# pvdf

Polyvinylidene Fluoride (PVDF) is a unique thermoplastic with properties which allow it to be used for very aggressive or highly specialised applications. Although expensive compared to other thermoplastics, PVDF offers an economically attractive alternative to many "exotic" materials and/or in process lines where limited working life of other materials necessitates frequent replacement.

PVDF has excellent chemical and physical properties, even at low temperatures, and has considerable resistance to abrasion. It is resistant to most of the inorganic acids and bases, and to aliphatic and aromatic hydrocarbons, organic acids, alcohols and halogenated solvents. It is also non-toxic and can be used for high purity applications.

Safe working temperatures range from -40˚C to +140˚C, with short term use possible at temperatures well above this level.

PVDF systems are assembled using heat fusion welding, either using socket fittings or butt fusion of pipes and/or fittings end to end. Welding equipment is available for sale or hire and is featured in the tools and installation equipment section.

## application guide

- ☑ Temperature range -40˚C to +140˚C
- ☑ High impact strength
- ☑ Abrasion resistant
- ☑ Non-toxic
- ☑ Resistant to a wide range of acids, alkalis, salts and organic solvents
- ☑ Lightweight
- ☑ Suitable for high purity applications
- ☑ Non-flammable and self extinguishing

- ☒ Welding equipment required

## standards and approvals

BS EN ISO 10931:2005

## section guide




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# about: pvdf

Polyvinylidene fluoride (PVDF) is a thermoplastic that is distinguished from other fluorinated polymers by its ease of processing, good welding characteristics, and good heat formability. PVDF also has high mechanical strength, excellent chemical resistance, and high operating temperature capabilities. It has the widest range of applications of any of the thermoplastics used for rigid piping systems.

The excellent chemical resistance of PVDF means that it is extensively used in the chemical industry as a piping system for aggressive liquids, and in the field of tank construction and lining. PVDF is a homopolymer without additives such as stabilisers and processing agents. It also displays excellent flame retardant properties. Consequently, PVDF is listed with many worldwide agencies as suitable for use with foodstuffs, dairy products, hot and cold water in the semi-conductor and pharmaceutical industries, and for other applications in the food and drug sector.

Physiologically non-toxic, the smooth surface finish of PVDF does not encourage the growth of microorganisms. When coupled with its low friction coefficient, these natural anti fouling characteristics make PVDF ideally suited to applications involving ultra-pure liquids.

PVDF also has good resistance to UV and gamma radiation, including ageing resistance. PVDF does not support combustion after removal of a flame, and falls into the class V-0 according to UL94.

PVDF has excellent welding characteristics, and can be joined by either socket fusion welding, butt fusion welding, non-contact Infra-Red (IR) welding or electrofusion welding techniques. In addition, PVDF systems can be joined using flanges, threaded connections and mechanical couplings.

PVDF piping systems are available from IPS in metric dimensions according to DIN 8077/8078 and DIN 16962.



### General properties of pvdf

PVDF exhibits thermal stability up to 120°C, (short term 140°C for drainage systems). PVDF also has good impact strength, which rises further as the temperature increases.

Some important advantages of PVDF are:

- Low specific weight of 1.78g/cm$^3$
- Long-term creep resistance very high
- Chemical resistance is excellent
- High resistance to thermal ageing
- Outstanding welding characteristics
- Excellent abrasion resistance
- Smooth internal surfaces
- Excellent resistance against UV ageing
- Wide temperature range (between -40°C to +140°C)

| Properties of PVDF (Average values) | |
|---|---|
| Property | Value |
| Density | 1.78 g/cm$^3$ |
| Tensile Strength | >50 MPa |
| Elongation at Break | 80% |
| Notched Impact Strength at 23°C | 11 kJ/ m$^2$ |
| Modulus of Elasticity (Young's Modulus) | 2000 MPa |
| Coefficient of Linear Expansion | 0.12 mm/m /°C |
| Maximum Operating Temperature | 140°C |
| Minimum Operating Temperature | -40°C |
| Crystalline Melting Temperature | 174°C |
| Surface Resistance | >10$^{12}$ Ω |
| Thermal Conductivity | 0.13 W/m · K |
| Flammability | V-0 UL94 |
| Colour | Natural |

## Characteristics

### Chemical resistance

PVDF has an outstanding resistance to inorganic and organic acids, oxidising media, aliphatic and aromatic hydrocarbons, alcohols and halogenated solvents. PVDF is resistant to halogens, in particular bromine (but not fluorine) and to weak bases. It is degraded by fuming sulphuric acid, some strong basic amines, concentrated and hot alkalis as well as alkaline metals.

PVDF swells in high-polar solvents such as acetone and ethyl acetate. It is also slightly soluble in aphoristic solvents, for example dimethyl formamide and dimethyl sulphide.

### Weathering resistance

Piping systems in PVDF are resistant to UV, and therefore they do not need to be protected against degradation when used outdoors.

### Electrical characteristics

PVDF is non-conductive, therefore systems will remain free from electrolytic corrosion. Precautions should be taken to avoid static discharge should any part of a PVDF piping system pass through an area where explosive gases may be present.

### Physiological characteristics

PVDF is physiologically non-toxic, and meets the European Directive 90/128/EEC relating to plastic materials in contact with foodstuffs. It is particularly suitable for high purity applications handling hot and cold water in the semi-conductor and pharmaceutical industries, and for applications in the food and drug sector.

# Pressure ratings for pvdf systems

## Maximum continuous pressure ratings

Pipes, fittings and valves are designed to operate continuously for 50 years at their maximum rated pressure at 20°C as follows, unless otherwise stated.

The pressure ratings for PVDF pipes according to ISO 10931-2 and PVDF fittings according to ISO 10931-3 are defined by the 'nominal pressure' method, **whereby** pipes, fittings and valves are grouped together according to a single nominal pressure rating. The PN rating is the maximum permitted operational pressure in bars calculated at 20°C, for example PN6 indicates a maximum working pressure of 6 bars. According to this method the pressure ratings of PVDF pipes and fittings according to the nominal pressure system is as follows:-

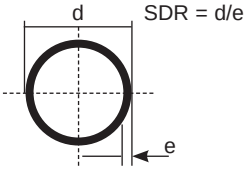
| | | Size Range | Max. Operating Pressure |
|---|---|---|---|
| Pipe | PN16 | 20mm to 280mm | 16 Bar |
| | PN10 | 63mm to 400mm | 10 Bar |
| Fittings | | | |
| Socket Fusion | PN20 | 20mm to 110mm | 20 Bar |
| Spigot Fusion | PN16 | 20mm to 280mm | 16 Bar |
| | PN10 | 90mm to 315mm | 10 Bar |
| Threaded | PN12 | 1/2″ to 2″ | 12 Bar |

## Standard Dimensional Ratio (SDR)

Standard Dimensional Ratio (SDR) is used to define thermoplastic pipes in a variety of materials including polypropylene, polyethylene, and PVC-U. Taken from ISO 4065, SDR is described as being 'the ratio of the nominal outside diameter of a pipe to its nominal wall thickness'. To calculate the SDR according to ISO 4065 the following equation can be used:

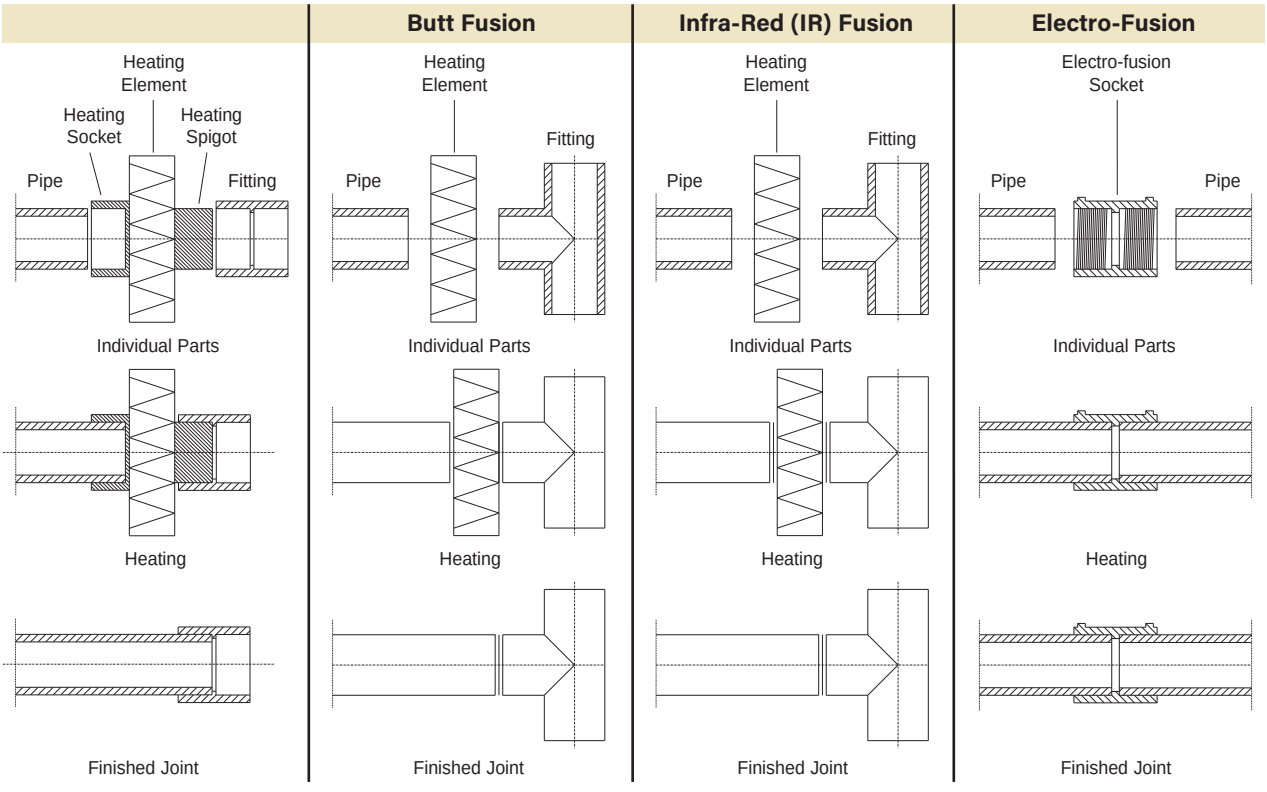
$$SDR = \frac{d}{e}$$

where:
SDR = Value to be calculated
e = Thickness of the pipe wall (mm)
d = Pipe outside diameter (mm)




# Jointing PVDF Systems

PVDF pipe to pipe and pipe to fitting joints are easy to make, using socket fusion, butt fusion, IR fusion or electrofusion welds.
IR fusion is similar in method to butt fusion using non-contact IR heat to melt the pipe ends prior to welding. Non-contact welding produces cleaner, consistent weld characteristics.




Welding equipment is available for sale or hire - see Tools and Installation Equipment.
Detailed installation instructions, as well as free training, is available on request.

