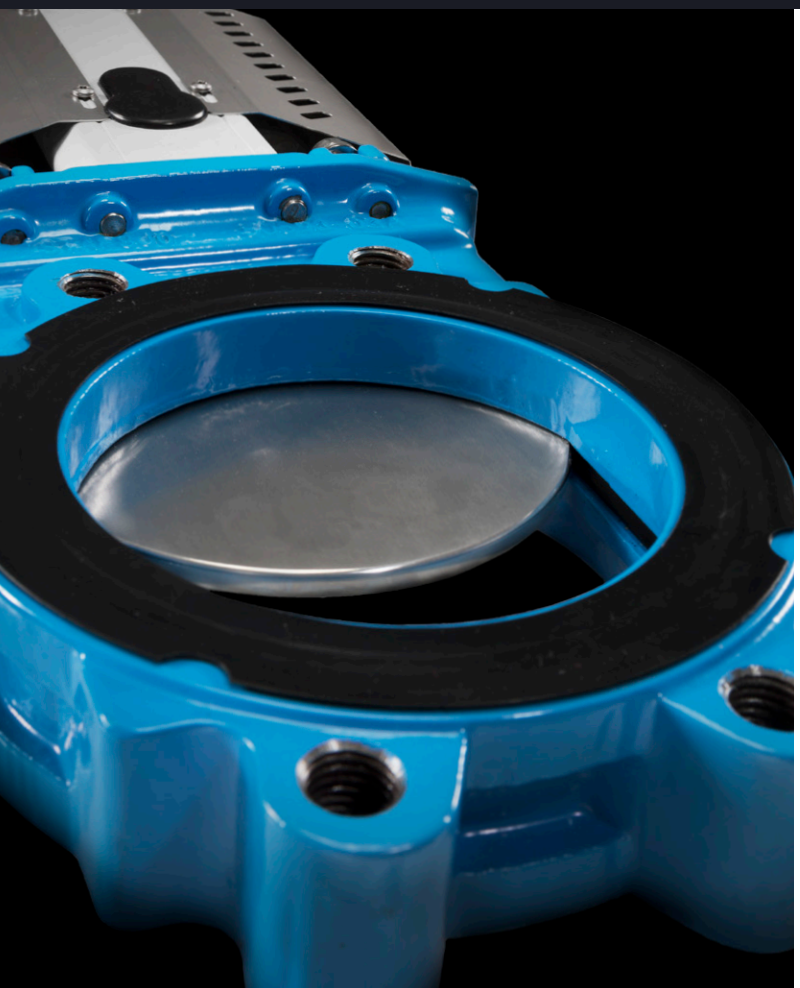
Stafsjö
SINCE 1666

Knife gate valve WB11

Bi-directional and semi lugged performance
knife gate valve in nodular iron

Size range:
DN 50 - DN 300 (2'' - 12'')



About WB11

Stafsjö's WB11 knife gate valve offers superior flow characteristics and bi-directional zero leakage shut-off. It is suitable for fluids such as water, sludge and bio mass. Integrated flange gaskets simplify installation works.

The WB11 valve is modular designed and it can easily be customized in materials, with actuators and related automation accessories to different process conditions. It is supplied with a robust one piece valve body in nodular iron up to DN 300. The WB11 sealing system assure a first rate sealing, both internal and external against surrounding environment.

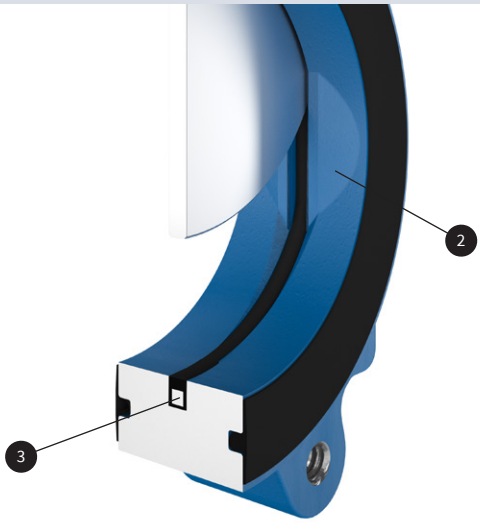
Other versions are the semi lugged WB in DN 350 - DN 1600, fully lugged WB14 in DN 50 - DN 600 and WB12 in DN 150 - DN 200 which has a square fully flanged valve body. The WB14E is a high performance stainless steel version.

