

# Lined Pipe and Pipe Fittings

> For Corrosive Applications



SERVICE SYSTEM SOLUTIONS

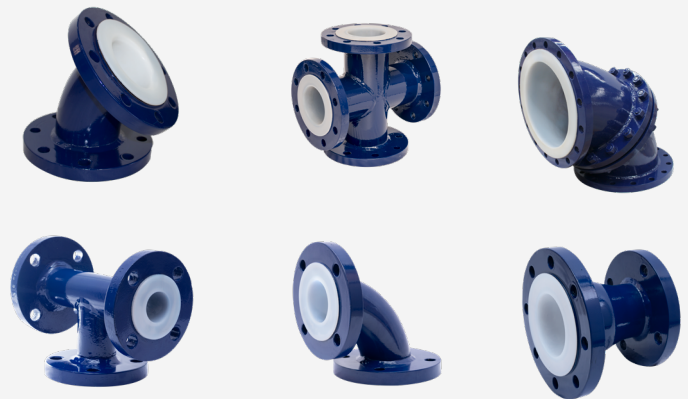
## Lined Piping and Valve Systems

UNP Polyvalves specializes in crafting PTFE lined pipes ranging from 1" to 24" in size, meticulously constructed using high-grade carbon steel or corrosion-resistant stainless steel. These superior material choices, surpassing the commonly used ductile iron, ensure unparalleled durability and performance. Our offerings encompass ANSI class 150, 300, and DIN flange dimensions, enabling versatile applications. Notably, our lined pipes boast customizable options like extended vent holes and specialized coatings for added functionality



## Key Features

- **High Quality Materials**
- **Robust Standards**
- **Quality Assurance**



**Corrosion Products and Equipment**

[www.corrosion-products.com](http://www.corrosion-products.com)

(585) 247-3030

## ABOUT US

UNP Polyvalves is manufacturing and supplying valve solutions for corrosive applications since 1988.

Considering Indian market not having a good valve manufacturing plants for corrosive application valves in 80's and huge project requirements coming up during these years UNP promoters decided to install a corrosive application valve manufacturing plant in Vadodara, Gujarat.

UNP with its possession of highly knowledgeable and skilled work force along with technically qualified and experienced promoters having vision to grow and guide their team to be the world leading brand, market leaders and make products which are high in performance and having unmatched quality and reliability, has excelled in all these requirements of market.

Taking up the challenge UNP started its first manufacturing plant just admeasuring 1600 square feet, it started with manufacturing of solid plastic valves in very few options in terms of material of construction, type of valves and size range.

UNP started working very closely with the chemical process industries in India, Understanding their difficulties and requirements UNP always worked towards solutions to the problems in industries and earned very good name not only in domestic market but also in international market.

UNP understanding the changing market trends and requirements, entered in the business of Lined Valves and Piping systems in the year 1992 and has now become a leading brand in providing most reliable Lined Valves and Piping system to the chemical process industries.

Envisioned for quality and reliability, UNP Polyvalves aims for highest level of customer satisfaction through its solutions with commitment for excellence in all spheres of business.

UNP today provides both Solid Plastic and Lined, Ball Valves, Plug Valves, Butterfly Valves, Diaphragm Valves, Ball Check Valves, Swing Check Valves, Sampling Valves, Double Window and Full View Sight Glasses, Y and T type strainers, Lined Pipes and Fittings with sizes ranging from ½" to 24".

UNP has marked its presence across the globe and are having establishments in countries like North America and exporting to 35+ countries through its distribution networks and to the direct end users.

## ACHIEVEMENTS

UNP through its knowledge about the exact process conditions and technical expertise has helped chemical industries in resolving their corrosion problems and operational problems related to Plastic valves, Lined Valves and Piping systems. Chlor Alkali Plants, Pickling Lines and Acid regeneration plants in steel industries, Chemical injection skid manufacturers in Oil and Gas industries and many other plants having corrosion problems have been benefited by our knowledge and expertise.

UNP is approved brand by leading consulting and EPC companies such as UHDE, JACOBS Engineering, Mott McDonalds, Toyo Engineering, Fluor Daniel, EIL etc and have worked for their very prestigious project over these years.

## LINING DATA

| LINER PROPERTIES                             | UNIT              | PTFE        | PFA         |
|--|-------------------|-------------|-------------|
| Operating Temperature                        | °C                | - 29 To 260 | - 29 To 260 |
| Specific Gravity                             | g/cm <sup>3</sup> | 2.14 - 2.19 | 2.12 - 2.17 |
| Liner Color                                  | NA                | white       | natural     |
| Tensile Strength of Liner at Yield (minimum) | psi               | 3000        | 3800        |
| Elongation of Liner at Yield (minimum)       | %                 | 250         | 300         |
| Melt Point                                   | °C                | 330         | 330         |

### Lined Pipe Dimensions

UNP Polyvalves manufactures PTFE lined pipe in 1" to 24" sizes in various grades of metal systems, from carbon steel to stainless steel. These systems are available in ANSI class 150, class 300 and DIN flange dimensions. The lined pipe can be easily field fabricated. Options such as vent hole extensions and special paint are available.

| NB (INCH) | STEEL PIPE DIMENSIONS OD |       | LINER THICKNESS PTFE |     |
|-----------|--------------------------|-------|----------------------|-----|
|           | INCH                     | MM    | INCH                 | MM  |
| 1"        | 1.315                    | 33.4  | 0.125                | 3.2 |
| 1½"       | 1.900                    | 48.3  | 0.125                | 3.2 |
| 2"        | 2.375                    | 60.3  | 0.137                | 3.5 |
| 3"        | 3.500                    | 88.9  | 0.165                | 4.2 |
| 4"        | 4.500                    | 114.3 | 0.177                | 4.5 |
| 6"        | 6.625                    | 168.3 | 0.216                | 5.5 |
| 8"        | 8.625                    | 219.1 | 0.216                | 5.5 |
| 10"       | 10.750                   | 273.1 | 0.255                | 6.5 |
| 12"       | 12.750                   | 323.9 | 0.255                | 6.5 |
| 14"       | 14.000                   | 355.6 | 0.255                | 6.5 |
| 16"       | 16.000                   | 406.4 | 0.255                | 6.5 |
| 18"       | 18.000                   | 457.2 | 0.255                | 6.5 |
| 20"       | 20.000                   | 508.0 | 0.255                | 6.5 |

## Notes

- Liners and fittings meet the following Specifications:
  - 1" - 8" liners and fittings are fully rated for vacuum at 200°C.
  - 10" - 12" liners are vacuum rated at 200°C with restriction on length of pipe spools.
  - 14" - 20" lined pipe & fittings, customers will have to make special request for vacuum rated lining.
- Standard 1" - 8" fittings meet or exceed pipe liner thickness and vacuum ratings for same-sized liner.

## MANUFACTURING STANDARDS

All lined pipe and fitting fully comply with the ASTM F1545 standard. Products are manufactured to the following specifications and requirements

| LINER POLYMERS                       | STANDARDS         |
|--------------------------------------|-------------------|
| PTFE (polytetrafluoroethylene)       | ASTM D4894, D4895 |
| PFA (perfluoroalkoxy)                | ASTM D3307        |
| PVDF (polyvinylidene fluoride)       | ASTM D3222        |
| PPH (polypropylene homopolymer)      | ASTM D4101        |
| ETFE (ethylene tetrafluoroethylene)  | ASTM D3159        |
| FEP (fluorinated ethylene propylene) | ASTM D2116        |

| PIPE NB (INCH) | MATERIAL    | STANDARDS           |
|----------------|-------------|---------------------|
| 1" - 6"        | Schedule 40 | ASTM A106 , Grade B |
| 8" - 24"       | Schedule 20 | ASTM A106 , Grade B |

| FLANGES TYPE | SIZE (INCH) | MATERIAL       | STANDARDS                    |
|--------------|-------------|----------------|------------------------------|
| Lap Joint    | 1" - 24"    | ASTM A105      | ANSI B16.5 150# ; DIN or JIS |
| SOFF         | 1" - 24"    | IS 2062        | ANSI B16.5 150# ; DIN or JIS |
| SOFF         | 1" - 24"    | ASTM A182 F304 | ANSI B16.5 150# ; DIN or JIS |
| SOFF         | 1" - 24"    | ASTM A182 F316 | ANSI B16.5 150# ; DIN or JIS |

| FITTINGS TYPE | STANDARDS  |
|---------------|--|
| Fabricated    | ASTM A106, GRADE B & A234 as per manufacturer's drawing; dimensions ANSI B16.5 class 150 |
| Casting       | ASTM A216, Grade WCB; dimensions ANSI B16.5 class 150                                    |
| Flange        | One side fix other side rotating   |

## FABRICATION TOLERANCES FOR PIPE AND FITTINGS

| DIMENSIONS                                      | TOLERANCE (INCH)               |
|---|--------------------------------|
| Length and centreline                           | ± 1/8                          |
| Fixed flange bolt hole alignment                | ± 1/16                         |
| Perpendicular of flange with centreline of pipe | 3/32 per foot of pipe diameter |

### Venting

PTFE Lined pipe spools 500mm or less have 1 venthole of 3mm diameter in the centre of the pipe spool. Pipe spools having length more than 500mm have 2 vent holes of the 3mm diameter one near flange.

### External Protective Coating and Marking

Metal surface of pipe and fitting are given a protective coating of primer prior to leaving the manufacturing facility to protect the metal surface from rust. We also provide specialized primers & paints if required by the customer.

### Processes

Our performance piping systems are manufactured using innovative fluoropolymer processing technology, ensuring products are of the highest quality and will provide long term performance. Pipe liners are manufactured using the paste extrusion process to increase permeation resistance, produce a smooth interior surface & provide improved structural stability. Process of injection molding is used in manufacturing of the fittings.

## QUALITY ASSURANCE

### INSPECTION AND HANDLING

The performance and longevity of PTFE lined pipe system components depends on the quality control of design and fabrication processes, as well as shipping, handling and strong practice. Quality control teams inspect and test all PTFE & PFA lined pipe components to ensure they meet or exceed ASTM F1545 specifications.

### Inspections performed prior to lining

- All metal pipe and fittings are visually inspected before lining. The interior will be smooth, clean and free of burrs, scale or any other deposits. Internal welds are ground smooth.
- Pipe liners are examined for pinholes, cracks, gouges, nicks or foreign objects.

### Tests and Inspections Performed After Lining

- Pipe spools & Fittings are hydrotested at 29.6 kg/cm<sup>2</sup> (3min). All components are subject to an electrostatic spark test at 10kva
- The Liner forming the flange gasket sealing face is visually inspected for smoothness. The liner will be free of defects (pinholes, cracks, gouges, nicks or foreign objects).
- Lined pipe and fittings are checked for dimensional accuracy and tolerances in accordance with dimensional data listed within this catalog and ANSI specifications.
- After final inspection, a flange protector is installed on each flange prior to any further handling of the part.

### Shipping, Handling and Storage

- Prior to shipment, all sealing surfaces of lined products are covered by a flange protector. Removal of the flange protector should occur only at installation. For cases in which testing is required before installation, flange protectors need to be reinstalled immediately after testing.
- Slings, chains or lifting equipment should not be placed inside lined products or otherwise come in contact with the plastic liner. Extreme care must be taken at all time when loading, transporting and unloading products to and from a truck or trailer. Use chains and slings to lift the spools rather than drag them.
- Avoid storage in direct sunlight or other severe conditions. Storage under cover is recommended.
- Protection of the flare faces is necessary during handling, sandblasting and painting. Do not plug vent holes.
- Failure to follow shipping, handling and storage instructions will void the product warranty.

## INSTALLATION INSTRUCTIONS

Do not remove flange protectors prior to installations to prevent damage to the sealing surface. Flange protectors should be replaced any time the item is removed from service.

### Recommended Bolt Torque

Recommended torque ratings are based on lightly lubricated A193 B7 bolts and A194 2H nuts. When bolting dissimilar liner materials, use the lower torque value.

| ANSI class 150 system   |       |     |     |     |     |     |     |     |     |      |
|---|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Lightly lubricated A 193 B7 bolts and A194 2H nuts.                 |       |     |     |     |     |     |     |     |     |      |
| Use the lower torque value when bolting dissimilar liner materials. |       |     |     |     |     |     |     |     |     |      |
| Size (inch)   |       | 1"  | 1½" | 2"  | 3"  | 4"  | 6"  | 8"  | 10" | 12"  |
| PTFE  | Nm    | 14  | 21  | 34  | 41  | 55  | 82  | 95  | 102 | 129  |
| Maximum Bolt Torque   | in lb | 120 | 180 | 300 | 360 | 480 | 720 | 840 | 900 | 1140 |

### Bolt Torque Sequence

Finger-tighten all nuts and bolts. With a calibrated torque wrench, tighten each flange connection in a crisscross pattern (refer to figure). Using this pattern, tighten in 20% increments up to 80% of the final bolt torque. To achieve the final torque value, tighten bolts in a sequential clockwise pattern once around the flange. Maximum recommended torque is suggested for systems that will be operating at or near the maximum pressure and temperature limits of the liner or conveying small molecular gasses.



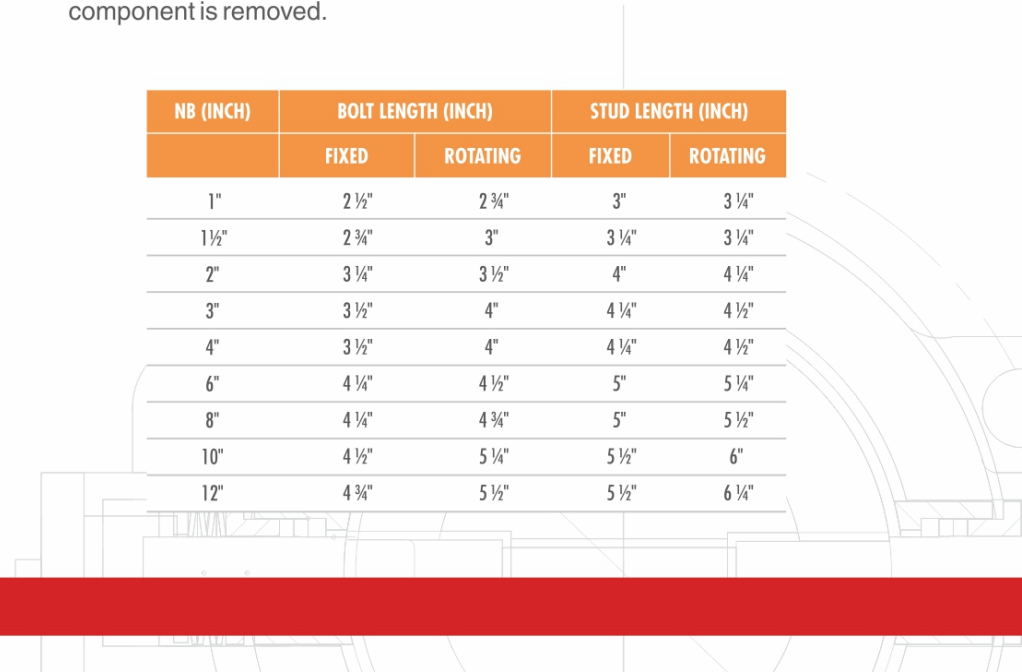
### Retorquing

- After the initial installation, we recommend checking the torque of each bolt after 24 hours have elapsed or a temperature cycle or pressure cycle (hydrostatic test) has occurred. Any bolts falling below the recommended value should be retorqued. Values should only be exceeded by 10% increments when necessary to reseal. All torquing on the process system should be done when the system is ambient and cool.
- Retorquing should be performed annually, especially if the system experience elevated temperature or extreme temperature swings.

