

# Datasheet

## Butterfly valve

### VSS

## Si-209EN

Edition: 2021-08

- Advanced triple eccentric design
- Designed for control and shut-off applications
- Designed for applications up to 570° C (1060 °F)
- Tightness class in accordance with EN 60534-4 Class V as standard
- Solid seat made of stainless steel



**Type VSS**

**Nominal pressure**

**Nominal size**

**Lugged design**

**PN 63, 67, 100**

**Class 600**

**DN 80 - 600**

**NPS 3-24**



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## Sales and distribution

Somas Instrument AB  
P.O. Box 107  
SE-661 23 SÄFFLE, Sweden  
Visiting address: Norrlandsv. 26-28

Phone: +46 533 69 17 00  
Mail to: [sales@somas.se](mailto:sales@somas.se)  
Internet: [www.somas.se](http://www.somas.se)



## Product Information

Somas butterfly valve, type VSS PN63, 67, 100 is a control, on/off and shut-off valve. The valve is designed to handle a wide range of liquids, gases and steam within a broad temperature range.

The VSS PN 63, 67 100 ASME Class 600 valve is supplied in lugged design.

The valves have an advanced triple eccentric design including a unique shape of the disc allows the use of a solid metal seat. The solid seat remains unaffected by high flow velocities and temperatures. A good valve function is achieved even on difficult applications.

The Somas valves are delivered ready for installation and operation. The valve assemblies are delivered factory tested as complete units with actuators, positioners and accessories. The valve is also delivered as bare shaft.

The valve body have a PN 63, 67, 100 ASME Class 600 rating but shut of pressure is reduced.



## Tightness class

The tightness class is related to the chosen material in the seat ring.

Standard leakage class	Optional leakage class
<b>EN 60534-4</b>	<b>EN 60534-4</b>
PTFE - Class V	PTFE - Class VI
Metal - Class V	
	<b>EN 12266-1</b>
	PTFE - Rate B
	PTFE - Rate C
	Metal -Rate D

## Working temperature °C

Pressure class		0	100	150	200	250	300	350	400	450	500	550
	PN63	63.0	63.0	57.3	53.0	50.1	46.7	45.0	43.2	42.4	41.6	41.1
PN67	67.0	67.0	60.9	56.4	53.3	49.7	47.8	45.9	45.1	44.3	43.7	
PN100	100.0	100.0	90.9	84.2	79.5	74.2	71.4	68.5	67.3	66.1	65.2	

Pressure temperature relation from EN 1092-1:2007

Working pressure in bar(g) for Stainless Steel CF8M or 1.4408 or 2343-12

Minimum working temperature -60°. If lower temperatures are needed contact Somas.

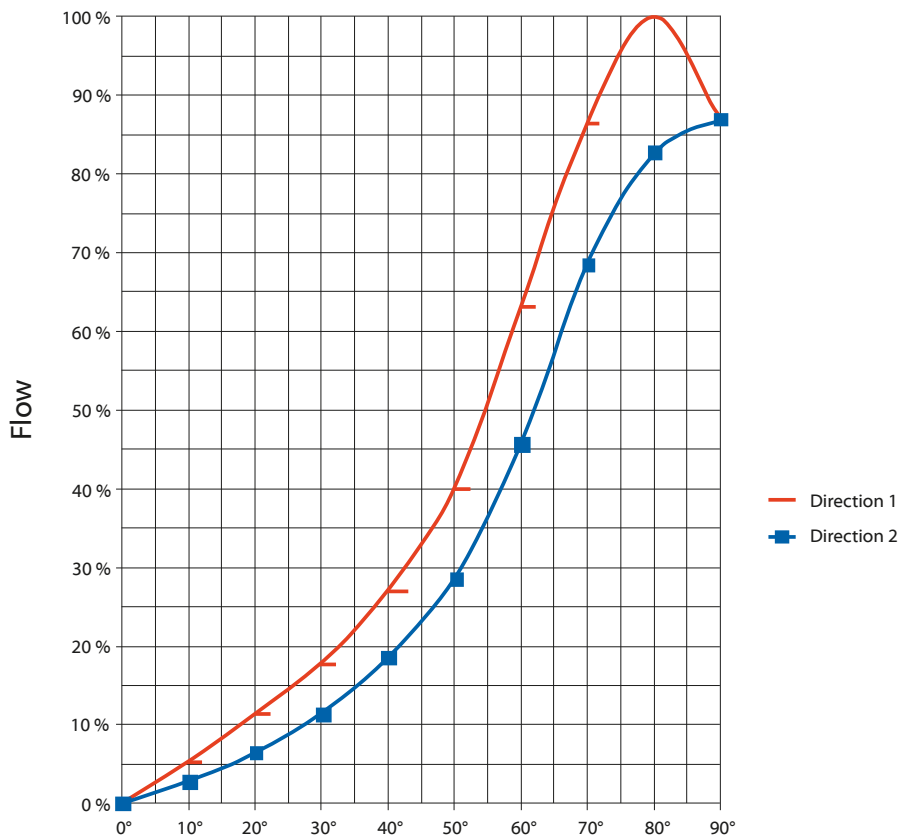


## Valve capacity and flow direction

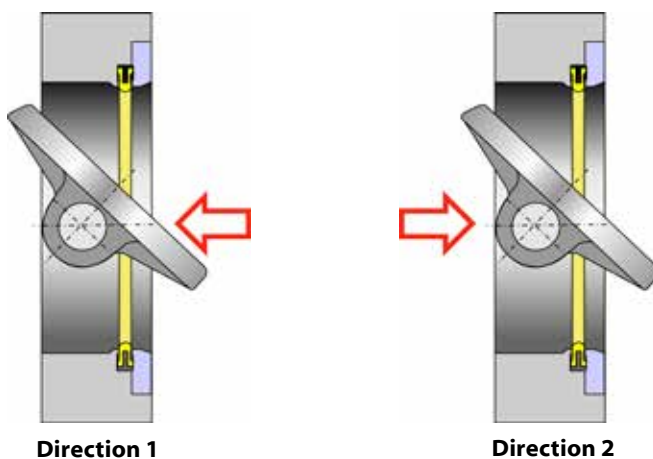
The Somas butterfly valve is normally installed in a way so that the flow first hits the flat side of the disc. This installation gives a better maximum capacity of the valve.

