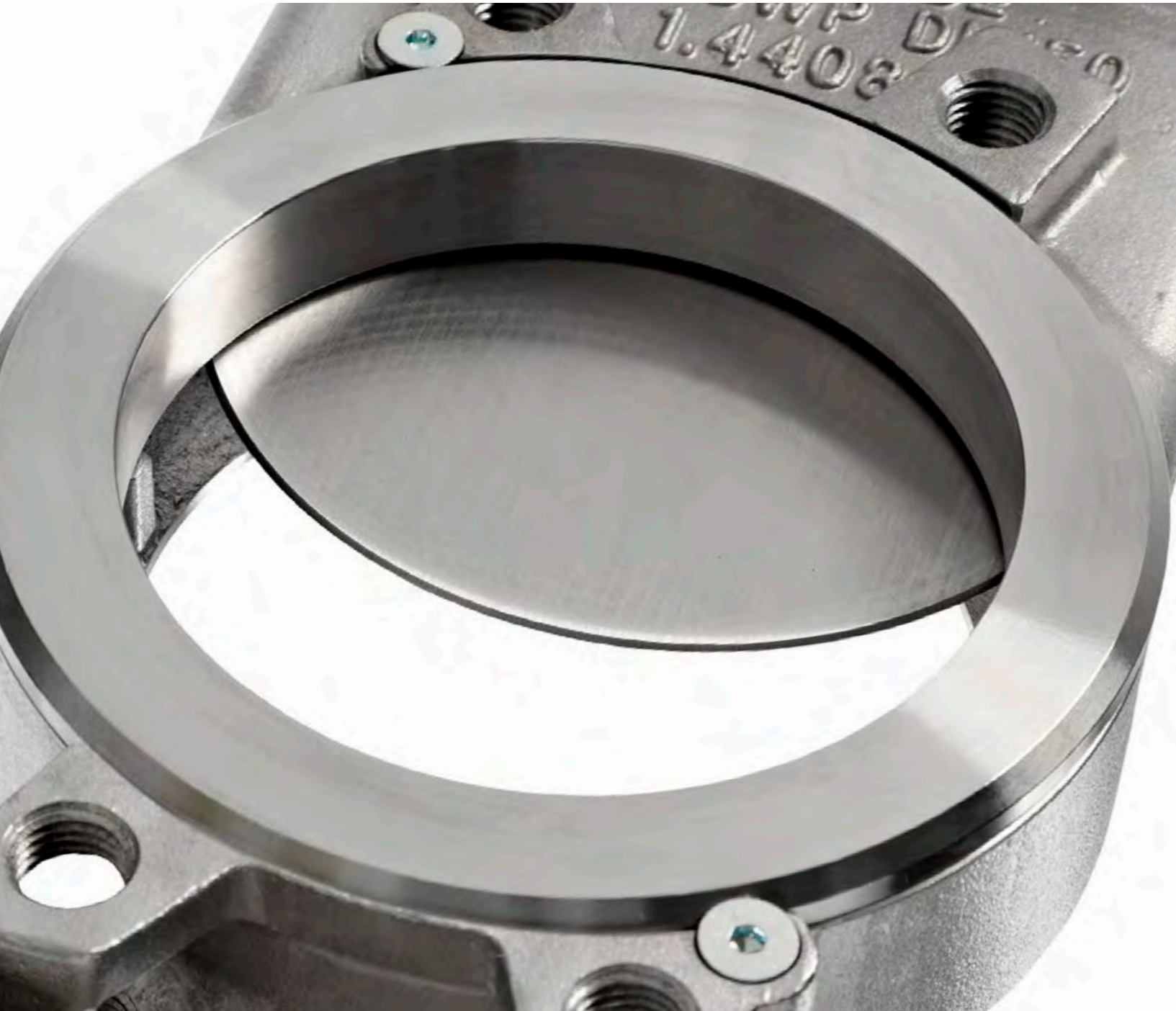


Knife Gate Valve MV



Stafsjö
SINCE 1666

First in Knife Gate Solutions

Knife Gate Valve MV

Stafsjö's knife gate valve MV is used within many different fields of applications. The valve has a gate with a bevel edge that effectively cuts through suspended solids. In the closed position the gate is pushed onto the seat which gives a tight and reliable seal. This special shut-off technique makes the MV valve suitable for both fluids and dry media such as pulp, sludge, biomass, powder and different kinds of waste.