# pipe - metric sizes

| | SDR33/S-16/PN10 | | | | SDR21/S-10/PN16 | | | |
|---|---|---|---|---|---|---|---|---|
| Size | Wall (mm) | kg/m | Code | Price | Wall (mm) | kg/m | Code | Price |
| 20 | | | - | - | 1.9 | 0.21 | 30.705.0020.21 | |
| 25 | | | - | - | 1.9 | 0.27 | 30.705.0025.21 | |
| 32 | | | - | - | 2.4 | 0.44 | 30.705.0032.21 | |
| 40 | | | - | - | 2.4 | 0.55 | 30.705.0040.21 | |
| 50 | | | - | - | 3.0 | 0.85 | 30.705.0050.21 | |
| 63 | 2.5 | 0.93 | 30.705.0063.33 | | 3.0 | 1.09 | 30.705.0063.21 | |
| 75 | 2.5 | 1.11 | 30.705.0075.33 | | 3.6 | 1.55 | 30.705.0075.21 | |
| 90 | 2.8 | 1.48 | 30.705.0090.33 | | 4.3 | 2.22 | 30.705.0090.21 | |
| 110 | 3.4 | 2.20 | 30.705.0110.33 | | 5.3 | 3.32 | 30.705.0110.21 | on application |
| 125 | 3.9 | 2.84 | 30.705.0125.33 | | 6.0 | 4.24 | 30.705.0125.21 | |
| 140 | 4.3 | 3.52 | 30.705.0140.33 | | 6.7 | 5.31 | 30.705.0140.21 | |
| 160 | 4.9 | 4.54 | 30.705.0160.33 | on application | 7.7 | 6.96 | 30.705.0160.21 | |
| 180 | 5.5 | 5.74 | 30.705.0180.33 | | 8.6 | 8.74 | 30.705.0180.21 | |
| 200 | 6.2 | 7.19 | 30.705.0200.33 | | 9.6 | 10.83 | 30.705.0200.21 | |
| 225 | 6.9 | 8.95 | 30.705.0225.33 | | 10.8 | 13.67 | 30.705.0225.21 | |
| 250 | 7.7 | 11.10 | 30.705.0250.33 | | 11.9 | 16.73 | 30.705.0250.21 | |
| 280 | 8.6 | 13.90 | 30.705.0280.33 | | 13.4 | 21.11 | 30.705.0280.21 | |
| 315 | 9.7 | 17.60 | 30.705.0315.33 | | - | - | - | - |
| 355 | 10.8 | 22.00 | 30.705.0355.33 | | - | - | - | - |
| 400 | 12.2 | 28.00 | 30.705.0400.33 | | - | - | - | - |



Standard length 5m

Please note that a transportation surcharge may be applied on pipe diameters 250mm or larger - please enquire for details

## Pipework Support

PVDF pipework requires more support than for metallic systems. As working temperature increases, the distance between the supports is reduced

| PN10 Pipe Size | Support Centres/m | | | |
|---|---|---|---|---|
| | 20°C | 60°C | 100°C | 140°C |
| 16 | 0.85 | 0.75 | 0.65 | 0.55 |
| 20 | 0.95 | 0.80 | 0.70 | 0.60 |
| 25 | 1.00 | 0.90 | 0.80 | 0.70 |
| 32 | 1.10 | 0.95 | 0.85 | 0.75 |
| 40 | 1.25 | 1.10 | 0.95 | 0.80 |
| 50 | 1.40 | 1.20 | 1.10 | 0.95 |
| 63 | 1.50 | 1.30 | 1.15 | 1.00 |
| 75 | 1.65 | 1.40 | 1.25 | 1.10 |
| 90 | 1.80 | 1.55 | 1.35 | 1.20 |
| 110 | 2.00 | 1.75 | 1.55 | 1.30 |

## Temperature De-Rating Factors

Pressure ratings for PVDF pipework systems are always quoted at 20˚C. As working temperature increases, the maximum working pressure decreases by the factor indicated.

For short term operating temperatures not listed, please enquire.

| Working Temperature (˚C) | Pressure De-Rating Factor |
|---|---|
| 20 | 1.00 |
| 30 | 0.90 |
| 40 | 0.82 |
| 50 | 0.74 |
| 60 | 0.66 |
| 70 | 0.56 |
| 80 | 0.51 |
| 90 | 0.44 |
| 100 | 0.39 |
| 110 | 0.34 |
| 120 | 0.29 |
| 130 | 0.24 |
| 140 | 0.19 |

This data is provided for guidence only. For specific projects please contact our technical department

### PVDF for Ultra Pure Liquids

High purity PVDF pipes and fittings are also available for ultrapure applications.
See separate section.

## HPF Electrofusion Socket

| Size | Code | Price |
|---|---|---|
| 20 | 35.073.0020.21 | |
| 25 | 35.073.0025.21 | |
| 32 | 35.073.0032.21 | on application |
| 40 | 35.073.0040.21 | |
| 50 | 35.073.0050.21 | |
| 63 | 35.073.0063.21 | |

HPF Electrofusion Welding Equipment - available on request.

## AutoCad Software

AGRU CAD software is developed to run under AutoCad R12-DOS, R13-Windows, R14-Windows and Windows 2000
It is specifically produced to design plastic piping systems.

There are several unique features:-
- Drawing on centre lines (products centred automatically)
- Parts list generation
- Prefab parts list (pipe cutting lengths are shown)
- Automatic calculation of expansion loops

AGRU CAD contains the full AGRU range in PP, PVDF and ECTFE.


## Pipe Availability

We typically hold over

**200,000 metres of pipe**

in stock for immediate despatch

# mm sizes

## Tee 90°

| Size | Code | Price |
|---|---|---|
| 16 | 30.056.0016.07 | |
| 20 | 30.056.0020.07 | |
| 25 | 30.056.0025.07 | |
| 32 | 30.056.0032.07 | |
| 40 | 30.056.0040.07 | on application |
| 50 | 30.056.0050.07 | |
| 63 | 30.056.0063.07 | |
| 75 | 30.056.0075.07 | |
| 90 | 30.056.0090.07 | |
| 110 | 30.056.0110.07 | |

## Elbow 90°

| Size | Code | Price |
|---|---|---|
| 16 | 30.051.0016.07 | |
| 20 | 30.051.0020.07 | |
| 25 | 30.051.0025.07 | |
| 32 | 30.051.0032.07 | |
| 40 | 30.051.0040.07 | on application |
| 50 | 30.051.0050.07 | |
| 63 | 30.051.0063.07 | |
| 75 | 30.051.0075.07 | |
| 90 | 30.051.0090.07 | |
| 110 | 30.051.0110.07 | |

## Elbow 45°

| Size | Code | Price |
|---|---|---|
| 16 | 30.050.0016.07 | |
| 20 | 30.050.0020.07 | |
| 25 | 30.050.0025.07 | |
| 32 | 30.050.0032.07 | |
| 40 | 30.050.0040.07 | on application |
| 50 | 30.050.0050.07 | |
| 63 | 30.050.0063.07 | |
| 75 | 30.050.0075.07 | |
| 90 | 30.050.0090.07 | |
| 110 | 30.050.0110.07 | |

## Socket

| Size | Code | Price |
|---|---|---|
| 16 | 30.053.0016.07 | |
| 20 | 30.053.0020.07 | |
| 25 | 30.053.0025.07 | |
| 32 | 30.053.0032.07 | |
| 40 | 30.053.0040.07 | on application |
| 50 | 30.053.0050.07 | |
| 63 | 30.053.0063.07 | |
| 75 | 30.053.0075.07 | |
| 90 | 30.053.0090.07 | |
| 110 | 30.053.0110.07 | |

## Union

FPM O-Rings

| Size | Code | Price |
|---|---|---|
| 20 | 30.024.1120.07 | |
| 25 | 30.024.1125.07 | |
| 32 | 30.024.1132.07 | on application |
| 40 | 30.024.1140.07 | |
| 50 | 30.024.1150.07 | |
| 63 | 30.024.1163.07 | |

Maximum Pressure PN10.

## Cap

| Size | Code | Price |
|---|---|---|
| 16 | 30.054.0016.07 | |
| 20 | 30.054.0020.07 | |
| 25 | 30.054.0025.07 | |
| 32 | 30.054.0032.07 | |
| 40 | 30.054.0040.07 | on application |
| 50 | 30.054.0050.07 | |
| 63 | 30.054.0063.07 | |
| 75 | 30.054.0075.07 | |
| 90 | 30.054.0090.07 | |
| 110 | 30.054.0110.07 | |

## Reducer

Spigot x Socket

| Size | Code | Price |
|---|---|---|
| 25/16 | 30.057.2516.07 | |
| 25/20 | 30.057.2520.07 | |
| 32/20 | 30.057.3220.07 | |
| 32/25 | 30.057.3225.07 | |
| 40/20 | 30.057.4020.07 | |
| 40/25 | 30.057.4025.07 | |
| 40/32 | 30.057.4032.07 | |
| 50/20 | 30.057.5020.07 | |
| 50/25 | 30.057.5025.07 | |
| 50/32 | 30.057.5032.07 | on application |
| 50/40 | 30.057.5040.07 | |
| 63/25 | 30.057.6325.07 | |
| 63/32 | 30.057.6332.07 | |
| 63/40 | 30.057.6340.07 | |
| 63/50 | 30.057.6350.07 | |
| 75/63 | 30.057.7563.07 | |
| 90/63 | 30.057.9063.07 | |
| 90/75 | 30.057.9075.07 | |
| 110/63 | 30.057.1163.07 | |
| 110/90 | 30.057.1190.07 | |

## Female Adaptor

BSP or NPT female threaded

| Size | Code | Price |
|---|---|---|
| 20 x 1/2 | 30.034.2020.07 | |
| 25 x 3/4 | 30.034.2525.07 | |
| 32 x 1 | 30.034.3232.07 | on application |
| 40 x 1.1/4 | 30.034.4040.07 | |
| 50 x 1.1/2 | 30.034.5050.07 | |
| 63 x 2 | 30.034.6363.07 | |

Code shown is for BSP
Code for NPT on request

## Male Adaptor

BSP or NPT male threaded

| Size | Code | Price |
|---|---|---|
| 20 x 3/4 | 30.035.2025.07 | |
| 25 x 1 | 30.035.2532.07 | on application |
| 32 x 1.1/4 | 30.035.3240.07 | |
| 40 x 1.1/2 | 30.035.4050.07 | |
| 50 x 2 | 30.035.5063.07 | |

Code shown is for BSP
Code for NPT on request

## Stub Flange

DIN, ANSI or JIS standards

| Size | Code | Price |
|---|---|---|
| 16 | 30.052.0016.07 | |
| 20 | 30.052.0020.07 | |
| 25 | 30.052.0025.07 | |
| 32 | 30.052.0032.07 | |
| 40 | 30.052.0040.07 | on application |
| 50 | 30.052.0050.07 | |
| 63 | 30.052.0063.07 | |
| 75 | 30.052.0075.07 | |
| 90 | 30.052.0090.07 | |
| 110 | 30.052.0110.07 | |

Code shown is for DIN.
Other codes on request.

## Blind Flange

Machined - Non Pressure Drilled to BS4504 PN10

| Size | Code | Price |
|---|---|---|
| 20 | 30.334.0020.00 | |
| 25 | 30.334.0025.00 | |
| 32 | 30.334.0032.00 | |
| 40 | 30.334.0040.00 | |
| 50 | 30.334.0050.00 | on application |
| 63 | 30.334.0063.00 | |
| 75 | 30.334.0075.00 | |
| 90 | 30.334.0090.00 | |
| 110 | 30.334.0110.00 | |

Also available drilled to JIS standards.
Please enquire for details.

## Gasket

EPDM

| Size | Code | Price |
|---|---|---|
| ½"/20 | 861-E-005 | |
| ¾"/25 | 861-E-007 | |
| 1"/32 | 861-E-010 | |
| 1.¼"/40 | 861-E-012 | on application |
| 1.½"/50 | 861-E-015 | |
| 2"/63 | 861-E-020 | |
| 2.½"/75 | 861-E-025 | |
| 3"/90 | 861-E-030 | |
| 4"/110 | 861-E-040 | |

Please note above codes are for Table D/E. Replace 'E' for 'I' for NP10/16 or 'A' for ANSI 150

## Gasket

FPM

| Size | Code | Price |
|---|---|---|
| ½"/20 | 862-E-005 | |
| ¾"/25 | 862-E-007 | |
| 1"/32 | 862-E-010 | |
| 1.¼"/40 | 862-E-012 | |
| 1.½"/50 | 862-E-015 | on application |
| 2"/63 | 862-E-020 | |
| 2.½"/75 | 862-E-025 | |
| 3"/90 | 862-E-030 | |
| 4"/110 | 862-E-040 | |

Please note above codes are for Table D/E. Replace 'E' for 'I' for NP10/16 or 'A' for ANSI 150

## Pressure Ratings

PVDF socket fusion fittings are suitable for use at pressures up to 20 bar at 20˚C except where shown. Threaded fittings are de-rated to 12 bar.

