

## Knife gate valve

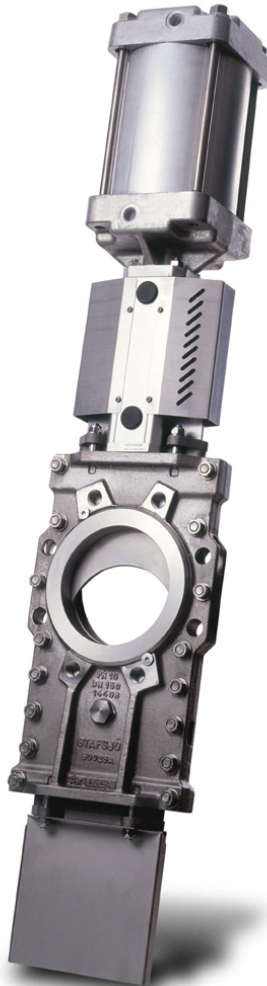
## DN 80-800

The Stafsjö HG knife gate valve is a bi-directional seated valve which is suitable for severe operating conditions where there is a risk for clogging. The through-going gate assures closing of the valve through static media. Common applications are pulp with pulp concentration >5%, liqueur, reject and waste.

The HG is designed of a two piece valve body in stainless steel or cast iron and a stainless steel gate. The retainer rings mechanically locks the seats, making them easy to replace. The unique Stafsjö box packing TwinPack™ gives high operation reliability.

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

The Stafsjö knife gate valve HG 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.



# Knife gate valve

# DN 80-800

### Design data

#### Maximum working pressure body at 20°C

| DN      | bar |
|---------|-----|
| 80-250  | 10  |
| 300-800 | 6   |

#### Maximum differential pressure at 20°C

| DN      | bar |
|---------|-----|
| 80-250  | 10  |
| 300-800 | 6   |

### Basic equipment

#### A. Valve body

|                 |   | Material | Maximum temp. °C | Not recommended |
|-----------------|---|----------|------------------|-----------------|
| Stainless steel | E | W1.4408  | 300              |                 |
| Cast iron       | A | GG20     | 150              | Corrosive media |

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

#### B. Gate

|                 | Body | Material | Surface treatment |
|-----------------|------|----------|-------------------|
| Stainless steel | E/A  | SS2347   |                   |
| Stainless steel | E    | SS2377   | Hard chrome       |

#### C. Retainer ring

|                    | Body | Material | Seat   |
|--------------------|------|----------|--------|
| Stainless steel    | E    | SS2343   | P/PV   |
| Cast iron          | A    | GG20     | P/PV/M |
| Zincd 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 nitrile        | P   | 100              |                 |
| PTFE with o-ring viton          | PV  | 180              |                 |
| Polyurethane                    | U   | 90               |                 |
| Metal with o-ring nitrile/viton | M   | 100/180          | Valve body E    |
| Metal with Grafoil              | MHT | 150              | Valve body E    |

#### 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

|                      |
|----------------------|
| EN 1092 PN 10        |
| ANSI B16.5 Class 150 |
| JIS B 2238 10K       |
| BS 10 Table D        |

#### G. Face-to-face dimensions

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

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## Actuator

### Manual

|             |    |
|-------------|----|
| Hand wheel  | HW |
| Chain wheel | CW |
| Bevel gear  | BG |

### Automatic

|                    |    |
|--------------------|----|
| Pneumatic cylinder | AC |
| Electric motor     | EM |
| Hydraulic cylinder | MH |

### Pneumatic cylinder – recommended sizes at 5 bar air pressure

| DN                 | 80     | 100     | 125     | 150     | 200     | 250     | 300     | 350     |
|--------------------|--------|---------|---------|---------|---------|---------|---------|---------|
| AC                 | 100-80 | 100-100 | 100-125 | 160-150 | 160-200 | 160-250 | 200-300 | 200-350 |
| Maximum force (kN) | 3,5    | 3,5     | 3,5     | 9,0     | 9,0     | 9,0     | 14,1    | 14,1    |

| DN                 | 400     | 450     | 500     | 600     | 700     | 800     |
|--------------------|---------|---------|---------|---------|---------|---------|
| AC                 | 200-400 | 250-450 | 250-500 | 320-575 | 320-700 | 320-800 |
| Maximum force (kN) | 14,1    | 22,1    | 22,1    | 36,2    | 36,2    | 36,2    |

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.