MV is modular designed and can easily be customized to specific process conditions. As standard, it is supplied with a valve body either stainless steel or epoxy coated ductile iron, but it can also be supplied in a range of high alloy materials such as Duplex, Hastelloy, SMO and Titanium. The process adaptation becomes an easy task with Staffsjö's retainer ring system, since it offers several seat materials. Any change of seat can easily be performed. The valve is equipped with a gate in stainless steel, with different alloys as options. Just like other Staffsjö valves, the MV is as standard equipped with Staffsjö's box packing TwinPack™ and a box bottom scraper of UHMWPE, to ensure that no media reaches the surrounding environment. The gland box can also be supplied with a box bottom scraper, or with double gland for the most demanding applications.

The top works consist of stainless steel tie rods and aluminium beams, which gives good corrosion resistance and a stable operation. There are several actuator types and accessories to choose from in Staffsjö's standard collection.

The MV valve is designed, manufactured, inspected and tested according to the European Pressure Equipment Directive (PED 97/23/EC) category I and II module A1. The valve is CE marked when it is applicable.



Proven and reliable shut-off

The design of the gate and the valve body, especially the bore, gives the valve its ability to securely and effectively shut-off almost any flow. Minimal friction makes the valve easy to operate.



Rugged top works

Stainless steel tie rods and aluminium beams gives good corrosion resistance and a stable operation, which is a prerequisite for first-rate sealing. Changing from one actuator to another one can easily be performed on the site.



Excellent adaptability

MV can easily be customized with valve materials to specific processes, e.g. in special materials as 254SMO or Titanium. The retainer ring system offers flexibility and cost-efficient on-site maintenance.

Design data

Sizes	Flange drilling	Face-to-face dimension	ATEX design
2" - 48"	EN 1092 PN 10 EN 1092 PN 16 ANSI B16.5 Class 150 ANSI B16.47 A Class 150. JIS B 2238 10K BS 10 Table D AS 2129 Table D and E	Stafsjö manufacturing standard MSS SP-81 TAPPI TIS 405-8	ATEX 94/ 9/EC II cat 3 G/D for zone 2 and 22 on request

Other sizes on request

EN 12266-1:2003 rate A: No visually detectable leakage is allowed for duration of the test. Shutoff is bubbletight and exceeds performance requirements of **MSS SP-81**
Not applicable for valves equipped with metal seat

Pressure tests are performed with water at 20° C/68F° according to EN 12266-1:2003.
Pressure shell test: 1.5 times maximum allowable working pressure for open valve.
Pressure seat tightness test: 1.1 times maximum allowable differential pressure for closed valve.

Maximum working pressure body at 20°C/68°F		Maximum differential pressure in preferred direction at 20°C/68°F		Maximum differential pressure in reverse direction at 20°C/68°F for seats E/N/V		
Sizes	bar/PSI	Sizes	bar/PSI	Sizes	PSI (E-body)	PSI (L-body)
2" - 5"	16/240	2" - 5"	16/240	2" - 8"	50	50
6" - 12"	10/150	6" - 12"	10/150	10"	45	45
14" - 24"	6/90	14" - 24"	6/90	12" - 18"	-	45
28" - 48"	4/60	28" - 40"	4/60	20" - 48"	-	-
		48"	2/30 or 4/60			

Basic equipment

A. Valve Body

Material	Abridgement	Type	Maximum temperature °C/°F
Stainless steel	(E)	EN 1.4408/ 316	400/725
Ductile iron	(L)	GGG50	200/392
Carbon steel DN 900 & DN 1000	(C)	WCC/ASTM A216	425/797

Standard colour valve body L and C: epoxy. RAL 5015. thickness 140-200 µm.

B. Gate

Material	Type	Option
Stainless steel ¹⁾	EN 1.4301/AISI 304/SS 2333	Hard chromed surface
Stainless steel ²⁾	EN 1.4404/AISI 316L/SS 2348	Hard chromed surface

Option

Duplex stainless steel	EN 1.4462/AISI 2205/SS 2377	Hard chromed surface
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¹⁾ Standard on MV-L 2" - 20"

²⁾ Standard on MV-E and MV-L 24".

C. Retainer ring

Material	Type
Stainless steel	EN 1.4408 ³⁾ /316
Ductile iron/Cast iron	GGG50/GG20 ⁴⁾

³⁾ Standard on MV-E.

