

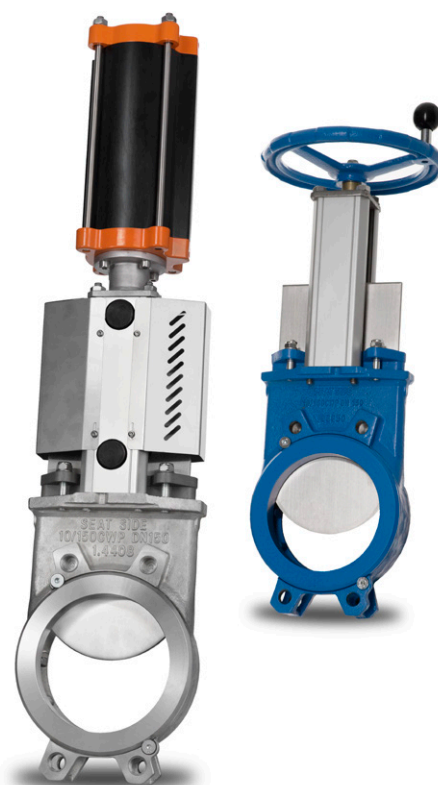
Stafsjö
SINCE 1666

Knife gate valve MV

Uni-directional knife gate valve for on/off or control of liquids and dry media

Size range:

2" - 64" (DN 50 - DN 1600)

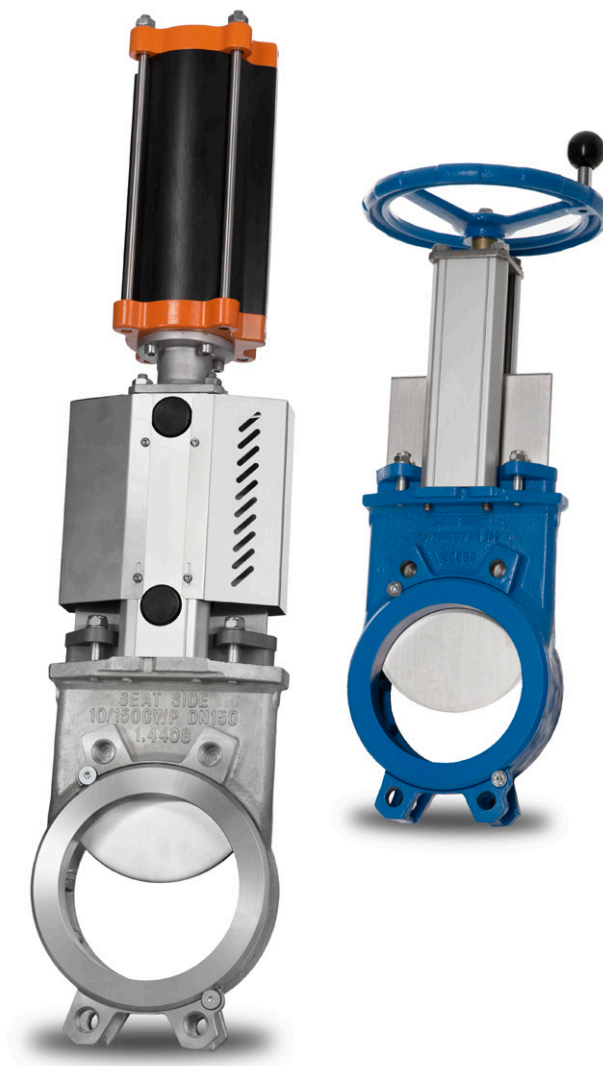


About MV

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

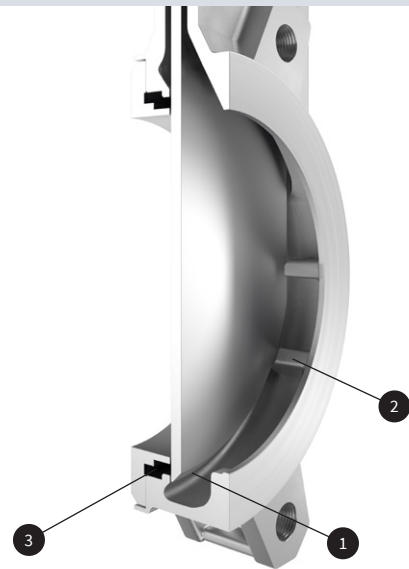
The MV valve is modular designed and it can easily be customized in materials, with actuators and related automation accessories to different process conditions. As standard it is available in a stainless steel or a ductile iron version, but it can also be supplied in a range of high alloy materials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

Staffsjö'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.



