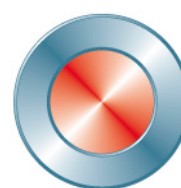


## Knife gate valve HX



**Stafsjö**

SINCE 1666

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## Knife gate valve HX

Stafsjö's knife gate valve HX is an extreme high pressure valve for really demanding applications. It has excellent flow characteristics and it seal tight independent of pressure direction. It is equipped with a through-going gate that gives a secure shut-off of concentrated media at very high pressures. This shut-off performance, along with its flow characteristics, makes it suitable for severe operating conditions with media such as pulp (pulp concentration > 5%), liquor, reject, powder and ash.

HX is supplied as standard with a reinforced valve body in stainless steel with integrated purge ports, but it can also be supplied in high alloy material such as 254 SMO and Titanium. Tight tolerances, precisely performed machining and integrated guiding strips lowers the friction during its operation. Stafsjö's retainer ring system with seats on each side of the gate enables it to cope with bi-directional pressures. The gland boxes are equipped with Stafsjö's box packing TwinPack™, scrapers and extra load distributors in PTFE to secure that no media reaches the surrounding environment.

The top work consists of aluminium beams and stainless steel tie rods, which gives good corrosion resistance and a stable operation. The valve is modular designed and it can easily be customized to specific processes conditions. There are several actuator types and accessories to choose from in our standard collection.

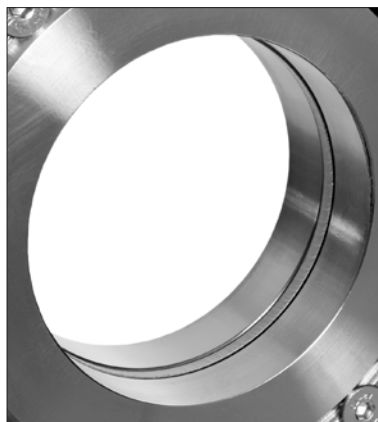
The HX valve is designed, manufactured, inspected and tested according to pressure equipment directive 2014/68/EU category I and II module A2. The valve is CE marked when it is applicable.

The HX valve is one out of five valves in Stafsjö's product range with through-going gates. The HG valve represent the standard. HL is a slim line version of HG while HP is high pressure version. HPT is a high pressure version entirely made in Titanium.



### Reinforced to cope with high bi-directional pressures

The valve has been reinforced to be able to cope with high bi-directional pressures. Its basic design with a throughgoing gate also makes it very trusted in applications with highly concentrated media.



### A bore with excellent flow characteristics

In open position, the HX valve's bore has almost no cavity at all, making the flow characteristics really excellent. In this position the PTFE seats are protected by the retainer rings and the gate.



### Solid design to preserve a first rate sealing

The gate is supported all the way from opened to closed position which, together with a proper dimensioned top works, makes the shut-off reliable and repeatable.

## Design data

Sizes	Flange drilling	Face-to-face dimension	ATEX design
DN 200 - DN 800	EN 1092 PN 16 EN 1092 PN 20 EN 1092 PN 25 EN 1092 PN 40 EN 1092 PN 50 ASME B16.5 Class 150 ASME B16.5 Class 300	Stafsjö manufacturing standard	On request directive 2014/34/EU Group II category: 3 G/D (zone 2 or 22) 2 G/D (zone 1 or 21)

Other sizes, flange drillings and ATEX zones on request.

Leakage rate	Pressure tests
EN 12266-1:2009 Rate A: no visually detectable leakage is allowed for duration of the test	Pressure tests are performed with water at 20° C according to EN 12266-1:2009. Pressure for shell test: 1,5 times maximum allowable working pressure for open valve. Pressure for seat tightness test: 1,1 times maximum allowable differential pressure for closed valve.
Maximum working pressure body at 110°C	Maximum differential pressure at 110°C
DN	bar
200 - 800	20
DN	bar
200 - 800	20

