

Profit butterfly valves type WBV are indicating valves. The wafer type body has vulcanised full face rubber gaskets and is installed between flanges. The valves are designed to be used in fire protection sprinkler systems.

## Characteristics

- Indoor use.
- Manually operated with external gearbox with open/close directions on handwheel.
- Yellow open/close position indicator.
- Two built-in micro-switches, pre-wired.
- One of the switches is activated before the handwheel has rotated 2 full turns from the fully OPEN position.
- The second switch is activated before the handwheel has rotated 2 full turns from the fully CLOSED position (bypass application).
- Valve body features 4 bolt-holes for easy mounting.
- F/F dimension comply with EN 558/series20 and ASME B16.10/narrow.
- Installation between flange-types EN 1092/PN10/PN16 and ASTM B16.5 Class 150/Class125.
- Anti-corrosion protection: high grade polyester powder coating, RAL 3000, meets or exceed AWWA C550 standards.
- Recommended max. flow velocity = 5m/sec.
- In compliance with EN 593.



## Working pressure

20,7 barg / 300 PSI

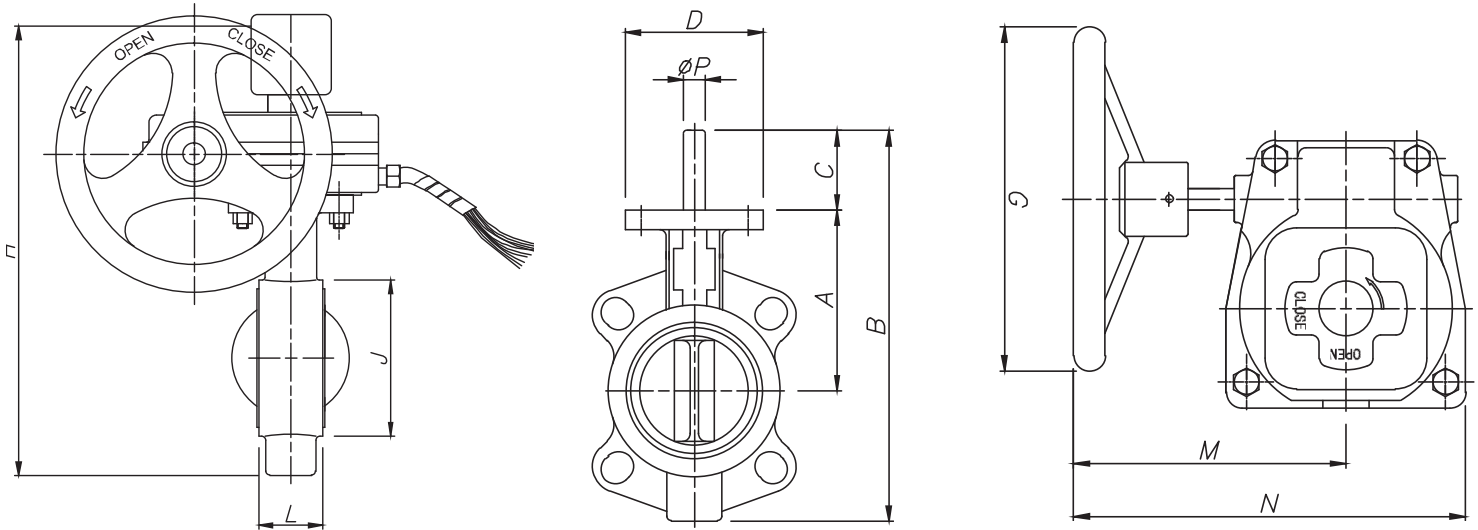
## Working temperature

+1 to + 80 °C

## Material specifications

| Component         | Specification     | European standard | ASTM standard     |
|-------------------|-------------------|-------------------|-------------------|
| Body              | Ductile cast iron | EN-GJS-450-10     | A 536 gr 65-45-12 |
| Gearbox housing   | Grey cast iron    | EN-GJL-250        | A 126 Class B     |
| Disc              | Ductile cast iron | EN-GJS-450-10     | A 536 gr 65-45-12 |
| Seat              | EPDM rubber       | /                 | D2000             |
| Fasteners         | Carbon steel      | Gr 4.6            | A 307 Gr B        |
| Bushing           | Brass             | 2.038             | B 124 C 37700     |
| Shaft             | Stainless steel   | 1.4057            | A 276 grade 431   |
| Micro-switch (2x) | VS10 N0 21C2      | /                 | /                 |

