



Technical brochure

Double stop valves

Type DSV 1 and DSV 2



DSV 1 and DSV 2 are 3-way valves, which are designed to meet all industrial refrigeration application requirements.

DSV valves are designed specifically for use with double safety valve systems.

The valves are designed to give favourable flow characteristics and are easy to dismantle for servicing. The valve cone is designed to ensure perfect closing, even with minimum torque the valve will close effectively. All valves are equipped with vented cap and nipple/flange connections, which permit easy inspection or replacement of safety valves.

Features

- Applicable to HCFC, non flammable HFC, R717 (Ammonia) and R744 (CO₂).
- Each valve type is clearly marked with type, size and performance range.
- The valves and caps are prepared for sealing, to prevent operation by unauthorised persons, using a seal wire.
- Can accept flow in both directions.
- Housing and bonnet are made from low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities.
- Max. operating pressure:
DSV 1 and DSV 2: 40 bar g (580 psi g)
- Temperature range:
DSV 1 and DSV 2: -50/+100°C (-58/+212°F)
- **DSV 1** when fitted with 2 x SFA 15 or **DSV 2** when fitted with a combination of either 2 x SFA 15, or 2 x SFV 20, or 2 x SFV 25, meet the requirements according to EN13136 "Safety Valves Calculations" regarding max. 3% pressure drop in upstream line.
- Classification:
To get an updated list of certification on the products please contact your local Danfoss Sales Company.

Pressure Equipment Directive (PED)
DSV valves are approved and CE-marked in accordance with Pressure Equipment Directive - 97/23/EC.

For further details / restrictions - see Installation Instruction.



	DSV 1 valves	DSV 2 valves
Nominal bore	DN ≤ 25 mm (1 in.)	DN32 mm (1¼ in.)
Classified for	Fluid group I	
Category	Article 3, paragraph 3	II

Double stop valves, type DSV 1 and DSV 2

Design

Connections

Available with the following connections: - Weld branch/nipples/flanges - DIN 2448
 Note: DSV valves are supplied c/w DSV inlet connection fittings, DSV outlet connection fittings, and SFA/SFV outlet connection fittings. Please refer to ordering section.

Housing and bonnet

Made from special, cold resistant steel approved for low temperature operation.

Valve cone

A Teflon tightening ring provides perfect sealing with a minimum closing torque.

Spindle

Made of polished stainless steel, which is ideal for O-ring sealing.

Packing gland

The "full temperature range" packing gland ensures perfect tightness in the whole temperature range: $-50/+100^{\circ}\text{C}$ ($-58/+212^{\circ}\text{F}$). The packing gland is equipped with a scraper ring to prevent penetration of dirt and other foreign bodies.

Technical data

- Refrigerants
 Applicable to HCFC, non flammable HFC, R717 (Ammonia) and R744 (CO_2).
 Flammable hydrocarbons are not recommended.
 The valve is only recommended for use in closed circuits.

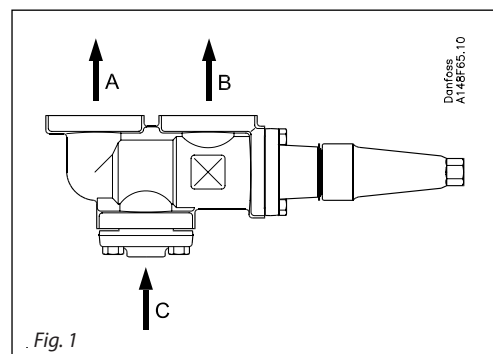
For further information please contact Danfoss.

