

Data sheet

Steel butterfly valves SBFV (PN 16/25) GOST standard connection

Description



Danfoss SBFV are high performance steel butterfly valves that together with Danfoss JIP™ ball valves complete the family of shut off valves designed especially for district heating and district cooling systems.

Danfoss SBFV are triple offset butterfly valves with unique lamellar seat design that ensures reliable operation and tightness even at high and low temperatures. They are primarily designed as shut-off valves but can be as well used for simple control purposes.

Packing box has been designed on the same principle as on JIP™ ball valves where carbon reinforced PTFE sealing is used that does not deteriorate over years and can be tightened while in the pipeline thus ensuring external tightness for lifetime.

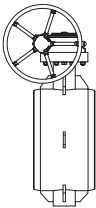
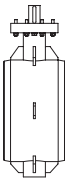
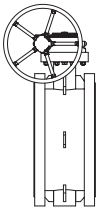
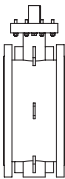
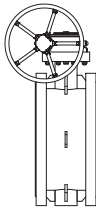
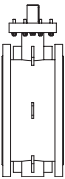
Main data:

- DN 200–1400
- Maximum differential pressure 16 bar
- k_{VS} : 1270 - 88000 m³/h
- Leakage rate A
- Body design class PN 25
- Temperature: –20 (–40) ... 240°C
- Medium: circulation water/ glycolic water up to 50%
- Minimum ambient temperature for transportation and storage: –40°C

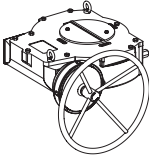
Approvals and norms:

- 100% final inspection. Leak and shell test, as well as dimension and functionality test is performed on each and every valve according to applicable standard EN 12266 P10-P11-P12 & F20
- All used material with EN 10204 3.1 certificates
- Production certified according to ISO9001 / ISO14001
- Welding ends and flanges according to GOST/CN-B standard

Ordering
SBFV-WW welding
SBFV-FF flange

																	
DN (mm)	Code Nr. WW PN 25		Code Nr. FF PN 16				Code Nr. FF PN 25										
	with gearbox ¹⁾	with gear flange ¹⁾	with gearbox ¹⁾	with gear flange ¹⁾	with gearbox ¹⁾	with gear flange ¹⁾	with gearbox ¹⁾	with gear flange ¹⁾	with gearbox ¹⁾	with gear flange ¹⁾	with gearbox ¹⁾	with gear flange ¹⁾					
GOST/CN-B connection																	
200	065B7610	065B7655	065B7625	065B7670	065B7640	065B7685											
250	065B7611	065B7656	065B7626	065B7671	065B7641	065B7686											
300	065B7612	065B7657	065B7627	065B7672	065B7642	065B7687											
350	065B7613	065B7658	065B7628	065B7673	065B7643	065B7688											
400	065B7614	065B7659	065B7629	065B7674	065B7644	065B7689											
450	065B7615	065B7660	065B7630	065B7675	065B7645	065B7690											
500	065B7616	065B7661	065B7631	065B7676	065B7646	065B7691											
600	065B7617	065B7662	065B7632	065B7677	065B7647	065B7692											
700	065B7618	065B7663	065B7633	065B7678	065B7648	065B7693											
800	065B7619	065B7664	065B7634	065B7679	065B7649	065B7694											
900	065B7620	065B7665	065B7635	065B7680	065B7650	065B7695											
1000	065B7621	065B7666	065B7636	065B7681	065B7651	065B7696											
1200	065B7622	065B7667	065B7637	065B7682	065B7652	065B7697											
1400	065B7623	065B7668	065B7638	065B7683	065B7653	065B7698											