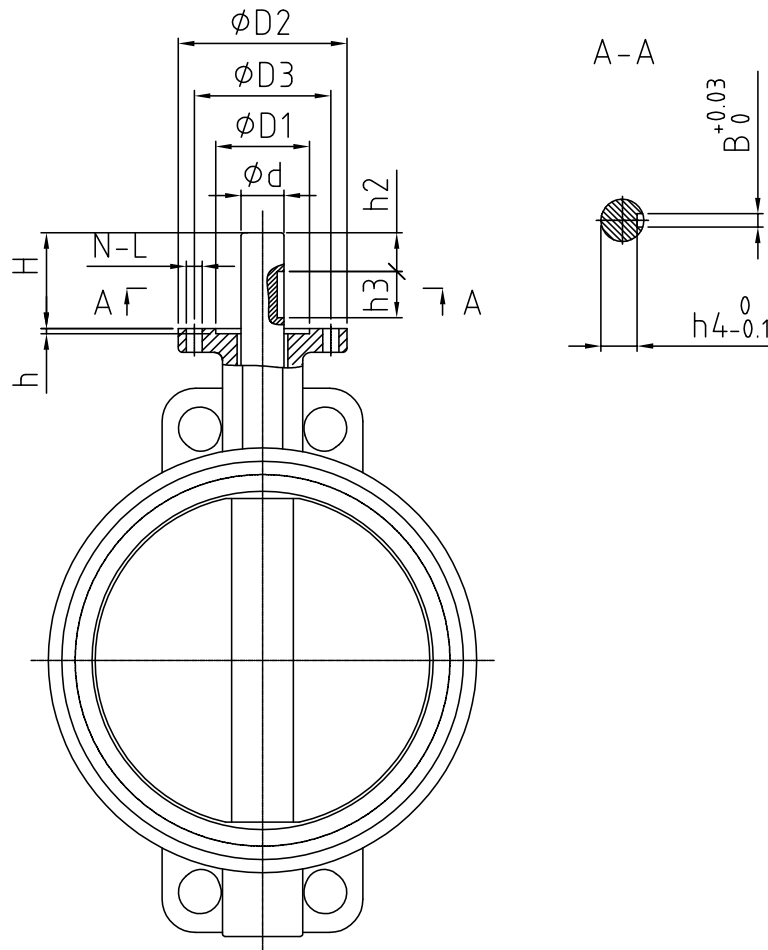
**Dimensions**



| Dimensions (mm) |      |     |     |    |     |    |     |     |     |     |     |     |    |
|-----------------|------|-----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|----|
| Size            | L    | A   | B   | C  | D   | E  | F   | G   | H   | J   | M   | N   | P  |
| 2"              | 43   | 110 | 236 | 52 | 90  | 65 | 190 | 115 | 304 | 93  | 150 | 228 | 14 |
| 2,5"            | 46   | 118 | 255 | 52 | 90  | 65 | 190 | 115 | 323 | 110 | 150 | 228 | 14 |
| 3"              | 46   | 130 | 277 | 52 | 90  | 65 | 190 | 115 | 345 | 127 | 150 | 228 | 14 |
| 4"              | 51,5 | 145 | 312 | 52 | 90  | 65 | 190 | 115 | 380 | 148 | 150 | 228 | 19 |
| 5"              | 56   | 160 | 342 | 52 | 90  | 65 | 215 | 165 | 410 | 178 | 150 | 228 | 19 |
| 6"              | 56,5 | 175 | 372 | 52 | 90  | 65 | 215 | 165 | 440 | 205 | 150 | 228 | 19 |
| 8"              | 60   | 200 | 442 | 72 | 125 | 85 | 280 | 205 | 530 | 260 | 200 | 303 | 28 |
| 10"             | 68,5 | 250 | 530 | 72 | 125 | 85 | 280 | 295 | 618 | 318 | 200 | 303 | 32 |
| 12"             | 79,5 | 275 | 585 | 72 | 125 | 85 | 280 | 295 | 673 | 371 | 200 | 303 | 32 |

| Size | Closed Max. Torque at 300PSI (N.m)* | Weight kg | Turns to open |
|------|-------------------------------------|-----------|---------------|
| 2"   | 43                                  | 7,80      | 10            |
| 2,5" | 69                                  | 8,60      | 10            |
| 3"   | 89                                  | 9,20      | 10            |
| 4"   | 117                                 | 10,50     | 10            |
| 5"   | 138                                 | 13,20     | 10            |
| 6"   | 178                                 | 14,90     | 12,5          |
| 8"   | 303                                 | 27,50     | 12,5          |
| 10"  | 482                                 | 41,00     | 12,5          |
| 12"  | 750                                 | 51,00     | 12,5          |

