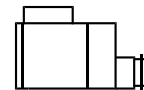
R 717 (NH<sub>3</sub>), HFC, HCFC, CFC



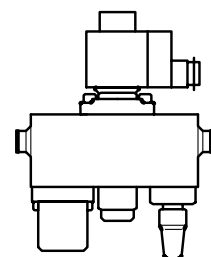
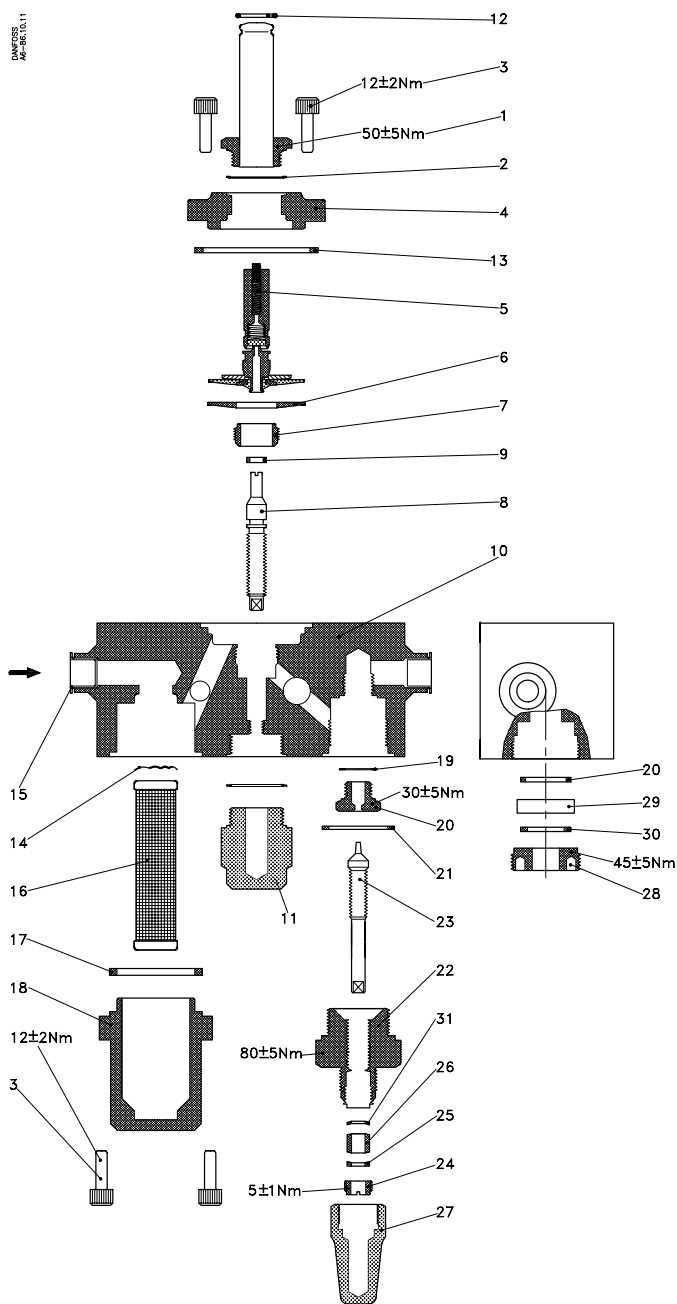
BV 1



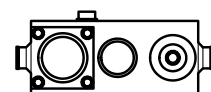
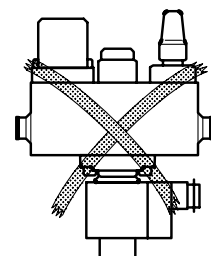
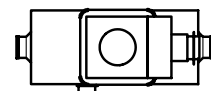
BV 2



Coil



DANFOSS  
A6-87.11



#### BV 1 & BV 2

Connections DN 10/DN15

Max. working pressure, PB

Test pressure p'

Medium temperature

= 28 bar (Pe)

= 42 bar (Pe)

= -40°C → 105°C

#### EVRS:

Min. opening diff. pressure

= 0

Max. opening diff. pressure

with 12 W coil:

21 bar

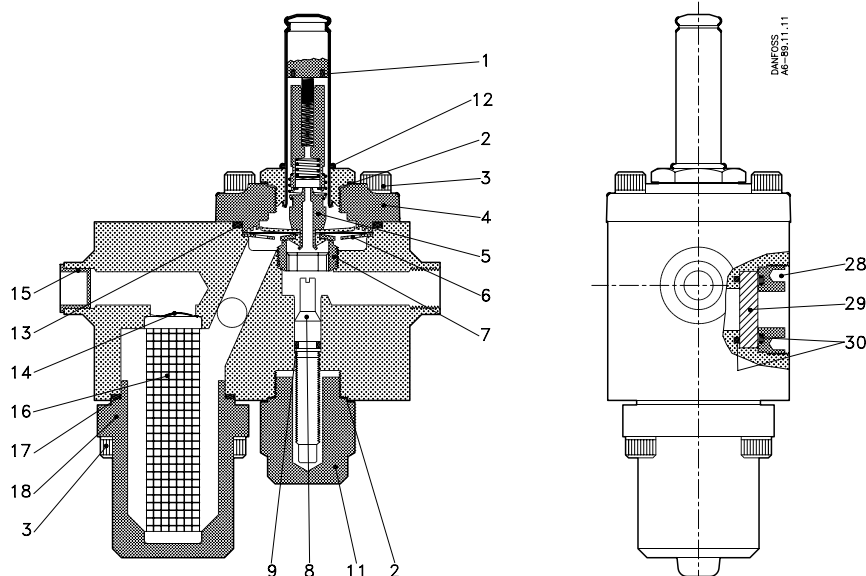
with 10 W coil:

14 bar

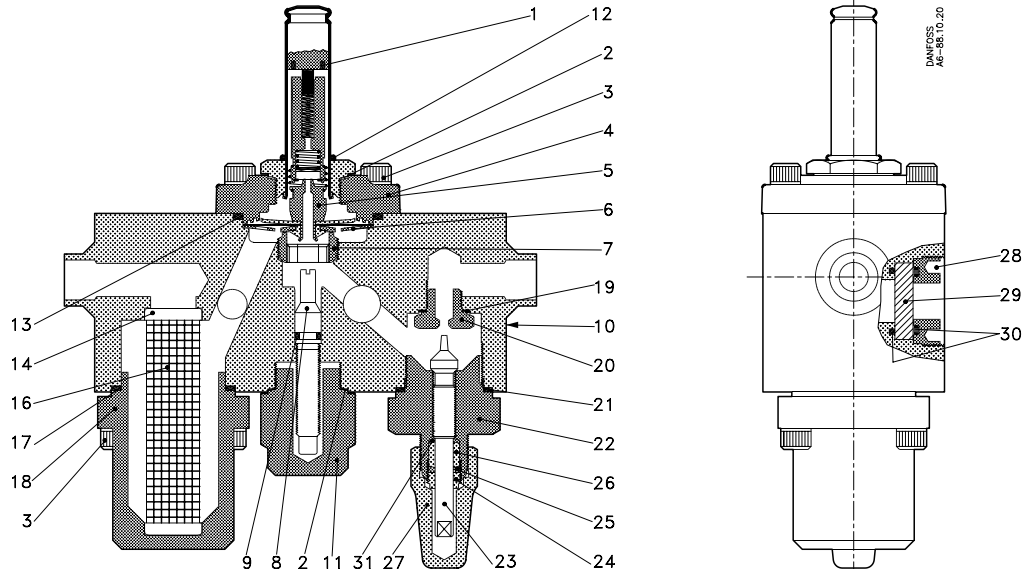
Part list is referring to drawings both at the previous and this page