## Backing Ring Table D/E

Galvanised mild steel

| Size | Code | Price |
|---|---|---|
| ½"/20 | 860-005-11E | |
| ¾"/25 | 860-007-11E | |
| 1"/32 | 860-010-11E | |
| 1.¼"/40 | 860-012-11E | |
| 1.½"/50 | 860-015-11E | on application |
| 2"/63 | 860-020-11E | |
| 2.½"/75 | 860-025-11E | |
| 3"/90 | 860-030-11E | |
| 4"/110 | 860-040-11D | |
| 4"/110 | 860-040-11E | |

## Backing Ring NP10/16

Galvanised mild steel

| Size | Code | Price |
|---|---|---|
| ½"/20 | 860-005-11NP | |
| ¾"/25 | 860-007-11NP | |
| 1"/32 | 860-010-11NP | |
| 1.¼"/40 | 860-012-11NP | on application |
| 1.½"/50 | 860-015-11NP | |
| 2"/63 | 860-020-11NP | |
| 2.½"/75 | 860-025-11NP | |
| 3"/90 | 860-030-11NP | |
| 4"/110 | 860-040-11NP | |

## Backing Ring ANSI 150

Galvanised mild steel

| Size | Code | Price |
|---|---|---|
| ½"/20 | 860-005-11A | |
| ¾"/25 | 860-007-11A | |
| 1"/32 | 860-010-11A | |
| 1.¼"/40 | 860-012-11A | on application |
| 1.½"/50 | 860-015-11A | |
| 2"/63 | 860-020-11A | |
| 2.½"/75 | 860-025-11A | |
| 3"/90 | 860-030-11A | |
| 4"/110 | 860-040-11A | |

## Backing Ring NP10

Polypropylene with steel core

| Size | Code | Price |
|---|---|---|
| 20 | 11.014.0020.11 | |
| 25 | 11.014.0025.11 | |
| 32 | 11.014.0032.11 | |
| 40 | 11.014.0040.11 | on application |
| 50 | 11.014.0050.11 | |
| 63 | 11.014.0063.11 | |
| 75 | 11.014.0075.11 | |
| 90 | 11.014.0090.11 | |
| 110 | 11.014.0110.11 | |

Also available in black

## Backing Ring ANSI 150

Polypropylene with steel core

| Size | Code | Price |
|---|---|---|
| 20 | 11.013.0020.11 | |
| 25 | 11.013.0025.11 | |
| 32 | 11.013.0032.11 | |
| 40 | 11.013.0040.11 | on application |
| 50 | 11.013.0050.11 | |
| 63 | 11.013.0063.11 | |
| 75 | 11.013.0075.11 | |
| 90 | 11.013.0090.11 | |
| 110 | 11.013.0110.11 | |

# mm sizes

## Tee 90°

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 20 | - | - | - | - | 30.006.0020.21 | |
| 25 | - | - | - | - | 30.006.0025.21 | |
| 32 | - | - | - | - | 30.006.0032.21 | |
| 40 | - | - | - | - | 30.006.0040.21 | |
| 50 | - | - | - | - | 30.006.0050.21 | |
| 63 | - | - | - | - | 30.006.0063.21 | |
| 75 | - | - | - | - | 30.006.0075.21 | |
| 90 | - | - | 30.006.0090.33 | | 30.006.0090.21 | |
| 110 | - | - | 30.006.0110.33 | | 30.006.0110.21 | on application |
| 125 | - | - | 30.006.0125.33 | | 30.006.0125.21 | |
| 140 | - | - | 30.006.0140.33 | on application | 30.006.0140.21 | |
| 160 | - | - | 30.006.0160.33 | | 30.006.0160.21 | |
| 180 | - | - | 30.006.0180.33 | | 30.006.0180.21 | |
| 200 | - | - | 30.006.0200.33 | | 30.006.0200.21 | |
| 225 | - | - | 30.006.0225.33 | | 30.006.0225.21 | |
| 250 | - | - | 30.006.0250.33 | | 30.006.0250.21 | |
| 280 | - | - | 30.006.0280.33 | | 30.006.0280.21 | |
| 315 | - | - | 30.006.0315.33 | | - | - |

## Reducing Tee 90°

Elongated

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 63 x 20 | - | - | - | - | 30.065.6320.21 | |
| 63 x 25 | - | - | - | - | 30.065.6325.21 | |
| 63 x 32 | - | - | - | - | 30.065.6332.21 | |
| 90 x 63 | - | - | - | - | 30.065.9063.21 | on application |
| 110 x 63 | - | - | 30.065.1190.33 | | 30.065.1163.21 | |
| 110 x 90 | - | - | - | on application | 30.065.1190.21 | |
| 160 x 63 | - | - | 30.065.1690.33 | | 30.065.1663.21 | |
| 160 x 90 | - | - | 30.065.1611.33 | | 30.065.1690.21 | |
| 160 x 110 | - | - | - | - | 30.065.1611.21 | |

| Size | Code | Price | PN10/16* (SDR 33/21) Code | PN10/16* (SDR 33/21) Price |
|---|---|---|---|---|
| 90 x 63 | - | - | 30.065.9063.31 | |
| 110 x 63 | - | - | 30.065.1163.31 | on application |
| 160 x 63 | - | - | 30.065.1663.31 | |
| 160 x 90 | - | - | 30.065.1690.31 | |
| 160 x 110 | - | - | 30.065.1611.31 | |

*Branch dimension PN16, Run dimension PN10.

## Instrumentation Fitting

Supplied unthreaded

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 32 | - | - | - | - | 30.030.1032.21 | |
| 63 | - | - | - | - | 30.030.1063.21 | |
| 90 | - | - | 30.030.1090.33 | | 30.030.1090.21 | |
| 110 | - | - | 30.030.1110.33 | | 30.030.1110.21 | on application |
| 125 | - | - | 30.030.1125.33 | on application | 30.030.1125.21 | |
| 140 | - | - | 30.030.1140.33 | | 30.030.1140.21 | |
| 160 | - | - | 30.030.1160.33 | | 30.030.1160.21 | |

## Concentric Reducer

Elongated

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 25 x 20 | - | - | - | - | 30.067.2520.21 | |
| 32 x 20 | - | - | - | - | 30.067.3220.21 | |
| 32 x 25 | - | - | - | - | 30.067.3225.21 | |
| 40 x 20 | - | - | - | - | 30.067.4020.21 | |
| 40 x 25 | - | - | - | - | 30.067.4025.21 | |
| 40 x 32 | - | - | - | - | 30.067.4032.21 | |
| 50 x 20 | - | - | - | - | 30.067.5020.21 | |
| 50 x 25 | - | - | - | - | 30.067.5025.21 | |
| 50 x 32 | - | - | - | - | 30.067.5032.21 | |
| 50 x 40 | - | - | - | - | 30.067.5040.21 | |
| 63 x 25 | - | - | - | - | 30.067.6325.21 | |
| 63 x 32 | - | - | - | - | 30.067.6332.21 | |
| 63 x 40 | - | - | - | - | 30.067.6340.21 | |
| 63 x 50 | - | - | - | - | 30.067.6350.21 | on application |
| 75 x 50 | - | - | - | - | 30.067.7550.21 | |
| 75 x 63 | - | - | - | - | 30.067.7563.21 | |
| 90 x 50 | - | - | - | - | 30.067.9050.21 | |
| 90 x 63 | - | - | - | - | 30.067.9063.21 | |
| 90 x 75 | - | - | - | - | 30.067.9075.21 | |
| 110 x 63 | - | - | - | - | 30.067.1163.21 | |
| 110 x 90 | - | - | 30.067.1190.33 | | 30.067.1190.21 | |
| 140 x 63 | - | - | - | | 30.067.1463.21 | |
| 140 x 110 | - | - | 30.067.1411.33 | | 30.067.1411.21 | |
| 160 x 110 | - | - | 30.067.1611.33 | | 30.067.1611.21 | |
| 160 x 140 | - | - | 30.067.1614.33 | on application | 30.067.1614.21 | |
| 225 x 160 | - | - | 30.067.2216.33 | | 30.067.2216.21 | |
| 250 x 160 | - | - | 30.067.2516.33 | | 30.067.2516.21 | |
| 250 x 225 | - | - | 30.067.2522.33 | | 30.067.2522.21 | |
| 315 x 160 | - | - | 30.067.3116.33 | | - | - |
| 315 x 250 | - | - | 30.067.3125.33 | | - | - |

## Cap

Elongated
*Short style - machined

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 20 | - | - | - | - | 30.064.0020.21 | |
| 25 | - | - | - | - | 30.064.0025.21 | |
| 32 | - | - | - | - | 30.064.0032.21 | |
| 40 | - | - | - | - | 30.064.0040.21 | |
| 50 | - | - | - | - | 30.064.0050.21 | |
| 63 | - | - | - | - | 30.064.0063.21 | |
| 75 | - | - | - | - | 30.064.0075.21 | |
| 90 | - | - | 30.064.0090.33 | | 30.064.0090.21 | on application |
| 110 | - | - | 30.064.0110.33 | | 30.064.0110.21 | |
| 125* | - | - | 30.302.0125.33 | | 30.302.0125.21 | |
| 140* | - | - | 30.302.0140.33 | on application | 30.302.0140.21 | |
| 160* | - | - | 30.302.0160.33 | | 30.302.0160.21 | |
| 200* | - | - | 30.302.0200.33 | | 30.302.0200.21 | |
| 225* | - | - | 30.302.0225.33 | | 30.302.0225.21 | |

## Bend 90˚

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 125 | - | - | 30.001.0125.33 | | 30.001.0125.21 | |
| 140 | - | - | 30.001.0140.33 | | 30.001.0140.21 | |
| 160 | - | - | 30.001.0160.33 | | 30.001.0160.21 | |
| 180 | - | - | 30.001.0180.33 | on application | 30.001.0180.21 | on application |
| 200 | - | - | 30.001.0200.33 | | 30.001.0200.21 | |
| 225 | - | - | 30.001.0225.33 | | 30.001.0225.21 | |
| 250 | - | - | 30.001.0250.33 | | 30.001.0250.21 | |
| 280 | - | - | 30.001.0280.33 | | 30.001.0280.21 | |
| 315 | - | - | 30.001.0315.33 | | - | - |

## Multi-Bend 90˚

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 20 | - | - | - | - | 30.068.0020.21 | |
| 25 | - | - | - | - | 30.068.0025.21 | |
| 32 | - | - | - | - | 30.068.0032.21 | |
| 40 | - | - | - | - | 30.068.0040.21 | |
| 50 | - | - | - | - | 30.068.0050.21 | |
| 63 | - | - | - | - | 30.068.0063.21 | on application |
| 75 | - | - | - | - | 30.068.0075.21 | |
| 90 | - | - | 30.068.0090.33 | | 30.068.0090.21 | |
| 110 | - | - | 30.068.0110.33 | | 30.068.0110.21 | |
| 140 | - | - | 30.068.0140.33 | on application | 30.068.0140.21 | |
| 160 | - | - | 30.068.0160.33 | | 30.068.0160.21 | |
| 225 | - | - | 30.068.0225.33 | | 30.068.0225.21 | |

## Elbow 45˚

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 20 | - | - | - | - | 30.060.0020.21 | |
| 25 | - | - | - | - | 30.060.0025.21 | |
| 32 | - | - | - | - | 30.060.0032.21 | |
| 40 | - | - | - | - | 30.060.0040.21 | |
| 50 | - | - | - | - | 30.060.0050.21 | |
| 63 | - | - | - | - | 30.060.0063.21 | on application |
| 90 | - | - | 30.060.0090.33 | | 30.060.0090.21 | |
| 110 | - | - | 30.060.0110.33 | on application | 30.060.0110.21 | |
| 125 | - | - | - | | - | |
| 140 | - | - | 30.060.0140.33 | | 30.060.0140.21 | |
| 160 | - | - | 30.060.0160.33 | | 30.060.0160.21 | |

## Union

FPM Seals

| Size | Code | Price | Code | Price | Code | Price |
|---|---|---|---|---|---|---|
| 20 | - | - | - | - | 30.024.0020.21 | |
| 25 | - | - | - | - | 30.024.0025.21 | |
| 32 | - | - | - | - | 30.024.0032.21 | on application |
| 40 | - | - | - | - | 30.024.0040.21 | |
| 50 | - | - | - | - | 30.024.0050.21 | |
| 63 | - | - | - | - | 30.024.0063.21 | |

PN16 (SDR 21)

## Restrained Fitting

Provides anchor point in pipe runs

| Size | Code | Price | Code | Price | Code | Price |
|---|---|---|---|---|---|---|
| 32 | - | - | - | - | 30.028.0032.21 | |
| 63 | - | - | - | - | 30.028.0063.21 | |
| 90 | - | - | 30.028.0090.33 | | 30.028.0090.21 | |
| 110 | - | - | 30.028.0110.33 | on application | 30.028.0110.21 | on application |
| 125 | - | - | 30.028.0125.33 | | 30.028.0125.21 | |
| 140 | - | - | 30.028.0140.33 | | 30.028.0140.21 | |
| 160 | - | - | 30.028.0160.33 | | 30.028.0160.21 | |

PN10 (SDR 33)

PN16 (SDR 21)

Requires a correctly sized retaining clip. See below.