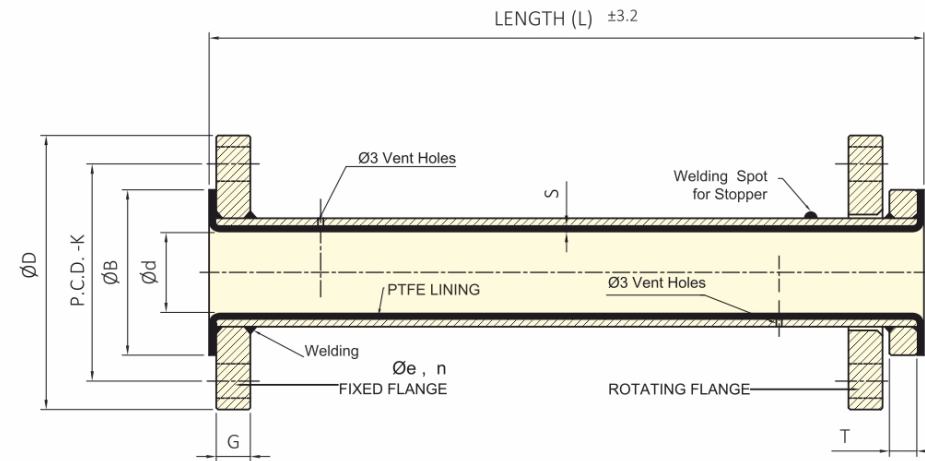
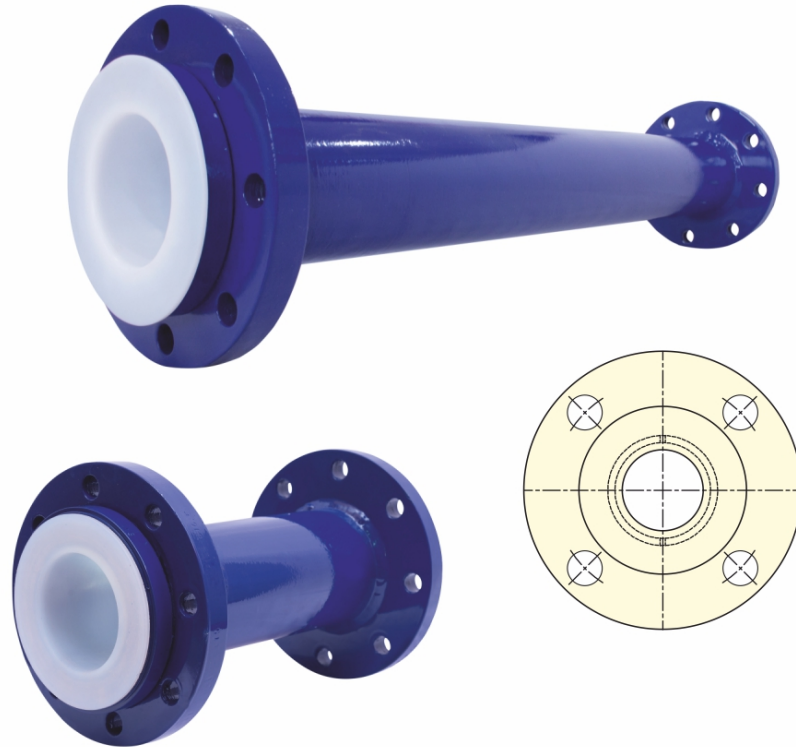
### Other Installation Guidelines

- Welding should not be performed before or after the installation of lined pipe components.
- Gaskets must be used when bolting components to dissimilar products made from metal, glass, fiberglass or other materials. Otherwise, gaskets are not required for bolting together lined piping systems unless repeated connections and disconnections are made.
- Vent holes should not be plugged. Do not use sharp tools to clean plugged holes.
- Do not remove pipe spools and fittings from systems at elevated temperatures. Always install a flange protector immediately after the component is removed.

| NB (INCH) | BOLT LENGTH (INCH) |          | STUD LENGTH (INCH) |          |
|-----------|--------------------|----------|--------------------|----------|
|           | FIXED              | ROTATING | FIXED              | ROTATING |
| 1"        | 2 ½"               | 2 ¾"     | 3"                 | 3 ¼"     |
| 1 ½"      | 2 ¾"               | 3"       | 3 ¼"               | 3 ½"     |
| 2"        | 3 ¼"               | 3 ½"     | 4"                 | 4 ¼"     |
| 3"        | 3 ½"               | 4"       | 4 ¼"               | 4 ½"     |
| 4"        | 3 ½"               | 4"       | 4 ¼"               | 4 ½"     |
| 6"        | 4 ¼"               | 4 ½"     | 5"                 | 5 ¼"     |
| 8"        | 4 ¼"               | 4 ¾"     | 5"                 | 5 ½"     |
| 10"       | 4 ½"               | 5 ¼"     | 5 ½"               | 6"       |
| 12"       | 4 ¾"               | 5 ½"     | 5 ½"               | 6 ¼"     |



## PIPES



NOTE : PIPE LENGTH LESS THAN OR EQUAL TO 500mm ONE VENT HOLE IN CENTER

### Material Specifications

1. Pipe : Seamless Carbon Steel Pipe  
As per ASTM A 106 GR.B, SCH 40 (upto 6")  
As per ASTM A 106 GR.B, SCH 20 (above 6")
2. Flange : A105 - 150#
3. Lining : PTFE conforming ASTM D4895

### Dimension Specifications

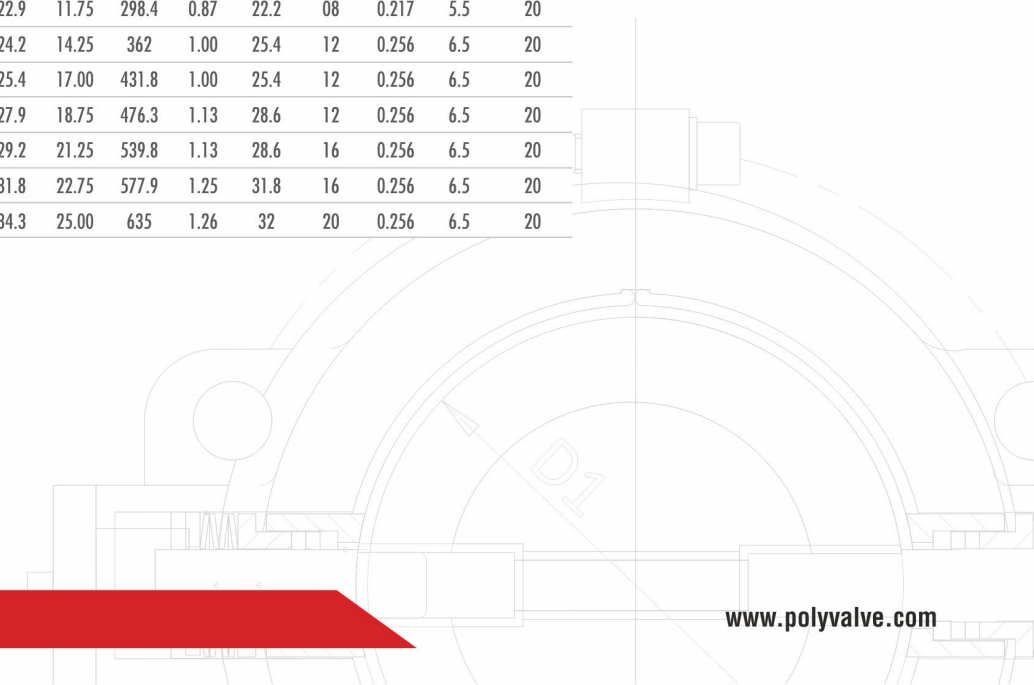
1. All dimensions are in mm.
2. Pipe as per ANSI B36.10
3. Flange as per ANSI B16.5, 150#
4. Tolerances on length of the piping will be  $\pm 3.2$  mm.
5. Lining and other dimensional tolerances as per ASTM F1545
6. Lining face thickness 80% of min. liner wall Thk.

### Testing

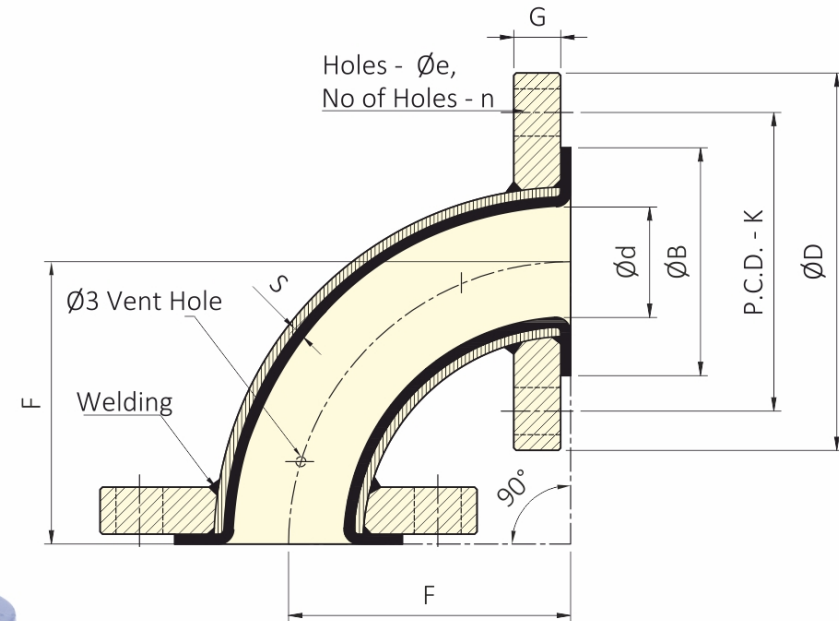
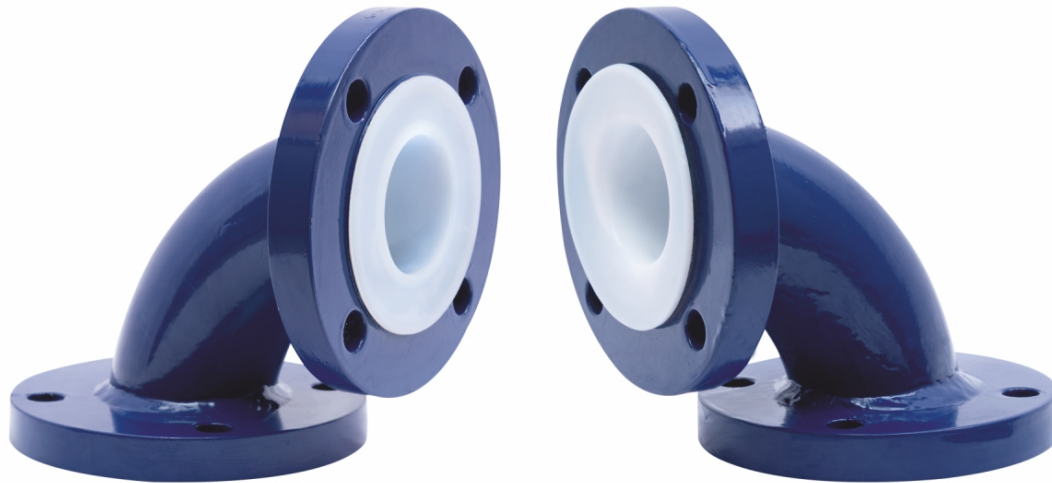
1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.
4. 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min., as per ASTM F1545  
(after Lining)

# DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |       | F. OD (ØD) |       | F. THK (G) |      | STUB END (T) |      | P.C.D. (K) |       | H - DIA (Øe) |      | NH(m) | LINING THK (S) |     | C.S. PIPE (SCH) |
|------|-------------|-----|-----------|-------|------------|-------|------------|------|--------------|------|------------|-------|--------------|------|-------|----------------|-----|-----------------|
|      | INCH        | MM  | INCH      | MM    | INCH       | MM    | INCH       | MM   | INCH         | MM   | INCH       | MM    | INCH         | MM   |       | INCH           | MM  |                 |
|      | 0.079       | ±2  | 0.079     | ±2    |            |       |            |      |              |      | 0.06       | ±1.6  |              |      |       |                |     |                 |
| 1/2" | 0.39        | 10  | 1.37      | 34.9  | 3.50       | 88.9  | 0.44       | 11.1 | 0.35         | 8.9  | 2.37       | 60.3  | 0.63         | 15.9 | 04    | 0.126          | 3.2 | 40              |
| 3/4" | 0.59        | 15  | 1.68      | 42.7  | 3.87       | 98.4  | 0.50       | 12.7 | 0.40         | 10.2 | 2.75       | 69.8  | 0.63         | 15.9 | 04    | 0.126          | 3.2 | 40              |
| 1"   | 0.79        | 20  | 2.01      | 51    | 4.25       | 108   | 0.56       | 14.2 | 0.45         | 11.4 | 3.13       | 79.4  | 0.63         | 15.9 | 04    | 0.126          | 3.2 | 40              |
| 1.5" | 1.34        | 34  | 2.87      | 73    | 5.00       | 127   | 0.69       | 17.5 | 0.55         | 14   | 3.87       | 98.4  | 0.63         | 15.9 | 04    | 0.126          | 3.2 | 40              |
| 2"   | 1.73        | 44  | 3.62      | 92    | 6.00       | 152.4 | 0.75       | 19   | 0.60         | 15.2 | 4.75       | 120.6 | 0.75         | 19   | 04    | 0.138          | 3.5 | 40              |
| 3"   | 2.76        | 70  | 5.00      | 127   | 7.50       | 190.5 | 0.94       | 23.8 | 0.75         | 19.0 | 6.00       | 152.4 | 0.75         | 19   | 04    | 0.157          | 4   | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157   | 9.00       | 228.6 | 0.94       | 23.8 | 0.75         | 19.0 | 7.50       | 190.5 | 0.75         | 19   | 08    | 0.177          | 4.5 | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216   | 11.00      | 279.4 | 1.00       | 25.4 | 0.80         | 20.3 | 9.50       | 241.3 | 0.87         | 22.2 | 08    | 0.217          | 5.5 | 40              |
| 8"   | 7.64        | 194 | 10.63     | 270   | 13.50      | 342.9 | 1.13       | 28.6 | 0.90         | 22.9 | 11.75      | 298.4 | 0.87         | 22.2 | 08    | 0.217          | 5.5 | 20              |
| 10"  | 9.72        | 247 | 12.76     | 324   | 16.00      | 406.4 | 1.19       | 30.2 | 0.95         | 24.2 | 14.25      | 362   | 1.00         | 25.4 | 12    | 0.256          | 6.5 | 20              |
| 12"  | 11.73       | 298 | 15.00     | 381   | 19.00      | 482.6 | 1.25       | 31.8 | 1.00         | 25.4 | 17.00      | 431.8 | 1.00         | 25.4 | 12    | 0.256          | 6.5 | 20              |
| 14"  | 12.83       | 326 | 16.26     | 413   | 21.00      | 533.4 | 1.37       | 34.9 | 1.10         | 27.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12    | 0.256          | 6.5 | 20              |
| 16"  | 14.84       | 377 | 18.50     | 470   | 23.50      | 596.9 | 1.44       | 36.5 | 1.15         | 29.2 | 21.25      | 539.8 | 1.13         | 28.6 | 16    | 0.256          | 6.5 | 20              |
| 18"  | 16.85       | 428 | 21.00     | 533.4 | 25.00      | 635   | 1.56       | 39.7 | 1.25         | 31.8 | 22.75      | 577.9 | 1.25         | 31.8 | 16    | 0.256          | 6.5 | 20              |
| 20"  | 18.70       | 475 | 23.00     | 584.2 | 27.50      | 698.5 | 1.69       | 42.9 | 1.35         | 34.3 | 25.00      | 635   | 1.26         | 32   | 20    | 0.256          | 6.5 | 20              |



## ELBOWS 90°



### Material Specifications

1. 90° Bend : ASTM A 234 GR. WPB, SCH 40 (upto 6")  
ASTM A 234 GR. WPB, SCH 20 (above 6")
2. Flange : ASTM A 105 - As per ASME B 16.5, 150#
3. Liner : PTFE conforming ASTM D 4895

### Dimension Specifications

1. All dimensions are in mm.
2. Bend as per ANSI B36.10
3. Flange as per ANSI B16.5, 150#
4. Lining and other dimensional tolerances as per ASTM F1545
5. Lining face thickness 80% of min. liner wall Thk.

