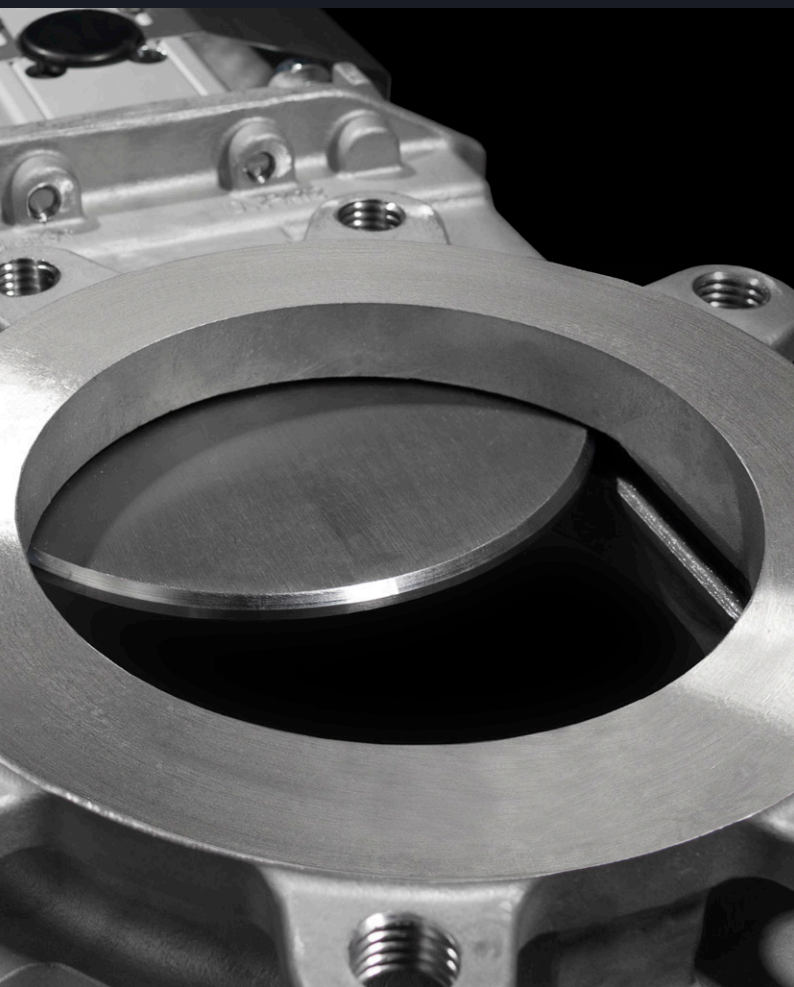


Stafsjö  
SINCE 1666

# Knife gate valve WB14E

Stainless steel bi-directional and fully lugged high performance knife gate valve.

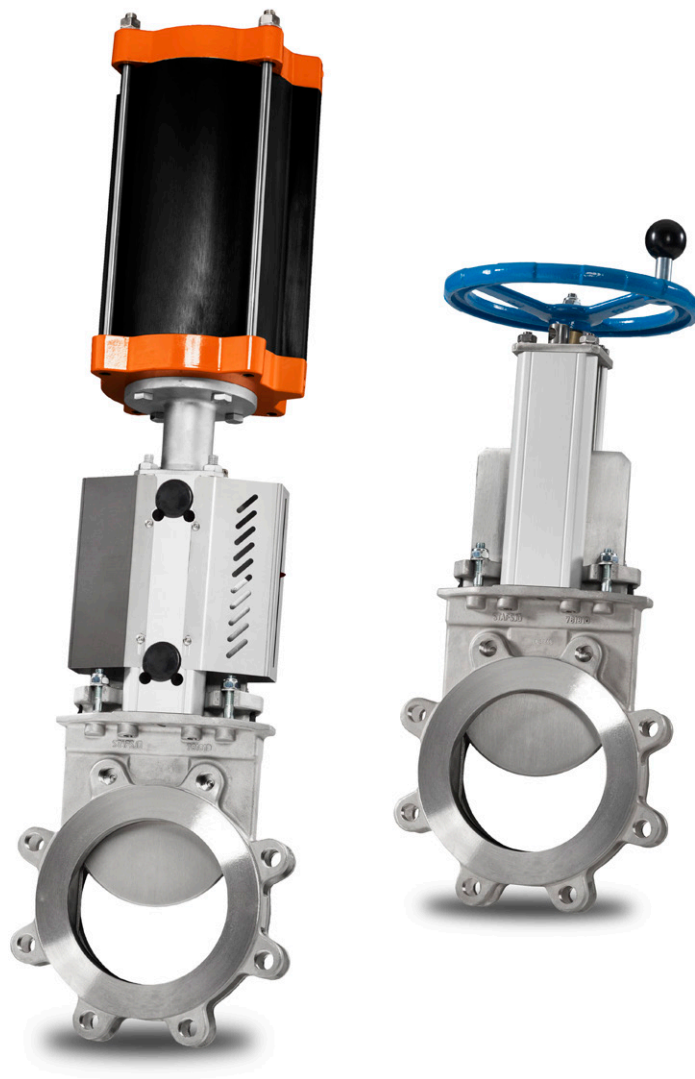
Size range:  
2" - 30" (DN 50 - DN 750)