## Retaining Clip

For restrained fitting

| Size | Code | Price |
|---|---|---|
| 63* | 14.049.0063.00 | |
| 90* | 14.049.0090.00 | |
| 110* | 14.049.0110.00 | on application |
| 125* | 14.049.0125.00 | |
| 140* | 14.049.0140.00 | |
| 160* | 14.049.0160.00 | |

*Complete with stainless steel clamp

## Male Adaptor

BSP or NPT male thread

| Size | Code | Price | Code | Price | Code | Price |
|---|---|---|---|---|---|---|
| 20 x 1/2 | - | - | 30.033.2020.21 | | 30.033.2021.21 | |
| 25 x 3/4 | - | - | 30.033.2525.21 | | 30.033.2526.21 | |
| 32 x 1 | - | - | 30.033.3232.21 | on application | 30.033.3233.21 | on application |
| 40 x 1.1/4 | - | - | 30.033.4040.21 | | 30.033.4041.21 | |
| 50 x 1.1/2 | - | - | 30.033.5050.21 | | 30.033.5051.21 | |
| 63 x 2 | - | - | 30.033.6363.21 | | 30.033.6364.21 | |

PN10 - BSP

PN10 - NPT

## Female Adaptor

BSP or NPT female thread

| Size | Code | Price | Code | Price | Code | Price |
|---|---|---|---|---|---|---|
| 20 x 1/2 | - | - | 30.032.2020.21 | | 30.032.2021.21 | |
| 25 x 3/4 | - | - | 30.032.2525.21 | | 30.032.2526.21 | |
| 32 x 1 | - | - | 30.032.3232.21 | on application | 30.032.3233.21 | on application |
| 40 x 1.1/4 | - | - | 30.032.4040.21 | | 30.032.4041.21 | |
| 50 x 1.1/2 | - | - | 30.032.5050.21 | | 30.032.5051.21 | |
| 63 x 2 | - | - | 30.032.6363.21 | | 30.032.6364.21 | |

PN10 - BSP

PN10 - NPT

# fusion spigot flanges

## Stub Flange

Also available to ANSI and JIS Standards. Please enquire for details.

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price | PN16 (SDR 21) Code | PN16 (SDR 21) Price |
|---|---|---|---|---|---|---|
| 20 | - | - | - | - | 30.012.0020.21 | |
| 25 | - | - | - | - | 30.012.0025.21 | |
| 32 | - | - | - | - | 30.012.0032.21 | |
| 40 | - | - | - | - | 30.012.0040.21 | |
| 50 | - | - | - | - | 30.012.0050.21 | |
| 63 | - | - | - | - | 30.012.0063.21 | |
| 75 | - | - | - | - | 30.012.0075.21 | |
| 90 | - | - | 30.012.0090.33 | | 30.012.0090.21 | |
| 110 | - | - | 30.012.0110.33 | | 30.012.0110.21 | on application |
| 125 | - | - | 30.012.0125.33 | | 30.012.0125.21 | |
| 140 | - | - | 30.012.0140.33 | | 30.012.0140.21 | |
| 160 | - | - | 30.012.0160.33 | on application | 30.012.0160.21 | |
| 180 | - | - | 30.012.0180.33 | | 30.012.0180.21 | |
| 200 | - | - | 30.012.0200.33 | | 30.012.0200.21 | |
| 225 | - | - | 30.012.0225.33 | | 30.012.0225.21 | |
| 250 | - | - | 30.012.0250.33 | | 30.012.0250.21 | |
| 280 | - | - | 30.012.0280.33 | | 30.012.0280.21 | |
| 315 | - | - | 30.012.0315.33 | | - | - |

## Blind Flange

Machined-Non Pressure

Also available to ANSI and JIS Standards. Please enquire for details.

| Size | Code | Price | PN10 (SDR 33) Code | PN10 (SDR 33) Price |
|---|---|---|---|---|
| 20 | - | - | 30.334.0020.00 | |
| 25 | - | - | 30.334.0025.00 | |
| 32 | - | - | 30.334.0032.00 | |
| 40 | - | - | 30.334.0040.00 | |
| 50 | - | - | 30.334.0050.00 | |
| 63 | - | - | 30.334.0063.00 | |
| 75 | - | - | 30.334.0075.00 | |
| 90 | - | - | 30.334.0090.00 | |
| 110 | - | - | 30.334.0110.00 | |
| 125 | - | - | 30.334.0125.00 | |
| 140 | - | - | 30.334.0140.00 | |
| 160 | - | - | 30.334.0160.00 | |
| 180 | - | - | 30.334.0180.00 | |
| 200 | - | - | 30.334.0200.00 | |
| 225 | - | - | 30.334.0225.00 | |

NEW

## Flange Guards

TECHNOSHIELD

FG-PTFE

PTFE

PVC

PE

PP

Technoshield® is the most advanced preventative control system able to minimize the risk involved with spray out of chemicals from flange joints. Technoshield® fabric products use multiple layers of high performance fabrics wrapped around flanges. Fix firmly in place by high endurance tightening cords.

The Technoshield® fabric is scientifically researched and technically tested to be thin, resistant, and outstandingly safe. It resists up to 250°C and has the widest range of resistance to chemicals.

Technoshield® is composed of high endurance fabrics that provide a unique strength against mechanical stresses. These systems are designed to be suitable both for internal and external environments.

Available materials are: FG-PTFE, Pure PTFE, PVC, Polyethylene, and Polypropylene.

For more information on the range available, please contact our sales office.

## Stub Gasket

### EPDM

| Size | Code | Price |
|---|---|---|
| 1/2"/20 | 861-E-005 | |
| 3/4"/25 | 861-E-007 | |
| 1"/32 | 861-E-010 | |
| 1.1/4"/40 | 861-E-012 | |
| 1.1/2"/50 | 861-E-015 | |
| 2"/63 | 861-E-020 | |
| 2.1/2"/75 | 861-E-075 | |
| 3"/90 | 861-E-031 | on application |
| 4"/110 | 861-E-041 | |
| 4"/110 | 861-E-040 | |
| 140 | 861-E-051 | |
| 6"/160 | 861-E-061 | |
| 6"/160 | 861-E-180 | |
| 8"/200 | 861-E-080 | |
| 225 | 861-E-082 | |
| 250 | 861-E-100 | |
| 10"/280 | 861-E-101 | |
| 12"/315 | 861-E-121 | |

### FPM

| Code | Price |
|---|---|
| 862-E-005 | |
| 862-E-007 | |
| 862-E-010 | |
| 862-E-012 | |
| 862-E-015 | |
| 862-E-020 | |
| 862-E-075 | |
| 862-E-031 | on application |
| 862-E-041 | |
| 862-E-040 | |
| 862-E-051 | |
| 862-E-061 | |
| 862-E-180 | |
| 862-E-080 | |
| 862-E-082 | |
| 862-E-100 | |
| 862-E-101 | |
| 862-E-121 | |

Please note the above codes are for Table D/E.
Replace 'E' for 'ISO' for NP10/16 or 'A' for ANSI 150

## Backing Ring

Polypropylene with steel core

### PN10

| Size | Code | Price |
|---|---|---|
| 20 | 14.014.0020.11* | |
| 25 | 14.014.0025.11* | |
| 32 | 14.014.0032.11* | |
| 40 | 14.014.0040.11* | |
| 50 | 14.014.0050.11* | |
| 63 | 14.014.0063.11* | |
| 75 | 14.014.0075.11* | |
| 90 | 14.014.0090.11* | |
| 110 | 14.014.0110.11* | on application |
| 125 | 14.014.0125.11* | |
| 140 | 14.014.0140.11* | |
| 160 | 14.014.0160.11* | |
| 180 | 14.014.0180.11* | |
| 200 | 14.014.0200.11* | |
| 225 | 14.014.0225.11* | |
| 250 | 14.014.0250.11* | |
| 280 | 14.014.0280.11* | |
| 315 | 14.014.0315.11* | |

*Black

### PN10

| Code | Price |
|---|---|
| 11.014.0020.11 | |
| 11.014.0025.11 | |
| 11.014.0032.11 | |
| 11.014.0040.11 | |
| 11.014.0050.11 | |
| 11.014.0063.11 | |
| 11.014.0075.11 | |
| 11.014.0090.11 | |
| 11.014.0110.11 | on application |
| 11.014.0125.11 | |
| 11.014.0140.11 | |
| 11.014.0160.11 | |
| 11.014.0180.11 | |
| 11.014.0200.11 | |
| 11.014.0225.11 | |
| 11.014.0250.11 | |
| 11.014.0280.11 | |
| 11.014.0315.11 | |

### ANSI 150

| Code | Price |
|---|---|
| 11.013.0020.11 | |
| 11.013.0025.11 | |
| 11.013.0032.11 | |
| 11.013.0040.11 | |
| 11.013.0050.11 | |
| 11.013.0063.11 | |
| 11.013.0075.11 | |
| 11.013.0090.11 | |
| 11.013.0110.11 | on application |
| - | |
| - | |
| 11.013.0160.11 | |
| - | |
| 11.013.0200.11 | |
| - | |
| 14.013.0250.11 | |
| - | |
| 14.013.0315.11 | |

## Backing Ring

Galvanised Mild Steel

### PN10

| Size | Code | Price |
|---|---|---|
| 1/2"/20 | 860-005-12NP | |
| 3/4"/25 | 860-007-12NP | |
| 1"/32 | 860-010-12NP | |
| 1.1/4"/40 | 860-012-12NP | |
| 1.1/2"/50 | 860-015-12NP | |
| 2"/63 | 860-020-11NP | |
| 2.1/2"/75 | 860-025-11NP | |
| 3"/90 | 860-030-11NP | |
| 4"/110 | 860-040-11NP | |
| 125 | 860-125-11NP | on application |
| 5"/140 | 860-050-12NP | |
| 6"/160 | 860-060-14NP | |
| 180 | 860-180-11NP | |
| 8"/200 | 860-080-11N | |
| 225 | 860-225-12N | |
| 250 | 860-100-13N | |
| 10"/280 | 860-280-11N | |
| 12"/315 | 860-120-15N | |
| 14"/355 | 860-140-12N | |
| 16"/400 | 860-160-12N | |