**Gearbox connection - Dimensions**

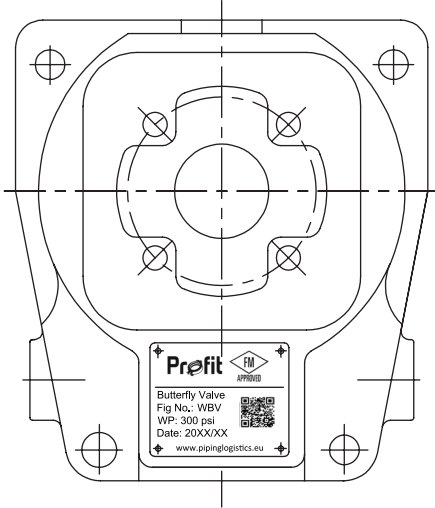


Dimensions (mm)

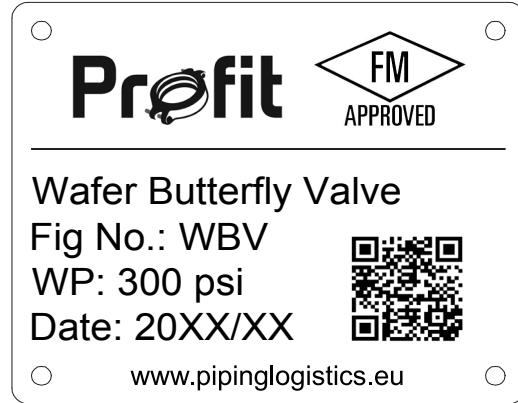
| Size | D2  | D1 | D3  | h | d  | H  | N - L         | h2   | h3 | B  | h4   |
|------|-----|----|-----|---|----|----|---------------|------|----|----|------|
| 2"   | 90  | 40 | 70  | 2 | 14 | 52 | 4 - $\phi 10$ | 23   | 25 | 5  | 11   |
| 2,5" | 90  | 40 | 70  | 2 | 14 | 52 | 4 - $\phi 10$ | 23   | 25 | 5  | 11   |
| 3"   | 90  | 40 | 70  | 2 | 14 | 52 | 4 - $\phi 10$ | 23   | 25 | 5  | 11   |
| 4"   | 90  | 40 | 70  | 2 | 19 | 52 | 4 - $\phi 10$ | 23   | 25 | 6  | 15,5 |
| 5"   | 90  | 40 | 70  | 3 | 19 | 52 | 4 - $\phi 10$ | 21   | 25 | 6  | 15,5 |
| 6"   | 90  | 40 | 70  | 3 | 19 | 52 | 4 - $\phi 10$ | 22   | 25 | 6  | 15,5 |
| 8"   | 125 | 50 | 102 | 3 | 28 | 72 | 4 - $\phi 12$ | 35   | 30 | 8  | 24   |
| 10"  | 125 | 70 | 102 | 4 | 32 | 72 | 4 - $\phi 12$ | 29   | 35 | 10 | 27   |
| 12"  | 125 | 70 | 102 | 4 | 32 | 72 | 4 - $\phi 12$ | 31,5 | 35 | 10 | 27   |

**Marking**

Body:



Marking plate:



