

## CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25

Carbon steel double offset butterfly valve for steam, heating, geothermics, industrial cold, shipbuilding and petrochemical.  
PTFE filled with 15% graphite packing and seat for a temperature up to 210°C.  
Compatible with explosive atmosphere, ATEX Zone 1&21 and Zone 2&22.  
With handle up to DN150 and with gearbox over.  
Thanks to the ISO 5211 plate, an actuator can be installed on the valve.



**Size :** DN50 to DN450  
**Connection :** Between flanges PN25  
**Min Temperature :** -29°C  
**Max Temperature :** +210°C  
**Max Pressure :** 25 Bars  
**Specifications :** Lug type  
ISO 5211 mounting pad  
ATEX  
Full crossing stem

**Materials :** Carbon steel ASTM A216 WCB

## CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25

### SPECIFICATIONS :

- 100% tightness
- Lug type
- Between PN25 flanges
- Double offset
- Bidirectional with preferential flow direction indicated by the arrow
- ISO 5211 mounting pad
- Stainless steel CF8M disc
- Full crossing stem
- 10 positions ductile iron handle, with locking device up to DN150
- Gear box from DN 200 to DN450
- Inorganic zinc rich primer, gray color, 10 µm thickness
- Finish painting heat resisting aluminum Silver color 1504, 30 µm thickness
- Ductile iron EN GJS-400-15 handle with silver painting 1504 color

### USE :

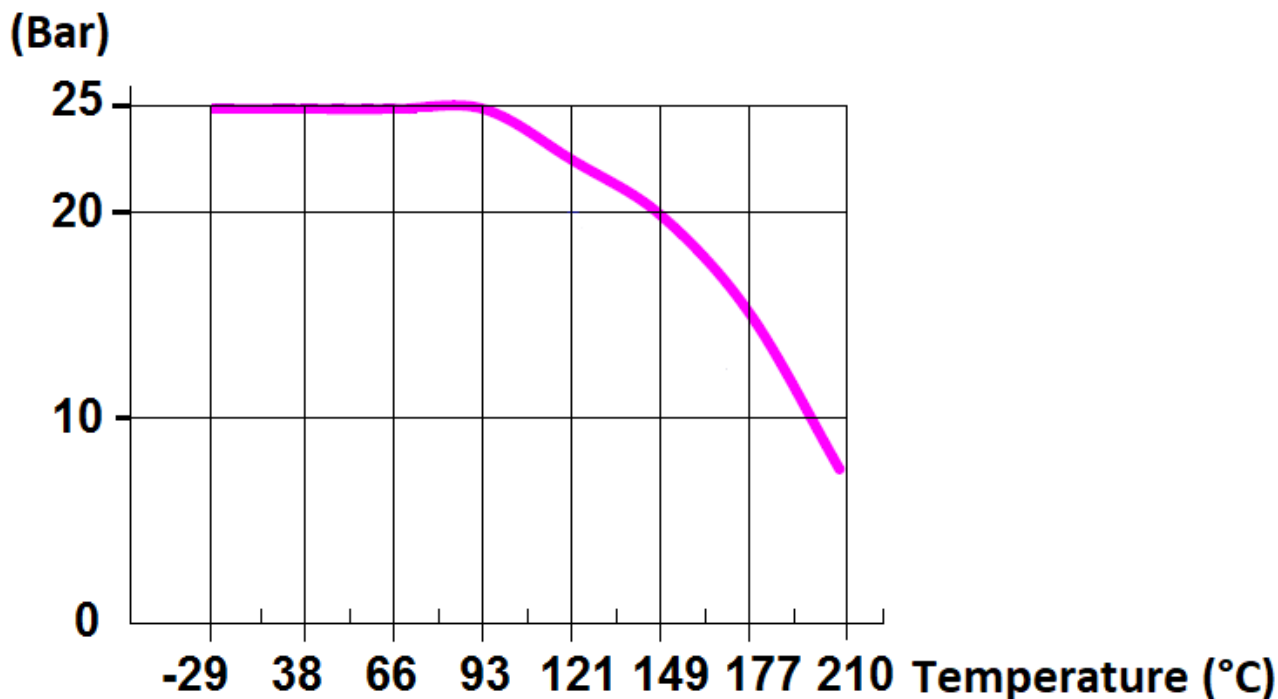
- Heating, geothermics, industrial cold, shipbuilding, petrochemical
- Steam : 10 bars maximum
- Min and max Temperature Ts : - 29°C to + 210°C
- Max Pressure Ps : 25 bars ( see graph )
- Vacuum 10<sup>-3</sup> torr but need to disassemble the packing and returning the Chevron V rings (face to the bottom)
- When using at dead end of pipeline, reverse preferential flow direction

### RANGE :

- Lug butterfly valve with carbon steel body, and handle **Ref. 1110L** DN 50 to DN 150
- Lug butterfly valve with carbon steel body, and gear box **Ref. 1110L** DN 200 to DN 450
- Gear box **Ref. 1193** from DN 50 to DN 300

### PRESSURE / TEMPERATURE GRAPH :

#### PRESSURE



**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**
**CONNECTION :**

- Between PN25 flanges

**TORQUE VALUE ( in Nm with safety coefficient of 30 % included ) :**

| DN                      | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350  | 400  | 450  |
|-------------------------|----|----|----|-----|-----|-----|-----|-----|-----|------|------|------|
| Torque ( Nm ) at 0 Bar  | 13 | 19 | 26 | 35  | 51  | 62  | 89  | 150 | 196 | 382  | 573  | 783  |
| Torque ( Nm ) at 5 Bar  | 15 | 22 | 29 | 41  | 64  | 83  | 114 | 211 | 294 | 539  | 686  | 963  |
| Torque ( Nm ) at 10 Bar | 17 | 29 | 37 | 51  | 76  | 103 | 147 | 261 | 374 | 784  | 980  | 1225 |
| Torque ( Nm ) at 15 Bar | 20 | 35 | 44 | 61  | 89  | 118 | 166 | 309 | 539 | 980  | 1176 | 1470 |
| Torque ( Nm ) at 20 Bar | 22 | 41 | 51 | 77  | 105 | 147 | 204 | 394 | 625 | 1176 | 1372 | 1666 |
| Torque ( Nm ) at 25 Bar | 25 | 51 | 59 | 85  | 127 | 176 | 242 | 489 | 828 | 1323 | 1568 | 1911 |