Superior flow characteristics

A cavity free full bore with a seat (1) in level with the bore ensure minimal pressure drop and prevent build up of media during operation.

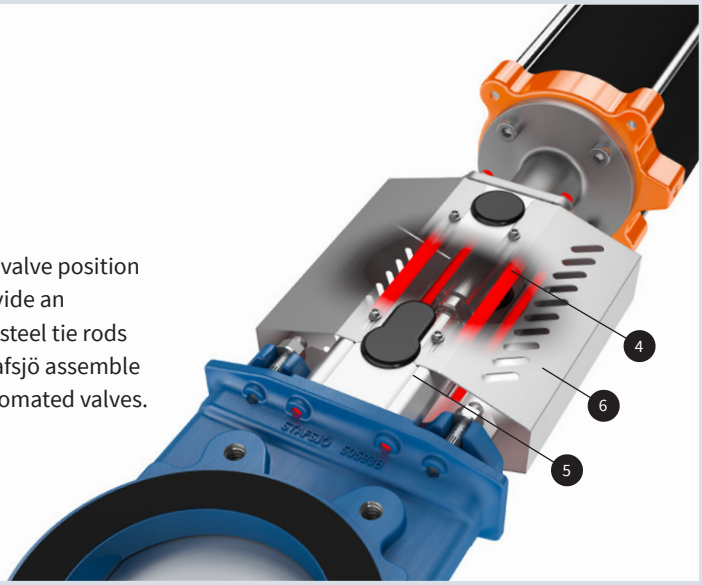
Bi-directional zero leakage shut-off

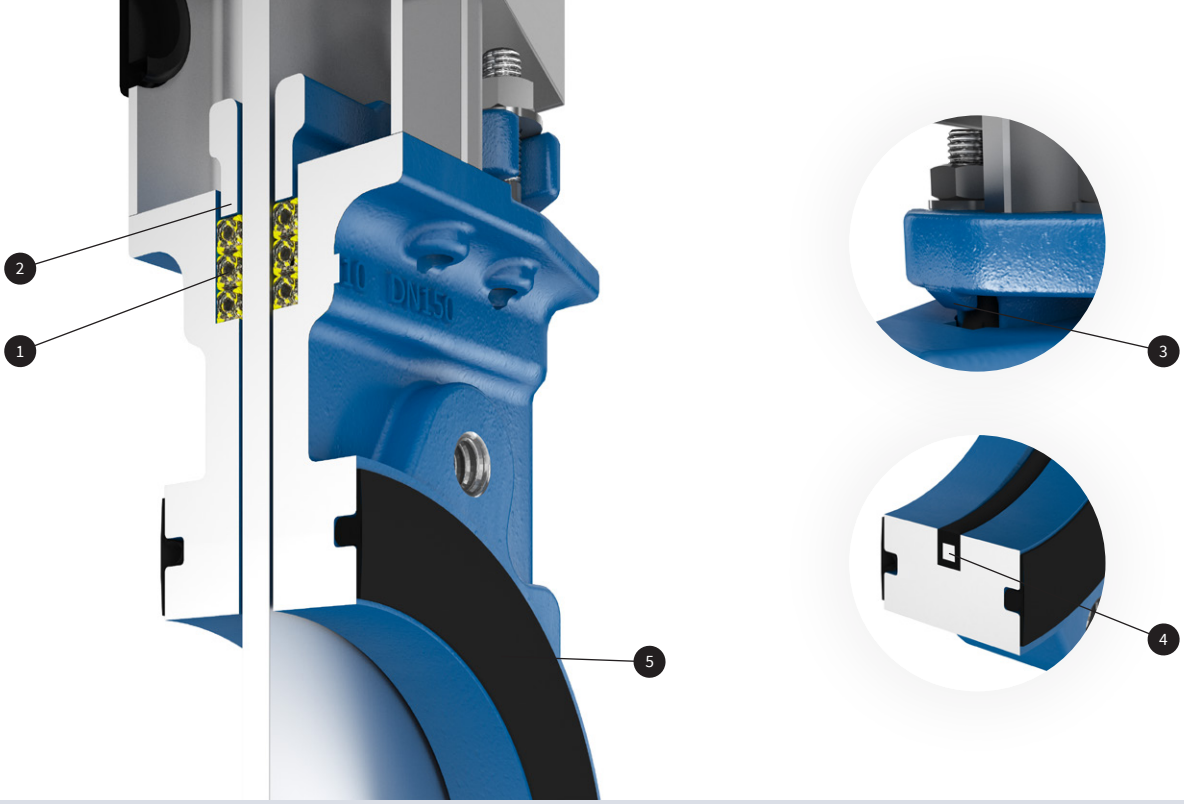
Casted gate guides (2) support the gate through the entire range of travel and the perimeter resilient seat provides a tight shut-off independent of pressure direction. The stainless steel reinforcement inside the seat (3) make it steady and enhance durability.



