

## Butterfly valve type 57 L



| Body material                     | PDCPD   |                                   |
|-----------------------------------|---|-----------------------------------|
| Disc material                     | PP  | PVDF                              |
| Sealing material (optionally)     | • EPDM  | • FKM<br>• FKM-F                  |
| Working temperature <sup>1)</sup> | -20 °C up to 90 °C <sup>2)</sup>  | -20 °C up to 100 °C <sup>2)</sup> |
| Nominal size                      | DN 80 up to DN 200 (Gear with handwheel up to DN 250)   |                                   |
| Connection with pipe              | Lug type valve with connection dimensions acc. to DIN EN 1092-1 (replaces DIN 2501) - PN 10 <sup>3)</sup>   |                                   |
| Length                            | Company standard  |                                   |
| Actuator                          | Lockable lever with 19 positions, or infinitely variable gear,<br>Optionally pneumatic or electric actuator |                                   |
| Accessories                       | Limit switches, shaft extension   |                                   |

1) Designed for 10 years of use with a neutral medium (water)

3) also acc. ANSI or JIS available

2) Working temperatures for sealing materials:

EPDM: -20 up to 90 °C

FKM / FKM-F: -5 up to 120 °C

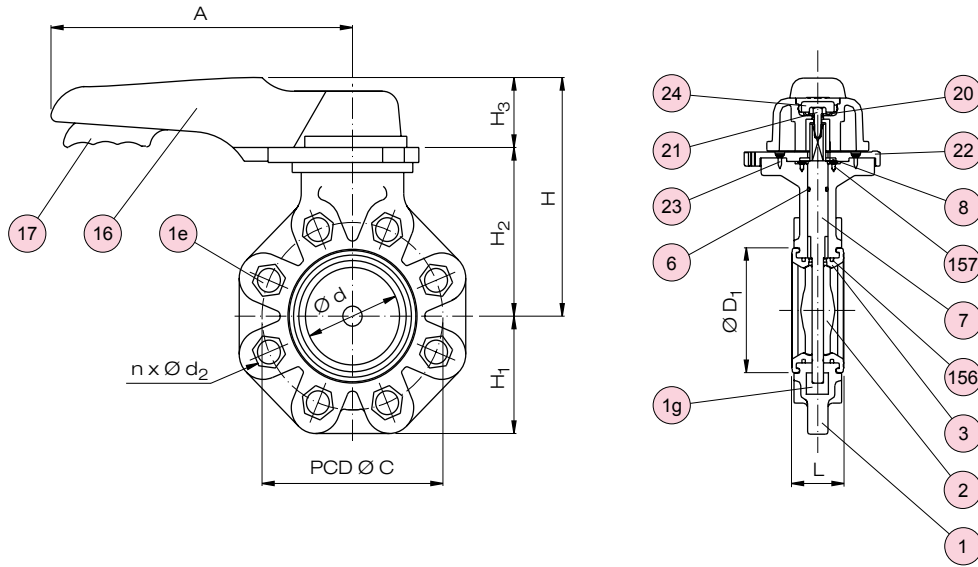
### Example for an invitation to tender text:

Butterfly valve type 57 L, DN 150, PN 10, PP / EPDM, lug type valve with connection dimensions acc. to DIN EN 1092-1 - PN 10, gear with handwheel and optical position indicator