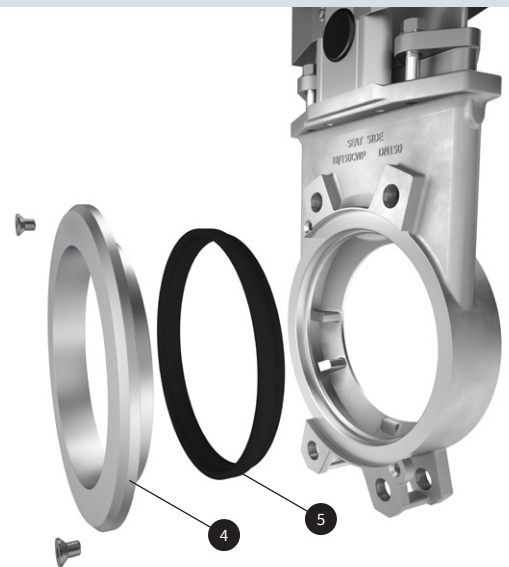
Reliable zero leakage shut-off

Ideal internal clearances lowers the friction and make it easy for the beveled edge gate (1) to cut through both liquids 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.



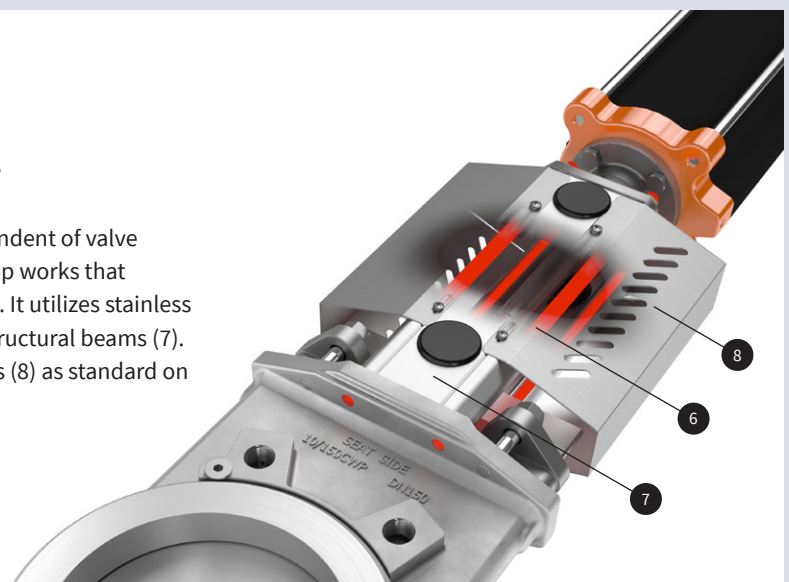
Quick and easy maintenance

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		
DN	psi/bar	DN	psi/bar	DN	psi/bar	psi/bar
2" - 5"	240/16	2" - 5"	240/16	2" - 8"	50/3,5 ²⁾	50/3,5 ³⁾
6" - 12"	150/10	6" - 12"	150/10	10"	45/3,0 ²⁾	45/3,0 ³⁾
14" - 24"	90/6	14" - 24"	90/6	12" - 18"	On request	45/3,0 ³⁾
28" - 64"	60/ 4 ¹⁾	28" - 40"	60/ 4 ¹⁾	20" - 64"	On request	-
		48" - 64"	30/2 or 60/4			