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 (4) encapsulated inside the structural beams (5). Stafsjö assemble stainless steel gate guards (6) as standard on all automated valves.





The WB11 sealing system

The WB11 valve is intented for use in a wide range of applications. A first rate sealing both internal and external is crucial for both plant efficiency and personnel safety. The sealing system consist of several features and components, all working together to perform during long periods of time to provide zero leakage shut-off.

Stafsjö's TwinPack braids (1) perform the main external sealing operation in the system and offers high mechanical strength and excellent chemical resistance. It is made up by an elastic silicon rubber core surrounded by interlocked graphite filled PTFE fibres with additional strong interlocked aramide fibre reinforced corners (yellow). The TwinPack braids resist pH 2-13 and temperatures -60 °C up to 260 °C.

The gland (2) and gland bolts ensure even distribution of the gland force as the nuts are tightened. The linear locks (3) on the gland securely hold the reinforced seat (4) in position as the gate strokes.

The valves' integrated flange (5) gaskets simplify the installation works and preserve a tight flange sealing.

The WB11 valve can be supplied with seat in EPDM, NBR and the high temperature and chemical resistant FEPM (Fluoroelastomer) material.

EPDM -25 °C - + 120 °C
An allround durable chemical resistant rubber suitable for rather high media temperatures.

Unsuitable media and service
Petroleum (gasoline, kerosene, oil and grease) and sulphuric acid.

FEPM -10 °C - + 180 °C
Excellent resistance to wide range of aggressive chemicals, both acids and bases, and steam at high continuous service temperatures including short term peeks up to + 225 °C.

Unsuitable media and service
Limited resistance to mineral and aromatic oils and low temp.

NBR -25 °C - + 100 °C
Alternative to EPDM with excellent resistance to petroleum (gasoline, oil, grease).

Unsuitable media and service
Chlorinated solvents, acetone, sulphuric acid, formic acid.

Pressure class

Max working pressure at 20 °C		Max differential pressure at 20 °C	
DN	bar	DN	bar
50 - 300	10	50 - 300	10

Configurations

Standard

Sizes: DN 50 - DN 300
Valve body: Nodular iron EN-JS1050, GGG50
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 valves

Options

Valve body
Nodular iron EN-JS1050, GGG50

Gates
Stainless steel EN 1.4301, AISI 304
Stainless steel EN 1.4404, AISI 316L
Duplex stainless steel EN 1.4462, S32205

Seats
EPDM
FEPM
NBR

Box packings
TwinPack
Extra scrapers in UHMW-PE

Top works
Stainless steel tie rods encapsulated in aluminum beams
Stainless steel pillars or beams

Actuators
Hand wheel with non-rising stem
Chain wheel
Hand lever[1)]
Bevel gear
Double-acting pneumatic cylinders
Single-acting pneumatic cylinders
Electric actuators
Hydraulic actuator

Flange drillings
EN 1092 PN 10
ANSI/ASME B16.5 Class 150
Special WB11k

Accessories
Limit switches, solenoid valves, mechanical lockouts, stem extensions etc. See our accessory data sheet for further information.