# About WB14E

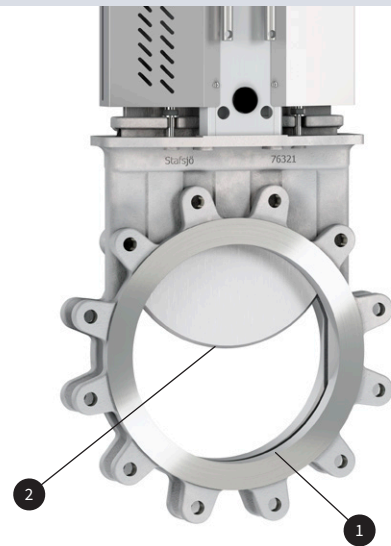
Stafsjö's WB14E knife gate valve is a high performance shut-off valve with superior flow characteristics, offering bi-directional zero leakage isolation. It is suitable for fluids such as pulp stock, chemicals, sludge, bio mass and water. The fully lugged body design is suitable for dead-end services.

The WB14E valve is modular designed and it can easily be customized in materials, with actuators and related automation accessories to different process conditions. The valve is also available with mechanical lock out. As standard the WB14E is supplied with stainless steel wetted parts including the fully lugged valve body, polished gate and gland. Up to 12" it has a one piece valve body and from 14" it features a rigid two-piece version. The WB14E sealing system assure a first rate sealing, both internal and external against surrounding environment.



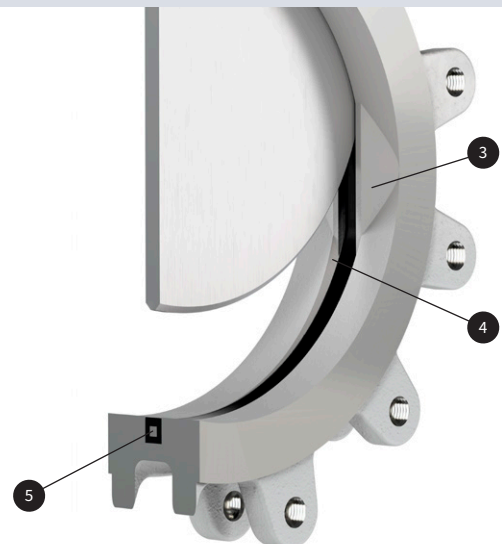
## Full bore with superior flow characteristics

The cavity free bore (1) prevent any build up of media during operation. The polished gate (2) with the dual bevel edge and reduced gate arc profile make it easy for the gate to cut through the media. The design also prevents media from wedging between the gate and body as the valve closes.