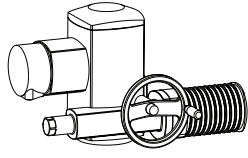
Gear boxes with
manual handwheels

		
DN (mm)	Gear box type	Code Nr.
200	AB550	065B8280
250	AB880	065B8281
300-350	AB1250	065B8282
400	AB1950	065B8283
450	AB1950/PR4	065B8284
500	AB3000/PR4	065B8291
600	AB3000/PR6	065B8292
700	AB6800/PR6	065B8285
800	A200/PR10	065B8286
900	A250/PR10	065B8287
1000	IW82	065B8288
1200	IW9	065B8289
1400	HOW10	065B8290

¹⁾ All valves are 100% factory tested for int./ext. leakage from both directions. Danfoss guarantees leakage class A from both directions only with factory installed gear boxes and electric actuators according to the specification in this data sheet. Danfoss can't accept the responsibility for potential leakage as a result of the improper gear box or electric actuator installation and use of gear boxes and electric actuators which are not according to the specification.

Ordering (continuous)

Electrical actuator Auma



DN (mm)	Actuator type	Code Nr.
200	SQ12.2-F12	065B8260
250	SA10.2-GS80.3/53:1-F12	065B8253
300-350	SA10.2-GS100.3/126:1-F14	065B8261
400-450	SA10.2-GS125.3/160:1-F16	065B8262
500	SA10.2-GS125.3/208:1-F25	065B8263
600	SA10.2-GS160.3/442:1-F25	065B8258
700-800	SA10.2-GS200.3/864:1-F30	065B8264
900	SA10.2-GS250.3/848:1-F35	065B8265
1000	SA10.2-GS250.3/1718:1-F35	065B8259
1200	SA10.2-GS315/1696:1-F40	065B8266
1400	SA14.2-GS315/1696:1-F40	065B8267

Features:

- 2 limit switches - opening/closing
- 2 torque switches - opening/closing
- Heater
- Blinker switch for operating phase
- Manual operation with hand wheel
- Thermo switch

Main Data:

- Nominal voltage: 3 × 400 VAC, 50Hz
- Grade of enclosure: IP 68
- Wiring diagram: TPA 00R1AA-101-000

AUMA actuators can be equipped with various accessories (on extra request). Control and regulating unit AUMA MATIC AM in basic design available on request (AM 01.1 - 065B8781). When commissioning and under certain problematic system conditions, it can be necessary to choose slower actuators to avoid water hammering and oscillations. For additional information related to the electric actuator ordering, please contact local Danfoss representative.

Technical data

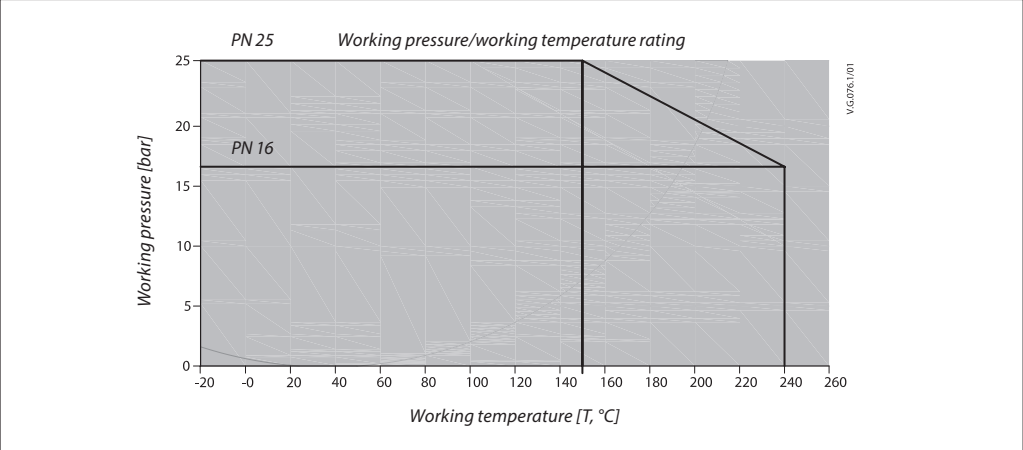
DN		200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400
k _{vs}	m ³ /h	1270	2100	3900	5200	6700	8700	11000	15000	23500	28000	40000	52000	65000	88000
PN	bar	16 / 25													
Δp max.	bar	16													
Medium temperature	°C	-20 ... 240 ¹⁾													
Min. Ambient temperature	°C	-20 (-40 ²⁾)													
Max. Ambient temperature	°C	80 (with Auma actuator); 110 (with Gearbox); 240 (only valve)													
Medium		Circulation water/glycolic water up to 50 %													
Torque ³⁾	Nm	950	1300	2500	3100	3950	5250	6600	9400	15800	20500	28300	36000	58400	82000