When the valve is used in applications with emergency quick close functions, the valve is recommended to be installed in a way so that the flow hits the shaft side of the valve disc first. With this installation the differential pressure will help the actuator to close the valve. With this mounting position the capacity will be a little reduced due to more turbulence on the shaft side.

The curve beside describes the capacity of the valve based on the mounting direction.



Valve opening





**Capacity factor Kv, Cv and resistance factor  $\zeta$**   
 Butterfly valve flow direction towards *flat side of valve disc*

DN NPS		0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	$\zeta$ 80°
80	Kv	0	14	31	48	73	108	165	203	235	205	1.17
3	Cv	0	16	36	56	85	126	192	236	273	238	
100	Kv	0	9	20	31	48	70	110	151	175	152	3.39
4	Cv	0	11	23	36	55	82	128	176	203	177	
150	Kv	0	26	56	87	132	195	308	422	490	424	2.53
6	Cv	0	30	65	101	154	227	359	491	570	493	
200	Kv	0	47	103	159	243	359	569	778	900	770	2.39
8	Cv	0	55	120	185	283	418	662	904	1047	895	
250	Kv	0	79	172	266	406	602	950	1298	1500	1304	2.18
10	Cv	0	92	200	309	473	699	1105	1509	1744	1516	
300	Kv	0	207	446	692	1058	1566	2472	3380	3906	3397	0.84
12	Cv	0	241	519	805	1230	1821	2874	3930	4542	3950	
350	Kv	0	279	602	934	1427	2111	3327	4558	5271	4580	0.86
14	Cv	0	324	700	1086	1659	2455	3869	5300	6129	5326	
400	Kv	0	371	800	1242	1898	2809	4429	6064	7009	6095	0.83
16	Cv	0	431	930	1444	2207	3266	5150	7051	8150	7087	
500	Kv	0	584	1258	1951	2981	4413	6963	9525	11010	9574	0.82
20	Cv	0	679	1463	2269	3466	5131	8097	11076	12802	11133	
600	Kv	0	853	1839	2851	4357	6448	10177	13920	16090	13950	0.79
24	Cv	0	992	2138	3315	5066	7498	11834	16186	18709	16221	

**Capacity factor Kv, Cv and resistance factor  $\zeta$**   
 Butterfly valve flow direction towards *shaft side of valve disc*

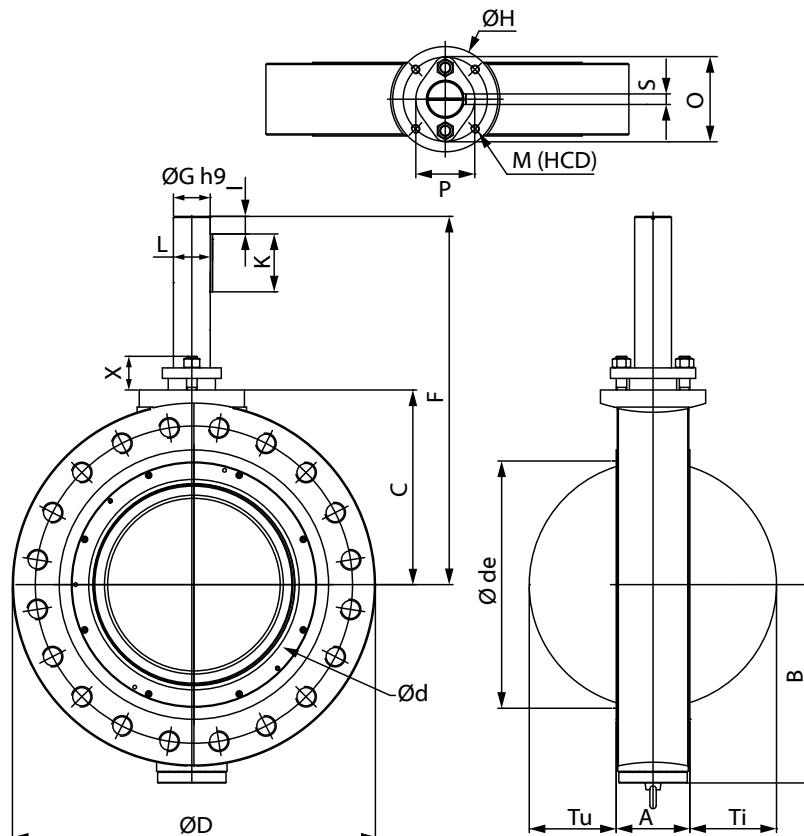
DN NPS		0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	$\zeta$ 90°
80	Kv	0	12	24	35	47	65	101	158	198	204	1.66
3	Cv	0	14	28	41	55	76	117	183	230	238	
100	Kv	0	9	18	26	35	49	75	117	147	147	4.78
4	Cv	0	11	21	30	41	57	87	136	171	171	
150	Kv	0	26	51	73	98	136	210	329	413	413	3.57
6	Cv	0	30	59	85	114	158	244	382	480	480	
200	Kv	0	47	94	134	180	250	385	603	758	758	3.37
8	Cv	0	55	109	155	209	291	448	702	881	881	
250	Kv	0	79	156	223	300	417	642	1006	1262	1262	3.08
10	Cv	0	92	181	259	348	485	746	1170	1468	1468	
300	Kv	0	207	407	580	780	1087	1672	2619	3288	3397	1.19
12	Cv	0	240	473	674	907	1264	1944	3046	3823	3950	
350	Kv	0	279	549	782	1053	1466	2256	3535	4437	4584	1.21
14	Cv	0	324	638	909	1224	1705	2623	4110	5159	5330	
400	Kv	0	371	730	1040	1400	1950	3000	4700	5900	6095	1.16
16	Cv	0	431	849	1209	1628	2267	3488	5465	6860	7087	
500	Kv	0	583	1147	1634	2199	3063	4713	7383	9268	9574	1.15
20	Cv	0	678	1333	1900	2557	3562	5480	8585	10777	11133	
600	Kv	0	852	1676	2387	3214	4476	6887	10789	13544	13992	1.12
24	Cv	0	990	1949	2776	3737	5205	8008	12546	15749	16270	