- Temperature range
 $-50/+100^{\circ}\text{C}$ ($-58/+212^{\circ}\text{F}$).
- Pressure
 The valves are designed for:
 Max. operating pressure: 40 bar g (580 psig)
- Capacity

Type	K _v -value	C _v -value
	m ³ /h	Usgal/min
DSV 1	17.5	20.3
DSV 2	30.0	34.8

Installation

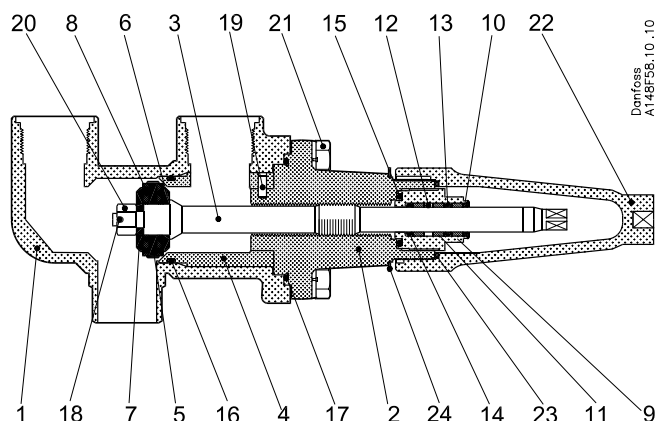
DSV are used as changeover valves between two SFA/SFV safety valves. When the spindle is turned clockwise (fig. 1) the inlet port C is connected to B. When the spindle is turned anticlockwise (fig. 1) the inlet port C is connected to A. For further information refer to installation instruction for DSV.



Double stop valves, type DSV 1 and DSV 2

Material specification

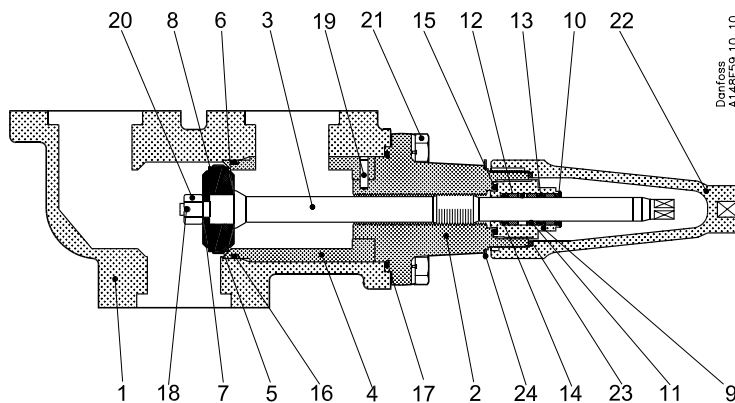
DSV 1



No.	Part	Material	DIN/EN	ISO	ASTM
1	Housing	Steel	P285QH, EN10222-4		LF2A350
2	Bonnet	Steel	P285QH, EN10222-4		LF2A350
3	Spindle	Stainless steel	X10CrNiS 18 9 17440	Type 17 683/13	AISI 303
4	Seat	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
5	Cone, Middle	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
6	Cone, Back	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
7	Cone, Front	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
8	Cone seal	Teflon(PTFE)			
9	Packing gland	Steel	9SMn28, 1651	Type 2, R683/9	1213,SAE J403
13-17	O-ring	Cloroprene (Neoprene)			
20	Slotted nut	Steel			
21	Screw	Steel	A2-70	A2-70	Type 308
22	Seal cap	Aluminium			
23	Gasket for seal cap	Nylon			
24	Idenfication ring	Stainless steel			