MV configurations

Standard in stainless steel	Standard in nodular iron
Sizes: 2" - 64" Valve body: Stainless steel EN 1.4408 Retainer ring: Stainless steel EN 1.4408 Gate: Stainless steel EN 1.4404, AISI 316L Box packing: TwinPack 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	Sizes: 2" - 32" Valve body: Nodular iron EN 5.3105, EN-JS1050, GGG50 Retainer ring: Nodular iron EN 5,3105, EN-JS1050, GGG50, ≥ 24" Stainless steel EN 1.4408 Gate: Stainless steel EN 1.4301, AISI 304 Box packing: TwinPack Top works: Stainless steel tie rods encapsulated in aluminum beams including stainless steel gate guards on automated valve
Options	
Valve body Stainless steel EN 1.4408 Nodular iron EN 5.3105, EN-JS1050, GGG50 Duplex stainless steel EN 1.4470 Equivalent material to 254 SMO stainless steel Retainer rings Stainless steel EN 1.4408 Nodular iron EN 5.3105, EN-JS1050, GGG50 Duplex stainless steel EN 1.4470 Equivalent material to 254 SMO stainless steel Polyurethane Gate material and surface treatments Stainless steel EN 1.4301, AISI 304 Stainless steel EN 1.4404, AISI 316L Duplex stainless steel EN 1.4462, S32205 254 SMO stainless steel or equivalent Hard chromed surface Extra polished surface (max Ra 0,8) Seats PTFE with o-ring in EPDM, FPM/FKM or NBR FDA/EC 1935/2004 approved PTFE EPDM, FPM/FKM, NBR or Polyurethane Stainless steel metal seat with grafoil tape or o-rings in EPDM, FKM, NBR Box packings TwinPack, WhitePack, FDA/EC 1935/2004 approved PTFE or Graphite Extra scrapers in UHMW-PE, PTFE or brass	Top works Stainless steel tie rods encapsulated in aluminum beams Stainless steel pillars ⁴⁾ or beams Actuators Hand wheel with non-rising stem Chain wheel Hand lever ⁵⁾ Ratchet wrench Bevel gear Double-acting pneumatic cylinders Single-acting pneumatic cylinders Electric actuators Hydraulic actuator Flange drillings EN 1092 PN 10 EN 1092 PN 16 ASME/ANSI B16.5 Class 150 and B16.47 Class 150, series A JIS B 2238 10K AS 2129 Table D and E BS 10 Table D Accessories 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.

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

2) Only with seat material in EPDM, NBR or FPM/FKM

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

4) Standard on valves supplied with valve body in duplex or equivalent material to 254 SMO stainless steel.

5) Pressures according to design data are not valid for valve equipped with hand lever. Maximum working and differential pressure in preferred direction at 68 °F for 2" - 6": 60 psi/4 bar.

Design standards

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 12266-1:2003 rate A. No visually detectable leakage is allowed for duration of the test. Rate A is not applicable on metal seated valves.

On request Stafsjö can provide 2.2 test report and 3.1 inspection certificate according to EN 10204.

Contact Stafsjö for further information on ATEX approved solutions.

Face-to-face dimensions

Stafsjö manufacturing standard. Option in MSS-SP81.

Corrosion protection

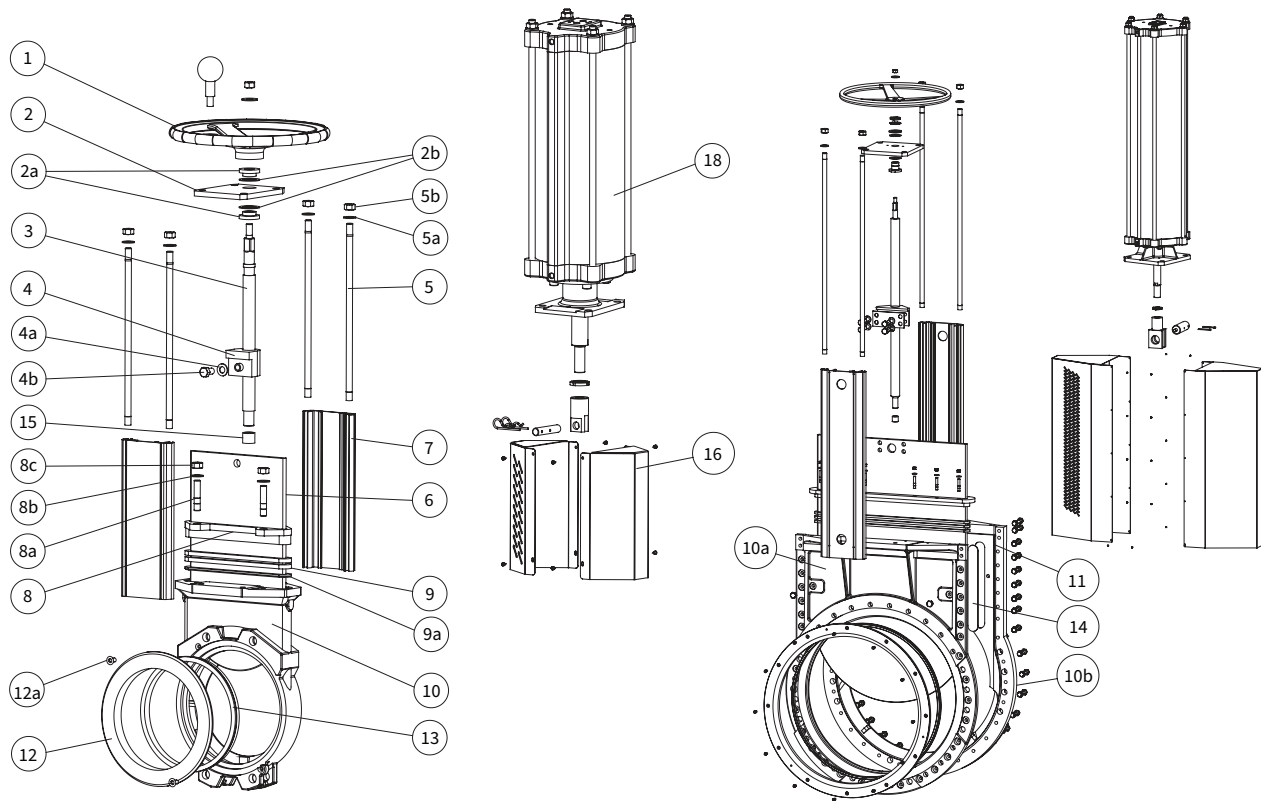
Painted valve parts fulfill in applicable areas corrosion protection against environment according EN ISO 12944, corrosivity category C3. Other paint systems can be offered on request.