### Max. allowable pressure drops/torque figures

Maximum allowable pressure drops are valid at 20° C (see below)

Valve DN NPS	PN ASME	Max. pressure drop. at opening angle			Torque min. at $\Delta P$		Torque min. at $\Delta P$		Torque max. shaft
		0° bar psi	60° bar psi	90° bar psi	bar psi	Nm ft·lbs	bar psi	Nm ft·lbs	Nm ft·lbs
<b>80</b>	100	50	16	6	$\leq 20$	120	$> 20$	180	220
<b>3</b>	CL600	725	232	87	$\leq 290$	89	$> 290$	133	162
<b>100</b>	100	50	15	5	$\leq 20$	165	$> 20$	250	300
<b>4</b>	CL600	725	218	73	$\leq 290$	122	$> 290$	184	221
<b>150</b>	100	50	10	3	$\leq 20$	250	$> 20$	350	420
<b>6</b>	CL600	725	15	44	$\leq 290$	184	$> 290$	258	310
<b>200</b>	100	50	7.5	2	$\leq 20$	290	$> 20$	460	550
<b>8</b>	CL600	725	109	29	$\leq 290$	214	$> 290$	339	406
<b>250</b>	100	50	5	1.5	$\leq 20$	480	$> 20$	680	820
<b>10</b>	CL600	725	73	22	$\leq 290$	354	$> 290$	502	605
<b>300</b>	100	50	5	1.5	$\leq 20$	600	$> 20$	900	1080
<b>12</b>	CL600	725	73	22	$\leq 290$	443	$> 290$	664	797
<b>350</b>	100	50	5	1.5	$\leq 20$	950	$> 20$	1350	1620
<b>14</b>	CL600	725	73	22	$\leq 290$	701	$> 290$	996	1195
<b>400</b>	100	50	5	1.5	$\leq 20$	1300	$> 20$	1750	2100
<b>16</b>	CL600	725	73	22	$\leq 290$	959	$> 290$	1291	1549
<b>500</b>	100	50	4	1.2	$\leq 20$	2600	$> 20$	3000	3600
<b>20</b>	CL600	725	58	17	$\leq 290$	1918	$> 290$	2213	2655
<b>600</b>	100	50	4	1.2	$\leq 20$	4750	$> 20$	5800	6960
<b>24</b>	CL600	725	58	17	$\leq 290$	3503	$> 290$	4278	5133



