

Knife gate valve

DN 100-450

The Stafsjö RKO knife gate valve is an On/Off valve which is designed to solve most problems that occurs in combination with junk traps, coarse reject and cleaners. The valve has a circular inlet and a square outlet, which counteracts clogging and choking of the valve. The valve can be supplied with an adapter on the outlet for transition to a circular flange.

The RKO is designed of a two piece valve body in stainless steel or cast iron and a stainless steel gate with a hard chrome surface. The retainer ring mechanically locks the seat, making it easy to replace. The seat is placed in the circular inlet and is not directly exposed to the abrasive media. The unique Stafsjö box packing TwinPack™ gives high operation reliability.

Due to the flexible design of the RKO, it can be equipped with different types of manual and automatic actuators and accessories, such as limit switches.

The Stafsjö knife gate valve RKO is designed, manufactured, inspected and tested according to the European directive Pressure Equipment Directive (PED 97/23/EC) category II module A1 and is therefore CE marked.



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Design data

Maximum working pressure body at 20°C

DN	bar
100-450	10

Maximum differential pressure at 20°C

DN	bar
100-450	6,2

Basic equipment

A. Valve body

		Material	Maximum temp. °C	Not recommended
Stainless cast steel DN 100-400	E	W1.4408	300	
Cast iron DN 100-400	A	GG20	150	Corrosive media
Plate stainless steel DN 450	E	EN 10028-7 1.4436	500	
Plate carbon steel DN 450	B	EN 10028-2 1.0425	400	Corrosive media

Valve bodies in non stainless steel are painted with a wet epoxy colour to a minimum thickness of 80µm.

B. Gate

	Body	Material	Surface treatment
Stainless steel	E/A	SS2377	Hard chrome

C. Retainer ring

	Body	Material	Seat
Stainless steel	E	SS2343	P/PV
Cast iron	A	GG20	P/PV
Zinc coated carbon steel	E/A		U

Retainer rings in cast iron are painted with a wet epoxy colour to a minimum thickness of 80µm.

D. Seat

		Maximum temp. °C	Not recommended
PTFE with o-ring EPDM	P	120	Oil, grease
PTFE with o-ring viton	PV	180	
Polyurethane	U	90	

For PTFE seat DN 450 please contact Stafsjö.

E. Box packing

		pH	Maximum temp. °C
TwinPack™	TY	1-13	260
PTFE	TF	0-14	280
Garlock 127	TG	1-12	650

F. Flange drilling – circular inlet

EN 1092 PN 10
ANSI B16.5 Class 150
JIS B 2238 10K

For square outlet, see p. 5.

G. Face-to-face dimensions

Stafsjö standard – see table p. 5
TAPPI TIS 405-8, MSS SP-81

Pressure tests

Pressure tests are performed with water at 20°C according to ISO 5208 meaning:
1,5 x maximum working pressure for open valve – shell test
1,1 x maximum differential pressure for closed valve – obturator tightness test

Leakage rate

Rate A according to ISO 5208 – no visible leakage for the duration of the test
TAPPI TIS 405-8, MSS SP-81

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Actuator

Manual

Hand wheel	HW
Chain wheel	CW

Automatic

Pneumatic cylinder	AC
Electrical motor	EM
Hydraulic cylinder	MH

Pneumatic cylinder – recommended sizes at 5 bar air pressure

DN	100	150	200	250	300	350	400	450
AC	100-100	160-200	160-200	200-250	200-300	200-350	250-400	250-450
Maximum force (kN)	3,5	9,0	9,0	14,1	14,1	14,1	22,1	22,1

The table gives recommended cylinder sizes at normal operation at 5 bar air pressure. For other operating conditions, please contact Stafsjö or your local representative for advice.

For other actuators, please contact Stafsjö or your local representative for advice.