**MAX TORQUE MAST ( in Nm ) :**

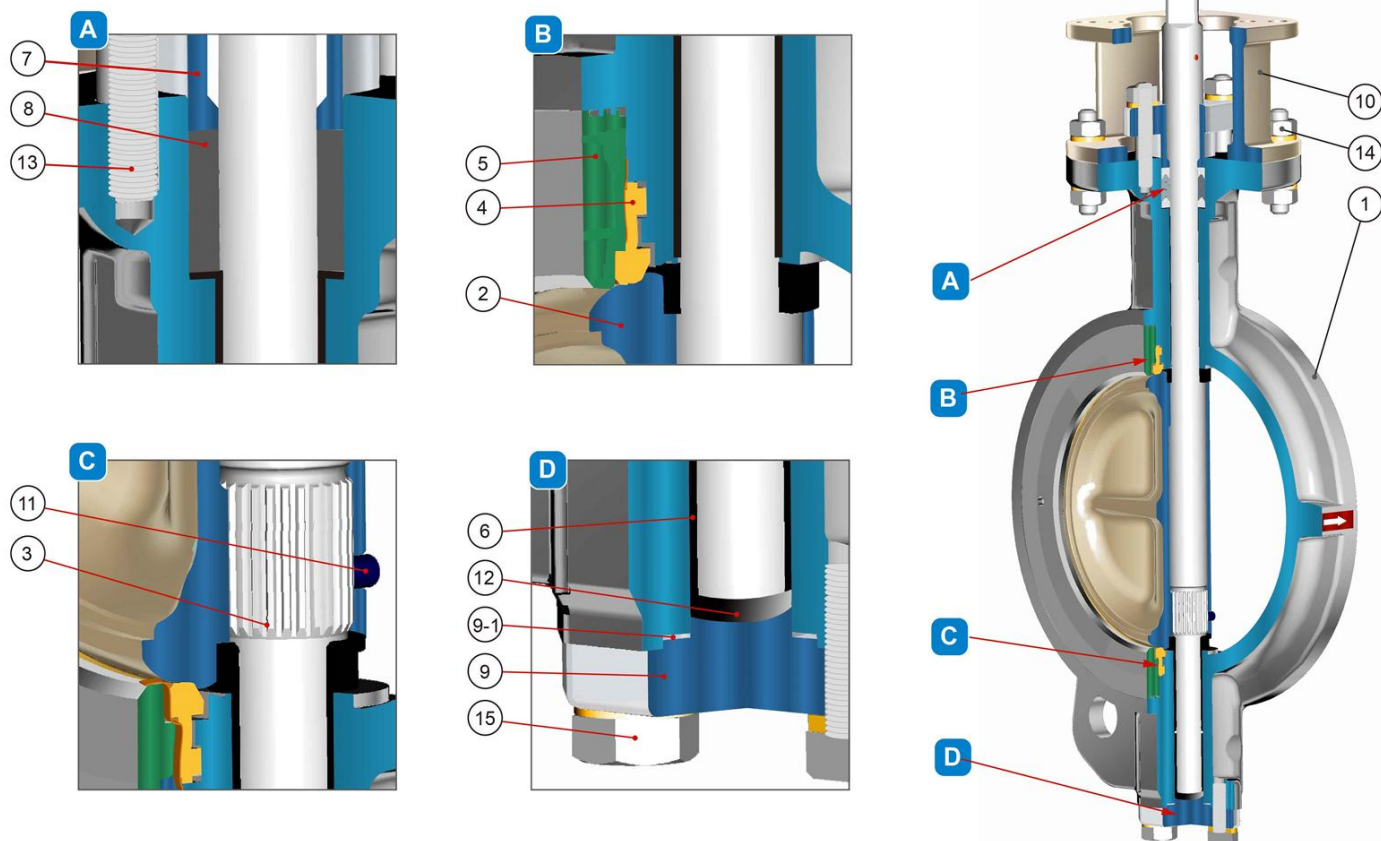
| DN   | 50  | 65 | 80  | 100 | 125 | 150 | 200 | 250  | 300  | 350 | 400  | 450 |
|------|-----|----|-----|-----|-----|-----|-----|------|------|-----|------|-----|
| MAST | 163 |    | 324 |     | 647 |     | 906 | 1295 | 2589 |     | 5179 |     |

**FLOW COEFFICIENT Kv ( m3 / h ) :**

| DN  | Opening % |       |        |        |        |        |        |        |        |        |
|-----|-----------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
|     | 10%       | 20%   | 30%    | 40%    | 50%    | 60%    | 70%    | 80%    | 90%    | 100%   |
| 50  | 0,9       | 1,7   | 4,3    | 8,6    | 12,9   | 19,8   | 30,2   | 45,7   | 55,2   | 56,9   |
| 65  | 4,3       | 7,8   | 19,0   | 27,6   | 44,0   | 60,3   | 79,3   | 96,6   | 117,2  | 120,7  |
| 80  | 7,8       | 13,8  | 35,3   | 50,9   | 79,3   | 110,3  | 146,6  | 182,8  | 220,7  | 224,1  |
| 100 | 12,1      | 22,4  | 56,0   | 83,6   | 131,0  | 181,0  | 237,9  | 292,2  | 353,4  | 362,1  |
| 125 | 21,6      | 38,8  | 97,4   | 139,7  | 218,1  | 301,7  | 408,6  | 501,7  | 600,9  | 620,7  |
| 150 | 21,6      | 66,4  | 131,0  | 194,8  | 359,5  | 627,6  | 758,6  | 1013,8 | 1155,2 | 1185,3 |
| 200 | 36,2      | 118,1 | 233,6  | 346,6  | 470,7  | 659,5  | 848,3  | 1123,3 | 1250,0 | 1508,6 |
| 250 | 107,8     | 262,9 | 424,1  | 502,6  | 795,7  | 1086,2 | 1422,4 | 1775,9 | 2103,4 | 2299,1 |
| 300 | 146,6     | 357,8 | 576,7  | 831,9  | 1120,7 | 1512,9 | 2637,1 | 2977,6 | 3318,1 | 3763,8 |
| 350 | 191,4     | 436,2 | 686,2  | 1004,3 | 1391,4 | 1931,9 | 2691,4 | 3646,6 | 4620,7 | 5141,4 |
| 400 | 271,6     | 462,9 | 777,6  | 1141,4 | 1641,4 | 2142,2 | 3192,2 | 4650,9 | 5937,1 | 6691,4 |
| 450 | 337,9     | 815,5 | 1255,2 | 1758,6 | 2427,6 | 3377,6 | 4669,0 | 6087,1 | 7357,8 | 8063,8 |