## Bi-directional zero leakage shut-off

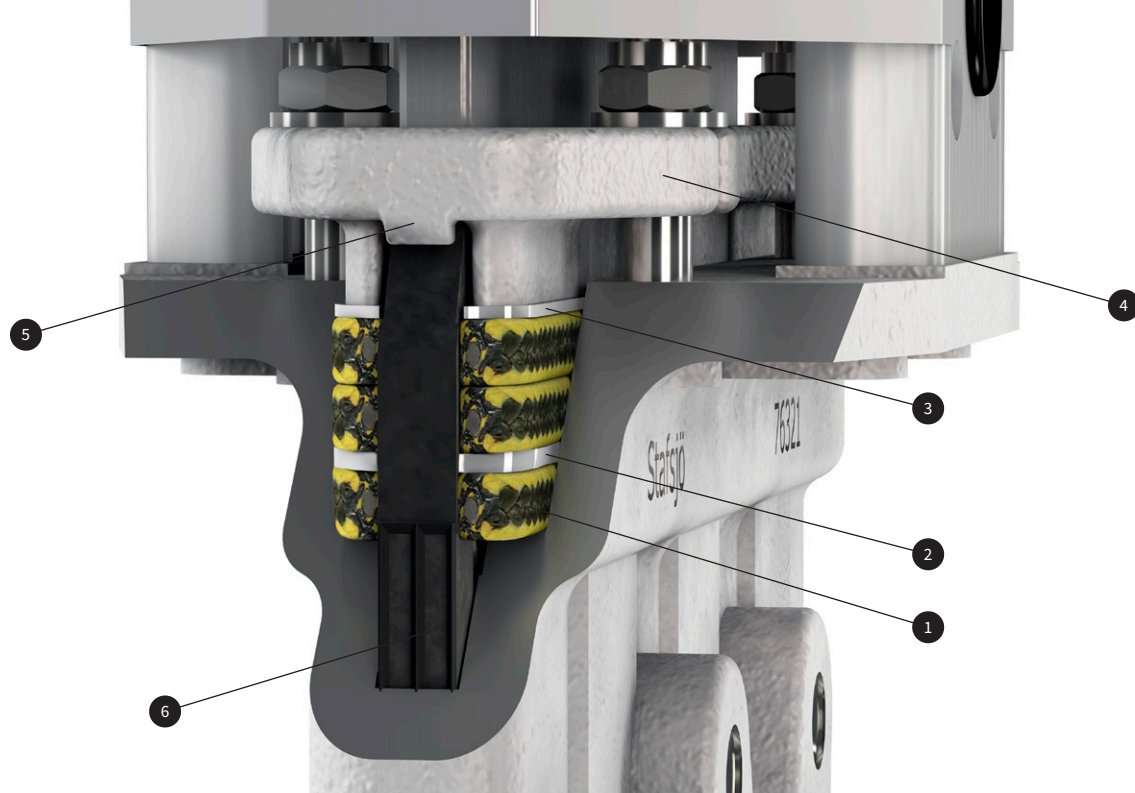
Gate guides (3) support the gate through the entire range of travel. In bottom of the guides, the relief areas (4) promote a self-cleaning, flushing action as the gate moves into the final stage of closure. The perimeter resilient seat provides tight shut-off in both directions. On sizes with single piece valve body, the seat is reinforced with a stainless steel core (5) to 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 (6) encapsulated inside the structural beams (7). Stafsjö assemble stainless steel gate guards (8) as standard on all automated valves.





## The WB14E sealing system

The WB14E valve is intended 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 isolations.

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 -76 °F up to 500 °F. The additional PTFE scraper (2) in between

the braids and optional on top (3) further reinforce the packings scraping function.

The gland (4) and gland bolts ensure even distribution of the gland force as the nuts are tightened. The linear locks (5) on the gland up to 12" securely hold the stainless steel reinforced seat in position as the gate strokes. From 14" the seat is locked between the valve body halves.

The unique flexible profile (6) on the outside surface of the seat up to 12" energizes sealing, reducing friction and providing longer cycle life while the internal stainless steel reinforcement enhance the durability.

The WB14E valve can be supplied with seat in EPDM, NBR and the high temperature and chemical resistant FEPM (Fluoroelastomer) material.

### **EPDM -13 °F - + 248 °F**

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 14 °F - + 356 °F**

Excellent resistance to wide range of aggressive chemicals, both acids and bases, and steam at high continuous service temperatures including short term peaks up to + 437 °F.

#### **Unsuitable media and service**

Limited resistance to mineral and aromatic oils and low temp.

### **NBR -13 °F - + 212 °F**

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 68 °F |         | Max differential pressure at 68 °F |                |
|-------------------------------|---------|------------------------------------|----------------|
| Size                          | psi/bar | Size                               | psi/bar        |
| 2" - 24"                      | 150/10  | 2" - 12"                           | 150/10         |
| 30"                           | 90/6    | 14" - 18"                          | 90/6 or 150/10 |
|                               |         | 20" - 24"                          | 60/4 or 150/10 |
|                               |         | 30"                                | 60/4           |