No.	Part	Material	DIN	15	Cap	Plastics	Plastics
1	Ass. Armature	Stainless steel	X2CrNi 19-11	16	Strainer insert FA-15	Stainless steel tissue	Stainless steel tissue
2	Gasket	Aluminium		17	Refrig. Gasket	Klingsil C4430	C4430
3	Screw M6x20	Stainless steel	RS A2-70 912 W 1-4301	18	Strainer housing	Stainless steel W 1-4305	18/8 Free cutting St. EN 10088
4	Cover	Stainless steel	EN 10204 W 1-4308	19	Gasket	Aluminium	30,255
5	Ass. Diaphragm/armature	Stainless steel/teflon tissue		20	Orifice	Stainless steel	X10CrNiS 18-9 W 1-4305
6	Washer	Stainless steel	X5CrNi18-10 W 1-4301	21	Refrig. Gasket	Klingsil C4430	C4430
7	Valve seat	Stainless steel W 1-4305	18/8 Free cutting st.	22	Shaft sealing	Stainless steel	EN 10088 W 1-4305
8	Spindle manual	Stainless steel W 1-4305	18/8 Free cutting st.	23	Spindle	Stainless steel	X10CrNiS 18-9 W 1-4305
9	O-ring	Chloropren	Chloropren	24	Sealing nut	Stainless steel	W 1-4305
10	Valve Block	Stainless steel	SANMAC 304/304L EN10088-3 W 1-4307	25	Sealing ring	Stainless steel	
11	Cap	Stainless steel W 1-4305	18/8 Free cutting st.	26	Teflon gasket	Teflon	Teflon
12	O-ring	Chloropren	Chloropren	27	Cap 6F	Stainless steel W 1-4305	18/8 Free cutting st.
13	Rubber gasket	Chloropren	Chloropren	28	Sealing ring	Stainless steel W 1-4305	18/8 Free cutting st.
14	Crinkled spring washer	Spring steel	Spring steel	29	Glass	Glass	Glass
				30	O-ring	Chloropren	Chloropren
				31	Washer	Stainless steel	

BV 1



BV 2



**Refrigerants:**

Applicable to all common non-flamable refrigerants, including R 717 and non corrosive gasses/liquids dependent on sealing material compability.

**Installation:**

The valve must be installed in flow direction (arrow).  
It is recommended to disassemble the valve before welding and/or to use a wet cloth wrapped around the valve body to prevent heat generation from welding to damage the internal parts of the valve.

**Service:**

At servicing and maintenance of the complete valve, it is recommended to change the orifice, manual spindle, diaphragm and armature in the solenoid valve part as well as the orifice and spindle assembly in the regulating unit.  
Spare part set containing these components can be found in the spare parts manual.

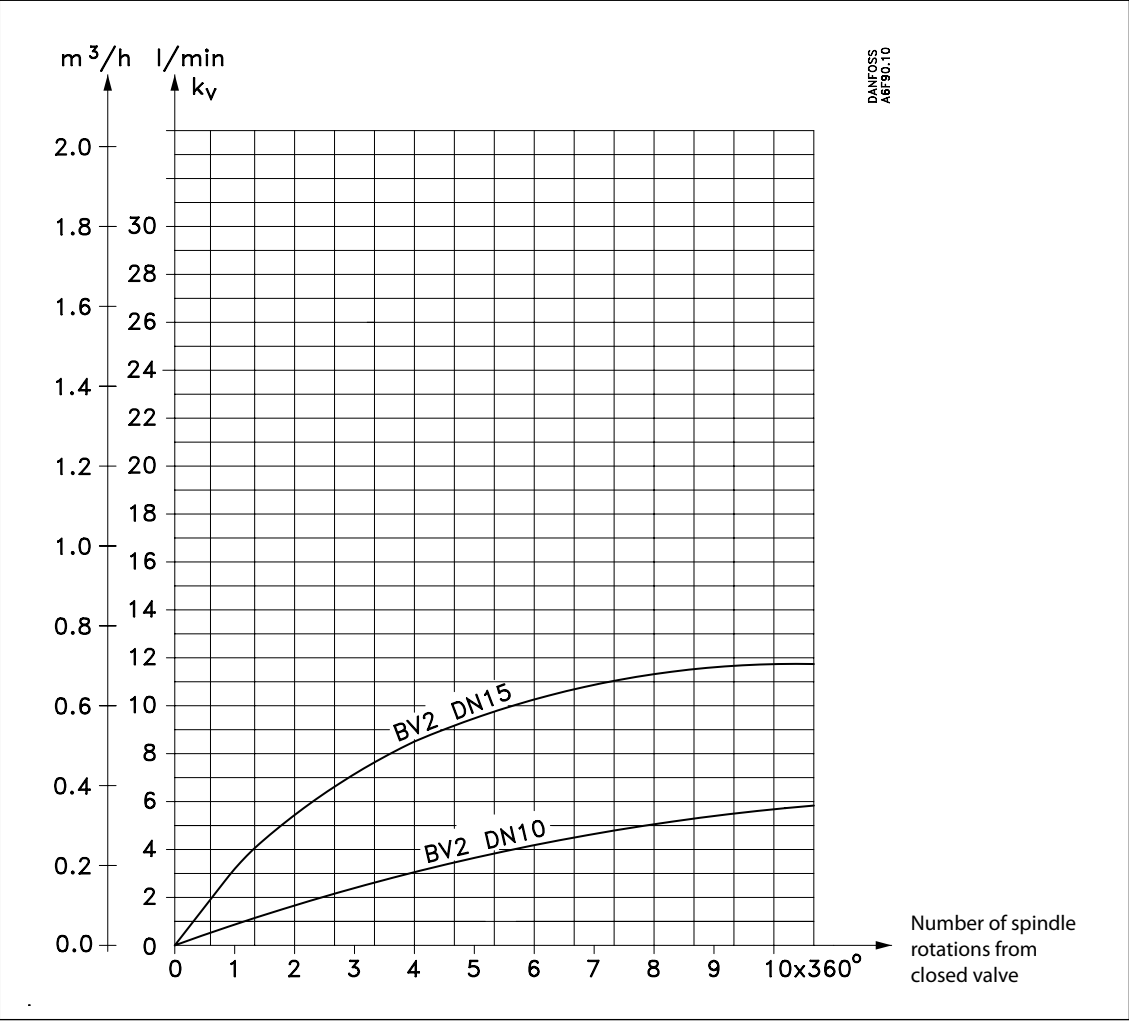
**Capacity**

Type	kv value m³/h	Connections
BV 1	1.52*)	DN 10
BV 1		DN 15
BV 2	0.36*)	DN 10
BV 2	0.77*)	DN 15

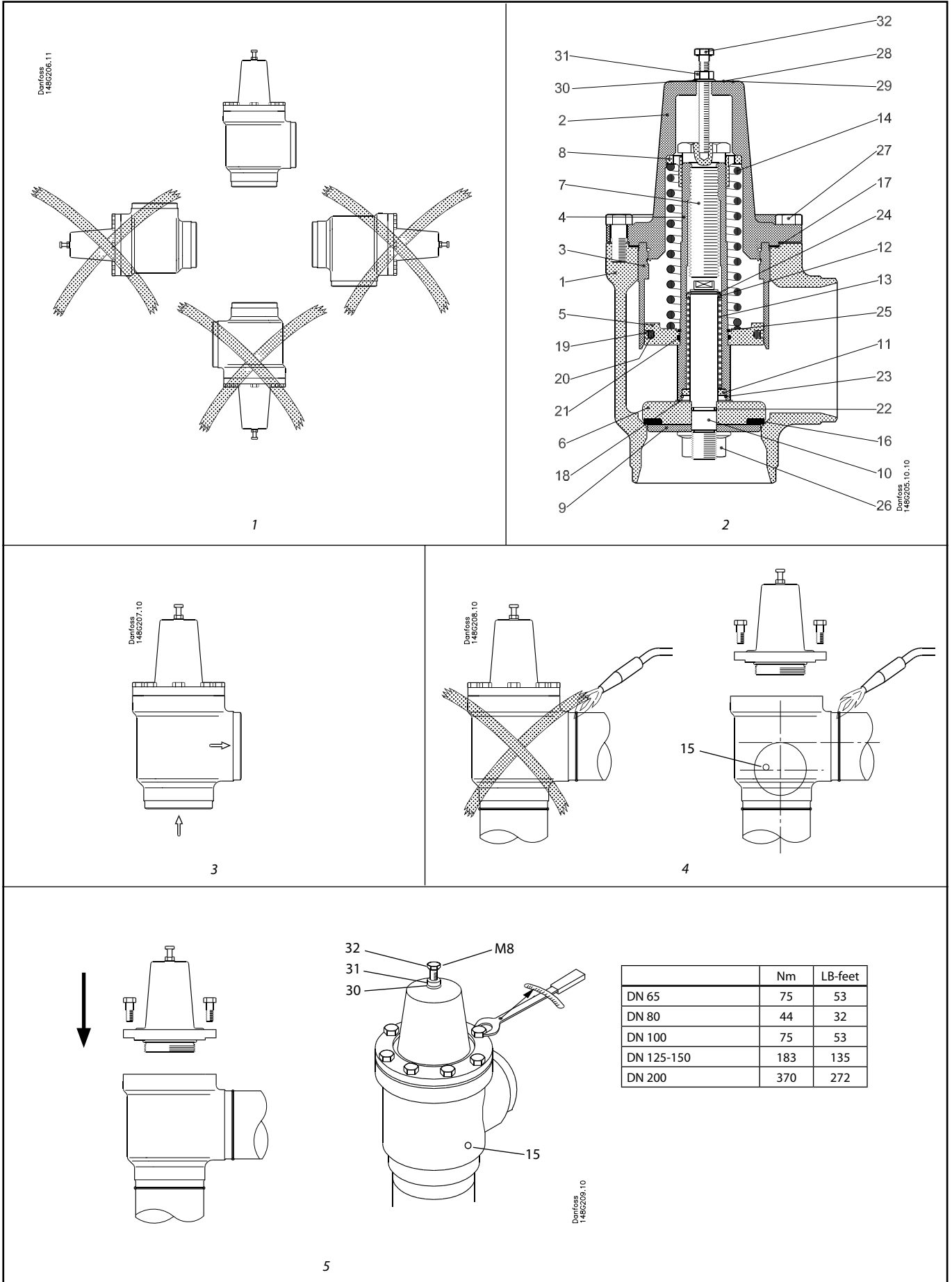
\*) Fully open valves

**Capacity**

k<sub>v</sub>-curves for BV 2



The curves are based on subcooled liquid ahead of valve (no flashgas)