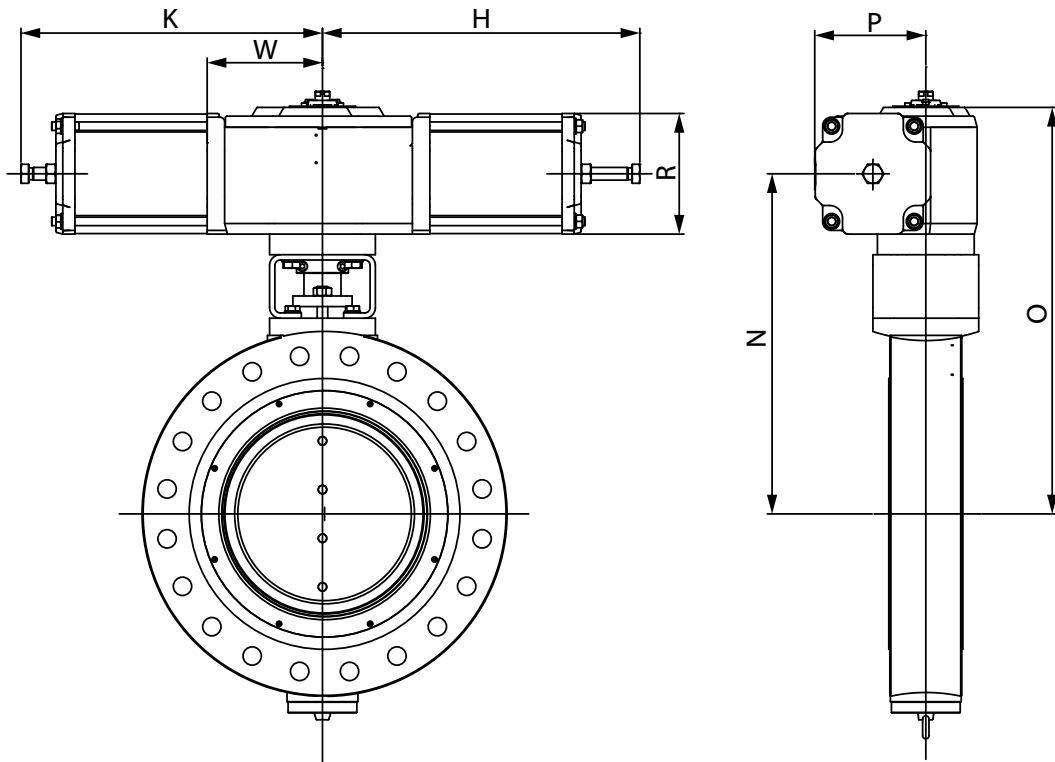


**Butterfly valve type VSS dimensions and weight**

DN NPS	A (mm) (in)	B (mm) (in)	C (mm) (in)	Ød (mm) (in)	Øde (mm) (in)	ØD (mm) (in)	F (mm) (in)	Tu (mm) (in)	Ti (mm) (in)	Weight (kg) (lbs)
<b>80</b>	50	145	150	70	60	230	270	18	6	17.5
<b>3</b>	1.97	5.24	5.91	2.76	2.36	6.69	10.63	0.71	0.24	38.58
<b>100</b>	64	153	165	90	86	273	285	21	11	30
<b>4</b>	2.52	6.02	6.50	3.54	3.39	10.75	11.22	0.83	0.43	66.14
<b>150</b>	76	193	215	140	138	365	350	38	31	53
<b>6</b>	2.99	6.93	7.68	5.51	5.43	14.17	12.99	1.50	1.22	116.8
<b>200</b>	89	210	225	187	186	420	360	56	47	94
<b>8</b>	3.50	8.27	8.86	7.36	7.32	16.54	14.17	2.20	1.85	207.2
<b>250</b>	114	270	275	236	235	505	410	64	62	132
<b>10</b>	4.49	9.76	10.43	9.29	9.25	19.69	15.75	2.52	2.44	291
300	114	295	295	285	285	575	505	89	87	236
12	4.49	11.61	11.61	11.22	11.22	22.64	19.88	3.50	3.43	520.3
<b>350</b>	127	330	330	331	330	630	540	105	103	305
<b>14</b>	5.00	12.99	12.99	13.03	12.99	24.80	21.26	4.13	4.06	672.4
<b>400</b>	140	355	370	382	380	690	595	128	118	322
<b>16</b>	5.51	13.98	14.57	15.04	14.96	27.17	23.43	5.04	4.65	709.9
<b>500</b>	152	440	440	479	475	834	685	167	164	525
<b>20</b>	5.98	17.32	17.32	18.86	18.70	32.83	26.97	6.57	6.46	1157
600	178	490	495	579	575	1000	740	209	196	(750)
24	7.01	19.29	19.49	22.80	22.64	39.37	29.13	8.23	7.72	(1653)

DN NPS	ØG (mm) (in)	ØH (mm) (in)	I (mm) (in)	K (mm) (in)	L (mm) (in)	M	(HCD) (mm) (in)	O (mm) (in)	P (mm) (in)	S (mm) (in)	X (mm) (in)
<b>80</b>	20	120	5	45	22.5	M12	90	74	44	6	40
<b>3</b>	0.79	4.72	0.20	1.77	0.89	M12	3.54	2.91	1.73	0.24	1.57
<b>100</b>	25	120	5	45	28	M12	90	78	50	8	40
<b>4</b>	0.98	4.72	0.20	1.77	1.10	M12	3.54	3.07	1.97	0.31	1.57
<b>150</b>	30	150	5	60	33	M12	120	92	58	8	44
<b>6</b>	1.18	5.91	0.20	2.36	1.30	M12	4.72	3.62	2.28	0.31	1.73
<b>200</b>	35	150	5	50	38	M12	120	100	64	10	44
<b>8</b>	1.38	5.91	0.20	1.97	1.50	M12	4.72	3.94	2.52	0.39	1.73
<b>250</b>	40	150	5	50	43	M12	120	108	70	12	48
<b>10</b>	1.57	5.91	0.20	1.97	1.69	M12	4.72	4.25	2.76	0.47	1.89
300	50	150	10	80	53.5	M12	120	124	82	14	52
12	1.97	5.91	0.39	3.15	2.11	M12	4.72	4.88	3.23	0.55	2.05
<b>350</b>	60	200	10	90	64	M16	160	147	96	18	68
<b>14</b>	2.36	7.87	0.39	3.54	2.52	M16	6.30	5.79	3.78	0.71	2.68
<b>400</b>	70	200	10	110	74.5	M16	160	162	112	20	68
<b>16</b>	2.76	7.87	0.39	4.33	2.93	M16	6.30	6.38	4.41	0.79	2.68
<b>500</b>	80	200	10	120	85	M16	160	183	120	22	78
<b>20</b>	3.15	7.87	0.39	4.72	3.35	M16	6.30	7.20	4.72	0.87	3.07
600	80	200	10	120	95	M20	160	183	120	22	78
24	3.15	7.87	0.39	4.72	3.74	M20	6.30	7.20	4.72	0.87	3.07





