

Data Sheet

# Gauge valve Type **SNV-ST** and **SNV-SS**

For servicing of heavy-duty industrial refrigeration applications



SNV stop gauge are designed as service valves with a very sturdy construction. SNV-ST are made in steel approved for low temperature operations, SVA-SS are stainless steel versions.

SNV valves have internal backseating (metal to metal), enabling the spindle seal to be replaced while the valve is still under pressure.

SNV-ST and SNV-SS are available in standard branch length configuration as well as extended branch configuration, with extension length versions from 50 to 150 mm.

## Features

- Applicable to HCFC, non flammable HFC, R717 (Ammonia), R744 (CO<sub>2</sub>) and hydrocarbons
- Suitable for "heavy duty" industrial applications including high pressures and wide temperature range
- The SNV-ST and SNV-SS valves have backseating (metal to metal)
- Compact and light valve for easy handling and installation
- No special flow direction required
- Provide high flow characteristics
- Each valve type is clearly marked with type and size
- Housing and bonnet material is low temperature steel (stainless steel for SNV-SS) according to requirements of the Pressure Equipment Directive and other international classification authorities
- Valve safety is enhanced with the spindle being secured such that it cannot be unscrewed
- Standard versions available with Max. operating pressure ranges:
  - 52 bar / 754 psig Valves
  - 65 bar / 943 psig Valves
  - 140 bar / 2030 psig Valves
- Full temperature range:
  - -60 – 150 °C (200°C) / -76 – 302 °F (392°F)
- Classification: DNV, CRN, BV, EAC etc.

**Portfolio overview**

SNV-ST and SNV-SS offers numerous configurations and connections as well as versions for high-pressure applications, as shown in table.

Versions with different properties may be produced to order. Contact Danfoss for further information about made to order products.

Figure 1: SNV-ST



Figure 2: SNV-SS



Table 1: SNV-ST and SNV-SS options

Description	SNV-ST	SNV-SS
<b>Configuration</b>	Standard Extended branch	Standard Extended branch
<b>Valve body/connection material</b>	Steel	Stainless steel
<b>Equipment</b>	Cap Handwheel	Cap
<b>Connection standard</b>	ANSI/ASME B1.20.1 DIN 3861 DIN 3901 EN 10220 ISO 228-1 ISO 7-1	ANSI/ASME B1.20.1 EN 10220 ISO 228-1
<b>Bottom branch connection type</b>	Butt weld Cutting ring G NPT R	Butt weld G NPT
<b>Side branch connection type</b>	Cutting ring G NPT Rc UNF	G NPT
<b>Special connections</b>	Manometer connection	Manometer connection
<b>Max working pressure [bar]</b>	52 bar 65 bar 140 bar	52 bar 65 bar 140 bar
<b>Max working pressure [psig]</b>	754 psig 943 psig 2030 psig	754 psig 943 psig 2030 psig
<b>Packing format</b>	Multi pack Industrial pack	Multi pack Industrial pack

**i NOTE:**

Not all combinations are possible. For an overview over standard code number properties, refer to **Ordering** chapter.

## Media

### **Refrigerants**

SNV-ST and SNV-SS valves are currently authorized by Danfoss for use with more than 70 R-numbers HCFC, non-flammable HFC, Ammonia, CO<sub>2</sub> and hydrocarbons.

### **New refrigerants**

Danfoss products are continually evaluated for use with new refrigerants depending on market requirements.

When a refrigerant is approved for use by Danfoss, it is added to the relevant portfolio, and the R number of the refrigerant (e.g. R513A) will be added to the technical data of the code number. Therefore, products for specific refrigerants are best checked at [store.danfoss.com/en/](https://store.danfoss.com/en/), or by contacting your local Danfoss representative.