## Basic equipment

A. Valve Body			
Material	Code	Type	Maximum temperature °C
Stainless steel	E	EN 1.4408	400
<i>The valve body is as standard supplied with purge ports G1/2"</i>			
B. Gate			
Material	Type	Optional surface treatment	
Stainless steel	EN 1.4404 (AISI 316L)	Hard chromed	
<i>Option</i>			
Duplex stainless steel <sup>1)</sup>	EN 1.4462 (S32205)	Hard chromed	
<sup>1)</sup> Standard gate material on HX DN 400 - DN 800			
C. Retainer rings			
Material	Type		
Stainless steel	EN 1.4408		
D. Seats			
Material	Code	Maximum temperature °C	
PTFE with o-ring Nitrile	P	100	
PTFE with o-ring Viton	PV	180	
E. Box packings			
Material	Code	Maximum temperature °C	
TwinPack™, scrapers and load distributors in PTFE	TY	260	
WhitePack™, scrapers and load distributors in PTFE	WP	260	

## Actuators

Manual	Code	Automatic	Code
Hand wheel <sup>1)</sup>	HW	Pneumatic cylinder	EC
		Electrical motor	EM
		Hydraulic cylinder <sup>2)</sup>	MH

<sup>1)</sup> For recommended size, see page 5 column E

<sup>2)</sup> For recommended size, see separate data sheet



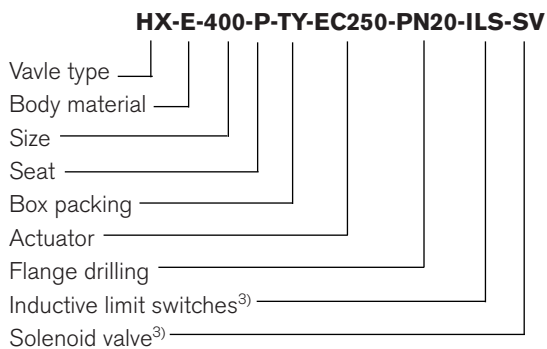
Double-acting pneumatic cylinder			Electric motor (AUMA multi-turn)		
DN valve	Size EC	Force at 5 bar (kN)	DN valve	AUMA type	Attachment
200	EC 160	9,0	200 - 350	SA 10.2	F10/A
250	EC 200	14,1	400 - 600	SA 14.2	F14/A
300 - 400	EC 250	22,1	800	OR	
500 - 600	EC 320	36,2			
800	OR				

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

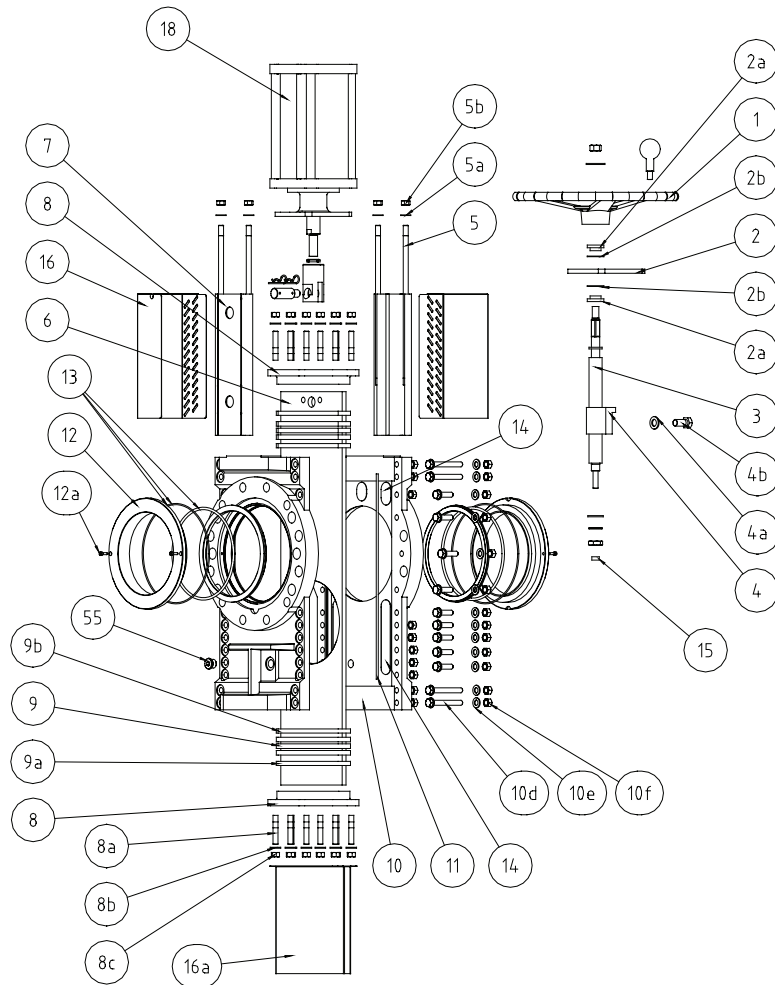
The actuators are described in separate data sheets. For advice and information on other actuators or on ATEX-classified ones, please contact Stafsjö or your local representative.

