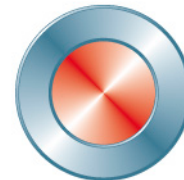


## Knife gate valve HX



**Stafsjö**  
SINCE 1666



## 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.

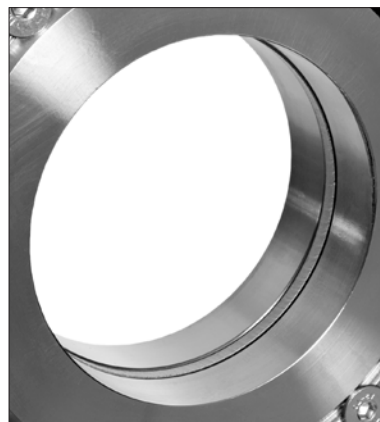
The HX valve is designed, manufactured, inspected and tested according to pressure equipment directive 2014/68/EU category I and II module A2. The valve is CE marked when it is applicable.

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<br>EN 1092 PN 20<br>EN 1092 PN 25<br>EN 1092 PN 40<br>EN 1092 PN 50<br>ASME B16.5 Class 150<br>ASME B16.5 Class 300 | Stafsjö manufacturing standard | On request directive 2014/34/EU Group II category:<br>3 G/D (zone 2 or 22)<br>2 G/D (zone 1 or 21) |

Other sizes, flange drillings and ATEX zones on request.

| Leakage rate                                                                                      | Pressure tests                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EN 12266-1:2009 Rate A:</b> 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.<br>Pressure for shell test: 1,5 times maximum allowable working pressure for open valve.<br>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                                                                                                                                                                                                                                                                               |

## Basic equipment

| A. Valve Body                                                 |                       |                            |                        |
|---------------------------------------------------------------|-----------------------|----------------------------|------------------------|
| Material                                                      | Code                  | Type                       | Maximum temperature °C |
| Stainless steel                                               | E                     | EN 1.4408                  | 400                    |
| The valve body is as standard supplied with purge ports G1/2" |                       |                            |                        |
| B. Gate                                                       |                       |                            |                        |
| Material                                                      | Type                  | Optional surface treatment |                        |
| Stainless steel                                               | EN 1.4404 (AISI 316L) | Hard chromed               |                        |
| Option                                                        |                       |                            |                        |
| 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      |
|--------------------------------|-----------|----------------------------------------|-----------|
| <b>Hand wheel<sup>1)</sup></b> | <b>HW</b> | <b>Pneumatic cylinder</b>              | <b>EC</b> |
|                                |           | <b>Electrical motor</b>                | <b>EM</b> |
|                                |           | <b>Hydraulic cylinder<sup>2)</sup></b> | <b>MH</b> |

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

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

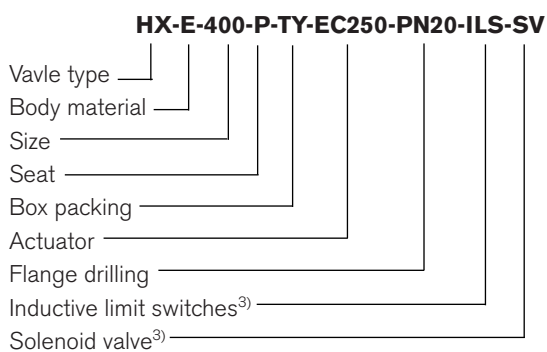
| Double-acting pneumatic cylinder |         |                     | Electric motor (AUMA multi-turn) |           |            |
|----------------------------------|---------|---------------------|----------------------------------|-----------|------------|
| DN valve                         | Size EC | 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.*

