

**Stafsjö**  
SINCE 1666

**MV**



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All specifications are subject to change without notice.*

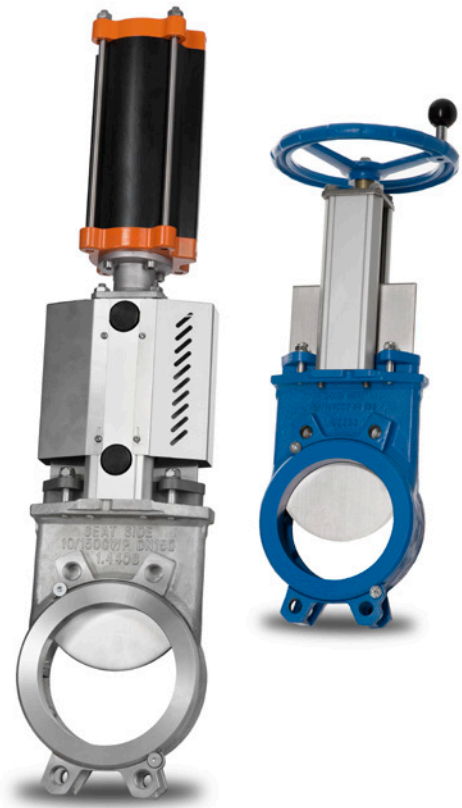
**First in knife gate solutions**

## Knife gate valve MV

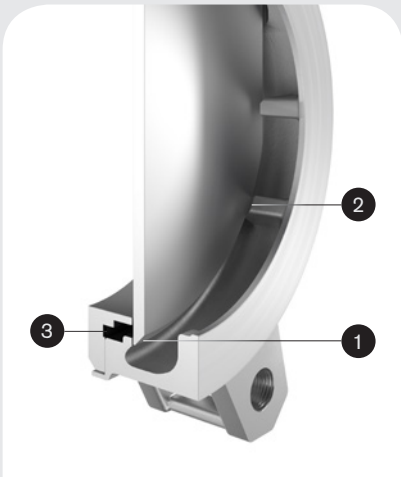
Stafsjö's knife gate valve MV can be used within a wide range of applications on both dry and wet media such as pulp stock up to 7% concentrations, sludge, slurry, bio-mass, water, ash, granulate and different kinds of waste.

The MV valve is modular designed and it can easily be customized in materials, with actuators and related automation accessories to different process conditions. As standard it is available in a stainless steel or a ductile iron version, but it can also be supplied in a range of high alloy materials such as Duplex and 254 SMO. Stafsjö's retainer ring system offers great flexibility and several seat material options. Up to 32" the MV has a one piece valve body and from 36" it features a rigid two piece version.

Stafsjö's gland box system with TwinPack braids ensures that no media reaches the surrounding environment. It can also be reinforced with a box bottom scraper or with a double gland for the most demanding applications.

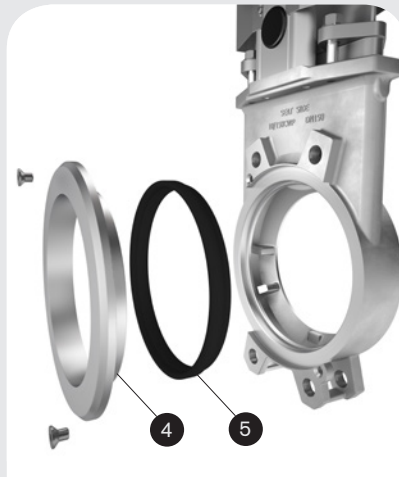


## Product features



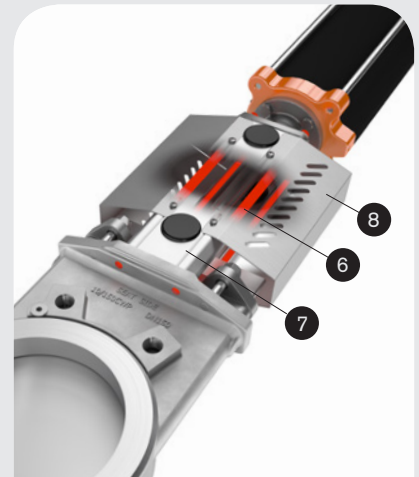
### Reliable and tight shut-off

Ideal internal clearances lowers the friction and make it easy for the beveled edge gate (1) to cut through both fluids and dry media. When the gate reaches its final stage of closure it stops on the cast and precision machined body cams (2). The gate is pushed against the seat (3) and provide a uni-directional tight shut-off. Several smaller valve sizes are also capable of sealing to some reverse flow as standard due to the machined body cams.