## Configurations

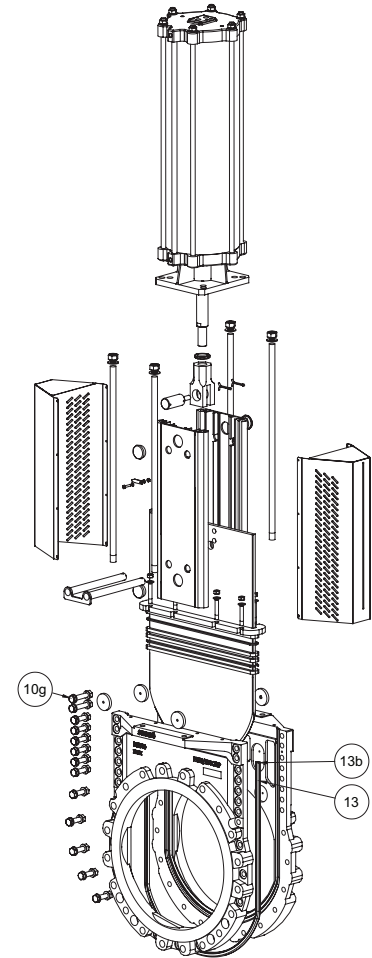
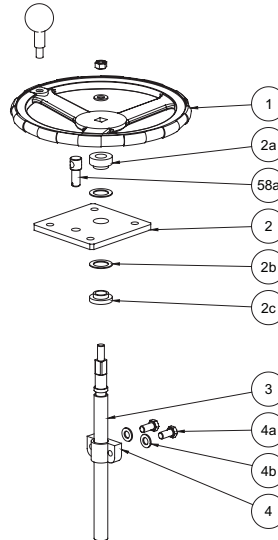
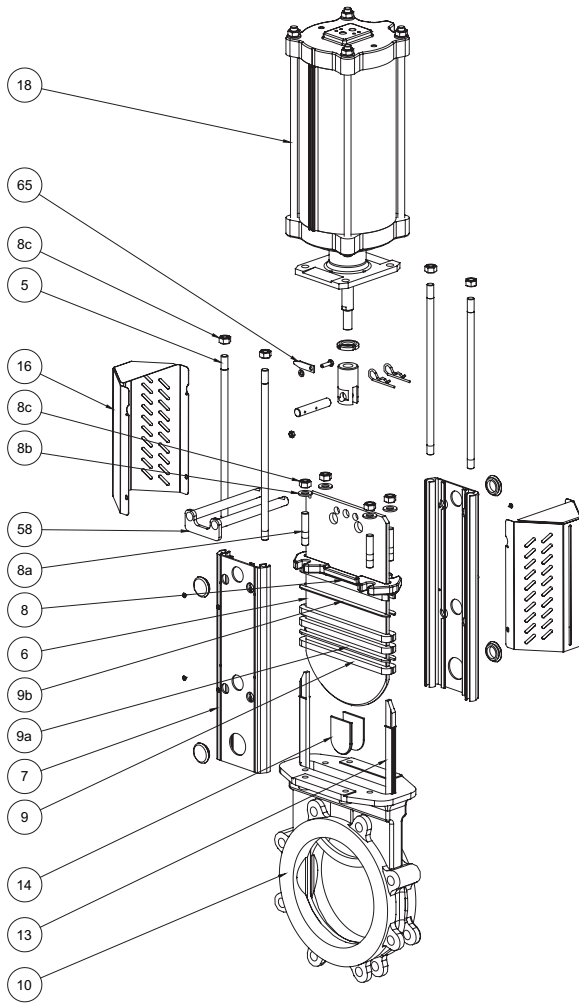
| Standard   | High pressure version: 150/150 psi  |
|--|---|
| <b>Sizes:</b> 2" - 30"<br><b>Valve body:</b> Stainless steel EN 1.4408<br><b>Gate:</b> Stainless steel EN 1.4404, AISI 316L (2" - 24"), Duplex stainless steel EN 1.4462, S32205 (30")<br><b>Box packing:</b> TwinPack with extra PTFE scrapers<br><b>Top works:</b> Stainless steel tie rods encapsulated in aluminum beams up to DN 600 and stainless steel beams on larger including stainless steel gate guards on automated valves  | <b>Sizes:</b> 14" - 24"<br><b>Valve body:</b> Stainless steel EN 1.4408<br><b>Gate:</b> Duplex stainless steel EN 1.4462, S32205<br><b>Box packing:</b> TwinPack with extra PTFE scrapers<br><b>Top works:</b> Stainless steel tie rods encapsulated in aluminum beams including stainless steel gate guards on automated valves  |
| Options  |   |
| <b>Valve body</b><br>Stainless steel EN 1.4408<br>14" - 30": Duplex stainless steel EN 1.4470<br>14" - 30": Equivalent material to 254 SMO stainless steel<br><br><b>Gate material and surface treatments</b><br>Stainless steel EN 1.4404, AISI 316L<br>Duplex stainless steel EN 1.4462, S32205<br>254 SMO stainless steel or equivalent<br>Hard chromed surface<br>Extra polished surface (max Ra 0,8)<br><br><b>Valve seats</b><br>EPDM, FEPM or NBR<br><br><b>Box packings</b><br>TwinPack with extra PTFE scrapers<br>Top scraper in PTFE is optional  | <b>Top works</b><br>Stainless steel tie rods encapsulated in aluminum beams<br>Stainless steel pillars <sup>1)</sup> or beams<br><br><b>Actuators</b><br>Hand wheel with non-rising stem<br>Chain wheel<br>Bevel gear<br>Double-acting pneumatic cylinders<br>Single-acting pneumatic cylinders<br>Electric actuators<br>Hydraulic actuator<br><br><b>Flange drillings</b><br>EN 1092 PN 10<br>ASME/ANSI B16.5 Class 150 and B16.47 Class 150 series A<br>AS 2129 Table D and E<br><br><b>Accessories</b><br>Limit switches, solenoid valves, mechanical lockouts, stem extensions etc. See our accessory data sheet for further information. |
| Design standards   |   |
| <b>Design, manufacturing, inspection and test</b><br>According to pressure equipment directive 2014/68/EU category I and II module A2. The valves are CE marked when it is applicable. The WB14E meets the requirements of MSS SP-81.<br><br>Stafsjö's valves are subject for pressure tests before delivery in opened and closed position with water at 68 °F according to EN 12266-1:2003 rate A. No visually detectable leakage is allowed for duration of the test.<br><br>On request Stafsjö can provide 2.2 test report and 3.1 inspection certificate according to EN 10204.<br><br>Contact Stafsjö for further information on ATEX approved solutions. | <b>Face-to-face dimensions</b><br>According to MSS-SP81.<br><br><b>Service temperature</b><br>Information to determine minimum and maximum temperature for the knife gate valve is available on <a href="https://stafsjo.com/support/temperatures/">stafsjo.com/support/temperatures/</a> .   |

