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_2) 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 (see Ordering section):
  - 52 bar / 754 psig Valves
  - 65 bar / 943 psig Valves
  - 140 bar / 2030 psig Valves
- Full temperature range:
  - **SNV-ST:** -60 – 150 °C / -76 – 302 °F
  - **SNV-SS:** -60 – 200 °C / -76 – 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
Configuration	Standard Extended branch	Standard Extended branch
Valve body/connection material	Steel	Stainless steel
Equipment	Cap Handwheel	Cap
Connection standard	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
Bottom branch connection type	Butt weld Cutting ring G NPT R	Butt weld Cutting ring G NPT
Side branch connection type	Cutting ring G NPT Rc UNF	Cutting ring G NPT
Special connections	Manometer connection	Manometer connection
Max working pressure [bar]	52 bar 65 bar 140 bar	65 bar
Max working pressure [psig]	754 psig 943 psig 2030 psig	943 psig
Packing format	Multi pack Industrial pack	Multi pack Industrial pack

ⓘ **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_2 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/, or by contacting your local Danfoss representative.

Product specification

Pressure and temperature

Table 2: Pressure and temperature data

Temperature range	**SNV-ST:** -60 – 150 °C / -76 – 302 °F **SNV-SS:** -60 – 200 °C / -76 – 392 °F
Maximum working pressure (see Ordering section)	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
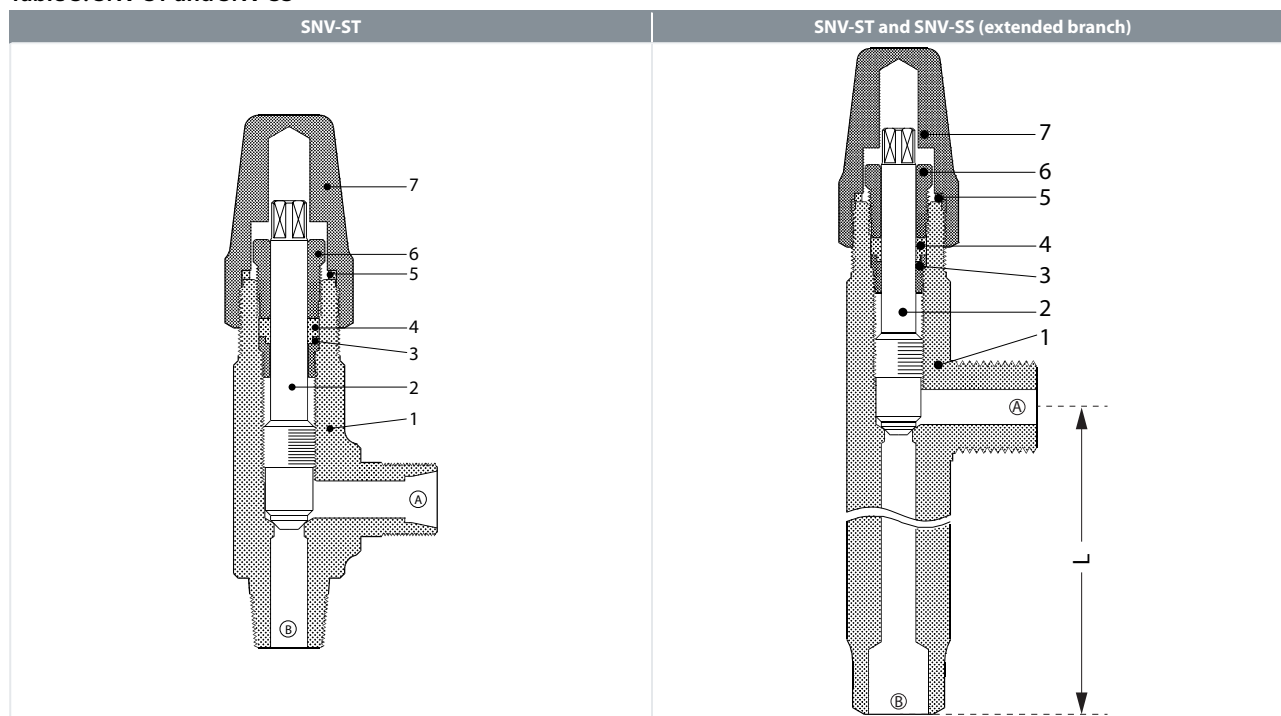
Table 4: Material specification according to standards