Butterfly valve type VSS with actuator type A-DA

DN NPS	Type	H	K	N	O	P	R	W	Weight (kg) (lbs)
		(mm) (in)	(mm) (in)	(mm) (in)	(mm) (in)	(mm) (in)	(mm) (in)	(mm) (in)	
80 3	A21-DA	255 10.04	-	295 11.61	360 14.17	94 3.70	106 4.17	140 5.51	28 61
		255 10.04	260 10.24	295 11.61	360 14.17	94 3.70	106 4.17	-	29 63
100 4	A22-DA	255 10.04	260 10.24	310 12.20	375 14.76	94 3.70	106 4.17	-	41 90
		255 10.04	260 10.24	340 13.39	410 16.14	94 3.70	106 4.17	-	64 141
150 6	A23-DA	305 12.01	-	340 13.39	410 16.14	117 4.61	152 5.98	140 5.51	70 154
		380 14.96	-	420 16.54	510 20.08	144 5.67	152 5.98	215 8.46	119 262
250 8	A31-DA	380 14.96	-	460 18.11	550 21.65	144 5.67	152 5.98	215 8.46	157 346
		380 14.96	395 15.55	460 18.11	550 21.65	144 5.67	152 5.98	-	163 359
300	A32-DA	380 14.96	395 15.55	490 19.29	580 22.83	144 5.67	152 5.98	-	247 545
		550 21.65	-	605 23.82	715 28.15	210 8.27	230 9.06	315 12.40	382 842
400	A41-DA	550 21.65	-	645 25.39	755 29.72	210 8.27	230 9.06	315 12.40	399 880
		545 21.46	560 22.05	715 28.15	840 33.07	210 8.27	230 9.06	-	620 1367
600	A42-DA	545 21.46	560 22.05	715 28.15	840 33.07	210 8.27	230 9.06	-	620 1367
		745 29.33	-	815 32.09	990 38.98	315 12.40	355 13.98	370 14.57	655 1444



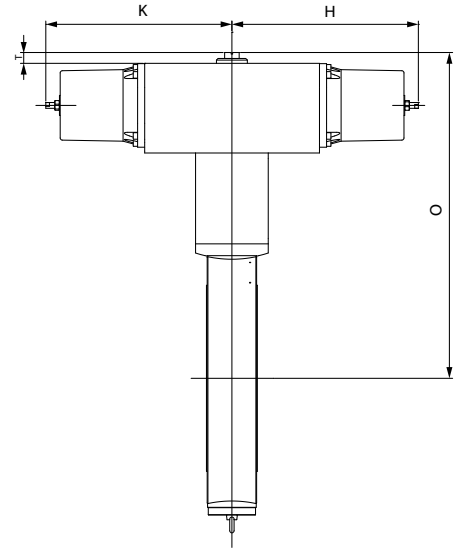
**Butterfly valve type VSS with actuator type A-SC/SO**

<b>DN</b>	<b>Type</b>	<b>H</b>	<b>K</b>	<b>N</b>	<b>O</b>	<b>P</b>	<b>R</b>	<b>W</b>	<b>Weight</b>
<b>NPS</b>		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(kg)
		(in)	(in)	(in)	(in)	(in)	(in)	(in)	(lbs)
<b>80</b>	<b>A24-SX</b>	415	420	295	360	117	152	-	45
<b>3</b>		16.34	16.54	11.61	14.17	4.61	5.98		98
<b>100</b>	<b>A24-SX</b>	415	420	310	375	117	152	-	57
<b>4</b>		16.34	16.54	12.20	14.76	4.61	5.98		126
<b>150</b>	<b>A33-SX</b>	660	-	390	480	185	230	215	111
<b>6</b>		25.98		15.35	18.90	7.28	9.06	8.46	245
<b>200</b>	<b>A33-SX</b>	660	-	420	510	185	230	215	152
<b>8</b>		25.98		16.54	20.08	7.28	9.06	8.46	335
<b>250</b>	<b>A34-SX</b>	665	680	460	550	185	230	-	218
<b>10</b>		26.18	26.77	18.11	21.65	7.28	9.06		481
<b>300</b>	<b>A34-SX</b>	665	680	480	580	185	230	-	322
<b>12</b>		26.18	26.77	18.90	22.83	7.28	9.06		710
<b>350</b>	<b>A43-SX</b>	920	-	605	715	280	355	315	468
<b>14</b>		36.22		23.82	28.15	11.02	13.98	12.40	1032
<b>400</b>	<b>A43-SX</b>	920	-	645	755	280	355	315	484
<b>16</b>		36.22		25.39	29.72	11.02	13.98	12.40	1067
<b>500</b>	<b>A44-SX</b>	925	935	715	840	280	355	-	745
<b>20</b>		36.42	36.81	28.15	33.07	11.02	13.98		1642
<b>600</b>		-	-	-	-	-	-	-	-
<b>24</b>		-	-	-	-	-	-	-	-



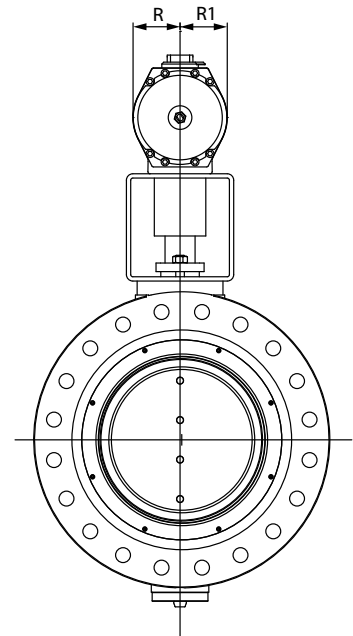
## Butterfly valve type VSS

Valve DN NPS	Actuator Remote Control	H	K	O*)	R	R1	T	Weight kg lbs
		mm in	mm in	mm in	mm in	mm in	mm in	
80 3	RC240-DA	135 5.31	135 5.31	403 15.87	55 2.17	49 1.93	20 0.79	24 54
100 4	RC240-DA	135 5.31	135 5.31	418 16.46	55 2.17	49 1.93	20 0.79	37 81
150 6	RC250-DA	190 7.48	90 3.54	533 20.98	75 2.95	69 2.72	20 0.79	65 144
200 8	RC260-DA	190 7.48	190 7.48	603 23.74	75 2.95	69 2.72	20 0.79	111 244
250 10	RC260-DA	190 7.48	190 7.48	643 25.31	75 2.95	69 2.72	20 0.79	149 327
300 12	RC265-DA	195 7.68	195 7.68	720 28.35	76 2.99	76 2.99	20 0.79	261 575
350 14	RC270-DA	300 11.81	145 5.71	911 35.87	110 4.33	110 4.33	30 1.18	345 761
400 16	RC270-DA	300 11.81	145 5.71	951 37.44	110 4.33	110 4.33	30 1.18	362 798
500 20	RC280-DA	300 11.81	300 11.81	1021 40.20	110 4.33	110 4.33	30 1.18	575 1268
600 24	RCG90-DA	520 20.47	415 16.34	1325 52.17	185 7.28	185 7.28	60 2.36	1050 2315