1) Standard on valves supplied with valve body in duplex or equivalent material to 254 SMO stainless steel.



One piece valve body: 2" - 12"

Two piece valve body: 14" - 30"



## Part list

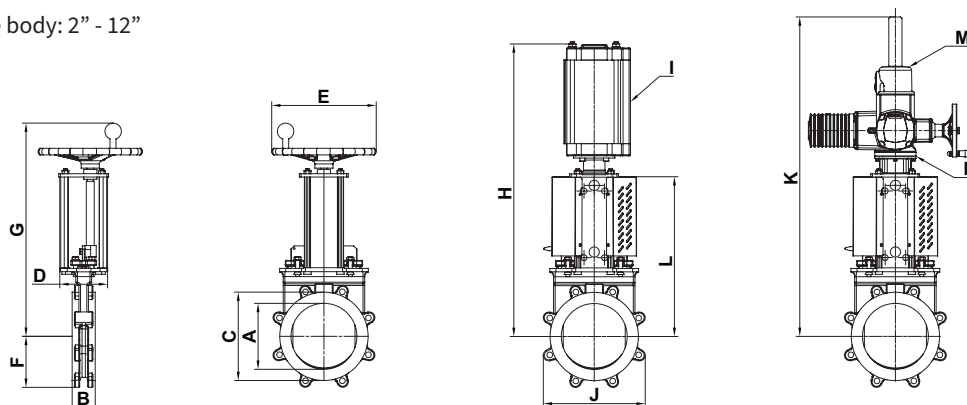
| Pos. | Part         | Material   |
|------|--------------|--|
| 1    | Hand wheel   | Coated cast iron<br>Ø 8" - Ø 12" EN-JL1040, GG25,<br>≥ Ø 16" EN-JL1030, GG20 |
| 2    | Yoke         | Stainless steel EN 1.4301  |
| 2a   | Bearing      | Brass  |
| 2b   | Slide washer | POM  |
| 2c   | Bearing      | Brass  |
| 3    | Stem         | Stainless steel EN 1.4016  |
| 4    | Stem nut     | Brass  |
| 4a   | Washer       | Stainless steel A2   |
| 4b   | Bolt         | Stainless steel A2   |
| 5    | Tie rod      | Stainless steel EN 1.4301  |
| 6    | Gate         | See options on page 4  |
| 7    | Beam         | Anodized aluminum  |
| 8    | Gland        | Stainless steel EN 1.4408  |
| 8a   | Stud bolt    | Stainless steel A2   |