⁴⁾ Ductile iron on MV-L ≤ 12" and cast iron on MV-L ≥ 14". Standard colour on retainer ring: epoxy. RAL 5015. thickness 140-200 µm.

D. Seat

Material	Abridgement	Maximum temperature °C/ °F
EPDM	(E)	120/248
Nitrile	(N)	100/212
Viton	(V)	180/356

Material	Abridgement	Maximum temperature °C/ °F
PTFE with o-ring Nitrile	(P)	100/212
PTFE with o-ring Viton	(PV)	180/356
Polyurethane	(U)	90/194
Metal with o-ring Nitrile	(M)	100/212
Metal with o-ring Viton	(MV)	180/356
Metal with Grafoil	(MHT)	400 (E)/200 (L)/425 (C)

E. Box Packing

Material	Abridgement	Max temperature °C/°F	pH
TwinPack™	(TY)	260/500	2-13
PTFE	(TF)	280/536	0-14
Garlock 127	(TG)	650/1202	1-12

Actuators

Manual	Abridgement	Automatic	Abridgement
Hand wheel ⁵⁾	(HW)	Pneumatic cylinder	(AC)
Chain wheel ⁶⁾	(CW)	Electrical motor	(EM)
Hand lever ⁶⁾⁷⁾	(HL)	Hydraulic cylinder ⁶⁾	(MH)
Ratchet wrench ⁶⁾	(RW)		
Bevel gear ⁶⁾	(BG)		

⁵⁾ For recommended size, see page 5 column E

⁶⁾ For recommended size, see separate data sheet

⁷⁾ Pressures according to design data are not valid for valve equipped with hand lever (HL). Maximum working and differential pressure in preferred direction at 70°F for 2" - 8": 4 bar/60 PSI.

Double-acting pneumatic cylinder			Electric motor (AUMA multi-turn)		
Sizes	AC/EC type	Max. pounds force lbf	Sizes	AUMA type	Attachment
2" - 6"	EC 100	787	2" - 6"	SA 07.2	F10/A
8" - 12"	EC 160	2024	8" - 10"	SA 07.6	F10/A
14" - 20"	EC 200	3170	12" - 24"	SA 10.2	F10/A
24" - 28"	EC 250	4968	28" - 32"	SA 14.2	F14/A
30" - 40"	EC 320	8138	36" - 40"	SA 14.6	F14/A
48"	-	-	48"	SA 16.2	F16/A

The table above gives recommended cylinder sizes at normal operation with 5 bar/75 PSI air pressure. With lower supply pressure, oversized actuators can be offered. For other operating conditions, please contact Stafsjö or your local representative for advice.

Electric motors are mounted according to standard ISO 5210.

The table above gives recommended motor sizes at normal operation. For other operating conditions, please contact Stafsjö or your local representative for advice.

The actuators are described in separate data sheets. For advice and information on other actuators or on ATEX-classified ones, please contact Stafsjö or your local representative.

Options and accessories

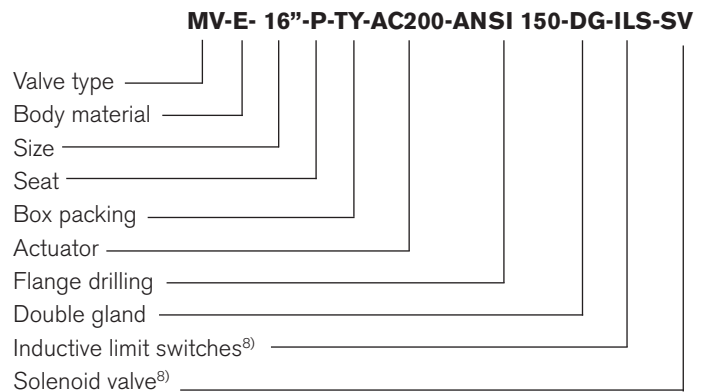
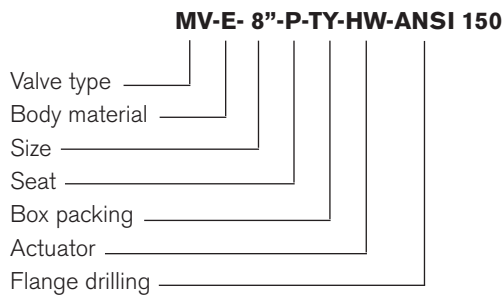
Knife gate valve

