



# Butterfly valve

## Type VSS LN (Low Noise)

Si-211 EN

Edition: 2006-04

<b>Nominal pressure</b>	— PN 10 - 25
<b>Nominal size</b>	— DN 80 - 600
<b>Material</b>	— Stainless steel

The SOMAS butterfly valve type VSS LN

- **Advanced triple eccentric design**
- **is designed for control applications.**
- **is designed for applications up to 550°C (1022°F).**
- **has a solid seat made of stainless steel.**
- **has a tightness class in accordance with IEC 534-4 class V as standard.**
- **has a trim for noise reduction.**

The SOMAS butterfly valve, type VSS LN, is a control valve. With a low noise trim, type LN, flashing and cavitation problems can be eliminated and a lower noise level achieved. The valve is designed to handle a wide range of liquids, gases and steam at temperatures up to 550°C (1022°F).

The VSS LN-valve is designed to be mounted between flanges.

The valves have an advanced triple eccentric design including a unique shape of the disc allows the use of a solid stainless steel seat. The solid seat remains unaffected by high flow velocities and 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.





### Tightness class

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

Metal seat (Code C) IEC 534-4 V (ANSI B16-104 Class V)

[PTFE-seat\* (Code A) IEC 534-4 VI (ANSI B16-104 Class VI)]

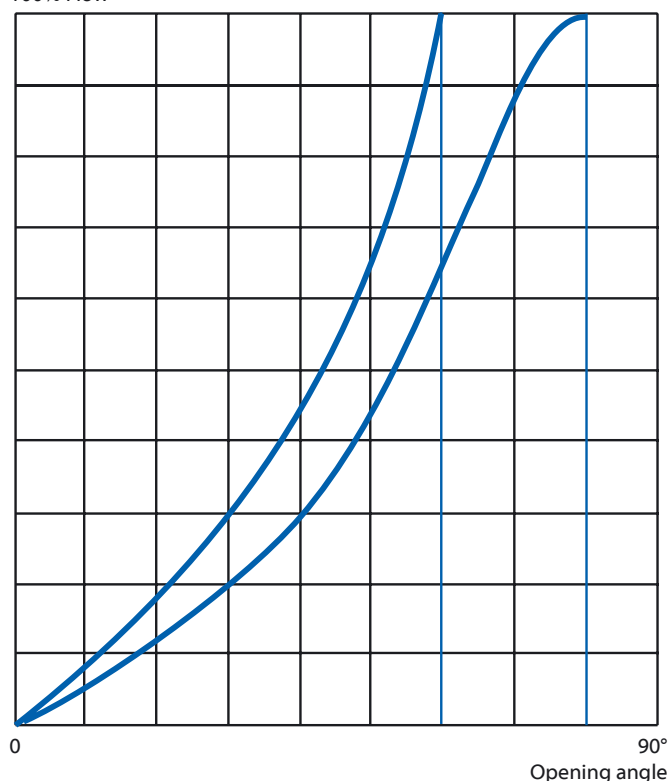
\* PTFE (10% carbon)

### Temperature range

For applications up to 550°C (1022°F).

### Flow characteristics

100% Flow



### Flange standard

The SOMAS butterfly valves type VSS LN in this data sheet are equipped with flanges which can be drilled for PN 10, PN 16, PN 20 and PN 25.

Drilling according to ANSI, BS, etc. is also possible.

When ordering, please state the pressure rating of the counter flanges. See valve specification system page 6, code 11.