**Micro-switches wiring diagrams**

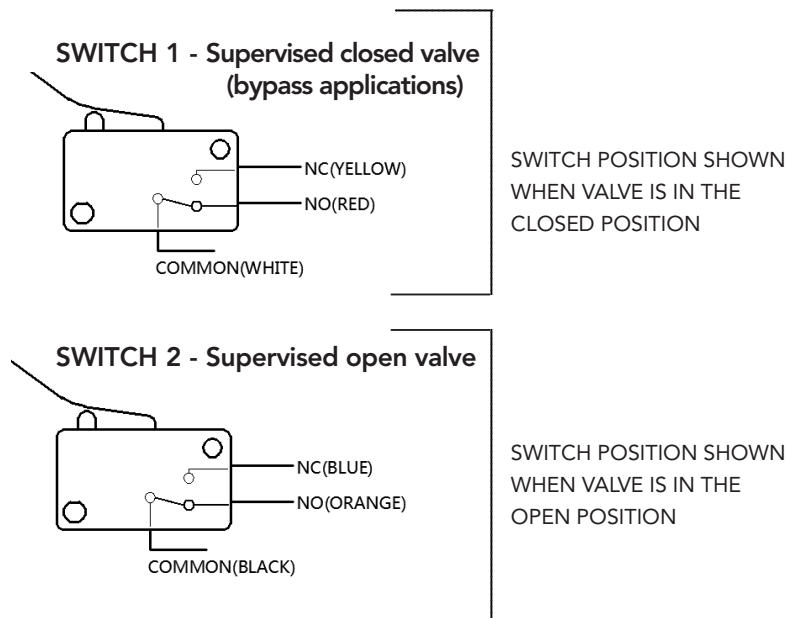
Switch Type: VS10N021C2

Rating: 10 A@125V AC / 10 A@250 V AC  
0,4A@125V DC / 0,2A@250V DC

Electrical wires: Seven multi-unit copper wires;

- SWITCH 1: one yellow wire, one red wire, one white wire;
- SWITCH 2: one orange wire, one black wire, one blue wire;
- one green wire (ground).

Diameter of section: 1,5mm<sup>2</sup> for green wire, the others are 2,5mm<sup>2</sup>. Extend 200mm beyond the gearbox.