## 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](http://www.stafsjo.com).



<sup>3)</sup> All electronics must be specified in detail.



## Part list

Pos	Detail	Material (Type)
1	Hand wheel	Coated cast iron (EN-JL1030 (GG20))
2	Yoke	Stainless steel (EN 1.4301)
2a	Bearing	Brass (CuZn39Pb3)
2b	Slide washer	POM
3	Stem	Stainless steel (EN 1.4305)
4	Stem nut	Brass (CW603N)
4a	Washer	Stainless steel (A2)
4b	Screw	Stainless steel (A2)
5 <sup>5)</sup>	Tie rod	Stainless steel (EN 1.4301)
5a	Washer	Stainless steel (A2)
5b	Nut	Stainless steel (A2)
6	Gate	See equipment B
7	Beam	Aluminium (EN AW-6063-T6) <sup>5)</sup>
8	Gland	Stainless steel (EN 1.4408)
8a <sup>6)</sup>	Stud bolt	Stainless steel (A2), zinc coated

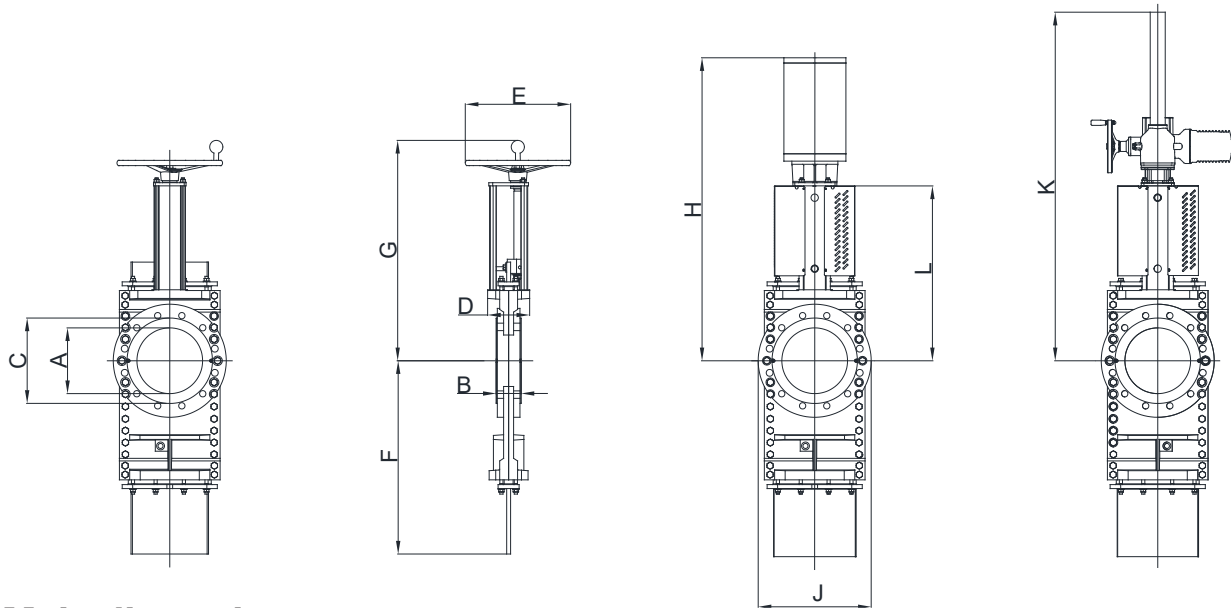
<sup>4)</sup> Recommended spare parts

<sup>5)</sup> Replaced by pillars in stainless steel (EN 1.4436 or EN 1.4404) on HX in Titanium and 254 SMO