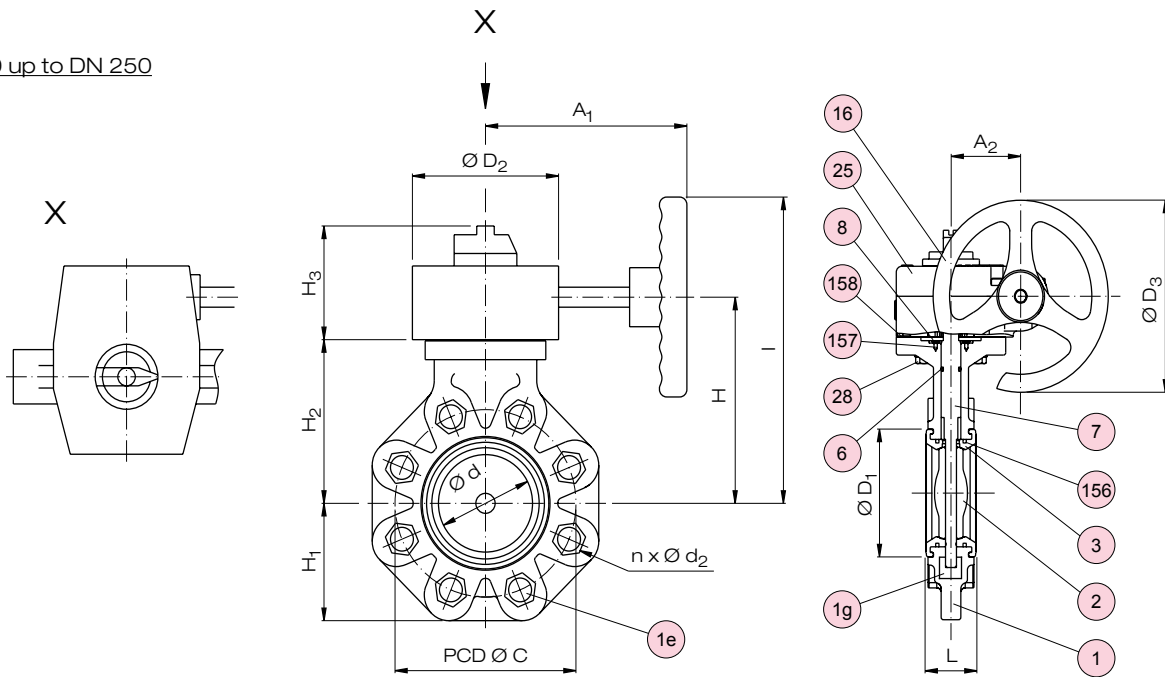
**Document:** FRANK\_DB\_L2\_Absperrklappe Typ 57 L\_04-2012\_EN

# Butterfly valve type 57 L

DN 80 up to DN 200

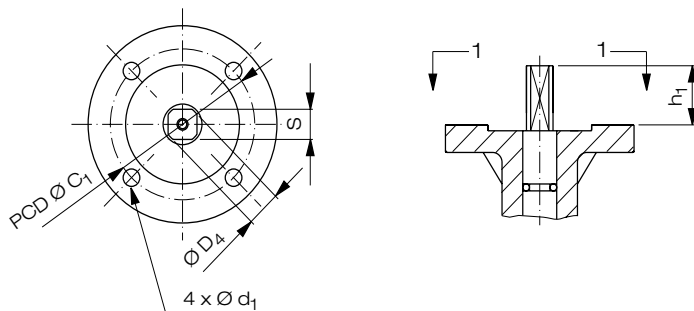


DN 80 up to DN 250



Top flange

Profile 1 - 1:



Top flange dimensions in (mm) for fixation and actuator mounting (DIN EN ISO 5211)

| DN  | type | C <sub>1</sub> | h <sub>1</sub> | d <sub>1</sub> | D <sub>4</sub> | S  |
|-----|------|----------------|----------------|----------------|----------------|----|
| 80  | F07  | 70             | 30             | 9              | 17             | 14 |
| 100 | F07  | 70             | 30             | 9              | 17             | 14 |
| 125 | F10  | 102            | 35             | 11             | 21             | 17 |
| 150 | F10  | 102            | 35             | 11             | 21             | 17 |
| 200 | F10  | 102            | 35             | 11             | 24             | 19 |
| 250 | F10  | 102            | 35             | 11             | 27             | 22 |

## Butterfly valve type 57 L

| No.              | Description                     | Number          | Material                         |
|------------------|---------------------------------|-----------------|----------------------------------|
| 1                | Body                            | 1               | PDCPD                            |
| 1e               | Lug-insert                      | 8 <sup>1)</sup> | A2 - 1.4301 (SUS 304)            |
| 1g <sup>2)</sup> | Collar bushing                  | 1               | A2 - 1.4301 (SUS 304)            |
|                  | Threaded plate                  | 2               | 1.4308 (SCS 13)                  |
| 2                | Disc                            | 1               | PVC, PP, PVDF                    |
| 3                | Seat <sup>3)</sup>              | 1               | EPDM, FKM, FKM-F                 |
| 6                | O-ring (C)                      | 1               | EPDM, FKM, FKM-F                 |
| 7                | Stem                            | 1               | 1.4000 (SUS 410 S) <sup>3)</sup> |
| 8                | Stem retainer                   | 1               | PP                               |
| 16               | Lever / handwheel <sup>4)</sup> | 1               | PP                               |
| 17               | Hand lever                      | 1               | PPG                              |
| 18               | Pin                             | 1               | PPG                              |