**Product specification**

**Pressure and temperature**

Table 2: Pressure and temperature data

Temperature range	-60 °C – 150 °C / -76 °F – 302 °F
Maximum working pressure	Standard versions available with Max. operating pressure ranges: 52 bar / 754 psig Valves 65 bar / 943 psig Valves 140 bar / 2030 psig Valves

**Design**

**Housing**

Made of special steel, approved for low temperature operations

**Spindle**

Equipped with stainless steel spindle, which is ideal for O-ring sealing

**Material specification**

Table 3: SNV-ST and SNV-SS

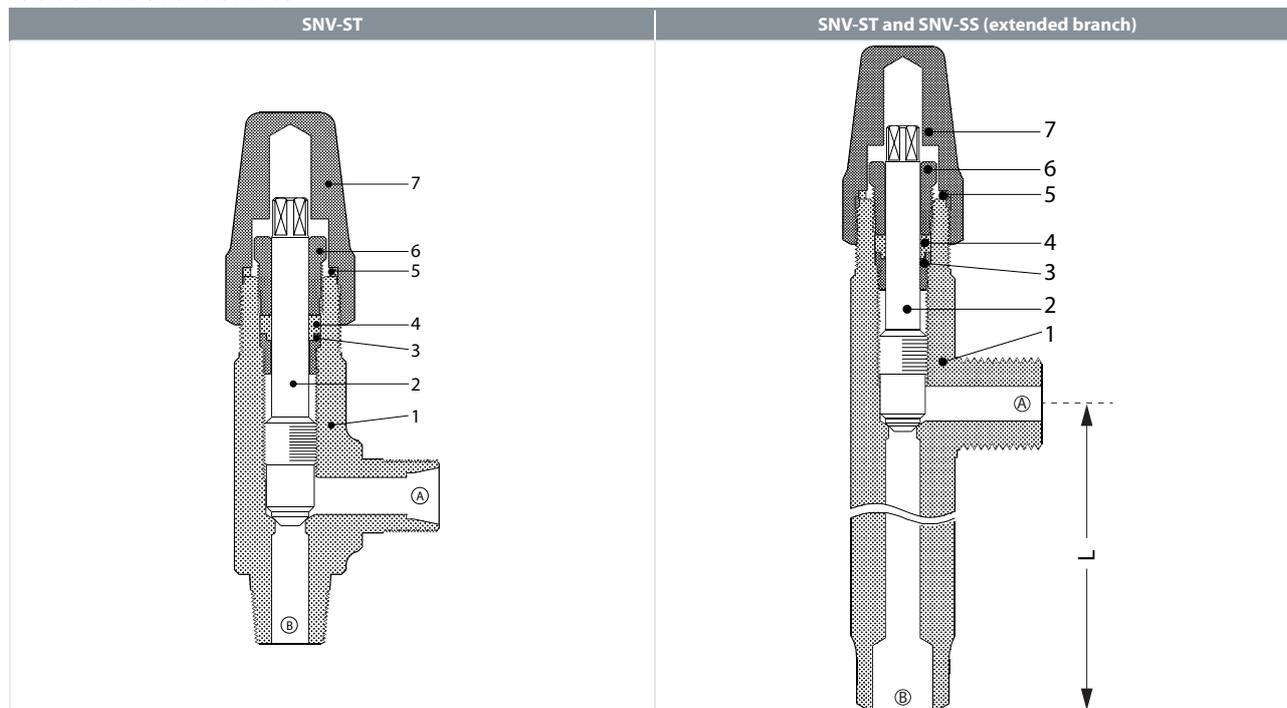


Table 4: Material specification according to standards

No.	Part	Material	EN	JIS	ASTM
1	Housing	Steel	P285QH EN 10222-4	SFL 2 G 3205	LF2
		Stainless steel (SNV-SS)	X5CrNi18-10, 10088		A350 AISI 304
2	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088 DIN 17440 (SNV-SS only)	SUS 303	AISI 303
3	Locking ring	Steel			
4	Sealing ring	Teflon			
5	Seal cap gasket	Nylon			
6	Gland nut	Steel			
7	Seal cap	Steel			

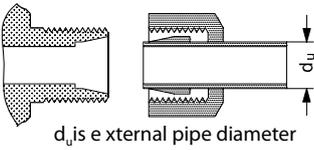
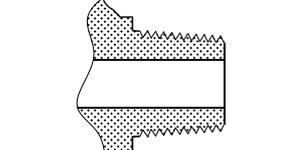
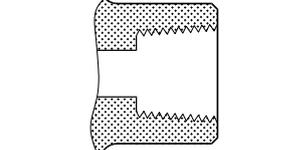
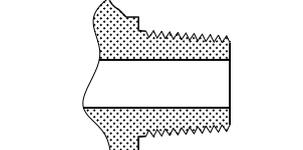
## Connections

Available with the following connections:

- CD Cutting ring
- MPT Male NPT thread (ANSI/ASME B1.20.1)
- FPT Female NPT thread (ANSI/ASME B1.20.1)
- R Male thread (ISO 7-1)
- Rc Female thread (ISO 7-1)
- G thread
- W Welding connection

For more details refer to [Ordering](#) chapter.