### Testing

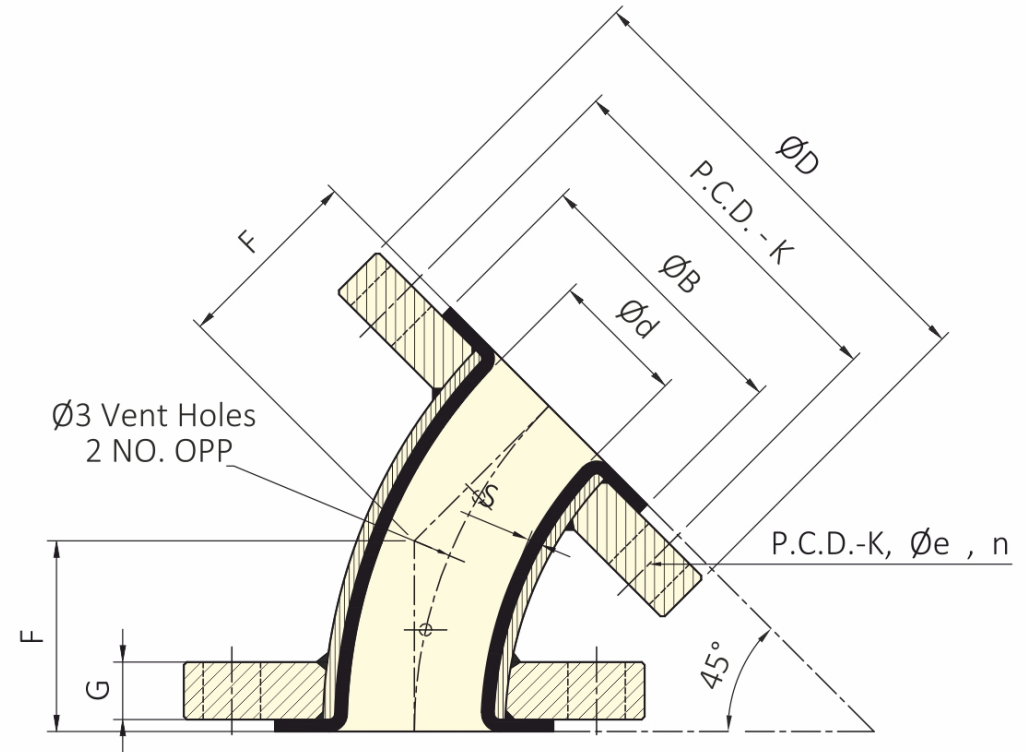
1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.
4. 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min., as per ASTM F1545 (after Lining)



## DIMENSION TABLE

| Size | L - ID (∅d) |     | ∅R/F (∅B) |       | F. OD (∅D) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (∅e) |      | NH (n) | LINING THK (S) |      | F     |     | WPB ELBOW (SCH) |
|------|-------------|-----|-----------|-------|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|------|-------|-----|-----------------|
|      | INCH        | MM  | INCH      | MM    | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM   | INCH  | MM  |                 |
|      | 0.079       | ±2  | 0.079     | ±2    |            |       | 0.06       | ±1.6 |            |       |              |      |        | 0.059          | ±1.5 |       |     |                 |
| 1/2" | 0.39        | 10  | 1.37      | 34.9  | 3.50       | 88.9  | 0.44       | 11.1 | 2.37       | 60.3  | 0.63         | 15.9 | 04     | 0.126          | 3.2  | 2.56  | 65  | 40              |
| 3/4" | 0.59        | 15  | 1.68      | 42.7  | 3.87       | 98.4  | 0.50       | 12.7 | 2.75       | 69.8  | 0.63         | 15.9 | 04     | 0.126          | 3.2  | 2.95  | 75  | 40              |
| 1"   | 0.79        | 20  | 2.01      | 51    | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.126          | 3.2  | 3.50  | 89  | 40              |
| 1.5" | 1.34        | 34  | 2.87      | 73    | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.126          | 3.2  | 4.02  | 102 | 40              |
| 2"   | 1.73        | 44  | 3.62      | 92    | 6.00       | 152.4 | 0.75       | 19   | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.138          | 3.5  | 4.49  | 114 | 40              |
| 3"   | 2.76        | 70  | 5.00      | 127   | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.157          | 4    | 5.51  | 140 | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157   | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5  | 6.50  | 165 | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216   | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.217          | 5.5  | 7.99  | 203 | 40              |
| 8"   | 7.64        | 194 | 10.63     | 270   | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.217          | 5.5  | 9.02  | 229 | 20              |
| 10"  | 9.72        | 247 | 12.76     | 324   | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.256          | 6.5  | 10.98 | 279 | 20              |
| 12"  | 11.73       | 298 | 15.00     | 381   | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.256          | 6.5  | 12.01 | 305 | 20              |
| 14"  | 12.83       | 326 | 16.26     | 413   | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5  | 14.02 | 356 | 20              |
| 16"  | 14.84       | 377 | 18.50     | 470   | 23.50      | 596.9 | 1.44       | 36.5 | 21.25      | 539.8 | 1.13         | 28.6 | 16     | 0.256          | 6.5  | 15.00 | 381 | 20              |
| 18"  | 16.85       | 428 | 21.00     | 533.4 | 25.00      | 635   | 1.56       | 39.7 | 22.75      | 577.9 | 1.25         | 31.8 | 16     | 0.256          | 6.5  | 16.50 | 419 | 20              |
| 20"  | 18.70       | 475 | 23.00     | 584.2 | 27.50      | 698.5 | 1.69       | 42.9 | 25.00      | 635   | 1.26         | 32   | 20     | 0.256          | 6.5  | 17.99 | 457 | 20              |

## ELBOWS 45°



### Material Specifications

1. 45° Bend : ASTM A 234 GR. WPB, SCH 40 (upto 6")  
ASTM A 234 GR. WPB, SCH 20 (above 6")
2. Flange : A105 - As per ASME B 16.5, 150#
3. Liner : PTFE conforming ASTM D 4895

### Dimension Specifications

1. All dimensions are in mm.
2. Bend as per ANSI B36.10
3. Flange as per ANSI B16.5, 150#
4. Lining and other dimensional tolerances as per ASTM F1545
5. Lining face thickness 80% of min. liner wall Thk.

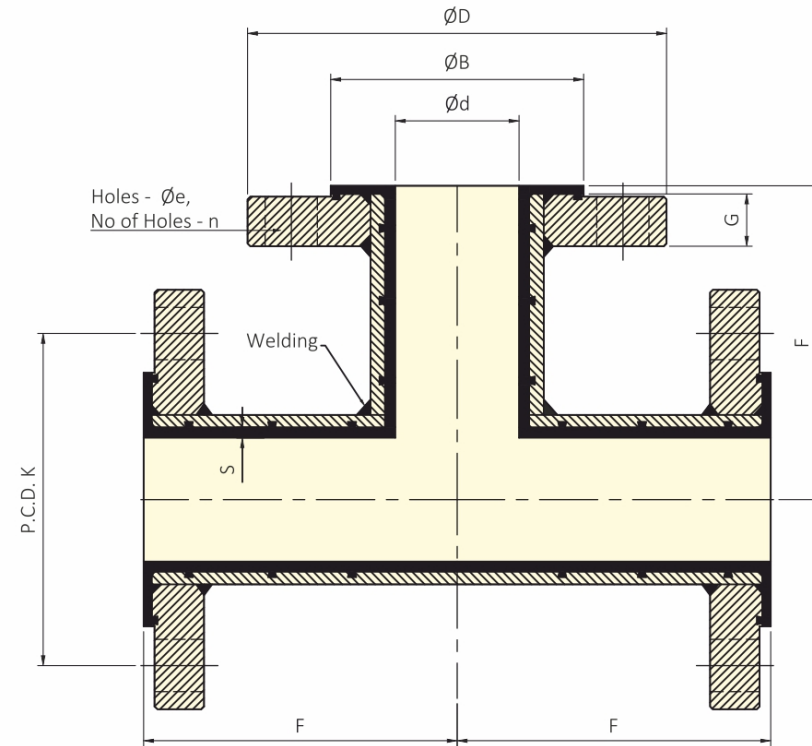
### Testing

1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.
4. 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min., as per ASTM F1545 (after Lining)

## DIMENSION TABLE

| Size | L - ID (∅d) |     | ∅R/F (∅B) |       | F. OD (∅D) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (∅e) |      | NH (n) | LINING THK (S) |     | F     |      | WPS ELBOW (SCH) |
|------|-------------|-----|-----------|-------|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|-----|-------|------|-----------------|
|      | INCH        | MM  | INCH      | MM    | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM  | INCH  | MM   |                 |
|      | 0.079       | ±2  | 0.079     | ±2    |            |       |            |      | 0.06       | ±1.6  |              |      |        |                |     | 0.059 | ±1.5 |                 |
| 1/2" | 0.39        | 10  | 1.37      | 34.9  | 3.50       | 88.9  | 0.44       | 11.1 | 2.37       | 60.3  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 1.73  | 44   | 40              |
| 3/4" | 0.59        | 15  | 1.68      | 42.7  | 3.87       | 98.4  | 0.50       | 12.7 | 2.75       | 69.8  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 1.73  | 44   | 40              |
| 1"   | 0.79        | 20  | 2.01      | 51    | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 1.73  | 44   | 40              |
| 1.5" | 1.34        | 34  | 2.87      | 73    | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 2.24  | 57   | 40              |
| 2"   | 1.73        | 44  | 3.62      | 92    | 6.00       | 152.4 | 0.75       | 19   | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.138          | 3.5 | 2.52  | 64   | 40              |
| 3"   | 2.76        | 70  | 5.00      | 127   | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.157          | 4   | 2.99  | 76   | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157   | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 4.02  | 102  | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216   | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.217          | 5.5 | 5.00  | 127  | 40              |
| 8"   | 7.64        | 194 | 10.63     | 270   | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.217          | 5.5 | 5.51  | 140  | 20              |
| 10"  | 9.72        | 247 | 12.76     | 324   | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.256          | 6.5 | 6.50  | 165  | 20              |
| 12"  | 11.73       | 298 | 15.00     | 381   | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.256          | 6.5 | 7.48  | 190  | 20              |
| 14"  | 12.83       | 326 | 16.26     | 413   | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 7.48  | 190  | 20              |
| 16"  | 14.84       | 377 | 18.50     | 469.9 | 23.50      | 596.9 | 1.44       | 36.5 | 21.25      | 539.8 | 1.13         | 28.6 | 16     | 0.256          | 6.5 | 7.99  | 203  | 20              |
| 18"  | 16.85       | 428 | 21.00     | 533.4 | 25.00      | 635   | 1.56       | 39.7 | 22.75      | 577.9 | 1.25         | 31.8 | 16     | 0.256          | 6.5 | 8.50  | 216  | 20              |
| 20"  | 18.70       | 475 | 23.00     | 584.2 | 27.50      | 698.5 | 1.69       | 42.9 | 25.00      | 635   | 1.26         | 32   | 20     | 0.256          | 6.5 | 9.49  | 241  | 20              |

## EQUAL TEES



### Material Specifications

1. EQ.TEE : Made From Fabricated Seamless Carbon Steel Pipe:  
As per ASTM A 106 GR.B, SCH 40 (upto 6")  
As per ASTM A 106 GR.B, SCH 20 (above 6")
2. Flange : ASTM A 105 as per ANSI B 16.5, 150#
3. Liner : PFA conforming ASTM D 3307

### Dimension Specifications

1. All dimensions are in mm.
2. Pipe as per ANSI B36.10
3. Flange as per ANSI B16.5, 150#
4. Lining and other dimensional tolerances as per ASTM F1545

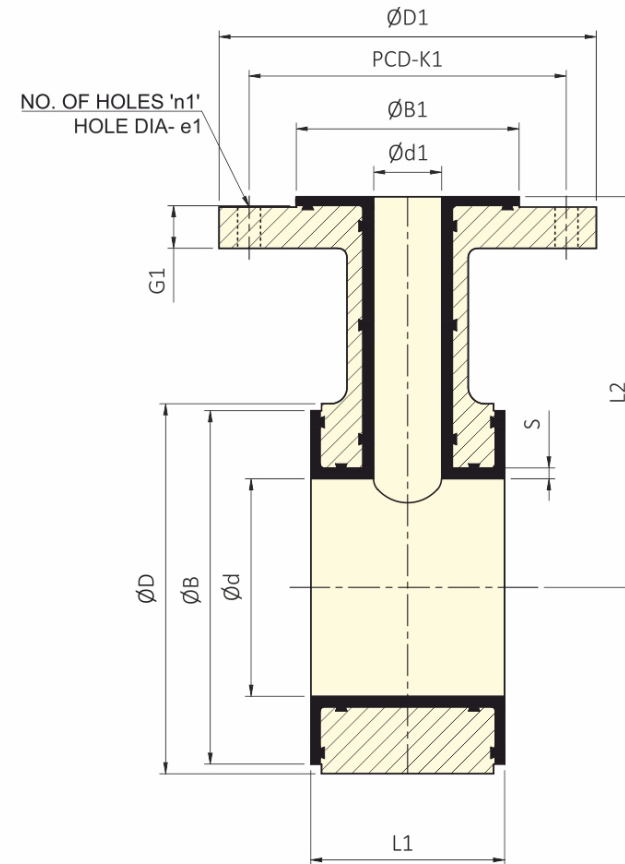
### Testing

1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.
4. 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min., as per ASTM F1545 (after Lining)

## DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |       | F. OD (ØD) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (Øe) |      | NH (n) | LINING THK (S) |     | F     |      | C.S. PIPE (SCH) |
|------|-------------|-----|-----------|-------|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|-----|-------|------|-----------------|
|      | INCH        | MM  | INCH      | MM    | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM  | INCH  | MM   |                 |
|      | 0.079       | ±2  | 0.079     | ±2    |            |       |            |      | 0.06       | ±1.6  |              |      |        |                |     | 0.059 | ±1.5 |                 |
| 1/2" | 0.39        | 10  | 1.37      | 34.9  | 3.50       | 88.9  | 0.44       | 11.1 | 2.37       | 60.3  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 2.56  | 65   | 40              |
| 3/4" | 0.59        | 15  | 1.68      | 42.7  | 3.87       | 98.4  | 0.50       | 12.7 | 2.75       | 69.8  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 2.95  | 75   | 40              |
| 1"   | 0.79        | 20  | 2.01      | 51    | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 3.50  | 89   | 40              |
| 1.5" | 1.34        | 34  | 2.87      | 73    | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 4.02  | 102  | 40              |
| 2"   | 1.73        | 44  | 3.62      | 92    | 6.00       | 152.4 | 0.75       | 19   | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   | 4.49  | 114  | 40              |
| 3"   | 2.76        | 70  | 5.00      | 127   | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 | 5.51  | 140  | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157   | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 6.50  | 165  | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216   | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 7.99  | 203  | 40              |
| 8"   | 7.64        | 194 | 10.63     | 270   | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 9.02  | 229  | 20              |
| 10"  | 9.53        | 242 | 12.76     | 324   | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 10.98 | 279  | 20              |
| 12"  | 11.46       | 291 | 15.00     | 381   | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 12.01 | 305  | 20              |
| 14"  | 12.64       | 321 | 16.26     | 413   | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 14.02 | 356  | 20              |
| 16"  | 14.49       | 368 | 18.50     | 470   | 23.50      | 596.9 | 1.44       | 36.5 | 21.25      | 539.8 | 1.13         | 28.6 | 16     | 0.256          | 6.5 | 15.00 | 381  | 20              |
| 18"  | 16.34       | 415 | 21.00     | 533.4 | 25.00      | 635   | 1.56       | 39.7 | 22.75      | 577.9 | 1.25         | 31.8 | 16     | 0.256          | 6.5 | 16.50 | 419  | 20              |
| 20"  | 18.31       | 465 | 23.00     | 584.2 | 27.50      | 698.5 | 1.69       | 42.9 | 25.00      | 635   | 1.26         | 32   | 20     | 0.256          | 6.5 | 17.99 | 457  | 20              |