Accessories	Abridgement	Model	Design
Mechanical limit switch	(MLS)	Omron D4V	12-250 V AC/12-125 V DC, IP 65
Inductive limit switch	(ILS)	ifm electronic IG0006	2-wire, 20-250 V AC/DC, IP 67
		ifm electronic IG5401	3-wire, 10-36 V DC PNP, IP 67
Stem extension	(SES)	Short	Pipe Length < 59"
	(SEL)	Long	Pipe Length > 59"
Positioner for control	(POS)	PMV Palmstierna/Metso/ABB	

Purge ports	(PP)	MV 2" - 18" on order	
		MV 20" - 48" are equipped with purge ports.	Pipe thread G1/2" acc. to ISO 228/1
Double gland	(DG)	For MV 3" - 16"	Stainless steel (EN 1.4408)
Deflection cone	(DC)	For MV 2" - 24"	Stainless steel (EN 1.4408)
V-port	(VP)	For MV 2" - 24"	Stainless steel (EN 1.4408)
Pneumatic cylinder			
Accessories	Abridgement	Model	Design
Solenoid valve	(SV)	Metal Work series 70 for AC 100 - AC 160	G1/4", Mono stable 5/2, 24 V DC/110 V AC/220 V AC 50/60 Hz, IP 65
		Metal Work series 70 for AC 200 - AC 320	G1/2, Mono stable 5/2, 24 V DC/110 V AC/220 V AC 50/60 Hz, IP 65
Solenoid valve	(SV)	Parker Namur valves for EC 100 - EC 160	G1/4", Mono stable 5/2, Namur series VDI/VDE 3845, 24 V DC/110 V AC/220 V AC, IP 65
		Parker Namur valves for EC 200 - EC 320	G1/2", Mono stable 5/2, Namur series VDI/VDE 3845, 24 V DC/110 V AC/220 V AC, IP 65
Magnetic limit switch	(MagLS)	Elobau 102247 & 10224709 for AC 100 - AC 320	2-wire, 10-250 V AC/DC, IP 65
		Elobau 102290PE & 102290PE09 for AC 100 - AC 320	3-wire, 10-30 V DC, IP 65

Specify the Stafsjö valve

Stafsjö's valves are modular designed and they can easily be customized with gate, seat and box packings according to media and requirements, as well for actuators and accessories. Below are examples of how you can specify your Stafsjö valve. Further information is available on www.stafsjo.com.

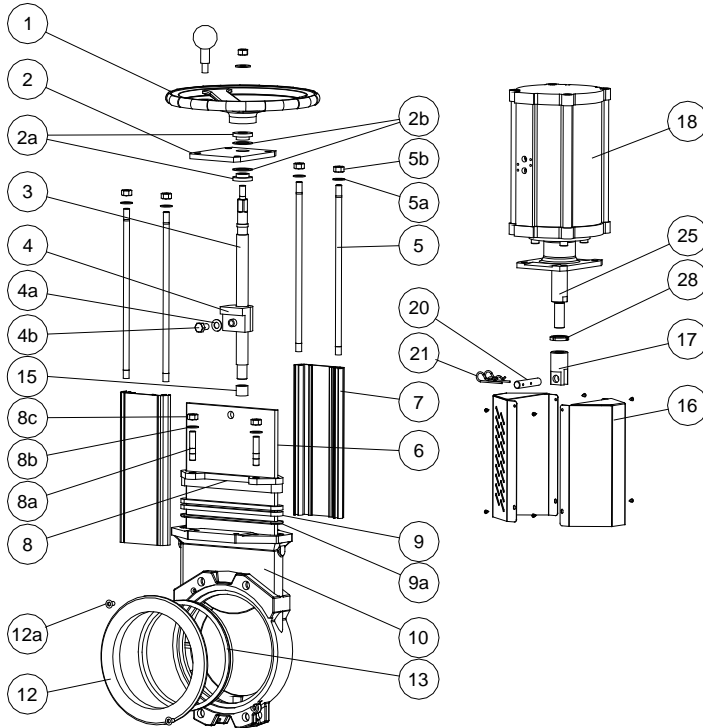


⁸⁾ All electronics must be specified in detail.