## Butterfly valve type VSS

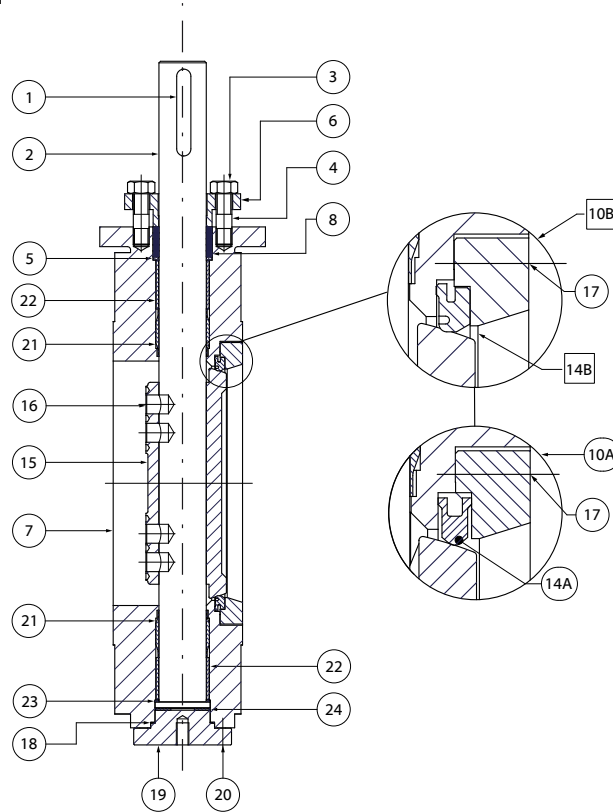
Valve DN NPS	Actuator Remote Control	H	K	O*)	R	R1	T	Weight kg lbs
		mm in	mm in	mm in	mm in	mm in	mm in	
80 3	RC260-SR087AC	285 11.2	285 11.2	528 20.8	75 3	69 2.7	20 0.8	40 88
100 4	RC260-SR087AC	285 11.2	285 11.2	543 21.4	75 3	69 2.7	20 0.8	53 116
150 6	RC265-SR087AC	317 12.5	317 12.5	620 24.4	76 3	76 3	20 0.8	86 189
200 8	RC270-SR087AC	510 20.1	145 5.71	806 31.7	110 4.3	110 4.3	30 1.2	147 324
250 10	RC280-SR087AC	510 20.1	510 20.1	846 33.3	110 4.3	110 4.3	30 1.2	208 459
300 12	RC280-SR087AC	510 20.1	510 20.1	876 34.5	110 4.3	110 4.3	30 1.2	312 688
350 14	RC88-SR087AC	550 21.7	-	1123 44.2	110 4.3	110 4.3	30 1.2	457 1008
400 16	RC88-SR087AC	550 21.7	-	1163 45.8	110 4.3	110 4.3	30 1.2	474 1045
500 20	RCG100-SR087AC	850 33.5	850 33.5	1270 50	185 7.3	185 7.3	60 2.4	1055 2326
600 24	RCG100-SR087AC	850 33.5	850 33.5	1325 52.2	185 7.3	185 7.3	60 2.4	1280 2822



\*) O-dimension depends on the height of the bracket that change based on the application.