- \*) Wearing parts  
 1) at DN 200: 4 pc  
 2) Collar Bushing from DN 125  
 Threaded plate from DN 200

| No. | Description                | Number | Material              |
|-----|----------------------------|--------|-----------------------|
| 19  | Spring                     | 1      | A2 - 1.4301 (SUS 304) |
| 20  | Washer                     | 1      | A2 - 1.4301 (SUS 304) |
| 21  | Hexagonal bolt (B)         | 1      | A2 - 1.4301 (SUS 304) |
| 22  | Locking plate              | 1      | PPG                   |
| 23  | Screw (B)                  | 4      | A2 - 1.4301 (SUS 304) |
| 24  | Cap (A)                    | 1      | PP                    |
| 25  | Gear box                   | 1      | PDCPD                 |
| 28  | Hexagonal bolt             | 4      | A2 - 1.4301 (SUS 304) |
| 156 | Retaining ring             | 2      | 1.4308 (SCS 13)       |
| 157 | Screw                      | 4      | A2 - 1.4301 (SUS 304) |
| 158 | Sheet gasket <sup>5)</sup> | 1      | EPDM                  |

- 3) other material on request  
 4) Lever type with inserted stainless steel stem connector: A4 - 1.4404 (SUS 316 L)  
 5) only for gear box type

### Dimensions and weights

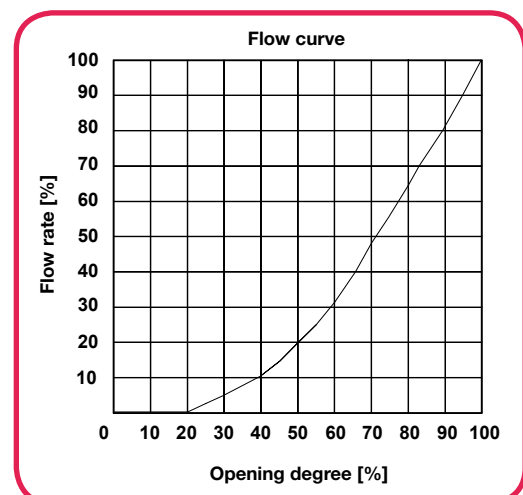
| Dimensions in mm |     |     |                |                |     |                |                    |            |     |                |                |                     | Weight in kg / pc <sup>4)</sup> |     |     |         |           |                |                |                |
|------------------|-----|-----|----------------|----------------|-----|----------------|--------------------|------------|-----|----------------|----------------|---------------------|---------------------------------|-----|-----|---------|-----------|----------------|----------------|----------------|
| DN               | d   | C   | D <sub>1</sub> | D <sub>2</sub> | L   | H <sub>1</sub> | n x d <sub>2</sub> | Hand lever |     |                |                | Gear with handwheel |                                 |     |     | Disc-PP | Disc-PVDF |                |                |                |
|                  |     |     |                |                |     |                |                    | A          | H   | H <sub>2</sub> | H <sub>3</sub> | A <sub>1</sub>      | A <sub>2</sub>                  | I   | H   |         |           | H <sub>2</sub> | H <sub>3</sub> | D <sub>3</sub> |
| 80               | 77  | 160 | 105            | 122            | 46  | 94             | 8 x 18             | 250        | 191 | 135            | 56             | 167                 | 64                              | 245 | 165 | 130     | 92        | 160            | 2,8 / 4,9      | 2,9 / 5,0      |
| 100              | 102 | 180 | 134            | 122            | 56  | 105            | 8 x 18             | 250        | 206 | 150            | 56             | 167                 | 64                              | 260 | 180 | 145     | 92        | 160            | 3,5 / 5,6      | 3,7 / 5,8      |
| 125              | 129 | 210 | 169            | 122            | 66  | 124            | 8 x 18             | 320        | 237 | 168            | 69             | 167                 | 64                              | 275 | 195 | 160     | 92        | 160            | 6,9 / 9,0      | 7,2 / 9,3      |
| 150              | 150 | 240 | 190            | 122            | 71  | 138            | 8 x 23             | 320        | 252 | 183            | 69             | 167                 | 64                              | 290 | 210 | 175     | 92        | 160            | 8,1 / 9,6      | 8,6 / 10,1     |
| 200              | 195 | 295 | 242            | 122            | 87  | 173            | 8 x 23             | 400        | 283 | 214            | 69             | 167                 | 64                              | 321 | 241 | 206     | 92        | 160            | 15,0 / 16,5    | 15,9 / 17,4    |
| 250              | 250 | 350 | 302            | 122            | 112 | 208            | 12 x 23            | -          | -   | -              | -              | 167                 | 64                              | 356 | 276 | 241     | 92        | 160            | - / 22,7       | - / 24,3       |