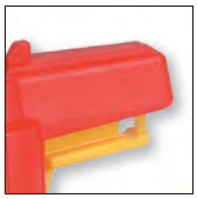
### ANSI 150

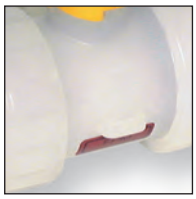
| Code | Price |
|---|---|
| 860-005-12A | |
| 860-007-12A | |
| 860-010-12A | |
| 860-012-12A | |
| 860-015-12A | |
| 860-020-11A | |
| 860-025-11A | |
| 860-030-11A | |
| 860-040-11A | |
| 860-125-11A | on application |
| 860-050-12A | |
| 860-060-14A | |
| 860-180-11A | |
| 860-080-14A | |
| 860-225-12A | |
| 860-100-13A | |
| 860-280-11A | |
| 860-120-15A | |
| 860-140-12A | |
| 860-160-12A | |

# Praher S4 Ball Valve

## Praher Type S4 Ball Valve

**Description:** In-line double union ball valve with lockable handle
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** Sizes 16mm to 75mm - 16bar; Sizes 90mm - 10 bar; 110mm - 6 bar
**Fluid Temperature Range:** 0˚C - 140˚C
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Seats:** PTFE
**End Connections:** Fusion sockets, fusion spigots, BSP Female Threaded, Flanged BS4504 EN1072 PN10
**Option:** Silicon-free


Lockable Handle


Tagging Point


Valve Bracket


Actuation

### Materials
Body - PVDF
Ball Seat - PTFE
Seals - FPM

### Sizes
3/8 - 4″/16mm - 110mm

### Pressure Rating
3/8″16mm to 2.1/2″75mm - 16 bar
3″/90mm - 10 bar
4″/110mm - 6 bar

### Connections
MM fusion sockets
MM fusion spigots
BSP female thread
Flanged PN10

### Features

- Lockable Handle (Lock not supplied)
- True Union design for easy maintenance
- Full bore design
- Tagging point included
- Matched Valve bracket for panel mounting and retrofit actuation.
- Pneumatically and Electrically actuated versions available
- Silicone free on request

**MM Fusion Sockets**

FPM Seals
PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.1449 | |
| 20 | 12.1450 | |
| 25 | 12.1448 | |
| 32 | 12.1451 | |
| 40 | 12.1452 | on application |
| 50 | 12.1453 | |
| 63 | 12.1454 | |
| 75 | 12.1455 | |
| 90 | 12.1456 | |
| 110 | 12.2032 | |

**MM Fusion Spigots**

FPM Seals
PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.2259 | |
| 20 | 12.1491 | |
| 25 | 12.1492 | |
| 32 | 12.1493 | |
| 40 | 12.1494 | on application |
| 50 | 12.1495 | |
| 63 | 12.1496 | |
| 75 | 12.1497 | |
| 90 | 12.1498 | |
| 110 | 12.2012 | |

**BSP Female Threaded**

FPM Seals
PTFE Seats

| Size | Code | Price |
|---|---|---|
| 3/8 | 12.2093 | |
| 1/2 | 12.1482 | |
| 3/4 | 12.1483 | |
| 1 | 12.1484 | on application |
| 1.1/4 | 12.1485 | |
| 1.1/2 | 12.1486 | |
| 2 | 12.1487 | |
| 2.1/2 | 12.1488 | |
| 3 | 12.2349 | |

**Flanged BS4504 PN10/16**

FPM Seals
PTFE Seats

| Size | Code | Price |
|---|---|---|
| 1/2 | 12.2025 | |
| 3/4 | 12.2026 | |
| 1 | 12.2027 | |
| 1.1/4 | 12.2502 | on application |
| 1.1/2 | 12.2503 | |
| 2 | 12.2504 | |
| 2.1/2 | 12.2505 | |
| 3 | 12.2506 | |

## Praher Valve Bracket for Type S4 Ball Valves

☑ **For actuator or control panel mounting**
☑ **Can be used to provide fixed point mounting to support**

| Size | Code | Price |
|---|---|---|
| 16/20 | 17.0279 | |
| 25 | 17.0280 | |
| 32 | 17.0281 | |
| 40 | 17.0228 | on application |
| 50 | 17.0230 | |
| 63 | 17.0232 | |
| 75 | 17.0275 | |
| 90/110 | 17.0282 | |


Valve shown with bracket

# Praher M1 Modular Ball Valve

NEW!


Lockable Handle


Limit Switch Box


Intergrated Bracket


Simple Actuation

## Features

- Lockable Handle (Lock not supplied)
- True Union design for easy maintenance
- Buttress thread on union
- Full bore design
- Integrated fixing points
- Limit switch box for position feedback available
- Modular adaptor set available for actuators or limit switches

## Materials

Body - PVDF
Ball Seat - PTFE
Seals - EPDM or FPM

## Sizes

16mm - 63mm

## Pressure Rating

16 bar

## Connections

Fusion Sockets
Fusion Spigots

## M1 Ball Valve Manual

**MM Fusion Sockets**

FPM Seals - PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.4091 | |
| 20 | 12.4092 | |
| 25 | 12.4093 | on application |
| 32 | 12.4094 | |
| 40 | 12.4095 | |
| 50 | 12.4096 | |
| 63 | 12.4097 | |

## M1 Ball Valve Manual

**MM Fusion Spigots**

FPM Seals - PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.4105 | |
| 20 | 12.4106 | |
| 25 | 12.4107 | on application |
| 32 | 12.4108 | |
| 40 | 12.4109 | |
| 50 | 12.4110 | |
| 63 | 12.4111 | |

## Praher Type S4 T & L-Port Ball Valve

**Description:** In-line horizontal T-port or L-port ball valve with lockable handle and union ends
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 16 bar
**Fluid Temperature Range:** 0˚C - 140˚C
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Seats:** PTFE
**End Connections:** Fusion sockets or fusion spigots

## T-Port Ball Valve

FPM Seals
PTFE Seats

**MM Fusion Sockets**

| Size | Code | Price |
|---|---|---|
| 16 | 124918 | |
| 20 | 124922 | |
| 25 | 125030 | on application |
| 32 | 124926 | |
| 40 | 125032 | |
| 50 | 124930 | |
| 63 | 124934 | |

FPM Seals
PTFE Seats

**MM Fusion Spigots**

| Size | Code | Price |
|---|---|---|
| 16 | 124920 | |
| 20 | 124924 | |
| 25 | 125034 | on application |
| 32 | 124928 | |
| 40 | 125036 | |
| 50 | 124932 | |
| 63 | 124936 | |

## L-Port Ball Valve

FPM Seals
PTFE Seats

**MM Fusion Sockets**

| Size | Code | Price |
|---|---|---|
| 16 | 124919 | |
| 20 | 124923 | |
| 25 | 125031 | on application |
| 32 | 124927 | |
| 40 | 125033 | |
| 50 | 124931 | |
| 63 | 124935 | |

FPM Seals
PTFE Seats

**MM Fusion Spigots**

| Size | Code | Price |
|---|---|---|
| 16 | 124921 | |
| 20 | 124925 | |
| 25 | 125035 | on application |
| 32 | 124929 | |
| 40 | 125037 | |
| 50 | 124933 | |
| 63 | 124937 | |

## Praher Type S4 Ball Valve with Actuator Adaptor Kit

**FPM Seals**

| Size | Code | Price |
|---|---|---|
| 16 | 122.433 | |
| 20 | 122.434 | |
| 25 | 122.435 | |
| 32 | 122.436 | |
| 40 | 122.437 | on application |
| 50 | 122.438 | |
| 63 | 122.439 | |
| 75 | 122.440 | |
| 90 | 122.441 | |
| 110 | 122.442 | |

Prices on request for alternative end connections

## Praher Laboratory/Sampling Ball Valve

**Description:** In-line ball valve for laboratory or sampling use
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Fluid Temperature Range:** 0˚C - 120˚C
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Seats:** PTFE
**End Connections:** 1/4" R or NPT Threaded; Hose Connection included

**Valve with R/NPT Adaptor and Plug**

| | Size | Code | Price |
|---|---|---|---|
| R Male x Female | 1/4 | 12.2459 | on application |
| NPT Male x Female | 1/4 | 12.2460 | |

**Hose Nozzle**

| | Size | Code | Price |
|---|---|---|---|
| BSP Male | 1/4 | 141.145 | on application |
| NPT Male | 1/4 | 140.205 | |

## ASV Stubbe Gauge Guard

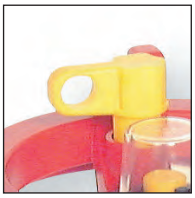
**Description:** Pressure gauge connector with isolating diaphragm
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Fluid Temperature Range:** 0˚C-120˚C
**Construction:**
**Body:** PVDF
**Diaphragm:** PTFE (EPDM backed)
**End Connections:** Fusion Spigots, NPT Female Threaded

Please note: gauge not included.

| Size | Code | Price |
|---|---|---|
| 25x1/4x1/4" | 212978 | on application |
| 32x1/2x1/2" | 212991 | |

| Size | Code | Price |
|---|---|---|
| 1/4x1/4" | 212998 | on application |
| 1/2x1/2" | 213002 | |

# Praher T4 Diaphragm Valve



Lockable Handle

Visual Position Indicator

Optional Valve Support Plates

## General

Sealing material: EPDM / EPDM-PTFE / FPM
Body material: PVDF
Dimensions: DN 15/d 20 - DN125/d140

## Operating Pressure

DN 15 / 1/2″ - DN 125 / 5″ 10 bar

## Connections

PVDF union sockets 20mm-63mm
PVDF fusion spigots 20mm-110mm
Flanged PN10 20mm-140mm

## Technical Specification

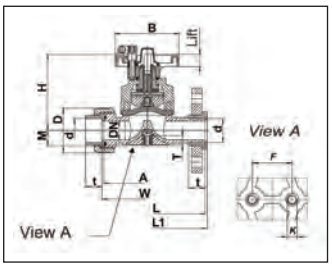
For example:
TYPE PRAHER, DIN 2403
PVDF Diaphragm valve T4 DN 15 d20
PVDF mm fusion spigot
Sealing material EPDM-PTFE
Safety gear wheel
Max. Operating pressure 10 bar

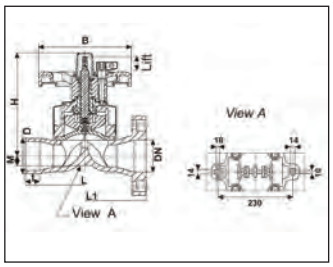
## Features

- Safety gear wheel
- Corrosion Resistant
- Maintenance free operation over a long working life
- Suitable for aggressive and dirty media
- Radial installation or removal
- Easy replacement of the diaphragms

## Valve Dimensions

DN 15 - DN 50




DN 65 - DN 80

| d | 20 | 25 | 32 | 40 | 50 | 63 | 75 | 90 | 110 | 140 |
|---|---|---|---|---|---|---|---|---|---|---|
| DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 |
| G | 1/2″ | 3/4″ | 1″ | 1 1/4″ | 1 1/2″ | 2″ | 2 1/2″ | 3″ | 4″ | 5″ |
| M | 16.5 | 16.5 | 20.1 | 31.5 | 31.5 | 38.6 | 25.0 | 25.0 | 25.0 | 25.0 |
| H | 100.0 | 100.0 | 107.0 | 144.0 | 144.0 | 170.0 | 260.0 | 260.0 | 330.0 | 330.0 |
| B | 86.0 | 86.0 | 86.0 | 136.0 | 136.0 | 136.0 | 234.0 | 234.0 | 234.0 | 234.0 |
| F | 24.5 | 24.5 | 24.5 | 43.5 | 43.5 | 43.5 | - | - | - | - |
| Lift | 9.0 | 9.0 | 11.0 | 22.0 | 22.0 | 28.0 | 35.0 | 35.0 | 45.0 | 45.0 |
| K | M6 | M6 | M6 | M8 | M8 | M8 | - | - | - | - |
| L | 124.0 | 144.0 | 154.0 | 174.0 | 194.0 | 224.0 | 284.0 | 300.0 | 340.0 | - |
| L1 | 130.0 | 150.0 | 160.0 | 180.0 | 200.0 | 230.0 | - | 310.0 | 350.0 | 400.0 |
| T | 12.0 | 12.0 | 12.0 | 15.0 | 15.0 | 15.0 | - | - | - | - |
| t | 28.5 | 36.0 | 36.0 | 38.5 | 46.0 | 46.0 | 37.0 | 37.0 | 50.0 | - |
| PN | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

