ENGINEERING
TOMORROW

Data Sheet

Stop/Check valve & Check valve Type **SSCA** and **SCHV**

Designed to open at very low differential pressures, allow favourable flow conditions and are easy to disassemble for inspection and service

SSCA are check valves with a built-in shut-off valve function. SCHV are check valves only. SSCA and SCHV are available in both angleway and straightway versions.

The valves are designed to open at very low differential pressures, allow favourable flow conditions and are easy to disassemble for inspection and service.

SSCA is equipped with vented cap and has internal backseating enabling the packing gland to be replaced whilst the valve still under pressure.

Laser cut V-ports provide excellent opening characteristics.

The valve cone has a built-in flexibility to ensure a precise and tight closing towards the valve seat. A well balanced dampening effect between the piston and the cylinder gives an optimal protection during low loads and against pulsations.

Features

- Designed to open at a very low differential pressure of 0.04 bar (0.58 psig)
- Designed with a built-in damping chamber preventing valve flutter in case of low refrigerant velocity and/or low density
- Each valve is clearly marked with type, size and performance range
- Easy to disassemble for inspection and service
- Internal backseating enables replacement of the packing gland whilst the valve is active, i.e. under pressure
- Optimal flow characteristics ensuring quick opening to the fully open position
- Protection against pulsation by built-in damping facility
- Equipped with Stainless steel bolts

Applications

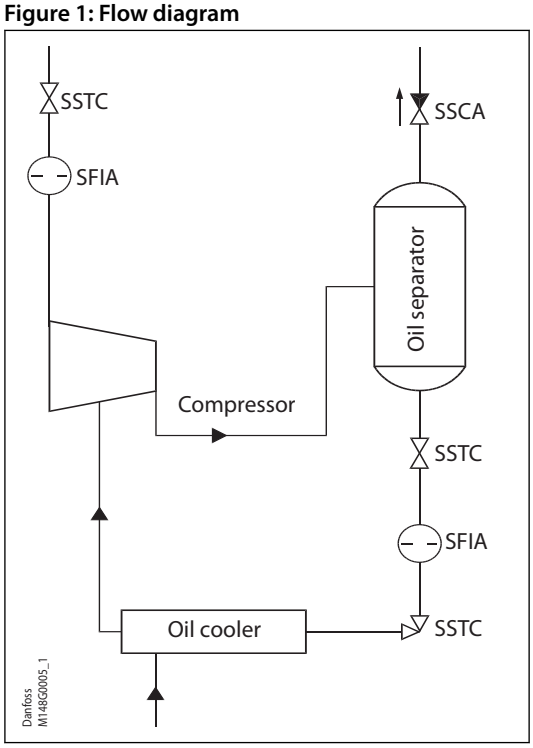
Below diagram shows the check & stop valve SSCA in the discharge line of a screw compressor unit. The SSCA valve in the discharge line prevents “back condensation” in the oil separator as well as pressure equalising through the compressor.

Compared to an ordinary stop and check valve arrangement the combined stop/check valve solution, as shown, is easier to install and has lower flow resistance.

Installation of the SSCA/SCHV in the economizer line is **not** recommended.

For horizontal installation of the function module; please contact Danfoss.

Figure 1: Flow diagram



Media

Refrigerants

Applicable to HCFC, HFC and R717 (Ammonia). Flammable hydrocarbons are not recommended.

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

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 data

Table 1: Pressure and temperature data

Features	Description
Temperature range	-50 °C /+150 °C (-58 °F/+302 °F).
Max. working pressure	40 bar (580 psig)

Design

Valve cone
Valve cone with built in metallic stop - prevents damage to teflon ring in case of overtightening.

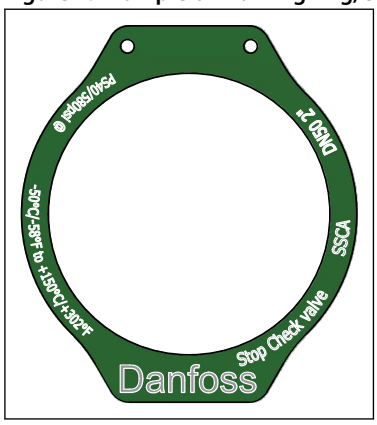
Damping chamber
The chamber is filled with refrigerants (gas or liquid), which provides a damping effect when the valve opens and closes.

Spindle (SSCA)
Made of polished stainless steel, which is ideal for O-ring sealing.