## Performances

1. Frictional resistance (based on VdS-report).

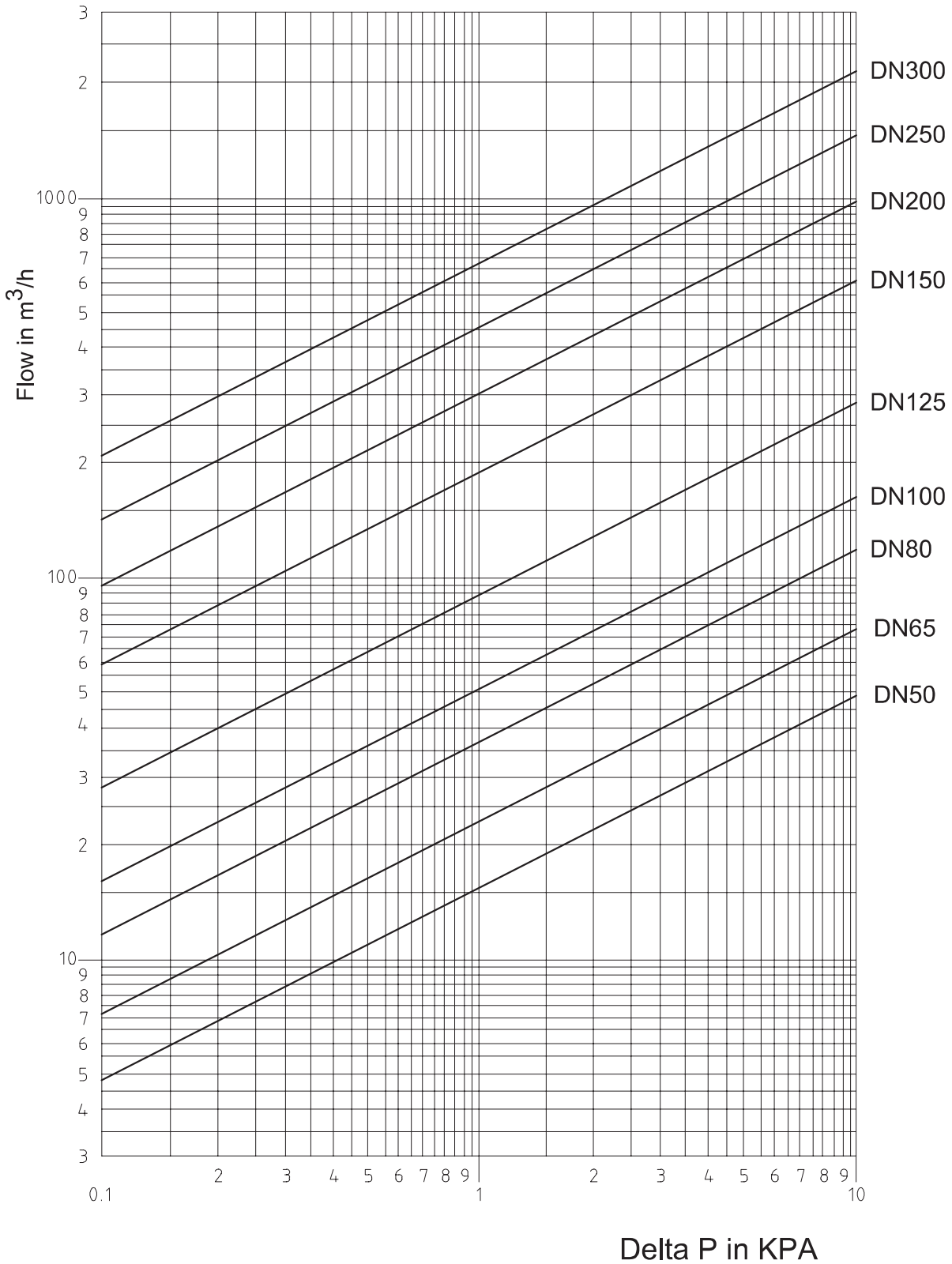
### Equivalent length

| Size   |      | Equivalent length | On steel pipe |
|--------|------|-------------------|---------------|
| DN 50  | 2"   | 3,4 m             | 60,3 x 2,3 m  |
| DN 65  | 2,5" | 2,9 m             | 76,1 x 2,6 m  |
| DN 80  | 3"   | 2,4 m             | 88,9 x 2,6 m  |
| DN 100 | 4"   | 3,9 m             | 114,3 x 3,2 m |
| DN 125 | 5"   | 4,2 m             | 139,7 x 3,6 m |
| DN 150 | 6"   | 5,5 m             | 168,3 x 4,0 m |
| DN 200 | 8"   | 5,8 m             | 219,1 x 5,6 m |

### Cv/Kv-values:

| Size   |      | Cv   | Kv   |
|--------|------|------|------|
| DN 50  | 2"   | 99   | 86   |
| DN 65  | 2,5" | 188  | 163  |
| DN 80  | 3"   | 341  | 295  |
| DN 100 | 4"   | 500  | 433  |
| DN 125 | 5"   | 763  | 660  |
| DN 150 | 6"   | 1616 | 1398 |
| DN 200 | 8"   | 3237 | 2800 |

Pressure drop chart:



**Certifications**

| Size   |      | FM                       |
|--------|------|--------------------------|
| DN 50  | 2"   | Up to 20,7 bar / 300 PSI |
| DN 65  | 2,5" | Up to 20,7 bar / 300 PSI |
| DN 80  | 3"   | Up to 20,7 bar / 300 PSI |
| DN 100 | 4"   | Up to 20,7 bar / 300 PSI |
| DN 125 | 5"   | Up to 20,7 bar / 300 PSI |
| DN 150 | 6"   | Up to 20,7 bar / 300 PSI |
| DN 200 | 8"   | Up to 20,7 bar / 300 PSI |
| DN 250 | 10"  | Up to 20,7 bar / 300 PSI |
| DN 300 | 12"  | Up to 20,7 bar / 300 PSI |



**Storage and handling**

- Upon receipt, carefully check the valve-body and gearbox on any damage during shipment.
- Valves should be lifted using the centring lugs, never use the waterway-passage through the valve.
- WBV valves should be stored indoor, protect the rubber seating from direct sunlight. Storage is recommended with the disc slightly turned open.
- When stored outside, protect the valve from weather and accumulation of water, dirt, or debris.



**Installation**

- Inspection before installation. Checklist:
  1. Check pressure rating of the valve is compatible with the service conditions.
  2. WBV valves may be installed with any schedule or pressure class of pipe that is listed according to the applicable standard.
 Check the flanges adjacent to the valve. WBV valves can be installed between flanges of the following standards:

- \* EN 1092/PN10
- \* EN 1092/PN16

- \* ASTM B16.5 Class 125
- \* ASTM B16.5 Class 150

Please check the internal diameter (ID) of the piping flanges, the minimum values are given in the table below:

| Size | L    | ID  |
|------|------|-----|
| 2"   | 43   | 52  |
| 2,5" | 46   | 65  |
| 3"   | 46   | 77  |
| 4"   | 51,5 | 97  |
| 5"   | 56   | 121 |
| 6"   | 56,5 | 149 |
| 8"   | 60   | 200 |