Material specification

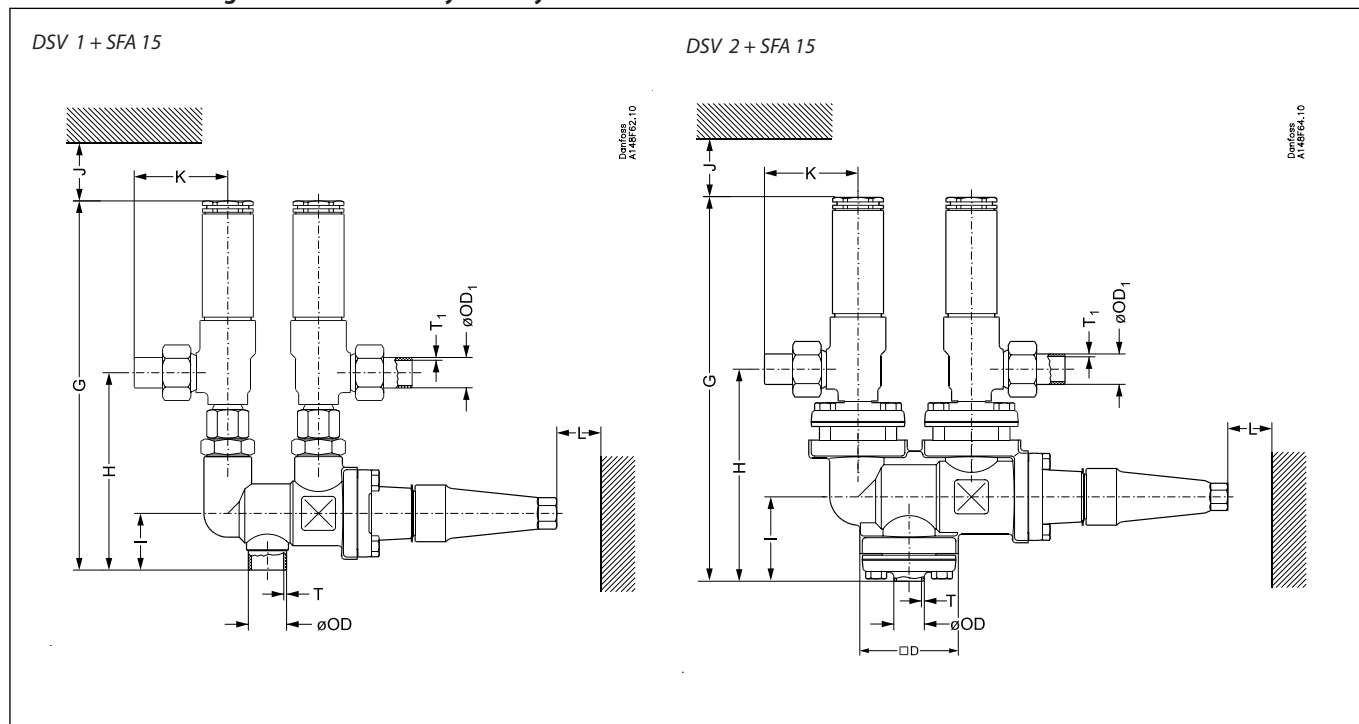
DSV 2



No.	Part	Material	DIN/EN	ISO	ASTM
1	Housing	Steel	P285QH, EN10222-4		LF2A350
2	Bonnet	Steel	P285QH, EN10222-4		LF2A350
3	Spindle	Stainless steel	X10CrNiS 18 9 17440	Type 17 683/13	AISI 303
4	Seat	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
5	Cone, Middle	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
6	Cone, Back	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
7	Cone, Front	Steel	9 SMn28, 1651	Type2, R683/9	1213, SAEJ 403
8	Cone seal	Teflon(PTFE)			
9	Packing gland	Steel	9SMn28, 1651	Type 2, R683/9	1213,SAE J403
13-17	O-ring	Cloroprene (Neoprene)			
20	Slotted nut	Steel			
21	Screw	Steel	A2-70	A2-70	Type 308
22	Seal cap	Aluminium			
23	Gasket for seal cap	Nylon			
24	Identification ring	Stainless steel			

Double stop valves, type DSV 1 and DSV 2

Dimensions and weights for double safety valve systems



Valve size	DN	ØOD	ØOD1	T	T1		G	H	I	J	K	L	Weight	
		SFA 15												
DSV 1 (D25)	mm	25	33.7	26.9	2.6	2.3		339	174	50	40	82.5	80	4.55 kg
	in.	1	1.33	1.06	0.10	0.09		13.35	6.85	1.97	1.58	3.25	3.15	10.03 lb

Valve size	DN	ØOD	ØOD1	T	T1	□D	G	H	I	J	K	L	Weight	
		SFA 15												
DSV 2 (FD20)	mm	20	26.9	26.9	2.3	2.3	82.5	351	186	73.5	10	82.5	80	9.3 kg
	in.	¾	1.06	1.06	0.09	0.09	3.25	13.82	7.32	2.89	0.39	3.25	3.15	20.5 lb