**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**

KDC: -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 (Fig. 1)**

The valve must be installed with the spindle vertically upwards (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.

**Flow direction (Fig. 3)**

Important: The flow direction must be from the cone side towards the branch.

**Welding (Fig. 4)**

Remove the actuator before welding to prevent damage to 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.

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

KDC 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 (Fig. 5)**

Remove welding debris and any dirt from pipes and valve body before assembly. Remove disassembly bolt (pos. 32) after mounting the bonnet and the bonnet bolts have been tightened. The purpose of the bolt is to secure insert from falling out during disassembly and avoid damage of the Teflon seat when bonnet is mounted.

**Note!** Always pull the valve seat back in open position before assembling the valve.

Use DN10 steel pipe for a pilot line. It could be either connected directly to the valve using NPT ¼" thread or using adapter for cutting ring.

**Tightening (Fig. 5)**

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

**Colours and identification**

The KDC 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****Dismantling the valve (Fig. 4 and fig. 5)**

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

Evacuate the pipe system in which the valve is installed. Remember to evacuate refrigerant from both sides of the valve (inlet and outlet). Use service port (pos. 15) on the valve to evacuate refrigerant from above the cone.

Mount the dismantling bolt (pos. 32), the hexagon flange nut (pos. 31) and the nylon ring (pos. 30) as shown on fig. 5, and tighten the nut (pos. 31) a few rounds in order to redraw the valve cone from the seat. Remove the bolts. Remove the valve top (actuator).

- Check that the O-ring has not been damaged.
- Check that the Teflon seat is free of scratches and impact marks.

**Assembly (Fig. 5)**

Remove welding debris and any dirt from pipes and valve body before assembly. Mount the hexagon screw (pos. 32), the hexagon flange nut (pos. 31) and the nylon ring (pos. 30) as shown on fig. 5, and tighten the nut (pos. 31) a few rounds in order to redraw the valve cone from the seat. Remove disassembly bolt after mounting the bonnet and the bonnet bolts have been tightened. The purpose of the bolt is to secure insert from falling out during disassembly and avoid damage of the Teflon seat when bonnet is mounted.

**Note!** Always pull the valve seat back in open position before assembling the valve.



**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 discharge check valve  
**Type KDC**

Nominal bore	<b>DN 65-200 mm. (2½ - 8 in.)</b>	
Classified for	<b>Fluid Group I</b> (all refrigerants (toxic, nontoxic, flammable and nonflammable)) For further details / restrictions - see Installation Instruction	
Temperature range and maximum allowable working pressure	Standard application	PS40 bar (580 psi) at -60°C/+150°C (-76°F/+302°F)

**Conformity and Assessment Procedure Followed**

Category	<b>II</b>	<b>III</b>
Module	<b>D1</b>	<b>B1+D</b>
Certificate ID	<i>D1: 07 202 0511 Z0009/1/H-0002</i>	<i>B1: 07 202 0124 Z0657/4/0</i> <i>D: 07 202 0511 Z0009/1/H-0001</i>
Normal bore	DN65-80 mm. ( 2½ - 3 in.)	DN100 - 200 mm. (4 - 8 in.)

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

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



**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      DIN 3840

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

**Name:** Michael Breumsoe

**Title:** Production Manager

**Signature:**

**Date:** 06/05/2005

# Danfoss Instructions

## DAS Burnout drier

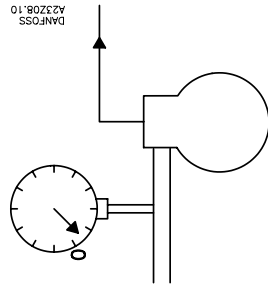
023R9527

For use with HFC, HCFC and CFC refrigerants.

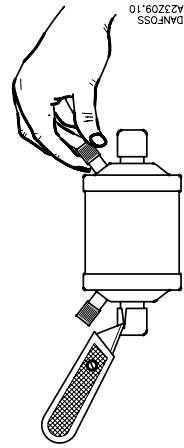
MWP: 35 bar/ 500 psig

023R9527

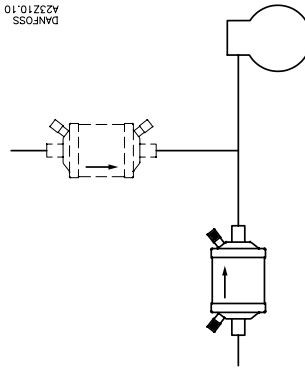
### 1. System pumpdown



### 2. Seal Removal

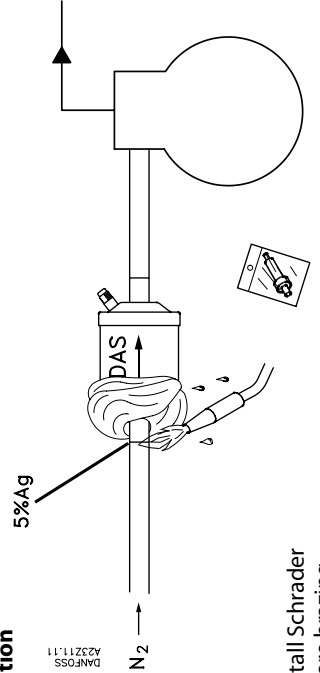


### 3. Mounting



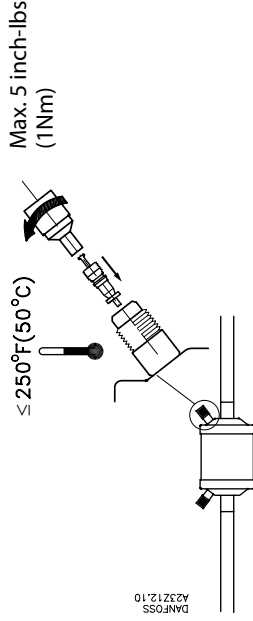
**Note!**  
Install burnout drier as close as possible to the compressor.

### 4. Installation

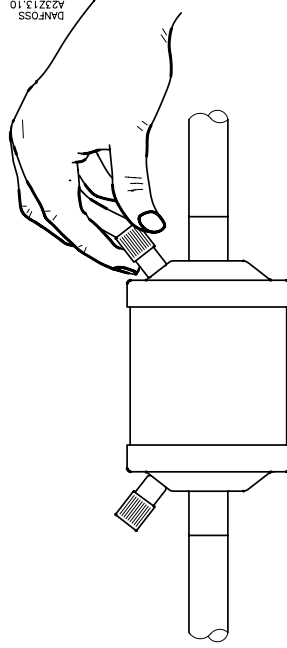


**Note!**  
Do not install Schrader valves before brazing.

### 5. Schrader valve Installation



### 6. Schrader cap installation



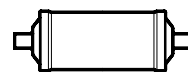
### Initial pressure drop:

Record initial pressure drop and check again after 72 hours of operation. Replace drier if the pressure drop (PSI/Bar) across the core exceeds the following values.

Initial pressure drop	Refrigerant	Evaporator temperature				
		40°F/4.4°C	20°F/-6.7°C	0°F/-17.8°C	-20°F/-28.9°C	-40°F/-40°C
	R 22, R 404a, R 407c, R 507	3/0.2	2/0.15	1.5/0.1	1/0.07	0.5/0.04
	R 134a	2/0.15	1.5/0.1	1/0.07	0.5/0.04	–
	R 410A	4/0.3	3/0.2	2/0.15	1.5/0.1	1/0.07

### Note!


Max. working pressure (PB/MWP) shall not be less than the pressure outlined in sect. 8.2 of ANSI / ASHRAE 15 for the refrigerant used in the system. After charging, the system should be marked with the refrigerant and the oil used.