Dimensions in mm

## Praher Type T4 Diaphragm Valve

**Description:** In-line diaphragm valve with position indicator
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Fluid Temperature Range:** 0˚C - 120˚C
**Construction:**
**Body:** PVDF
**Diaphragm:** PTFE (EPDM backed), FPM or EPDM
**End Connections:** Union Sockets, Fusion Spigots, Flanged (on request)
**Option:** Silicon-free

### MM Fusion Spigots

PTFE Diaphragm

| Size | Code | Price |
|---|---|---|
| 20 | 12.2798 | |
| 25 | 12.2799 | |
| 32 | 12.2800 | |
| 40 | 12.2801 | |
| 50 | 12.2802 | on application |
| 63 | 12.2803 | |
| 75 | 12.0184 | |
| 90 | 12.0185 | |
| 110 | 12.0917 | |

### Flanged BS4504 PN10

PTFE Diaphragm

| Size | Code | Price |
|---|---|---|
| 1/2"/20 | 12.0261 | |
| 3/4"/25 | 12.0265 | |
| 1"/32 | 12.0270 | |
| 1.1/4"/40 | 12.0271 | |
| 1.1/2"/50 | 12.0272 | on application |
| 2"/63 | 12.0273 | |
| 2.1/2"/75 | 12.0274 | |
| 3"/90 | 12.0275 | |
| 4"/110 | 12.0921 | |
| 5"/140 | 12.0922 | |

### MM Union Sockets

PTFE Diaphragm

| Size | Code | Price |
|---|---|---|
| 20 | 12.5074 | |
| 25 | 12.5075 | |
| 32 | 12.5076 | on application |
| 40 | 12.5077 | |
| 50 | 12.5078 | |
| 63 | 12.5079 | |

Spare PTFE Diaphragm

| Size | Code | Price |
|---|---|---|
| 20/25 | 05.0473 | |
| 32 | 05.0474 | |
| 40/50 | 05.0475 | on application |
| 63 | 05.0476 | |
| 75/90 | 12.0918 | |
| 110/140 | 12.0919 | |

Also available with EPDM or FPM diaphragms.
Please enquire for details.

## Diaphragm Valve Mounting Plate

- ☑ **Ensures clearance of union nut from mounting surface**
- ☑ **Complete with two fixing screws**

| Valve Size | Thickness (mm) | Code | Price |
|---|---|---|---|
| 20 | 16.0 | 14.0103 | |
| 25/32 | 23.0 | 14.0102 | on application |
| 40 | 18.5 | 14.0123 | |
| 50/63 | 23.5 | 14.0109 | |

# Praher K4 Butterfly Valve

Locking Handle

Universal Drilling

PP-GF Body
PVDF disc

Support Lugs in Base

## Materials

Body - PP-GF
Disc - PVDF
Seals - FPM

## Sizes

2½"/75mm - 8"/225mm

## Pressure Rating

PN10

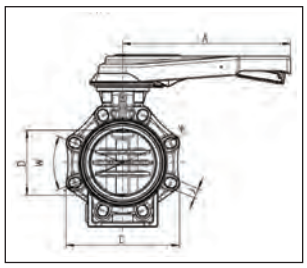
## Connections

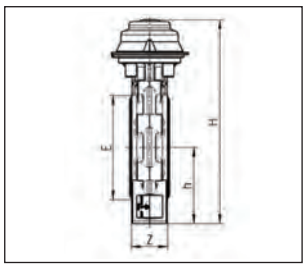
Between flanges, universaly drilled

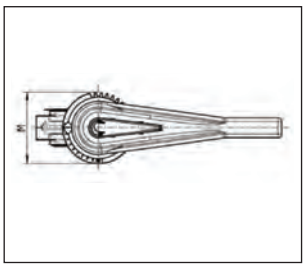
## Features

- Only Body Seal and Disc in contact with media
- Double sealed shaft
- Valve support lugs in base
- Direct actuator mounting
- Low torque operation
- Multi-position Lockable Handle
- Manual or Gear operation
- All sizes PN10 rated
- Universal drilling - can be used withDIN, ANSI, BS and JIS flanges

## Valve Dimensions







| Size | 2½"/75 | 3"/90 | 4"/110 | 6"/160 | 8"/225 |
|---|---|---|---|---|---|
| A | 230 | 230 | 300 | 386 | 386 |
| D | 65 | 80 | 100 | 150 | 200 |
| C | 133 | 176 | 206 | 261 | 314 |
| W | 90° | 45° | 45° | 45° | 45° |
| J | 19 | 19 | 19 | 23 | 23 |
| K | 127-145 | 146-160 | 175-190.5 | 234.5-241.3 | 290-298.5 |
| H | 285 | 292 | 322 | 396 | 458 |
| h | 100 | 100 | 115 | 147.5 | 175 |
| E | 98 | 116 | 146 | 196 | 251 |
| M | 114 | 114 | 114 | 150 | 150 |
| Z | 46 | 49 | 56 | 70 | 71 |
| PN | 10 bar | 10 bar | 10 bar | 10 bar | 10 bar |

Dimensions in mm

## Praher Type K4 Butterfly Valve

**Description:** Lug style butterfly valve with universal drilling for mounting between flanges. (DIN, ANSI & BS)
**Construction:**
**Body:** PP-GF
**Disc:** PVDF
**Seals:** FPM
**Pressure rating:** PN10
**Size:** 2 1/2"/75mm - 8"/225mm

### Lever Operated

FPM Seals

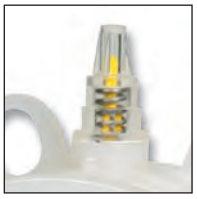
| Size | Code | Price |
|---|---|---|
| 2.1/2"/75 | 12.5880 | |
| 3"/90 | 12.5881 | |
| 4"/110 | 12.5882 | on application |
| 5"/140 | 12.8460 | |
| 6"/160 | 12.5883 | |
| 8"/225 | 12.5884 | |

### Gear Operated

FPM Seals

| Size | Code | Price |
|---|---|---|
| 2.1/2"/75 | 12.6030 | |
| 3"/90 | 12.6031 | |
| 4"/110 | 12.6032 | on application |
| 5"/140 | 12.8765 | |
| 6"/160 | 12.6033 | |
| 8"/225 | 12.6034 | |

# Praher K4 Check Valve



Visual Position Indicator

Universal Drilling

85° Max Opening



## Features

- Excellent Flow Rates
- Wide opening (85%)
- Low pressure drop
- Visual open-closed indicator
- Spring return
- All sizes PN10 rated
- Universal drilling - can be used withDIN, ANSI, BS and JIS flanges

## Materials

Body - PVDF
Disc - PVDF
Seals - FPM

## Sizes

2 1/2"/75mm - 10"/250mm

## Pressure Rating

PN10

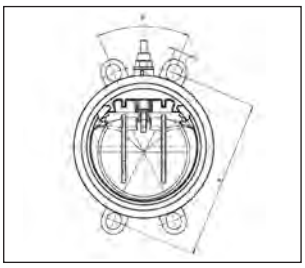
## Connections

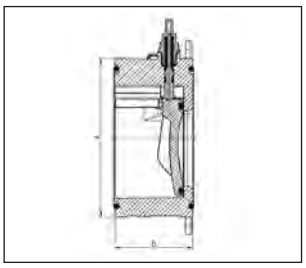
Between flanges, universaly drilled

Tightening torque for flange connections

| DN | 65 | 80 | 100 | 150 | 200 | 250 | 300 |
|---|---|---|---|---|---|---|---|
| Nm | 15 | 18 | 20 | 40 | 55 | 60 | 65 |

## Valve Dimensions





| DN | A | B | C | K | W |
|---|---|---|---|---|---|
| 65 | 115 | 63 | 20 | 139-145 | 90° |
| 80 | 128 | 71 | 20 | 150-160 | 45° |
| 100 | 155 | 80 | 20 | 175-191 | 45° |
| 150 | 212 | 106 | 24 | 234-242 | 45° |
| 200 | 264 | 140 | 24 | 290-299 | 45° |
| 250 | 325 | 140 | 27 | 350-362 | 30° |

Dimensions in mm

## Praher Type K4 Check Valve

**Description:** Lug style check valve with universal drilling for mounting between flanges. (DIN, ANSI & BS)
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Pressure rating:** PN10
**Size:** 2 1/2″/75mm - 10″/250mm

FPM Seals

| Size | Code | Price |
|---|---|---|
| 2.1/2"/75 | 12.5853 | |
| 3"/90 | 12.5854A | |
| 4"/110 | 12.5855A | on application |
| 6"/160 | 12.5856 | |
| 8"/225 | 12.5857 | |
| 10"/250 | 12.5858 | |

| Kv Value Table | | |
|---|---|---|
| Pressure Lost | 1 bar | 0.001 bar |
| DN 80 | 2958 l/min | 94 l/min |
| DN 100 | 5633 l/min | 178 l/min |
| DN 150 | 12466 l/min | 394 l/min |
| DN 200 | 21166 l/min | 699 l/min |

Pressure loss based on maximum opening of 85%

## Praher Type S4 Check (Non-Return) Valve

**Description:** In-line spring weighted cone check valve
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** Sizes 16mm to 75mm - 16 bar; Sizes 90mm to 110mm - 10 bar
**Fluid Temperature Range:** 0˚C - 120˚C
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Spring:** Stainless steel sleeved in PTFE
**End Connections:** Fusion sockets, fusion spigots or BSP Female Threaded



### MM Fusion Sockets

FPM Seals

| Size | Code | Price |
|---|---|---|
| 16 | 12.1658 | |
| 20 | 12.1659 | |
| 25 | 12.1660 | |
| 32 | 12.1661 | |
| 40 | 12.1662 | on application |
| 50 | 12.1663 | |
| 63 | 12.1664 | |
| 75 | 12.1665 | |
| 90 | 12.1666 | |
| 110 | 12.2350 | |

### MM Fusion Spigots

FPM Seals

| Size | Code | Price |
|---|---|---|
| 16 | 12.1676 | |
| 20 | 12.1677 | |
| 25 | 12.1678 | |
| 32 | 12.1679 | |
| 40 | 12.1680 | on application |
| 50 | 12.1681 | |
| 63 | 12.1682 | |
| 75 | 12.1683 | |
| 90 | 12.1684 | |
| 110 | 12.2351 | |

### BSP Female Threaded

FPM Seals

| Size | Code | Price |
|---|---|---|
| 3/8 | 12.1667 | |
| 1/2 | 12.1668 | |
| 3/4 | 12.1669 | |
| 1 | 12.1670 | on application |
| 1.1/4 | 12.1671 | |
| 1.1/2 | 12.1672 | |
| 2 | 12.1673 | |
| 2.1/2 | 12.1674 | |
| 3 | 12.1675 | |



## Praher Type S4 Wafer Check Valve

**Description:** Wafer style flap check valve
**Mounting:** In any position, between flanges to BS4504 EN1072 PN10.
Optional spring return for mounting in horizontal position or for pulsating flow.
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Fluid Temperature Range:** 0˚C - 120˚C
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Spring (optional):** Stainless Steel or hastelloy
**End Connections:** Flange mounted (flanges not included)