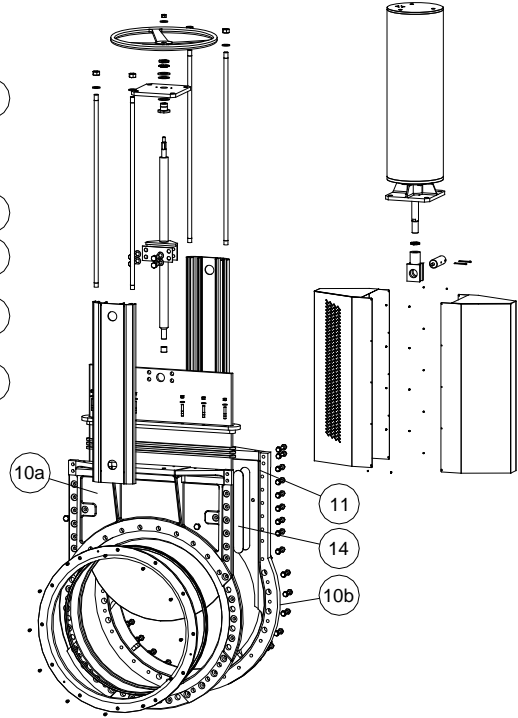
ILS: IFM IG0006, 2-wire 20-250V AC/DC

SV: Parker Numur valve G1/4", 5/2, 220/230V AC

One piece valve body: Sizes 2" - 32"



Two piece valve body: Sizes 36" - 48"

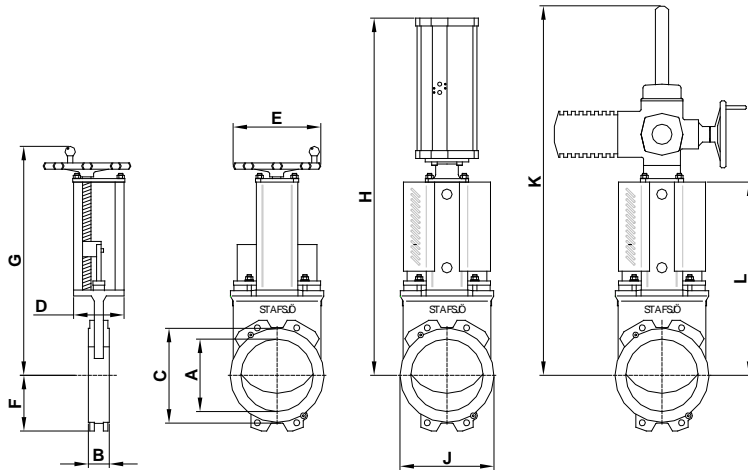


Part List

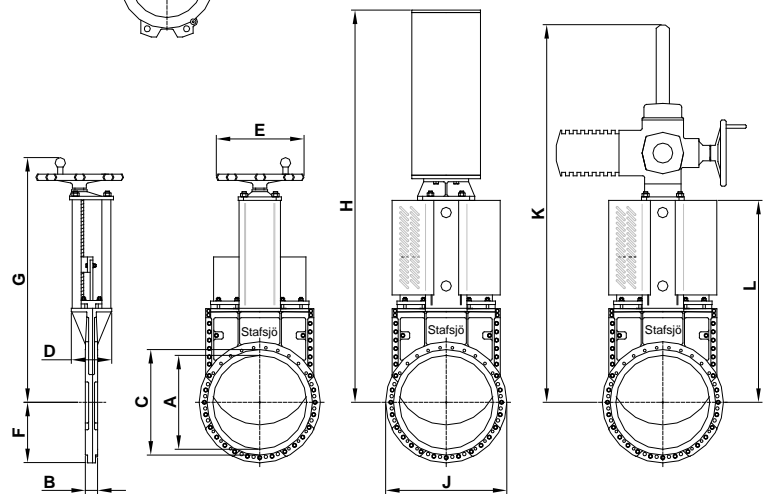
Pos.	Part	Material (Name)
1	Hand wheel	Epoxy coated Ø 8" - Ø 12" Ductile iron GG25 ≥ Ø 16" Ductile iron (GG20)
2	Yoke	Stainless steel (EN 1.4301/SS 2333)
2a	Bearing	Brass (CuZn39Pb3/SS 5170)
2b	Slide washer	POM
3	Stem	Stainless steel (EN 1.4016/SS 2320 alt. EN 1.4305/SS 2346)
4	Stem nut	Brass (CW603N) >32": Brass (SS 5453)
4b	Screw	Stainless steel (A2)
4c	Washer	Stainless steel (A2)
4d	Nut	Stainless steel (A2)
5	Tie rod	Stainless steel (EN 1.4301/SS 2333)
5a	Washer	Stainless steel (A2)
5b	Nut	Stainless steel (A2)
6	Gate	See equipment B
7	Beam	Aluminium (EN AW-6063-T6)
8	Gland E-body Gland L-body	Stainless steel (EN 1.4408) Ductile iron (GGG50), epoxy coated
8a	Stud bolt	Stainless steel (A2), zinc coated