### The retainer ring system makes it easy to process customize MV

The retainer ring (4) hold the seat (5) in exact correct position as the gate strokes. It is mechanically locked and it can easily be removed for seat change. Both the retainer ring and seat is available in several different materials which makes it easy to customize MV to different process conditions.



### High strength top works

Smooth cycling and a tight shut-off independent of valve position is achieved by the high strength top works that provide an essential alignment for the gate. It utilizes stainless steel tie rods (6) encapsulated inside the structural beams (7). Stafsjö assemble stainless steel gate guards (8) as standard on all automated valves.

## Pressure class

Max working pressure at 68 °F		Max differential pressure at 68 °F		Max differential pressure in reverse pressure direction at 68 °F		
Size	psi/bar	Size	psi/bar	Size	psi/bar	psi/bar
2" - 5"	240/16	2" - 5"	240/16	2" - 8"	50/3,5 <sup>2</sup>	50/3,5 <sup>2</sup>
6" - 12"	150/10	6" - 12"	150/10	10"	45/3,0 <sup>2</sup>	45/3,0 <sup>3</sup>
14" - 24"	90/6	14" - 24"	90/6	12" - 18"	On request	45/3,0 <sup>3</sup>
28" - 64"	60/4 <sup>1</sup>	28" - 40"	60/4 <sup>1</sup>	20" - 64"	On request	-
		48" - 64"	30/2 or 60/4			

## MV configurations

Standard in stainless steel	Standard in nodular iron
<p>Sizes: 2" - 64"</p> <p>Valve body: Stainless steel EN 1.4408</p> <p>Retainer ring: Stainless steel EN 1.4408</p> <p>Gate: Stainless steel EN 1.4404, AISI 316L</p> <p>Box packing: TwinPack</p> <p>Top works: Stainless steel tie rods encapsulated in aluminum beams up to 40" and stainless steel beams on larger ones including stainless steel gate guards on automated valves</p> <p>Seat, actuator, flange drilling and accessories available from options below</p>	<p>Sizes: 2" - 32"</p> <p>Valve body: Ductile iron EN 5.3105, EN-JS1050, GGG50</p> <p>Retainer ring: Ductile iron EN 5.3105, EN-JS1050, GGG50</p> <p>Gate: Stainless steel EN 1.4301, AISI 304</p> <p>Box packing: TwinPack</p> <p>Top works: Stainless steel tie rods encapsulated in aluminum beams including stainless steel gate guards on automated valve</p> <p>Seat, actuator, flange drilling and accessories available from options below</p>
Options	
<p><b>Valve body</b></p> <p>Stainless steel EN 1.4408 (Max +752 °F)</p> <p>Ductile iron EN 5.3105 (Max +662 °F), EN-JS1050, GGG50 (Max +392 °F)</p> <p>Duplex stainless steel EN 1.4470 (Max +482 °F)</p> <p>254 SMO Stainless steel (Max +750 °F)</p> <p><b>Retainer rings</b></p> <p>Stainless steel EN 1.4408</p> <p>Ductile iron EN 5.3105, EN-JS1050, GGG50</p> <p>Duplex stainless steel EN 1.4470</p> <p>254 SMO stainless steel</p> <p>Polyurethane</p> <p><b>Gate material and surface treatments</b></p> <p>Stainless steel EN 1.4301, AISI 304</p> <p>Stainless steel EN 1.4404, AISI 316L</p> <p>Duplex stainless steel EN 1.4462, S32205</p> <p>254 SMO stainless steel</p> <p>Hard chromed surface</p> <p>Extra polished surface (max Ra 0,8)</p> <p><b>Seats</b></p> <p>PTFE with o-ring in Nitrile, EPDM or FKM</p> <p>FDA/EC 1935/2004 approved PTFE</p> <p>EPDM, Nitrile, FKM or Polyurethane</p> <p>Stainless steel metal seat with grafoil tape or o-rings in Nitrile, EPDM or FKM</p> <p><b>Box packings</b></p> <p>TwinPack, WhitePack, FDA/EC 1935/2004 approved PTFE or Graphite</p> <p>Extra scrapers in UHMW-PE, PTFE or brass</p>	<p><b>Top works</b></p> <p>Stainless steel tie rods encapsulated in aluminum beams</p> <p>Stainless steel pillars<sup>4</sup>) or beams</p> <p><b>Actuators</b></p> <p>Hand wheel with non-rising stem</p> <p>Chain wheel</p> <p>Hand lever</p> <p>Ratchet wrench</p> <p>Bevel gear</p> <p>Double-acting pneumatic cylinders</p> <p>Single-acting pneumatic cylinders</p> <p>Electric actuators</p> <p>Hydraulic actuator</p> <p><b>Flange drillings</b></p> <p>EN 1092 PN 10</p> <p>EN 1092 PN 16</p> <p>ASME/ANSI B16.5 Class 150 and B16.47 Class 150, series A</p> <p>JIS B 2238 10K</p> <p>AS 2129 Table D and E</p> <p>BS 10 Table D</p> <p><b>Accessories</b></p> <p>Limit switches, solenoid valves, positioners, mechanical lockouts, purge ports, deflection cone, V-port, double gland, reverse flow kits, stem extensions etc. See our accessory data sheet for further information.</p>