Accessories

Limit switches

Mechanical	Ersce E100	
Inductive	ifm electronic IG-2008-ABOA / IG0006	2-wire 20-250 V AC/DC
	ifm electronic IG-3008-BPKG / IG5401	3-wire 10-36 V DC PNP

Accessories to pneumatic cylinder

Solenoid valve	Metal Work SOV 35 SOS OO	1/4"
	Metal Work SOV 45 SOS OO	1/2"
Magnetic limit switch	Elobau 102 247	2-wire 10-250 V AC/DC
	Elobau 102 290 PE	3-wire 10-30 V DC

Purge port

The RKO knife gate valve DN 100-400 is equipped with purge ports with pipe thread G acc. to ISO 228/1. DN 100 G1/8", DN 150-250 G1/4", DN 300-450 G1/2"

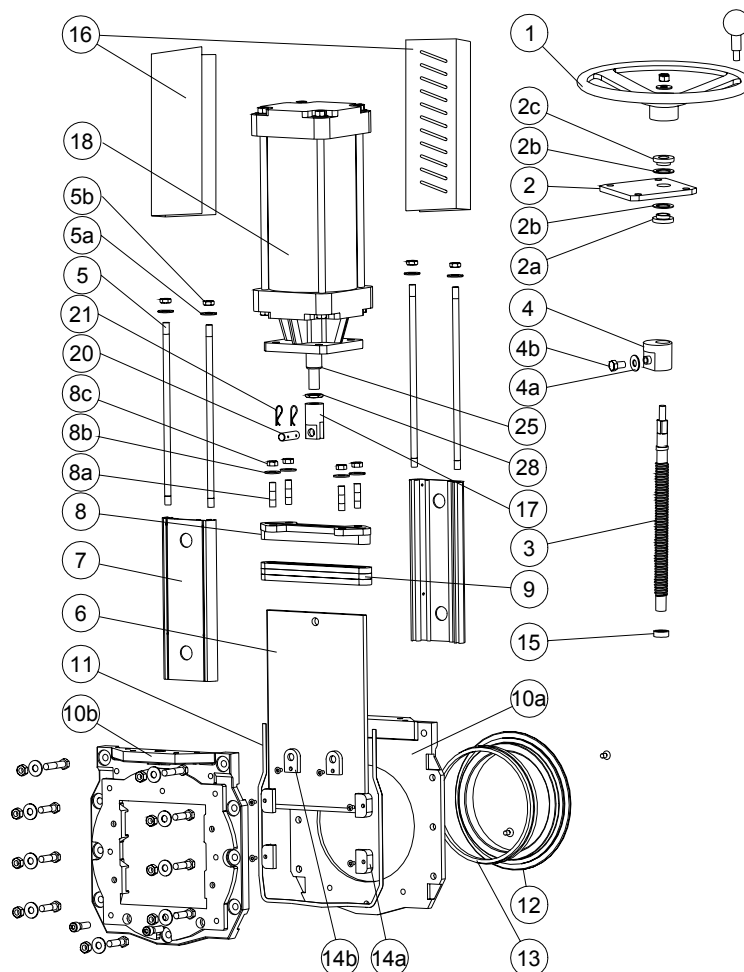
Adapter

The RKO knife gate valve can be equipped with an adapter in stainless steel, see p. 6.

For advice regarding accessories, please contact Stafsjö or your local representative.

Materials – corresponding foreign materials

Stafsjö standard	Type of material	Sweden	Germany		USA			England	Japan
		SS	W. Nr.	DIN	ASTM	AISI	UNS	BS	JIS
A2	Stainless	SS2333	W1.4301	X5CrNi18 M 10		304	S30400	304S15	SUS 304
AISI 304	Stainless	AISI 304	W1.4301	X5CrNi18 M 10		304	S30400	304S15	SUS 304
EN AW-6063-T6	Aluminium	EN AW-6063-T6		AlMgSi 0,5	AA 6063				
GG25	Cast iron	SS0125-00	0.6025	GG 25	A 48 No 40 B			Grade 260	FC 250
GGG50	Nodular iron	SS0727	0.7050	GGG 50				Grade 500/7	FCD 500
SS0120-00	Cast iron	SS0120-00	0.6020	GG 20	A 48 No 30 B			Grade 220	FC 200
SS1312	Carbon steel	SS1312		RSt 37-2	A 36			40 B	
SS2303-03	Stainless	SS2303-03	W1.4021	X20Cr13		420	S42010	420S37	SUS 420J1
SS2320-02	Stainless	SS2320-02	W1.4016	X6Cr17		430	S43000	430S17	SUS 430
SS2333-02	Stainless	SS2333-02	W1.4301	X5CrNi18 M 10		304	S30400	304S15	SUS 304
SS2343-12	Stainless	SS2343-12	W1.4408	G-X6CrNiMo 18 10	A 743-91 CF-8M			316 C 16	SCS 14
SS2343-28	Stainless	SS2343-28	W1.4436	X3CrNiMo17 13 3	A 240, Type 316			Gr 316 S 33	
SS2346-02	Stainless	SS2346-02	W1.4305	X10CrNiS 18-9		303		303S31	SUS303
SS2347-02	Stainless	SS2347-02	W1.4401	X5CrNiMo17 12 2		316	S31600	316S31	SUS 316
SS2383-02	Stainless	SS2383-02	W1.4104	X12CrMoS17		430 F	S43020		430 F
SS5170-00	Brass	SS5170-00		CuZn39Pb3	C 36000			CZ 121	
SS2377-02	Stainless	SS2377-02	W1.4462	X2CrNiMoN22 5 3			S31803	318S13	
W1.4408	Stainless	W1.4408	W1.4408	G-X6CrNiMo 18 10	A 743-91 CF-8M			316 C 16	SCS 14