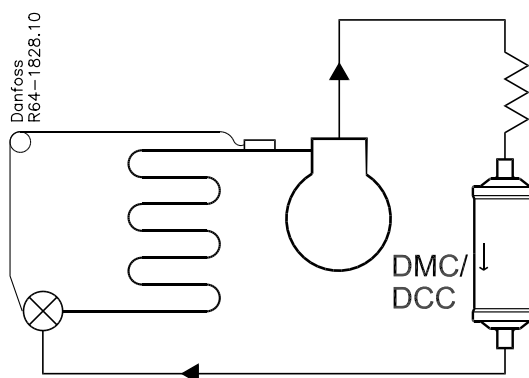


023R9530

023R9530

DCC: R12, R22, R502 et al.  
DMC: R134a, R404A, R407C, R410A, R507 et al.

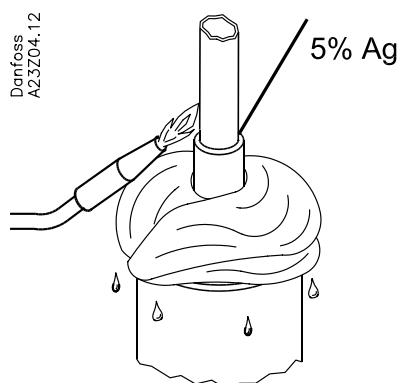
Symbol	Connection	Max. working pressure
	$\frac{1}{4}$ " $\frac{5}{16}$ " $\frac{3}{8}$ " $\frac{1}{2}$ "	610 psig / 42 bar



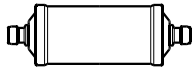
### Note!

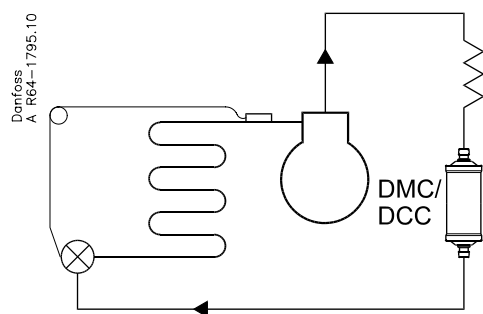
Max. working pressure (PS/MWP) shall not be less than the pressure outlined in sect. 8.2 of ANSI / ASHRAE 15 for the refrigerant used in the system.

After charging, the system shall be marked with the refrigerant and the oil used.



DCC: R12, R22, R502 et al.  
DMC: R134a, R404A, R407C, R410A, R507, R22 et al.

<b>Copper plated solder versions</b> <b>Verkupferte Lötansführungen</b> <b>Versions à braser avec placage cuivre</b> <b>Acero chapado de cobre para soldar</b> <b>Versioni ramate a brasare</b> <b>銅メッキ継手仕様</b> <b>鍍銅焊接型</b> <b>Паяные соединения с медным покрытием</b>	Symbol Symbol Symbole Símbolo Simbolo シンボル 标记 Символ	Connection Anschluss Raccord Conexión Connessione 接続サイズ 连接尺寸 Соединение	Max. working pressure Max. zul. Betriebsüberdruck Pression de service maximale ¡Presión de trabajo máx.! Massima pressione operativa! 最高使用圧力 最大工作压力 Макс. рабочее давление
		All sizes Alle Größen Toutes tailles Todos los tamaños Tutte le dimensioni すべてのサイズ 所有规格 Все размеры	610 psig / 42 bar 610 psig / 42 бар



#### Note!

Max. working pressure (PB/MWP) shall not be less than the pressure outlined in sect. 8.2 of ANSI / ASHRAE 15 for the refrigerant used in the system.  
After charging, the system shall be marked with the refrigerant and the oil used.

#### Anmerkung!

Der max. zul. Betriebsüberdruck darf nicht kleiner als der in Abschn. 8.2 von ANSI / ASHRAE 15 angegebene Druck für das in der Anlage verwendete Kältemittel sein.  
Nach dem Befüllen ist die Anlage mit Angaben über das verwendete Kältemittel und Öl zu kennzeichnen.

#### Attention!

La pression de service maximale (PB/MWP) ne doit pas être inférieure à la pression définie au chapitre 8.2 des ANSI / ASHRAE 15 pour les fluides frigorigènes utilisés dans le système.  
Après remplissage, indiquer sur le système les fluides frigorigènes et huiles utilisées.

#### ¡Atención!

La presión de trabajo máx. (PB/MWP) no debe ser menor que la presión especificada en ANSI / ASHRAE 15, apartado 8,2 para el refrigerante utilizado en el sistema.  
Después de la carga, se deberá marcar el sistema con el refrigerante y aceite utilizados.

#### Nota bene!

La massima pressione operativa (PB/MWP) non deve essere minore della pressione specificata nel paragrafo 8.2 di ANSI / ASHRAE 15 per il refrigerante utilizzato nel sistema.  
A caricamento avvenuto, il sistema dovrà essere contrassegnato con il refrigerante e l'olio utilizzati.

#### 注意

使用する冷媒のANSI/ASHRAE 15の8.2に記載されている圧力がフィルタドライヤの最高使用圧力以下であることを確認して使用して下さい。  
装置にチャージした冷媒および冷凍機油を明記して下さい。

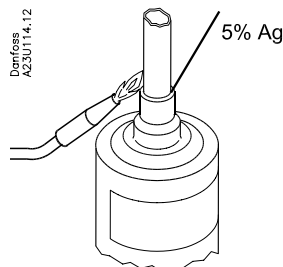
#### 注意!

最大工作压力(PB/MWP)应不小于ANSI/ASHRAE15, 8.2中注明的系统所用制冷剂的压力。  
充注后应注明系统所用的制冷剂和润滑油。

#### Примечание!

Максимальное рабочее давление (PB/MWP) не должно быть ниже, чем давление, приведенное в разделе 8.2 ANSI / ASHRAE 15 (Американское Общество инженеров теплотехники, искусственного холода и кондиционирования воздуха/Американский Национальный Институт Стандартизации) для хладагента, использующегося в системе.  
После заправки системы на ней следует обозначить тип используемого хладагента и масла.

- ⚠ SAFETY WARNING. SEE REVERSE SIDE.
- ⚠ SICHERHEITSHINWEIS. BITTE BEACHTEN SIE DIE RÜCKSEITE.
- ⚠ TOURNER LA PAGE S.V.P., INFORMATION IMPORTANTE.
- ⚠ ADVERTENCIAS DE SEGURIDAD. VER REVERSO.
- ⚠ AVVISO DI SICUREZZA. GUARDARE IL RETRO.
- ⚠ 安全注意事項：裏面参照
- ⚠ 安全注意事項，请参考背面。
- ⚠ Инструкция по безопасности. Смотрите обратную сторону.



#### WARNING

##### Potential Harmful Fumes During Soldering

Only solder in a WELL-VENTILATED area. When soldering, only apply heat to the connection with the flame pointed away from the Filter Drier. Excess heating of the paint may cause toxic fumes. Exposure to these fumes may cause skin and eye irritation, and damage internal organs.

#### ACHTUNG

##### Beim Löten können gefährliche Dämpfe entstehen

Lötarbeiten dürfen nur in GUT BELÜFTETEN Bereichen vorgenommen werden. Beim Löten nur den Stutzen erhitzen, wobei die Flamme vom Trockenfilter weg gerichtet sein muss. Bei Überhitzung des Anstrichs können giftige Dämpfe entstehen. Diese Dämpfe können zu Haut- und Augenirritationen führen und inneren Organen Schäden zufügen.

#### AVERTISSEMENT

##### Risque d'émission de fumées toxiques pendant le brasage

Braser uniquement dans une zone BIEN VENTILÉE. Pour effectuer le brasage, appliquer la chaleur uniquement sur le raccord ; ne pas diriger la flamme vers le filtre déshydrateur. Une surchauffe de la peinture peut entraîner un dégagement de fumées toxiques. Une exposition à ces fumées peut causer une irritation de la peau et des yeux, ainsi que des lésions des organes internes.