| Pos.                | Part                | Material                            |
|---------------------|---------------------|-------------------------------------|
| 8b                  | Washer              | Stainless steel A2                  |
| 8c                  | Nut                 | Stainless steel A2                  |
| 9 <sup>1)</sup>     | Box packing         | TwinPack                            |
| 9a <sup>1)</sup>    | Box scraper         | PTFE                                |
| 9b <sup>1, 2)</sup> | Box top scraper     | PTFE                                |
| 10                  | Valve body          | See options on page 4               |
| 10g                 | Valve body boltings | Stainless steel A2                  |
| 13 <sup>1)</sup>    | Seat                | See options on page 4               |
| 13b <sup>1)</sup>   | Pin short           | Stainless steel EN 1.4301           |
| 14                  | Guiding pads        | POM-C, PTFE on request              |
| 16                  | Gate guards         | Stainless steel EN 1.4301           |
| 18                  | Pneumatic cylinder  | See separate datasheet              |
| 58/a <sup>2)</sup>  | Locking pin         | Stainless steel EN 1.4301           |
| 65 <sup>2)</sup>    | Gate indicator      | Stainless steel EN 1.4301, Nylon 12 |

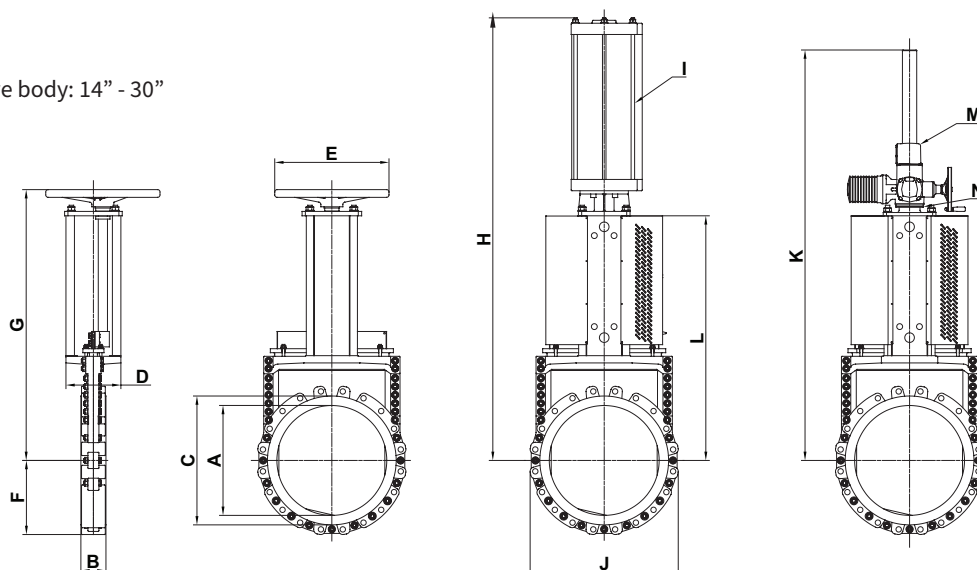
1) Recommended spare parts

2) Accessories

## One piece valve body: 2" - 12"



## Two piece valve body: 14" - 30"



## Main dimensions (inch)

| Size | A     | B    | C     | D     | E     | F     | G     | H <sup>1)</sup> | H <sup>2)</sup> | I <sup>3)</sup> | I <sup>4)</sup> | J     | K     | L     | M <sup>5)</sup> | N <sup>6)</sup> | lbs <sup>7)</sup> |
|------|-------|------|-------|-------|-------|-------|-------|-----------------|-----------------|-----------------|-----------------|-------|-------|-------|-----------------|-----------------|-------------------|
| 2    | 1.97  | 1.69 | 3.54  | 3.15  | 7.87  | 2.28  | 13.78 | 20.28           | -               | SC4.00          | -               | 4.57  | 24.45 | 8.62  | SA07.2          | F10/A           | 15                |
| 3    | 3.15  | 2.01 | 5.00  | 3.15  | 9.84  | 2.72  | 13.62 | 22.60           | -               | SC4.00          | -               | 5.39  | 26.65 | 10.83 | SA07.2          | F10/A           | 26                |
| 4    | 3.94  | 2.05 | 6.02  | 3.15  | 9.84  | 4.02  | 15.00 | 25.71           | -               | SC5.00          | -               | 8.03  | 28.03 | 12.20 | SA07.2          | F10/A           | 33                |
| 6    | 5.91  | 2.20 | 8.35  | 3.15  | 9.84  | 5.04  | 18.27 | 30.87           | -               | SC5.00          | -               | 10.08 | 31.26 | 15.43 | SA07.6          | F10/A           | 49                |