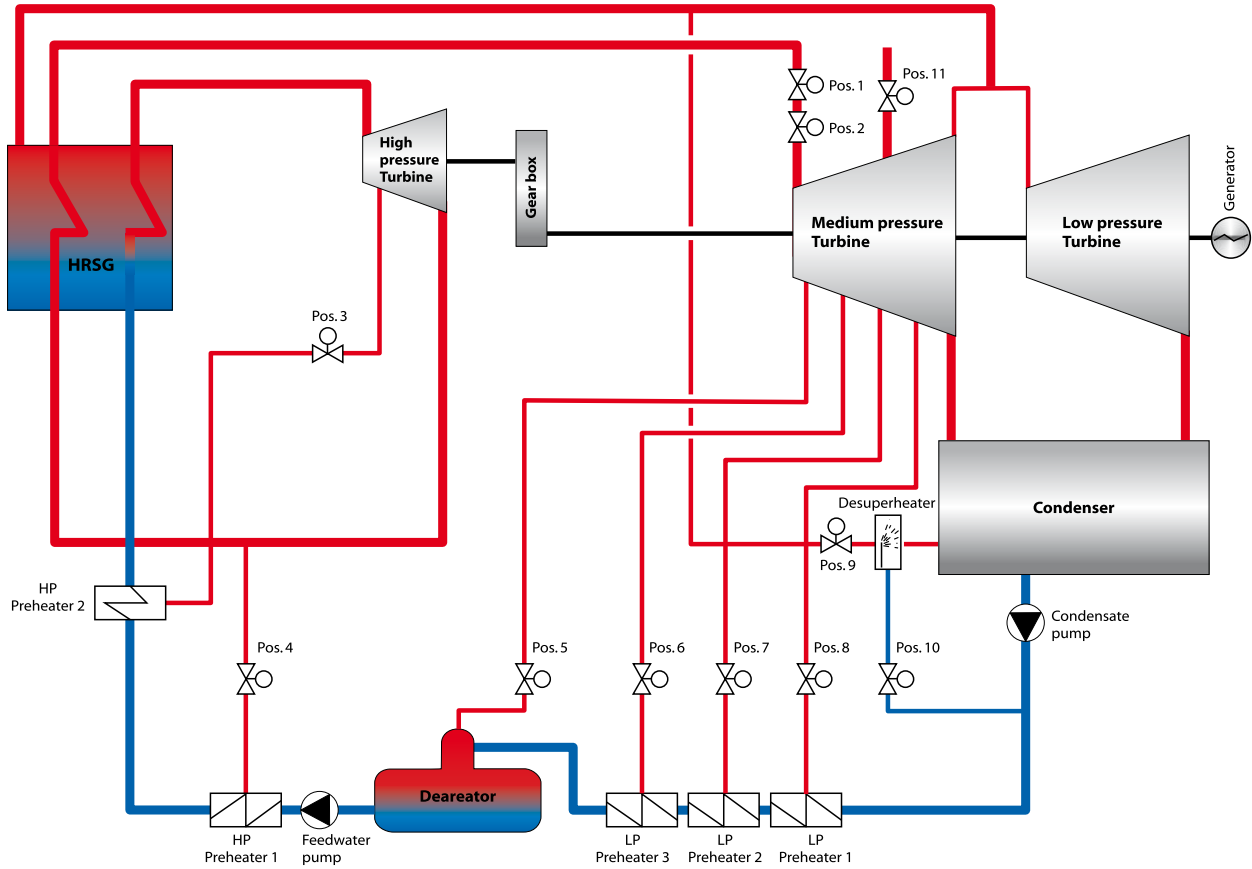
## Material specification



Item No.	Description	Swedish standard	ENG standard	EN standard Grade	Classification	Comparable material USA standard	Included in the spare part kit
1	<b>Key</b>	Steel (SS 1650-06)	Steel (C45K)			ASTM 1045	X
2	<b>Shaft</b> (option)	SS 2324	1.4460	X3CrNiMoN27-5-2	Duplex	AISI 329	
	(option)	SS 2328	1.4410	X2CrNiMoN25.7.4	Super duplex	AISI F53 (A182 / A479)	
	(option)		1.4923	X22CrMoV12-1	Martensitic steel		
3	<b>Nut</b>	A4	A4			AISI 316	
4	<b>Stud</b>	A4	A4			AISI 316	
5	<b>Washer</b>	SS 2343	1.4436			AISI 316	
6	<b>Gland</b>	CF8M (2343-12)	1.4408			A351-CF8M	
7	<b>Valvebody</b> (option)	CF8M (2343-12)	1.4408	9Cr-1Mo-V modified	Austenitic stabilized stainless steel casting	A351-CF8M	
	(option)		1.4552	GX5CrNiNb19-11		F91	
8	<b>Stuffing box kit</b>		Graphite				X
10	<b>Cover plate</b>	SS 2368-02	1.4835 (253 MA)	X9CrNiSiNCe21-11-2	Austenitic heat resisting steel		
14	<b>Seat</b> (pos. 10A)	SS 2377	1.4462		Austenitic heat resisting steel		X
	<b>Seat</b> (pos. 10B)	SS 2368-02	1.4835 (253 MA)	X9CrNiSiNCe21-11-2			X
15	<b>Disc</b> (option)	CF8M (2343-12)	1.4408	9Cr-1Mo-V modified	Austenitic stabilized stainless steel casting	A351-CF8M	
	(option)	CF8M (2343-12)	1.4408 (HiCo coated)	GX5CrNiNb19-11		A351-CF8M	
	(option)		1.4552	GX5CrNiNb19-11		F91	
	(option)		1.4552 (HiCo coated)	GX5CrNiNb19-11		Austenitic stabilized stainless steel casting	
16	<b>Cylindrical pin</b>	SS 2343	1.4436			AISI 316	
17	<b>Screw</b>	A4	A4			AISI 316	
		SS 2324	1.4460	X3CrNiMoN27-5-2	Duplex	AISI 329	
18	<b>Gasket</b>		Graphite				X
19	<b>Cover</b>	CF8M (2343-12)	1.4408			A351-CF8M	
20	<b>Screw</b>	A4	A4			AISI 316	
21	<b>Bearings sleeve</b>		High Cobalt alloy				
		SS 2562	1.4539	X1NiCrMoCu25-20-5	Austenitic	ASTM 904L	
22	<b>Distance sleeve</b>	SS 2343	1.4436			AISI 316	
23	<b>Washer</b> (option)		HiCo (High Cobalt alloy)				
24	<b>Washer</b> (option)		HiCo (High Cobalt alloy)				