### No Spring Return

FPM Seals

| Size | Code | Price |
|---|---|---|
| 1.1/4"/40 | 07.0194 | |
| 1.1/2"/50 | 07.0204 | |
| 2"/63 | 07.0044 | |
| 2.1/2"/75 | 07.0054 | |
| 3"/90 | 07.0064 | on application |
| 4"/110 | 07.0074 | |
| 5"/140 | 07.0084 | |
| 6"/160 | 07.0094 | |
| 8"/225 | 07.0104 | |
| 10"/280 | 07.0114 | |

### Stainless Steel Spring Return

FPM Seals

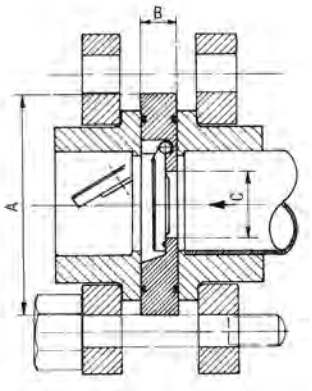
| Size | Code | Price |
|---|---|---|
| 1.1/4"/40 | 07.0195 | |
| 1.1/2"/50 | 07.0202 | |
| 2"/63 | 07.0045 | |
| 2.1/2"/75 | 07.0055 | |
| 3"/90 | 07.0065 | on application |
| 4"/110 | 07.0075 | |
| 5"/140 | 07.0085 | |
| 6"/160 | 07.0095 | |
| 8"/225 | 07.0105 | |
| 10"/280 | 07.0115 | |

### Hastelloy Spring Return

FPM Seals

| Size | Code | Price |
|---|---|---|
| 1.1/4"/40 | | |
| 1.1/2"/50 | | |
| 2"/63 | | |
| 2.1/2"/75 | | |
| 3"/90 | on application | |
| 4"/110 | | |
| 5"/140 | | |
| 6"/160 | | |
| 8"/225 | | |
| 10"/280 | | |

### DIMENSIONS (mm)




| D | DN | A | B | C |
|---|---|---|---|---|
| 63 | 50 | 109 | 18 | 32 |
| 75 | 65 | 129 | 20 | 40 |
| 90 | 80 | 144 | 20 | 52 |
| 110 | 100 | 164 | 23 | 70 |
| 140 | 125 | 195 | 23 | 92 |
| 160 | 150 | 220 | 26 | 112 |
| 225 | 200 | 275 | 35 | 150 |
| 280 | 250 | 330 | 40 | 190 |

# Actuated Valves

Note: Valve for illustration purposes only



## Valve Actuation

Almost all the valves we supply can be automated.

From simple air actuation, to complex configurations, we can build a unit to your exact specifications.

Our in house experts can advise you on the options available and suggest the most suitable unit for your application. The valves are normally assembled by our dedicated valve actuation team, who can provide comprehensive after sales service.

Standard valves are shown on the following pages, but please contact Tony Welsh for any special requirements you may have.

## Praher Type S4 Electrically Actuated Ball Valve

**Description:** In-line ball valve with electric operation
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** Sizes up to 63mm - 10 bar; 75mm - 6 bar; 90mm - 5 bar; 110mm - 4 bar
**Fluid Temperature Range:** 0˚C - 120˚C
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Seats:** PTFE
**End Connections:** Fusion sockets, fusion spigots, BSP Female Threaded or flanged BS4504 PN10
**Actuation:**
**Housing Material:** Plastic with epoxy coated aluminium base
**Voltages:** 240v AC; 110v AC; 24v AC; 110v DC; 24v DC; 12v DC
**Frequency Range:** 50/60 Hz
**Protection:** IP65
**Manual Override:** Optional **Position Indicator:** Included
**Contacts:** Open, closed. Additional contacts optional.

### MM Fusion Sockets

110v AC
FPM Seals
PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.1449E2AG | |
| 20 | 12.1450E2AG | |
| 25 | 12.1448E2AG | |
| 32 | 12.1451E2AG | |
| 40 | 12.1452E2AG | on application |
| 50 | 12.1453E2AG | |
| 63 | 12.1454E2AG | |
| 75 | 12.1455E2AG | |
| 90 | 12.1456E2AG | |
| 110 | 12.2032E2AG | |

### MM Fusion Spigots

110v AC
FPM Seals
PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.2259E2AG | |
| 20 | 12.1491E2AG | |
| 25 | 12.1492E2AG | |
| 32 | 12.1493E2AG | |
| 40 | 12.1494E2AG | on application |
| 50 | 12.1495E2AG | |
| 63 | 12.1496E2AG | |
| 75 | 12.1497E2AG | |
| 90 | 12.1498E2AG | |
| 110 | 12.2012E2AG | |

## Electric Actuated Valve Options

| **Switch Options** | Price |
|---|---|
| Open/Closed | included |
| Open/Closed plus 2 x extra volt free | on application |
| **Actuator Options** | |
| Reversible actuator with manual override | standard |
| Uni-directional actuator without manual override | on application |
| Customer specification actuator | on application |
| EEXD version actuator | on application |
| **Power Options** | |
| 110v AC | standard |
| 240v AC | free option |
| 24v DC | on application |
| 24v AC | on application |
| **Extra Options** | |
| Heater and thermostat | on application |
| 4 - 20Ma positioner | on application |
| Fail-Safe operation | on application |

## Pneumatic Actuated Valve Options

| **Body Material Options** | Price |
|---|---|
| Technopolymer | standard |
| Hard anodised aluminium | free option |
| Stainless steel | on application |
| Double pack epoxy coated | on application |
| **Switchbox Options (with beacon)** | |
| IP65 Technopolymer 2 x mechanical switches | on application |
| IP65 Technopolymer 2 x proximity switches EEXIA | on application |
| IP67 Polycarbonate 2 x V3 gold plated switches | on application |
| IP67 Polycarbonate 2 x V3 gold plated switches EEXIA | on application |
| IP67 Polycarbonate 2 x proximity switches EEXIA | on application |
| IP67 Aluminium 2 x V3 gold plated switches EEXD | on application |
| **Solenoid Valve Options** | |
| 240v AC Solenoid | on application |
| 110v AC Solenoid | on application |
| 24v DC Solenoid | on application |
| 24v AC Solenoid | on application |

## Praher Type S4 Pneumatically Actuated Ball Valve

**Description:** In-line ball valve with pneumatic operation
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** Sizes up to 75mm - 16 bar; Sizes 90mm to 110mm - 10 bar
**Fluid Temperature Range:** 0˚C - 120˚C
**Construction:**
**Body:** PVDF
**Seals:** FPM
**Seats:** PTFE
**End Connections:** Fusion sockets, fusion spigots or BSP Female Threaded, flanged BS4504 EN1072 PN10
**Actuation:**
**Housing Material:** Plastic (optional aluminium)
**Air Actuators:** Fail-safe close, fail-safe open, double acting
**Protection:** IP65
**Manual Override:** Optional **Position Indicator:** Included
**Contacts:** Optional limit switch box with two mechanical switches
**Pilot Valve:** Solenoid, not included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### MM Fusion Sockets

Fail-safe close, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.1449P1A | |
| 20 | 12.1450P1A | |
| 25 | 12.1448P1A | |
| 32 | 12.1451P1A | |
| 40 | 12.1452P1A | on application |
| 50 | 12.1453P1A | |
| 63 | 12.1454P1A | |
| 75 | 12.1455P1A | |
| 90 | 12.1456P1A | |
| 110 | 12.2033P1A | |

### MM Fusion Spigots

Fail-safe close, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.2259P1A | |
| 20 | 12.1491P1A | |
| 25 | 12.1492P1A | |
| 32 | 12.1493P1A | |
| 40 | 12.1494P1A | on application |
| 50 | 12.1495P1A | |
| 63 | 12.1496P1A | |
| 75 | 12.1497P1A | |
| 90 | 12.1498P1A | |
| 110 | 12.2012P1A | |

### BSP Female Threaded

Fail-safe close, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 3/8 | 12.2093P1A | |
| 1/2 | 12.1482P1A | |
| 3/4 | 12.1483P1A | |
| 1 | 12.1484P1A | on application |
| 1.1/4 | 12.1485P1A | |
| 1.1/2 | 12.1486P1A | |
| 2 | 12.1487P1A | |

### Flanged BS4504 PN10/16

Fail-safe close, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 1/2 | 12.2025P1A | |
| 3/4 | 12.2026P1A | |
| 1 | 12.2027P1A | |
| 1.1/4 | 12.2502P1A | on application |
| 1.1/2 | 12.2503P1A | |
| 2 | 12.2504P1A | |
| 2.1/2 | 12.2505P1A | |
| 3 | 12.2506P1A | |

### MM Fusion Sockets

Double Acting, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.1449P3A | |
| 20 | 12.1450P3A | |
| 25 | 12.1448P3A | |
| 32 | 12.1451P3A | |
| 40 | 12.1452P3A | |
| 50 | 12.1453P3A | on application |
| 63 | 12.1454P3A | |
| 75 | 12.1455P3A | |
| 90 | 12.1456P3A | |
| 110 | 12.2032P3A | |

### MM Fusion Spigots

Double Acting, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 16 | 12.2259P3A | |
| 20 | 12.1491P3A | |
| 25 | 12.1492P3A | |
| 32 | 12.1493P3A | |
| 40 | 12.1494P3A | |
| 50 | 12.1495P3A | on application |
| 63 | 12.1496P3A | |
| 75 | 12.1497P3A | |
| 90 | 12.1498P3A | |
| 110 | 12.2012P3A | |

### BSP Female Threaded

Double Acting, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 3/8 | 12.2093P3A | |
| 1/2 | 12.1482P3A | |
| 3/4 | 12.1483P3A | |
| 1 | 12.1484P3A | on application |
| 1.1/4 | 12.1485P3A | |
| 1.1/2 | 12.1486P3A | |
| 2 | 12.1487P3A | |

### Flanged BS4504 PN10/16

Double Acting, FPM Seals, PTFE Seats

| Size | Code | Price |
|---|---|---|
| 1/2 | 12.2025P3A | |
| 3/4 | 12.2026P3A | |
| 1 | 12.2027P3A | |
| 1.1/4 | 12.2502P3A | on application |
| 1.1/2 | 12.2503P3A | |
| 2 | 12.2504P3A | |
| 2.1/2 | 12.2505P3A | |
| 3 | 12.2506P3A | |

Requires pilot valve - enquire for details.
Also available with fail-safe open actuators. Please enquire for details.

## Praher Type T4 Pneumatically Actuated Diaphragm Valve

**Description:** In-line pneumatically operated diaphragm valve
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Fluid Temperature Range:** 0˚C-120˚C
**Construction:**
**Body:** PVDF
**Diaphragm:** PTFE (EPDM backed)
**End Connections:** Fusion spigots, flanged to BS4504 EN1072 PN10
**Actuation:**
**Housing Material:** Glass reinforced Polypropylene
**Air Actuators:** Fail-safe close, fail-safe open
**Protection:** IP65
**Manual Override:** Optional
**Position Indicator:** Included
**Contacts:** Optional
**Pilot Valve:** Solenoid, not included

### MM Fusion Spigots

Fail-safe close
PTFE Diaphragm

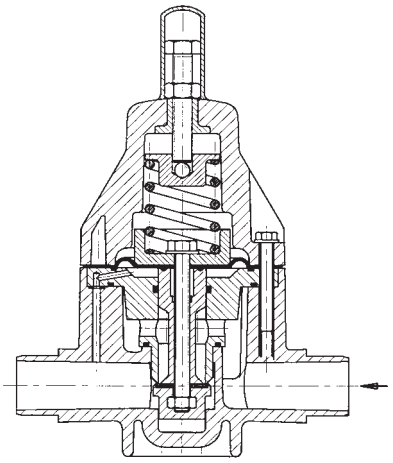
| Size | Code | Price |
|---|---|---|
| 20 | 12.5742 | |
| 25 | 12.5743 | |
| 32 | 12.5744 | on application |
| 40 | 12.5745 | |
| 50 | 12.5746 | |
| 63 | 12.5747 | |

### Flanged PN10/16

Fail-safe close
PTFE Diaphragm

| Size | Code | Price |
|---|---|---|
| 20 | 12.5756 | |
| 25 | 12.5757 | |
| 32 | 12.5758 | on application |
| 40 | 12.5759 | |
| 50 | 12.5760 | |
| 63 | 12.5761 | |

## The function of a pressure reducing valve



A pressure reducing valve is installed in-line. It is responsible for maintaining the downstream line pressure to the pressure set at the valve.