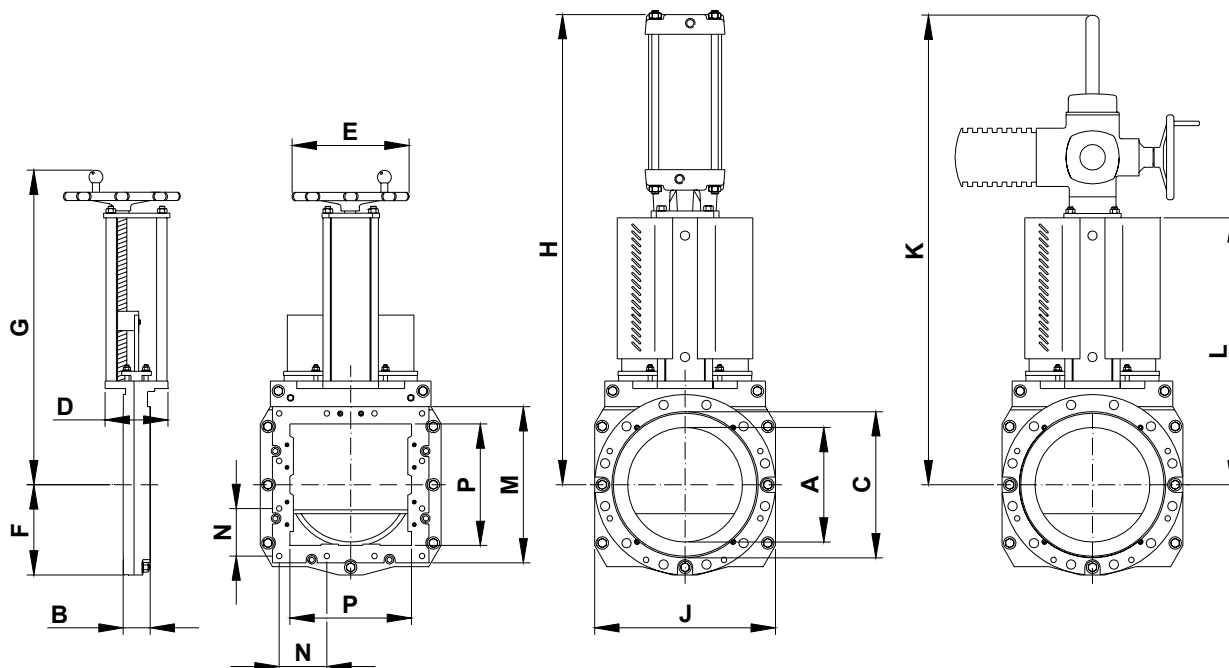
Pos	Part	Material
1	Hand wheel	DN100-200 Aluminium EN AC-AISI9Cu3(Fe), DN>200 Cast iron GG20
2	Yoke	Stainless steel SS2333-02
2a	Bearing	Brass SS5170-00
2b	Slide washer	POM
2c	Bearing	Brass SS5170-00
3	Stem	Stainless steel DN100-250 SS 2320-02, DN>250 SS 2383-02
4	Stem nut	Brass SS5170-00
4a	Washer	A2
4b	Screw	A2
5	Tie rod	Stainless steel SS2333-02
5a	Washer	A2
5b	Nut	A2
6	Gate	See equipment B
7	Beam	Aluminium EN AW-6063-T6
8	Gland	Stainless steel SS2343-12
8a	Stud bolt	A2 + zinc
8b	Washer	A2
8c	Nut	A2 + zinc

