

Datasheet

Ball segment valve

Si-105 EN

Edition: 2010-04

Type KVT/KVX

Nominal pressure

Nominal size

Material

Wafer design

PN 100

DN 25/2 - 150

Stainless steel

- **Control- and shut-off valve**
- **High capacity**
- **Ball segment and shaft made in one piece, gives a torque transmission free of backlash**
- **Excellent tightness irrespective of differential pressure**

The SOMAS ball segment valve type KVT with a centrally mounted ball segment and KVX with an eccentrically mounted ball segment are of wafer design.

The valve body is made in one piece for sizes DN 25/5 up to DN 50, while DN 80 up to DN 150 has a split body design. Ball segment and shaft are made in one piece.

The spring-loaded seat offers excellent tightness also at low differential pressure.

The valves can be used for control, as well as for shut-off applications, of practically every type of media within a wide temperature range. Choose KVT for liquids, media containing impurities, sludge and chemicals. For dry media such as steam, gases and acids, choose KVX. In the KVX-valve the ball segment is eccentrically mounted and rotates out from the seat when the valve is opened. This reduce the wear on seat and segment.

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.





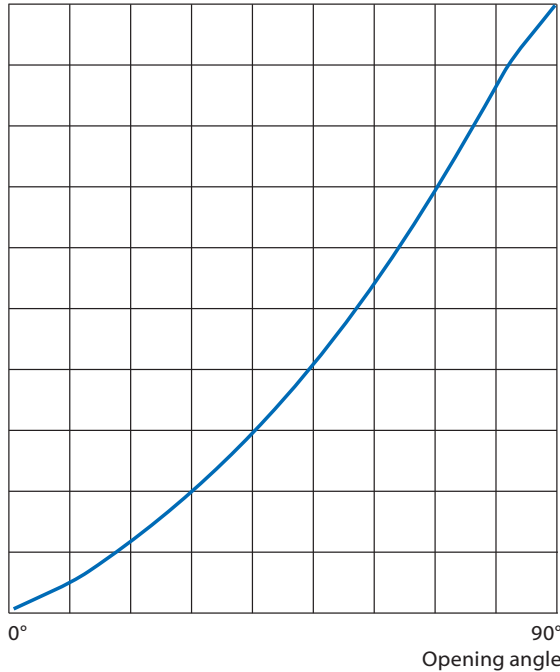
Tightness class

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

PEEK	Code S	IEC 534-4 VI (ASME B16-104 Class VI)
HiCo seat	Code T	IEC 534-4 IV alt. V (ASME B16-104 Class V)

Flow characteristics

100% Flow



Pressure and temperature rating

According to the material in the seat.

Seat Code	Max. working pressure ¹ (bar at °C)				
	150°	170°	200°	280°	>280°
S	80	65	30	–	–
T	80	75	70	65	Note 1

10 bar = 1 MPa

Note 1: Check with SOMAS

¹ **NB!** Do not exceed working pressure for the valve.

Flange standard

SOMAS ball segment valves type KVT and KVX in above mentioned sizes are flangeless and shall be clamped between flanges.

The valves can be drilled according to ASME.

When ordering, please state required drilling.

Torque

Valve DN	Shaft dia. (mm)	Necessary closing torque	
		Min. (Nm)	Max. (Nm)
25/2 - 25	20	60	200
40	20	100	200
50	20	130	200
80	25	250	370
100	30	370	640
150	40	850	1500

Capacity factor Kv and Resistance factor ξ for ball segment valve type KVT, PN 100

DN	Opening angle									
	10°	20°	30°	40°	50°	60°	70°	80°	90°	ξ 90°
25/5	0,07	0,16	0,28	0,4	0,5	0,59	0,66	0,72	0,75	–
25/10	0,2	0,7	1,15	1,55	2,1	2,5	2,85	3,15	3,3	–
25/15	0,6	1,5	2,6	3,8	5	6,2	7,2	8,8	12	–
25/20	1,1	2,7	4,7	7,1	9,5	12,3	15	18,1	20	–
25	1,7	4,3	7,5	11,3	15,4	20,4	25,7	32,8	38	0,43
40	4,3	11	19,1	29	39,3	52,5	65,7	83,8	96	0,44
50	6,8	17,2	29,8	45,3	61,4	81,6	102,7	131	150	0,44
80	12,3	32	55	84	113	151	190	242	279	0,84
100	20	50	86	131	177	235	296	378	434	0,84
150	49	125	217	331	448	597	750	957	1104	0,66

Marked values are only for HiCo seat. Relation between Kv and Cv: $K_v = 0.86 \times C_v$