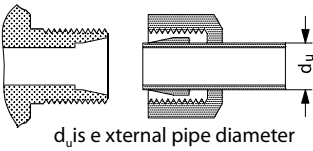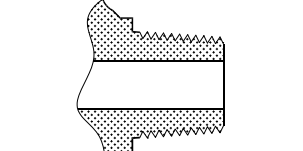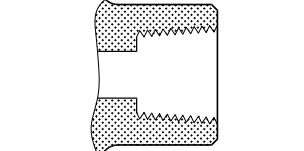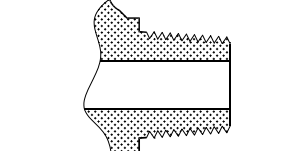| No.	Part	Material	EN	JIS	ASTM
1	Housing	Steel	P285QH EN 10222-4	SFL 2 G 3205	LF2
					A350
		Stainless steel (SNV-SS)	XSCrNi18-10, 10088		AISI 304
2	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088 DIN 17440 (SNV-SS only)	SUS 303	AISI 303
3	Locking ring	Steel			
4	Sealing ring	Teflon			
5	Seal cap gasket	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
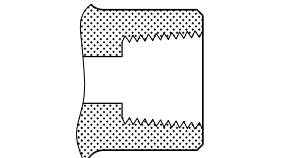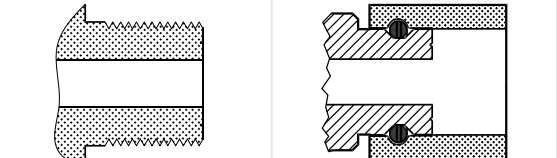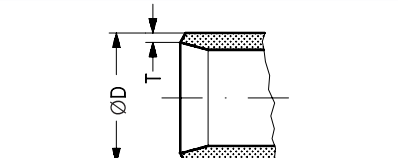- W Welding connection

For more details refer to Ordering chapter.

Table 5: Connections

CD 6 CD10	¼ MPT ⅜ MPT	¼ FPT ⅜ FPT	¼ R ⅜ R
  $d_u$is e xternal pipe diameter			
Cutting ring, DIN 3861 & DIN 3901 class L, d_u = 6 mm Cutiing ring, DIN 3861 & DIN 3901 class L, d_u = 10 mm	¼ inch male NPT ANSI/ASME B1.20.1 ⅜ inch male NPT ANSI/ASME B1.20.1	¼ inch female NPT ANSI/ASME B1.20.1 ⅜ inch female NPT ANSI/ASME B1.20.1	¼ inch male ISO 7-1 ⅜ inch male ISO 7-1