¹⁾ Temperature depends on the pressure. See pressure-temperature diagram for details.

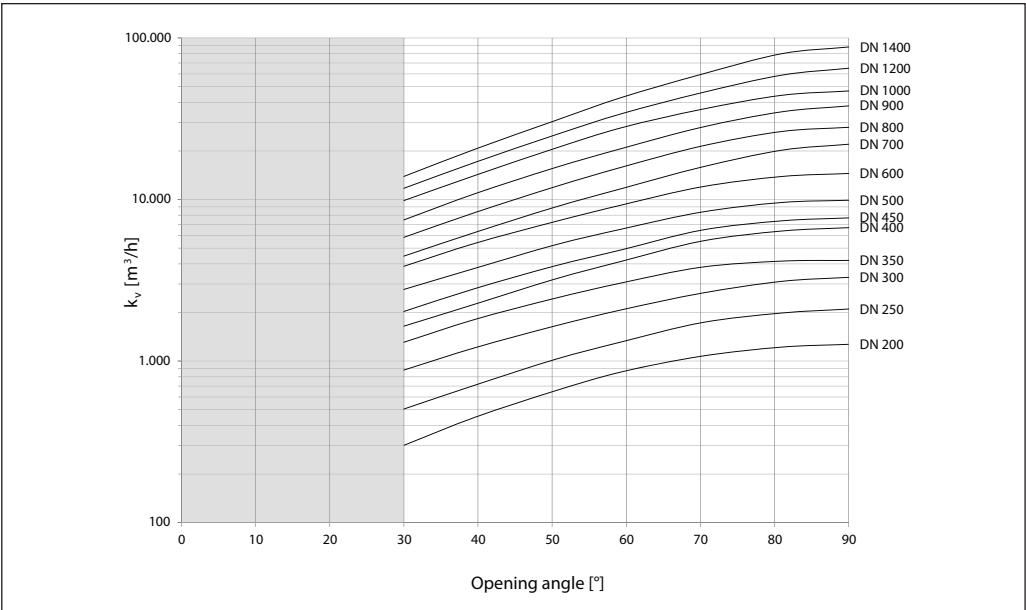
²⁾ Product needs proper insulation that will ensure that surface temperature of the valve will not be lower than -20°C when valve is pressurized

³⁾ Torque values should be increased by 10% when dimensioning third party actuators that are not recommended by Danfoss

Pressure temperature diagram (valve body design)



Flow diagram



For best performance of controlling the flow please choose dedicated Danfoss control valves.

SBFV butterfly valves can be used for simple regulation in opening angles from 30° to 90°.

To avoid high flow speed, cavitation and turbulence, opening angle from 0-30° should not be used.

Maximum flow velocities for media should not exceed:

- 3 m/s [DN200-400]
- 2,5 m/s [DN450-800]
- 2 m/s [DN1000-1400]