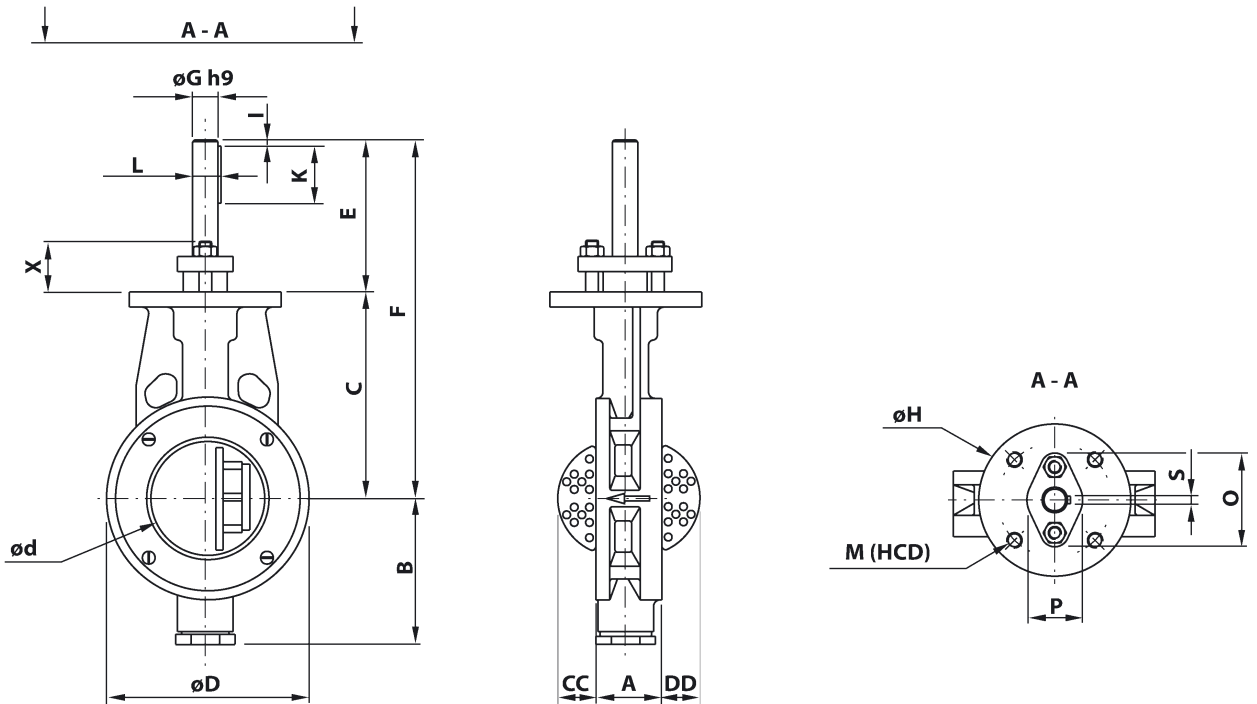
### Face to face

Face to face according to the EN 558-1 series 20 and EN 558-2 series 20.

### Capacity factor

DN	Opening angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
80	7.7	17.1	26.4	40.2	59.4	90.8	112	129	129
100	12	24.8	38.5	58.9	86.9	132	178	200	206
125	19.3	41.3	63.8	97.3	144	220	286	333	333
150	27.5	59.4	92.4	141	208	319	429	498	498
200	49	106	164	251	371	567	765	886	886
250	78.1	169	262	400	592	908	1216	1405	1405
300	114	245	381	582	861	1320	1770	2046	2046
350	153	331	514	785	1161	1777	2388	2761	2761
400	204	440	683	1044	1545	2365	3176	3671	3671
450	257	556	861	1316	1948	2987	4005	4628	4628
500	321	692	1073	1640	2427	3718	4989	5767	5767
600	469	1011	1568	2396	3546	5434	7291	8429	8429

Relation between  $K_V$  and  $C_V$ :  $K_V=0.86C_V$



The drawing shows a closed valve

Butterfly valve, type VSS LN (Low Noise)																					
DN	A	B	C	$\phi d$	$\phi D$	E	F	$\phi G$	H	I	K	L	M (HCD)	O	P	S	X	CC	DD	Weight	
80	50	105	150	70	133	120	570	20	120	5	45	22.5	M12	90	74	44	6	40	15	7	
100	52	115	163	90	160	120	583	20	120	5	45	22.5	M12	90	74	44	6	40	25	17	
125	56	130	175	116	190	120	595	20	120	5	45	22.5	M12	90	74	44	6	40	35	27	
150	56	140	195	140	215	120	615	25	120	5	45	28	M12	90	78	50	8	40	40	39	
200	60	175	235	187	270	120	655	25	120	5	45	28	M12	90	78	50	8	40	71	60	
250	68	205	275	236	324	135	710	30	150	5	60	33	M12	120	92	58	8	50	94	78	
300	78	240	290	285	375	135	725	35	150	5	50	38	M12	120	100	64	10	50	113	99	
350	78	310	315	331	435	135	750	40	150	5	50	43	M12	120	108	70	12	50	135	123	
400	102	340	340	382	490	210	850	50	150	10	80	53.5	M12	120	124	82	14	50	150	135	
450	114	385	370	429	535	210	880	50	150	10	80	53.5	M12	120	124	82	14	50	168	152	
500	127	415	400	479	590	210	910	60	200	5	90	64	M16	160	147	96	18	60	187	171	
600	154	475	450	579	695	225	675	70	200	6	110	74.5	M16	160	112	112	20	60	219	212	