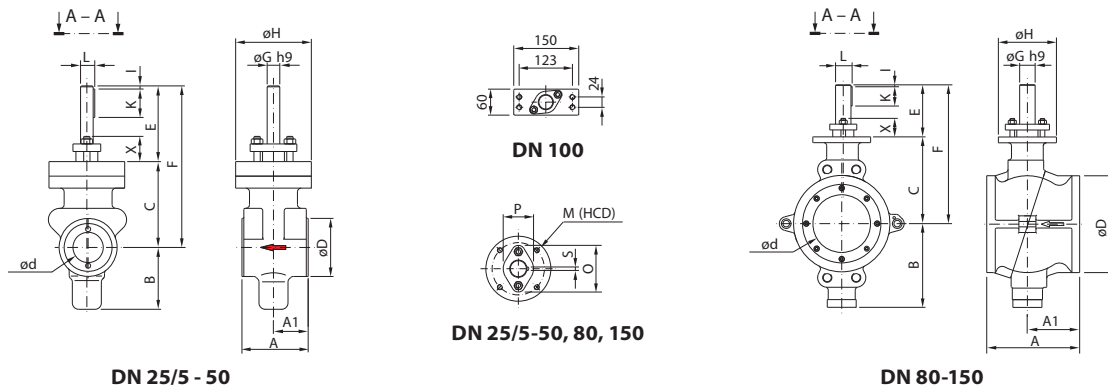
Capacity factor Kv and Resistance factor ξ for ball segment valve type KVX, PN 100

DN	Opening angle									
	10°	20°	30°	40°	50°	60°	70°	80°	90°	ξ 90°
<i>KVT is valid for 25/5 - 25/20</i>										
25	1,1	3,3	6,1	9,7	13,6	17,9	23,3	31	35	0,51
40	2,7	8,4	15,7	25	35	46	60	80	91	0,49
50	4	13	25	39	54	72	94	124	140	0,51
80	8,2	25	45	72	101	133	172	230	263	0,95
100	19	48	82	124	168	223	281	359	411	0,95
150	47	119	206	314	426	567	712	909	1047	0,86

Relation between Kv and Cv: $K_v = 0.86 \times C_v$

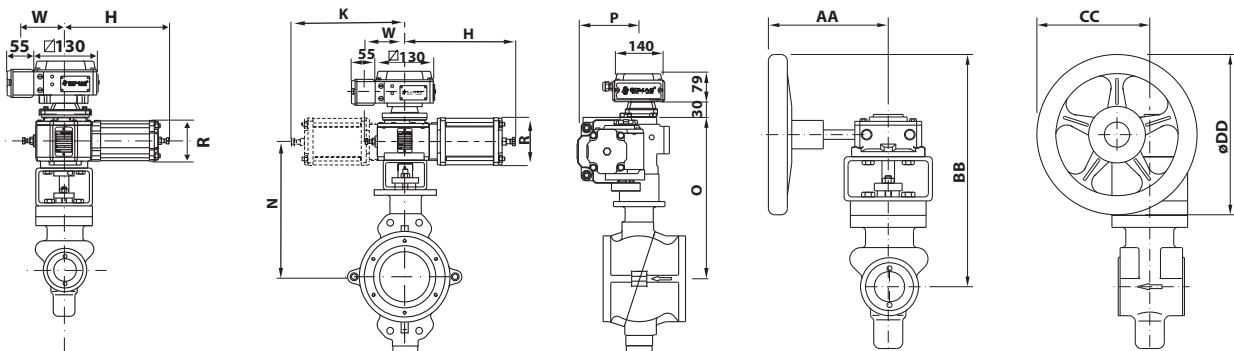


Wafer design



Ball segment valve type KVT/KVX, PN 100

DN	A	A1	B	C	ød	øD	E	F	øG	øH	I	K	L	M (HCD)	O	P	S	X	Weight	
25/5	85	45	80	115	5	70	120	235	20	120	5	45	22.5	M12	90	74	44	6	40	9
25/10	85	45	80	115	10	70	120	235	20	120	5	45	22.5	M12	90	74	44	6	40	9
25/15	85	45	80	115	15	70	120	235	20	120	5	45	22.5	M12	90	74	44	6	40	9
25/20	85	45	80	115	20	70	120	235	20	120	5	45	22.5	M12	90	74	44	6	40	9
25	85	45	80	115	25	70	120	235	20	120	5	45	22.5	M12	90	74	44	6	40	9
40	105	55	98	136	40	92	120	256	20	120	5	45	22.5	M12	90	74	44	6	40	11.5
50	120	62	104	150	48	105	120	270	20	135	5	45	22.5	M12	105	74	44	6	40	14.5
80	150	85	135	165	68	146	120	285	25	120	5	45	28	M12	90	78	50	8	40	18
100	160	90	144	175	94	172	135	310	30	-	5	60	33	M12	-	80	50	8	44	27
150	240	135	215	225	135	250	128	353	40	150	5	50	43	M12	120	108	70	12	48	68