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 20 °C according to EN 12266-1:2003 rate A. No visually detectable leakage is allowed for duration of the test.

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

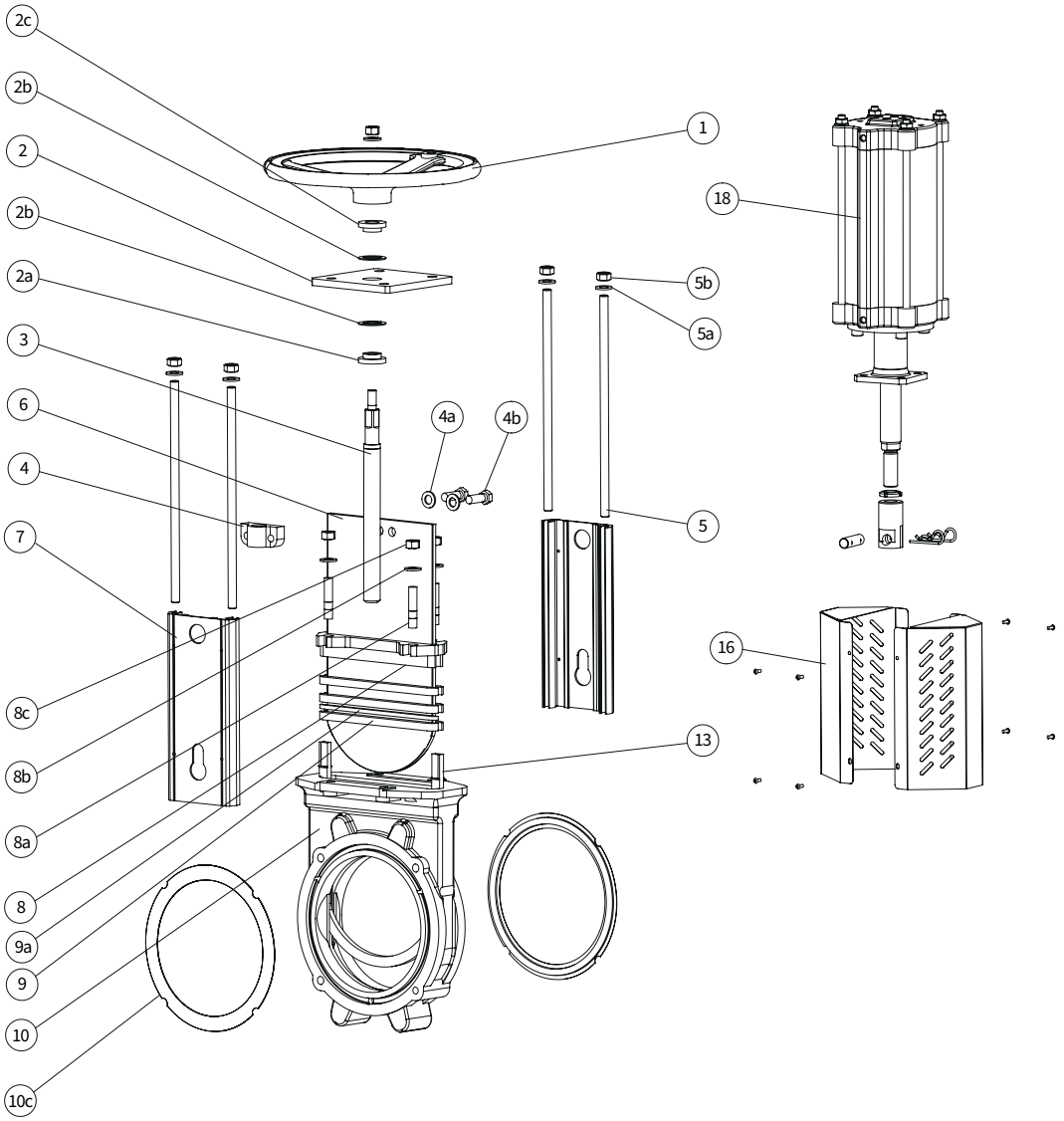
Contact Stafsjö for further information on ATEX approved solutions.