| 8    | 7.87  | 2.76 | 10.55 | 5.71  | 12.40 | 6.10  | 22.09 | 37.80           | -               | SC6.30          | -               | 12.20 | 32.20 | 19.25 | SA07.6          | F10/A           | 82                |
| 10   | 9.84  | 2.72 | 12.60 | 5.71  | 12.40 | 7.64  | 25.87 | 45.47           | -               | SC6.30          | -               | 15.28 | 35.98 | 22.80 | SA07.6          | F10/A           | 121               |
| 12   | 11.81 | 3.07 | 14.65 | 5.83  | 12.40 | 9.09  | 29.65 | 49.25           | -               | SC6.30          | -               | 18.19 | 41.69 | 26.57 | SA10.2          | F10/A           | 157               |
| 14   | 13.78 | 3.07 | 16.93 | 7.09  | 15.75 | 9.88  | 34.65 | 60.75           | 60.75           | SC8.00          | SC8.00          | 19.72 | 48.35 | 30.83 | SA10.2          | F10/A           | 277               |
| 16   | 15.75 | 3.50 | 18.98 | 7.09  | 15.75 | 11.22 | 38.46 | 64.57           | 64.57           | SC8.00          | SC10.00         | 22.44 | 54.13 | 34.65 | SA10.2          | F10/A           | 342               |
| 18   | 17.72 | 3.50 | 20.94 | 9.84  | 20.47 | 12.13 | 45.39 | 74.65           | 74.65           | SC8.00          | SC10.00         | 24.21 | 64.41 | 40.71 | SA10.2          | F10/A           | 507               |
| 20   | 19.69 | 4.49 | 23.07 | 9.84  | 20.47 | 13.31 | 48.23 | 82.80           | 82.80           | SC10.00         | SC10.00         | 26.57 | 73.82 | 43.82 | SA14.2          | F14/A           | 595               |
| 24   | 23.62 | 4.49 | 27.01 | 9.84  | 20.47 | 15.75 | 56.54 | 90.83           | 94.61           | SC10.00         | SC12.60         | 31.50 | 85.83 | 51.85 | SA14.2          | F14/A           | 882               |
| 30   | 29.53 | 4.61 | 33.11 | 13.39 | 25.00 | 19.49 | 68.27 | 103.66          | -               | SC12.60         | -               | 38.98 | 91.46 | 63.86 | OR              | OR              | 1257              |

1) Dimensions standard version.

2) Dimensions 150 psi/150 psi version 14" - 24".

3) Recommended sizing of double-acting pneumatic cylinder type SC at normal operation with 75 psi/5 bar air supply pressure for WB14E standard version. For other operating conditions, contact Stafsjö for advice.

4) Recommended sizing of double-acting pneumatic cylinder type SC at normal operation with 75 psi/5 bar air supply pressure for 150/150 psi version 14" - 24". For other operating conditions, contact Stafsjö for advice.

5) Recommended sizing of Auma SA electric motors at normal operation. For other operating conditions, contact Stafsjö or your local representative for advice.

6) Valve and Auma SA interface. The electric motors are mounted as standard according to ISO 5210 connection A (rising stem).

7) Weight in lbs for valve equipped with hand wheel.