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

**MATERIALS VALVES :**

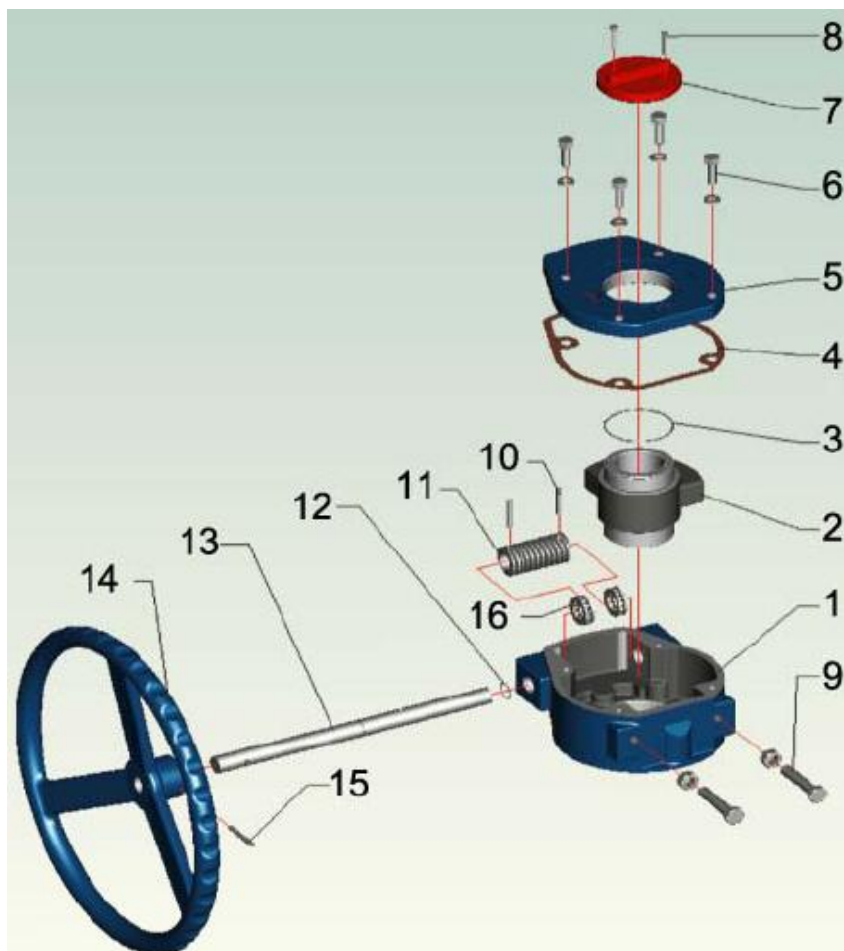


| Item | Designation         | Materials                                |
|------|---------------------|------------------------------------------|
| 1    | Body                | ASTM A216 WCB                            |
| 2    | Disc                | ASTM A351 CF8M                           |
| 3    | Shaft               | ASTM A564 630                            |
| 4*   | Seat                | PTFE filled with 15% graphite            |
| 5    | Retainer            | ASTM A351 CF8                            |
| 6*   | Bushing             | PTFE + AISI 316                          |
| 7    | Gland               | ASTM A351 CF8                            |
| 8*   | Gland packing       | PTFE filled with 15% graphite            |
| 9    | Bottom cover        | ASTM A216 WCB                            |
| 9-1* | Bottom cover gasket | PTFE filled with 15% graphite            |
| 10   | Yoke                | ASTM A216 WCB                            |
| 11*  | Stop stud           | ASTM A193 Gr. B8M                        |
| 12*  | Lock plate          | PTFE filled with 15% graphite + AISI 316 |
| 13   | Stud                | ASTM A193 Gr. B8                         |
| 14   | Nut                 | ASTM A194 Gr. 8                          |
| 15   | Bolt                | ASTM A193 Gr. B8                         |

( \* : Included in gaskets kit )