Service temperature

Information to determine minimum and maximum temperature for the knife gate valve is available on stafsjo.com/support/temperatures/.

Single piece valve body: 2" - 32"

Two-piece valve body: 36" - 64"



Part list

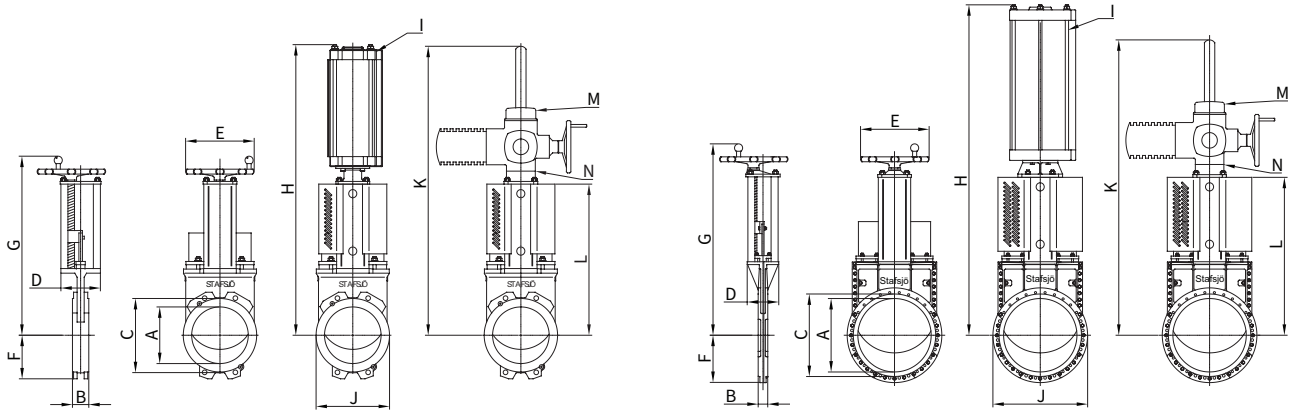
Pos.	Part	Material
1	Hand wheel	Coated cast iron Ø 8" - Ø 12" EN-JL1040, GG25, ≥ Ø 16" EN-JL1030, GG20
2	Yoke	Stainless steel EN 1.4301
2a	Bearing	Brass
2b	Slide washer	POM
3	Stem	Stainless steel EN 1.4016 alt. EN 1.4305
4	Stem nut	Brass
4a	Washer	Stainless steel A2
4b	Screw	Stainless steel A2
5	Tie rod	Stainless steel EN 1.4301
5a	Washer	Stainless steel A2
5b	Nut	Stainless steel A2
6	Gate	See options on page 4
7	Beam	Anodized aluminum
8	Gland	Stainless steel EN 1.4408 Coated nodular iron EN-JS1050, GGG50 on MV-L ≤ DN 12"

Pos.	Part	Material
8a	Stud bolt	Stainless steel A2
8b	Washer	Stainless steel A2
8c	Nut	Stainless steel A2
9 ¹⁾	Box packing	See options on page 4
9a ¹⁾	Box bottom scraper	20" - 32": PEHD
10/a/b	Valve body	See options on page 4
11	Body gasket	FPM/FKM
12	Retainer ring	See options on page 4
12a	Locking screw	Stainless steel A2
13 ¹⁾	Seat	See options on page 4
14	Guiding pads	16" - 32": PEHD 36" - 64": PTFE, POM-C
15	Bushing	Oil-bronze
16	Gate guards	Stainless steel EN 1.4301
18	Pneumatic cylinder	See separate data sheet

1) Recommended spare part

One piece valve body: 2" - 32"

Two piece valve body: 36" - 64"



Main dimensions (mm)

DN	A	B	C	D	E	F	G	H	I ¹⁾	J	K	L	M ²⁾	N ³⁾	W ⁴⁾
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 supply pressure. For other operating conditions, contact Stafsjö or your local representative for advice.