ⓘ **NOTE:**
Fittings not included

Table 6: Connections

¼ RC ⅜ RC	G ½	W
¼ inch female ISO 7-1 ⅜ inch female ISO 7-1	G ½ inch	½ 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.
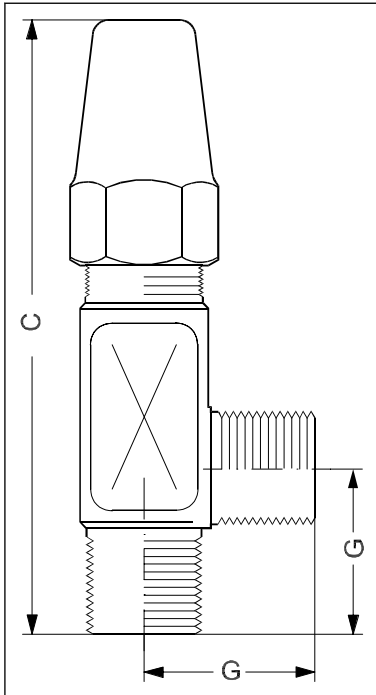
Dimensions and weights
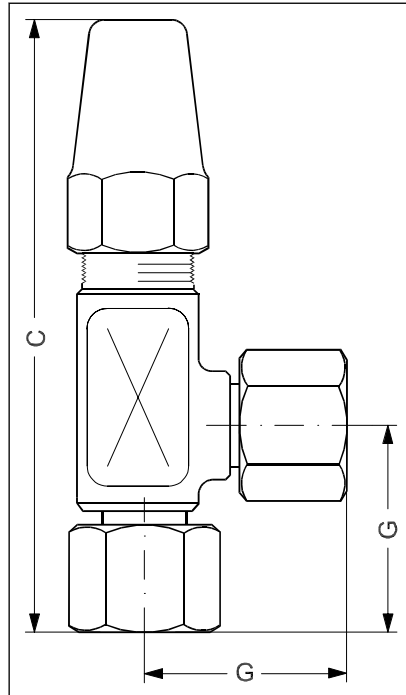
Figure 3: SNV-ST

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
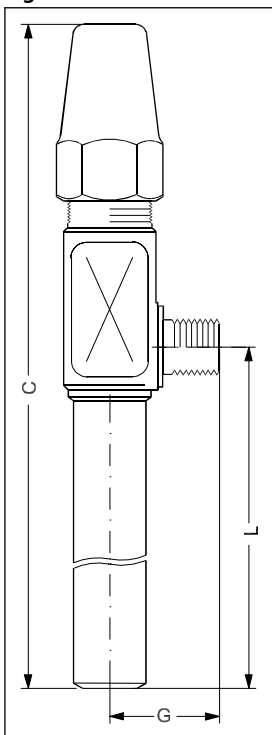
Table 8: Extended branch versions