Pos.	Part	Material (Name)
8b	Washer	Stainless steel (A2)
8c	Nut	Stainless steel (A2), zinc coated
9 ⁹⁾	Box packing	See equipment E
9a ⁹⁾	Box bottom support	DN 20" - DN 32" HD-polyethylene
10a/b	Valve body	See equipment A
11	Body gasket	PTFE
12	Retainer ring	See equipment C
12a	Locking screw	Stainless steel (A2)
13 ⁹⁾	Seat	See equipment D
14	Guiding pad	HD-polyethylene
15	Bushing	Oil-bronze
16	Gate guard, not for HW	Stainless steel (EN 1.4301/SS 2333)
17	Gate clevis	Stainless steel (EN 1.4305/SS 2346)
18	Cylinder	See data sheet
20	Clevis pin	Stainless steel (EN 1.4305/SS 2346)
21	Split pin	Stainless steel (EN 1.4436/SS 2343)
25	Piston rod	Stainless steel (EN 1.4305/SS 2346)
28	Locking nut	Stainless steel (EN 1.4305/SS2346)

⁹⁾ Recommended spare part



One piece valve body: Sizes 2" - 32"



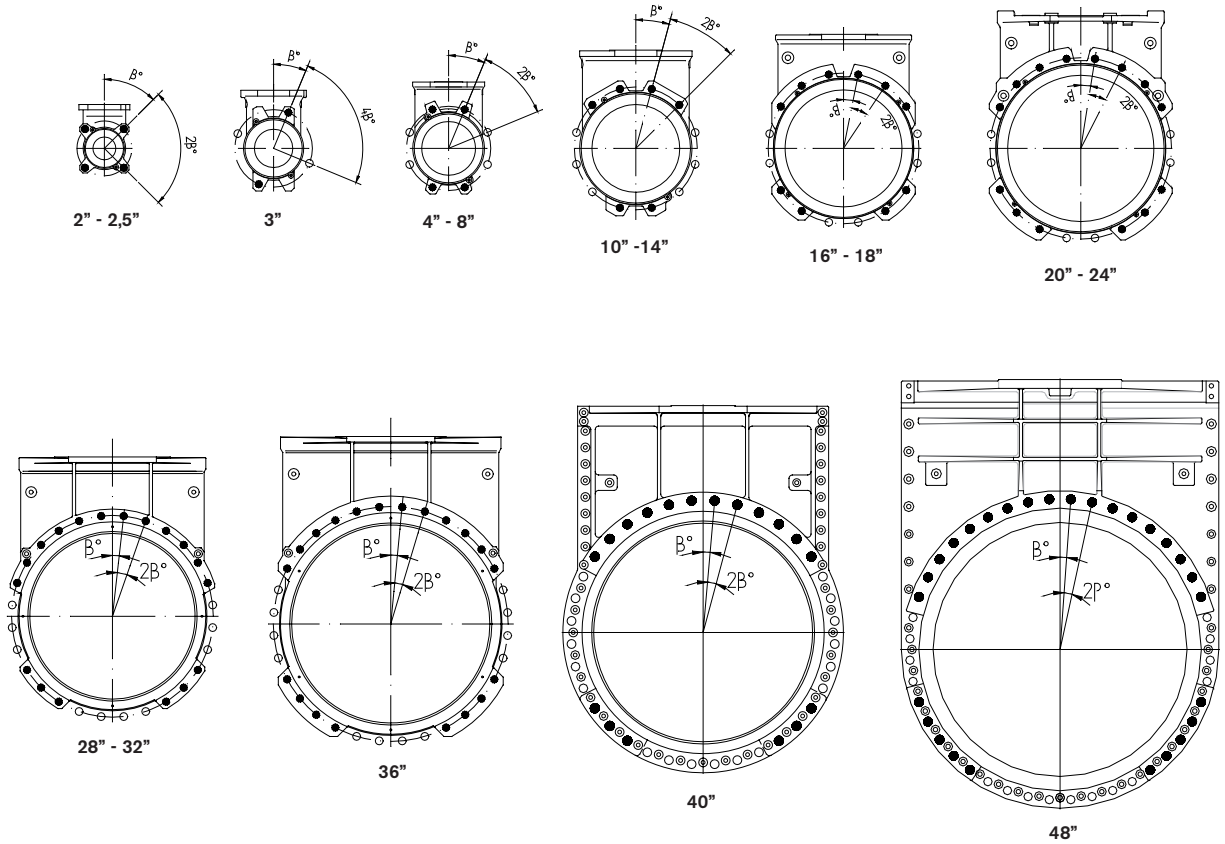
Two piece valve body: Sizes 36" - 48"