Packing Gland (SSCA)
The packing gland is the standard from the SVL platform. This ensures perfect tightness throughout the whole temperature range: -50/+150 °C (-58/+302 °F).

Installation

Figure 2: Example of marking ring, SSCA



The valve must be mounted vertically with the cone downwards.

The valve is designed to resist very high internal pressure. However, the piping system in general should be designed to avoid liquid traps and reduce the risk of hydraulic pressure caused by thermal expansion.

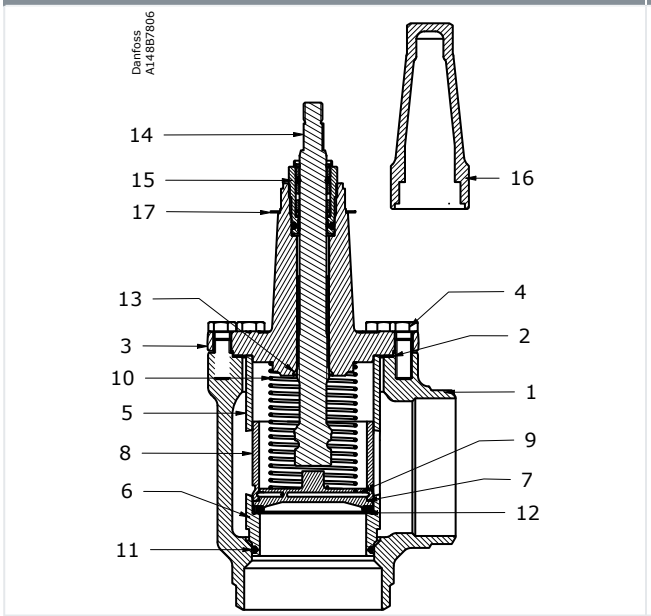
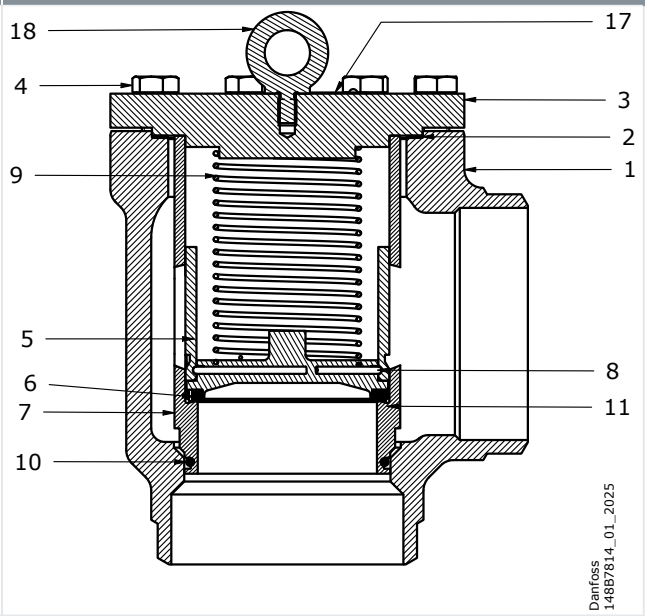
For further information refer to installation guide for SSCA/SCHV.

If cold refrigeration oil having low viscosity enters and settles in the damping chamber, problems with the check valve may arise. Consequently, it may be necessary to modify the valve for more viscous liquids by enlarging the hole to the damping chamber.

Material specification

SSCA 50-100 and SCHV 50-100

Table 2: SSCA 50-100 and SCHV 50-100

SSCA 50-100	SCHV 50-100
	

No.	Part	Material	DIN/EN	ISO	ASTM
1	Housing DN 50-65	Steel	P285QH+QT 10222-4		LF2,A350
	Housing DN 80-100	Steel	WCB		LCC,A352
2	Gasket	Fiber, Non-asbestos			
3	SSCA: Valve bonnet SCHV: End cover	Steel	P285QH+QT, 10222-4 P275NL1 or 2 EN10028-3		LF2,A350
4	Bolts	Stainless steel	A2-70	A2-70	A-276
5	Tube	Steel			
6	Seat	Steel			
7	Valve plate	Steel			
8	Guide sleeve	Steel			
9	Spring ring	Steel			
10	Spring	Steel			
11	O-ring	Chloroprene (Neoprene)			
12	Teflon ring	Teflon (PTFE)			
13	Soft back steel	Teflon (PTFE)			
14	Spindle DN 50-65	Stainless steel	X8CrNiS18-9 17440	Type 17 R 686/13	AISI 303
	Spindle DN 80-100	Stainless steel	X5CrNi1810 17440	Type 11 683/13	AISI 304 A-276
15	Packaging gland	Stainless steel	9Mn28, 1651	Type 2 R 683/9	1213,SAE J403
16	Spindle seal cap and gasket	Aluminium			
17	Marking label/ring	Stainless steel			
18	Eye bolt DIN 580	Steel			

Computation and selection

Introduction

When dimensioning SSCA/SCHV, it is important to select a valve that is best suited to all operating conditions. Therefore, it is necessary to consider both the nominal and part load working conditions.