Pos	Detail	Material (Type)
8b	Washer	Stainless steel (A2) <sup>6)</sup>
8c	Nut	Stainless steel (A2), zinc coated <sup>6)</sup>
9/a/b <sup>4)</sup>	Box packing	See equipment E
10	Valve body	See equipment A
10d	Screw	Stainless steel (A4)
10e	Washer	Stainless steel (A4)
10f	Nut	Stainless steel (A4)
11	Body gasket	PTFE
12	Retainer rings	See equipment C
12a	Locking screw	Stainless steel (A4)
13 <sup>4)</sup>	Seat and o-rings	See equipment D
14a	Guide strip	PTFE
15	Bushing	Oil-bronze
16/a	Gate guards, not for HW	Stainless steel (EN 1.4301) <sup>7)</sup>
18	Cylinder	See data sheet
55	Plug	Stainless steel (A4)

<sup>6)</sup> Replaced by Titanium or stainless steel A4 on HX in Titanium and 254 SMO

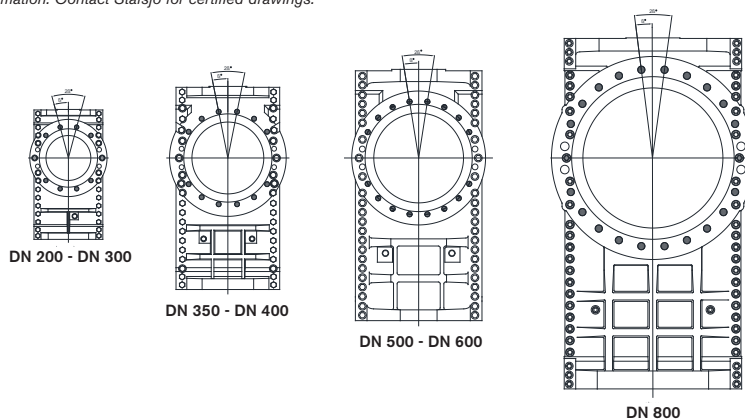
<sup>7)</sup> Replaced by stainless steel EN 1.4404 on HX in Titanium and 254 SMO



## Main dimensions

Dimensions (mm)												
DN	A	B	C	D	E	F	G	H	J	L	K	Weight <sup>8)</sup>
200	200	90	268	152	400	607	746	941	370	575	775	115
250	250	95	324	160	400	735	838	1152	1152	665	915	180
300	300	114	378	184	400	910	922	1293	500	749	1049	290
350	350	125	438	192	-	1100	-	1554	575	910	1260	380
400	400	125	490	210	520	1200	1122	1692	650	998	1398	560
500	500	150	596	310	520	1600	1380	2054	745	1248	1748	950
600	600	170	708	310	-	1740	-	2244	880	1383	1983	1250
800	780	190	903	320	-	2205	-	-	1130	1681	2481	1840

<sup>8)</sup> Weight in kg for the valve with an EC pneumatic actuator.  
Main dimensions are only for information. Contact Stafsjö for certified drawings.