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

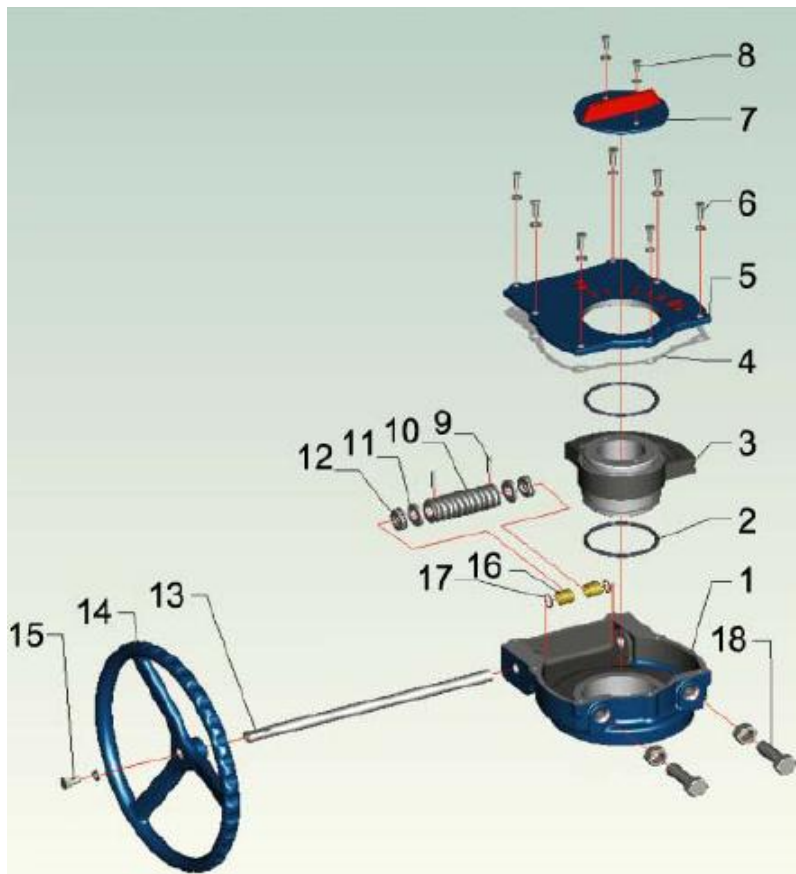
**MATERIALS GEARBOX DN50 – 350 :**



| Item | Designation | Materials    |
|------|-------------|--------------|
| 1    | Body        | Cast iron    |
| 2    | Worm gear   | Ductile iron |
| 3    | O ring      | NBR          |
| 4    | Gasket      | Paper        |
| 5    | Cover       | Cast iron    |
| 6    | Screw       | Steel        |
| 7    | Indicator   | Cast iron    |
| 8    | Screw       | Steel        |
| 9    | Stop bolt   | Steel        |
| 10   | Pin         | Steel        |
| 11   | Worm        | Steel        |
| 12   | O ring      | NBR          |
| 13   | Worm shaft  | Steel        |
| 14   | Handwheel   | Cast iron    |
| 15   | Pin         | Steel        |
| 16   | Bearing     | Steel        |

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

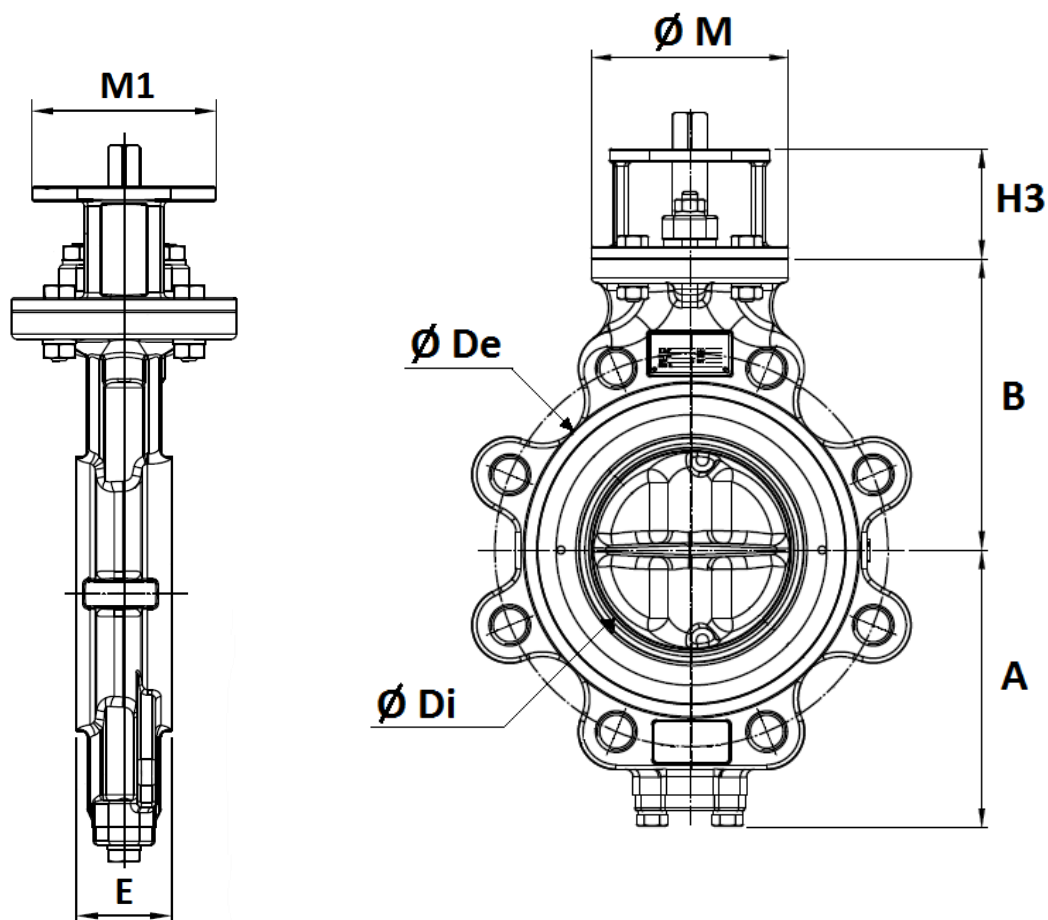
**MATERIALS GEARBOX DN400 - 450 :**



| Item | Designation | Materials    |
|------|-------------|--------------|
| 1    | Body        | Cast iron    |
| 2    | O ring      | NBR          |
| 3    | Worm gear   | Ductile iron |
| 4    | Gasket      | Paper        |
| 5    | Cover       | Cast iron    |
| 6    | Screw       | Steel        |
| 7    | Indicator   | Cast iron    |
| 8    | Screw       | Steel        |
| 9    | Pin         | Steel        |
| 10   | Worm        | Steel        |
| 11   | Ring        | Steel        |
| 12   | Bearing     | Steel        |
| 13   | Worm shaft  | Steel        |
| 14   | Handwheel   | Cast iron    |
| 15   | Screw       | Steel        |
| 16   | Bushing     | Copper       |
| 17   | O ring      | NBR          |
| 18   | Stop bolt   | Steel        |

