

Datasheet

Ball segment valve

KVMF-MC

Si-112MC EN

Edition: 2021-08

- Control valve
- High capacity
- One-piece shaft gives a torque transmission free of backlash
- Excellent tightness
- Easy maintenance



Type KVMF-MC
Nominal pressure
Nominal size

Flanged design, different inlet and outlet size
PN 25/Class 150
DN 80/100 -350/400 NPS 3/4-14/16



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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
Internet: www.somas.se



Product Information

The Somas ball segment valve type KVMF-MC is a flanged version with centrally mounted shaft.

Face to face dimensions in accordance with EN558:2008-series 36 and ANSI/ISA-75.08.02-2003.

Somas unique shaft device is designed for torque transmission and gives backlash-free operation with accurate control. The spring loaded seat is available in three different materials (PTFE, PTFE53 and HiCo).

The valves are basically used as control valves on medium consistency pulp. Typical installation after MC-pump.

Ball segment with V-groove to prevent dewatering at small opening angles.

The Somas valves are delivered ready for installation and operation.

The valves 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.

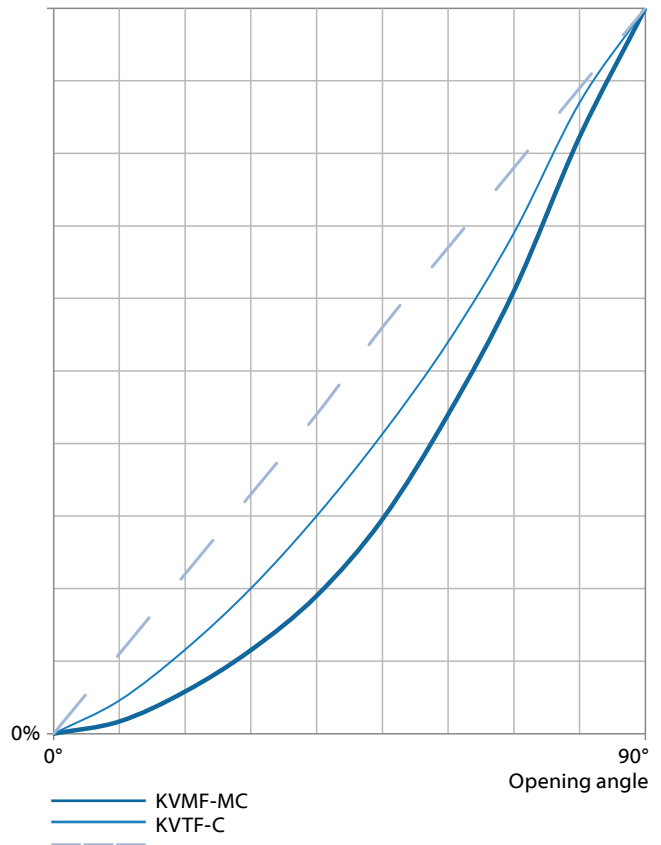
Standard leakage class	Optional leakage class
EN 60534-4	EN 60534-4
PTFE - Class V	PTFE - Class VI
PTFE 53/PEEK - Class V	HiCo - Class V
HiCo - Class IV-S1	
	EN 12266-1
	PTFE - Rate C
	PTFE - Rate D
	PTFE 53/PEEK - Rate D
	HiCo - Rate E
	HiCo - Rate F

Liquid pressure recovery factor FL

Factor	Opening angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
FL	0.85	0.82	0.80	0.77	0.74	0.71	0.67	0.64	0.60