## Max. allowable pressure drops

Max. allowable pressure drops as below are valid at 20°C (68°F)

Nominal size DN	PN	Max. pressure drop, bar at opening angle			Torque min. at $\Delta p$		Torque min. at $\Delta p$		Torque max. shaft Nm
		0	60°	80°	bar	Nm	bar	Nm	
80	25	25	13	4.4	$\leq 10$	100	$> 10$	120	220
100	25	25	13	4.4	$\leq 10$	120	$> 10$	165	220
125	25	25	15	5.8	$\leq 10$	180	$> 10$	220	220
150	25	25	9	2.7	$\leq 10$	200	$> 10$	250	350
200	25	25	4.3	1.1	$\leq 10$	250	$> 10$	290	350
250	25	25	3.6	1.05	$\leq 10$	400	$> 10$	500	620
300	25	25	3.6	0.93	$\leq 10$	500	$> 10$	620	975
350	25	20	3.6	1.09	$\leq 8$	800	$> 8$	1000	1500
400	25	20	4.7	1.43	$\leq 8$	1000	$> 8$	1350	2800
450	25	16	3.4	0.95	$\leq 7$	1350	$> 7$	1900	2800
500	25	15	4.4	1.19	$\leq 6$	1900	$> 6$	2700	5000
600	25	10	3.9	1.13	$\leq 5$	2400	$> 5$	2900	8000



## Selection table, VSS

Valve DN	Shaft Ø (mm)	Pneumatic actuators						Manual operation	
		Double acting		Spring return				Hand lever	Gear unit
		5,5 bar	4 bar	Spring closes		Spring opens			
				5,5 bar	4 bar	5,5 bar	4 bar		
80	20	A13	A21	A23-SC	A23-SC	A23-SO	A23-SOL	HV41	M10/F07
100	20	A21	A22	A24-SC	A24-SC	A24-SO	A24-SOL	HV41	M10/F07
125	20	A22	A22	A24-SC	A24-SC	A24-SO	A24-SOL	HV41	M10/F07
150	25	A22	A22	A24-SC	A24-SC	A24-SO	A24-SOL		M10/F07
200	25	A22	A22	A24-SC	A24-SC	A24-SO	A24-SOL		M10/F07
250	30	A23	A31	A33-SC	A33-SC	A33-SO	A33-SOL		M12/F12
300	35	A31	A32	A33-SC	A33-SC	A33-SO	A33-SOL		M12/F12
350	40	A32	A32	A34-SC	A34-SC	A34-SO	A34-SOL		M12/F12
400	50	A32	A33	A43-SC	A43-SC	A43-SO	A43-SOL		M14/F14
450	50	A41	A34	A43-SC	A43-SC	A43-SO	A43-SOL		M14/F14
500	60	A41	A42	A44-SC	A44-SC	A44-SO	A44-SOL		M15/F16
600	70	A41	A42	A44-SC		A44-SO	A44-SOL		MFF/S3

## Further technical information

Technical data for the materials used in the SOMAS-valves, flange standard, steam data, etc. can be found in section 6 of the SOMAS catalogue.

## For ordering

State desired valve according to the valve specification system below as well as type of actuator, positioner and accessories.

## Valve specification system

**VSS LN - A 5 - A A C - B 7 1 - DN... - PN...**

1                      2    3                      4    5    6                      7    8    9                      10                      11

- |  |  |  |
|--|--|--|
| 1 Valve type<br>VSS LN (Low Noise)                                 | 5 Material – disc<br>A = SS 2343   | 8 Bearings – valve body/shaft<br>1 = Without bearing |
| 2 Valve body design<br>A = Wafer type<br>F = Lugs according to DIN | 6 Material - seat ring<br>A = PTFE (10% carbon) Option<br>C = SS 2377 (metal seat, 3 pcs.) | 7 = SS 2562 (904L)                                   |
| 3 Nominal pressure<br>4 = PN 20<br>5 = PN 25                       | 7 Material – shaft<br>A = EN 1.4460 (max. T=150°C)<br>B = EN 1.4460 hard chromed           | 9 Stuffing box<br>1 = Graphite<br>2 = PTFE           |
| 4 Material - valve body<br>A = SS 2343                             |  | 10 Valve dimension, DN                               |
|  |  | 11 Drilling, counter flanges, PN                     |

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



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