The valve works by responding to changes in the downstream pressure. For example, assume that there are normally two open valves downstream from the pressure regulator. When one is closed, the back pressure will increase. As this happens, the pressure reducing valve would close down to maintain the downstream pressure. When the valve is re-opened the pressure reducing valve would also open up again until the set pressure was reached.

Under operating conditions the pressure reducing valve is always open which means that it is balanced between the inlet pressure (primary side) and the lower outlet/working pressure. At any rise of working pressure at the valve outlet a pressure compensation via the control bore takes place at the area below the diaphragm. The higher working pressure activates the large diaphragm and lifts the piston against the spring force. The flow reduces and the working pressure drops until the balanced condition is reached again. When the working pressure drops this procedure is reversed. The spring force opens the valve seat against the lower pressure force below the diaphragm. The flow rises until the balanced condition is reached again.

Pre-setting or re-adjustment of the valve set pressure is made by removing the protective cap and by setting the control screw. The counter nut is tightened after final adjustment. When used with neutral fluids, many of the pressure relief valves can be fitted with a pressure gauge if required.



## ASV Stubbe DMV 750 Pressure Reducing Valve

**Description:** In-line adjustable valve used to reduce system pressures and to keep the working pressure constant
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Pressure Setting Range:** 1 to 6 bar
**Hysteresis:** Approx. 0.1 to 0.4 bar
**Fluid Temperature Range:** 0˚C-100˚C
**Construction:**
**Body:** PVDF
**Diaphragm:** EPDM with PTFE liner on fluid side
**Seats and Seals:** FPM
**End Connections:** Fusion spigots
**Features:** Adjustable at any time, even during use. Constant pressure control to ± 0.2 bar. Installation is independent of flow direction.

**MM Fusion Spigots**

FPM Seals

| Size | Code | Price |
|---|---|---|
| 75 | 148484 | on application |
| 90 | 148485 | |

## ASV Stubbe DMV 755 and DMV 765 Pressure Reducing Valve

**Description:** In-line adjustable valve used to reduce system pressures and to keep the working pressure constant.
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Pressure Setting Range:** Type 755: 1 to 9 bar  Type 765: 0.5 to 9 bar
**Hysteresis:** Approx. 0.1 to 0.4 bar
**Fluid Temperature Range:** 0˚C-100˚C
**Construction:**
**Body:** PVDF
**Diaphragm:** EPDM with PTFE liner on fluid side
**Seats and Seals:** FPM
**End Connections:** Union fusion sockets or fusion spigots
**Features:** Adjustable at any time, even during use. Constant pressure control to ± 0.2 bar. Vibration free during operation. Installation is independent of flow direction.
**Options:** Factory fitted pressure gauge available on request.

## DMV 755

Setting Range 1 to 9 bar

FPM Seals

### MM Fusion Spigots

| Size | Code | Price |
|---|---|---|
| 16 | 148763 | |
| 20 | 148764 | |
| 25 | 148765 | on application |
| 32 | 148766 | |
| 40 | 148767 | |
| 50 | 148768 | |
| 63 | 148769 | |

FPM Seals

### MM Union Fusion Sockets

| Size | Code | Price |
|---|---|---|
| 16 | 149106 | |
| 20 | 149107 | |
| 25 | 149108 | on application |
| 32 | 149109 | |
| 40 | 149110 | |
| 50 | 149111 | |
| 63 | 149112 | |

## DMV 765

Setting Range 0.5 to 9 bar

FPM Seals

### MM Fusion Spigots

| Size | Code | Price |
|---|---|---|
| 16 | 149213 | |
| 20 | 149214 | |
| 25 | 149215 | on application |
| 32 | 149216 | |
| 40 | 149217 | |
| 50 | 149218 | |
| 63 | 149219 | |

FPM Seals

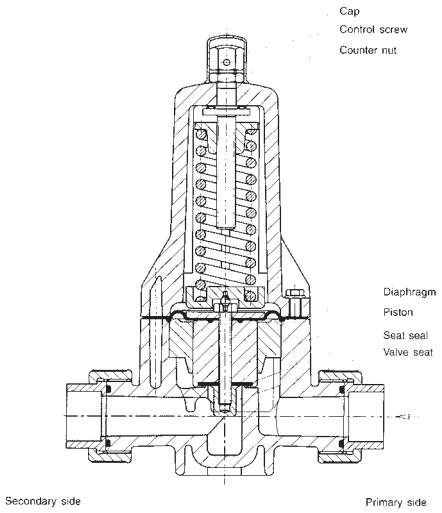
### MM Union Fusion Sockets

| Size | Code | Price |
|---|---|---|
| 16 | 149531 | |
| 20 | 149532 | |
| 25 | 149533 | on application |
| 32 | 149534 | |
| 40 | 149535 | |
| 50 | 149536 | |
| 63 | 149537 | |

## The function of a pressure relief valve

A pressure relief valve is most often used to protect a system from over-pressurisation, but it can also be used to maintain a constant upstream pressure or even as a non-return valve in certain installations.

Not normally installed as an in-line valve, it only opens when the system pressure exceeds the pressure set against the diaphragm of the valve. When this happens, the excess pressure forces the valve piston off its seat, compressing the spring and allowing fluid to flow through the valve body to discharge. Damping at the valve piston suppresses vibration and fluttering.




The pre-formed diaphragm allows full opening of the valve whilst separating the fluid in the lower body from the bonnet and therefore the atmosphere. The seal is additionally secured by crimped seal O-rings at the diaphragm.

When the system pressure falls back to below the set pressure, the spring forces the piston back into the seat, closing the valve.

Pre-setting or re-adjustment of the valve set pressure is made by removing the protective cap and by setting the control screw. The counter nut is tightened after final adjustment. When used with neutral fluids, many of the pressure reducing valves can be fitted with a pressure gauge if required.

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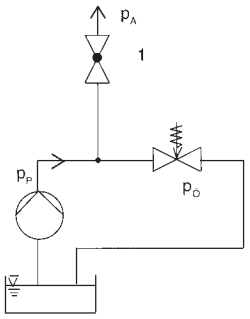
## Applications for Pressure Relief Valves

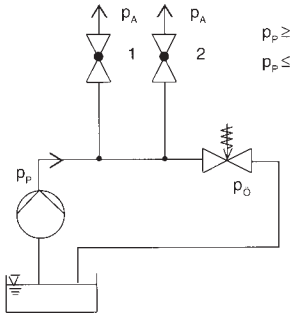
1. Constant system pressure




$p_P \geq p_A$

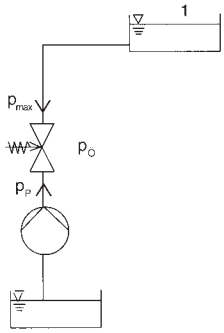
$p_P \geq p_Ö$ ⇒ Valve opens
$p_P \leq p_Ö$ ⇒ Valve closed

2. Consumer 1 and /or 2 opens, pressure relief valve closes




$p_P \geq p_Ö$ ⇒ Valve opens
$p_P \leq p_Ö$ ⇒ Valve closed

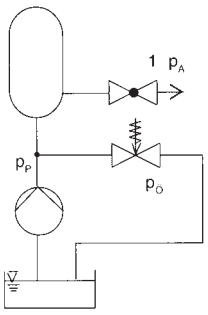
3. Pressure relief valve as backflow preventer




$p_Ö \geq p_{max}$

$p_P \geq p_Ö$ ⇒ Valve opens
$p_P \leq p_Ö$ ⇒ Valve closed

4. Pressure relief valve as overflow valve: The container pressure or system must not exceed the max. pressure value




$p_Ö \leq p_A$

$p_P \geq p_Ö$ ⇒ Valve opens
$p_P \leq p_Ö$ ⇒ Valve closed

*X = valve opens*
*Y = valve closed*
*pmax = max. pressure*
*pA = working pressure*
*pP = pump pressure*
*pÖ = opening pressure*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## ASV Stubbe DMV 712-R Pressure Relief and Non-Return Valve

**Description:** Adjustable pressure relief and overflow valve, back pressure safe
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Pressure Setting Range:** 0.3 to 10 bar
**Opening Pressure:** Approx. 0.5 bar
**Hysteresis:** Approx. 0.3 bar
**Fluid Temperature Range:** 0˚C-100˚C
**Construction:**
**Body:** PVDF
**Diaphragm:** EPDM with PTFE liner on fluid side
**Seats and Seals:** FPM
**End Connections:** Union fusion sockets or fusion spigots
**Features:** Unique design: valve acts as a non-return valve, if there is no pressure on the inlet side. Adjustable at any time, even during use. Vibration free during operation. Maintenance free. High reproducability, low hysteresis.
**Options:** Factory fitted pressure gauge available on request.

Setting Range - 0.3 to 10 bar

**MM Fusion Spigots**

FPM Seals

| Size | Code | Price |
|---|---|---|
| 16 | 146700 | |
| 20 | 146701 | |
| 25 | 146702 | on application |
| 32 | 146703 | |
| 40 | 146704 | |
| 50 | 146705 | |
| 63 | 146706 | |

**MM Union Fusion Sockets**

FPM Seals

| Size | Code | Price |
|---|---|---|
| 16 | 146670 | |
| 20 | 146671 | |
| 25 | 146672 | on application |
| 32 | 146673 | |
| 40 | 146674 | |
| 50 | 146675 | |
| 63 | 146676 | |

## ASV Stubbe DMV 712 Pressure Relief Valve

**Description:** Adjustable pressure relief valve
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** Sizes 75mm & 90mm: 10 bar; 110mm: 6 bar
**Pressure Setting Range:** Choice of 0.3 to 4 bar, 0.5 to 6 bar or 0.5 to 10 bar
**Opening Pressure:** Approx. 0.3 to 0.5 bar
**Hysteresis:** Maximum approx. 1 bar
**Fluid Temperature Range:** 0˚C-100˚C
**Construction:**
**Body:** PVDF
**Diaphragm:** EPDM with PTFE liner on fluid side
**Seats and Seals:** FPM
**End Connections:** Fusion spigots
**Features:** Adjustable at any time, even during use. Vibration and flutter free during operation. Maintenance free.

Setting Range 0.5 to 10 bar

**MM Fusion Spigots**

| Size | Code | Price |
|---|---|---|
| 75 | 148323 | on application |
| 90 | 148324 | |

## ASV Stubbe DMV 718 Pressure Relief Valve

Ideal for Oscillating Pumps

**Description:** Adjustable pressure relief valve
**Mounting:** In any position
**Maximum Fluid Pressure at 20˚C:** 10 bar
**Pressure Setting Range:** 0.5 to 10 bar
**Opening Pressure:** Approx. 0.5 bar
**Fluid Temperature Range:** 0˚C-100˚C
**Flow Rate:** Up to 500 l/hr
**Construction:**
**Body:** PVDF
**Diaphragm:** EPDM with PTFE liner on fluid side
**Seats and Seals:** EPDM or FPM
**End Connections:** Union fusion sockets
**Features:** Ideal for oscillating pumps. Adjustable at any time, even during use. Vibration and flutter free during operation. Diaphragm controlled, insensitive to back-pressure. Installation is independent of flow direction.

Setting Range - 0.5 to 10 bar

**MM Union Fusion Sockets**

EPDM Seals

| Size | Code | Price |
|---|---|---|
| 12 | 147220 | on application |

**MM Union Fusion Sockets**

FPM Seals

| Size | Code | Price |
|---|---|---|
| 12 | 147221 | on application |