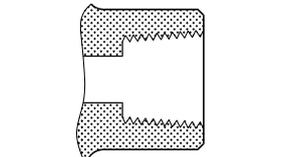
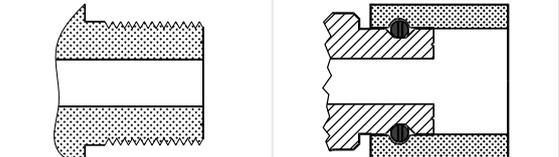
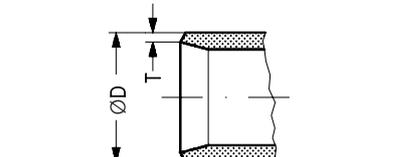
**Table 5: Connections**

CD 6 CD10	1/4 MPT 3/8 MPT	1/4 FPT 3/8 FPT	1/4 R 3/8 R
 <p><math>d_u</math> is external pipe diameter</p>			
Cutting ring, DIN 3861 & DIN 3901 class $L, d_u = 6$ mm Cutting ring, DIN 3861 & DIN 3901 class $L, d_u = 10$ mm	1/4 inch male NPT ANSI/ASME B1.20.1 3/8 inch male NPT ANSI/ASME B1.20.1	1/4 inch female NPT ANSI/ASME B1.20.1 3/8 inch female NPT ANSI/ASME B1.20.1	1/4 inch male ISO 7-1 3/8 inch male ISO 7-1

**NOTE:**

Fittings not included

**Table 6: Connections**

1/4 RC 3/8 RC	G 1/2	W
		
1/4 inch female ISO 7-1 3/8 inch female ISO 7-1	G 1/2 inch	1/2 inch welding connection $D = 21.3$ mm / 0.839 in $T = 2.3$ mm / 0.091 in.

## Installation

No special flow direction is required. The valve is designed to withstand high internal pressures. However, the piping system in general should be designed to avoid liquid traps and reduce the risk of hydraulic pressure caused by thermal expansion.

For further information refer to installation guide for SNV-ST and SNV-SS.

### Dimensions and weights

Figure 3: SNV-ST

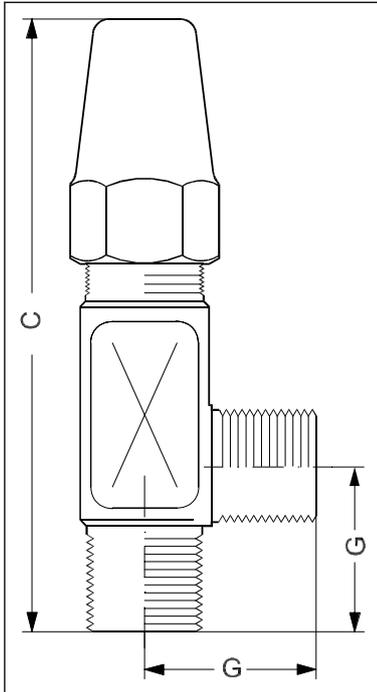


Figure 4: SNV-ST (Manometer)