- 4) Lever type / gear type

### Flow rate characteristic value<sup>5)</sup> $k_{VS}$ in m<sup>3</sup>/h

| DN  | Opening degree |      |      |       |
|-----|----------------|------|------|-------|
|     | 25 %           | 50 % | 75 % | 100 % |
| 80  | 5,1            | 51   | 143  | 256   |
| 100 | 8              | 80   | 225  | 402   |
| 125 | 14             | 142  | 397  | 709   |
| 150 | 19             | 188  | 526  | 940   |
| 200 | 43             | 427  | 1197 | 2137  |
| 250 | 66             | 660  | 1848 | 3300  |

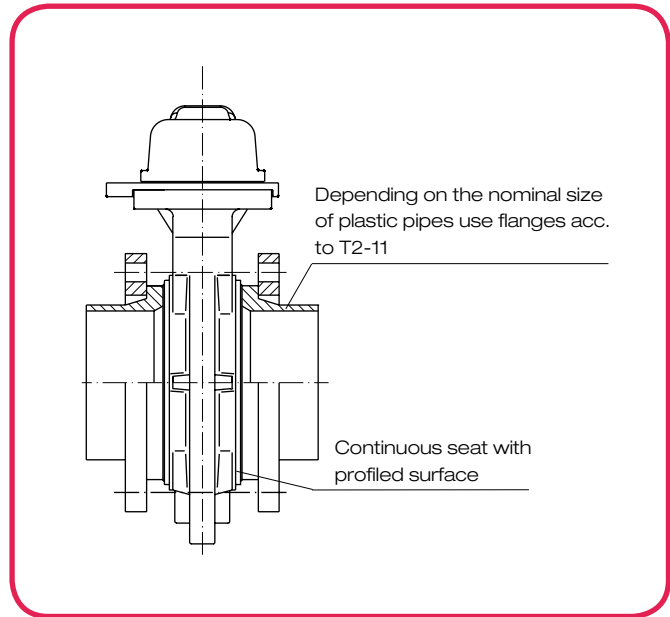
- 5) Definition  $k_{VS}$ -value see chapter T2 / technical information



## Butterfly valve type 57 L

Tightening torque in Nm for flange bolts

| DN       | Torque |
|----------|--------|
| 80, 100  | 30     |
| 125, 150 | 40     |
| 200, 250 | 55     |



Working pressure<sup>1)</sup>  $p_B$  in bar  
- Operation as lug type -

| Disc-material | Temp. in °C  | DN       |
|---------------|--------------|----------|
|               |              | 80 - 250 |
| PP            | -20 up to 60 | 7,5      |
|               | 61 up to 70  | 3        |
|               | 71 up to 90  | 2        |
| PVDF          | -20 up to 60 | 7,5      |
|               | 61 up to 70  | 3        |
|               | 71 up to 90  | 2        |

1) Definition see chapter T2 / Technical information

Working pressure<sup>1)</sup>  $p_B$  in bar  
- Operation as wafer type -

| Disc-material | Temp. in °C  | DN       |
|---------------|--------------|----------|
|               |              | 80 - 250 |
| PP            | -20 up to 50 | 10       |
|               | up to 60     | 6        |
|               | up to 70     | 4        |
|               | up to 90     | 2        |
| PVDF          | -20 up to 60 | 10       |
|               | up to 70     | 8        |
|               | up to 100    | 5        |

Operating torque<sup>2)</sup> in Nm

| DN |     |     |     |     |     |
|----|-----|-----|-----|-----|-----|
| 80 | 100 | 125 | 150 | 200 | 250 |
| 30 | 40  | 65  | 69  | 215 | 350 |