1) MV-E 32" is also available in a 150 psi version. Contact Stafsjö for further information.

2) Only with seat material in EPDM, Nitrile or FKM

3) Only with nodular iron valve body and seat material in EPDM, Nitrile or FKM

4) Standard on valves supplied with valve body in Duplex or 254 SMO

## Design standards

### Face-to-face dimensions

Stafsjö manufacturing standard. Option in MSS-SP81.

### Design, manufacturing, inspection and test

According to pressure equipment directive 2014/68/EU category I and II module A2. The valves are CE marked when it is applicable.

Stafsjö's valves are subject for pressure tests before delivery in opened and closed position with water at 68 °F according to EN 12266-1:2009 rate A. No visually detectable leakage is allowed for duration of the test. Rate A is not applicable on metal seated valves.

On request 2.2 test report and 3.1 inspection certificate.

### Corrosion protection

Non-corrosive resistant materials are coated in colour RAL5015 as standard to fulfill the requirements in EN ISO 12944 class C3. Optional coatings include EN ISO 12944 class C4 or C5.

### ATEX designs

On request directive 2014/34/EU Group II category:

3 G/D (zone 2 or 22)

2 G/D (zone 1 or 21)

1 D (Zone 20)

## Seat service temperatures

Nitrile: -13 °F - +212 °F

EPDM: -13 °F - +248 °F

FKM: + 5 °F - +356 °F

Polyurethane: -13 °F - +194 °F

PTFE with o-ring Nitrile: -13 °F - +212 °F

PTFE with o-ring EPDM: -13 °F - +248 °F

PTFE with o-ring FKM: + 5 °F - +356 °F

## Box packing service temperatures

TwinPack: -76 °F - +500 °F

WhitePack: -76 °F - +500 °F

PTFE: -328 °F - +536 °F

Graphite: -328 °F - +1112 °F

### Additional scrapers in the gland box

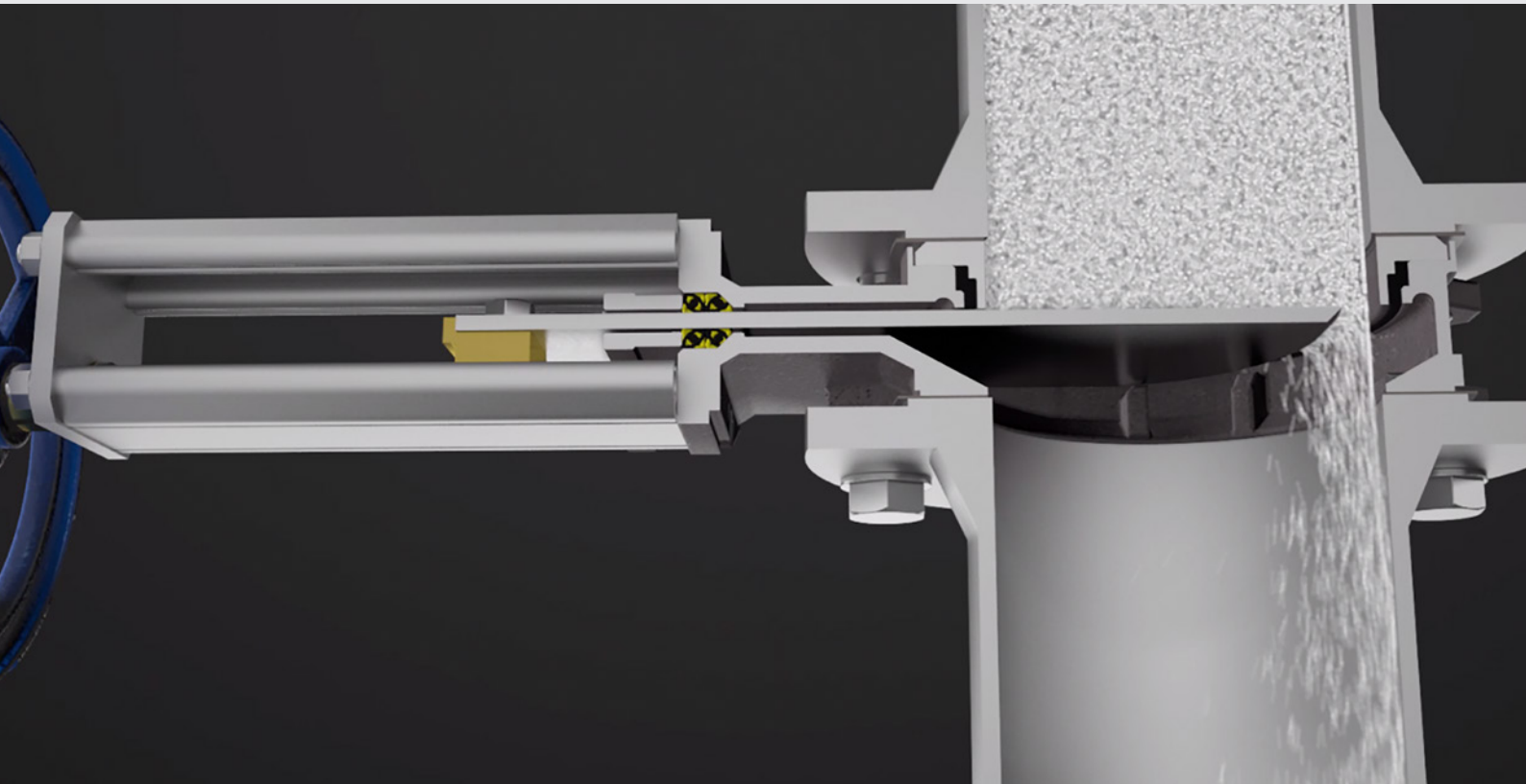
UHMW-PE: -328 °F - +185 °F

PTFE: -112 °F - +500 °F

Brass: -193 °F - +392 °F

*Media type, pressure and operating intervals may also affect the seat and box packing material in different ways. Contact Stafsjö for advice.*

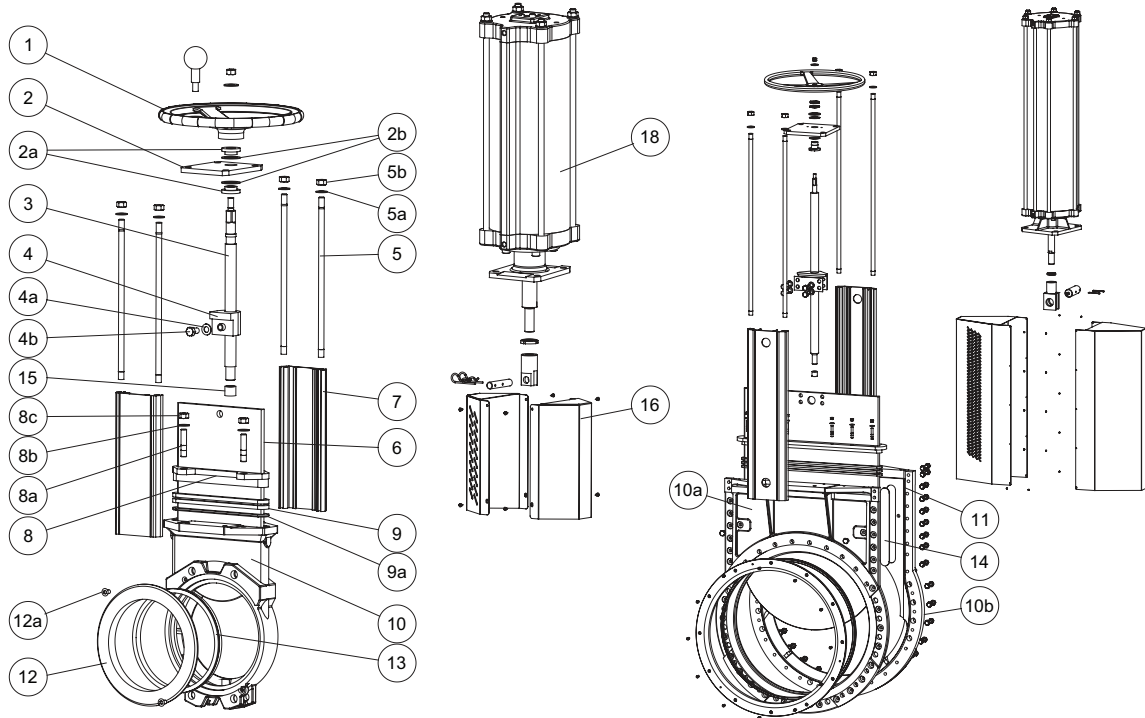
## Recommendations for MV in vertical flows