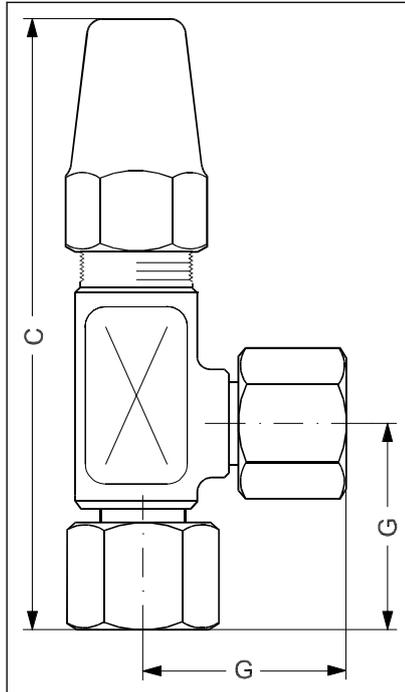
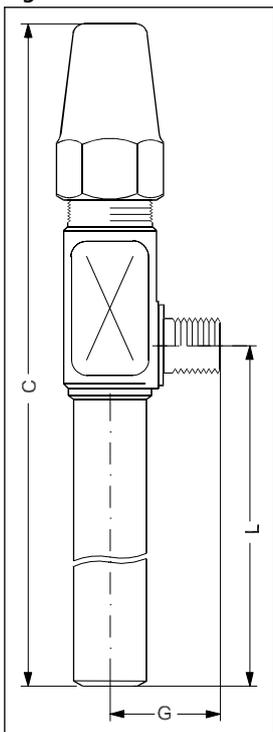


Table 7: SNV-ST Standard versions

Type	Size	C	G	Weight
SNV-ST	mm	115	32	0.36 kg
	in.	4.53	1.26	0.79 lb
SNV-ST (Manometer)	mm	127	45	0.56 kg
	in.	5.00	1.77	1.22 lb

Figure 5: Extended branch



## Gauge valve, type SNV-ST and SNV-SS

**Table 8: Extended branch versions**

Type	Size	C	G	L	Weight
SNV-ST	mm	131	32	50	0.50 kg
	in.	5.16	1.26	1.97	1.102 lb
	mm	181	32	100	0.60 kg
	in.	7.13	1.26	3.94	1.32 lb
	mm	206	32	125	0.72 kg
	in.	8.11	1.26	4.92	1.587 lb
SNV-SS	mm	131	32	50	0.50 kg
	in.	5.16	1.26	1.97	1.102 lb
	mm	231	32	150	0.80 kg
	in.	9.09	1.26	5.91	1.763 lb

**NOTE:**

Specified weights are nominal, and may differ depending on actual configuration of the code number.

## Ordering

### SNV Steel

Table 9: SNV-ST to ANSI/ASME B1.20.1, Standard branch, 52 bar MWP

Type	Spec. key	Bottom branch	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST CD6-1/4MPT	1/4 NPT ext	Cutting ring 6 mm	Cap	Multi pack	12 pc	148B3742
SNV-ST	SNV-ST CD6-3/8MPT	3/8 NPT ext	Cutting ring 6 mm	Cap	Multi pack	12 pc	148B3744
SNV-ST	SNV-ST CD6-1/4MPT	1/4 NPT ext	Cutting ring 6 mm	Handwheel	Industrial pack	30 pc	148B4216
SNV-ST	SNV-ST CD10-1/4MPT	1/4 NPT ext	Cutting ring 10 mm	Cap	Multi pack	12 pc	148B3741
SNV-ST	SNV-ST CD10-3/8MPT	3/8 NPT ext	Cutting ring 10 mm	Cap	Multi pack	12 pc	148B3743
SNV-ST	SNV-ST 7/16UNF-1/4MPT	1/4 NPT ext	7/16 UNF ext	Cap	Industrial pack	30 pc	148B4230
SNV-ST	SNV-ST 7/16UNF-1/4MPT	1/4 NPT ext	7/16 UNF ext	Cap	Multi pack	12 pc	148B4566
SNV-ST	SNV-ST 3/8FPT-3/8MPT	3/8 NPT ext	3/8 NPT int	Cap	Multi pack	12 pc	148B3747
SNV-ST	SNV-ST 3/8FPT-3/8MPT	3/8 NPT ext	3/8 NPT int	Cap	Industrial pack	30 pc	148B4181
SNV-ST	SNV-ST 3/8FPT-3/8FPT	3/8 NPT int	3/8 NPT int	Cap	Industrial pack	30 pc	148B4225
SNV-ST	SNV-ST 3/8FPT-1/2MPT	1/2 NPT ext	3/8 NPT int	Cap	Industrial pack	30 pc	148B4233
SNV-ST	SNV-ST 3/8FPT-1/2MPT	1/2 NPT ext	3/8 NPT int	Cap	Multi pack	12 pc	148B4565
SNV-ST	SNV-ST 3/8FPT-3/8FPT	3/8 NPT int	3/8 NPT int	Cap	Multi pack	12 pc	148B4572
SNV-ST	SNV-ST 1/4FPT-1/4MPT	1/4 NPT ext	1/4 NPT int	Cap	Multi pack	12 pc	148B3746
SNV-ST	SNV-ST 1/4FPT-1/4MPT	1/4 NPT ext	1/4 NPT int	Cap	Industrial pack	30 pc	148B4180
SNV-ST	SNV-ST 1/4FPT-1/4FPT	1/4 NPT int	1/4 NPT int	Cap	Multi pack	12 pc	148B4568
SNV-ST	SNV-ST 1/4FPT-1/4MPT	1/4 NPT ext	1/4 NPT int	Cap, Adapter for ICS	Multi pack	6 pc	148B4772
SNV-ST	SNV-ST 1/2MPT-1/2MPT	1/2 NPT ext	1/2 NPT ext	Cap	Industrial pack	30 pc	148B4224
SNV-ST	SNV-ST 1/2MPT-3/8FPT	3/8 NPT int	1/2 NPT ext	Cap	Industrial pack	30 pc	148B4226
SNV-ST	SNV-ST 1/2MPT-1/2MPT	1/2 NPT ext	1/2 NPT ext	Cap	Multi pack	12 pc	148B4564