Main dimensions

Dimensions (inch)												
Size	A	B	C	D	E	F	G	H	J	K	L	Weight lb*
2"	2.05	1.61	3.58	3.15	7.87	2.20	14.17	18.70	4.57	26.55	9.06	15
2.5"	2.52	1.61	4.21	3.15	7.87	2.56	14.96	19.49	5.12	27.72	9.84	15
3"	3.11	2.01	4.88	3.15	7.87	3.46	15.94	21.46	5.31	29.29	10.83	17
4"	4.06	2.01	6.06	3.15	7.87	4.02	17.83	23.35	6.10	32.24	12.72	22
5"	5.04	2.20	7.05	3.15	9.84	4.57	19.49	26.97	7.01	34.80	14.37	28
6"	6.02	2.36	8.03	3.15	9.84	5.12	21.65	29.13	8.07	37.95	16.54	33
8"	7.95	2.36	10.51	5.71	12.40	6.30	27.32	40.04	10.55	43.90	21.85	68
10"	9.84	2.72	12.60	5.71	12.40	7.56	30.67	43.39	12.60	49.21	25.20	88
12"	11.89	3.07	14.72	5.71	12.40	9.06	34.61	49.29	14.76	55.12	29.13	121
14"	13.07	3.07	16.50	6.89	15.75	8.27	39.09	55.71	16.54	61.02	32.28	198
16"	14.96	3.50	18.86	6.89	15.75	9.65	42.64	61.22	19.29	66.54	35.83	264
18"	16.85	3.50	21.06	7.87	20.47	11.02	46.46	66.14	22.05	71.65	38.98	396
20"	18.50	4.49	22.83	9.84	20.47	12.40	52.48	74.49	24.61	79.84	45.08	540
24"	22.05	4.49	26.77	10.24	25.00	14.57	61.34	88.35	29.13	92.83	53.94	749
28"	26.18	4.65	31.50	12.20	25.00	15.75	68.90	102.56	34.06	104.33	61.61	1014
30"	27.95	4.65	33.86	12.01	25.00	16.93	74.02	105.31	36.61	111.42	64.37	1190
32"	29.92	4.65	35.43	12.20	25.00	17.72	77.56	111.18	38.78	116.93	70.08	1543
36"	33.66	4.65	39.76	12.60	25.00	22.83	87.40	123.27	45.67	131.50	78.15	1984
40"	37.40	5.91	43.70	12.60	25.00	25.20	94.49	136.85	50.39	142.91	87.20	3307
48"	47.24	5.91	52.56	19.29	-	29.53	-	-	59.06	169.29	112.60	-

¹⁰⁾ Weight for valve equipped with hand wheel.