In some vertical flow applications with dry or abrasive media it is recommended to install the MV with the seat side on the inlet side to reduce seat wear and to improve flow characteristics. Do not exceed reverse flow pressure class of the valve available on p. 3. Larger stainless steel MV valves can on request also be reinforced with extra reverse flow kits to support the gate if it is installed in vertical flows or if it is subject to back pressure drops. Contact Stafsjö for advice and further information.

One piece valve body: 2" - 32"

Two piece valve body: 36" - 64"



## Part list

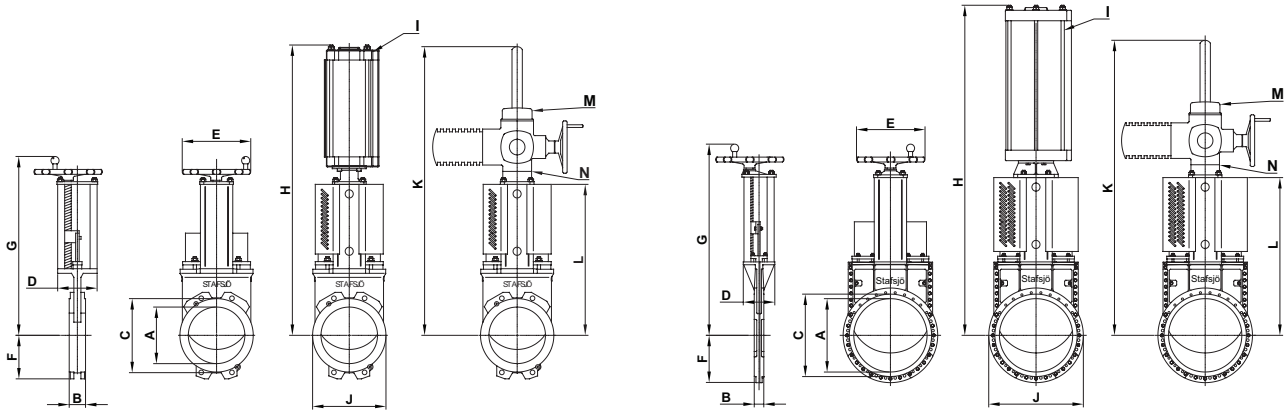
Pos.	Part	Material
1	Hand wheel	Coated cast iron Ø 8" - Ø 12" EN-JL1040, GG25, ≥ Ø 16" EN-JL1030, GG20
2	Yoke	Stainless steel EN 1.4301
2a	Bearing	Brass CuZn39Pb3
2b	Slide washer	POM
3	Stem	Stainless steel EN 1.4016 alt. EN 1.4305
4	Stem nut	Brass CW603N alt. CW614N
4a	Washer	Stainless steel A2
4b	Screw	Stainless steel A2
5	Tie rod	Stainless steel EN 1.4301
5a	Washer	Stainless steel A2
5b	Nut	Stainless steel A2
6	Gate	See options on page 3
7	Beam	Aluminium EN AW-6063-T6

1) Recommended spare part

Pos.	Part	Material
8	Gland	Stainless steel EN 1.4408 Coated nodular iron EN-JS1050, GGG50, GGG50 on MV-L ≤ DN 12"
8a	Stud bolt	Stainless steel A2, zinc coated
8b	Washer	Stainless steel A2
8c	Nut	Stainless steel A2, zinc coated
9 <sup>1)</sup>	Box packing	See options on page 3
9a <sup>1)</sup>	Box bottom scraper	20" - 32" HD-polyethylene
10/a/b	Valve body	See options on page 3
11	Body gasket	PTFE
12	Retainer ring	See options on page 3
12a	Locking screw	Stainless steel A2
13 <sup>1)</sup>	Seat	See options on page 3
14	Guiding pads	PTFE
15	Bushing	Oil-bronze
16	Gate guards	Stainless steel EN 1.4301
18	Pneumatic cylinder	See separate data sheet