Face-to-face dimensions
According EN 558-1 series 20 and ISO 5752 series 20.

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/.

1) Pressures according to design data are not valid for valve equipped with hand lever. Maximum working and differential pressure at 20 °C for DN 50 - 100 is 4 bar.

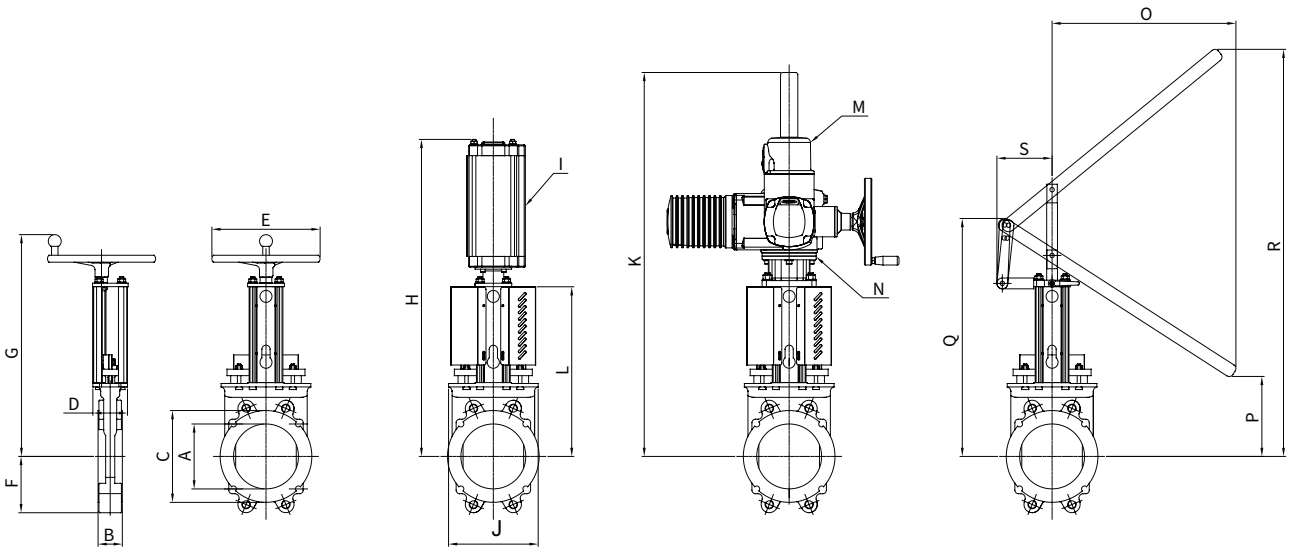


Part list

Pos.	Part	Material
1	Hand wheel	Coated cast iron Ø 200 - Ø 315 EN-JL1040, GG25
2	Yoke	Stainless steel EN 1.4301
2a	Bearing	Brass
2b	Slide washer	POM
2c	Bearing	Brass
3	Stem	Stainless steel EN 1.4016
4	Stem nut	Brass
4a	Washer	Stainless steel A2
4b	Bolt	Stainless steel A2
5	Tie rods	Stainless steel A2
5a	Washer	Stainless steel A2
5b	Nut	Stainless steel A2
6	Gate	See options on page 5
7	Beam	Anodized aluminum