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

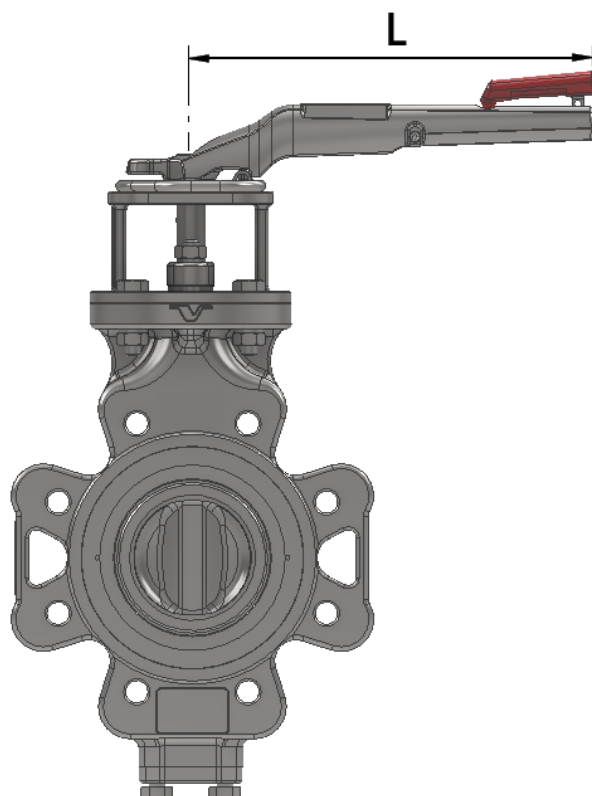
VALVE SIZE ( in mm ) :



| DN                       | 50  | 65     | 80   | 100  | 125  | 150  | 200 | 250 | 300 | 350 | 400   | 450   |
|--------------------------|-----|--------|------|------|------|------|-----|-----|-----|-----|-------|-------|
| NPS                      | 2"  | 2 1/2" | 3"   | 4"   | 5"   | 6"   | 8"  | 10" | 12" | 14" | 16"   | 18"   |
| E                        | 43  | 46     | 47   | 53   | 57   | 56   | 62  | 68  | 78  | 78  | 102   | 114   |
| A                        | 99  | 110    | 128  | 150  | 163  | 176  | 206 | 238 | 269 | 306 | 342   | 370   |
| B                        | 118 | 125    | 140  | 157  | 170  | 185  | 220 | 260 | 290 | 326 | 370   | 395   |
| H3                       | 60  | 60     | 70   | 70   | 70   | 70   | 80  | 80  | 100 | 100 | 120   | 120   |
| Ø M                      | 90  | 90     | 125  | 125  | 125  | 125  | 150 | 150 | 175 | 175 | 210   | 210   |
| M1                       | 70  | 70     | 102  | 102  | 102  | 102  | 125 | 125 | 160 | 160 | 195   | 195   |
| Ø De                     | 92  | 108    | 126  | 153  | 184  | 212  | 268 | 326 | 375 | 416 | 476   | 534   |
| Ø Di                     | 38  | 63     | 78   | 95   | 118  | 143  | 188 | 236 | 282 | 322 | 371   | 418   |
| Min pipe diameter        | 49  | 62     | 78   | 93   | 120  | 149  | 196 | 243 | 289 | 329 | 377   | 423   |
| Weight free stem (in Kg) | 5.1 | 5.7    | 11.2 | 13.8 | 18.6 | 21.4 | 33  | 48  | 66  | 93  | 136.5 | 179.5 |

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

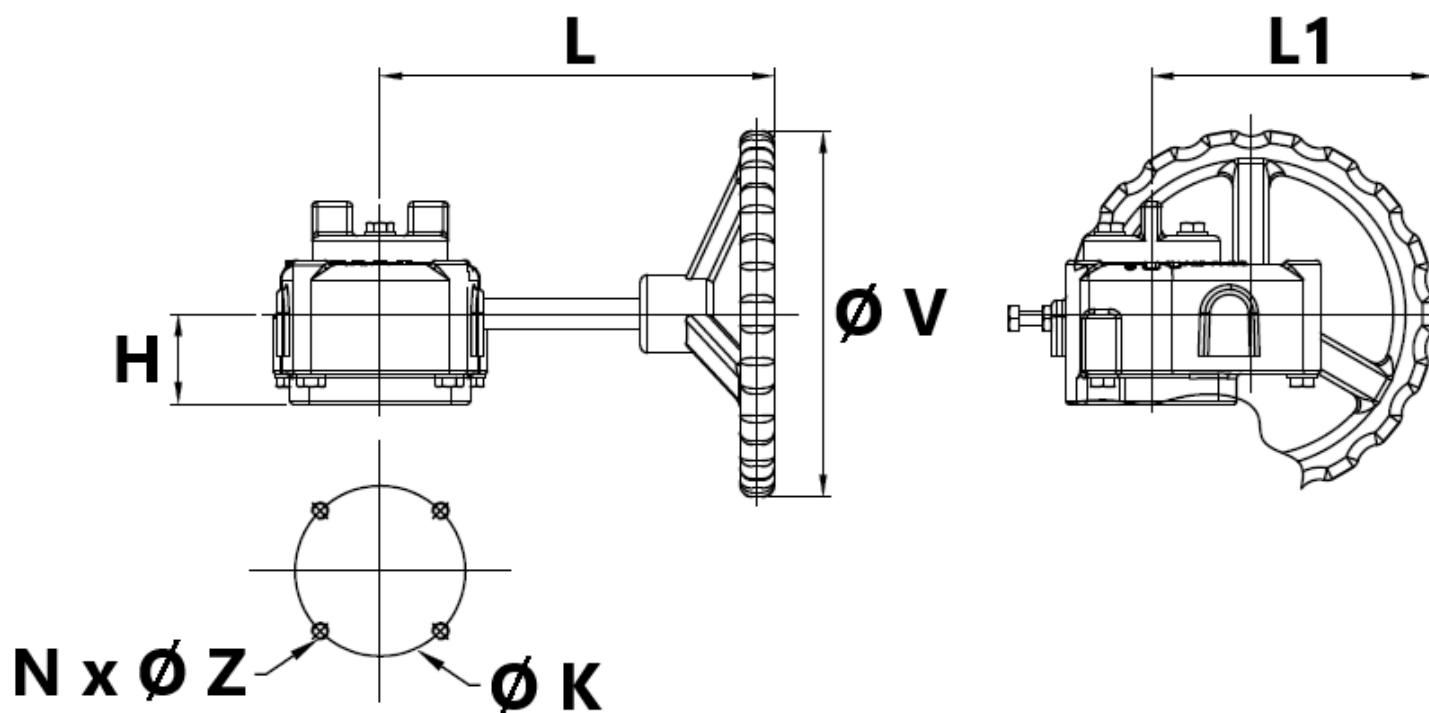
**HANDLE SIZE :**



| DN          | 50  | 65  | 80  | 100 | 125 | 150 |
|-------------|-----|-----|-----|-----|-----|-----|
| L           | 200 | 200 | 250 | 250 | 355 | 355 |
| Weight (Kg) | 0.7 | 0.7 | 0.8 | 0.8 | 1.6 | 1.6 |