One piece valve body: 2" - 32"

Two piece valve body: 36" - 64"



## Main dimensions (inch)

DN	A	B	C	D	E	F	G	H	I <sup>1)</sup>	J	K	L	M <sup>2)</sup>	N <sup>3)</sup>	W <sup>4)</sup>
2	2.05	1.61	3.58	3.15	7.87	2.20	14.17	20.83	SC4.00	4.57	24.80	9.06	SA07.2	F10 A	15
2.5	2.52	1.61	4.21	3.15	7.87	2.56	14.96	21.61	SC4.00	5.12	25.59	9.84	SA07.2	F10 A	15
3	3.11	2.01	4.88	3.15	7.87	3.46	15.94	22.60	SC4.00	5.31	26.57	10.83	SA07.2	F10 A	18
4	4.06	2.01	6.06	3.15	7.87	4.02	17.83	24.49	SC4.00	6.10	28.46	12.72	SA07.2	F10 A	22
5	5.04	2.20	7.05	3.15	9.84	4.57	19.49	28.11	SC4.00	7.01	30.12	14.37	SA07.2	F10 A	29
6	6.02	2.36	8.03	3.15	9.84	5.12	21.65	30.28	SC4.00	8.07	32.28	16.54	SA07.2	F10 A	33
8	7.95	2.36	10.51	5.71	12.40	6.30	27.32	39.72	SC6.30	10.55	43.90	21.85	SA07.6	F10 A	68
10	9.84	2.72	12.60	5.71	12.40	7.56	30.67	47.20	SC6.30	12.60	49.21	25.20	SA07.6	F10 A	88
12	11.89	3.07	14.72	5.71	12.40	9.06	34.61	51.14	SC6.30	14.76	55.12	29.13	SA10.2	F10 A	121
14	13.07	3.07	16.50	6.89	15.75	8.27	39.09	61.50	SC8.00	16.54	61.02	32.28	SA10.2	F10 A	198
16	14.96	3.50	18.86	6.89	15.75	9.65	42.64	65.04	SC8.00	19.29	66.54	35.83	SA10.2	F10 A	265
18	16.85	3.50	21.06	7.87	20.47	11.02	46.46	68.98	SC8.00	22.05	71.65	38.98	SA10.2	F10 A	397
20	18.50	4.49	22.83	9.84	20.47	12.40	52.48	79.02	SC8.00	24.61	79.84	45.08	SA10.2	F10 A	540
24	22.05	4.49	26.77	10.24	25.00	14.57	61.34	92.91	SC10.00	29.13	92.83	53.94	SA10.2	F10 A	750
26	26.18	4.65	31.50	12.20	25.00	15.75	68.90	106.97	SC10.00	34.06	104.33	61.61	SA14.2	F14 A	1014
28	27.95	4.65	33.86	12.01	25.00	16.93	74.02	109.88	SC12.60	36.61	109.72	64.37	SA14.2	F14 A	1124
32	29.92	4.65	35.43	12.20	25.00	17.72	77.56	115.87	SC12.60	38.78	116.93	70.08	SA14.2	F14 A	1323
36	33.66	4.65	39.76	12.60	25.00	22.83	87.40	123.94	SC12.60	45.67	131.50	78.15	SA14.6	F14 A	1984
40	37.40	5.91	43.70	12.60	25.00	25.20	94.49	142.05	SC12.60	50.39	142.91	87.20	SA14.6	F14 A	3307
48	47.24	5.91	52.56	19.29	-	29.53	-	-	-	59.06	169.29	112.60	SA16.2	F16 A	4762
52	51.18	5.79	56.77	23.46	-	32.01	-	-	-	64.02	186.50	118.90	SA16.2	F16 A	7275
56	55.98	7.09	61.97	20.08	-	33.98	-	-	-	67.95	194.88	126.93	SA16.2	F16 A	7275
64	61.42	7.48	69.09	21.65	-	37.40	-	-	-	74.80	211.22	135.94	SA16.2	F16 A	11023

1) Recommended sizing of double-acting pneumatic cylinder type SC at normal operation with 5 bar air pressure. For other operating conditions, contact Stafsjö or your local representative for advice.