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 CD6-¼MPT	¼ NPT ext	Cutting ring 6 mm	Cap	Multi pack	12 pc	**148B3742**
SNV-ST	SNV-ST CD6-⅜MPT	⅜ NPT ext	Cutting ring 6 mm	Cap	Multi pack	12 pc	**148B3744**
SNV-ST	SNV-ST CD6-¼MPT	¼ NPT ext	Cutting ring 6 mm	Handwheel	Industrial pack	30 pc	**148B4216**
SNV-ST	SNV-ST CD10-¼MPT	¼ NPT ext	Cutting ring 10 mm	Cap	Multi pack	12 pc	**148B3741**
SNV-ST	SNV-ST CD10-⅜MPT	⅜ NPT ext	Cutting ring 10 mm	Cap	Multi pack	12 pc	**148B3743**
SNV-ST	SNV-ST ⁷⁄₁₆UNF-¼MPT	¼ NPT ext	⁷⁄₁₆ UNF ext	Cap	Industrial pack	30 pc	**148B4230**
SNV-ST	SNV-ST ⁷⁄₁₆UNF-¼MPT	¼ NPT ext	⁷⁄₁₆ UNF ext	Cap	Multi pack	12 pc	**148B4566**
SNV-ST	SNV-ST ⅜FPT-⅜MPT	⅜ NPT ext	⅜ NPT int	Cap	Multi pack	12 pc	**148B3747**
SNV-ST	SNV-ST ⅜FPT-⅜MPT	⅜ NPT ext	⅜ NPT int	Cap	Industrial pack	30 pc	**148B4181**
SNV-ST	SNV-ST ⅜FPT-⅜FPT	⅜ NPT int	⅜ NPT int	Cap	Industrial pack	30 pc	**148B4225**
SNV-ST	SNV-ST ⅜FPT-½MPT	½ NPT ext	⅜ NPT int	Cap	Industrial pack	30 pc	**148B4233**
SNV-ST	SNV-ST ⅜FPT-½MPT	½ NPT ext	⅜ NPT int	Cap	Multi pack	12 pc	**148B4565**
SNV-ST	SNV-ST ⅜FPT-⅜FPT	⅜ NPT int	⅜ NPT int	Cap	Multi pack	12 pc	**148B4572**
SNV-ST	SNV-ST ¼FPT-¼MPT	¼ NPT ext	¼ NPT int	Cap	Multi pack	12 pc	**148B3746**
SNV-ST	SNV-ST ¼FPT-¼MPT	¼ NPT ext	¼ NPT int	Cap	Industrial pack	30 pc	**148B4180**
SNV-ST	SNV-ST ¼FPT-¼FPT	¼ NPT int	¼ NPT int	Cap	Multi pack	12 pc	**148B4568**
SNV-ST	SNV-ST ¼FPT-¼MPT	¼ NPT ext	¼ NPT int	Cap, Adapter for ICS	Multi pack	6 pc	**148B4772**
SNV-ST	SNV-ST ½MPT-½MPT	½ NPT ext	½ NPT ext	Cap	Industrial pack	30 pc	**148B4224**
SNV-ST	SNV-ST ½MPT-⅜FPT	⅜ NPT int	½ NPT ext	Cap	Industrial pack	30 pc	**148B4226**
SNV-ST	SNV-ST ½MPT-½MPT	½ NPT ext	½ 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 ¼FPT-¼MPT L100	¼ NPT ext	100 mm / 4 in	¼ NPT int	Cap	Industrial pack	20 pc	**148B4232**
SNV-ST	SNV-ST ¼FPT-¼MPT L100	¼ NPT ext	100 mm / 4 in	¼ NPT int	Cap	Multi pack	6 pc	**148B4567**
SNV-ST	SNV-ST ¼FPT-W½ L100	Butt weld ½ in	100 mm / 4 in	¼ NPT int	Handwheel	Industrial pack	30 pc	**148B4408**
SNV-ST	SNV-ST ¼FPT-W½ L100	Butt weld ½ in ext	100 mm / 4 in	¼ 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 G½-W½ L50	Butt weld ½ in	50 mm / 2 in	G ½A	Cap	Industrial pack	30 pc	**148B4218**
SNV-ST	SNV-ST G½-W½ L50	Butt weld ½ in	50 mm / 2 in	G ½A	Cap	Multi pack	12 pc	**148B4570**
SNV-ST	SNV-ST G½-W½ L100	Butt weld ½ in	100 mm / 4 in	G ½A	Cap	Multi pack	6 pc	**148B3769**
SNV-ST	SNV-ST G½-W½ L100	Butt weld ½ in	100 mm / 4 in	G ½A	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-W½ L100	Butt weld ½ in	100 mm / 4 in	Cutting ring 10 mm	Cap	Multi pack	6 pc	**148B3768**
SNV-ST	SNV-ST CD10-W½ L100	Butt weld ½ 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 G½-G½	G ½A	Standard	G ½A	Cap	Multi pack	12 pc	**148B3745**
SNV-ST	SNV-ST G½ MAN	G ½A	Standard	G ½A	Cap Manometer conn.	Multi pack	6 pc	**148B3778**