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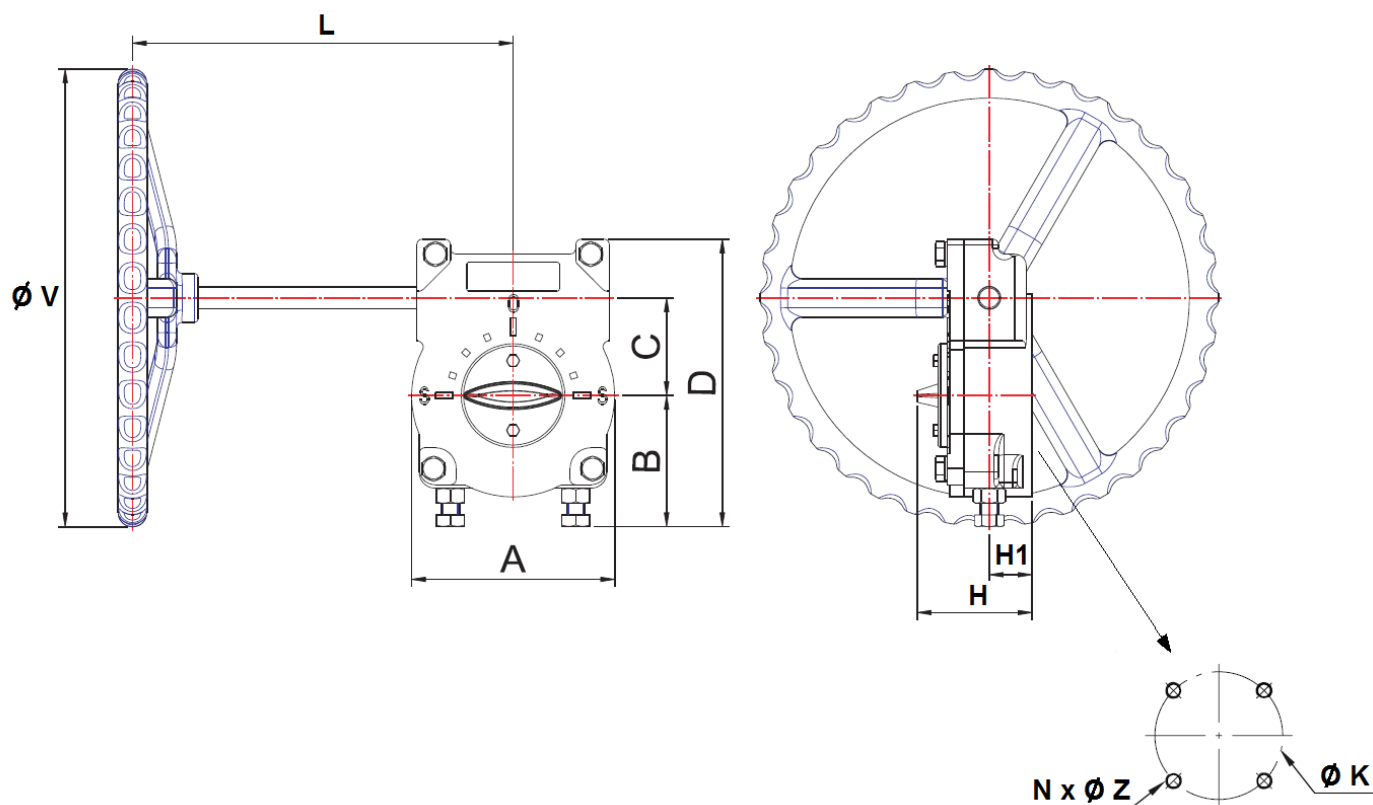
GEARBOX SIZE DN 50-350 :



| DN          | 50-65     | 80      | 100     | 125-150 | 200     | 250     | 300-350 |
|-------------|-----------|---------|---------|---------|---------|---------|---------|
| NPS         | 2"-2 1/2" | 3"      | 4"      | 5"-6"   | 8"      | 10"     | 12"-14" |
| L           | 162       |         | 202     |         | 265     |         | 340     |
| L1          | 116       |         | 163     |         | 216     |         | 281     |
| H           | 37        |         | 42      |         | 41      |         | 52      |
| Ø V         | 150       |         | 200     |         | 310     |         | 400     |
| Ø K         | 70        |         | 102     |         | 125     |         | 140     |
| ISO         | F07       |         | F10     |         | F12     |         | F14     |
| N x Ø Z     | 4 x M8    |         | 4 x M10 |         | 4 x M12 |         | 4 x M16 |
| Weight (Kg) | 3.3       |         | 7.5     |         | 9       |         | 22      |
| Ref.        | 1193001   | 1193002 | 1193003 | 1193004 | 1193005 | 1193006 | 1193007 |

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

GEARBOX SIZE DN 400-450 :



| DN             | 400-450 |
|----------------|---------|
| L              | 307     |
| A              | 251     |
| B              | 113     |
| C              | 123     |
| D              | 293     |
| H              | 127     |
| H1             | 56      |
| Ø V            | 400     |
| Ø K            | 165     |
| ISO            | F16     |
| N x Ø Z        | 4 x M20 |
| Weight (in Kg) | 35      |