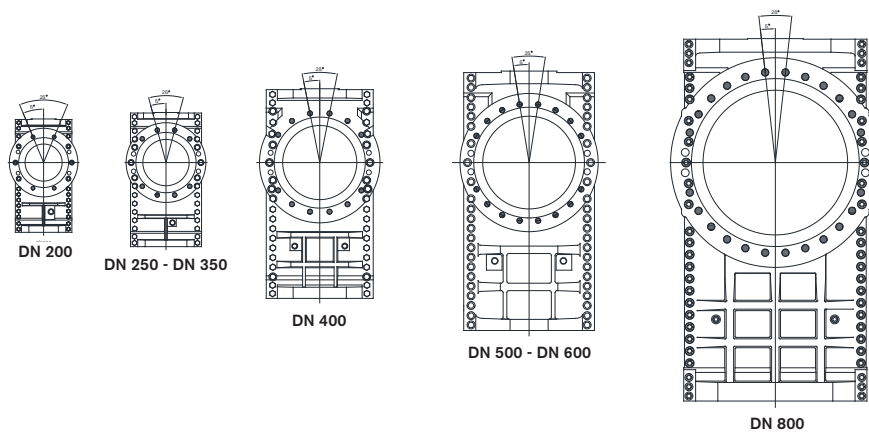


## Flange drilling according to EN 1092 PN16

Flange drilling information (mm)								
DN	200	250	300	350	400	500	600	800
Outside flange diameter	340	405	460	520	580	715	840	1025
Bolt circle diameter	295	355	410	470	525	650	770	950
Number of throughgoing bolts (○)	4	4	4	4	4	4	4	4
Number of tapped hole/side (●)	8	8	8	12	12	16	16	20
Bolt size	M20	M24	M24	M24	M27	M30	M33	M36
Size of throughgoing holes in flange	22	26	26	26	30	33	36	39
$\beta^\circ$	15	15	15	11,25	11,25	9	9	7,5
Screw lengths <sup>9)</sup>	29	29	34	38	41	44	44	50

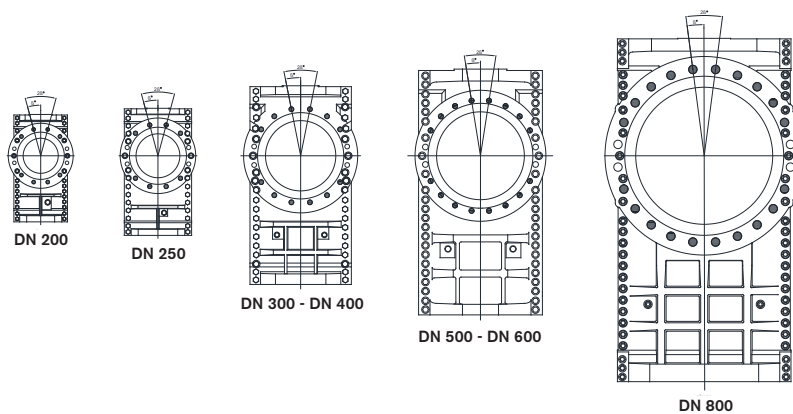
<sup>9)</sup> Add the values with the thickness of flanges, washers and gaskets.

- Throughgoing holes
- Tapped holes



## Flange drilling according to EN 1092 PN20

Flange drilling information (mm)								
DN	200	250	300	350	400	500	600	800
Outside flange diameter	345	405	485	535	600	700	815	1140
Bolt circle diameter	298,5	362	432	476	540	635	749,5	978
Number of throughgoing bolts (◦)	4	4	4	4	4	4	4	4
Number of tapped hole/side (•)	4	8	8	8	12	16	16	24
Bolt size	M20	M24	M24	M27	M27	M30	M33	M39
Size of throughgoing holes in flange	22	26	26	30	30	33	36	42
$\beta^\circ$	22,5	15	15	15	11,25	9	9	6,43
Screw lengths <sup>9)</sup>	29	29	34	38	41	44	44	50



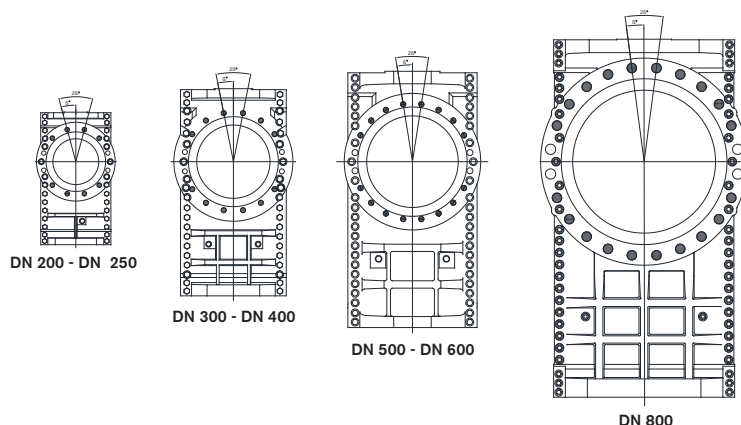
## Flange drilling according to EN 1092 PN25