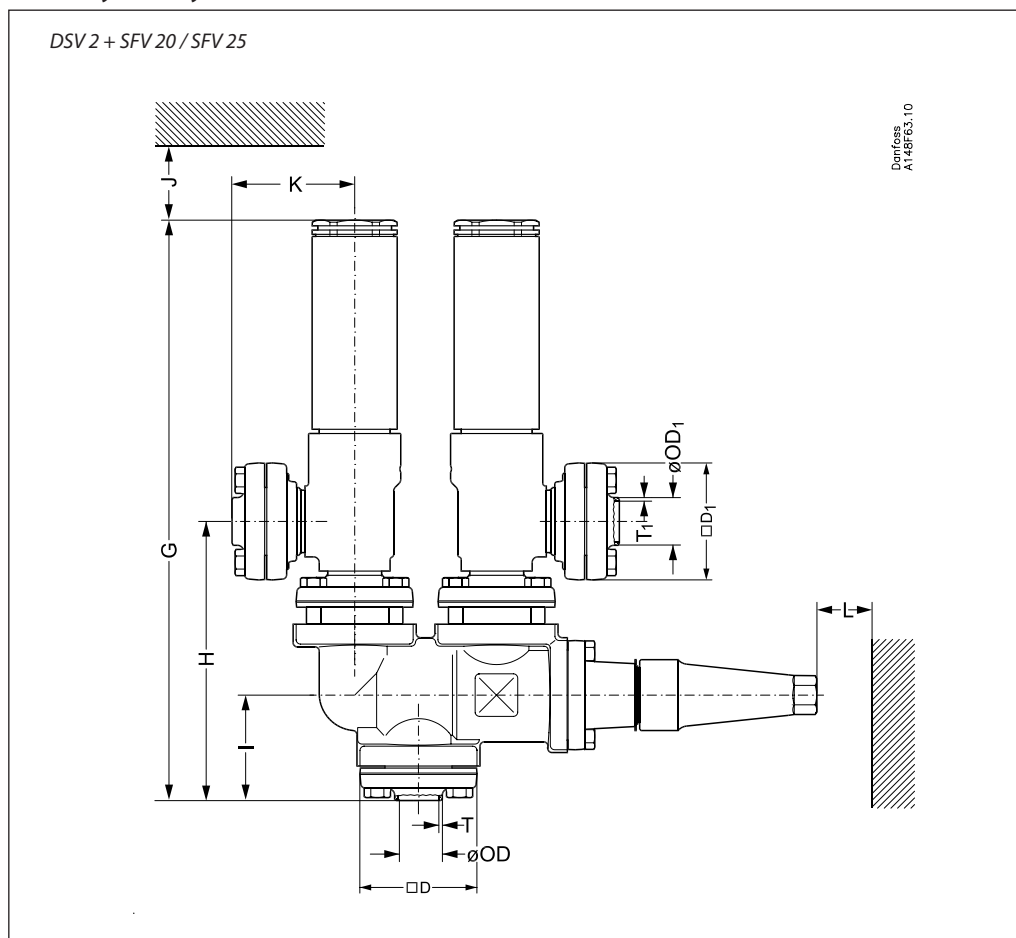
Valve size	DN	ØOD	ØOD1	T	T1	□D	G	H	I	J	K	L	Weight	
		SFA 15												
DSV 2 (FD25)	mm	25	33.7	26.9	2.6	2.3	82.5	351	186	73.5	10	82.5	80	9.3 kg
	in.	1	1.33	1.06	0.10	0.09	3.25	13.82	7.32	2.89	0.39	3.25	3.15	20.5 lb

Valve size	DN	ØOD	ØOD1	T	T1	□D	G	H	I	J	K	L	Weight	
		SFA 15												
DSV 2 (FD32)	mm	32	42.4	26.9	2.6	2.3	82.5	351	186	73.5	10	82.5	80	9.3 kg
	in.	1¼	1.67	1.06	0.10	0.09	3.25	13.82	7.32	2.89	0.39	3.25	3.15	20.5 lb

Specified weights (incl. all fittings and excl. SFA / SFV) are approximate values only.