Flow characteristics

100% Flow



Pressure and temperature rating

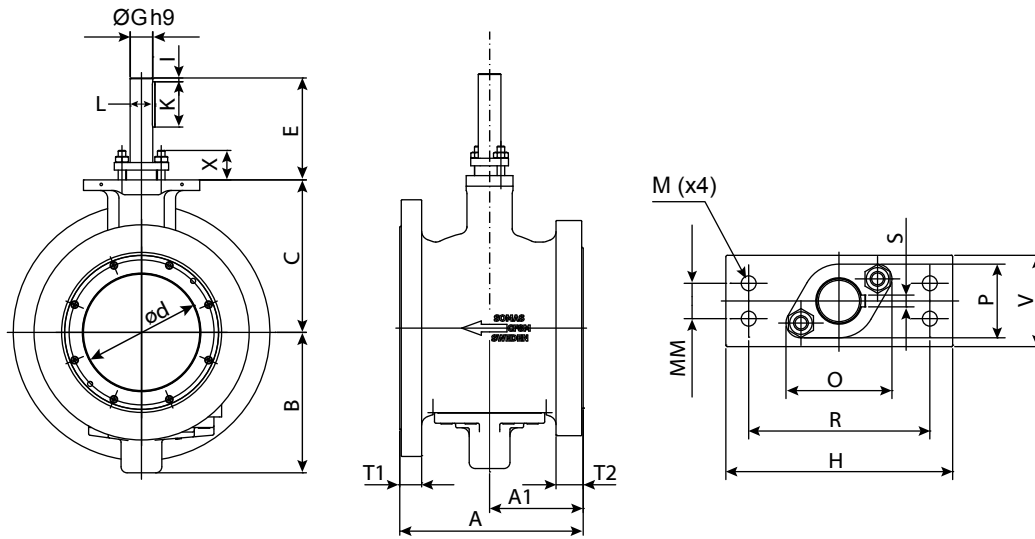
According to the material in the seat.

PN25	Seat Code	Max. working pressure (bar/psi) at temperature (°C/°F)											
		0 °C	32 °F	150 °C	300 °F	170 °C	340	200 °C	400 °F	350 °C	660 °F	> 350 °C	> 660 °F
	A (PTFE)	25 bar	363 psi	22,7 bar	329 psi	22 bar	319 psi	-	-	-	-	-	-
	B (PTFE53)	25 bar	363 psi	22,7 bar	329 psi	22 bar	319 psi	12,6 bar	183 psi	-	-	-	Contact Somas
	T (HiCo Gr 6)	25 bar	363 psi	22,7 bar	329 psi	22 bar	319 psi	21 bar	305 psi	10,65 bar	154 psi	-	Contact Somas

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



Flanged design



Ball segment valve type KVMF-MC

DN	DN _{IN}	DN _{OUT}	A	A1	B	C	Ød _{IN}	Ød _{OUT}	E	ØG	H	I	K	L	M	MM	O	P	R	S	T1	T2	V	X	Weight
80/100	On request																								
100/150	100	150	229	118	157	176	93	150	115	25	125	5	45	28	M12	-	66	47	98	8	28	36	50	30	51
150/200	150	200	243	124	186	202	157	200	135	30	155	5	60	33	M12	24	77	50	123	8	29	36	62	35	75
200/250	200	250	297	153	228	242	190	250	135	35	155	5	50	33	M12	24	85	55	123	10	32	38	62	50	109
250/300	250	300	338	176	281	297	233	300	155	40	170	5	50	43	M12	40	94	47	123	12	34	45	85	50	161
300/350	300	350	400	207	340	353	282	350	200	50	180	5	80	54	M16	55	105	85	136	14	38	49	96	50	244
350/400	350	400	400	237	385	393	326	400	210	60	225	5	90	64	M20	70	115	105	150	18	45	55.5	128	60	340

Sizes and measurements in millimeters (mm). Weights in kilograms (kg).