Table 10: SNV-ST to ANSI/ASME B1.20.1, Extended branch, 52 bar MWP

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST 1/4FPT-1/4MPT L100	1/4 NPT ext	100 mm / 4 in	1/4 NPT int	Cap	Industrial pack	20 pc	148B4232
SNV-ST	SNV-ST 1/4FPT-1/4MPT L100	1/4 NPT ext	100 mm / 4 in	1/4 NPT int	Cap	Multi pack	6 pc	148B4567
SNV-ST	SNV-ST 1/4FPT-W1/2 L100	Butt weld 1/2 in	100 mm / 4 in	1/4 NPT int	Handwheel	Industrial pack	30 pc	148B4408
SNV-ST	SNV-ST 1/4FPT-W1/2 L100	Butt weld 1/2 in ext	100 mm / 4 in	1/4 NPT int	Cap	Industrial pack	20 pc	148B4495

Table 11: SNV-ST to EN 10220, Extended branch, 52 bar MWP

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST G1/2-W1/2 L50	Butt weld 1/2 in	50 mm / 2 in	G 1/2A	Cap	Industrial pack	30 pc	148B4218
SNV-ST	SNV-ST G1/2-W1/2 L50	Butt weld 1/2 in	50 mm / 2 in	G 1/2A	Cap	Multi pack	12 pc	148B4570
SNV-ST	SNV-ST G1/2-W1/2 L100	Butt weld 1/2 in	100 mm / 4 in	G 1/2A	Cap	Multi pack	6 pc	148B3769
SNV-ST	SNV-ST G1/2-W1/2 L100	Butt weld 1/2 in	100 mm / 4 in	G 1/2A	Cap	Industrial pack	30 pc	148B4211

Table 12: SNV-ST to DIN 3861, Standard & extended branch, 52 bar MWP

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST CD10-W1/2 L100	Butt weld 1/2 in	100 mm / 4 in	Cutting ring 10 mm	Cap	Multi pack	6 pc	148B3768
SNV-ST	SNV-ST CD10-W1/2 L100	Butt weld 1/2 in	100 mm / 4 in	Cutting ring 10 mm	Cap	Industrial pack	30 pc	148B4210
SNV-ST	SNV-ST CD10-CD10	Cutting ring 10 mm	Standard	Cutting ring 10 mm	Cap	Multi pack	12 pc	148B3740
SNV-ST	SNV-ST CD10-CD10	Cutting ring 10 mm	Standard	Cutting ring 10 mm	Cap	Industrial pack	30 pc	148B4177

Table 13: SNV-ST to ISO 228-1, Standard, 52 bar MWP

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST G1/2-G1/2	G 1/2A	Standard	G 1/2A	Cap	Multi pack	12 pc	148B3745
SNV-ST	SNV-ST G1/2 MAN	G 1/2A	Standard	G 1/2A	Cap Manometer conn.	Multi pack	6 pc	148B3778