#### ADVERTENCIA

##### Humos tóxicos durante la soldadura

Soldar únicamente en un área BIEN VENTILADA. Al soldar, sólo aplicar calor en la conexión con la llama en dirección contraria al filtro secador. El calentamiento excesivo de la pintura puede originar humos tóxicos. El contacto con estos humos puede causar irritaciones en la piel y en los ojos, y también puede dañar los órganos internos.



#### ATTENZIONE

##### Fumi tossici durante la saldatura

Saldare esclusivamente in ambienti BEN VENTILATI. Al momento della saldatura, applicare il calore alla connessione soltanto con la fiamma in direzione opposta al filtro essiccatore. Un eccessivo riscaldamento della vernice può provocare fumi tossici. L'esposizione a tali fumi può causare irritazione alla pelle e agli occhi, nonché lesioni agli organi interni.

#### 警告

ろう付け中に有害なガスが発生する恐れがあります。

ろう付け作業は、換気が行き届いた場所で行ってください。ろう付け時は炎の方向をフィルタドライヤ本体側に向けず、継手を過熱してください。塗装を加熱しすぎると有害なガスが発生することがあります。このガスに触れると肌や目がかゆくなったり、内臓器官が害を受けたりすることがあります。

#### 警告！

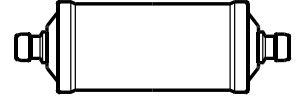
焊接时有可能产生有害的烟尘

只能在通风良好的地方焊接。焊接时将火焰对着与干燥过滤器体相反的方向加热接管。过烧会使漆产生有害的烟尘，暴露在这些烟尘下会引起皮肤和眼睛发炎，并会损害内部器官。

#### ПРЕДУПРЕЖДЕНИЕ

##### Вероятность появления вредных дымов во время пайки

Производите пайку только в ХОРОШО ПРОВЕТРИВАЕМЫХ помещениях. При пайке нагревайте только соединение, так чтобы пламя не было направлено на фильтр-осушитель. Перегрев красочного покрытия может вызвать появление токсичного дыма. Воздействие этого дыма может привести к раздражению кожи и слизистой оболочки, а также нанести вред внутренним органам. При пайке соединений из чистой меди всегда обрабатывайте соединение мокрой тканью.



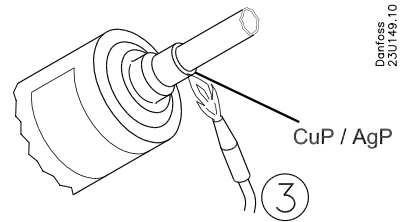
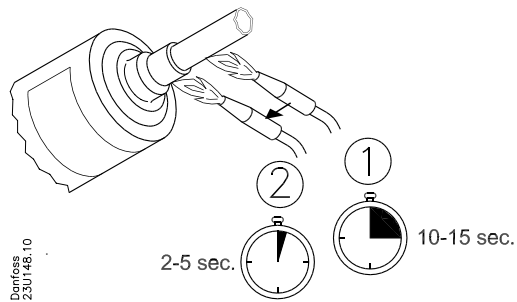
023R9537

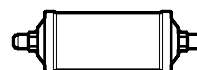
023R9537

R744 (CO<sub>2</sub>)

Bi-metal connection

Max. working pressure 142 bar / 2060 psig





DML: R134a, R404A, R407C, R410A, R507, R22 et al.  
DCL: R12, R22, R502 et al.

**Pure copper solder versions**  
**Lötäusführungen aus reinem Kupfer**  
**Versions à braser avec cuivre pur**  
**Versiones soldar cobre puro**  
**Versioni a brasare in rame puro**

純銅継手による仕様

純銅焊接型

Паяные соединения из чистой меди

Symbol Symbol Symbole Símbolo Simbolo シンボル 标记 Символ	Connection Anschluss Raccord Conexión Connessione 接続サイズ 连接尺寸 Соединение	Max. working pressure Max. zul. Betriebsüberdruck Pression de service maximale ¡Presión de trabajo máx.! Massima pressione operativa! 最高使用圧力 最大工作压力 Макс. рабочее давление
	1/4" 5/16" 3/8" 1/2" 5/8"	610 psig / 42 bar 610 psig / 42 бар
	3/4" 7/8"	507 psig / 35 bar 507 psig / 35 бар
	1 1/8"	435 psig / 30 bar 435 psig / 30 бар

**Flare / face seal versions (ORS) / copper plated solder versions**  
**Bördel-/Dichtflächenausf. (ORS) / verkupferte Lötäusführungen**  
**Versions flare/joint facial (ORS) / versions à braser avec placage cuivre**  
**Versiones abocardadas / sello de junta tórica / acero chapado de cobre para soldar**

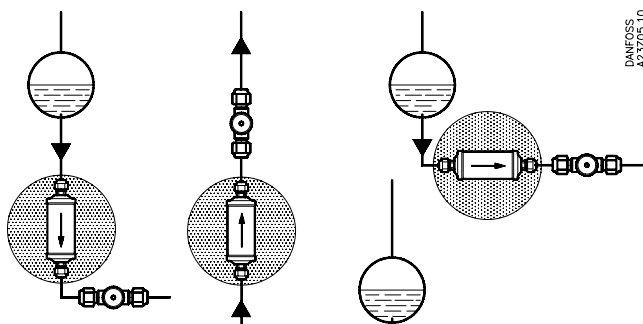
Versioni a cartella / ad attacco rapido con O-ring / versioni ramate a brasare

フレア継手 / 面シール(ORS) / 銅メッキ継手仕様

喇叭口 / 端面密封型 (ORS) / 镀铜焊接型

Под отбортовку (с кольцевым уплотнением) / паяные соединения с медным покрытием

Symbol Symbol Symbole Símbolo Simbolo シンボル 标记 Символ	Connection Anschluss Raccord Conexión Connessione 接続サイズ 连接尺寸 Соединение	Max. working pressure Max. zul. Betriebsüberdruck Pression de service maximale ¡Presión de trabajo máx.! Massima pressione operativa! 最高使用圧力 最大工作压力 Макс. рабочее давление
	All sizes Alle Größen Toutes tailles Todos los tamaños Tutte le dimensioni すべてのサイズ 所有规格 Все размеры	610 psig / 42 bar 610 psig / 42 бар



DANFOS  
A237051.0

#### Note!

Max. working pressure (PB/MWP) shall not be less than the pressure outlined in sect. 8.2 of ANSI / ASHRAE 15 for the refrigerant used in the system.  
After charging, the system shall be marked with the refrigerant and the oil used.

#### Anmerkung!

Der max. zul. Betriebsüberdruck darf nicht kleiner als der in Abschn. 8.2 von ANSI / ASHRAE 15 angegebene Druck für das in der Anlage verwendete Kältemittel sein.  
Nach dem Befüllen ist die Anlage mit Angaben über das verwendete Kältemittel und Öl zu kennzeichnen.

#### Attention!

La pression de service maximale (PB/MWP) ne doit pas être inférieure à la pression définie au chapitre 8.2 des ANSI / ASHRAE 15 pour les fluides frigorigènes utilisés dans le système.  
Après remplissage, indiquer sur le système les fluides frigorigènes et huiles utilisés.

#### ¡Atención!

La presión de trabajo máx. (PB/MWP) no debe ser menor que la presión especificada en ANSI / ASHRAE 15, apartado 8,2 para el refrigerante utilizado en el sistema.  
Después de la carga, se deberá marcar el sistema con el refrigerante y aceite utilizados.

#### Nota bene!

La massima pressione operativa (PB/MWP) non deve essere minore della pressione specificata nel paragrafo 8.2 di ANSI / ASHRAE 15 per il refrigerante utilizzato nel sistema.  
A caricamento avvenuto, il sistema dovrà essere contrassegnato con il refrigerante e l'olio utilizzati.