Please refer to Coolselector®2 for calculation and selection of the right SSCA/SCHV.

Connections

Available with the following connections:

- Butt-weld ANSI (B 36.10 Schedule 40),
  - DN 50 - 100 (2 - 4 in.)

Figure 3: ANSI

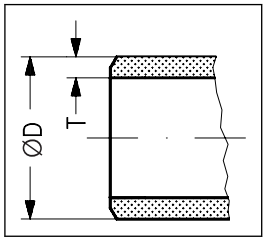


Table 3: Butt-weld ANSI (B 36.10 Schedule 40)

Size		ØD	T	ØD	T	k_v Angleway	C_v Angleway	k_v Straight-way	C_v Straight-way
mm	in.	mm	mm	in.	in.	m^3/h	$US_{gal/min}$	m^3/h	$US_{gal/min}$
50	2	60.3	3.9	2.37	0.15	45	53	28	34
65	2½	73	5.2	2.87	0.20	72	85	41	48
80	3	88.9	5.5	3.50	0.22	103	129	81	94
100	4	114.3	6.0	4.50	0.24	196	232	157	182

Dimensions and weights

SSCA/SCHV 50-65 (2-2½ in.)

Table 4: SSCA/SCHV 50-65 (2- 2½ in.)

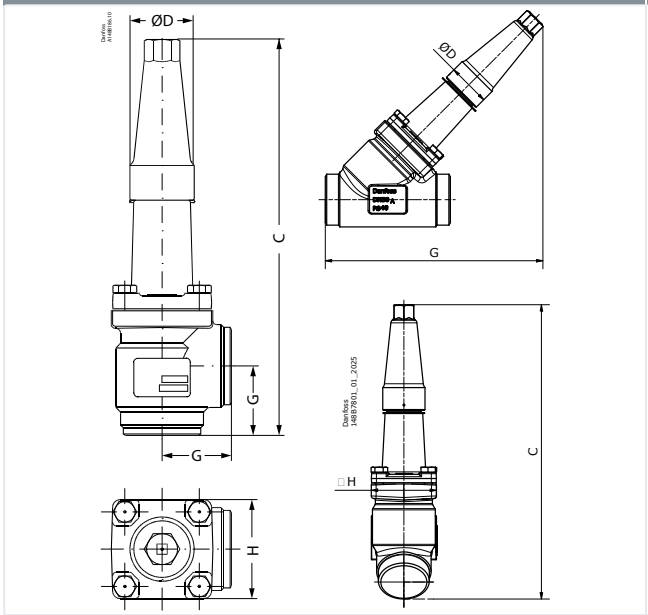
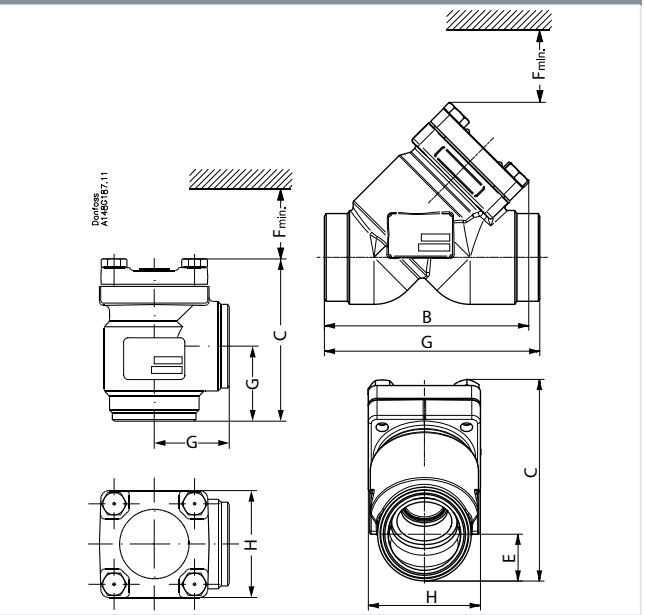
SSCA 50-65	SCHV 50-65
	