## INSTRUMENT TEE



### Material Specifications

1. Body MOC: ASTM A 216 Gr. WCB
2. Flange: As Per ANSI B 16.5, 150#
3. Lining: PFA conforming ASTM D 3307

### Dimension Specifications

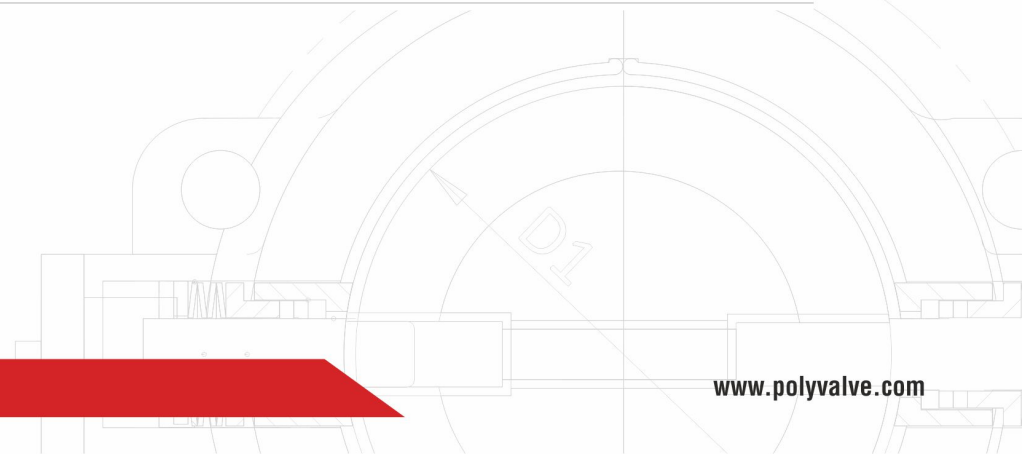
1. All dimensions are in mm.
2. Flange as per ANSI B16.5, 150#
3. Lining and other dimensional tolerances as per ASTM F1545

### Testing

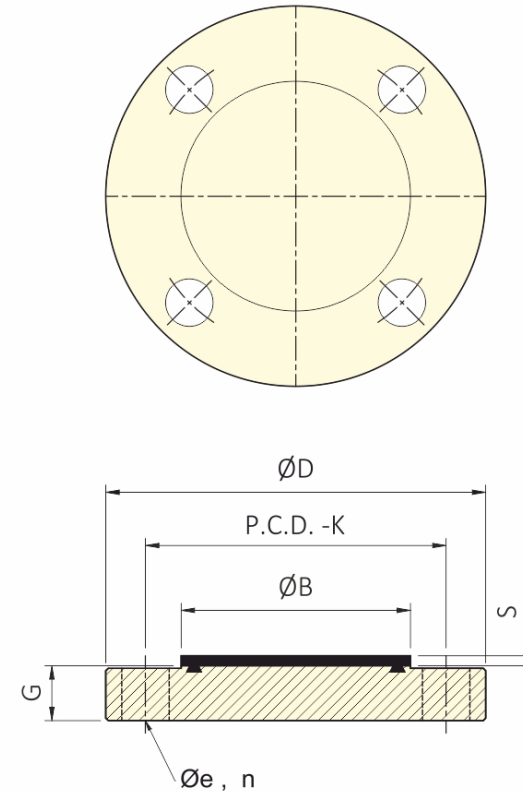
1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.
4. 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min., as per ASTM F1545 (after Lining)

# DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |      | (ØD)  |     | Size | L - ID (Ød1) |    | ØR/F (ØB1) |    | F. OD (ØD1) |       | F. THK (G1) |      | P.C.D. (K1) |       | H - DIA (Øe1) |      | NH (n1) | LINING THK (S) |     | F TO F (L1) |       | F TO F (L2) |       |
|------|-------------|-----|-----------|------|-------|-----|------|--------------|----|------------|----|-------------|-------|-------------|------|-------------|-------|---------------|------|---------|----------------|-----|-------------|-------|-------------|-------|
|      | INCH        | MM  | INCH      | MM   | INCH  | MM  |      | INCH         | MM | INCH       | MM | INCH        | MM    | INCH        | MM   | INCH        | MM    |               | INCH | MM      | INCH           | MM  | INCH        | MM    | INCH        | MM    |
|      | 0.079       | ±2  | 0.079     | ±2   |       |     |      | 0.079        | ±2 | 0.079      | ±2 |             |       |             |      | 0.06        | ±1.6  |               |      |         |                |     |             | 0.059 | ±1.5        | 0.059 |
| 1"   | 0.98        | 25  | 2.00      | 50.8 | 2.36  | 60  | 1"   | 0.79         | 20 | 2.01       | 51 | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 50    | 3.50        | 89    |
| 1.5" | 1.57        | 40  | 2.87      | 73   | 3.15  | 80  | 1"   | 0.79         | 20 | 2.01       | 51 | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 50    | 4.02        | 102   |
| 2"   | 1.97        | 50  | 3.62      | 92   | 3.86  | 98  | 1"   | 0.79         | 20 | 2.01       | 51 | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 50    | 4.49        | 114   |
| 2"   | 1.97        | 50  | 3.62      | 92   | 3.86  | 98  | 1.5" | 1.34         | 34 | 2.87       | 73 | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 2.95        | 75    | 4.49        | 114   |
| 3"   | 3.15        | 80  | 5.00      | 127  | 5.28  | 134 | 1"   | 0.79         | 20 | 2.01       | 51 | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 50    | 5.31        | 135   |
| 3"   | 3.15        | 80  | 5.00      | 127  | 5.28  | 134 | 1.5" | 1.34         | 34 | 2.87       | 73 | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 2.95        | 75    | 5.31        | 135   |
| 3"   | 3.15        | 80  | 5.00      | 127  | 5.28  | 134 | 2"   | 1.73         | 44 | 3.62       | 92 | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157          | 4   | 3.54        | 90    | 5.31        | 135   |
| 4"   | 3.94        | 100 | 6.18      | 157  | 6.46  | 164 | 1"   | 0.79         | 20 | 2.01       | 51 | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 50    | 6.50        | 165   |
| 4"   | 3.94        | 100 | 6.18      | 157  | 6.46  | 164 | 1.5" | 1.34         | 34 | 2.87       | 73 | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 2.95        | 75    | 6.50        | 165   |
| 6"   | 5.91        | 150 | 8.18      | 208  | 8.50  | 216 | 1"   | 0.79         | 20 | 2.01       | 51 | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 50    | 7.99        | 203   |
| 6"   | 5.91        | 150 | 8.18      | 208  | 8.50  | 216 | 1.5" | 1.34         | 34 | 2.87       | 73 | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 75    | 7.99        | 203   |
| 6"   | 5.91        | 150 | 8.18      | 208  | 8.50  | 216 | 2"   | 1.73         | 44 | 3.62       | 92 | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157          | 4   | 1.97        | 90    | 7.99        | 203   |
| 8"   | 7.87        | 200 | 10.31     | 262  | 10.70 | 272 | 1"   | 0.79         | 20 | 2.01       | 51 | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 50    | 9.02        | 229   |
| 8"   | 7.87        | 200 | 10.31     | 262  | 10.70 | 272 | 1.5" | 1.34         | 34 | 2.87       | 73 | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 16   | 04      | 0.138          | 3.5 | 1.97        | 75    | 9.02        | 229   |
| 8"   | 7.87        | 200 | 10.31     | 262  | 10.70 | 272 | 2"   | 1.73         | 44 | 3.62       | 92 | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157          | 4   | 1.97        | 90    | 9.02        | 229   |



## BLIND FLANGE



### Material Specifications

1. Flange : ASTM A 105 - 150#
2. Lining : PFA conforming ASTM D3307

### Dimension Specifications

1. All dimensions are in mm.
2. Flange as per ANSI B16.5, 150#
3. Lining and other dimensional tolerances as per ASTM F1545

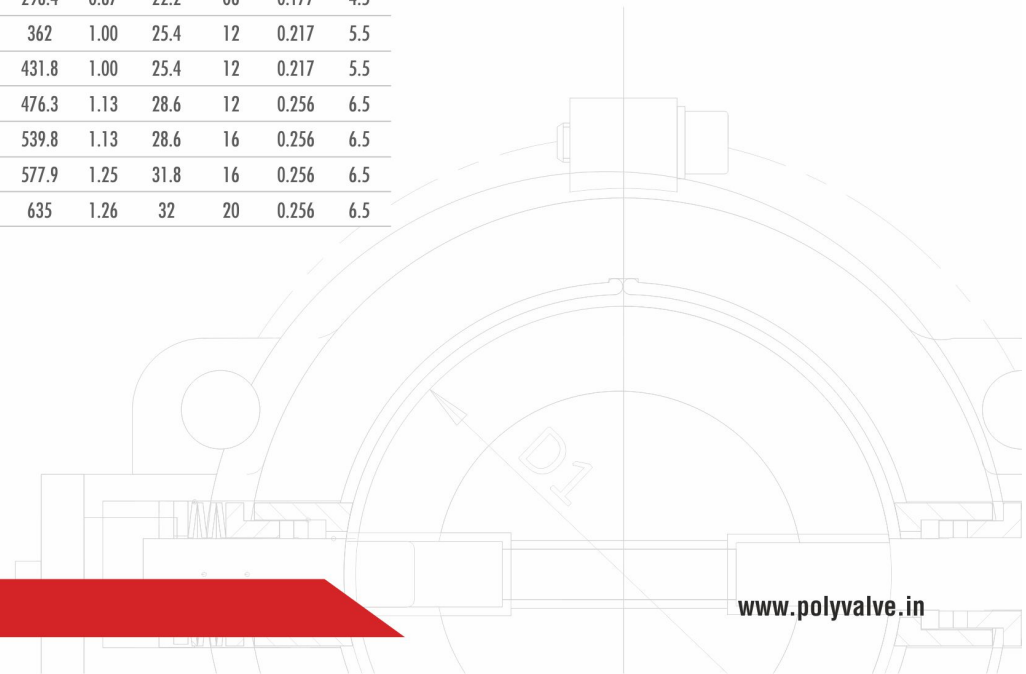
### Testing

1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.  
(after Lining)

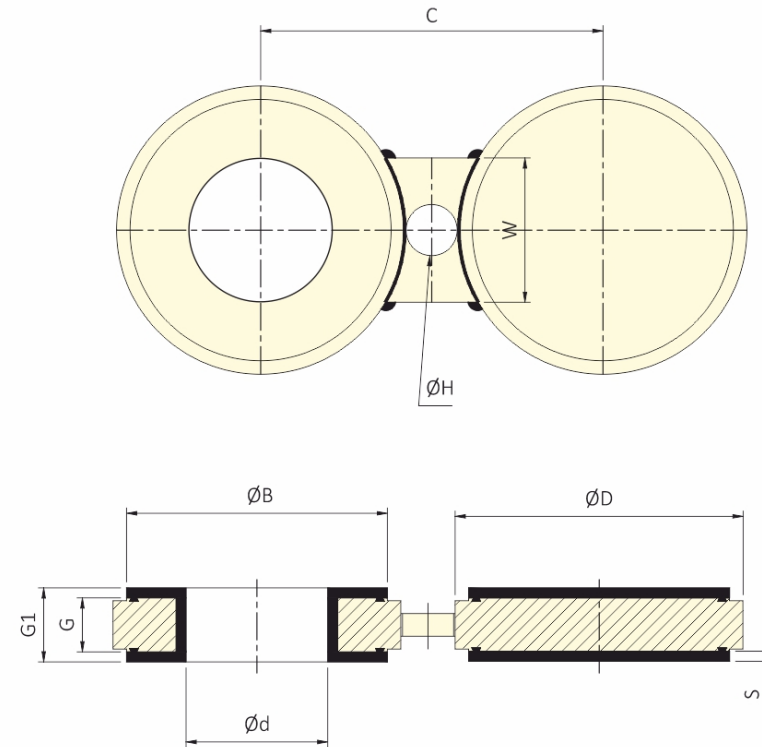
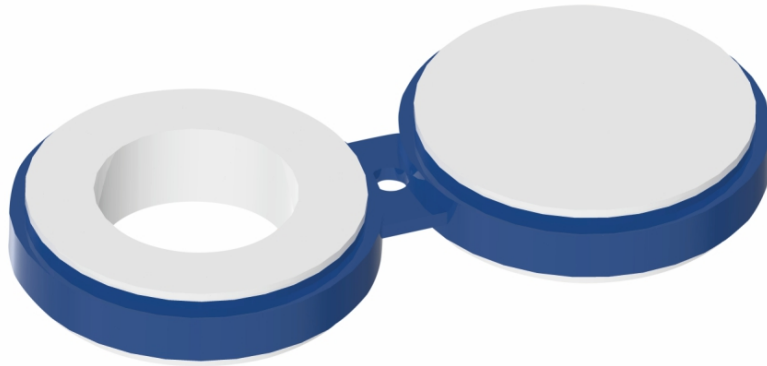


## DIMENSION TABLE

| Size | ØR/F (ØB) |       | F. OD (ØD) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (Øe) |      | NH (n) | LINING THK (S) |     |
|------|-----------|-------|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|-----|
|      | INCH      | MM    | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM  |
|      | 0.079     | ±2    |            |       |            |      | 0.06       | ±1.6  |              |      |        |                |     |
| 1/2" | 1.37      | 34.9  | 3.50       | 88.9  | 0.44       | 11.1 | 2.37       | 60.3  | 0.63         | 15.9 | 04     | 0.126          | 3.2 |
| 3/4" | 1.68      | 42.7  | 3.87       | 98.4  | 0.50       | 12.7 | 2.75       | 69.8  | 0.63         | 15.9 | 04     | 0.126          | 3.2 |
| 1"   | 2.01      | 51    | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 |
| 1.5" | 2.87      | 73    | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 |
| 2"   | 3.62      | 92    | 6.00       | 152.4 | 0.75       | 19.1 | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   |
| 3"   | 5.00      | 127   | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 |
| 4"   | 6.18      | 157   | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 |
| 6"   | 8.50      | 216   | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 |
| 8"   | 10.63     | 270   | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 |
| 10"  | 12.76     | 324   | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 |
| 12"  | 15.00     | 381   | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 |
| 14"  | 16.26     | 413   | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 |
| 16"  | 18.50     | 470   | 23.50      | 596.9 | 1.44       | 36.5 | 21.25      | 539.8 | 1.13         | 28.6 | 16     | 0.256          | 6.5 |
| 18"  | 21.00     | 533.4 | 25.00      | 635   | 1.56       | 39.7 | 22.75      | 577.9 | 1.25         | 31.8 | 16     | 0.256          | 6.5 |
| 20"  | 23.00     | 584.2 | 27.50      | 698.5 | 1.69       | 42.9 | 25.00      | 635   | 1.26         | 32   | 20     | 0.256          | 6.5 |



## SPECTACLE BLIND FLANGE



### Material Specifications

1. Flange : ASTM A 105 - 150#
2. Lining : PFA conforming ASTM D3307

### Dimension Specifications

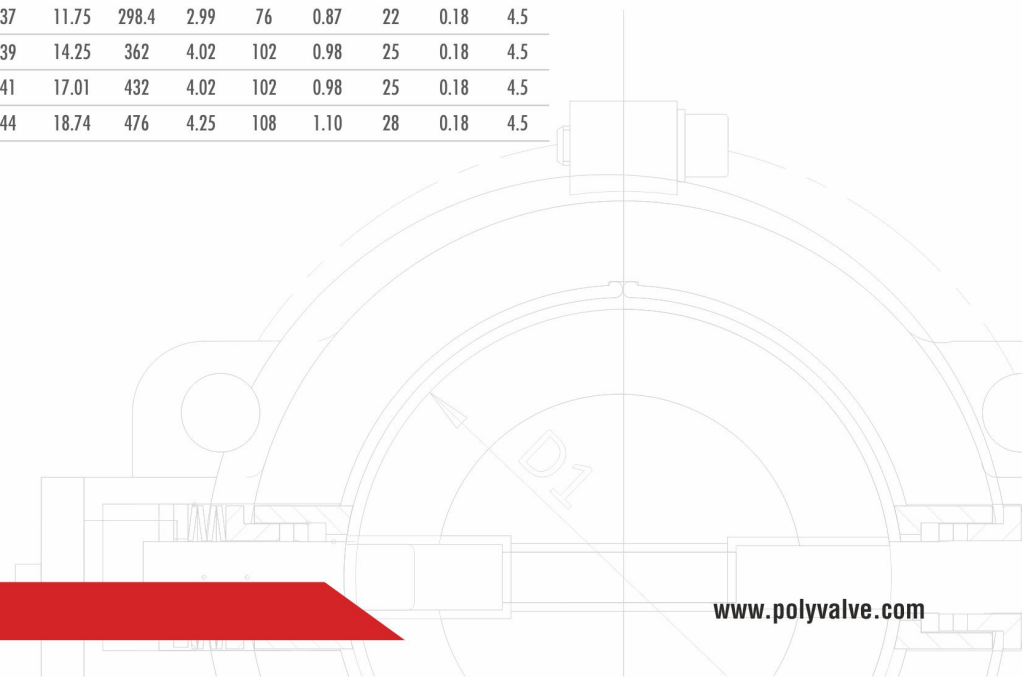
1. All dimensions are in mm.
2. Flange as per ANSI B16.5, 150#
3. Lining and other dimensional tolerances as per ASTM F1545