### Electric motor – recommended sizes with AUMA multi-turn

| DN         | 80      | 100     | 125     | 150     | 200     | 250     | 300     | 350     |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|
| AUMA       | SA 07.1 | SA 07.1 | SA 07.1 | SA 07.5 | SA 07.5 | SA 07.5 | SA 10.1 | SA 10.1 |
| Attachment | F10/A   | F10/A   | F10/A   | F10/A   | F10/A   | F10/A   | F10/A   | F10/A   |

| DN         | 400     | 450     | 500     | 600     | 700     | 800     |
|------------|---------|---------|---------|---------|---------|---------|
| AUMA       | SA 10.1 | SA 10.1 | SA 14.1 | SA 14.1 | SA 14.5 | SA 14.5 |
| Attachment | F10/A   | F10/A   | F14/A   | F14/A   | F14/A   | F14/A   |

Electric motors are mounted according to standard ISO 5210. The table gives recommended motor sizes at normal operation. 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 HG knife gate valve DN 100-800 is equipped with purge ports with pipe thread G1/2" acc. to ISO 228/1. Valve size DN 80 can be equipped with purge ports on order.

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

## 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

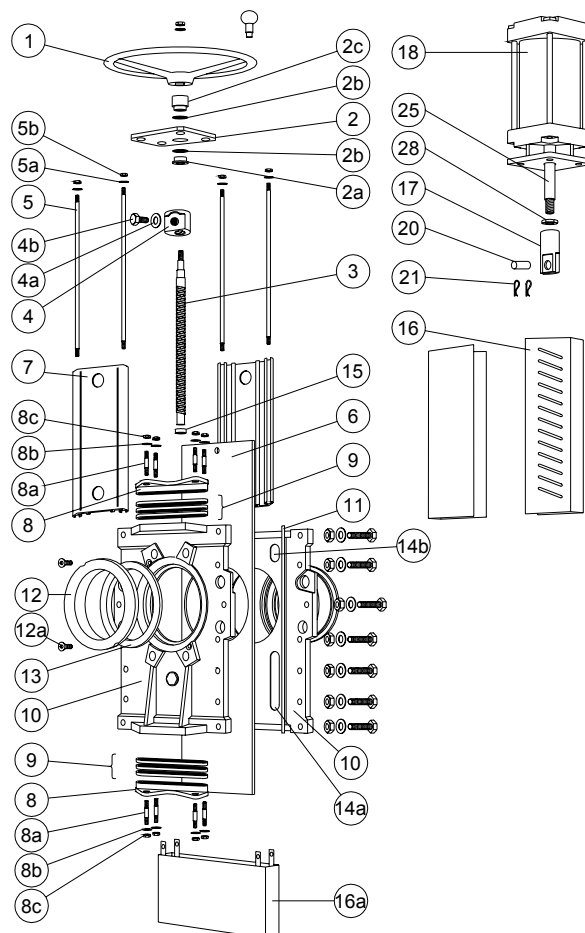
1,1 x maximum differential pressure for closed valve – obturator tightness test