#### 注意

使用する冷媒のANSI/ASHRAE 15の8.2に記載されている圧力がフィルタドライヤの最高使用圧力以下であることを確認して使用して下さい。  
装置にチャージした冷媒および冷凍機油を明記して下さい。

#### 注意!

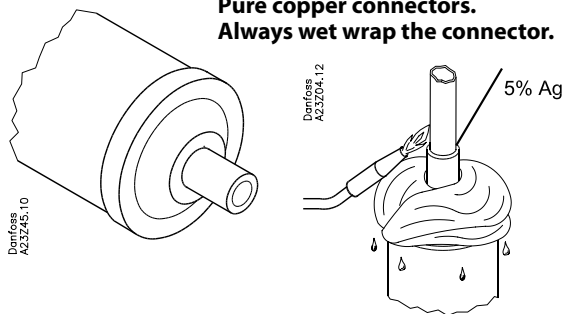
最大工作压力(PB/MWP)应不小于ANSI/ASHRAE15, 8.2中注明的系统所用制冷剂的压力。  
充注后应注明系统所用的制冷剂 and 润滑油。

#### Примечание!

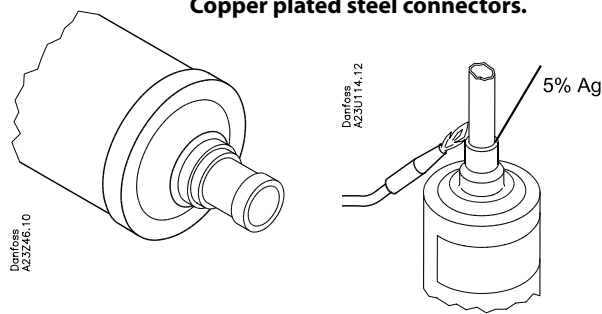
Максимальное рабочее давление (PB/MWP) не должно быть ниже, чем давление, приведенное в разделе 8.2 ANSI / ASHRAE 15 (Американское Общество инженеров теплотехники, искусственного холода и кондиционирования воздуха/Американский Национальный Институт Стандартизации) для хладагента, использующегося в системе.  
После заправки системы на ней следует обозначить тип используемого хладагента и масла.

- ⚠ SAFETY WARNING. SEE REVERSE SIDE.
- ⚠ SICHERHEITSHINWEIS. BITTE BEACHTEN SIE DIE RÜCKSEITE.
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- ⚠ 安全注意事項: 裏面参照
- ⚠ 安全注意事项, 请参看背面。
- ⚠ Инструкция по безопасности. Смотрите обратную сторону.

**Pure copper connectors.  
Always wet wrap the connector.**



**Copper plated steel connectors.**



**WARNING**

**Potential Harmful Fumes During Soldering**

Only solder in a WELL-VENTILATED area. When soldering, only apply heat to the connection with the flame pointed away from the Filter Drier. Excess heating of the paint may cause toxic fumes. Exposure to these fumes may cause skin and eye irritation, and damage internal organs. For pure copper connectors, always wet wrap the connector.

**ACHTUNG**

**Beim Löten können gefährliche Dämpfe entstehen**

Lötarbeiten dürfen nur in GUT BELÜFTETEN Bereichen vorgenommen werden. Beim Löten nur den Stutzen erhitzen, wobei die Flamme vom Trockenfilter weg gerichtet sein muss. Bei Überhitzung des Anstrichs können giftige Dämpfe entstehen. Diese Dämpfe können zu Haut- und Augenirritationen führen und inneren Organen Schäden zufügen. Bei Anschlüssen aus reinem Kupfer den Anschluss immer feucht einwickeln.

**AVERTISSEMENT**

**Risque d'émission de fumées toxiques pendant le brasage**

Braser uniquement dans une zone BIEN VENTILÉE. Pour effectuer le brasage, appliquer la chaleur uniquement sur le raccord ; ne pas diriger la flamme vers le filtre déshydrateur. Une surchauffe de la peinture peut entraîner un dégagement de fumées toxiques. Une exposition à ces fumées peut causer une irritation de la peau et des yeux, ainsi que des lésions des organes internes. Toujours envelopper les raccords en cuivre pur dans un chiffon humide.

**ADVERTENCIA**

**Humos tóxicos durante la soldadura**

Soldar únicamente en un área BIEN VENTILADA. Al soldar, sólo aplicar calor en la conexión con la llama en dirección contraria al filtro secador. El calentamiento excesivo de la pintura puede originar humos tóxicos. El contacto con estos humos puede causar irritaciones en la piel y en los ojos, y también puede dañar los órganos internos. Para conectores de cobre puro, envolver siempre el conector con paño húmedo.



**ATTENZIONE**

**Fumi tossici durante la saldatura**

Saldare esclusivamente in ambienti BEN VENTILATI. Al momento della saldatura, applicare il calore alla connessione soltanto con la fiamma in direzione opposta al filtro essiccatore. Un eccessivo riscaldamento della vernice può provocare fumi tossici. L'esposizione a tali fumi può causare irritazione alla pelle e agli occhi, nonché lesioni agli organi interni. Per i connettori in rame puro, avvolgere sempre uno straccio bagnato attorno al connettore.

**警告**

**ろう付け中に有害なガスが発生する恐れがあります。**

ろう付け作業は、換気が行き届いた場所で行ってください。ろう付け時は炎の方向をフィルタドライヤ本体側に向けず、継手を過熱してください。塗装を加熱しすぎると有害なガスが発生することがあります。このガスに触れると肌や目がかゆくなったり、内臓器官が害を受けたりすることがあります。純銅製のコネクタの場合は、コネクタを必ず濡れた布でくるんでください。

**警告！**

**焊接时有可能产生有害的烟尘**

只能在通风良好的地方焊接。焊接时将火焰对着与干燥过滤器体相反的方向加热接管。过烧会使漆产生有害的烟尘，暴露在这些烟尘下会引起皮肤和眼睛发炎，并会损害内部器官。采用纯铜接管时，应随时用湿布包裹接管。

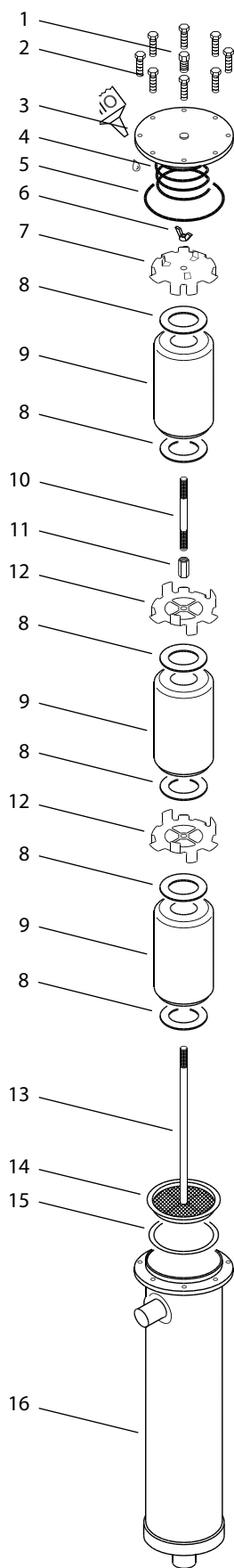
**ПРЕДУПРЕЖДЕНИЕ**

**Вероятность появления вредных дымов во время пайки**

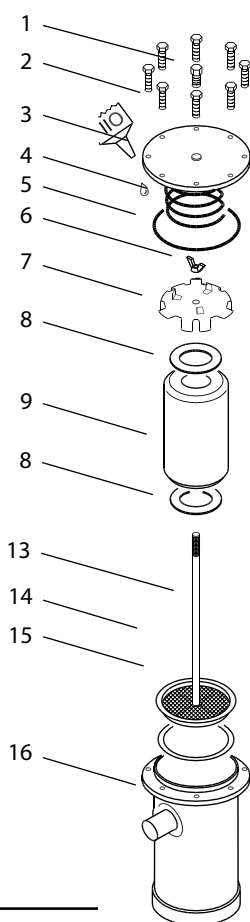
Производите пайку только в ХОРОШО ПРОВЕТРИВАЕМЫХ помещениях. При пайке нагревайте только соединение, так чтобы пламя не было направлено на фильтр-осушитель. Перегрев красочного покрытия может вызвать появление токсичного дыма. Воздействие этого дыма может привести к раздражению кожи и слизистой оболочки, а также нанести вред внутренним органам. При пайке соединений из чистой меди всегда оборачивайте соединение мокрой тканью.