### Testing

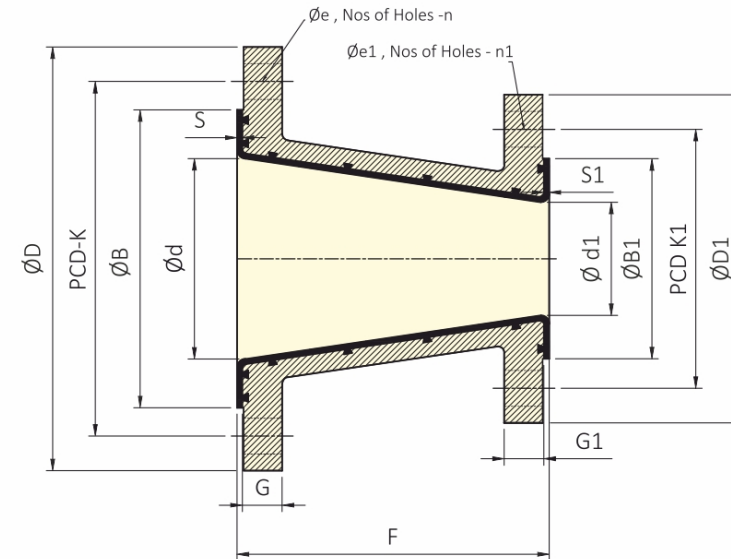
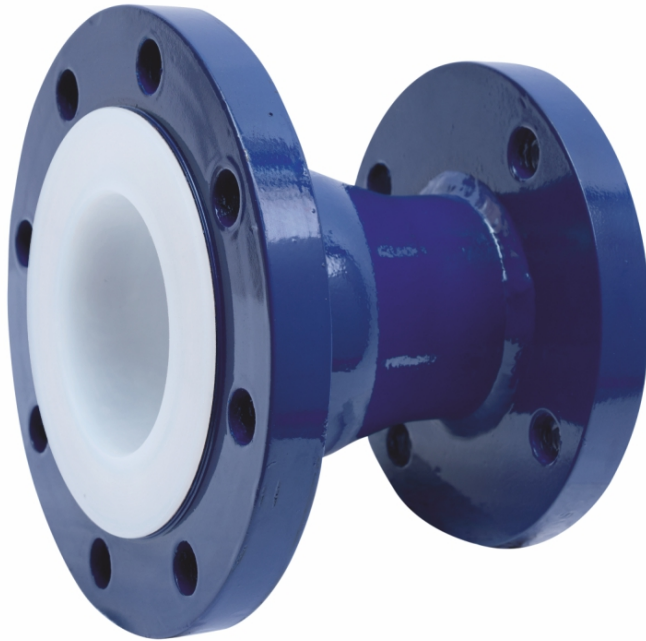
1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.  
(after Lining)

## DIMENSION TABLE

| Size | ØD    |       | ØB    |     | Ød    |     | G    |      | G1    |      | C     |       | W    |     | ØH   |    | S    |     |
|------|-------|-------|-------|-----|-------|-----|------|------|-------|------|-------|-------|------|-----|------|----|------|-----|
|      | INCH  | MM    | INCH  | MM  | INCH  | MM  | INCH | MM   | INCH  | MM   | INCH  | MM    | INCH | MM  | INCH | MM | INCH | MM  |
|      |       |       | 0.079 | ±2  | 0.079 | ±2  |      |      | 0.079 | ±2   | 0.079 | ±2    |      |     |      |    |      |     |
| 1"   | 2.5   | 63.5  | 2.01  | 51  | 0.79  | 20  | 0.56 | 14.3 | 0.83  | 21   | 3.13  | 79.4  | 1.50 | 38  | 0.55 | 14 | 0.14 | 3.5 |
| 1.5" | 3.25  | 82.5  | 2.87  | 73  | 1.34  | 34  | 0.69 | 17.5 | 0.96  | 24.5 | 3.87  | 98.4  | 1.50 | 38  | 0.55 | 14 | 0.14 | 3.5 |
| 2"   | 4.00  | 101.5 | 3.62  | 92  | 1.73  | 44  | 0.75 | 19   | 1.06  | 27   | 4.75  | 120.6 | 1.97 | 50  | 0.71 | 18 | 0.16 | 4   |
| 3"   | 5.26  | 133.5 | 5.00  | 127 | 2.76  | 70  | 0.94 | 23.8 | 1.30  | 33   | 6.00  | 152.4 | 2.52 | 64  | 0.71 | 18 | 0.18 | 4.5 |
| 4"   | 6.75  | 171.5 | 6.18  | 157 | 3.70  | 94  | 0.94 | 23.8 | 1.30  | 33   | 7.50  | 190.5 | 2.52 | 64  | 0.71 | 18 | 0.18 | 4.5 |
| 6"   | 8.62  | 219   | 8.43  | 214 | 5.67  | 144 | 1.00 | 25.4 | 1.34  | 34   | 9.50  | 241.3 | 2.99 | 76  | 0.87 | 22 | 0.18 | 4.5 |
| 8"   | 10.89 | 276.5 | 10.63 | 270 | 7.56  | 192 | 1.13 | 28.6 | 1.46  | 37   | 11.75 | 298.4 | 2.99 | 76  | 0.87 | 22 | 0.18 | 4.5 |
| 10"  | 13.25 | 336.5 | 12.76 | 324 | 9.57  | 243 | 1.19 | 30.2 | 1.54  | 39   | 14.25 | 362   | 4.02 | 102 | 0.98 | 25 | 0.18 | 4.5 |
| 12"  | 16.00 | 406.5 | 15.00 | 381 | 11.54 | 293 | 1.25 | 31.8 | 1.61  | 41   | 17.01 | 432   | 4.02 | 102 | 0.98 | 25 | 0.18 | 4.5 |
| 14"  | 17.62 | 447.5 | 16.26 | 413 | 12.68 | 322 | 1.37 | 34.9 | 1.73  | 44   | 18.74 | 476   | 4.25 | 108 | 1.10 | 28 | 0.18 | 4.5 |



## CONCENTRIC REDUCER



### Material Specifications

1. Con.reducer : ASTM A 216 GR. WCB
2. Flange : As per ANSI B 16.5, 150#
3. Lining : PFA conforming ASTM D 3307

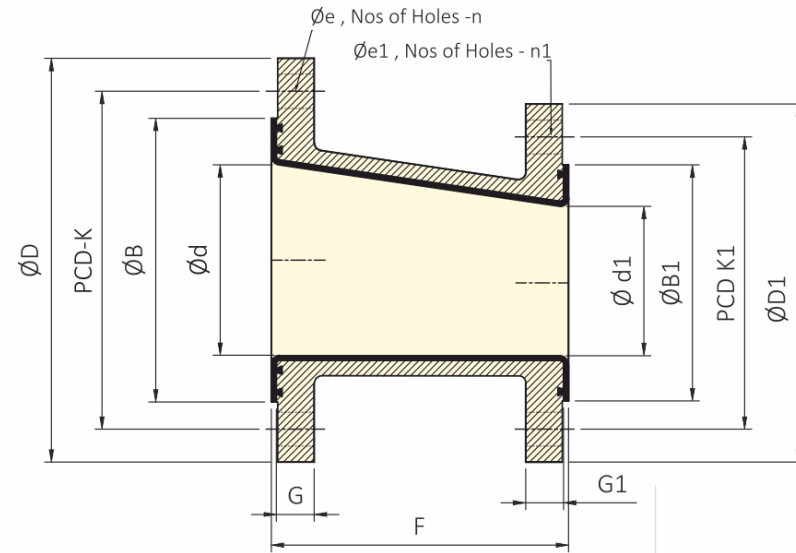
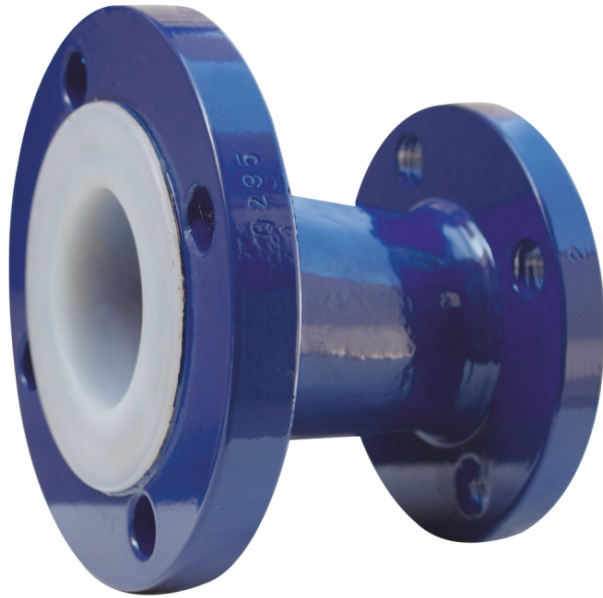
### Dimension Specifications

1. All dimensions are in mm.
2. Flange as per ANSI B16.5, 150#
3. Lining and other dimensional tolerances as per ASTM F1545
4. Lining face thickness 80% of min. liner wall Thk.

### Testing

1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.
4. 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min., as per ASTM F1545 (after Lining)

## ECENTRIC REDUCER



### Material Specifications

1. Ecc.reducer : ASTM A 216 GR. WCB
2. Flange : As per ANSI B 16.5, 150#
3. Lining : PFA conforming ASTM D 3307

### Dimension Specifications

1. All dimensions are in mm.
2. Flange as per ANSI B16.5, 150#
3. Lining and other dimensional tolerances as per ASTM F1545
4. Lining face thickness 80% of min. liner wall Thk.

### Testing

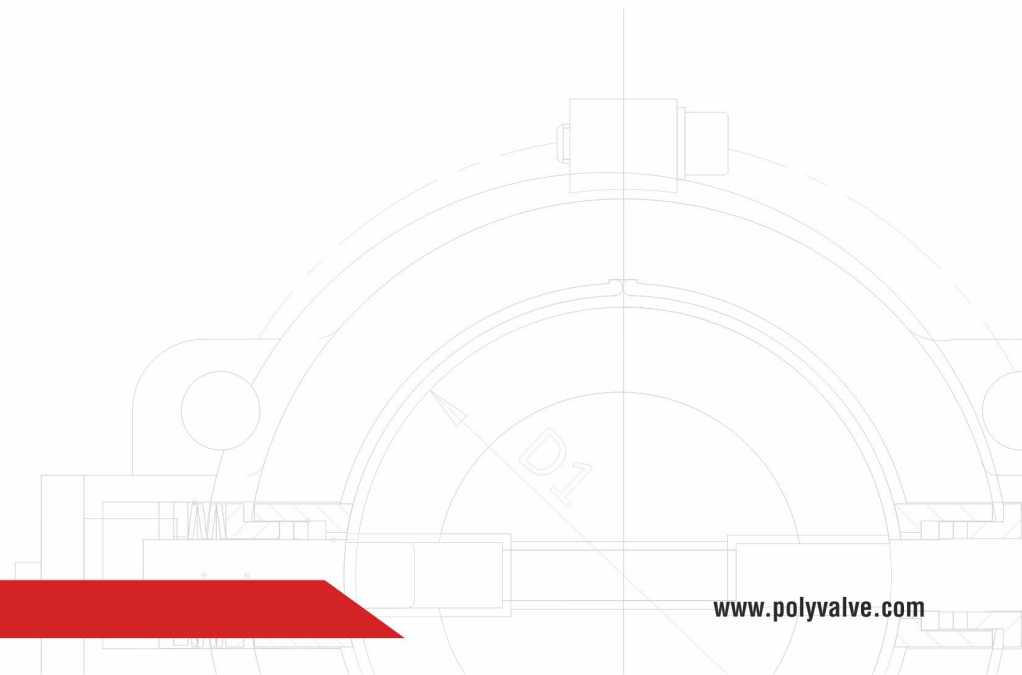
1. 100% Visual Check
2. 100% Dimensional Check
3. 100% Spark Test At 15 KVDC.
4. 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min., as per ASTM F1545 (after Lining)

## DIMENSION TABLE

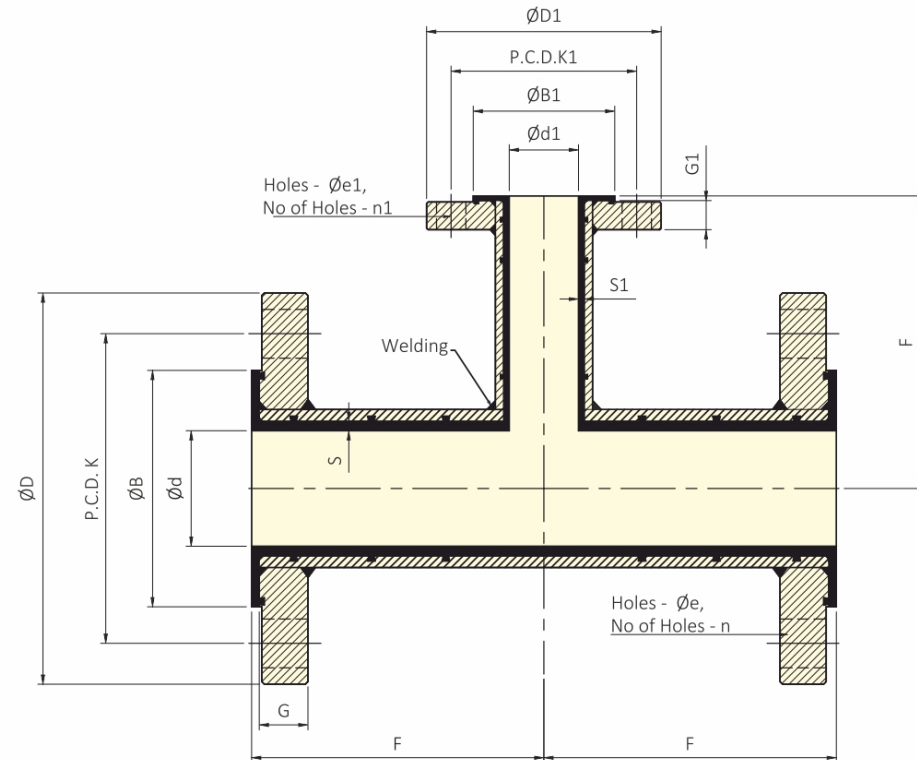
| Size | L - ID (∅d) |     | ∅R/F (∅B) |      | F. OD (∅D) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (∅e) |      | NH (n) | LINING THK (S) |     | Size | L - ID (∅d1) |     | ∅R/F (∅B1) |      | F. OD (∅D1) |       | F. THK (G1) |      | P.C.D. (K1) |       | H - DIA (∅e1) |      | NH (n1) | LINING THK (S1) |     | F     |     |      |    |
|------|-------------|-----|-----------|------|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|-----|------|--------------|-----|------------|------|-------------|-------|-------------|------|-------------|-------|---------------|------|---------|-----------------|-----|-------|-----|------|----|
|      | INCH        | MM  | INCH      | MM   | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM  |      | INCH         | MM  | INCH       | MM   | INCH        | MM    | INCH        | MM   | INCH        | MM    | INCH          | MM   |         | INCH            | MM  | INCH  | MM  | INCH | MM |
|      | 0.079       | ±2  | 0.079     | ±2   |            |       |            |      | 0.06       | ±1.6  |              |      |        |                |     |      | 0.079        | ±2  | 0.079      | ±2   |             |       |             |      |             |       | 0.06          | ±1.6 |         |                 |     |       |     |      |    |
| 3/4" | 0.59        | 15  | 1.68      | 42.7 | 3.87       | 98.4  | 0.50       | 12.7 | 2.75       | 69.8  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 1/2" | 0.39         | 10  | 1.37       | 34.9 | 3.50        | 88.9  | 0.44        | 11.1 | 2.37        | 60.3  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 4.49  | 114 |      |    |
| 1"   | 0.79        | 20  | 2.01      | 51   | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 1/2" | 0.39         | 10  | 1.37       | 34.9 | 3.50        | 88.9  | 0.44        | 11.1 | 2.37        | 60.3  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 4.49  | 114 |      |    |
| 1"   | 0.79        | 20  | 2.01      | 51   | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 3/4" | 0.59         | 15  | 1.68       | 42.7 | 3.87        | 98.4  | 0.50        | 12.7 | 2.75        | 69.8  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 4.49  | 114 |      |    |
| 1.5" | 1.34        | 34  | 2.87      | 73   | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 3/4" | 0.59         | 15  | 1.68       | 42.7 | 3.87        | 98.4  | 0.50        | 12.7 | 2.75        | 69.8  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 4.49  | 114 |      |    |
| 1.5" | 1.34        | 34  | 2.87      | 73   | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 4.49  | 114 |      |    |
| 2"   | 1.73        | 44  | 3.62      | 92   | 6.00       | 152.4 | 0.75       | 19   | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   | 3/4" | 0.59         | 15  | 1.68       | 42.7 | 3.87        | 98.4  | 0.50        | 12.7 | 2.75        | 69.8  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 5.00  | 127 |      |    |
| 2"   | 1.73        | 44  | 3.62      | 92   | 6.00       | 152.4 | 0.75       | 19   | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 5.00  | 127 |      |    |
| 2"   | 1.73        | 44  | 3.62      | 92   | 6.00       | 152.4 | 0.75       | 19   | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 5.00  | 127 |      |    |
| 3"   | 2.76        | 70  | 5.00      | 127  | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 5.98  | 152 |      |    |
| 3"   | 2.76        | 70  | 5.00      | 127  | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 5.98  | 152 |      |    |
| 3"   | 2.76        | 70  | 5.00      | 127  | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.57        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 5.98  | 152 |      |    |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 7.01  | 178 |      |    |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 7.01  | 178 |      |    |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 7.01  | 178 |      |    |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 7.01  | 178 |      |    |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 9.02  | 229 |      |    |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 9.02  | 229 |      |    |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 9.02  | 229 |      |    |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 9.02  | 229 |      |    |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 4"   | 3.70         | 94  | 6.18       | 157  | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 9.02  | 229 |      |    |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 10.98 | 279 |      |    |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 10.98 | 279 |      |    |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 10.98 | 279 |      |    |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 4"   | 3.70         | 94  | 6.18       | 157  | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 10.98 | 279 |      |    |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 6"   | 5.67         | 144 | 8.50       | 216  | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 10.98 | 279 |      |    |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 12.01 | 305 |      |    |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 12.01 | 305 |      |    |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 12.01 | 305 |      |    |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 4"   | 3.70         | 94  | 6.18       | 157  | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 12.01 | 305 |      |    |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 6"   | 5.67         | 144 | 8.50       | 216  | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 12.01 | 305 |      |    |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 8"   | 7.64         | 194 | 10.63      | 270  | 13.50       | 342.9 | 1.13        | 28.6 | 11.75       | 298.4 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 12.01 | 305 |      |    |

# DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |     | F. OD (ØD) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (Øe) |      | NH (n) | LINING THK (S) |     | Size | L - ID (Ød1) |       | ØR/F (ØB1) |     | F. OD (ØD1) |       | F. THK (G1) |      | P.C.D. (K1) |       | H - DIA (Øe1) |      | NH (n1) | LINING THK (S1) |     | F     |     |
|------|-------------|-----|-----------|-----|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|-----|------|--------------|-------|------------|-----|-------------|-------|-------------|------|-------------|-------|---------------|------|---------|-----------------|-----|-------|-----|
|      | INCH        | MM  | INCH      | MM  | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM  |      | INCH         | MM    | INCH       | MM  | INCH        | MM    | INCH        | MM   | INCH        | MM    | INCH          | MM   |         | INCH            | MM  | INCH  | MM  |
|      | 0.079       | ±2  | 0.079     | ±2  |            |       |            |      | 0.06       | ±1.6  |              |      |        |                |     |      | 0.079        | ±2    | 0.079      | ±2  |             |       |             |      |             |       | 0.06          | ±1.6 |         |                 |     |       |     |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 1.5" | 1.34         | 34    | 2.87       | 73  | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 14.02 | 356 |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 2"   | 1.73         | 44    | 3.62       | 92  | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 14.02 | 356 |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 3"   | 2.76         | 70    | 5.00       | 127 | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 14.02 | 356 |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 4"   | 3.70         | 94    | 6.18       | 157 | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 14.02 | 356 |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 6"   | 5.67         | 144   | 8.50       | 216 | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 14.02 | 356 |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 8"   | 7.54         | 191.5 | 10.63      | 270 | 13.50       | 342.9 | 1.13        | 28.6 | 11.75       | 298.4 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 14.02 | 356 |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 10"  | 9.53         | 242   | 12.76      | 324 | 16.00       | 406.4 | 1.19        | 30.2 | 14.25       | 362   | 1.00          | 25.4 | 12      | 0.217           | 5.5 | 14.02 | 356 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 1.5" | 1.34         | 34    | 2.87       | 73  | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 15.98 | 406 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 2"   | 1.73         | 44    | 3.62       | 92  | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 15.98 | 406 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 3"   | 2.76         | 70    | 5.00       | 127 | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 15.98 | 406 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 4"   | 3.70         | 94    | 6.18       | 157 | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 15.98 | 406 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 6"   | 5.67         | 144   | 8.50       | 216 | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 15.98 | 406 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 8"   | 7.54         | 191.5 | 10.63      | 270 | 13.50       | 342.9 | 1.13        | 28.6 | 11.75       | 298.4 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 15.98 | 406 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 10"  | 9.53         | 242   | 12.76      | 324 | 16.00       | 406.4 | 1.19        | 30.2 | 14.25       | 362   | 1.00          | 25.4 | 12      | 0.217           | 5.5 | 15.98 | 406 |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 12"  | 11.46        | 291   | 15.00      | 381 | 19.00       | 482.6 | 1.25        | 31.8 | 17.00       | 431.8 | 1.00          | 25.4 | 12      | 0.217           | 5.5 | 15.98 | 406 |



## UNEQUAL TEES



### Material Specifications

- UN.EQ.TEE : Made From Fabrication Seamless Carbon Steel Pipe:  
As per ASTM A 106 GR.B, SCH 40 (upto 6")  
As per ASTM A 106 GR.B, SCH 20 (above 6")
- Flange : ASTM A 105 as per ANSI B 16.5, 150#
- Liner : PFA conforming ASTM D 3307

### Dimension Specifications

- All dimensions are in mm.
- Pipe as per ANSI B36.10
- Flange as per ANSI B16.5, 150#
- Lining and other dimensional tolerances as per ASTM F1545

### Testing

- 100% Visual Check
- 100% Dimensional Check
- 100% Spark Test At 15 KVDC.
- 100% Hydro Test At 29 kg/cm<sup>2</sup> holding time 3 min.,  
as per ASTM F1545  
(after Lining)



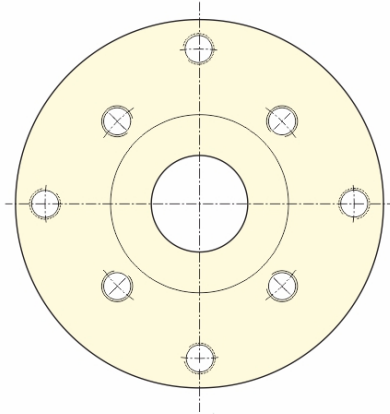
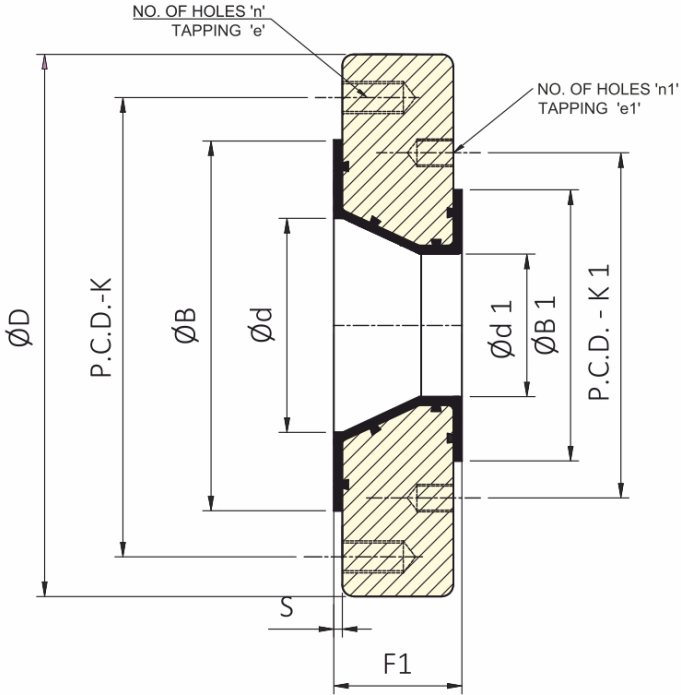
# DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |      | F. OD (ØD) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (Øe) |      | NH (n) | LINING THK (S) |     | Size | L - ID (Ød1) |     | ØR/F (ØB1) |      | F. OD (ØD1) |       | F. THK (G1) |      | P.C.D. (K1) |       | H - DIA (Øe1) |      | NH (n1) | LINING THK (S1) |     | F     |     | C.S. PIPE (SCH) |
|------|-------------|-----|-----------|------|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|-----|------|--------------|-----|------------|------|-------------|-------|-------------|------|-------------|-------|---------------|------|---------|-----------------|-----|-------|-----|-----------------|
|      | INCH        | MM  | INCH      | MM   | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM  |      | INCH         | MM  | INCH       | MM   | INCH        | MM    | INCH        | MM   | INCH        | MM    | INCH          | MM   |         | INCH            | MM  | INCH  | MM  |                 |
|      | 0.079       | ±2  | 0.079     | ±2   |            |       |            |      | 0.06       | ±1.6  |              |      |        |                |     |      | 0.079        | ±2  | 0.079      | ±2   |             |       |             |      |             |       | 0.06          | ±1.6 |         |                 |     |       |     |                 |
| 3/4" | 0.59        | 15  | 1.68      | 42.7 | 3.87       | 98.4  | 0.50       | 12.7 | 2.75       | 69.8  | 0.63         | 15.9 | 04     | 0.126          | 3.2 | 1/2" | 0.39         | 10  | 1.37       | 34.9 | 3.50        | 88.9  | 0.44        | 11.1 | 2.37        | 60.3  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 2.95  | 75  | 40              |
| 1"   | 0.79        | 20  | 2.01      | 51   | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 1/2" | 0.39         | 10  | 1.37       | 34.9 | 3.50        | 88.9  | 0.44        | 11.1 | 2.37        | 60.3  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 3.50  | 89  | 40              |
| 1"   | 0.79        | 20  | 2.01      | 51   | 4.25       | 108   | 0.56       | 14.2 | 3.13       | 79.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 3/4" | 0.59         | 15  | 1.68       | 42.7 | 3.87        | 98.4  | 0.50        | 12.7 | 2.75        | 69.8  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 3.50  | 89  | 40              |
| 1.5" | 1.34        | 34  | 2.87      | 73   | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 3/4" | 0.59         | 15  | 1.68       | 42.7 | 3.87        | 98.4  | 0.50        | 12.7 | 2.75        | 69.8  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 4.02  | 102 | 40              |
| 1.5" | 1.34        | 34  | 2.87      | 73   | 5.00       | 127   | 0.69       | 17.5 | 3.87       | 98.4  | 0.63         | 15.9 | 04     | 0.138          | 3.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 4.02  | 102 | 40              |
| 2"   | 1.73        | 44  | 3.62      | 92   | 6.00       | 152.4 | 0.75       | 19   | 4.75       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   | 3/4" | 0.59         | 15  | 1.68       | 42.7 | 3.87        | 98.4  | 0.50        | 12.7 | 2.75        | 69.8  | 0.63          | 15.9 | 04      | 0.126           | 3.2 | 4.49  | 114 | 40              |
| 2"   | 1.73        | 44  | 3.62      | 92   | 6.00       | 152.4 | 0.75       | 19   | 4.57       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 4.49  | 114 | 40              |
| 2"   | 1.73        | 44  | 3.62      | 92   | 6.00       | 152.4 | 0.75       | 19   | 4.57       | 120.6 | 0.75         | 19   | 04     | 0.157          | 4   | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 4.49  | 114 | 40              |
| 3"   | 2.76        | 70  | 5.00      | 127  | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 5.51  | 140 | 40              |
| 3"   | 2.76        | 70  | 5.00      | 127  | 7.50       | 190.5 | 0.94       | 23.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 5.51  | 140 | 40              |
| 3"   | 2.76        | 70  | 5.00      | 127  | 7.50       | 190.5 | 0.94       | 32.8 | 6.00       | 152.4 | 0.75         | 19   | 04     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.57        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 5.51  | 140 | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 6.50  | 165 | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 6.50  | 165 | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 6.50  | 165 | 40              |
| 4"   | 3.70        | 94  | 6.18      | 157  | 9.00       | 228.6 | 0.94       | 23.8 | 7.50       | 190.5 | 0.75         | 19   | 08     | 0.177          | 4.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 6.50  | 165 | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 1"   | 0.79         | 20  | 2.01       | 51   | 4.25        | 108   | 0.56        | 14.2 | 3.13        | 79.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 7.99  | 203 | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 7.99  | 203 | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 7.99  | 203 | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 7.99  | 203 | 40              |
| 6"   | 5.67        | 144 | 8.50      | 216  | 11.00      | 279.4 | 1.00       | 25.4 | 9.50       | 241.3 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 4"   | 3.70         | 94  | 6.18       | 157  | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 7.99  | 203 | 40              |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 9.02  | 229 | 20              |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 9.02  | 229 | 20              |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 9.02  | 229 | 20              |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 4"   | 3.70         | 94  | 6.18       | 157  | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 9.02  | 229 | 20              |
| 8"   | 7.64        | 194 | 10.63     | 270  | 13.50      | 342.9 | 1.13       | 28.6 | 11.75      | 298.4 | 0.87         | 22.2 | 08     | 0.177          | 4.5 | 6"   | 5.67         | 144 | 8.50       | 216  | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 9.02  | 229 | 20              |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 1.5" | 1.34         | 34  | 2.87       | 73   | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 10.98 | 279 | 20              |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 2"   | 1.73         | 44  | 3.62       | 92   | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 10.98 | 279 | 20              |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 3"   | 2.76         | 70  | 5.00       | 127  | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 10.98 | 279 | 20              |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 4"   | 3.70         | 94  | 6.18       | 157  | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 10.98 | 279 | 20              |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 6"   | 5.67         | 144 | 8.50       | 216  | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 10.98 | 279 | 20              |
| 10"  | 9.53        | 242 | 12.76     | 324  | 16.00      | 406.4 | 1.19       | 30.2 | 14.25      | 362   | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 8"   | 7.64         | 194 | 10.63      | 270  | 13.50       | 342.9 | 1.13        | 28.6 | 11.75       | 298.4 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 10.98 | 279 | 20              |

## DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |     | F. OD (ØD) |       | F. THK (G) |      | P.C.D. (K) |       | H - DIA (Øe) |      | NH (n) | LINING THK (S) |     | Size | L - ID (Ød1) |     | ØR/F (ØB1) |     | F. OD (ØD1) |       | F. THK (G1) |      | P.C.D. (K1) |       | H - DIA (Øe1) |      | NH (n1) | LINING THK (S1) |     | F     |     | C.S. PIPE (SCH) |      |    |
|------|-------------|-----|-----------|-----|------------|-------|------------|------|------------|-------|--------------|------|--------|----------------|-----|------|--------------|-----|------------|-----|-------------|-------|-------------|------|-------------|-------|---------------|------|---------|-----------------|-----|-------|-----|-----------------|------|----|
|      | INCH        | MM  | INCH      | MM  | INCH       | MM    | INCH       | MM   | INCH       | MM    | INCH         | MM   |        | INCH           | MM  |      | INCH         | MM  | INCH       | MM  | INCH        | MM    | INCH        | MM   | INCH        | MM    | INCH          | MM   |         | INCH            | MM  | INCH  | MM  |                 | INCH | MM |
|      | 0.079       | ±2  | 0.079     | ±2  |            |       |            |      | 0.06       | ±1.6  |              |      |        |                |     |      | 0.079        | ±2  | 0.079      | ±2  |             |       |             |      |             |       | 0.06          | ±1.6 |         |                 |     |       |     |                 |      |    |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 1.5" | 1.34         | 34  | 2.87       | 73  | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 12.01 | 305 | 20              |      |    |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 2"   | 1.73         | 44  | 3.62       | 92  | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 12.01 | 305 | 20              |      |    |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 3"   | 2.76         | 70  | 5.00       | 127 | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 12.01 | 305 | 20              |      |    |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 4"   | 3.70         | 94  | 6.18       | 157 | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 12.01 | 305 | 20              |      |    |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 6"   | 5.67         | 144 | 8.50       | 216 | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 12.01 | 305 | 20              |      |    |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 8"   | 7.64         | 194 | 10.63      | 270 | 13.50       | 342.9 | 1.13        | 28.6 | 11.75       | 298.4 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 12.01 | 305 | 20              |      |    |
| 12"  | 11.46       | 291 | 15.00     | 381 | 19.00      | 482.6 | 1.25       | 31.8 | 17.00      | 431.8 | 1.00         | 25.4 | 12     | 0.217          | 5.5 | 10"  | 9.53         | 242 | 12.76      | 324 | 16.00       | 406.4 | 1.19        | 30.2 | 14.25       | 362   | 1.00          | 25.4 | 12      | 0.217           | 5.5 | 12.01 | 305 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 1.5" | 1.34         | 34  | 2.87       | 73  | 5.00        | 127   | 0.69        | 17.5 | 3.87        | 98.4  | 0.63          | 15.9 | 04      | 0.138           | 3.5 | 14.02 | 356 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 2"   | 1.73         | 44  | 3.62       | 92  | 6.00        | 152.4 | 0.75        | 19   | 4.75        | 120.6 | 0.75          | 19   | 04      | 0.157           | 4   | 14.02 | 356 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 3"   | 2.76         | 70  | 5.00       | 127 | 7.50        | 190.5 | 0.94        | 23.8 | 6.00        | 152.4 | 0.75          | 19   | 04      | 0.177           | 4.5 | 14.02 | 356 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 4"   | 3.70         | 94  | 6.18       | 157 | 9.00        | 228.6 | 0.94        | 23.8 | 7.50        | 190.5 | 0.75          | 19   | 08      | 0.177           | 4.5 | 14.02 | 356 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 6"   | 5.67         | 144 | 8.50       | 216 | 11.00       | 279.4 | 1.00        | 25.4 | 9.50        | 241.3 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 14.02 | 356 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 8"   | 7.64         | 194 | 10.63      | 270 | 13.50       | 342.9 | 1.13        | 28.6 | 11.75       | 298.4 | 0.87          | 22.2 | 08      | 0.177           | 4.5 | 14.02 | 356 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 10"  | 9.53         | 242 | 12.76      | 324 | 16.00       | 406.4 | 1.19        | 30.2 | 14.25       | 362   | 1.00          | 25.4 | 12      | 0.217           | 5.5 | 14.02 | 356 | 20              |      |    |
| 14"  | 12.64       | 321 | 16.26     | 413 | 21.00      | 533.4 | 1.37       | 34.9 | 18.75      | 476.3 | 1.13         | 28.6 | 12     | 0.256          | 6.5 | 12"  | 11.46        | 291 | 15.00      | 381 | 19.00       | 482.6 | 1.25        | 31.8 | 17.00       | 431.8 | 1.00          | 25.4 | 12      | 0.217           | 5.5 | 14.02 | 356 | 20              |      |    |

# REDUCING FLANGES



### Material Specifications

- 1. Reducing Flange : IS 2062
- 2. Flange : As per ANSI B 16.5, 150#
- 3. Lining : PFA conforming ASTM D 3307

### Dimension Specifications

- 1. All dimensions Are In mm.
- 3. Flange as per ANSI B16.5, 150#
- 5. Lining and other dimensional tolerances as per ASTM F1545

### Testing

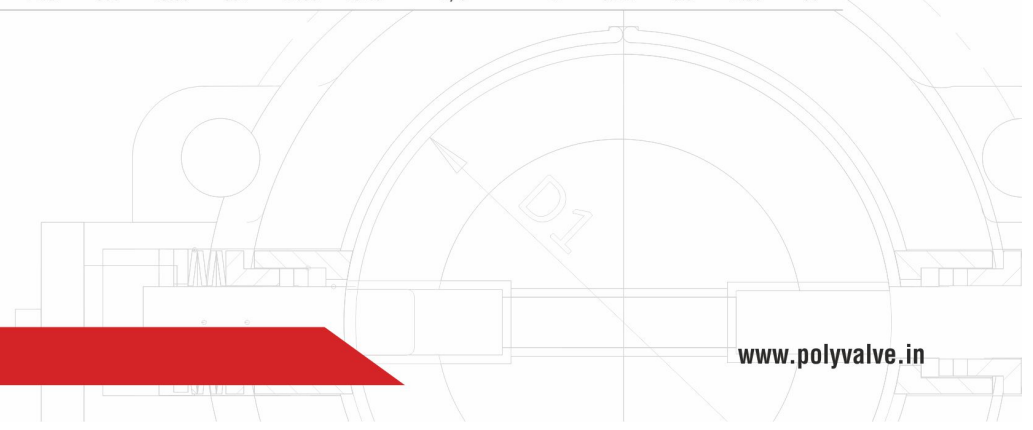
- 1. 100% Visual Check
- 2. 100% Dimensional Check
- 3. 100% Spark Test At 15 KVDC. (after Lining)

## DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |      | F. OD (ØD) |       | P.C.D. (K) |       | UNC (Øe) | NH (n) | LINING THK (S) |     | Size | L - ID (Ød1) |     | ØR/F (ØB1) |      | P.C.D. (K1) |       | UNC (Øe1) | NH (n1) | LINING THK (S) |     | (F1) |      |
|------|-------------|-----|-----------|------|------------|-------|------------|-------|----------|--------|----------------|-----|------|--------------|-----|------------|------|-------------|-------|-----------|---------|----------------|-----|------|------|
|      | INCH        | MM  | INCH      | MM   | INCH       | MM    | INCH       | MM    | TAPPING  |        | INCH           | MM  |      | INCH         | MM  | INCH       | MM   | TAPPING     |       | INCH      | MM      | INCH           | MM  | INCH | MM   |
|      | 0.079       | ±2  | 0.079     | ±2   |            |       | 0.06       | ±2    |          |        |                |     |      | 0.079        | ±2  | 0.079      | ±2   | 0.06        | ±1.6  |           |         |                |     | 0.11 | ±3.0 |
| 3/4" | 0.79        | 20  | 1.68      | 42.7 | 3.87       | 98.4  | 2.75       | 69.8  | 1/2"     | 04     | 0.126          | 3.2 | 1/2" | 0.59         | 15  | 1.37       | 34.9 | 2.37        | 60.3  | 1/2"      | 04      | 0.126          | 3.2 | 1.38 | 35   |
| 1"   | 0.98        | 25  | 2.01      | 51   | 4.25       | 108   | 3.13       | 79.4  | 1/2"     | 04     | 0.126          | 3.2 | 1/2" | 0.59         | 15  | 1.37       | 34.9 | 2.37        | 60.3  | 1/2"      | 04      | 0.126          | 3.2 | 1.38 | 35   |
| 1"   | 0.98        | 25  | 2.01      | 51   | 4.25       | 108   | 3.13       | 79.4  | 1/2"     | 04     | 0.138          | 3.5 | 0.75 | 0.79         | 20  | 1.68       | 42.7 | 2.75        | 69.8  | 1/2"      | 04      | 0.126          | 3.2 | 1.38 | 35   |
| 1.5" | 1.57        | 40  | 2.87      | 73   | 5.00       | 127   | 3.87       | 98.4  | 1/2"     | 04     | 0.138          | 3.5 | 0.75 | 0.79         | 20  | 1.68       | 42.7 | 2.75        | 69.8  | 1/2"      | 04      | 0.126          | 3.2 | 1.38 | 35   |
| 1.5" | 1.57        | 40  | 2.87      | 73   | 5.00       | 127   | 3.87       | 98.4  | 1/2"     | 04     | 0.138          | 3.5 | 1"   | 0.98         | 25  | 2.01       | 51   | 3.13        | 79.4  | 1/2"      | 04      | 0.138          | 3.5 | 1.38 | 35   |
| 2"   | 1.97        | 50  | 3.62      | 92   | 6.00       | 152.4 | 4.75       | 120.6 | 5/8"     | 04     | 0.157          | 4   | 0.75 | 0.79         | 20  | 1.68       | 42.7 | 2.75        | 69.8  | 1/2"      | 04      | 0.126          | 3.2 | 1.38 | 35   |
| 2"   | 1.97        | 50  | 3.62      | 92   | 6.00       | 152.4 | 4.75       | 120.6 | 5/8"     | 04     | 0.157          | 4   | 1"   | 0.98         | 25  | 2.01       | 51   | 3.13        | 79.4  | 1/2"      | 04      | 0.138          | 3.5 | 1.38 | 35   |
| 2"   | 1.97        | 50  | 3.62      | 92   | 6.00       | 152.4 | 4.75       | 120.6 | 5/8"     | 04     | 0.157          | 4   | 3/4" | 1.57         | 40  | 2.87       | 73   | 3.87        | 98.4  | 1/2"      | 04      | 0.138          | 3.5 | 1.38 | 35   |
| 3"   | 3.15        | 80  | 5.00      | 127  | 7.50       | 190.5 | 6.00       | 152.4 | 5/8"     | 04     | 0.177          | 4.5 | 1"   | 0.98         | 25  | 2.01       | 51   | 3.13        | 79.4  | 1/2"      | 04      | 0.138          | 3.5 | 1.77 | 45   |
| 3"   | 3.15        | 80  | 5.00      | 127  | 7.50       | 190.5 | 6.00       | 152.4 | 5/8"     | 04     | 0.177          | 4.5 | 1.5" | 1.57         | 40  | 2.87       | 73   | 3.87        | 98.4  | 1/2"      | 04      | 0.138          | 3.5 | 1.77 | 45   |
| 3"   | 3.15        | 80  | 5.00      | 127  | 7.50       | 190.5 | 6.00       | 152.4 | 5/8"     | 04     | 0.177          | 4.5 | 2"   | 1.97         | 50  | 3.62       | 92   | 4.75        | 120.6 | 1/2"      | 04      | 0.157          | 4   | 1.77 | 45   |
| 4"   | 3.94        | 100 | 6.18      | 157  | 9.00       | 228.6 | 7.50       | 190.5 | 5/8"     | 08     | 0.177          | 4.5 | 1"   | 0.98         | 25  | 2.01       | 51   | 3.13        | 79.4  | 1/2"      | 04      | 0.138          | 3.5 | 1.77 | 45   |
| 4"   | 3.94        | 100 | 6.18      | 157  | 9.00       | 228.6 | 7.50       | 190.5 | 5/8"     | 08     | 0.177          | 4.5 | 1.5" | 1.57         | 40  | 2.87       | 73   | 3.87        | 98.4  | 1/2"      | 04      | 0.138          | 3.5 | 1.77 | 45   |
| 4"   | 3.94        | 100 | 6.18      | 157  | 9.00       | 228.6 | 7.50       | 190.5 | 5/8"     | 08     | 0.177          | 4.5 | 2"   | 1.97         | 50  | 3.62       | 92   | 4.75        | 120.6 | 5/8"      | 04      | 0.157          | 4   | 1.77 | 45   |
| 4"   | 3.94        | 100 | 6.18      | 157  | 9.00       | 228.6 | 7.50       | 190.5 | 5/8"     | 08     | 0.157          | 4.5 | 3"   | 3.15         | 80  | 5.00       | 127  | 6.00        | 152.4 | 5/8"      | 04      | 0.177          | 4.5 | 1.77 | 45   |
| 6"   | 5.91        | 150 | 8.50      | 216  | 11.00      | 279.4 | 9.50       | 241.3 | 3/4"     | 08     | 0.177          | 4.5 | 1"   | 0.98         | 25  | 2.01       | 51   | 3.13        | 79.4  | 1/2"      | 04      | 0.138          | 3.5 | 2.13 | 54   |
| 6"   | 5.91        | 150 | 8.50      | 216  | 11.00      | 279.4 | 9.50       | 241.3 | 3/4"     | 08     | 0.177          | 4.5 | 1.5" | 1.57         | 40  | 2.87       | 73   | 3.87        | 98.4  | 1/2"      | 04      | 0.138          | 3.5 | 2.13 | 54   |
| 6"   | 5.91        | 150 | 8.50      | 216  | 11.00      | 279.4 | 9.50       | 241.3 | 3/4"     | 08     | 0.177          | 4.5 | 2"   | 1.97         | 50  | 3.62       | 92   | 4.75        | 120.6 | 5/8"      | 04      | 0.157          | 4   | 2.13 | 54   |
| 6"   | 5.91        | 150 | 8.50      | 216  | 11.00      | 279.4 | 9.50       | 241.3 | 3/4"     | 08     | 0.177          | 4.5 | 3"   | 3.15         | 80  | 5.00       | 127  | 6.00        | 152.4 | 5/8"      | 04      | 0.177          | 4.5 | 2.13 | 54   |
| 6"   | 5.91        | 150 | 8.50      | 216  | 11.00      | 279.4 | 9.50       | 241.3 | 3/4"     | 08     | 0.177          | 4.5 | 4"   | 3.94         | 100 | 6.18       | 157  | 7.50        | 190.5 | 5/8"      | 04      | 0.177          | 4.5 | 2.13 | 54   |
| 8"   | 7.87        | 200 | 10.63     | 270  | 13.50      | 342.9 | 11.75      | 298.4 | 3/4"     | 08     | 0.177          | 4.5 | 1.5" | 1.57         | 40  | 2.87       | 73   | 3.87        | 98.4  | 1/2"      | 04      | 0.138          | 3.5 | 2.13 | 54   |
| 8"   | 7.87        | 200 | 10.63     | 270  | 13.50      | 342.9 | 11.75      | 298.4 | 3/4"     | 08     | 0.177          | 4.5 | 2"   | 1.97         | 50  | 3.62       | 92   | 4.75        | 120.6 | 5/8"      | 04      | 0.157          | 4   | 2.13 | 54   |
| 8"   | 7.87        | 200 | 10.63     | 270  | 13.50      | 342.9 | 11.75      | 298.4 | 3/4"     | 08     | 0.177          | 4.5 | 3"   | 3.15         | 80  | 5.00       | 127  | 6.00        | 152.4 | 5/8"      | 04      | 0.177          | 4.5 | 2.13 | 35   |
| 8"   | 7.87        | 200 | 10.63     | 270  | 13.50      | 342.9 | 11.75      | 298.4 | 3/4"     | 08     | 0.177          | 4.5 | 4"   | 3.94         | 100 | 6.18       | 157  | 7.50        | 190.5 | 5/8"      | 08      | 0.177          | 4.5 | 2.13 | 35   |
| 8"   | 7.87        | 200 | 10.63     | 270  | 13.50      | 342.9 | 11.75      | 298.4 | 3/4"     | 08     | 0.177          | 4.5 | 6"   | 5.91         | 150 | 8.50       | 216  | 9.50        | 241.3 | 3/4"      | 08      | 0.177          | 4.5 | 2.13 | 35   |