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

DN	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"
Bolt circle diameter (inch)	4.92	5.71	6.30	7.09	8.27	9.45	11.61	13.78	15.75	18.11	20.28
Number of throughgoing bolts	-	-	4	4	4	4	4	6	6	8 or 6	8 or 6
Number of tapped holes/side	4	4	4	4	4	4	4	6	6	8 or 10	8 or 10
Bolt size	M16	M16	M16	M16	M16	M20	M20	M20	M20	M20	M24
Bolt lengths ¹⁾ (inch)	0.31 ¹⁾	0.31 ¹⁾	0.47	0.47	0.47	0.55	0.51	0.67	0.79	0.75	0.87

DN	18"	20"	24"	28"	32"	36"	40"	48"	56"	64"
Bolt circle diameter (inch)	22.24	24.41	28.54	33.07	37.40	41.34	45.67	54.33	62.60	71.65
Number of throughgoing bolts	6	6	6	10	10	12	12	10	24	14
Number of tapped holes/side	14	14	14	14	14	16	16	22	12	26
Bolt size	M24	M24	M27	M27	M30	M30	M33	M36	M39	M45
Bolt lengths ¹⁾ (inch)	0.87	1.06	1.06	0.98	1.06	1.06	1.18	1.26	1.57	1.57

Flange drilling according to EN 1092 PN 16

DN	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	8 or 6
Number of tapped holes/side	4	4	4	4	4	4	6	6	6	8 or 10
Bolt size	M16	M16	M16	M16	M16	M20	M20	M24	M24	M24
Bolt lengths ¹⁾ (inch)	0.31 ¹⁾	0.31 ¹⁾	0.47	0.47	0.47	0.55	0.51	0.67	0.79	0.75

DN	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	8 or 6	6	6	6	10	10	12	12	10	OR
Number of tapped holes/side	8 or 10	14	14	14	14	14	16	16	22	OR
Bolt size	M27	M27	M30	M33	M33	M36	M36	M39	M45	OR
Bolt lengths ¹⁾ (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

DN	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"
Bolt circle diameter (inch)	4.75	5.50	6.00 ³⁾	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	8 or 6
Number of tapped holes/side	4	4	2	4	4	4	4	6	6	6	8 or 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 ¹⁾ (inch)	0.31 ¹⁾	0.31 ¹⁾	0.47	0.47	0.47	0.55	0.51 ⁴⁾	0.67	0.79	0.75	0.87

DN	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 ¹⁾ (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) If flanges cannot be rotated, the MV in Nodular iron version has to be installed in a 22,5° angle.

4) 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

DN	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	8 or 6
Number of tapped holes/side	4	4	4	4	4	4	6	6	8	8 or 10
Bolt size	M16	M16	M16	M16	M20	M20	M20	M22	M22	M22
Bolt lengths ¹⁾ (inch)	0.31 ¹⁾	0.31 ¹⁾	0.47	0.47	0.47	0.55	0.51	0.67	0.79	0.75

DN	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	8 or 6	6	6	6	10	10	10	12	12	OR
Number of tapped holes/side	8 or 10	14	14	18	14	14	18	16	16	OR
Bolt size	M24	M24	M24	M30	M30	M30	M30	M30	M36	OR
Bolt lengths ¹⁾ (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

DN	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	-	-	2	2	4	4	4	4	6
Number of tapped holes/side	4	4	2	2	4	4	4	4	6
Bolt size	M16	M16	M16	M16	M16	M16	M16	M20	M20
Bolt lengths ¹⁾ (inch)	0.31 ¹⁾	0.31 ¹⁾	0.47	0.47	0.47	0.55	0.51	0.67	0.79

DN	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 ¹⁾ (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

DN	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 ¹⁾ (inch)	0.31 ¹⁾	0.31 ¹⁾	0.47	0.47	0.47	0.55	0.51	0.67	0.79

DN	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 ¹⁾ (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



Stafsjö Valves AB
SE-618 95 Stavsjö, Sweden

+46 11 39 31 00 | sales@stafsjo.se | www.stafsjo.com

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