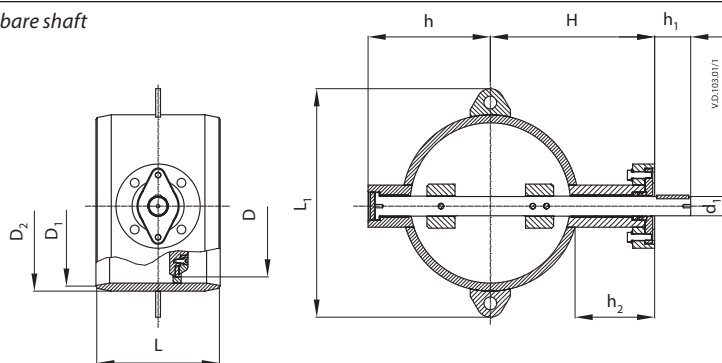
Design

N°	Part	Material
1	Body	Carbon steel EN 10028-2 P265GH, EN 10025 S355J2+N
2	Disk	Carbon steel EN 10028-2 P265GH, EN 10025 S355J2+N
3	Retaining ring	Stainless steel X5CrNi18-10
4	Lamellar seal	X6CrNiMoTi17-12-2+Graphite
5	Valve seat	Stainless steel X17CrNi16-2
6	Drive Shaft	Stainless steel X17CrNi16-2
7	Gland packing	Graphite / PTFE
8	Ring	Stainless steel X5CrNi18-10
9	Sealing bush	GGG CrNi20-2
10	Gland	Carbon steel EN 10028-2 P265GH, EN10025 S355J2+N
11	Cover	Carbon steel EN 10028-2 P265GH, EN 10025 S355J2+N
12	Pin	Stainless steel X17CrNi16-2
13	Parallel key	Carbon steel C45E
14	Radial bearing	INA PERMAGLIDE (SS+PTFE)
15	Axial bearing	INA PERMAGLIDE (SS+PTFE)
16	Connections	Stainless steel A4-70
17	Connections	Stainless steel A4-70
18	Screw	Stainless steel A4-70
19	"O" ring	EPDM HT / VITON

The diagram shows the exploded view of the SBFV butterfly valve assembly. The main assembly includes the body (1), disk (2), retaining ring (3), lamellar seal (4), valve seat (5), drive shaft (6), gland packing (7), ring (8), sealing bush (9), gland (10), cover (11), pin (12), parallel key (13), radial bearing (14), axial bearing (15), connections (16), and screws (18). Detail A shows a close-up of the gland packing assembly, including the gland (10), gland packing (7), ring (8), sealing bush (9), pin (12), parallel key (13), radial bearing (14), axial bearing (15), connections (16), and screws (18).

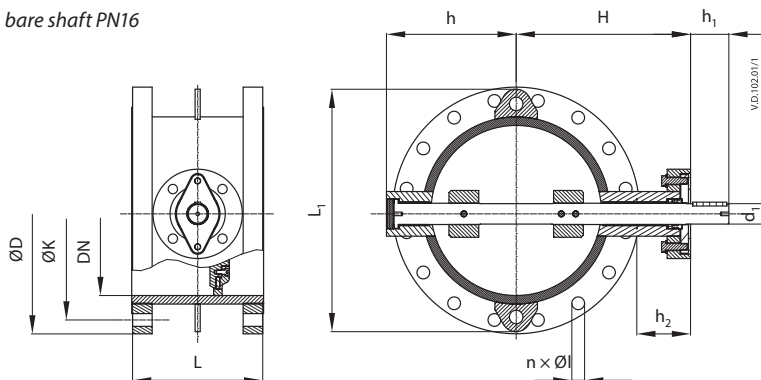
Dimensions

SBFV-WW with bare shaft



DN (mm)	L	D	GOST end		h	H	h ₁	d ₁	h ₂	L ₁	Gear Flange ISO5211	Weight (kg)
			D ₁	D ₂								
200	230	145	210	219	170	255	60	32	145	340	F12	38
250	250	205	263	273	200	290	60	36	155	378	F12	53
300	270	245	311	325	235	320	73	48	155	450	F14	79
350	290	295	363	377	265	350	73	48	159	510	F14	106
400	310	340	408	426	305	410	90	48	192	510	F16	144
450	330	385	444	457	315	430	100	50	190	610	F16	166
500	350	445	512	530	370	458	105	60	186	665	F25	225
600	390	490	608	630	420	555	115	72	232	770	F25	333
700	430	590	702	720	485	600	130	90	240	860	F30	500
800	470	690	804	820	550	650	115	98	235	977	F30	681
900	510	785	902	920	590	755	160	110	290	1087	F35	942
1000	550	870	994	1020	655	805	160	125	290	1176	F35	1243
1200	630	1180	1194	1220	750	905	220	155	290	1360	F40	1960
1400	710	1300	1398	1420	860	1005	225	175	380	1739	F40	2890