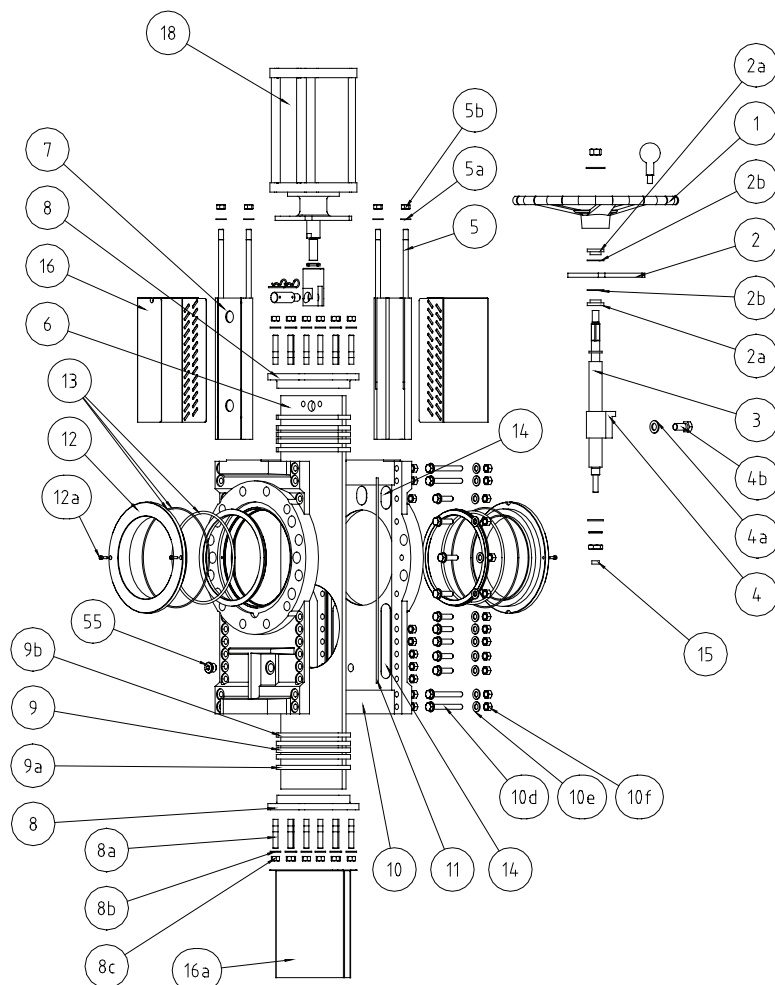
*The actuators are described in separate data sheets. For advice and information on other actuators or on ATEX-classified ones, please contact Stafsjö or your local representative.*

## 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).



*3) 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>6)</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       |