### DCR

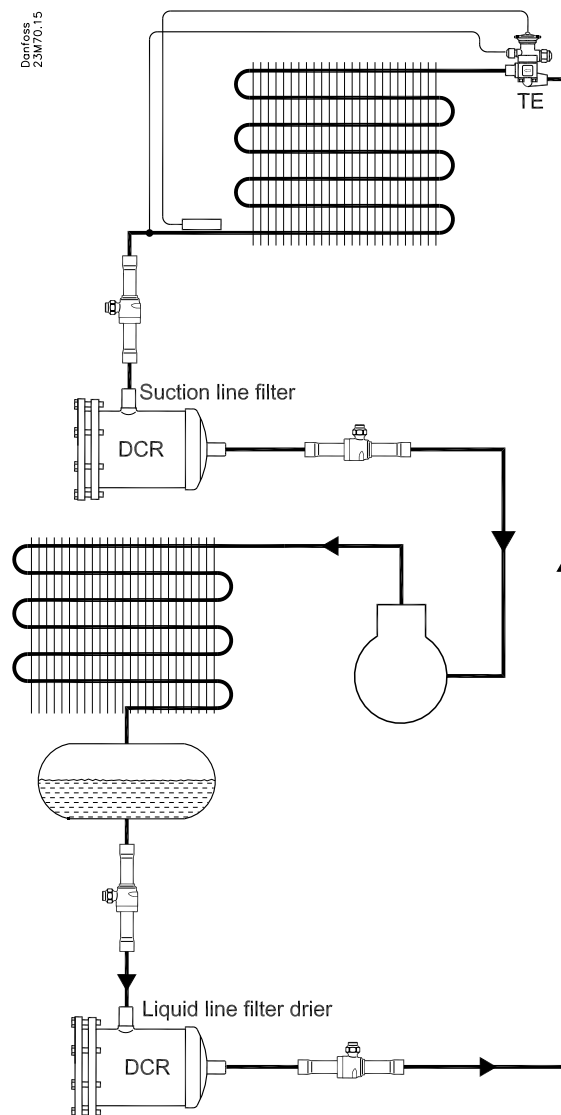


Pos.	Description
1	Plug 1/4 in. NPT
2	Top cover bolts M8 × 35, class 10.9 or M12 × 40, class 8.8 (high pressure)
3	Top cover
4	Spring
5	Top cover gasket Ø121.8 × Ø113.6 × 0.8mm
6	Wing nut M10 (torque max. 3 Nm)
7	Top plate
8	Felt gasket Ø95.5 × Ø45.5 × 2 mm
9	Solid core
10	Extension rod
11	Extension nut
12	Intermediate plate
13	Distance rod
14	Bottom plate / strainer
15	Felt gasket Ø95.5 × Ø78 × 2 mm
16	Filter drier shell


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23M76.11 .10

### Installation

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Type	L minimum		PS (MWP)	
	[mm]	[in.]	P <sub>e</sub> [bar]	PSI
DCR 048 - Normal pressure	170	7	35	500
DCR 096 - Normal pressure	310	13	35	500
DCR 144 - Normal pressure	310	13	35	500
DCR 192 - Normal pressure	310	13	28	400
DCR 048 - High pressure	170	7	46	667
DCR 096 - High pressure	310	13	46	667

#### Note:

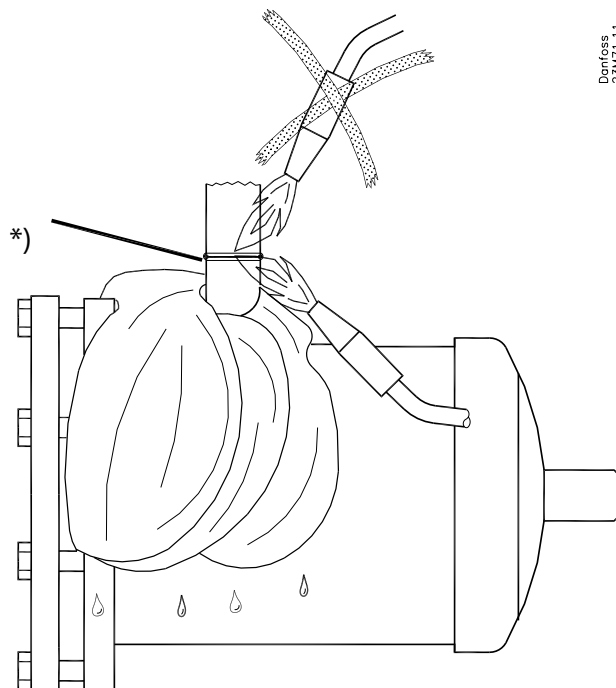
Max working pressure PS(MWP) shall not be less than the pressure outlined in sect 8.2 of ANSI/ASHRAE 15 for the refrigerant used in the system. After charging, the system shall be marked with the refrigerant and oil used.



#### Temperature range:

−40°C → 70°C (−40°F → 160°F)

## Soldering

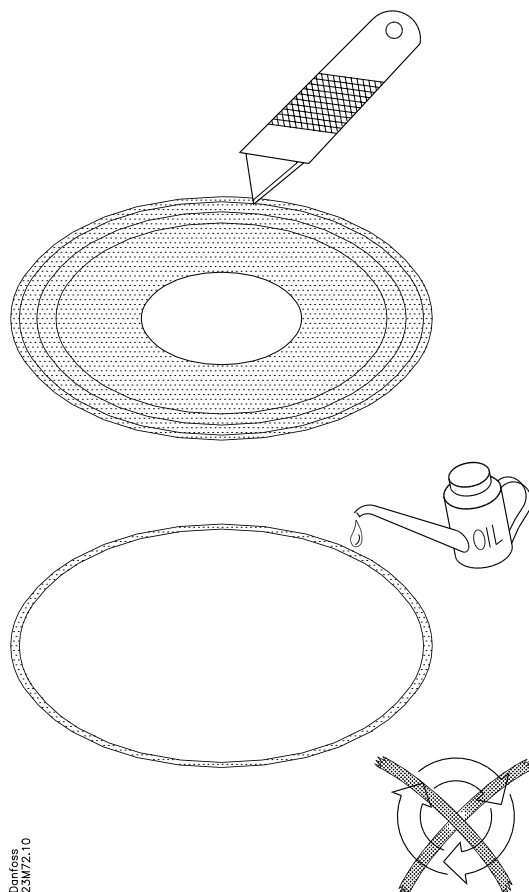


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23M71.11

\*)

Connector type	Soldering material
Cu	Sil-fos 15
Fe	Silver-flo 55 + Easy-flow flux

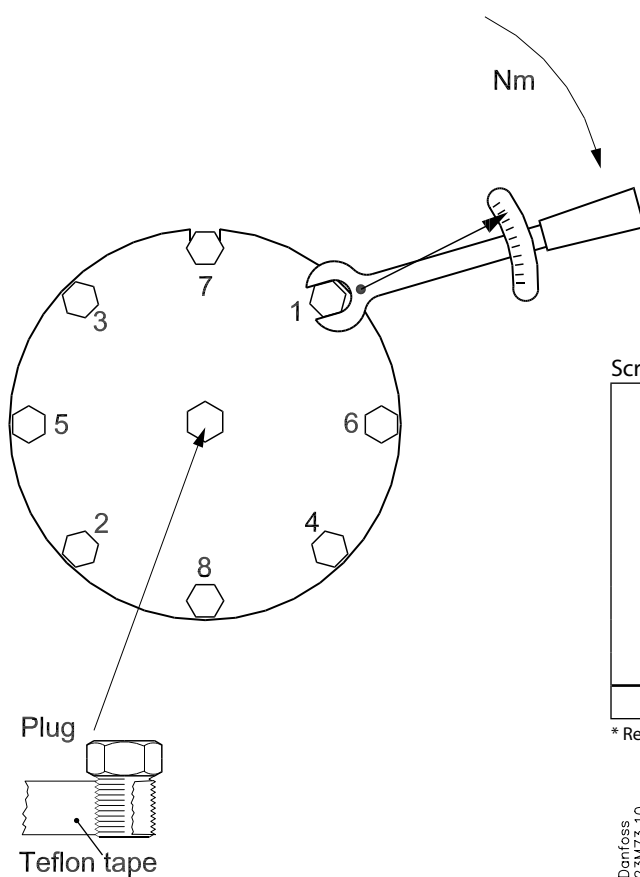
## Gasket



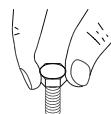
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23M72.10

Do not reuse  
the gasket

## How to tighten the bolts



### Screw type:

M8 + M12	Step 1	 Fingertighten all bolts
	Step 2	3 Nm
	Step 3	10 Nm
	Step 4	20 Nm
	Step 5*	35 Nm
M12	Step 6*	42 Nm

\* Repeat until complete tightness has been reached.

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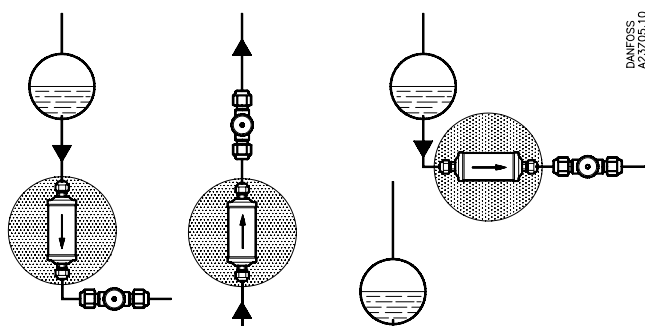
DML: R134a, R404A, R407C, R410A, R507 m.fl.  
DCL: R12, R22, R502 m.fl.