Pos.	Part	Material
8	Gland	Coated carbon steel ASTM A216 WCB, coated nodular iron EN-JS1050, GGG50
8a	Pin Bolt	Stainless steel A2
8b	Washer	Stainless steel A2
8c	Nut	Stainless steel A2
9[1)]	Box packing	TwinPack
9a[1)]	Box bottom scraper	DN 200 - DN 300 UHMW-PE
10	Valve body	Coated nodular iron EN-JS1050, GGG50
10c[1)]	Flange sealings	NBR
13[1)]	Seat	See options on page 4
16	Gate guards	Stainless steel EN 1.4301
18	Pneumatic cylinder	See separate data sheet

1) Recommended spare parts



Main dimensions (mm)

DN	A	B	C	D	E	F	G	H	I[1)]	J	K	L	M[2)]	N[3)]	O	P	Q	R	S	kg[4)]
50	50	43	90	86	200	59	358	526	SC100	117	629	227	SA07.2	F10/A	499	128	381	419	149	6,5
65	65	46	105	86	200	66	382	551	SC100	131	654	252	SA07.2	F10/A	492	153	407	511	147	8,0
80	80	46	120	86	200	89	395	574	SC100	130	677	275	SA07.2	F10/A	479	176	429	598	144	10,0
100	100	52	144	86	200	101	430	609	SC100	151	712	310	SA07.2	F10/A	635	17	472	653	146	12,5
125	125	56	169	86	250	115	470	699	SC100	177	752	350	SA07.2	F10/A	-	-	-	-	-	16,5
150	150	56	192	86	250	130	514	741	SC125	201	794	392	SA07.6	F10/A	-	-	-	-	-	19,5
200	200	60	256	151	315	155	622	954	SC160	265	818	483	SA07.6	F10/A	-	-	-	-	-	32,5
250	250	68	307	151	315	193	718	1155	SC160	335	914	579	SA07.6	F10/A	-	-	-	-	-	48,5
300	300	78	354	151	315	228	822	1251	SC160	372	1059	675	SA10.2	F10/A	-	-	-	-	-	66,0

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.

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 with output drive type A (rising stem) according ISO 5210.

4) Weight in kg for valve equipped with hand wheel.

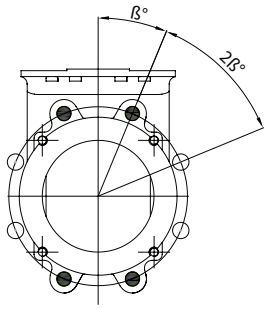
Main dimensions are only for information. Contact Stafsjö for certified drawings.

Flange drilling according to EN 1092 PN10

DN	50	65	80	100	125	150	200	250	300
Bolt circle diameter (mm)	125	145	160	180	210	240	295	350	400
Number of throughgoing bolts	-	-	4	4	4	4	4	4	4
Number of tapped holes/side	4	4	4	4	4	4	4	8	8
Bolt size	M16	M16	M16	M16	M16	M20	M20	M20	M20
Bolt lengths[1] (mm)	12	12	11	15	15	15	16	20	20

Flange drilling according EN 1092 PN10 + 4 extra tapped holes WB11k[2]

DN	150	200
Number of tapped holes/side	4	4
Bolt size	M12	M12
l (mm)	150	180
Bolt lengths[1] (mm)	16	18



2) Maximum working and differential pressure at 20°C for WB11k DN 150 - DN 200 is 4 bar.

Flange drilling according to ASME/ANSI B 16.5 Class 150

DN	50	65	80	100	125	150	200	250	300
Bolt circle diameter (mm)	120,6	139,7	152,4	190,5	215,9	241,3	298,4	361,9	431,8
Number of throughgoing bolts	-	-	-	4	4	4	4	4	4
Number of tapped holes/side	4	4	4	4	4	4	4	8	8
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
Bolt lengths[1] (mm)	12	12	11	15	15	15	16	20	20

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

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