Ball segment valve type KVMF-MC

NPS	NPS _{IN}	NPS _{OUT}	A	A1	B	C	Ød _{IN}	Ød _{OUT}	E	ØG	H	I	K	L	M	MM	O	P	R	S	T1	T2	V	X	Weight
4/6	4	6	90.2	4.65	6.18	6.9	3.66	5.91	4.53	0.98	4.92	0.2	1.77	1.1	M12	-	2.6	1.85	3.86	0.31	1.1	1.42	1.97	1.18	112
6/8	6	8	9.57	4.88	7.32	8	6.18	7.87	5.31	1.18	6.1	0.2	2.36	1.3	M12	0.94	3.03	1.97	4.84	0.31	1.14	1.42	2.44	1.38	165
8/10	8	10	11.7	6.02	8.98	9.5	7.48	9.84	5.31	1.38	6.1	0.2	1.97	1.3	M12	0.94	3.35	2.17	4.84	0.39	1.26	1.5	2.44	1.97	240
10/12	10	12	13.3	6.93	11.1	12	9.17	11.8	6.1	1.57	6.69	0.2	1.97	1.69	M12	1.57	3.7	1.85	4.84	0.47	1.34	1.77	3.35	1.97	355
12/14	12	14	15.7	8.15	13.4	14	11.1	13.8	7.87	1.97	7.09	0.2	3.15	2.13	M16	2.17	4.13	3.35	5.35	0.55	1.5	1.93	3.78	1.97	538
14/16	14	16	15.7	9.33	15.2	15	12.8	15.7	8.27	2.36	8.86	0.2	3.54	2.52	M20	2.76	4.53	4.13	5.91	0.71	1.77	2.19	5.04	2.36	750

Sizes and measurements in inches (in). Weights in pounds (lb).

Flange standard

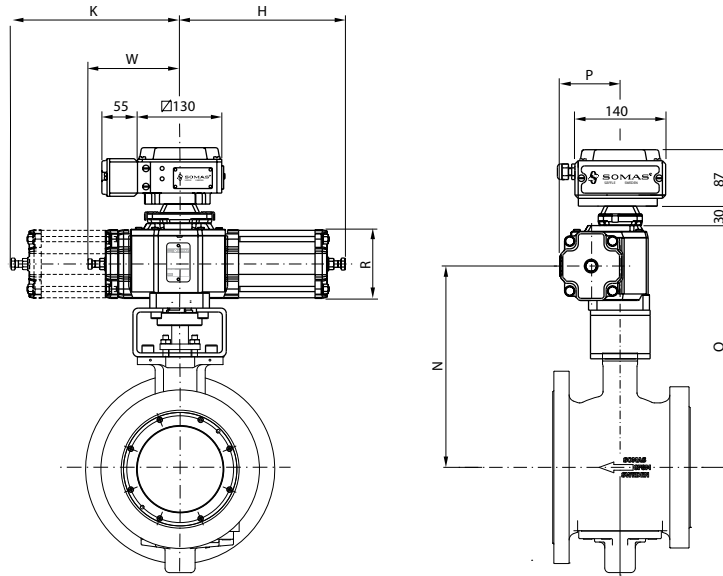
Somas ball segment valves type KVMF-MC are flanged and can be drilled according to PN10/16/20/25 ASME Cl 150. When ordering, please state the pressure rating of the counter flanges. See the valve specification system, code 13.

Face to face dimension

Flanged type of valves according to EN 558, Series 36 or ANSI/ISA-75.08.02-2003.. For details see the various tables.



Flanged design



Ball segment valve type KVMF-MC with actuator type A-DA

DN	Type	H	K	N	O	P	R	W	Weight
100/150	A22-DA	255	260	320	380	94	106	-	62
100/150	A23-DA	325	-	320	380	117	152	140	67
150/200	A31-DA	380	-	350	415	144	152	215	101
200/250	A31-DA	380	-	420	480	144	152	215	135
200/250	A32-DA	380	395	415	475	144	152	-	141
250/300	A32-DA	380	395	455	520	144	152	-	192
300/350	A41-DA	550	-	595	750	211	228	315	320
350/400	A41-DA	550	-	635	790	211	228	315	426
350/400	A42-DA	545	560	635	790	211	228	-	435

For units with the positioner type SP405, add 2 kg
 For units with the positioner type SPE405, add 3 kg

**Sizes and measurements in millimeters (mm).
 Weights in kilograms (kg).**

Ball segment valve type KVMF-MC with actuator type A-DA

NPS	Type	H	K	N	O	P	R	W	Weight
4/6	A22-DA	10.04	10.24	12.60	14.96	3.70	4.17	-	137
4/6	A23-DA	12.80	-	12.60	14.96	4.61	5.98	5.51	148
6/8	A31-DA	14.96	-	13.78	16.34	5.67	5.98	8.46	223
8/10	A31-DA	14.96	-	16.54	18.90	5.67	5.98	8.46	298
8/10	A32-DA	14.96	15.55	16.34	18.70	5.67	5.98	-	311
10/12	A32-DA	14.96	15.55	17.91	20.47	5.67	5.98	-	423
12/14	A41-DA	21.65	-	23.43	29.53	8.31	8.98	12.40	705
12/14	A42-DA	21.65	-	25.00	31.10	8.31	8.98	12.40	939
14/16	A42-DA	21.46	22.05	25.00	31.10	8.31	8.98	-	960

For units with the positioner type SP405, add 4.4 lb
 For units with the positioner type SPE405, add 6.6 lb

Sizes and measurements in inches (in). Weights in pounds (lb).