## Gauge valve, type SNV-ST and SNV-SS

**Table 14: SNV-ST to ISO 7-1, Standard branch, 52 bar MWP**

Type	Spec. Key	Bottom branch	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST Rc $\frac{3}{8}$ -R $\frac{3}{8}$	R $\frac{3}{8}$ ext	Rc $\frac{3}{8}$ int	Cap	Industrial pack	30 pc	148B4227
SNV-ST	SNV-ST Rc $\frac{1}{4}$ -R $\frac{3}{8}$	R $\frac{3}{8}$ ext	Rc $\frac{1}{4}$ int	Cap	Industrial pack	30 pc	148B4228
SNV-ST	SNV-ST Rc $\frac{1}{4}$ -R $\frac{1}{4}$	R $\frac{1}{4}$ ext	Rc $\frac{1}{4}$ int	Cap	Industrial pack	30 pc	148B4229

**Table 15: SNV-ST to DIN 3901, Standard & extended branch, 65 bar MWP**

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST CD10-CD10 65 bar	Cutting ring 10 mm	Standard	Cutting ring 10 mm	Cap	Multi pack	12 pc	148B6400
SNV-ST	SNV-ST CD10-W $\frac{1}{2}$ L100	Butt weld 1/2 in	100 mm / 4 in	Cutting ring 10 mm	Cap	Industrial pack	30 pc	148B4723

**Table 16: SNV-ST to EN 10220 extended branch, 65 bar MWP**

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST G $\frac{1}{2}$ W $\frac{1}{2}$ L125	W $\frac{1}{2}$	125/5 in	G $\frac{1}{2}$	Cap	Multi pack	12 pc	148B4571
SNV-ST	SNV-ST G $\frac{1}{2}$ W $\frac{1}{2}$ L125	W $\frac{1}{2}$	125/5 in	G $\frac{1}{2}$	Cap	Industrial pack	30 pc	148B4219

**Table 17: SNV-ST to ANSI/ASME B1.20.1 / ISO 228-1, Standard branch, 140 bar MWP**

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-ST	SNV-ST $\frac{1}{4}$ FPT - $\frac{1}{4}$ MPT 140bar	$\frac{1}{4}$ MPT	STD	$\frac{1}{4}$ FPT	Cap	Multi pack	12 pc	148B0082
SNV-ST	SNV-ST G $\frac{1}{2}$ G $\frac{1}{2}$ 140bar	G $\frac{1}{2}$	STD	G $\frac{1}{2}$	Cap	Multi pack	12 pc	148B0084

## **SNV Stainless steel**

**Table 18: SNV-SS to ANSI/ASME B1.20.1, Standard branch, 65 bar MWP**

Type	Spec. Key	Bottom branch	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-SS	SNV-SS $\frac{3}{8}$ FPT- $\frac{3}{8}$ MPT	$\frac{3}{8}$ NPT ext	$\frac{3}{8}$ NPT int	Cap	Multi pack	6 pc	148B3750
SNV-SS	SNV-SS $\frac{3}{8}$ FPT- $\frac{3}{8}$ MPT	$\frac{3}{8}$ NPT ext	$\frac{3}{8}$ NPT int	Cap	1 pack	30 pc	148B3986
SNV-SS	SNV-SS $\frac{1}{4}$ FPT- $\frac{1}{4}$ MPT	$\frac{1}{4}$ NPT ext	$\frac{1}{4}$ NPT int	Cap	Multi pack	6 pc	148B4771
SNV-SS	SNV-SS $\frac{1}{4}$ FPT- $\frac{1}{4}$ MPT	$\frac{1}{4}$ NPT ext	$\frac{1}{4}$ NPT int	Cap	1 pack	6 pc	148B4783
SNV-SS	SNV-SS CD 10 -CD 10	CD10	CD10	Cap	MULTI	6 pc	148B4693