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 Rc⅜-R⅜	R ⅜ ext	Rc ⅜ int	Cap	Industrial pack	30 pc	148B4227
SNV-ST	SNV-ST Rc¼-R⅜	R ⅜ ext	Rc ¼ int	Cap	Industrial pack	30 pc	148B4228
SNV-ST	SNV-ST Rc¼-R¼	R ¼ ext	Rc ¼ 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-W½ 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 G½ W½ L125	W½	125/5 in	G½	Cap	Multi pack	12 pc	148B4571
SNV-ST	SNV-ST G½ W½ L125	W½	125/5 in	G½	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 ¼FPT – ¼MPT 140bar	¼MPT	STD	¼FPT	Cap	Multi pack	12 pc	148B0082
SNV-ST	SNV-ST G½ G½ 140bar	G½	STD	G½	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 ⅜FPT-⅜MPT	⅜ NPT ext	⅜ NPT int	Cap	Multi pack	6 pc	148B3750
SNV-SS	SNV-SS ⅜FPT-⅜MPT	⅜ NPT ext	⅜ NPT int	Cap	Industrial pack	30 pc	148B3986
SNV-SS	SNV-SS ¼FPT-¼MPT	¼ NPT ext	¼ NPT int	Cap	Multi pack	6 pc	148B4771
SNV-SS	SNV-SS ¼FPT-¼MPT	¼ NPT ext	¼ NPT int	Cap	Industrial pack	30 pc	148B4783
SNV-SS	SNV-SS CD 10 -CD 10	Cutting ring 10 mm	Cutting ring 10 mm	Cap	Multi pack	6 pc	148B4693

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

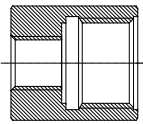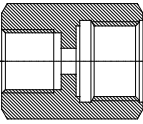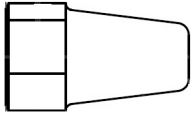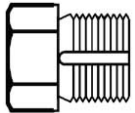| Type	Spec. Key	Bottom branch	Bottom branch length	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-SS	SNV-SS G½-W½ L50 65 bar	Butt weld ½ in	50 mm / 2 in	G ½A	Cap	Multi pack	6 pc	148B4581
SNV-SS	SNV-SS G½-W½ L150 65 bar	Butt weld ½ in	150 mm / 6 in	G ½A	Cap	Multi pack	12 pc	148B4582
SNV-SS	SNV-SS G½-W½ L50 65 bar	Butt weld ½ in	50 mm / 2 in	G ½A	Cap	Industrial pack	30 pc	148B4784
SNV-SS	SNV-SS G½-W½ L150 65 bar	Butt weld ½ in	150 mm / 6 in	G ½A	Cap	Industrial pack	30 pc	148B4785
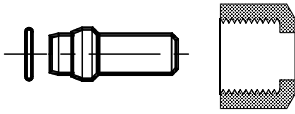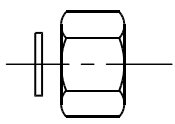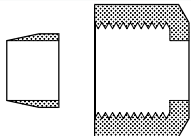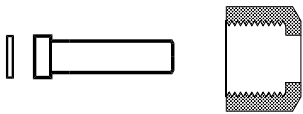
Table 20: SNV-SS to ISO 228-1, Standard branch, 65 bar MWP

Type	Spec. Key	Bottom branch	Side branch	Equipment	Packing format*	Qty/pack	Code no.
SNV-SS	SNV-SS G½ MAN	G ½A	G ½A	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.	**148B3729**
	Blind nut incl. gasket Blind nut SS incl. gasket	G 1/2	1 pc.	**148H3450** **148B4317**
	CD 6 Cutting ring + union nut	CD 6	1 pc.	**148B4182**
			60 pcs.	**148B4217**
	CD 10 Cutting ring + union nut	CD 10	1 pc.	**148B4183**
			60 pcs.	**148B4186**
	Welding nipple (Al gaskets included)	G½ - ND6	2 pcs.	**148B4184**
	Adapter kit (Al gaskets included)	1/4″ FPT - ½″ G	1 pc.	**148B3860**
	Adapter kit (Al gaskets included)	3/8″ G - ½″ G	1 pc.	**148B3861**
	Seal cap & gasket - SNV-ST Seal cap & gasket - SNV-SS		1 pc.	**148B4576** **148B3269**
	Plug and gasket	G½″ (external)	1 pc.	**148H3462**

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 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.0C18678.513467890YTN	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.0C18678.513467890YTN	Pressure - Safety Certificate	CRN	TSSA
	19.10048.266	Marine - Safety Certificate	-	RMRS

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