Ball segment valve type KVMF-MC with actuator type A-SC/SO

DN	Type	H	K	N	O	P	R	W	Weight
100/150	A24-SX	415	310	320	380	117	152	-	77
150/200	A33-SX	660	-	350	415	183	228	215	134
200/250	A33-SX	660	-	420	480	183	228	215	169
250/300	A34-SX	665	680	455	515	183	228	-	217
300/350	A43-SX	920	-	595	750	279	354	315	409
350/400	A43-SX	920	-	635	790	279	354	315	506
350/400	A44-SO	925	935	635	790	279	354	-	560

X = SC – Spring to close
 X = SO – Spring to open

**Sizes and measurements in millimeters (mm).
 Weights in kilograms (kg).**

Ball segment valve type KVMF-MC with actuator type A-SC/SO

NPS	Type	H	K	N	O	P	R	W	Weight
4/6	A24-SX	16.34	12.20	12.60	14.96	4.61	5.98	-	170
6/8	A33-SX	25.98	-	13.78	16.34	7.20	8.98	8.46	295
8/10	A33-SX	25.98	-	16.54	18.90	7.20	8.98	8.46	373
10/12	A34-SX	26.18	26.77	17.91	20.28	7.20	8.98	-	478
12/14	A43-SX	36.22	-	23.43	29.53	10.98	13.94	12.40	902
14/16	A43-SX	36.22	-	25.00	31.10	10.98	13.94	12.40	1115
14/16	A44-SO	36.41	36.81	25.00	31.10	10.98	13.94	-	1235

X = SC – Spring to close
 X = SO – Spring to open

Sizes and measurements in inches (in). Weights in pounds (lb).



Torque KVMF-MC

Valve DN	Shaft dia. (mm)	Necessary closing torque	
		Min. (Nm)	Max. (Nm)
100/150	25	250	370
150/200	30	400	640
200/250	35	600	1000
250/300	40	800	1500
300/350	50	1400	2800
350/400	60	2000	5000

Sizes and measurements in millimeters (mm).

Torque KVMF-MC

Valve NPS	Shaft dia. (in)	Necessary closing torque	
		Min. (lbf-in)	Max. (lbf-in)
4/6	0.98	2213	3275
6/8	1.18	3540	5664
8/10	1.38	5310	8851
10/12	1.57	7081	13276
12/14	1.97	12391	24782
14/16	2.36	17702	44254

Sizes and measurements in inches (in).
Torque in pounds (lbf-in).

Capacity factor Kv and Resistance factor ζ for ball segment valve type KVMF-MC

DN	Opening angle									
	10°	20°	30°	40°	50°	60°	70°	80°	90°	ζ 90°
100/150	16	50	112	196	296	425	574	752	900	0.20
150/200	23	84	156	285	404	616	845	1154	1410	0.40
200/250	35	127	237	432	613	933	1281	1750	2143	0.55
250/300	54	196	367	669	949	1444	1983	2708	3321	0.56
300/350	77	277	520	948	1345	2047	2807	3837	4703	0.58
350/400	108	392	735	1337	1900	2890	3967	5417	6636	0.54

Relation between Kv and Cv: $Cv = 1,156 \times Kv$
Sizes in millimeters (mm).