# DIMENSION TABLE

| Size | L - ID (Ød) |     | ØR/F (ØB) |     | F. OD (ØD) |       | P.C.D. (K) |       | UNC (Øe) | NH (n) | LINING THK (S) |     | Size | L - ID (Ød1) |     | ØR/F (ØB1) |     | P.C.D. (K1) |       | UNC (Øe1) | NH (n1) | LINING THK (S) |     | (F1) |      |
|------|-------------|-----|-----------|-----|------------|-------|------------|-------|----------|--------|----------------|-----|------|--------------|-----|------------|-----|-------------|-------|-----------|---------|----------------|-----|------|------|
|      | INCH        | MM  | INCH      | MM  | INCH       | MM    | INCH       | MM    | TAPPING  |        | INCH           | MM  |      | INCH         | MM  | INCH       | MM  | INCH        | MM    | TAPPING   |         | INCH           | MM  | INCH | MM   |
|      | 0.079       | ±2  | 0.079     | ±2  |            |       | 0.06       | ±2    |          |        |                |     |      | 0.079        | ±2  | 0.079      | ±2  | 0.06        | ±1.6  |           |         |                |     | 0.11 | ±3.0 |
| 10"  | 9.84        | 250 | 12.76     | 324 | 16.00      | 406.4 | 14.25      | 362   | 7/8"     | 12     | 0.217          | 5.5 | 1.5" | 1.57         | 40  | 2.87       | 73  | 3.87        | 98.4  | 1/2"      | 04      | 0.138          | 3.5 | 2.13 | 35   |
| 10"  | 9.84        | 250 | 12.76     | 324 | 16.00      | 406.4 | 14.25      | 362   | 7/8"     | 12     | 0.217          | 5.5 | 2"   | 1.97         | 50  | 3.62       | 92  | 4.75        | 120.6 | 5/8"      | 04      | 0.157          | 4   | 2.13 | 35   |
| 10"  | 9.84        | 250 | 12.76     | 324 | 16.00      | 406.4 | 14.25      | 362   | 7/8"     | 12     | 0.217          | 5.5 | 3"   | 3.15         | 80  | 5.00       | 127 | 6.00        | 152.4 | 5/8"      | 04      | 0.177          | 4.5 | 2.13 | 35   |
| 10"  | 9.84        | 250 | 12.76     | 324 | 16.00      | 406.4 | 14.25      | 362   | 7/8"     | 12     | 0.217          | 5.5 | 4"   | 3.94         | 100 | 6.18       | 157 | 7.50        | 190.5 | 5/8"      | 08      | 0.177          | 4.5 | 2.13 | 35   |
| 10"  | 9.84        | 250 | 12.76     | 324 | 16.00      | 406.4 | 14.25      | 362   | 7/8"     | 12     | 0.217          | 5.5 | 6"   | 5.91         | 150 | 8.50       | 216 | 9.50        | 241.3 | 3/4"      | 08      | 0.177          | 4.5 | 2.13 | 35   |
| 10"  | 9.84        | 250 | 12.76     | 324 | 16.00      | 406.4 | 14.25      | 362   | 7/8"     | 12     | 0.217          | 5.5 | 8"   | 7.87         | 200 | 10.63      | 270 | 11.75       | 298.4 | 3/4"      | 08      | 0.177          | 4.5 | 2.13 | 35   |
| 12"  | 11.81       | 300 | 15.00     | 381 | 19.00      | 482.6 | 17.00      | 431.8 | 7/8"     | 12     | 0.217          | 5.5 | 1.5" | 1.57         | 40  | 2.87       | 73  | 3.87        | 98.4  | 1/2"      | 04      | 0.138          | 3.5 | 2.13 | 35   |
| 12"  | 11.81       | 300 | 15.00     | 381 | 19.00      | 482.6 | 17.00      | 431.8 | 7/8"     | 12     | 0.217          | 5.5 | 2"   | 1.97         | 50  | 3.62       | 92  | 4.75        | 120.6 | 5/8"      | 04      | 0.157          | 4   | 2.13 | 35   |
| 12"  | 11.81       | 300 | 15.00     | 381 | 19.00      | 482.6 | 17.00      | 431.8 | 7/8"     | 12     | 0.217          | 5.5 | 3"   | 3.15         | 80  | 5.00       | 127 | 6.00        | 152.4 | 5/8"      | 04      | 0.177          | 4.5 | 2.13 | 35   |
| 12"  | 11.81       | 300 | 15.00     | 381 | 19.00      | 482.6 | 17.00      | 431.8 | 7/8"     | 12     | 0.217          | 5.5 | 4"   | 3.94         | 100 | 6.18       | 157 | 7.50        | 190.5 | 5/8"      | 08      | 0.177          | 4.5 | 2.13 | 54   |
| 12"  | 11.81       | 300 | 15.00     | 381 | 19.00      | 482.6 | 17.00      | 431.8 | 7/8"     | 12     | 0.217          | 5.5 | 6"   | 5.91         | 150 | 8.50       | 216 | 9.50        | 241.3 | 3/4"      | 08      | 0.177          | 4.5 | 2.13 | 54   |
| 12"  | 11.81       | 300 | 15.00     | 381 | 19.00      | 482.6 | 17.00      | 431.8 | 7/8"     | 12     | 0.217          | 5.5 | 8"   | 7.87         | 200 | 10.63      | 270 | 11.75       | 298.4 | 3/4"      | 08      | 0.177          | 4.5 | 2.13 | 54   |
| 12"  | 11.81       | 300 | 15.00     | 381 | 19.00      | 482.6 | 17.00      | 431.8 | 7/8"     | 12     | 0.217          | 5.5 | 10"  | 9.84         | 250 | 12.76      | 324 | 14.25       | 362   | 7/8"      | 12      | 0.217          | 5.5 | 2.13 | 54   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 1.5" | 1.57         | 40  | 2.87       | 73  | 3.87        | 98.4  | 1/2"      | 4       | 0.138          | 3.5 | 2.36 | 60   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 2"   | 1.97         | 50  | 3.62       | 92  | 4.75        | 120.6 | 5/8"      | 4       | 0.157          | 4   | 2.36 | 60   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 3"   | 3.15         | 80  | 5.00       | 127 | 6.00        | 152.4 | 5/8"      | 4       | 0.177          | 4.5 | 2.36 | 60   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 4"   | 3.94         | 100 | 6.18       | 157 | 7.50        | 190.5 | 5/8"      | 8       | 0.177          | 4.5 | 2.36 | 60   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 6"   | 5.91         | 150 | 8.50       | 216 | 9.50        | 241.3 | 3/4"      | 8       | 0.177          | 4.5 | 2.36 | 60   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 8"   | 7.87         | 200 | 10.63      | 270 | 11.75       | 298.4 | 3/4"      | 8       | 0.177          | 4.5 | 2.36 | 60   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 10"  | 9.84         | 250 | 12.76      | 324 | 14.25       | 362   | 7/8"      | 12      | 0.217          | 5.5 | 2.36 | 60   |
| 14"  | 13.78       | 350 | 16.26     | 413 | 21.00      | 533.4 | 18.75      | 476.3 | 1"       | 12     | 0.256          | 5.6 | 12"  | 11.81        | 300 | 15.00      | 381 | 17.00       | 431.8 | 7/8"      | 12      | 0.217          | 5.5 | 2.36 | 60   |



# CERTIFICATION

**TRANSPACIFIC CERTIFICATIONS LIMITED**

**Certificate of Registration**  
This is to certify that  
**Quality Management System**  
of

**UNP POLYVALVES (INDIA) PVT. LTD.**  
5 to 12, P.R. Industrial Estate, Por GIDC, KashiPura Road,  
KashiPura, Vadodra - 391 243, Gujarat, India.

complies with the requirements of  
**ISO 9001:2015**  
This certificate is valid concerning all activities related to

Design, Manufacturing and Supply of Engineering Plastics and  
Lined Valves, Ball, Ball Check, Swing Check, Diaphragm, Butterfly,  
Plug Globe, Foot, Sight Glass, Sampling and Strainers for Corrosive and  
Aggressive Media in Chemical, Petrochemical, Steel, Glass,  
Process and Pharmaceutical Industries.

ANZSIC Code: 1912

14172 Certificate No. Aug. 06, 2018 Date of this Certificate Aug. 05, 2019 \*Next Audit Due Date  
Aug. 06, 2018 Date of Initial Registration Aug. 05, 2021 Certification Expiry Date

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Version 1.11

**TECHNICKÁ INŠPEKČIA, a.s.**  
SLOVENSKÁ REPUBLIKA  
**ACKNOWLEDGEMENT OF RECEIPT**  
no. 1342/21/2018

Technická inšpekcia, a. s.  
Trnavská cesta 95 821 01 Bratislava  
Notified body: TISA

confirms, that **Technical File Documentation**  
prepared by  
**UNP POLYVALVES (INDIA) PVT. LTD.**  
PLOT NO.5 TO 12 P.R. INDUSTRIAL ESTATE, POR GIDC- KASHIPUR ROAD,  
KASHIPURA, VODDARA-391243, GUJARAT, INDIA

has been received and stored according to the Article 13, 1(b) (6) of Directive no. 2014/40/EU on equipment and protective systems intended for use in potentially explosive atmospheres.

Scope of Ex Equipment:  
**BALL VALVES, DIAPHRAGM VALVES, BUTTERFLY VALVES,  
PLUG VALVES, GLOBE VALVES**  
Type: **INDUSTRIAL VALVES**

Marking: II 2 Gd Ex h IIC T3 Gb,  
Ex h IIC T200°C Dc

Technical File Documentation according to the Annex VIII Article 2 of Directive 2014/40/EU

| Doc. no.    | Issue                         |
|-------------|-------------------------------|
| UNP/TCH/041 | DATE: 22.03.2018<br>REV NO.00 |

Technical documentation will be stored, for 10 years until May 7th, 2028.

On behalf of Technická inšpekcia, a.s.  
Ing. Dušan Perniš  
General Director

3800241

EUROPEAN INSPECTION AND CERTIFICATION COMPANY S.A.

**CERTIFICATE OF FULL QUALITY ASSURANCE FOR PRESSURE EQUIPMENT**  
ACCORDING TO EUROPEAN DIRECTIVE 2014/68/EU (MODULE H)

CERTIFICATE NO.: PEH40048

THIS IS TO CERTIFY THAT EURO CERT S.A. HAS ASSESSED WITH SATISFACTORY RESULTS THE QUALITY ASSURANCE SYSTEM OF THE FOLLOWING MANUFACTURER:

**UNP POLYVALVES (INDIA) PVT. LTD.**  
PLOT NO. 5 TO 12, P.R. INDUSTRIAL ESTATE, POR GIDC-KASHIPURA ROAD, KASHIPURA - 391243, MEDHANA, GUJARAT, INDIA

\*DESCRIPTION OF PRESSURE EQUIPMENT:  
LINED VALVES  
\*NAME TO THIS CERTIFICATE  
BALL

CATEGORY OF PRESSURE EQUIPMENT:  
II

AGAINST THE PROVISIONS OF:  
EUROPEAN PRESSURE EQUIPMENT DIRECTIVE  
2014/68/EU, ANNEX II (MODULE H)

THIS CERTIFICATE IS VALID FOR THE FOLLOWING SCOPE:  
DESIGN, PRODUCTION FINAL INSPECTION AND TESTING OF PRESSURE EQUIPMENT

CONDITIONS AND LIMITATIONS:  
Each pressure equipment should be accompanied with manufacturer's declaration of conformity and instructions of use.  
The manufacturer must keep the technical file referred of any internet website of the quality assurance system.  
The manufacturer must affix the CE Marking and European's Declaration No. in each item of pressure equipment as displayed below.

CE 1128

This Certificate is valid till 29/06/2018 subject to satisfactory annual surveillance.

AUDIT REPORT NO.: PEH40048

Please check the validity of the certificate from our website using the password 111512018.

The date of this certificate were gathered with every possible thoroughness.  
This certificate reflects the findings of the time and place of the audit.  
Reproduction of this document is strictly forbidden.

89, CHLORO STR. & IKONOSSES, 144 52 METANOCHOS, ATHENS, GREECE  
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Internet site: www.eurocert.gr e-mail: eurocert@eurocert.gr

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EUROPEAN INSPECTION AND CERTIFICATION COMPANY S.A.

**TECHNICAL DESCRIPTION OF PRESSURE EQUIPMENT:**  
CERTIFICATE NO.: PEH40048

| NO | TYPE                            | DESCRIPTION        | NOMINAL DIAMETER | PRESSURE RATING | TEST PRESSURE KG/CM <sup>2</sup> |
|----|---------------------------------|--------------------|------------------|-----------------|----------------------------------|
| 1  | WAFER                           | BUTTERFLY VALVES   | DN 30 TO DN 350  | PN 10           | 15                               |
| 2  | LUG                             | BUTTERFLY VALVES   | DN 400           | PN 10           | 15                               |
| 3  | LUG                             | BUTTERFLY VALVES   | DN 450 TO DN 600 | PN 06           | 09                               |
| 4  | BALL                            | CHECK VALVES       | DN 25 TO DN 300  | PN 10           | 15                               |
| 5  | BALL                            | CHECK VALVES       | DN 150 TO DN 300 | PN 06           | 09                               |
| 6  | WAFER                           | SWING CHECK VALVES | DN 80 TO DN 350  | PN 10           | 15                               |
| 7  | WAFER & FLANGED                 | SAMPLING VALVES    | DN 25            | PN 04           | 06                               |
| 8  | WIRE                            | DIAPHRAGM VALVES   | DN 15 TO DN 50   | PN 10           | 15                               |
| 9  | WIRE                            | DIAPHRAGM VALVES   | DN 65 TO DN 200  | PN 06           | 09                               |
| 10 | FULL BORE                       | BALL VALVES        | DN 15 TO DN 100  | PN 10           | 15                               |
| 11 | FULL BORE                       | BALL VALVES        | DN 150           | PN 06           | 09                               |
| 12 | FULL BORE                       | BALL VALVES (GG)   | DN 200 TO DN 300 | PN 06           | 09                               |
| 13 | STRAIGHT                        | GLOBE VALVE        | DN 15 TO DN 100  | PN 10           | 15                               |
| 14 | SIDE SPLIT DESIGN, REGULAR POST | BALL VALVE         | DN 25 TO DN 150  | PN 10           | 15                               |
| 15 | SIDE SPLIT DESIGN, FULLPORT     | BALL VALVE         | DN 25 TO DN 150  | PN 10           | 15                               |
| 16 | TAPERED PLUG                    | PLUG VALVE         | DN 15 TO DN160   | PN 10           | 15                               |
| 17 | TAPERED PLUG                    | PLUG VALVE (GG)    | DN 150 TO DN200  | PN 06           | 09                               |

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**APPROVED**  
**ISO 15848-1**  
FUGITIVE EMISSION CERTIFICATION  
**PFA LINED SIDE SPLIT  
FULL PORT BALL VALVES**  
Size Range : 1/2" to 6"

**APPROVED**  
**ISO 15848-1**  
FUGITIVE EMISSION CERTIFICATION  
**PFA LINED PLUG VALVES**  
Size Range : 1/2" to 8"

**APPROVED**  
**ISO 15848-1**  
FUGITIVE EMISSION CERTIFICATION  
**PFA LINED BUTTERFLY VALVE**  
Size Range : 2" to 24"

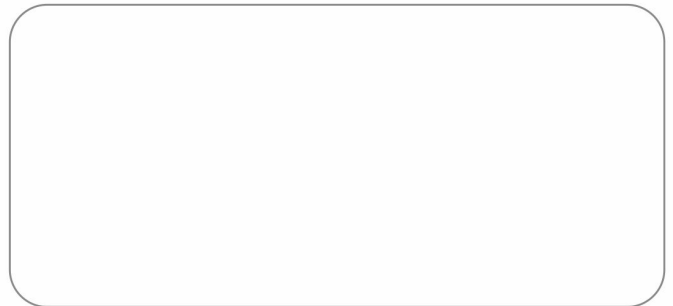
**APPROVED**  
**DIN EN 14432:2014**  
**PFA LINED SIDE SPLIT  
DESIGN BALL VALVES**  
Size Range : 1" to 4"

**APPROVED**  
**DIN EN 14432:2014**  
**PFA LINED BUTTERFLY VALVES**  
Size Range : 2" to 8"





Distributor



## VADODARA



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in house

ISO 9001:2008