2) Recommended sizing of Auma SA electric motors at normal operation. For other operating conditions, contact Stafsjö or your local representative for advice.

3) Valve and Auma SA interface. The electric motors are mounted as standard according to ISO 5210 connection A (rising stem).

4) Weight in lb for valve equipped with hand wheel and electric actuator on DN 1200 - DN 1600.

Main dimensions are only for information. Contact Stafsjö for certified drawings.

## Flange drilling according to EN 1092 PN 10

Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"
Bolt circle diameter (inch)	4.92	5.71	6.30	7.09	8.27	9.45	11.61	13.78	15.75	18.11
Number of throughgoing bolts	-	-	4	4	4	4	4	6	6	6
Number of tapped holes/side	4	4	4	4	4	4	4	6	6	10
Bolt size	M16	M16	M16	M16	M16	M20	M20	M20	M20	M20
Bolt lengths <sup>1)</sup> (inch)	0.31 <sup>1)</sup>	0.31 <sup>1)</sup>	0.47	0.47	0.47	0.55	0.51	0.67	0.79	0.75

Size	16"	18"	20"	24"	28"	32"	36"	40"	48"	≥ 56"
Bolt circle diameter (inch)	20.28	22.24	24.41	28.54	33.07	37.40	41.34	45.67	54.33	OR
Number of throughgoing bolts	6	6	6	6	10	10	12	12	10	OR
Number of tapped holes/side	10	14	14	14	14	14	16	16	22	OR
Bolt size	M24	M24	M24	M27	M27	M30	M30	M33	M36	OR
Bolt lengths <sup>1)</sup> (inch)	0.87	0.87	1.06	1.06	0.98	1.06	1.06	1.18	1.26	OR

## Flange drilling according to EN 1092 PN 16

Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"
Bolt circle diameter (inch)	4.92	5.71	6.30	7.09	8.27	9.45	11.61	13.98	16.14	18.50
Number of throughgoing bolts	-	-	4	4	4	4	6	6	6	6
Number of tapped holes/side	4	4	4	4	4	4	6	6	6	10
Bolt size	M16	M16	M16	M16	M16	M20	M20	M24	M24	M24
Bolt lengths <sup>1)</sup> (inch)	0.31 <sup>1)</sup>	0.31 <sup>1)</sup>	0.47	0.47	0.47	0.55	0.51	0.67	0.79	0.75

Size	16"	18"	20"	24"	28"	32"	36"	40"	48"	≥ 56"
Bolt circle diameter (inch)	20.67	23.03	25.59	30.31	33.07	37.40	41.31	46.06	54.72	OR
Number of throughgoing bolts	6	6	6	6	10	10	12	12	10	OR
Number of tapped holes/side	10	14	14	14	14	14	16	16	22	OR
Bolt size	M27	M27	M30	M33	M33	M36	M36	M39	M45	OR
Bolt lengths <sup>1)</sup> (inch)	0.87	0.87	1.06	1.06	0.98	1.06	1.06	1.18	1.26	OR

## Flange drilling according to ASME/ANSI B16.5 & B16.47 Class 150

Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"
Bolt circle diameter (inch)	4.75	5.50	6.00	7.50	8.50	9.50	11.75	14.25	17.00	18.75	21.25
Number of throughgoing bolts	-	-	2	4	4	4	4	6	6	6	6
Number of tapped holes/side	4	4	2	4	4	4	4	6	6	6	10
Bolt size (UNC)	5/8-11	5/8-11	5/8-11	5/8-11	3/4-10	3/4-10	3/4-10	7/8-9	7/8-9	1-8	1-8
Bolt lengths <sup>1)</sup> (inch)	0.31 <sup>1)</sup>	0.31 <sup>1)</sup>	0.47	0.47	0.47	0.55	0.51 <sup>3)</sup>	0.67	0.79	0.75	0.87

Size	18"	20"	24"	28"	30"	32"	36"	40"	48"	56"	64"
Bolt circle diameter (inch)	22.75	25.00	29.50	34.00	36.00	38.50	42.75	47.25	56.00	65.00	OR
Number of throughgoing bolts	6	6	6	10	10	10	12	18	28	18	OR
Number of tapped holes/side	10	14	14	18	18	18	20	18	16	30	OR
Bolt size (UNC)	1 1/8-7	1 1/8-7	1 1/4-7	1 1/4-7	1 1/4-7	1 1/2-6	1 1/2-6	1 1/2-6	1 1/2-6	1 3/4-5	OR
Bolt lengths <sup>1)</sup> (inch)	0.87	1.06	1.06	0.98	0.98	1.06	1.06	1.18	1.26	1.57	OR

1) Add the values with the thickness of flanges, washers and gaskets.