Capacity factor Cv and Resistance factor ζ for ball segment valve type KVMF-MC

NPS	Opening angle									
	10°	20°	30°	40°	50°	60°	70°	80°	90°	ζ 90°
4/6	19	58	130	228	344	494	667	874	1047	0.00
6/8	27	98	181	331	470	716	983	1342	1640	0.00
8/10	41	148	276	502	713	1085	1490	2035	2492	0.00
10/12	63	228	427	778	1103	1679	2306	3149	3862	0.00
12/14	90	322	605	1102	1564	2380	3264	4462	5469	0.00
14/16	126	456	855	1555	2209	3360	4613	6299	7716	0.00

Relation between Kv and Cv: $Kv = 0.86 \times Cv$
Sizes in inches (in).



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.

Actuators and accessories

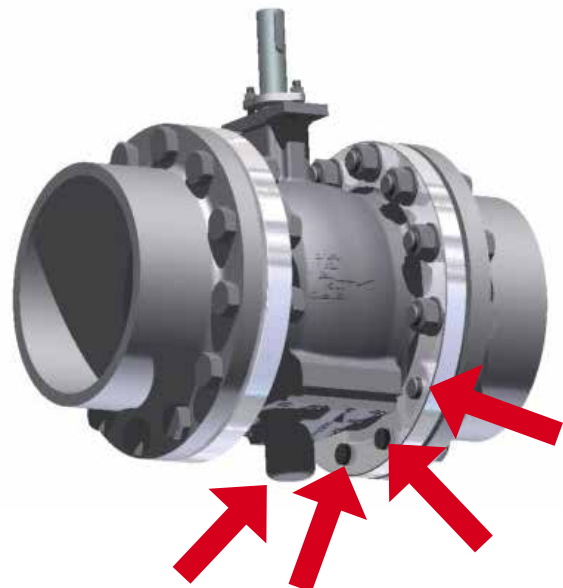
The valves can be fitted with Somas manual, on/off or control actuators in accordance with the selection table. The valves will then be delivered as tested units ready for installation.

In the documents library on www.somas.se 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.

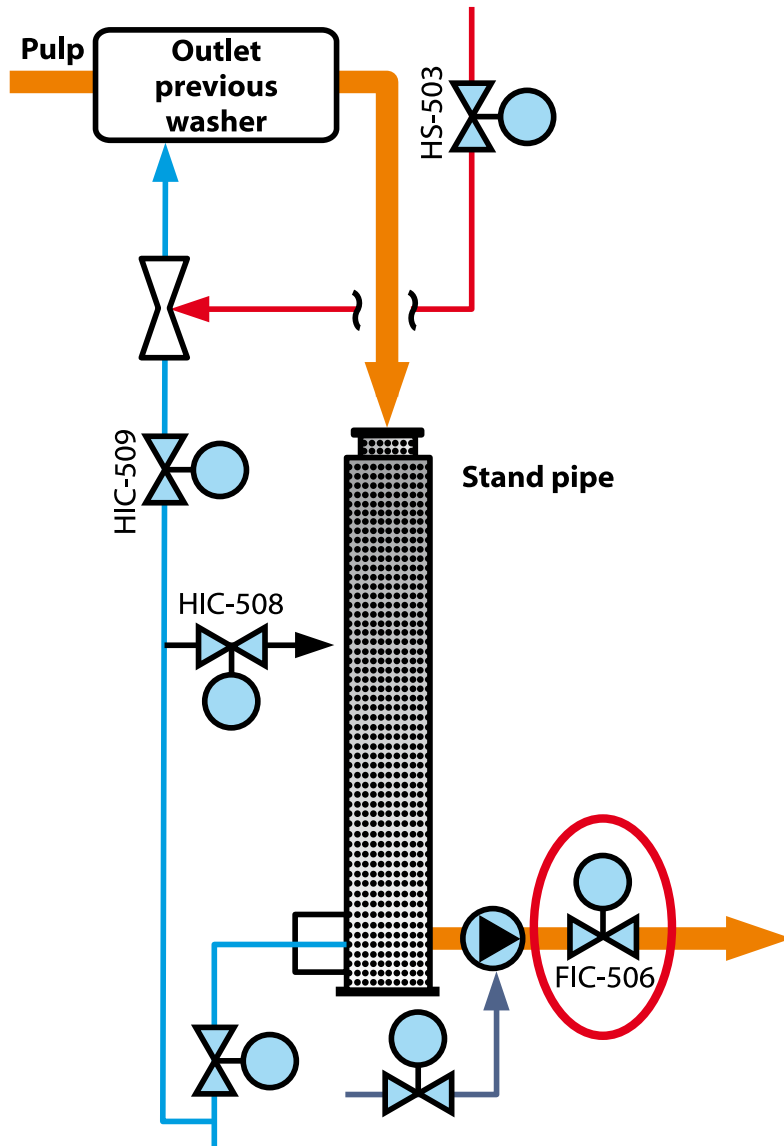
DN	PN10				PN16				PN25				ASME CI150			
	Inlet		Outlet		Inlet		Outlet		Inlet		Outlet		Inlet		Outlet	
	Total	Threaded	Total	Threaded	Total	Threaded	Total	Threaded	Total	Threaded	Total	Threaded	Total	Threaded	Total	Threaded
100/150									8	8 X M20	8	2 X M24	8	8 X 5/8"	8	2 X 3/4"
150/200	8	8 X M20	8	4 X M20	8	8 X M20	12	4 X M20	8	8 X M24	12	4 X M24	8	8 X 3/4"	8	2 X 3/4"
200/250	8	8 X M20	12	4 X M20	12	12 X M20	12	4 X M24	12	12 X M24	12	4 X M27	8	8 X 3/4"	12	4 X 7/8"
250/300	12	12 X M20	12	4 X M20	12	12 X M24	12	4 X M24	12	12 X M27	16	4 X M27	12	12 X 7/8"	12	4 X 7/8"
300/350	12	12 X M20	16	4 X M20	12	12 X M24	16	4 X M24	16	16 X M27	16	4 X M30	12	12 X 7/8"	12	4 X 1"
350/400									16	16 X M30	16	16 X M33				