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



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

Flange drilling information (inch)										
DN	2"	2,5"	3"	4"	5"	6"	8"	10"	12"	14"
Outside flange diameter	6	7	7.5	9	10	11.7	13.5	16	19	20.9
Bolt circle diameter	4.7	5.5	6	7.6	8.5	9.5	11.7	14.2	17	18.7
Number of throughgoing bolts (◌)	-	-	2	4	4	4	4	6	6	6
Number of tapped holes (●)	4	4	2	4	4	4	4	6	6	6
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
Size of throughgoing holes in flange	Ø0.7	Ø0.7	Ø0.7	Ø0.7	Ø0.8	Ø0.8	Ø0.8	Ø1.0	Ø1.0	Ø1.1
β°	45	45	22,5	22,5	22,5	22,5	22,5	15	15	15
Screw lengths ¹¹⁾	0.3 ¹²⁾	0.3 ¹²⁾	0.4	0.4	0.4	0.5	0.5 ¹³⁾	0.6	0.7	0.7
Flange drilling information (\geq DN 700: ASME/ANSI B16.47 Class 150 series A (inch))										
DN	16"	18"	20"	24"	28"	30"	32"	36"	40"	48"
Outside flange diameter	23.5	25	27.5	32	36.5	38.7	41.7	46	50.7	59.4
Bolt circle diameter	21.2	22.7	25	29.5	32.9	36	38.5	43.4	47.2	56
Number of throughgoing bolts (◌)	6	6	6	6	10	10	10	12	18	28
Number of tapped holes (●)	10	10	14	14	18	18	18	20	18	16
Bolt size (UNC)	1-8	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
Size of throughgoing holes in flange	Ø1.1	Ø1.2	Ø1.2	Ø1.4	Ø1.4	Ø1.4	Ø1.6	Ø1.6	Ø1.6	Ø1.6
β°	11,25	11,25	9	9	6,43	6,43	6,43	5,63	5	4,01
Screw lengths ¹¹⁾	0.8	0.8	1.0	1.0	0.9	0.9	1.0	1.0	1.2	1.2

¹¹⁾ Add the values with the thickness of flanges, washers and gaskets.

¹²⁾ The screws on the seatside has to be 3 mm longer

¹³⁾ The screws on the seatside has to be 10 mm longer for face-to-face TAPPI

◌ Throughgoing holes

● Tapped holes

Actuators, limit switches, solenoid valves and valve positioners for automated process

Pneumatic cylinder EC100-EC320

Cylinder feed pressure max 1 MPa. Cylinder can also be fitted with magnetic piston, stroke limitation, rapid closing valve and closure damping.

Magnetic limit switch

For direct mounting on the EC-cylinder. Available with 2- and 3-wire.



Solenoid valve

Parker Namur solenoid valve for direct attachment to the cylinder.



Mechanical limit switch

For mounting on the aluminum beam.



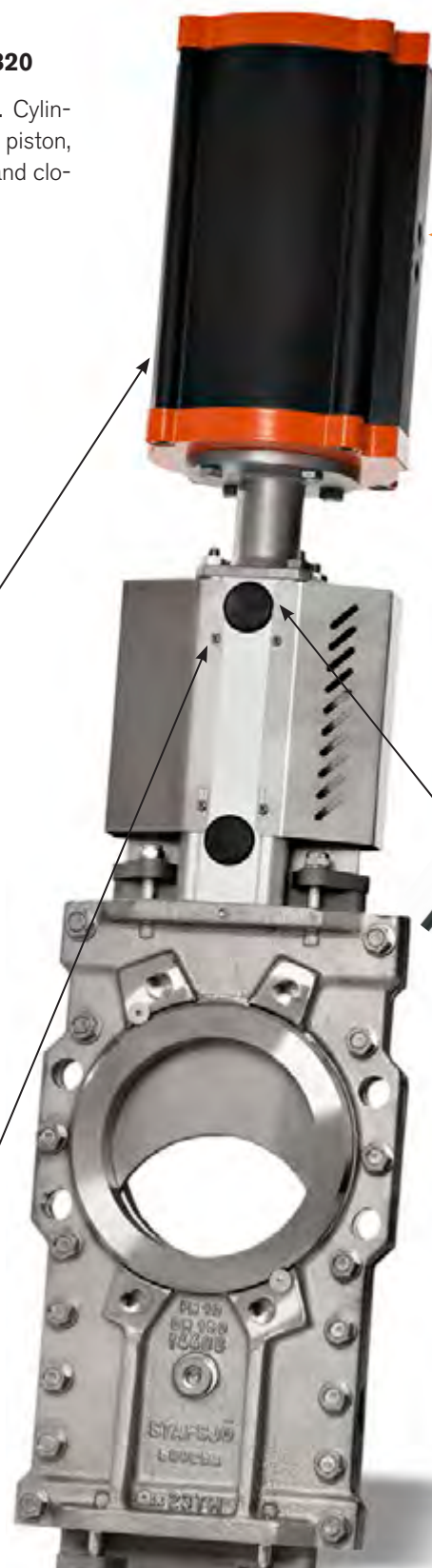
M18 inductive limit switches

For direct mounting on the aluminum beam. Standard switch is IFM M18.



Positioner

Stafsjö supplies various types of positioners for flow-regulation. Direct mounted on the valve.



Further information is available on www.stafsjo.com



Globally active. Locally represented.

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First in Knife Gate Solutions