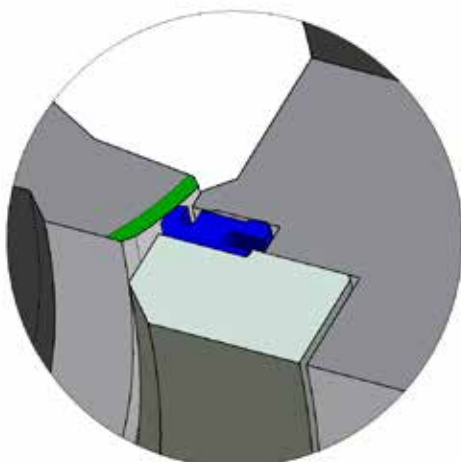


### Application examples

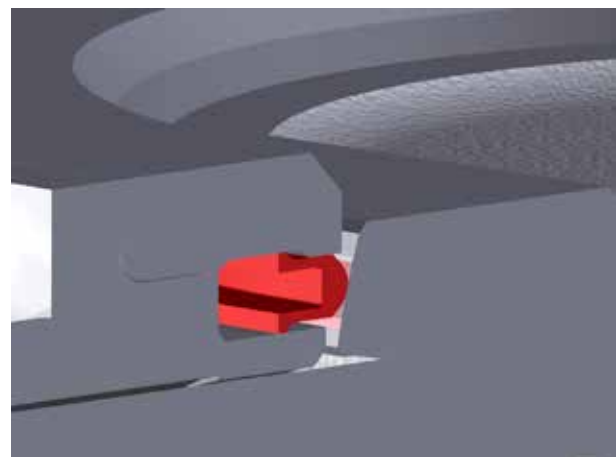


<b>Pos. 1</b>	For protection of steam turbine in case of "turbine trip" the inlet on/off valve needs to close very quick, normally in 150 to 250 ms. Actuator and valve must be specially designed in order to handle these parameters.
<b>Pos. 2</b>	The Turbine inlet control valve is used for control of the turbine power, speed and backpressure, the boiler pressure and the extraction pressure. It is also quick closed in case of a turbine trip.
<b>Pos. 3, 4, 5, 6, 7, 8</b>	Extraction line from steam turbine. The valve is used for emergency closing in order to avoid backflow.
<b>Pos. 9</b>	LP Turbine Bypass valve is used during Start-up, at turbine-trip and at house load operation.
<b>Pos. 10</b>	Spraywater control valve for the LP Turbine Bypass water injection spray nozzles.
<b>Pos. 11</b>	Control valve for Intermediate inlet steam, normally from external steam source with lower pressure than main steam line.

### Seat design



Fixed mounted Seat (clamped)



Standard Seat type flexible mount



## Supplemental information

**Note:** Use gaskets with the correct inside diameter to ensure that pressure is applied on the cover plate.

For mounting between flanges according to PN 10-25, the inside gasket diameter should not exceed the dimensions specified in the standard EN 1514-1.

**Gaskets according to EN 1514-1**

Valve DN	Max. Inside dia. di (mm)	Outside dia. (dy) (mm) PN 50
80	89	142
100	115	168
150	169	224
200	220	290
250	273	352
300	324	417
350	356	474
400	407	546
500	508	628
600	610	747

For mounting between flanges according to Class 300 dimensions according to the standard ASME B 16.21 RF are valid where the following dimensions refer to the gasket.

**Gaskets according to ASME 16.21 RF**

Valve DN	Max. Inside dia. di (mm)	Outside dia. (dy) (mm) Class 300
80	89	149
100	114	181
150	168	250
200	219	308
250	273	362
300	324	422
350	356	486
400	406	540
500	508	654
600	610	775

### Flange standard

Somas butterfly valve type VSS in this data sheet is of a ring design with threaded bolt holes like valves of lugged design. The valve is intended for mounting between flanges PN 63-100.

Valves can also be drilled for mounting between flanges according to ASME.

When ordering, please state the pressure rating of the counter flanges. See valve specification system.

### Actuators and accessories

The valves can be fitted with Somas manual, on/off or control actuators in accordance with the selection table. The valves will then be delivered as tested units ready for installation.

In the documents library on [www.somas.se](http://www.somas.se) there is also information about positioners, limit switches and solenoid valves.

We can also fit other types of actuators and accessories in accordance with your specification.

### Seat design

The valves with a nominal size between DN 80-600 have a metal seat (Y-shaped.) according to the code D.

Seat in high temperature material is available as an option. Also check the valve specification system (code 6) to find further seat alternatives.

### Further technical information

Technical data for the materials used in the Somas-valves, flange standard, steam data, etc. can be found in documents library on [www.somas.se](http://www.somas.se).

### Valve sizing

Use Somas valve sizing program SomSize to find the correct valve size. All sizing factors are included in the program.



## Valve specification system

**VSS - X 7 - A C D - C 3 1 - DN... - D... - B... - PN...**

1            2   3            4   5   6            7   8   9            10            11            12            13

**1 Type of valve**

VSS

**6 Material - seat**

D = 1.4462 alt. 1.4470 (Y-shaped)  
N = 1.4835 (Y-shaped)

**10 Valve size, DN**

80, 100, 150, 200, 250, 300, 350, 400,  
500, 600

**2 Valve body design**

X (ring body) = Solid ring with flange  
bolt threaded holes

**11 Shaft diameter****3 Nominal pressure**

7 = PN 63  
8 = PN 100/Class 600

**7 Material - shaft**

B = 1.4460 alt. SS 2324-12,  
(Hard chromed)  
C = 1.4460 alt. SS 2324-12,  
HiCo Gr 6 coated)  
L = 1.4923

**12 Actuator mounting flange drilling****13 Drilling, counter flanges, PN/Class**

63, 67, 100 / 600

**4 Material - valve body**

A = CF8M/1.4408  
X = (9Cr-1 Mo-V) = 9Cr-1Mo-V modified

**8 Bearing - valve body/shaft**

3 = HiCo Gr 6  
7 = 1.4462

**5 Material - disc**

A = CF8M/1.4408 alt.1.4401  
C = CF8M/1.4408 alt.1.4401 HiCo coated  
X = (9Cr-1Mo-V) = 9Cr-1Mo-V modified  
HiCo coated

**9 Stuffing box**

1 = Graphite  
X (Special) = Special graphite

*Other materials are available on request.  
Contact Somas for further information.*

*Somas reserves the right to make improvements without prior notice.*



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LinkedIn

*Concern and head office:*

**Somas Instrument AB**

Norrlandsvägen 26

SE-661 40 SÄFFLE

Sweden

Phone: +46 (0)533 69 17 00

E-mail: [sales@somas.se](mailto:sales@somas.se)

[www.somas.se](http://www.somas.se)