**Table 19: SNV-SS to EN 10220, Extended branch, 65 bar MWP**

Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-SS	SNV-SS G $\frac{1}{2}$ -W $\frac{1}{2}$ L50 65 bar	Butt weld 1/2 in	50 mm / 2 in	G $\frac{1}{2}$ A	Cap	Multi pack	6 pc	148B4581
SNV-SS	SNV-SS G $\frac{1}{2}$ -W $\frac{1}{2}$ L150 65 bar	Butt weld 1/2 in	150 mm / 6 in	G $\frac{1}{2}$ A	Cap	Multi pack	12 pc	148B4582
SNV-SS	SNV-SS G $\frac{1}{2}$ -W $\frac{1}{2}$ L50 65 bar	Butt weld 1/2 in	50 mm / 2 in	G $\frac{1}{2}$ A	Cap	Industrial pack	30 pc	148B4784
SNV-SS	SNV-SS G $\frac{1}{2}$ -W $\frac{1}{2}$ L150 65 bar	Butt weld 1/2 in	150 mm / 6 in	G $\frac{1}{2}$ A	Cap	Industrial pack	30 pc	148B4785

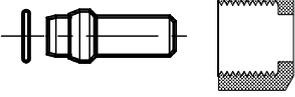
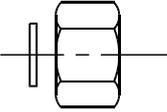
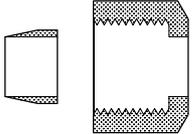
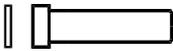
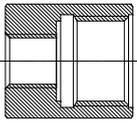
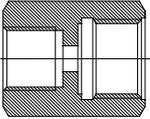
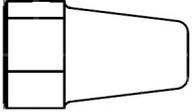
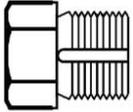
**Table 20: SNV-SS to ISO 228-1, Standard branch, 65 bar MWP**

Type	Spec. Key	Bottom branch	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-SS	SNV-SS G $\frac{1}{2}$ MAN	G $\frac{1}{2}$ A	G $\frac{1}{2}$ A	Cap Manometer conn	Multi pack	6 pc	148B6545

## **\*Packing format definitions**

- Multi pack items can be ordered as 1 pc and up to the specified number of items pr multi pack. Each item is packed together with relevant documentation in individual packages.
- Industrial pack contains the number of items specified. Items are not individually packed and can only be ordered in pack quantity. Documentation is on pack level, not on item level.

## Accessories

	Type	Connection type	Quantity	Code no.
	Weld nipple incl. union nut and O-ring	CD 10	1 pc.	<b>148B3729</b>
	Blind nut incl. gasket Blind nut SS incl. gasket	G 1/2	1 pc.	<b>148H3450</b> <b>148B4317</b>
	CD 6 Cutting ring + union nut	CD 6	1 pc.	<b>148B4182</b>
			60 pcs.	<b>148B4217</b>
	CD 10 Cutting ring + union nut	CD 10	1 pc.	<b>148B4183</b>
			60 pcs.	<b>148B4186</b>
	Welding nipple (Al gaskets included)	G½ - ND6	2 pcs.	<b>148B4184</b>
	Adapter kit (Al gaskets included)	1/4" FPT - 1/2" G	1 pc.	<b>148B3860</b>
	Adapter kit (Al gaskets included)	3/8" G - 1/2" G	1 pc.	<b>148B3861</b>
	Seal cap & gasket - SNV-ST Seal cap & gasket - SNV-SS		1 pc.	<b>148B4576</b> <b>148B3269</b>
	Plug and gasket	G½" (external)	1 pc.	<b>148H3462</b>

**Certificates, declarations, and approvals**

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at [danfoss.com](http://danfoss.com) or contact your local Danfoss representative if you have any questions.

Type	File name	Document type	Document topic	Approval authority
SNV-ST	UA.089.D.00188-17	UA Declaration	PED	LLC CDC EURO TYSK
	UA.TR-089.0993-17	Pressure - Safety Certificate	PED	LLC CDC EURO TYSK
	033F0691.AD	Manufacturers Declaration	RoHS	Danfoss
	033F0686.AG	Manufacturers Declaration	PED	Danfoss
	CRN.OC18678.513467890YTN	Pressure - Safety Certificate	CRN	TSSA
19.10048.266	Marine - Safety Certificate	-	RMRS	
SNV-SS	033F0691.AD	Manufacturers Declaration	RoHS	Danfoss
	033F0686.AG	Manufacturers Declaration	PED	Danfoss
	CRN.OC18678.513467890YTN	Pressure - Safety Certificate	CRN	TSSA
	19.10048.266	Marine - Safety Certificate	-	RMRS

## Online support

Danfoss offers a wide range of support along with our products, including digital product information, software, mobile apps, and expert guidance. See the possibilities below.

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