The KVMF-MC valve has some of the holes in the flanges threaded. On the inlet side all the flanges holes are threaded. For the outlet from valves Size DN100 to DN350 2 alternatively 4 of the holes at the bottom of the valve is threaded. On the DN400 all the holes of the outlet flange is threaded. The table above describes for each valve size and for each flange rating the number of threaded holes and the thread.





The valves are basically used as control valves on medium consistency pulp. Typical installation after MC-pump.





Selection table

Valve DN	Shaft (ØG) dia. (mm)	Pneumatic actuators					
		Double acting		Spring return			
		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
100/150	25	A22	A23	A24-SC	A24-SC	A24-SO	A24-SOL
150/200	30	A31	A31	A33-SC	A33-SC	A33-SO	A33-SOL
200/250	35	A31	A32	A33-SC	A33-SC	A33-SO	A33-SOL
250/300	40	A32	A32	A34-SC	A34-SC	A34-SO	A34-SOL
300/350	50	A41	A41	A43-SC	A43-SC	A43-SO	A43-SOL
350/400	60	A41	A42	A43-SC	A43-SC	A44-SO	A44-SOL



Ordering

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

Valve specification system

KVMF-MC - C 5 - A J B - B 1 1 - DN... - D... - B... - PN...

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

1 Type of valve

Flanged design
KVMF (ball segment with V-groove)

5 Material – ball segment

J = 1.4460 alt. SS2324-12
K = 1.4460 alt. SS2324-12
hard chromed
U = Titan Gr C-2 / Gr 2

8 Bearings – valve body/shaft

1 = Without bearing
4 = PTFE (Rulon)
6 = N06625 (High Nickel Alloy)
7 = 1.4462

2 Valve body design

C = Flanged design
(short face to face)

6 Material – seat

A = PTFE (10 % carbon,
percentage by weight)
B = PTFE 53 (50% PTFE + 50%
1.4435 powder
(percentage by weight)
T = HiCo Gr 6 alt. 1.4404,
HiCo Gr 6 alt. Gr 21 coated

9 Stuffing box

1 = Graphite
2 = PTFE

3 Nominal pressure

5 = PN 25/Class 150

7 Material – shaft

A = 1.4460/SS 2324-12
B = 1.4460/SS 2324-12,
hard chromed

10 Valve size, DN

11 Shaft diameter

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

Contact Somas for any other material choices

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

www.somas.se