Flange drilling information (mm)								
DN	200	250	300	350	400	500	600	800
Outside flange diameter	360	425	485	555	620	730	845	1085
Bolt circle diameter	310	370	430	490	550	660	770	990
Number of throughgoing bolts (◦)	4	4	4	4	4	4	4	4
Number of tapped hole/side (•)	8	8	12	12	12	16	16	20
Bolt size	M24	M27	M27	M30	M33	M33	M36	M45
Size of throughgoing holes in flange	26	30	30	33	36	36	39	48
$\beta^\circ$	15	15	11,25	11,25	11,25	9	9	7,5
Screw lengths <sup>9)</sup>	29	29	34	38	41	44	44	50

<sup>9)</sup> Add the values with the thickness of flanges, washers and gaskets.

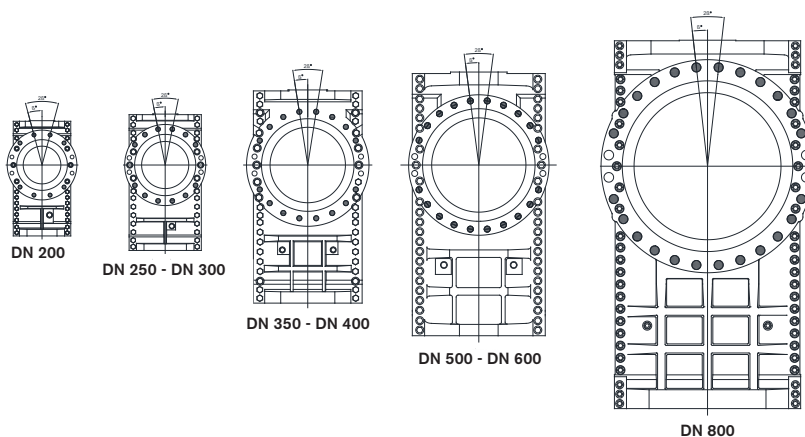
◦ Throughgoing holes

• Tapped holes



## Flange drilling according to EN 1092 PN40

Flange drilling information (mm)								
DN	200	250	300	350	400	500	600	800
Outside flange diameter	375	450	515	580	660	755	890	1140
Bolt circle diameter	320	385	450	510	585	670	795	1030
Number of throughgoing bolts (◦)	4	4	4	4	4	4	4	4
Number of tapped hole/side (•)	8	8	12	12	12	16	16	20
Bolt size	M27	M30	M30	M33	M36	M39	M45	M52
Size of throughgoing holes in flange	30	33	33	36	39	43	48	56
$\beta^\circ$	15	15	11,25	11,25	11,25	9	9	7,5
Screw lengths <sup>9)</sup>	29	29	34	38	41	44	44	50



## Flange drilling according to EN 1092 PN50

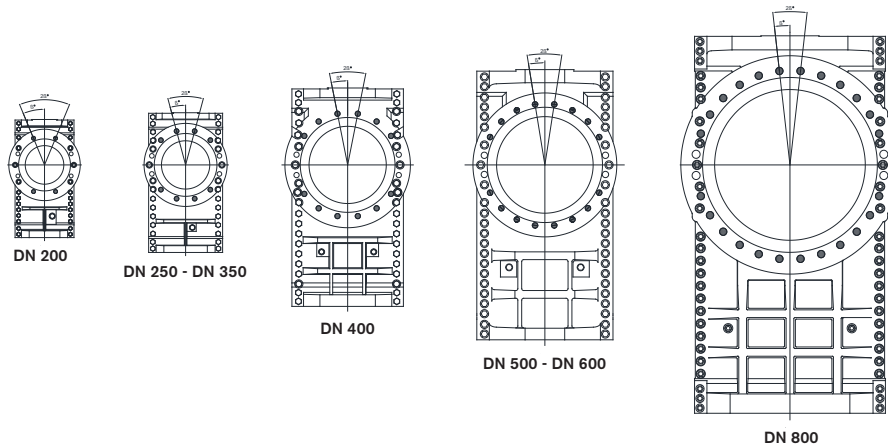
Flange drilling information (mm)								
DN	200	250	300	350	400	500	600	800
Outside flange diameter	380	445	520	585	650	775	915	1150
Bolt circle diameter	330	387,5	451	514,5	571,5	686	813	1054
Number of throughgoing bolts (◦)	4	4	4	4	4	4	4	4
Number of tapped hole/side (•)	8	12	12	16	16	20	20	24
Bolt size	M24	M27	M30	M30	M33	M33	M39	M48
Size of throughgoing holes in flange	26	30	33	33	36	36	42	51
$\beta^\circ$	15	11,25	11,25	9	9	7,5	7,5	6,43
Screw lengths <sup>9)</sup>	29	29	34	38	41	44	44	50