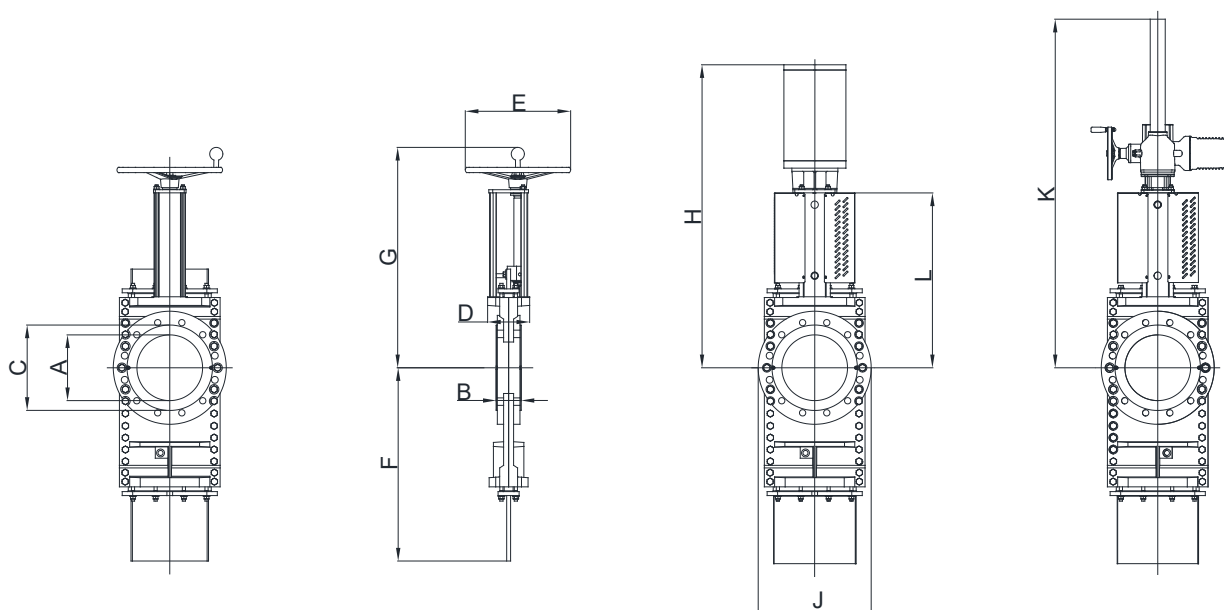
<sup>4)</sup> Recommended spare parts

<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

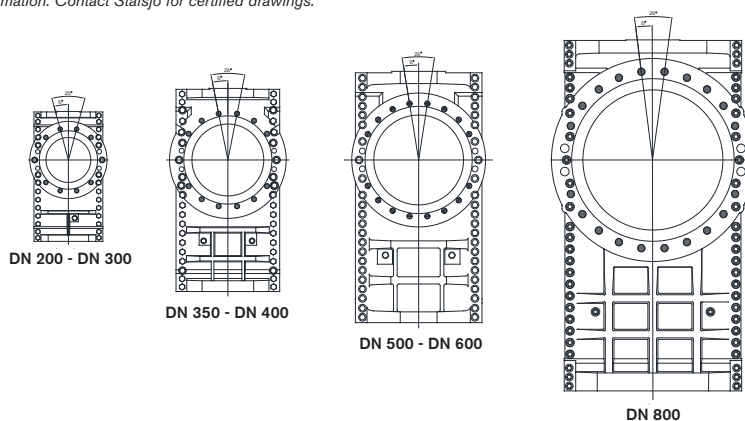


## Main dimensions

| 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.



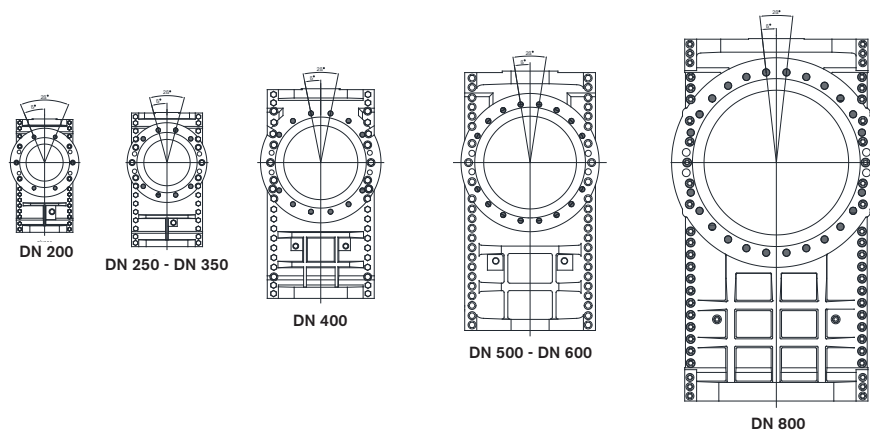
## Flange drilling according to EN 1092 PN16

| 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   |
| β°                                   | 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.

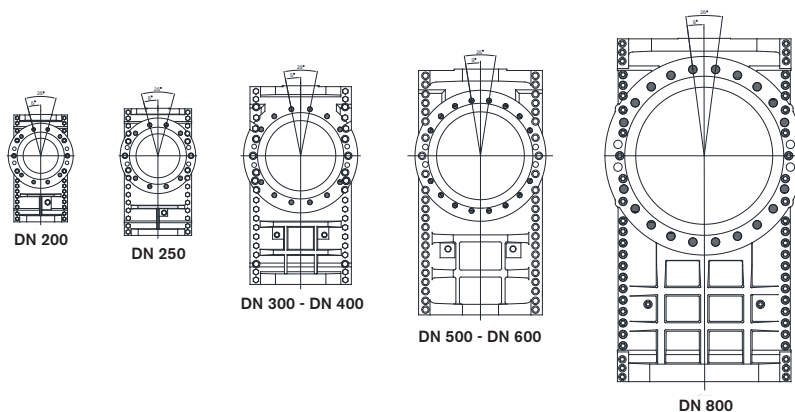
○ Throughgoing holes

● 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   |



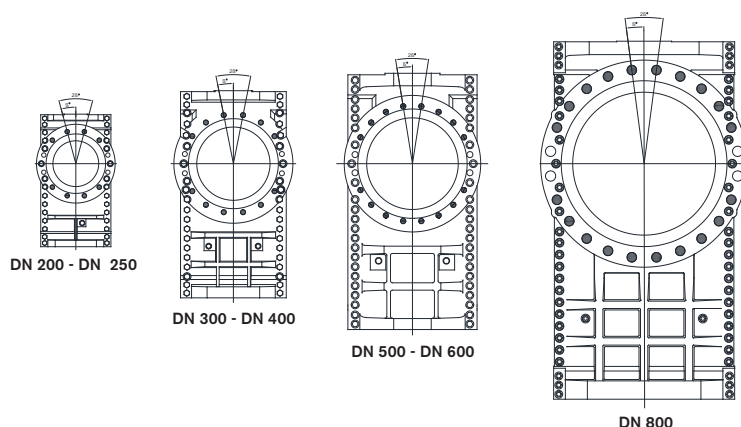
## Flange drilling according to EN 1092 PN25

| 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.