Table 5: SSCA Angleway

Valve size	C		G		ØD		H		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SSCA 50	315	12.40	60	2.36	50	1.97	77	3.03	3.8	8.40
SSCA (2)	315	12.40	60	2.36	50	1.97	77	3.03	3.8	8.40
SSCA 65	335	13.19	70	2.76	50	1.97	90	3.54	5.5	12.16
SSCA (2½)	335	13.19	70	2.76	50	1.97	90	3.54	5.5	12.16

Table 6: SSCA Straightway

Valve size	C		G		ØD		ØH		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SSCA 50	348	13.7	258	10.15	50	1.96	77	3.03	5.4	11.9
SSCA (2)	348	13.7	258	10.15	50	1.96	77	3.03	5.4	11.9
SSCA 65	377	14.84	278	10.94	50	1.96	90	3.54	7.6	16.75
SSCA (2½)	377	14.84	278	10.94	50	1.96	90	3.54	7.6	16.75

Table 7: SCHV Angleway

Valve size	C		G		F_{min}		H		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SCHV 50	132	5.20	60	2.36	92	3.62	77	3.03	3.2	7.10
SCHV (2)	132	5.20	60	2.36	92	3.62	77	3.03	3.2	7.10
SCHV 65	152	5.98	70	2.76	107	4.21	90	3.54	4.5	9.95
SCHV (2½)	152	5.98	70	2.76	107	4.21	90	3.54	4.5	9.95

Table 8: SCHV Straightway

Valve size	C		B		E		G		F_{min}		H		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SCHV 50	139	5.47	140	5.51	32	1.26	148	5.83	92	3.62	77	3.03	3	6.72
SCHV (2)	139	5.47	140	5.51	32	1.26	148	5.83	92	3.62	77	3.03	3	6.72
SCHV 65	163	6.4	164	6.4	40	1.6	176	6.9	107	4.21	90	3.54	4.3	9.44
SCHV (2½)	163	6.4	164	6.4	40	1.6	176	6.9	107	4.21	90	3.54	4.3	9.44

NOTE:
Specified weights are approximate values only.

SSCA/SCHV 80-100(3-4 in.)

Table 9: SSCA/SCHV 80-100(3-4 in.)

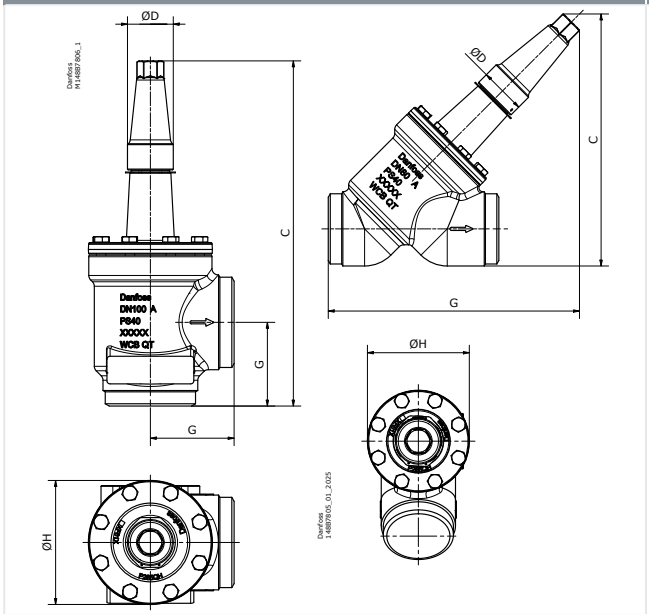
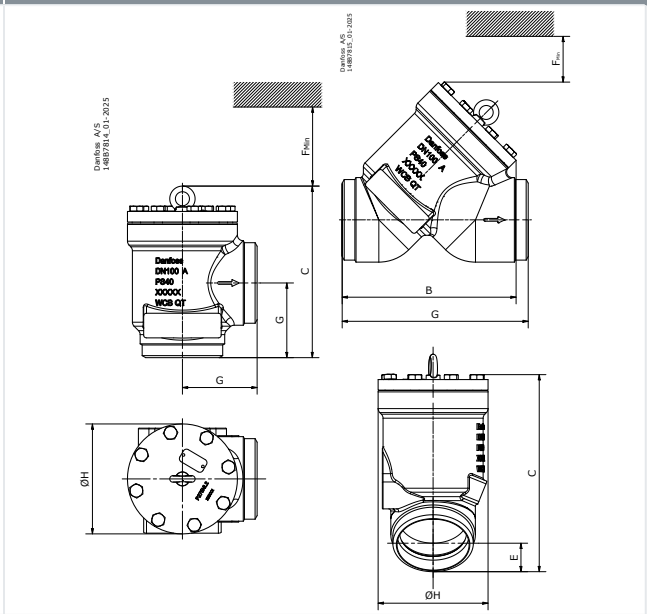
SSCA 80-125	SCHV 80-125
	