Pos	Part	Material
9	Box packing*	See equipment E
10a	Valve body	See equipment A
10b	Valve body	See equipment A
11	Body gasket	DN 100-200 Grafoil, DN>200 PTFE
12	Retainer ring	See equipment C
13	Seat*	See equipment D
14a	Guide strip	POM
14b	Top guide strip	POM
15	Bushing	Oil-bronze
16	Gate guard, not for HW	Stainless steel SS2333-02
17	Gate clevis	Stainless steel SS2346-02
18	Cylinder	See data sheet
20	Clevis pin	Stainless steel SS2346-02
21	Split pin	Stainless steel SS2343-02
25	Piston rod	Stainless steel SS2383-02
28	Locking nut	Stainless steel SS2346-02

* Recommended spare parts

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Dimensions (mm)

DN	100	150	200	250	300	350	400	450
A	97	146	194	247	298	330	380	428
B	52	60	60	69	78	78	89	89
C	153	204	267	319	374	419	480	535
D	80	150	150	150	180	180	206	208
E	200	315	315	315	400	400	520	520
F	112	148	175	206	232	260	287	315
G	446	554	647	752	867	921	1069	1130
H	585	822	915	1094	1270	1355	1630	1738
J	224	296	350	412	464	520	574	629
K	595	695	790	878	1026	1080	1177	1450
L	317	417	510	598	715	769	862	940

Dimensions for square outlet (mm)

DN	100	150	200	250	300	350	400	450
P	100	150	200	250	300	350	400	483
M	180	230	280	340	400	450	500	555
N	70	95	122,5	150	124	137	154	174
No. threaded holes	8	8	8	8	12	12	12	12
Screw thread	M12	M12	M12	M12	M12	M16	M16	M16

Weight, valve incl. hand wheel (HW)

DN	100	150	200	250	300	350	400	450
kg	18	25	45	60	80	90	140	300

Knife gate valve

Adapter for RKO

The RKO valve can be equipped with an adapter on the valve square outlet to connect to a circular flange. There are two types of adapters, one for a flange connection and the other for a welding connection. Common applications for the RKO valve are described in figure 1 and 2 below.

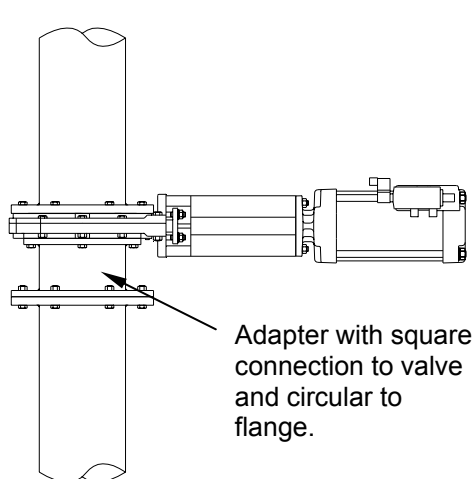


Fig. 1

The RKO knife gate valve installed in a pipe line with an adapter.