## Leakage rate

For soft sealed valves 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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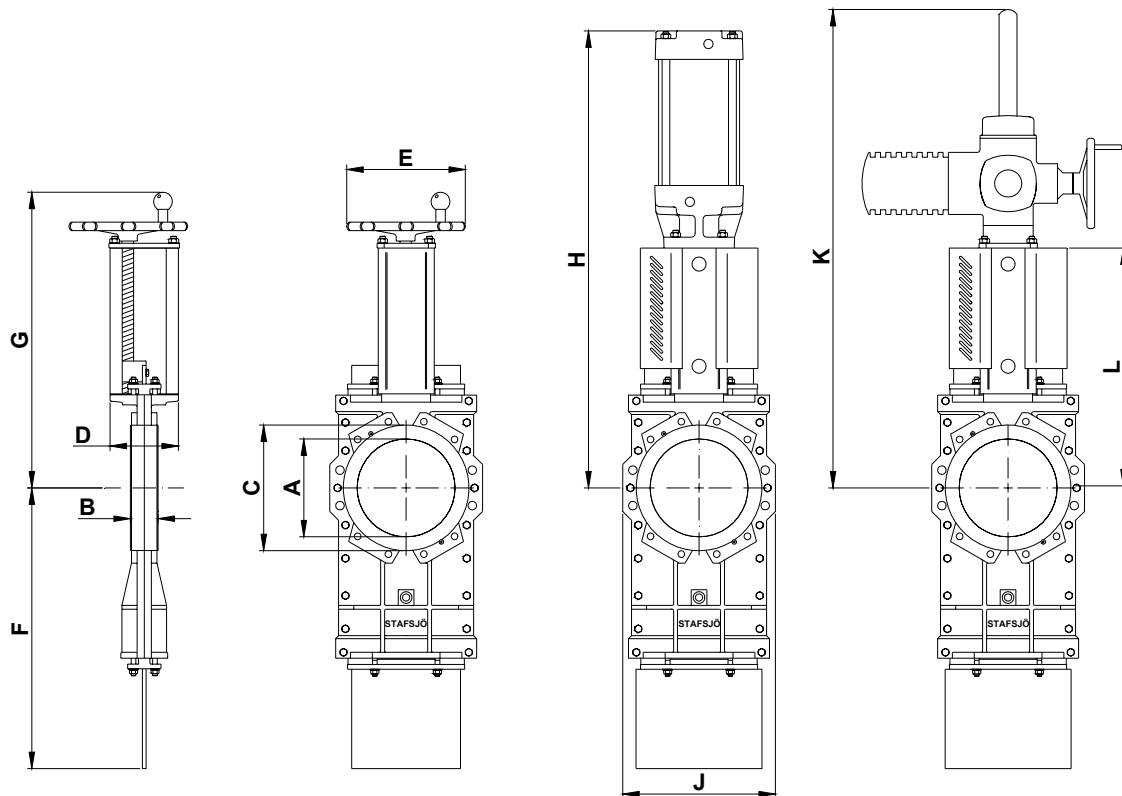


| Pos | Part         | Material   | Pos | Part                      | Material                       |
|-----|--------------|--|-----|---------------------------|--------------------------------|
| 1   | Hand wheel   | DN 80-250 Aluminium<br>EN AC-ALSi9Cu3(Fe)<br>DN>250 Cast iron GG20 | 8c  | Nut                       | A2 + zinc                      |
| 2   | Yoke         | Stainless steel SS2333-02  | 9   | Box packing*              | See equipment E                |
| 2a  | Bearing      | Brass SS5170-00  | 10  | Valve body                | See equipment A                |
| 2b  | Slide washer | POM  | 11  | Body gasket               | DN 80-250 Grafoil, DN>250 PTFE |
| 2c  | Bearing      | Brass SS5170-00  | 12  | Retainer ring             | See equipment C                |
| 3   | Stem         | Stainless steel DN 80-250<br>SS2320-02, DN>250 SS2383-02           | 12a | Locking screw             | A2                             |
| 4   | Stem nut     | Brass SS5170-00  | 13  | Seat*                     | See equipment D                |
| 4a  | Washer       | A2   | 14a | Guide strip               | Only DN>200 PTFE               |
| 4b  | Screw        | A2   | 14b | Top guide strip           | Only DN>200 PTFE               |
| 5   | Tie rod      | Stainless steel SS2333-02  | 15  | Bushing                   | Oil-bronze                     |
| 5a  | Washer       | A2   | 16  | Gate guard,<br>not for HW | Stainless steel SS2333-02      |
| 5b  | Nut          | A2   | 16a | Gate guard,<br>not for HW | Stainless steel SS2333-02      |
| 6   | Gate         | See equipment B  | 17  | Gate clevis               | Stainless steel SS2346-02      |
| 7   | Beam         | Aluminium EN AW-6063-T6  | 18  | Cylinder                  | See data sheet                 |
| 8   | Gland        | Stainless steel SS2343   | 20  | Clevis pin                | Stainless steel SS2346-02      |
| 8a  | Stud bolt    | A2 + zinc  | 21  | Split pin                 | Stainless steel SS2343-02      |
| 8b  | Washer       | A2   | 25  | Piston rod                | Stainless steel SS2383-02      |
|     |              |  | 28  | Locking nut               | Stainless steel SS2346-02      |