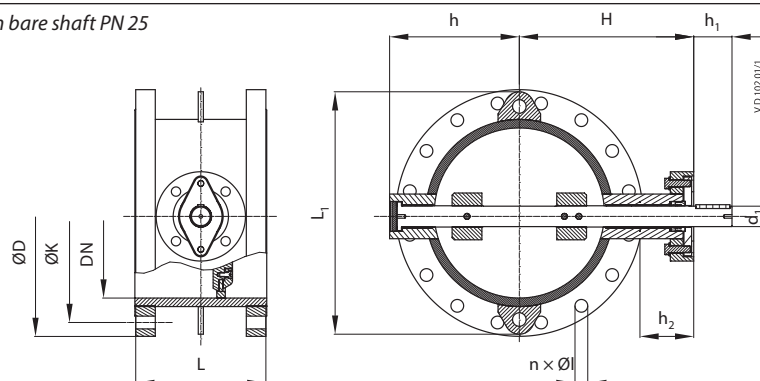
SBFV-FF with bare shaft PN16



DN (mm)	L	GOST end				h	H	h ₁	d ₁	h ₂	L ₁	Gear Flange ISO 5211	Weight (kg)
		ØD	ØK	n	Øl								
200	230	335	295	12	22	170	255	60	32	145	340	F12	62
250	250	405	355	12	26	200	290	60	36	155	378	F12	73
300	270	460	410	16	26	235	320	73	48	155	450	F14	104
350	290	520	470	16	26	265	350	73	48	159	510	F14	165
400	310	580	525	16	30	305	410	90	48	192	570	F16	235
450	330	640	585	20	30	315	430	100	50	190	610	F16	280
500	350	710	650	20	33	370	458	105	60	186	660	F25	366
600	390	840	770	20	39	420	555	115	72	232	770	F25	573
700	430	910	840	24	39	485	600	130	90	240	860	F30	733
800	470	1020	950	24	39	550	650	115	98	235	960	F30	962
900	510	1120	1050	28	39	590	755	160	110	290	1060	F35	1285
1000	550	1255	1170	28	45	655	805	160	125	290	1160	F35	1725
1200	630	1485	1390	32	52	750	905	220	155	290	1360	F40	2762
1400	710	1685	1590	36	52	860	1095	225	175	380	1739	F40	3610