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

## Flange drilling according to ASME/ANSI B 16.5 and B16.47 Class 150

| DN                                | 2       | 3       | 4       | 6       | 8       | 10     | 12     | 14    | 16    | 18       | 20       | 24       | 30       |
|-----------------------------------|---------|---------|---------|---------|---------|--------|--------|-------|-------|----------|----------|----------|----------|
| Bolt circle diameter (inch)       | 4.75    | 6.00    | 7.50    | 9.50    | 11.75   | 14.25  | 17.00  | 18.75 | 21.25 | 22.75    | 25.00    | 29.50    | 36.00    |
| Number of throughgoing bolts      | -       | -       | -       | -       | -       | -      | -      | -     | -     | -        | -        | -        | -        |
| Number of tapped holes/side       | 4       | 4       | 8       | 8       | 8       | 12     | 12     | 12    | 16    | 16       | 20       | 20       | 28       |
| Boltsize (UNC)                    | 5/8"-11 | 5/8"-11 | 5/8"-11 | 3/4"-10 | 3/4"-10 | 7/8"-9 | 7/8"-9 | 1"-8  | 1"-8  | 1 1/8"-7 | 1 1/8"-7 | 1 1/4"-7 | 1 1/4"-7 |
| Bolt lengths <sup>1)</sup> (inch) | 0.55    | 0.55    | 0.59    | 0.59    | 0.91    | 0.79   | 0.83   | 0.83  | 1.06  | 1.06     | 1.26     | 1.26     | 1.10     |

## Flange drilling according to EN 1092 PN10

| DN                                | 2    | 3    | 4    | 6    | 8     | 10    | 12    | 14    | 16    | 18    | 20    | 24    | 30    |
|-----------------------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Bolt circle diameter (inch)       | 4.92 | 6.30 | 7.09 | 9.45 | 11.61 | 13.78 | 15.75 | 17.72 | 20.28 | 22.24 | 24.41 | 28.54 | 35.43 |
| Number of throughgoing bolts      | -    | -    | -    | -    | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Number of tapped holes/side       | 4    | 8    | 8    | 8    | 8     | 12    | 12    | 16    | 16    | 20    | 20    | 20    | 24    |
| Boltsize                          | M16  | M16  | M16  | M20  | M20   | M20   | M20   | M20   | M24   | M24   | M24   | M27   | M27   |
| Bolt lengths <sup>1)</sup> (inch) | 0.55 | 0.43 | 0.59 | 0.59 | 0.71  | 0.79  | 0.83  | 0,75  | 1.06  | 1.14  | 1.26  | 1.26  | 1.10  |

## Flange drilling according to AS 2129 Table D

| DN                                | 2    | 3    | 4    | 6    | 8     | 10    | 12    | 14    | 16    | 18    | 20    | 24    | 30    |
|-----------------------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Bolt circle diameter (inch)       | 4.49 | 5.75 | 7.01 | 9.25 | 11.50 | 14.02 | 15.98 | 18.50 | 20.51 | 22.99 | 25,24 | 29,76 | 36.50 |
| Number of throughgoing bolts      | -    | -    | -    | -    | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Number of tapped holes/side       | 4    | 4    | 4    | 8    | 8     | 8     | 12    | 12    | 12    | 12    | 16    | 16    | 20    |
| Boltsize                          | M16  | M16  | M16  | M16  | M16   | M20   | M20   | M24   | M24   | M24   | M24   | M27   | M30   |
| Bolt lengths <sup>1)</sup> (inch) | 0.55 | 0.43 | 0.59 | 0.59 | 0.71  | 0.79  | 0.83  | 0.83  | 1.06  | 1.06  | 1.26  | 1.26  | 1.10  |

## Flange drilling according to AS 2129 Table E

| DN                                | 2    | 3    | 4    | 6    | 8     | 10    | 12    | 14    | 16    | 18    | 20    | 24    | 30    |
|-----------------------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Bolt circle diameter (inch)       | 4.49 | 5.75 | 7.01 | 9.25 | 11.50 | 14.02 | 15.98 | 18.50 | 20.51 | 22.99 | 25.24 | 29.76 | 36.50 |
| Number of throughgoing bolts      | -    | -    | -    | -    | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Number of tapped holes/side       | 4    | 4    | 8    | 8    | 8     | 12    | 12    | 12    | 12    | 16    | 16    | 16    | 20    |
| Boltsize                          | M16  | M16  | M16  | M20  | M20   | M20   | M24   | M24   | M24   | M24   | M24   | M30   | M33   |
| Bolt lengths <sup>1)</sup> (inch) | 0.55 | 0.43 | 0.59 | 0.59 | 0,71  | 0.79  | 0.83  | 0.83  | 1.06  | 1.06  | 1.26  | 1.26  | 1.10  |

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





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