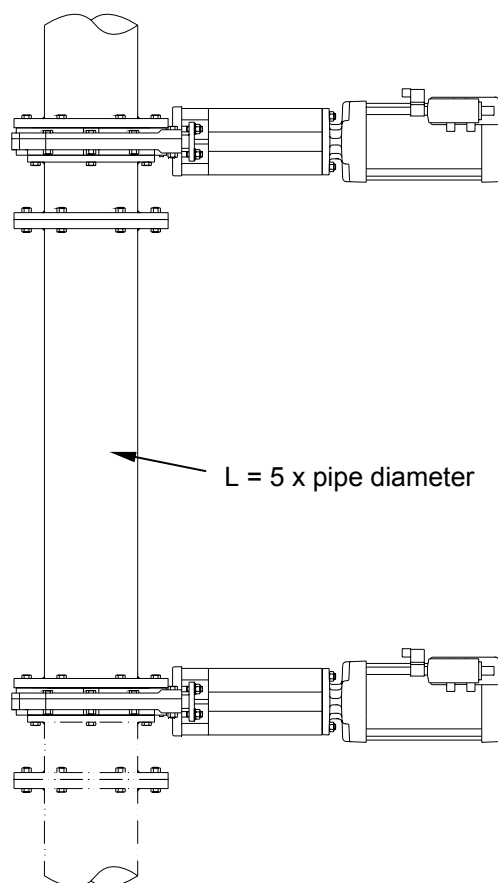


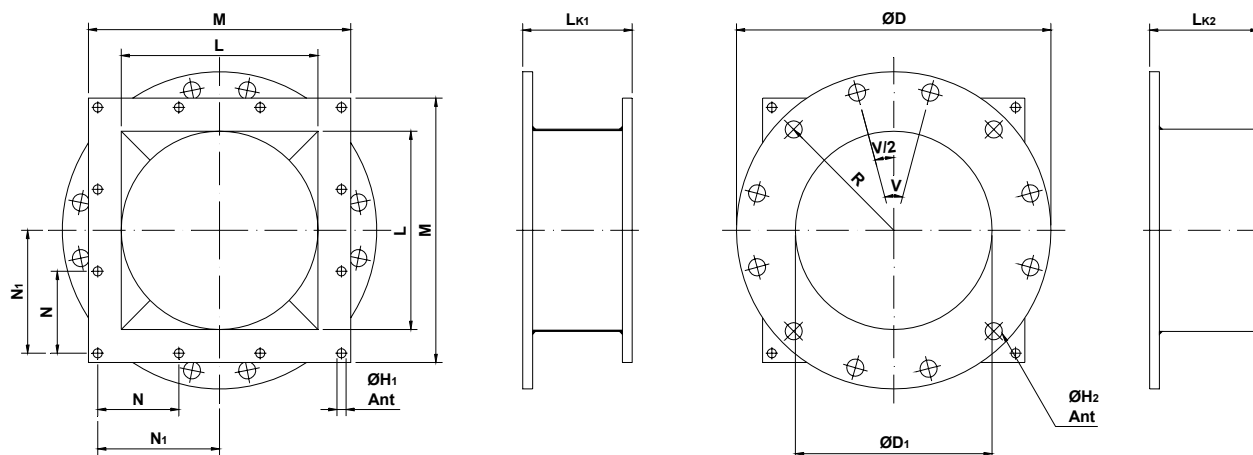
Fig. 2

The RKO knife gate valves installed with adapters in a "Lock hopper"-system.

Face-to-face dimensions for adapter / adapter + valve (mm)

DN	Flange connection		Welding connection	
	adapter	adapter+valve	adapter	adapter+valve
	L _{K1}	L _{K1V}	L _{K2}	L _{K2V}
100	90	142	150	202
150	140	200	200	260
200	140	200	200	260
250	150	219	210	279
300	167	245	227	305
350	165	243	225	303
400	155	244	215	304
450	155	244	215	304

Material in adapter: Stainless steel SS2343-02



Adapter dimensions (mm)

DN	100	150	200	250	300	350	400	450
L	100	150	200	250	300	350	400	483
M	180	230	280	340	400	450	500	555
N	70	95	122,5	150	124	137	154	174
N1	70	95	122,5	150	186	205,5	231	261
ØH ₁	14	14	14	14	14	18	18	18
Ant	8	8	8	8	12	12	12	12
L _{K1}	90	140	140	150	167	165	155	155
ØD ₁	100	150	200	250	300	350	400	450
L _{K2}	150	200	200	210	227	225	215	215

Adapter flange drilling dimensions (mm)

EN 1092 PN 10								
DN	100	150	200	250	300	350	400	450
ØD	224	280	340	405	480	530	565	615
R	90	120	147,5	175	200	230	257,5	282,5
V	45	45	45	30	30	22,5	22,5	18
V/2	22,5	22,5	22,5	15	15	11,25	11,25	9
ØH ₂	18	22	22	22	22	22	26	26
Ant	8	8	8	12	12	16	16	20

ANSI B16.5 Class 150								
DN	100	150	200	250	300	350	400	450
ØD	224	280	340	405	480	530	597	635
R	95,25	120,65	149,2	180,95	215,9	238	270	289
V	45	45	45	30	30	30	22,5	22,5
V/2	22,5	22,5	22,5	15	15	15	11,25	11,25
ØH ₂	18	22	22	26	26	30	30	33
Ant	8	8	8	12	12	12	16	16

JIS B 2238 10K								
DN	100	150	200	250	300	350	400	450
ØD	224	280	340	405	480	530	550	620
R	87,5	120	145	177,5	200	222,5	255	282,5
V	45	45	30	30	22,5	22,5	22,5	18
V/2	22,5	22,5	15	15	11,25	11,25	11,25	9
ØH ₂	19	23	23	25	25	22	27	27
Ant	8	8	12	12	16	16	16	20