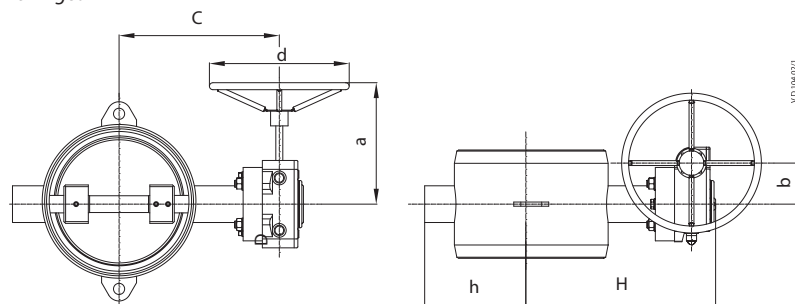
Dimensions

SBFV-FF with bare shaft PN 25



DN (mm)	L	GOST end			n	h	H	h ₁	d ₁	h ₂	L ₁	Gear Flange ISO 5211	Weight (kg)
		ØD	ØK	ØI									
	mm												
200	230	360	310	26	12	170	255	60	32	145	340	F12	68
250	250	425	370	30	12	200	290	60	36	155	378	F12	85
300	270	485	430	30	16	235	320	73	48	155	450	F14	130
350	290	550	490	33	16	265	350	73	48	159	510	F14	185
400	310	610	550	33	16	305	410	90	48	192	570	F16	194
450	330	660	600	33	20	315	430	100	50	190	610	F16	305
500	350	730	660	39	20	370	458	105	60	186	660	F25	385
600	390	840	770	39	20	420	555	115	72	232	770	F25	590
700	430	960	875	45	24	485	600	130	90	240	860	F30	800
800	470	1075	990	45	24	550	650	115	98	235	960	F30	1050
900	510	1185	1090	52	28	590	755	160	110	290	1060	F35	1420
1000	550	1315	1210	56	28	655	805	160	125	290	1160	F35	1900
1200	630	1525	1420	56	32	750	905	220	155	290	1360	F40	2950
1400	710	1750	1620	62	36	860	1095	225	175	380	1739	F40	4340

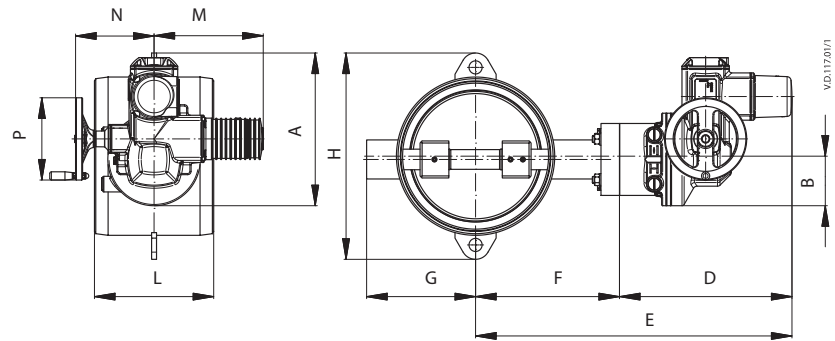
SBFV with worm gear



DN (mm)	H	h	a	b	C	d	Weight (kg)
	mm						
200	550	170	201	71	295	250	47
250	623	200	189	86	332	300	68
300	690	235	230	105	370	300	103
350	750	265	230	105	400	300	128
400	875	305	275	130	465	400	176
450	920	315	301	130	490	500	207
500	980	370	314	140	520	500	275
600	1172	420	314	140	620	500	385
700	1260	485	354	182	660	500	565
800	1385	550	375	209	735	500	818
900	1595	590	415	256	840	500	1162
1000	1710	655	566	425	905	500	1465
1200	1910	750	665	338	1005	500	2248
1400	2300	860	692	495	1205	500	3306

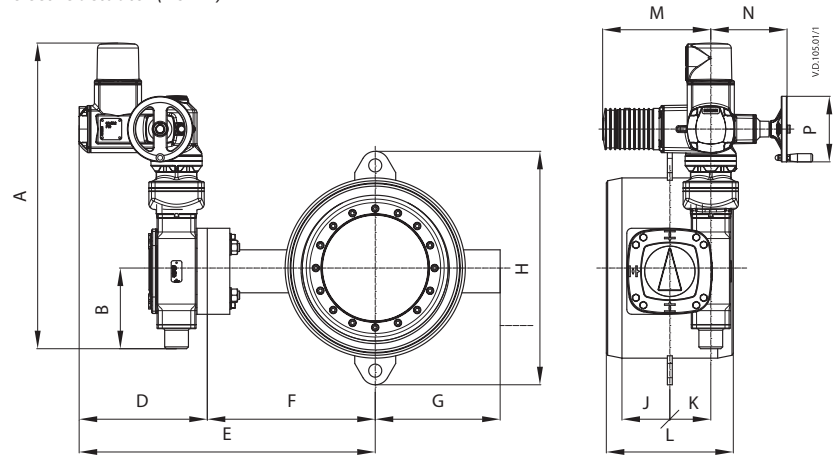
Dimensions

SBFV with electric actuator (AUMA)