Double stop valves, type DSV 1 and DSV 2

Dimensions and weights for double safety valve systems



Valve size	DN	ØOD	ØOD1	T	T1	□D	□D1	G	H	I	J	K	L	Weight	
		SFV 20													
DSV 2 (FD25)	mm	25	33.7	33.7	2.6	2.6	82.5	82.5	412	197	73.5	10	85	80	11.9 kg
	in.	1	1.33	1.33	0.10	0.10	3.25	3.25	16.22	7.76	2.89	0.39	3.35	3.15	26.23 lb

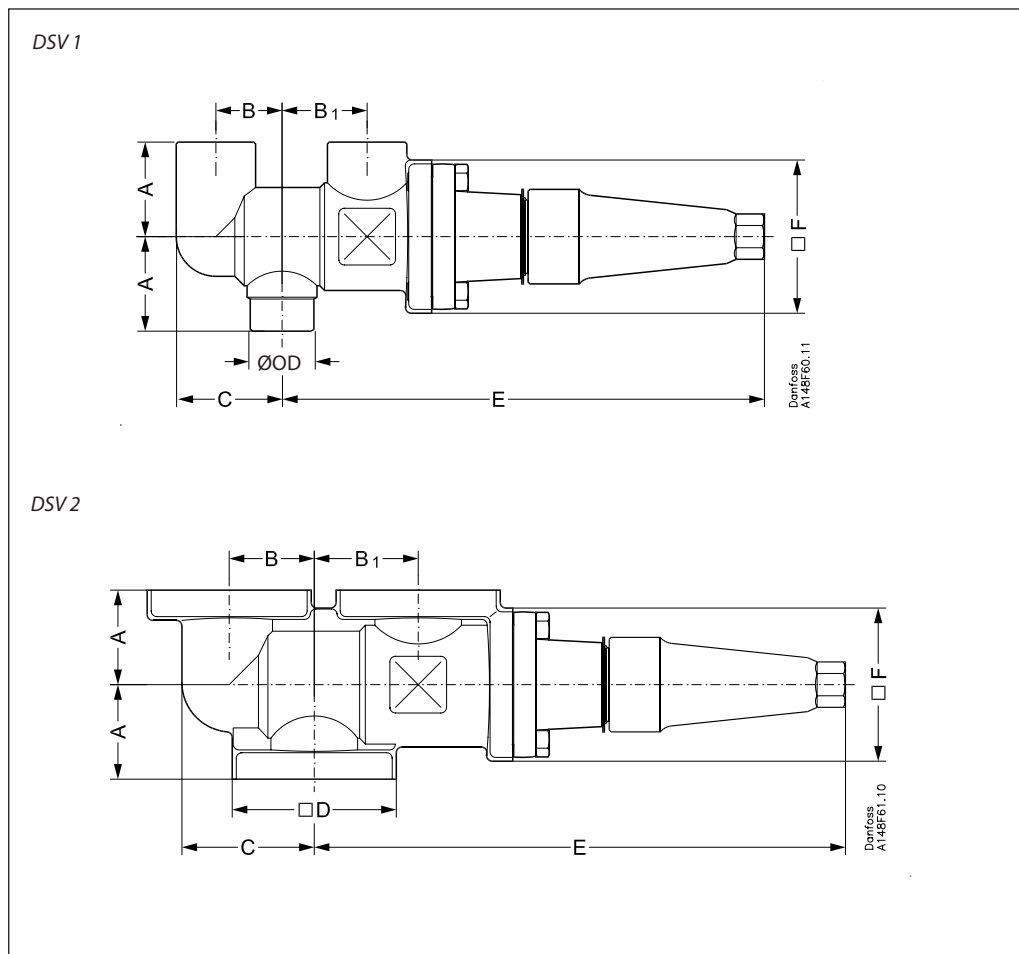
Valve size	DN	ØOD	ØOD1	T	T1	□D	□D1	G	H	I	J	K	L	Weight	
		SFV 20													
DSV 2 (FD32)	mm	32	42.4	33.7	2.6	2.6	82.5	82.5	412	197	73.5	10	85	80	11.9 kg
	in.	1¼	1.67	1.33	0.10	0.10	3.25	3.25	16.22	7.76	2.89	0.39	3.35	3.15	26.23 lb