Table 10: SSCA Angleway

Valve size	C		G		ØD		ØH		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SSCA 80	386.5	15.21	90	3.54	58	2.28	129	5.07	9.7	21.4
SSCA (3)	386.5	15.21	90	3.54	58	2.28	129	5.07	9.7	21.4
SSCA 100	437	17.2	106	4.17	58	2.28	157	6.18	15.3	33.7
SSCA (4)	437	17.2	106	4.17	58	2.28	157	6.18	15.3	33.7

Table 11: SSCA Straightway

Valve size	C		G		ØD		ØH		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SSCA 80	319	12.55	318	12.51	58	2.28	129	5.07	11.2	24.69
SSCA (3)	319	12.55	318	12.51	58	2.28	129	5.07	11.2	24.69
SSCA 100	365	14.37	373	14.68	58	2.28	157	6.18	17.8	39.24
SSCA (4)	365	14.37	373	14.68	58	2.28	157	6.18	17.8	39.24

Table 12: SCHV Angleway

Valve size	C		G		FMin		ØH		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SCHV 80	208	8.18	90	3.54	65	2.55	129	5.07	8.7	19.23
SCHV (3)	208	8.18	90	3.54	65	2.55	129	5.07	8.7	19.23
SCHV 100	243.5	9.58	106	4.17	75	2.95	156	6.14	14.3	31.6
SCHV (4)	243.5	9.58	106	4.17	75	2.95	156	6.14	14.3	31.6

Table 13: SCHV Straightway

Valve size	C		B		E		G		FMin		ØH		Weight	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
SCHV 80	232	9.13	202	7.95	47	1.85	216	8.5	133	5.24	129	5.07	9.3	20.4
SCHV (3)	232	9.13	202	7.95	47	1.85	216	8.5	133	5.24	129	5.07	9.3	20.4
SCHV 100	296	11.65	246.8	9.71	60	2.36	264	10.39	163	6.43	156	6.14	14.6	32.29
SCHV (4)	296	11.65	246.8	9.71	60	2.36	264	10.39	163	6.43	156	6.14	14.6	32.29

NOTE:
Specified weights are approximate values only.

Ordering

Ordering complete valves

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.

Example: SSCA 50 ANSI angleway = **148B7800**

IMPORTANT:
Where products need to be certified according to specific certification societies the relevant information should be included at the time of order.

Table 14: Butt-weld ANSI(B 36.10 Schedule 40) -Angleway

Size		Type	Code no.
mm	in.		
50	2	SSCA 50 A ANG	148B7800
65	2 ½	SSCA 65 A ANG	148B7802
80	3	SSCA 80 A ANG	148B7804
100	4	SSCA 100 A ANG	148B7806

Table 15: Butt-weld ANSI(B 36.10 Schedule 40) -Straightway

Size		Type	Code no.
mm	in.		
50	2	SSCA 50 A STR	148B7801
65	2 ½	SSCA 65 A STR	148B7803
80	3	SSCA 80 A STR	148B7805
100	4	SSCA 100 A STR	148B7807

Table 16: Butt-weld ANSI(B 36.10 Schedule 40) -Angleway

Size		Type	Code no.
mm	in.		
50	2	SCHV 50 A ANG	148B7808
65	2 ½	SCHV 65 A ANG	148B7810
80	3	SCHV 80 A ANG	148B7812
100	4	SCHV 100 A ANG	148B7814

Table 17: Butt-weld ANSI(B 36.10 Schedule 40) -Straightway

Size		Type	Code no.
mm	in.		
50	2	SCHV 50 A STR	148B7809
65	2 ½	SCHV 65 A STR	148B7811
80	3	SCHV 80 A STR	148B7813
100	4	SCHV 100 A STR	148B7815

A = Butt-weld ANSI
ANG = Angleway
STR = Straightway

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.

Table 18: Certificates and declarations

File name	Document type	Document topic	Approval authority
MD 033F0691	Manufacturers Declaration	RoHS	Danfoss

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