2) Referring to maximum working pressure

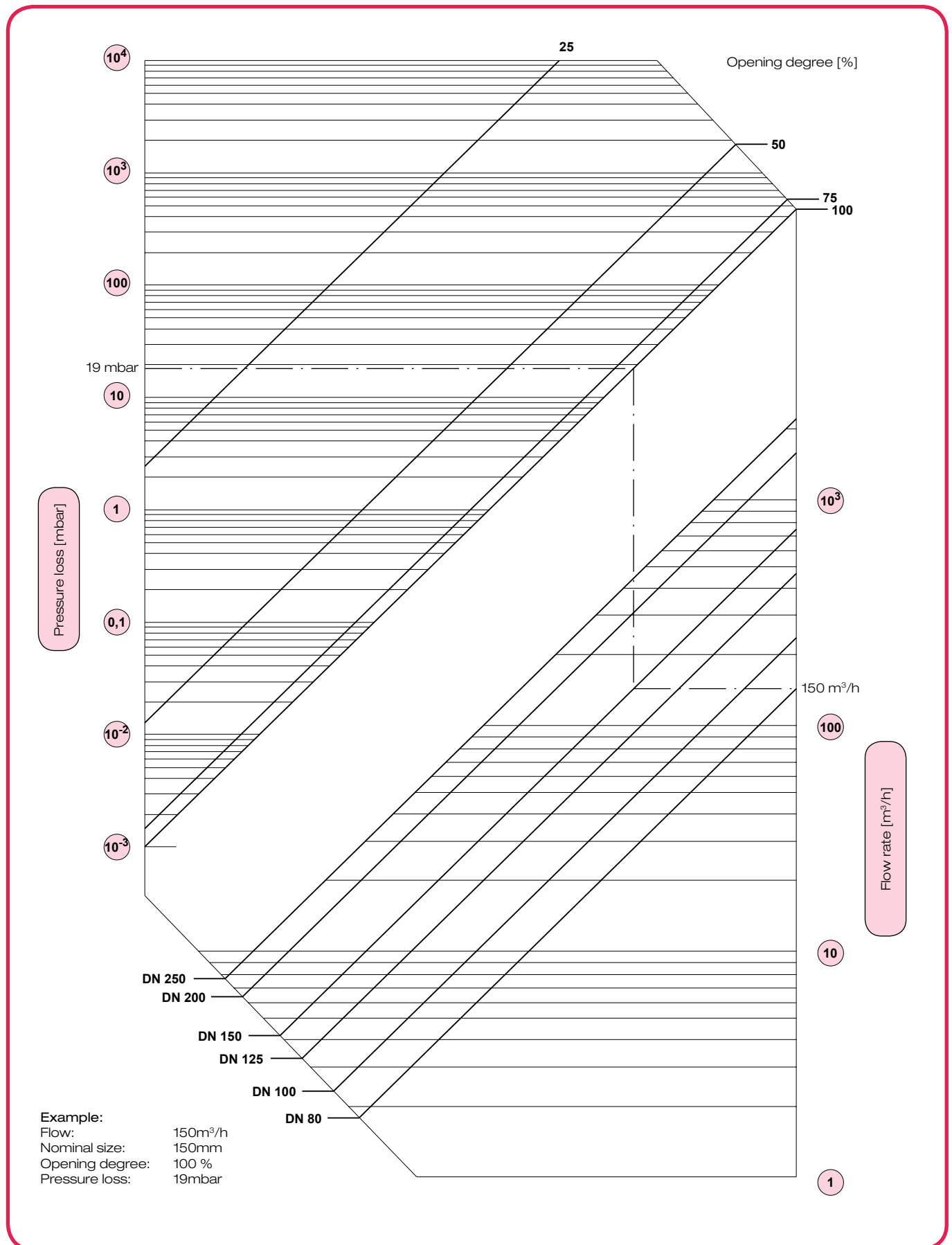
Vacuum resistance<sup>3)</sup> in bar

| DN  |     |     |      |      |      |
|-----|-----|-----|------|------|------|
| 80  | 100 | 125 | 150  | 200  | 250  |
| 1,0 | 1,0 | 1,0 | 0,91 | 0,91 | 0,91 |