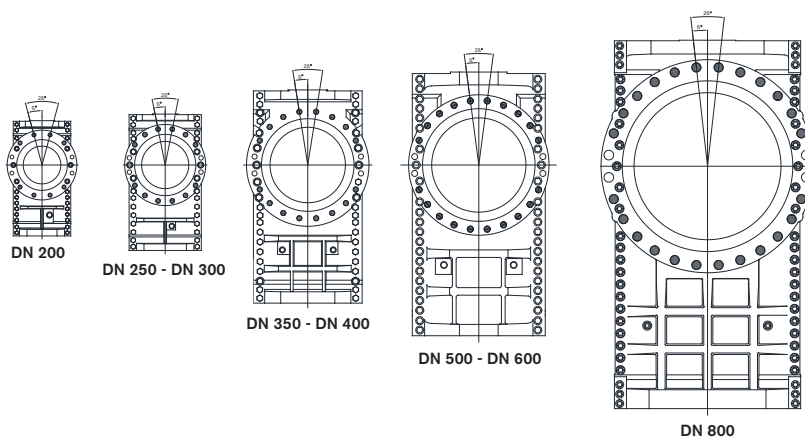
◦ Throughgoing holes

• 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   |



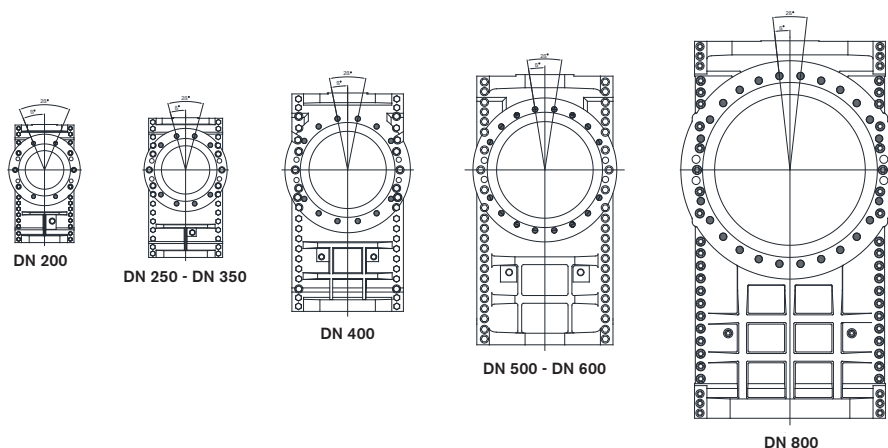
## Flange drilling according to EN 1092 PN50

| 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.

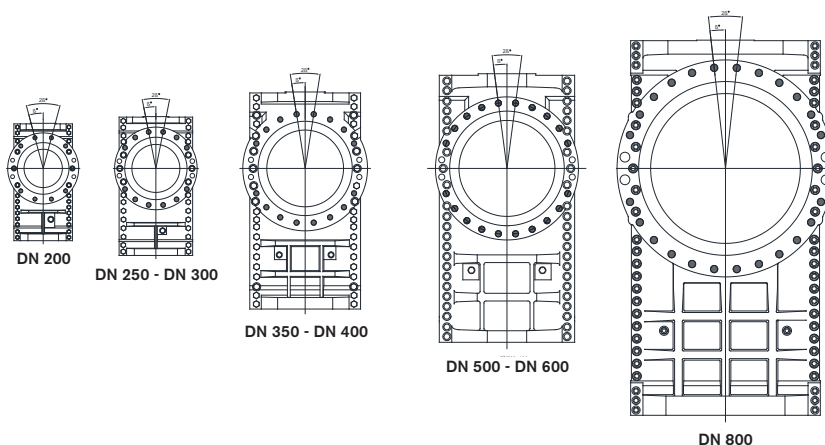
◊ Throughgoing holes

● 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

Further information is available on [www.stafsjo.com](http://www.stafsjo.com)



**Valve  
& Automation**  
Total Valve & Control Solutions®

**JOHANNESBURG**

Tel: 011 397 2833

**DURBAN**

Tel: 031 579 2593

**South Africa:**

**0861 103 103**

E-mail: [sales@valve.co.za](mailto:sales@valve.co.za)

**[www.valve.co.za](http://www.valve.co.za)**



SCAN ME