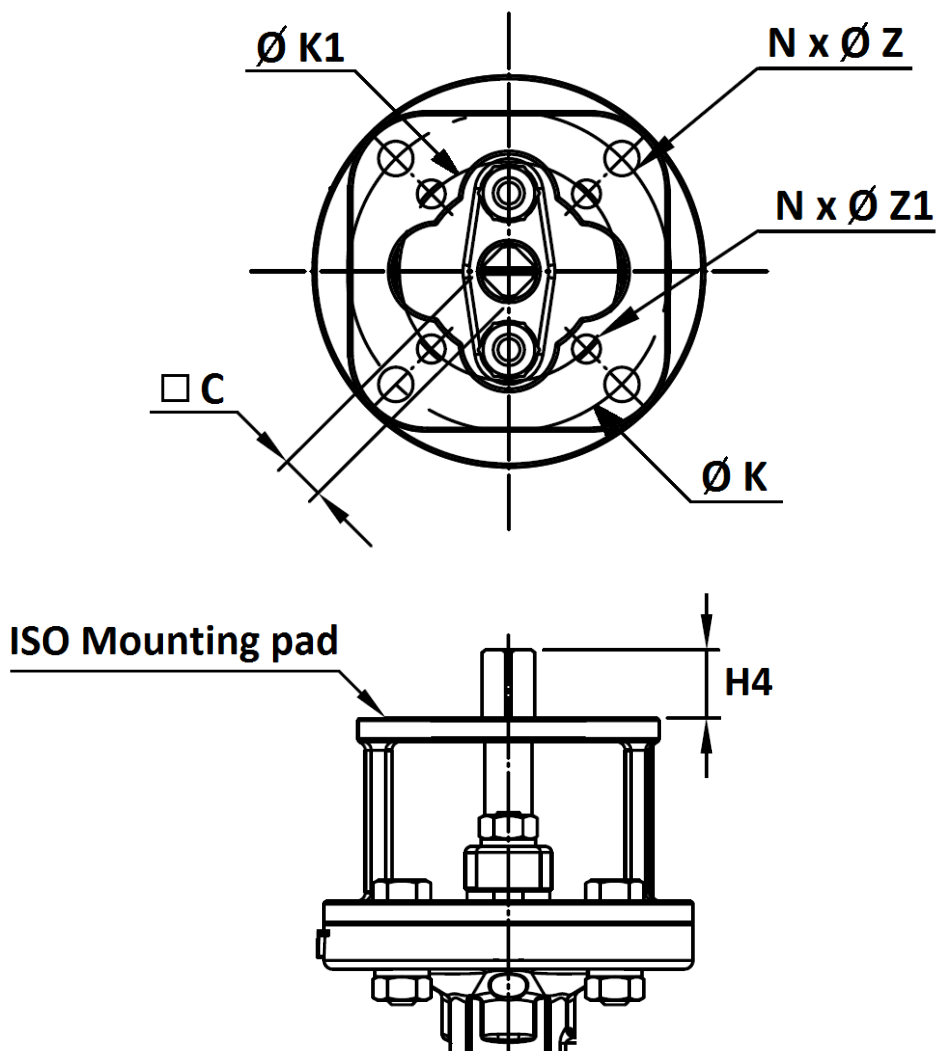
**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

**GEARBOX SPECIFICATIONS :**

| DN                                      | 50-65   | 80      | 100     | 125-150 | 200-250 | 300-350 | 400-450 |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Ref.                                    | 1193001 | 1193002 | 1193003 | 1193004 | -       | -       | -       |
| Ratio factor                            | 40 :1   | 40 :1   | 36 :1   | 36 :1   | 36 :1   | 52 :1   | 70 :1   |
| Number of cycles for opening or closing | 10      | 10      | 9       | 9       | 9       | 13      | 17.5    |
| Input torque ( Nm )                     | 24.5    | 24.5    | 54      | 54      | 109     | 150     | 225     |
| Output torque ( Nm )                    | 245     | 245     | 490     | 490     | 980     | 1960    | 3922    |

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

ISO MOUNTING PAD AND STEM SIZE ( in mm ) :

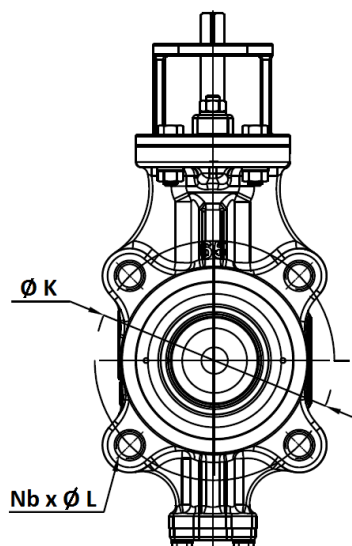


| DN     | 50     | 65     | 80     | 100 | 125 | 150 | 200    | 250 | 300    | 350 | 400    | 450 |
|--------|--------|--------|--------|-----|-----|-----|--------|-----|--------|-----|--------|-----|
| NPS    | 2"     | 2 1/2" | 3"     | 4"  | 5"  | 6"  | 8"     | 10" | 12"    | 14" | 16"    | 18" |
| C      | 11     |        | 14     |     | 17  |     | 19     | 22  | 27     |     | 36     |     |
| H4     | 18     |        | 23     |     |     |     | 28     |     | 37     |     | 47     |     |
| Ø K    | 70     |        | 102    |     |     |     | 125    |     | 140    |     | 165    |     |
| ISO    | F07    |        | F10    |     |     |     | F12    |     | F14    |     | F16    |     |
| N x ØZ | 4 x 10 |        | 4 x 12 |     |     |     | 4 x 14 |     | 4 x 18 |     | 4 x 22 |     |
| Ø K1   | 50     |        | 70     |     |     |     | 102    |     | 125    |     | 140    |     |
| ISO1   | F05    |        | F07    |     |     |     | F10    |     | F12    |     | F14    |     |
| NxØZ1  | 4 x 8  |        | 4 x 10 |     |     |     | 4 x 12 |     | 4 x 14 |     | 4 x 18 |     |

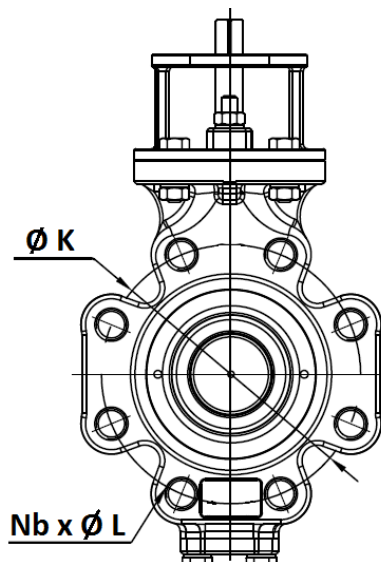
**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

BETWEEN FLANGES PN25 SIZE ( in mm ) :