Valve size	DN	ØOD	ØOD1	T	T1	□D	□D1	G	H	I	J	K	L	Weight	
		SFV 25													
DSV 2 (FD32)	mm	32	42.4	42.4	2.6	2.6	82.5	82.5	412	197	73.5	10	85	80	11.9 kg
	in.	1¼	1.67	1.67	0.10	0.10	3.25	3.25	16.22	7.76	2.89	0.39	3.35	3.15	26.23 lb

Specified weights (incl. all fittings and excl. SFA / SFV) are approximate values only.

Double stop valves, type DSV 1 and DSV 2

Dimensions and weights



Valve size	A	B	B ₁	C		ØOD	E	□F	Weight	
DSV 1	mm	50	35	45	56		33.7	255	77	3.6 kg
	in.	2	1.38	1.77	2.20		1.33	10.04	3.03	7.94 lb

Valve size	A	B	B ₁	C	□D		E	□F	Weight	
DSV 2	mm	50	45	55	70	82.5		281	77	6.1 kg
	in.	2	1.77	2.17	2.76	3.25		11.06	3.03	13.45 lb

Specified weights are approximate values only.

Double stop valves, type DSV 1 and DSV 2

Ordering

How to order

The table below is used to identify the valve required.

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range. For further information please contact your local Danfoss Sales Company.

Type codes

Example

DSV 2 FD20 SFA15 = 148F3006

DSV2 = Valve type

FD20 = DSV inlet connection

SFA15 = Safety valve combination

Valve type	DSV inlet connection	DSV outlet connection	SFV outlet connection	Safety valve combination	Code No.
DSV 1	D25 (1 in.)	G ¾" Union	ND20 (¾ in.)	SFA15	148F3005
DSV 2	FD20 (¾ in.)	G ¾" thread flange	ND20 (¾ in.)	SFA15	148F3006
DSV 2	FD25 (1 in.)	G ¾" thread flange	ND20 (¾ in.)	SFA15	148F3007
DSV 2	FD32 (1¼ in.)	G ¾" thread flange	ND20 (¾ in.)	SFA15	148F3008
DSV 2	FD25 (1 in.)	G 1¼" thread flange	FD25 (1 in.)	SFV20	148F3009
DSV 2	FD32 (1¼ in.)	G 1¼" thread flange	FD25 (1 in.)	SFV20	148F3010
DSV 2	FD32 (1¼ in.)	G 1¼" thread flange	FD32 (1¼ in.)	SFV25	148F3011
Connection fittings:	D	Weld branches DIN 2448		DSV valves are supplied c/w DSV inlet connection fittings, DSV outlet connection fittings, and SFA/SFV outlet connection fittings.	
	ND	Weld nipples DIN 2448			
	FD	Weld flanges DIN 2448			

Important!

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

Fittings and gaskets

Type	Code No.
Nipples + gaskets set for 25D/ND20 DSV1/SFA 15	148F3037
Flanges + gaskets set for FD20/ND20 DSV2/SFA 15	148F3038
Flanges + gaskets set for FD25/ND20 DSV2/SFA 15	148F3039
Flanges + gaskets set for FD32/ND20 DSV2/SFA 15	148F3040
Flanges + gaskets set for FD25/FD25 DSV2/SFV 20	148F3041
Flanges + gaskets set for FD32/FD25 DSV2/SFV 20	148F3042
Flanges + gaskets set for FD32/FD32 DSV2/SFV 25	148F3043