### Kobber - loddeversion

Symbol	Tilslutning	Max. arbejdsdruk
	1/4"	610 psig / 42 bar
	5/16"	
	3/8"	
	1/2"	
	5/8"	
	3/4"	507 psig / 35 bar
	7/8"	
	1 1/8"	
	1 1/2"	435 psig / 30 bar
	1 3/4"	
	2"	

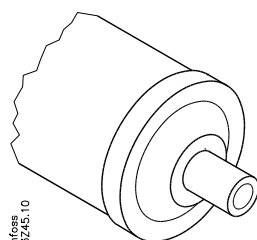
### Flare / kobberbelagt loddeversion

Symbol	Tilslutning	Max. arbejdsdruk
	1/4"	610 psig / 42 bar
	5/16"	
	3/8"	610 psig / 42 bar
	1/2"	
	5/8"	610 psig / 42 bar
	3/4"	
	7/8"	610 psig / 42 bar
	1 1/8"	
	1 1/2"	610 psig / 42 bar
	1 3/4"	
	2"	610 psig / 42 bar
	2 1/2"	

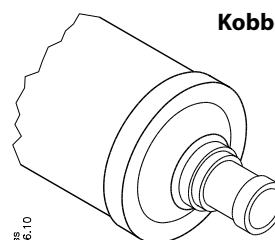
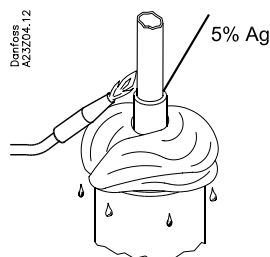


### Bemærk!

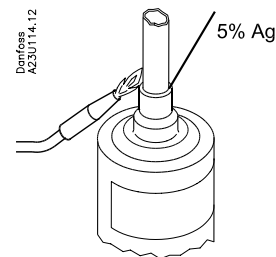
Max. arbejdsdruk (PS/MWP) må ikke være mindre end det tryk der er angivet i sektion 8.2 for ANSI / ASHRAE 15 til det kølemiddel der benyttes. Efter påfyldning af kølemiddel, skal systemet mærkes med det kølemiddel og den olie der er benyttet.



**Kobbertilslutning:**  
Svøb altid en våd klud omkring tilslutningen.



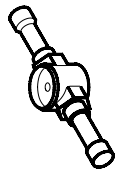
**Kobberbelagt tilslutning:**



**Advarsel**

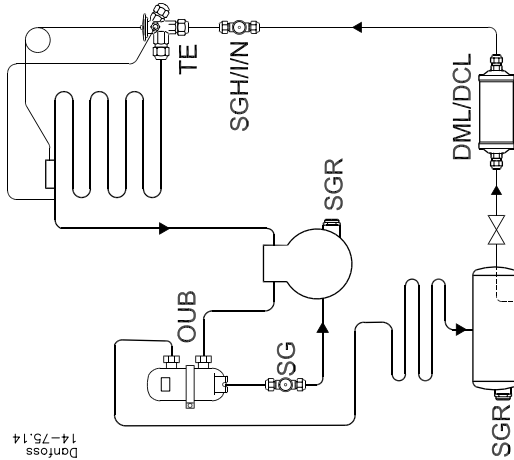
### Risiko for skadelige dampe ved lodning

Lodning skal altid foregå i et godt ventileret område. Ved lodning skal flammen altid pege væk fra tørrefilteret. Overdreven opvarmning af malingen kan forårsage giftige dampe. Disse dampe kan forårsage hud- og øjenirritation, og skade indre organer. Svøb altid en våd klud omkring tilslutningen ved lodning af kobbertilslutning.



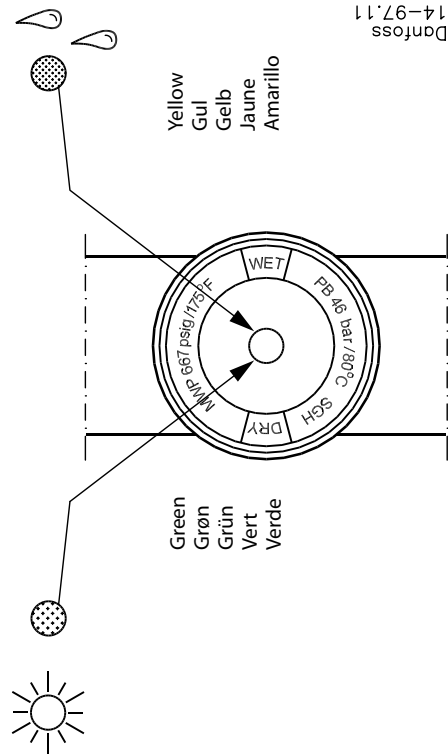
014R9572

HFC HCFC CFC	 -50°C → +80°C (-58°F → +175°F)	PS/MWP			
		SG/SGR/SGI/SGRI/SGN/SGRN		6(s) → 22(s)	PS/MWP = 35 bar
		SGH / SGRH		6(s) → 22s	PS/MWP = 46 bar

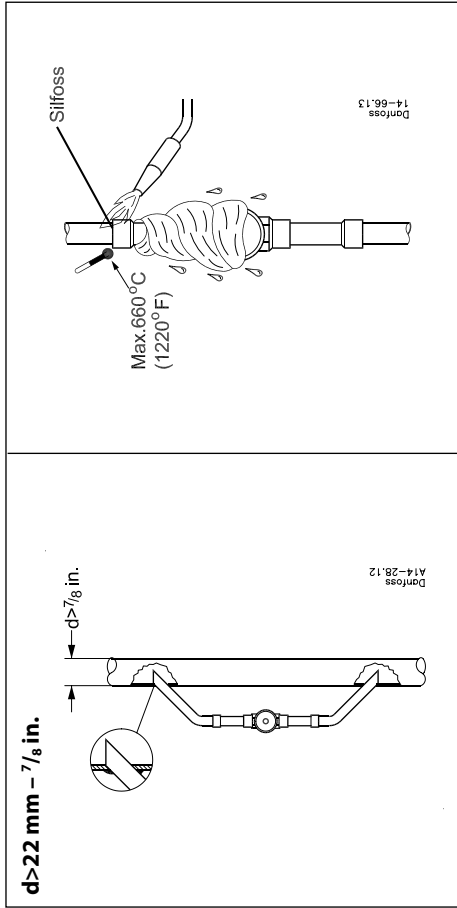


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14-75.14

SGH / SGRH:



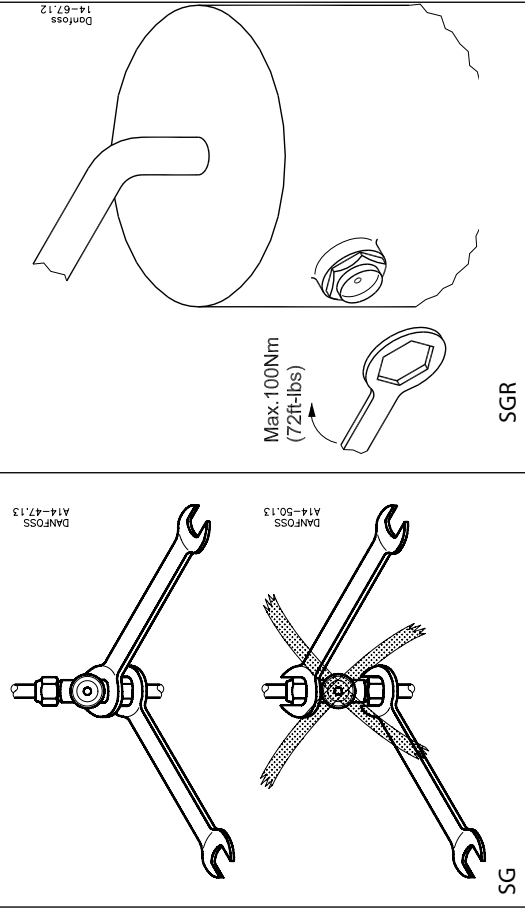
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14-97.11



Danfoss  
A14-28.12

W

Type	mm	in.	mm	in.
SG/N 6	14	9/16	16	5/8
SG/N 10	19	3/4	22	7/8
SG/N 12	22	7/8	24	15/16
SG/N 16	27	1 1/16	27	1 1/16
SG/N 19	32	1 1/4	32	1 1/4



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A14-47.13

Danfoss  
A14-50.13

SGR

SG