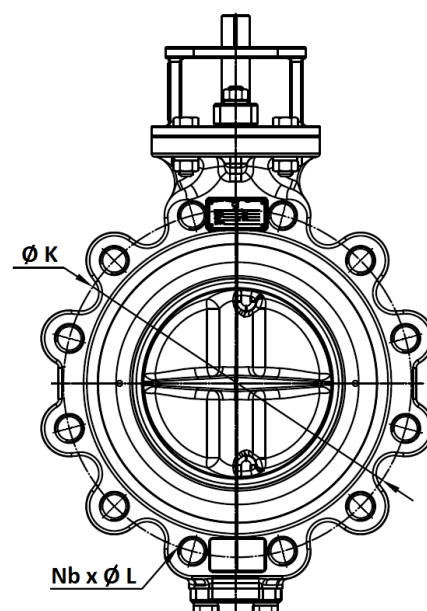
**DN50**



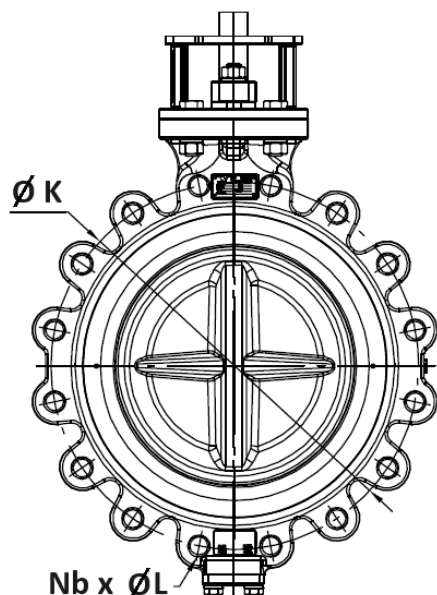
**DN65 - 150**



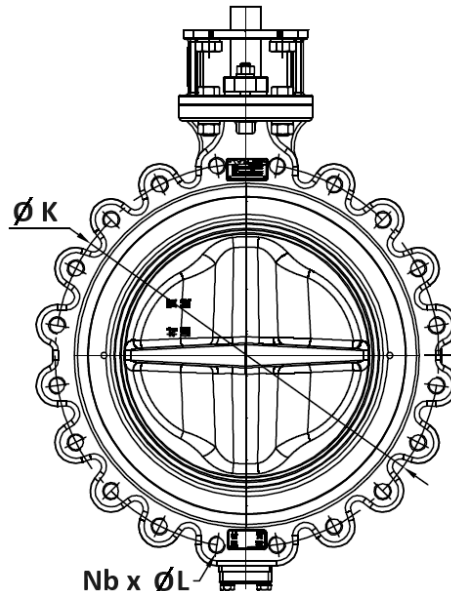
**DN200 - 250**



**DN300-400**



**DN450**



| PN       | PN25     |          |          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| DN       | 50       | 65       | 80       | 100      | 125      | 150      | 200      | 250      | 300      | 350      | 400      | 450      |
| Ø K      | 125      | 145      | 160      | 190      | 220      | 250      | 310      | 370      | 430      | 490      | 550      | 600      |
| Nb x Ø L | 4 x M16  | 8 x M16  | 8 x M16  | 8 x M20  | 8 x M24  | 8 x M24  | 12 x M24 | 12 x M27 | 16 x M27 | 16 x M30 | 16 x M33 | 20 x M33 |
| Ref.     | 1110L050 | 1110L065 | 1110L080 | 1110L100 | 1110L125 | 1110L150 | 1110L200 | 1110L250 | 1110L300 | 1110L350 | 1110L400 | 1110L450 |

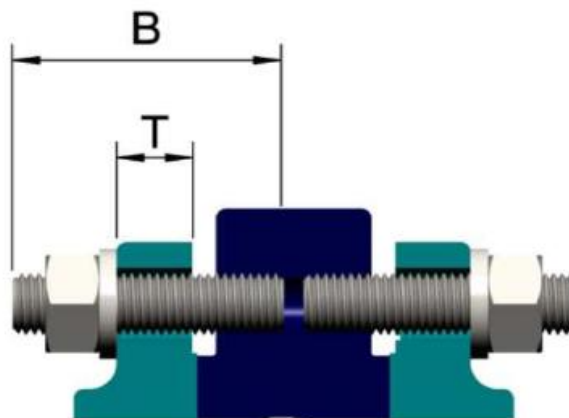
Sferaco 90 rue du Ruisseau 38297 St Quentin Fallavier Tel: + 33 (0) 474.94.15.90 Fax: + 33 (0) 474.95.62.08 Internet: [www.sferaco.com](http://www.sferaco.com) E-mail : [info@sferaco.fr](mailto:info@sferaco.fr)

Date : 02/26

Rev.04

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25**

**BOLTING SIZE ( in mm, not included with valves ) :**



| DN        | 50  | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 |
|-----------|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| B         | 75  |    |    | 90  | 105 |     | 110 | 115 | 120 | 130 | 145 | 150 |
| T         | 22  | 22 | 24 | 24  | 26  | 28  | 30  | 32  | 34  | 38  | 40  | 48  |
| Threading | M16 |    |    | M20 | M24 |     | M27 |     | M30 | M33 |     |     |

**BOLTING TORQUES :**

| Bolting size | Max torque (Nm) |
|--------------|-----------------|
| M16          | 150             |
| M20          | 270             |
| M24          | 450             |
| M27          | 700             |
| M30          | 950             |
| M33          | 1300            |

**CARBON STEEL DOUBLE OFFSET LUG BUTTERFLY VALVE PN25****STANDARDS :**

- Manufacturer certified ISO 9001:2015
- DIRECTIVE 2014/68/EU : For liquids and gas of Group 1
  - DN50-125 : Risk Category II, CE0035 marking
  - DN150-450 : Risk Category III, CE0035 marking
- Certificate 3.1 on request
- Designing according to API 609
- Marking according to MSS SP-25
- Tightness tests according to ISO 5208, Rate A
- Between flanges according to EN 1092-1 PN25
- ISO 5211 mounting pad
- Length according to EN 558 series 20 ( ISO 5752 series 20 )
- ATEX Group II Category 2 G/2D Zone 1 & 21 Zone 2 & 22 according to directive 2014/34/EU (Optional marking)
- SIL2 according to IEC/EN 61508, SIL 3 possible according to installation

**ADVICE :** Our opinion and our advice are not guaranteed and SFERACO shall not be liable for the consequences of damages.  
The customer must check the right choice of the products with the real service conditions.