Ball segment valve type KVT/KVX, PN 100 with actuator type A-DA

DN	Type	H	K	N	O	P	R	W	Weight
25	A13	250	-	230	280	83	106	90	15
40	A13	250	-	265	305	83	106	90	16
40	A21	255	-	280	345	94	106	140	19
50	A21	255	-	295	355	94	106	140	23
50	A22	255	260	295	355	94	106	-	25
80	A22	255	260	310	370	94	106	-	28
80	A23	305	-	310	370	117	152	140	30
100	A23	305	-	330	390	117	152	140	39
100	A31	380	-	370	455	144	152	215	51
150	A32	380	310	400	485	144	152	-	98

Actuator type A-SC/SO

DN	Type	H	K	N	O	P	R	W	Weight
25	A23-X	415	-	250	310	117	152	140	25
40	A23-X	415	-	280	341	117	152	140	27
50	A23-X	415	-	295	355	117	152	140	30
80	A24-X	415	420	310	370	117	152	-	43
100	A33-X	660	-	370	455	183	228	215	84
150	A34-X	665	680	400	485	183	228	-	153

X = SC - Spring to close

X = SO - Spring to open

For units with the positioner type SP405, add 2 kg

For units with the positioner type SPE405, add 3 kg

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For units with the positioner type SPE405, add 3 kg

Ball segment valve type KVT/KVX with hand gear

DN	Type	AA	BB	CC	øDD	Weight
25	M10/F10	210	340	190	255	18
40	M10/F10	210	370	190	255	21
50	M10/F10	210	385	190	255	24
80	M10/F10	255	400	230	255	27
100	M12/F12	255	440	230	305	41
150	M14/F14	255	535	230	355	107



Selection table

Valve DN	Shaft dia. (mm)	Pneumatic actuators						Manual override	
		Double acting		Spring return				Hand lever	Gear unit
		5.5 bar	4 bar	Spring to close		Spring to open			
5.5 bar	4 bar	5.5 bar	4 bar	5.5 bar	4 bar	5.5 bar	4 bar		
25/5 - 25	20	A13 - DA	A13 - DA	A23 - SC	A23 - SC	A23 - SC	A23 - SOL	-	M10/F07
40	20	A13 - DA	A21 - DA	A23 - SC	A23 - SC	A23 - SC	A23 - SOL	-	M10/F07
50	20	A21 - DA	A22 - DA	A23 - SC	A23 - SC	A23 - SC	A23 - SOL	-	M10/F07
80	25	A22 - DA	A23 - DA	A24 - SC	A24 - SC	A24 - SC	A24 - SOL	-	M10/F07
100	30	A23 - DA	A31 - DA	A33 - SC	A33 - SC	A33 - SC	A33 - SOL	-	M12/F12
150	40	A32 - DA	A32 - DA	A34 - SC	A34 - SC	A34 - SC	A34 - SOL	-	M14/F14

Valve sizing

Use SOMAS valve sizing program SOMSIZE to find the correct valve size. All sizing factors are included in the program.

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.

Check sections 4 and 5 of the SOMAS catalogue, where positioners, limit switches and solenoid valves are also presented.

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

Ordering

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

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.

Valve specification system

KVT - A 8 - A K S - B 7 1 - DN... - PN...

1 Type of valve

KVT (centrically mounted segment)
KVX (eccentrically mounted segment)

2 Valve body design

A = Wafer design

3 Nominal pressure

8 = PN 100

4 Material - valve body

A = CF8M (2343-12)

5 Material - ball segment

K = 2324-12, hard chromed
L = 2324-12, HiCo coated

6 Material - seat

S = PEEK
T = HiCo (High Cobalt alloy)

7 Material - shaft

B = 2324-12, hard chromed

8 Bearings - valve body/shaft

1 = Without bearing (DN 25 - 50)
7 = 1.4539 (DN 80 - 150)

9 Stuffing box

1 = Graphite
2 = PTFE

10 Valve size, DN**11 Drilling, counter flanges, PN/Class**

SOMAS reserves the right to make improvements without prior notice.



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