3) Referring to maximum working temperature

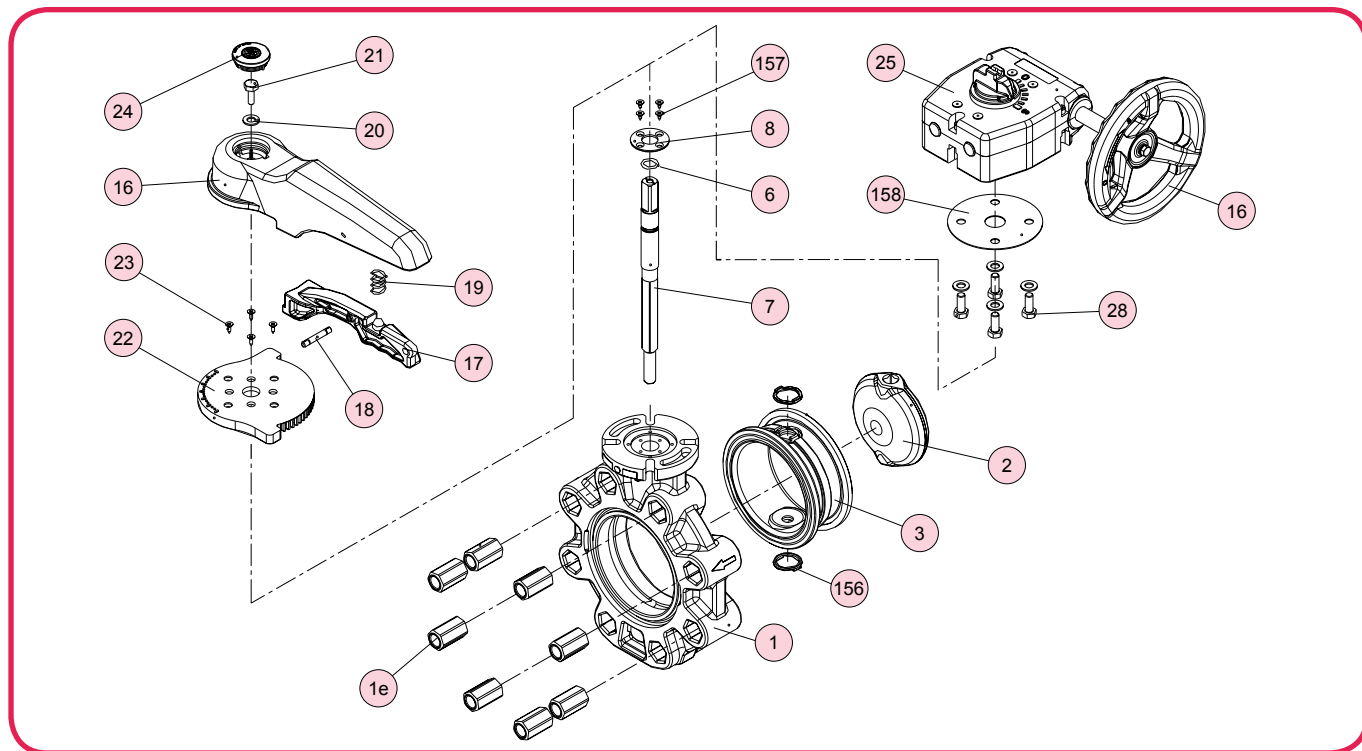
# Butterfly valve type 57 L

Pressure loss diagram



# Butterfly valve type 57 L

## Maintenance and installation



### Lever or gear version

#### Disassembly of the valve

**Caution:** Never dismantle the valve when the pipe is under pressure.

- Drain fluid completely from the pipeline.

#### Lever version:

- Leave the valve slightly opened.
- Loosen the connecting bolts and nuts.
- Remove the valve from the pipeline.
- To take off lever 16, firstly take off cap 24 by using a screw driver and release bolt 21 by using a socket wrench, then pull up the lever 16 while holding handle lever 17.

#### Gear version:

- Remove bolts 28 and remove gear box 25.
- Pull the stem 7 out of the body.
- Push disc 2 in axial direction out of the seat 3.
- Push seat 3 out of the body 1. For this shift vertically to rotating axis the lever between body and seat. Via the lever, press seat out of the body in axial direction.
- Remove retaining ring 156 with a suitable tool.

#### Assembly of the valve

- The valve assembly is to be performed in reverse order to the disassembly.
- Before the assembly all parts have to be checked for damages.

- All parts have to be clean.
- For installation of seat 3, it is absolutely necessary to ensure that:
  - the retaining ring 156 are correctly assembled.
  - the seat has to be put in correct position. The bigger cross-hole must be directed to the top flange.
- When installing the disc 2, it has to be ensured that the seat is not been turned out of position.
- The stem is to be mounted in a way that its top mark complies with the disc position.
- After assembly carry out a pressure test acc. to DIN EN 12266-1.

#### Notes for correct installation

- Because of the full cover seat additional flange gaskets are not necessary.
- Install the valve without invoking material stress, therefore be aware of flange face parallelism, axial misalignment and valve length.
- For use with media containing solids or sediments the valve should be installed with the stem in horizontal position and the disc opening in flow direction.
- Depending on the size chamfered stub flanges according T2-11 have to be used.