<sup>9)</sup> Add the values with the thickness of flanges, washers and gaskets.

◦ Throughgoing holes

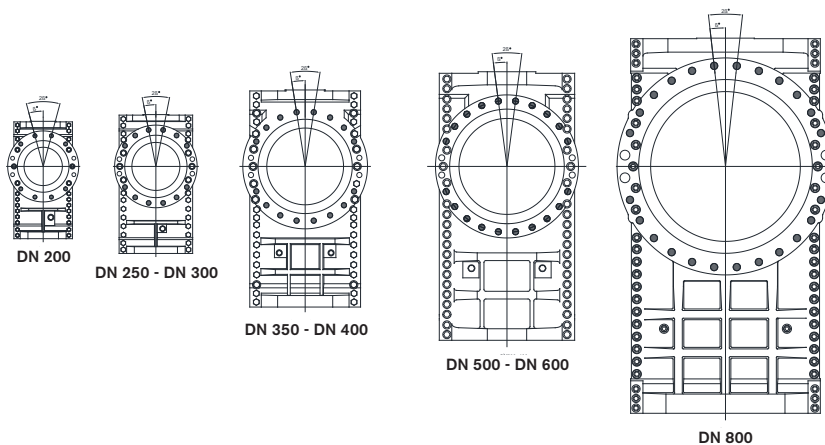
• Tapped holes





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

Flange drilling information (mm)								
DN	200	250	300	350	400	500	600	800
Outside flange diameter	342,9	406,4	482,6	533,4	596,9	698,5	812,8	1060
Bolt circle diameter	298,5	362	431,8	476,3	539,8	635	749,3	977,9
Number of throughgoing bolts (◦)	4	4	4	4	4	4	4	4
Number of tapped hole/side (•)	4	8	8	8	12	16	16	24
Bolt size (UNC)	3/4-10	7/8-9	7/8-9	1-8	1-8	1 1/8-7	1 1/4-7	1 1/2-6
Size of throughgoing holes in flange	22	26	26	29	28	33	36	42
$\beta^\circ$	22,5	15	15	15	11,25	9	9	6,43
Screw lengths <sup>9)</sup>	29	29	34	38	41	44	44	50



## Flange drilling according to ASME/ANSI B16.5 Class 300

Flange drilling information (mm)								
DN	200	250	300	350	400	500	600	800
Outside flange diameter	381	444,5	520,7	584,2	647,7	774,7	914,4	1150
Bolt circle diameter	330,2	387,4	450,9	514,4	571,5	685,8	812,8	1054,1
Number of throughgoing bolts (◦)	4	4	4	4	4	4	4	4
Number of tapped hole/side (•)	8	12	12	16	16	20	20	24
Bolt size (UNC)	7/8-9	1-8	1 1/8-7	1 1/8-7	1 1/4-7	1 1/4-7	1 1/2-6	1 7/8-6
Size of throughgoing holes in flange	26	28	33	32	36	36	51	51
$\beta^\circ$	15	11,25	11,25	9	9	7,5	7,5	6,43
Screw lengths <sup>9)</sup>	29	29	34	38	41	44	44	50

<sup>9)</sup> Add the values with the thickness of flanges, washers and gaskets.

◦ Throughgoing holes

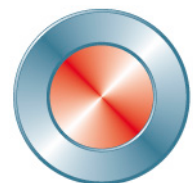
• Tapped holes





## Globally active. Locally represented.

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