DN (mm)	A	B	D	E	F	G	H	L	M	N	P	Weight (kg)
	mm											
200	353	133	385	640	255	170	235	230	343	191	200	73

SBFV with electric actuator (AUMA)

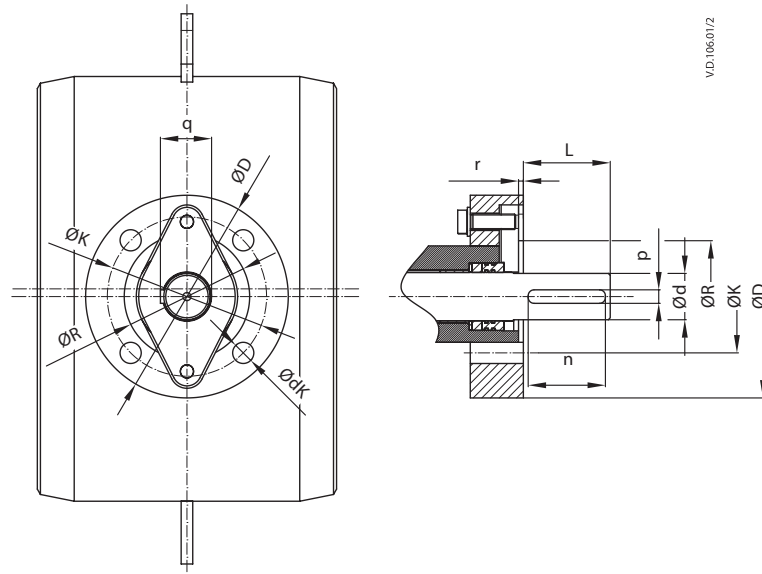


DN (mm)	A	B	D	E	F	G	H	L	M	N	P	Weight (kg)
	mm											
250	556	189	387	677	290	200	385	250	576	191	200	88
300	738	189	432	752	320	235	435	270	576	191	200	123
350	738	189	432	782	350	265	465	290	576	191	200	150
400	748	194	435	845	410	305	540	310	576	191	160	204
450	748	194	435	865	430	315	610	330	576	191	160	226
500	748	194	435	888	453	370	660	350	576	191	200	297
600	920	290	476	1026	550	420	760	390	576	191	200	405
700	1127	367	476	1076	600	485	860	430	576	191	200	617
800	1127	367	476	1076	650	550	960	470	576	191	200	798
900	1217	402	539	1294	755	590	1070	510	576	191	200	1138
1000	1217	402	539	1344	805	655	1200	550	576	191	200	1439
1200	1217	552	539	1457	905	750	1450	630	576	191	315	2320
1400	1248	552	621	1716	1095	860	1739	710	622	245	315	3580

Data sheet

Steel butterfly valves SBFV (PN 16/25)

Dimensions

Valve top and gear
flange

DN (mm)	Gear flange	L	Ød	n	p	q	r	nk	ØdK	ØK	ØR	ØD
		mm										
200	F12	60	32	56	10	35	5	4	14	125	85	150
250	F12	60	36	56	10	39	5	4	14	125	85	150
300	F14	73	48	63	14	51.5	5	4	18	140	100	175
350	F14	73	48	63	14	51.5	5	4	18	140	100	175
400	F16	90	48	80	14	51.5	5	4	22	165	130	210
450	F16	100	50	80	14	53.2	5	4	22	165	130	210
500	F25	105	60	100	18	64	5	8	18	254	200	300
600	F25	110	72	100	20	76.5	5	8	18	254	200	300
700	F30	115	90	110	25	95	5	8	22	298	230	350
800	F30	115	98	110	28	104	5	8	22	298	230	350
900	F35	160	110	125	28	116	5	8	33	356	260	415
1000	F35	160	125	160	32	132	6	8	33	356	260	415
1200	F40	220	155	200	40	164	6	8	33	406	300	475
1400	F40	225	175	220	45	185	6	8	33	406	300	475

Danfoss A/S

Climate Solutions • danfoss.com • +45 7488 2222

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product.

All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.