4. To prolong the valve-life, we recommend to install the valve not closer than 5-6 x DN when installed downstream near fittings (bends and tees). Pipework must be supported near the valve and the adjacent pipes must be well aligned so that no extra stress will be exerted on the valve-body.
  5. For replacements: all pipes need to be depressurized and purged before starting the installation.
  6. Check that valve-body is clean inside and that the two rubber sealing-facings are clean and free of dust/debris.
  7. Open and close the valve to ensure that it operates properly.
  8. Turn then the valve in almost closed position.
  9. Check that the available length between the flanges matches the total building length of the valve.
  10. Personnel for the installation must be qualified for the task.
  11. Please note that these valves are mainly designed for open/close function. When using the valve for throttling services the disc should not be positioned less than 30° open, to avoid cavitation and related vibrations and noise.
- Installation of the valve:
    1. The valves are bi-directional. They can be installed both horizontally or vertically.
    2. The use of extra gaskets on the rubber facings is NOT allowed, the valves are self-sealing when installed between the listed flange-types.
    3. Separate the 2 pipe-flanges and position de valve between the flanges, use the 4 lug-holes to ensure proper centering.
    4. Relax the flanges and install all bolts and nuts handtight.
    5. Check the free movement of the disc by fully opening the valve.
    6. Tighten now all bolts using the recommended torque values of table below.
    7. For correct tightening please apply cross-over sequence.
    8. Finally double check once more the free movement of the disc by fully opening and closing of the the valve.
    9. Bolt Torque table:

| Size   | Recommended minimum Bolt torque - Nm |
|--------|--------------------------------------|
| 2 - 4" | 110                                  |
| 5 - 8" | 210                                  |

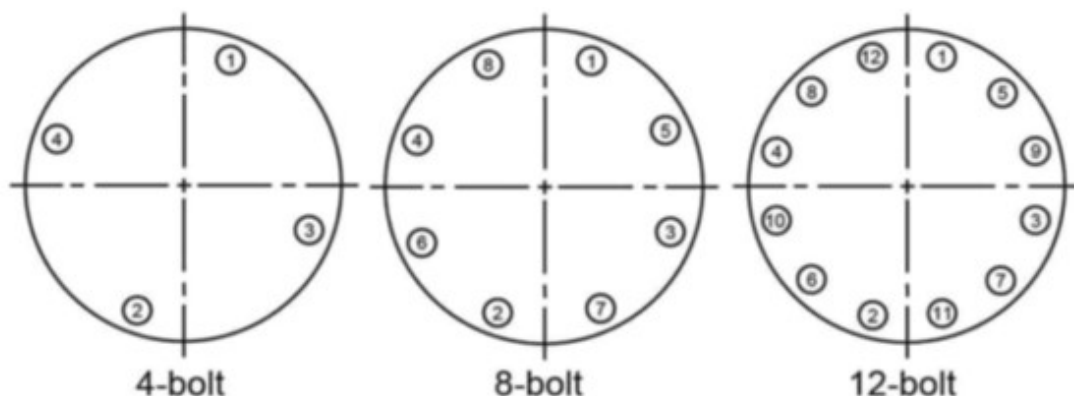
### Bolt dimensions for PN-16 bolt connections (EN 1092-PN16)

| DN  | Number of bolts | Bolt-nut size mm | Bolt length mm |
|-----|-----------------|------------------|----------------|
| 50  | 4               | M 16             | 110            |
| 65  | 8 (or 4)        | M 16             | 110            |
| 80  | 8               | M 16             | 110            |
| 100 | 8               | M 16             | 120            |
| 125 | 8               | M 16             | 130            |
| 150 | 8               | M 20             | 130            |
| 200 | 12              | M 20             | 150            |
| 250 | 12              | M 24             | 160            |
| 300 | 16              | M 24             | 180            |



## BOLT TORQUE SEQUENCE

(Bolt N°1 is the bolt closest to biggest gap between the 2 flanges)



Our advice =

- STEP1 =30 %
- STEP2 =60%
- STEP3=100%

**BOLT TORQUE** = depends on gasket type used and bolt material grade.



## Maintenance

- WBV valves are basically installed maintenance-free. We advise to verify at least annually (or scheduled in agreement with the local authority or competent maintenance company ) that the valve operates properly. Also check for any leaks between flanges or between gearbox and body.
- When the valve is blocked, please do not use excessive force or torque on the handwheel but take the valve out to check the cause.
- When a problem of any kind occurs, please contact technical dpt. of Piping Logistics.
- The owner of the system is responsible for testing and inspection of the sprinkler system , in accordance with the applicable standard. We recommend that this testing is done by a qualified inspection service company.