\* Recommended spare parts

## Knife gate valve

**HG**  
**DN 80-800**



### Dimensions (mm)

| DN | 80  | 100 | 125 | 150 | 200  | 250  | 300  | 350  | 400  | 450  |
|----|-----|-----|-----|-----|------|------|------|------|------|------|
| A  | 79  | 103 | 128 | 153 | 202  | 250  | 302  | 332  | 380  | 428  |
| B  | 51  | 51  | 56  | 60  | 60   | 69   | 78   | 78   | 89   | 89   |
| C  | 125 | 153 | 179 | 205 | 270  | 320  | 375  | 425  | 480  | 534  |
| D  | 70  | 72  | 80  | 80  | 150  | 150  | 180  | 175  | 210  | 220  |
| E  | 200 | 200 | 200 | 250 | 315  | 315  | 400  | 400  | 520  | 520  |
| F  | 285 | 385 | 424 | 455 | 600  | 725  | 865  | 980  | 1070 | 1210 |
| G  | 405 | 445 | 485 | 530 | 659  | 739  | 893  | 948  | 1033 | 1124 |
| H  | 520 | 583 | 650 | 755 | 925  | 1055 | 1287 | 1370 | 1672 | 1813 |
| J  | 180 | 210 | 240 | 260 | 330  | 390  | 455  | 510  | 570  | 625  |
| K  | 690 | 755 | 820 | 890 | 1070 | 1200 | 1420 | 1505 | 1650 | 1790 |
| L  | 275 | 315 | 355 | 400 | 520  | 600  | 720  | 775  | 873  | 963  |

| DN | 500  | 600  | 700  | 800  |
|----|------|------|------|------|
| A  | 470  | 540  | 665  | 760  |
| B  | 114  | 122  | 128  | 128  |
| C  | 580  | 679  | 800  | 900  |
| D  | 320  | 350  | 320  | 320  |
| E  | 635  | 635  | 635  | 635  |
| F  | 1412 | 1553 | 1891 | 2132 |
| G  | 1299 | 1336 | 1556 | 1721 |
| H  | 2048 | 2160 | 2505 | 2770 |
| J  | 690  | 800  | 995  | 1070 |
| K  | 2020 | 2135 | 2505 | 2770 |
| L  | 1138 | 1175 | 1395 | 1560 |

Actuator EM is rotated 45° for DN 80-150.

**Weight, valve incl. hand wheel (HW)**

| DN | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 |
|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| kg | 17 | 22  | 29  | 34  | 75  | 100 | 170 | 200 | 290 | 410 |

| DN | 500 | 600 | 700  | 800  |
|----|-----|-----|------|------|
| kg | 670 | 820 | 1300 | 1700 |

**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 | X12CrNiOS17      |                 | 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    |