2) The screws on the seatside has to be 0.12" longer.

3) The screws on the seatside has to be 0.39" longer for face-to-face according to MSS-SP81.

OR = On request

## Flange drilling according to JIS B 2238 10K

Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"
Bolt circle diameter (inch)	4.72	5.51	5.91	6.89	8.27	9.45	11.42	13.98	15.75	17.52
Number of throughgoing bolts	-	-	4	4	4	4	6	6	8	6
Number of tapped holes/side	4	4	4	4	4	4	6	6	8	10
Bolt size	M16	M16	M16	M16	M20	M20	M20	M22	M22	M22
Bolt lengths <sup>1)</sup> (inch)	0.31 <sup>1)</sup>	0.31 <sup>1)</sup>	0.47	0.47	0.47	0.55	0.51	0.67	0.79	0.75

Size	16"	18"	20"	24"	28"	30"	32"	36"	40"	≥ 48"
Bolt circle diameter (inch)	20.08	22.24	24.41	28.74	33.07	35.43	37.40	41.34	45.67	OR
Number of throughgoing bolts	6	6	6	6	10	10	10	12	12	OR
Number of tapped holes/side	10	14	14	18	14	14	18	16	16	OR
Bolt size	M24	M24	M24	M30	M30	M30	M30	M30	M36	OR
Bolt lengths <sup>1)</sup> (inch)	0.87	0.87	1.06	1.06	0.98	0.98	1.06	1.06	1.18	OR

## Flange drilling according to AS 2129 Table D

Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"
Bolt circle diameter (inch)	4.49	5.00	5.75	7.01	8.27	9.25	11.50	14.02	15.98
Number of throughgoing bolts	-	-	-	-	4	4	4	4	6
Number of tapped holes/side	4	4	4	4	4	4	4	4	6
Bolt size	M16	M16	M16	M16	M16	M16	M16	M20	M20
Screw lengths <sup>1)</sup> (inch)	0.31 <sup>1)</sup>	0.31 <sup>1)</sup>	0.47	0.47	0.47	0.55	0.51	0.67	0.79

Size	14"	16"	18"	20"	24"	28"	32"	36"	≥40"
Bolt circle diameter (inch)	18.50	20.51	22.99	25.24	29.76	33.27	38.74	42.99	OR
Number of throughgoing bolts	6	6	6	6	6	10	10	12	OR
Number of tapped holes/side	6	6	6	10	10	10	10	12	OR
Bolt size	M24	M24	M24	M24	M27	M27	M33	M33	OR
Bolt lengths <sup>1)</sup> (inch)	0.75	0.87	0.87	1.06	1.06	0.98	1.06	1.06	OR

## Flange drilling according to AS 2129 Table E

Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"
Bolt circle diameter (inch)	4.49	5.00	5.75	7.01	8.27	9.25	11.50	14.02	15.98
Number of throughgoing bolts	-	-	-	4	4	4	4	6	6
Number of tapped holes/side	4	4	4	4	4	4	4	6	6
Bolt size	M16	M16	M16	M16	M16	M20	M20	M20	M24
Bolt lengths <sup>1)</sup> (inch)	0.31 <sup>1)</sup>	0.31 <sup>1)</sup>	0.47	0.47	0.47	0.55	0.51	0.67	0.79

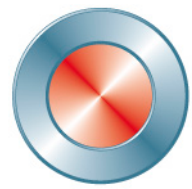
Size	14"	16"	18"	20"	24"	28"	32"	36"	≥40"
Bolt circle diameter (inch)	18.50	20.51	22.99	25.24	29.76	33.27	38.74	42.99	OR
Number of throughgoing bolts	6	6	6	6	6	10	10	12	OR
Number of tapped holes/side	6	6	10	10	10	10	10	12	OR
Bolt size	M24	M24	M24	M24	M30	M30	M33	M33	OR
Bolt lengths <sup>1)</sup> (inch)	0.75	0.87	0.87	1.06	1.06	0.98	1.06	1.06	OR

1) Add the values with the thickness of flanges, washers and gaskets.

2) The screws on the sear side has to be 0.12" longer.

OR = On request





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