

# PP-GF PNEUMATIC AND COMPRESSED AIR PIPING SYSTEMS

With a service life of atleast 50 years once installed, tight and safe.

**Pioneers in India to have PPR-C Range from 16mm to 400mm**



connection heating &



cooling chilled water



technology swimming-pool



technology chemical



transport

irrigation



wall

heating



application in the field of ship



building district heating pipeline



systems geothermal

## ADVANTAGES OF PNEUMATO PIPES

1. Very less heat loss due to lesser thermal conductivity.
2. Lesser sagging because of very less thermal expansion.
3. High temperature and high pressure with stand capacity due to inbuilt GFR reinforcement layer.
4. Since having 0.1micron RA value and mirror finish inner surface, 40% to 60% lesser friction compared to other pipe.
5. Reduced thermal expansion will reduce clamping.
6. Style fittings offer a tight, leak free fit.
7. As a result of socket Fusion joint, 0% leakage.
8. 60% layer of glass fiber reinforcement in the pipe.
9. Excellent performance with long life in direct sunlight having UV resistant on the upper layer.
10. Reduced linear expansion coefficient, only 1/3 of that of normal PP-R
11. Higher strength and stability of dimension. It can stand 25% more pressure than PP-R at the same condition
12. Improved resistant to impulse udder low temperature. It can used in 90 ° for a long time
13. With the same condition of pressure, wall thickness of PPR fiberglass pipe is thinner, increasing inner diameter of the pipe, bigger of the air flow.
14. Direct connect with water table within the health of non-toxic, good scalability, no formation of sphagnum.

### Technical Data of K.P.T. Pneumato Pipes:

| S.No. | PROPERTY                             | (KPT-GF) PIPE        |
|-------|--------------------------------------|----------------------|
| 1     | Thermal Conductivity                 | 0.024                |
| 2     | Coefficient Linear Thermal Expansion | $1.0 \times 10^{-4}$ |
| 3     | Flexural Modulus                     | 1260                 |
| 4     | Tensile Strength at break            | 45                   |
| 5     | Melting Temperature Rate             | 160-165              |
| 6     | Vicat Softening Temperature          | 145.3                |

## PNEUMATIC AIR AND COMPRESSED AIR PLUMBING PIPING SYSTEM

KPT Pneumato Pipes combine the advantages of FRP and plastic pipes and eliminate the disadvantages of both materials at the same time. The FRP is absolutely diffusion tight and reliably prevents oxygen or gases from permeating into the pipe. It compensates and reduces snap-back forces and heat expansion with changes in temperature. KPT Pneumato pipes are being produced with latest German technology at its state of the art manufacturing unit at Dehradun, Uttarakhand, India. KPT Pneumato pipes has been specially designed for the creation of primary and secondary network for compressed air, neutral gases & Vacuum. The FRP allows KPT Pneumato Pipes to withstand high working pressure and prevent oxygen and gases from permeating into the pipe. KPT Pneumato pipes are safe and reliable choice for compressed air, gas and oxygen supply.

KPT Pneumato Pipes consist of an overlapped FRP with an inner and outer layer of Polypropylene Random Copolymer (PPR-C). All the layers are permanently bonded together by intermediate adhesive layers. The FRP thickness of KPT Pneumato pipes has been selected to meet compressive and flexural strength requirements. Most of the industries are now slowly moving away from MS/GI piping system for compressed air transportation owing to following problems:

**Reinforcement Glass Fiber** - The Sandwich Glass Reinforcement technology processed on Pneumato enables to withstand more pressure even in high temperature. Since Glass is non-conductor of heat, so there is lesser thermal expansion, this reduces sagging.

**U.V. Resistant** - New Pneumato technology being developed with carbon content blue layer which protects the pipes from UV rays in open sky.

**Glass Insulation** - Glass acts as non-conductor of heat. So the Sandwich Glass Reinforcement technology reduces the condensation, thus reduces the chances of moisture in Pneumato technology getting least.

**Leaking zero** - in fusion welded joints.

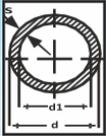
**Rusting** - Water condensation in compressed air system leads to rust formation even in joint areas of GI pipe welding, affecting costlier pneumatic equipments.

**Installation Time** - Threaded joints consume more time in existing repair work as well as in new projects where as fusion joints once conducted require no maintainence.

**Pressure Drop** - Rough inner surface in the above pipes leads to slight increase in pressure drop.

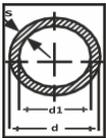
**Cost** - Aluminium/MS/GI piping systems are conventionally more expensive.

**Atmospheric effects** - Aluminium also reacts with most of the chemicals. If some chemicals are present in compressed air, that can equally effect aluminium pipes. Often aluminium pipes are available at the maximum size of 110mm only. Most of the fittings are in plastics material. These areas are then rendered mechanically weaker in the line.



**KPT PIPE SDR 11/  
S 5 / PN 10**

| Pipe      |              | Diameter | Wall Thickness | Internal Diameter | Water Content |
|-----------|--------------|----------|----------------|-------------------|---------------|
| Dimension | Packing Unit | d(mm)    | S(mm)          | di(mm)            | l/m           |
| 20mm      | 250m         | 20       | 1.9            | 16.2              | 0.206         |
| 25mm      | 180m         | 25       | 2.3            | 20.4              | 0.327         |
| 32mm      | 120m         | 32       | 2.9            | 26.2              | 0.539         |
| 40mm      | 75m          | 40       | 3.7            | 32.6              | 0.834         |
| 50mm      | 45m          | 50       | 4.6            | 40.8              | 1.307         |
| 63mm      | 30m          | 63       | 5.8            | 51.4              | 2.074         |
| 75mm      | 21m          | 75       | 6.8            | 61.4              | 2.959         |
| 90mm      | 15m          | 90       | 8.2            | 73.6              | 4.252         |
| 110mm     | 12m          | 110      | 10.0           | 90.0              | 6.359         |
| 160mm     | 6m           | 160      | 14.6           | 130.8             | 13.430        |
| 200mm     |              | 200      | 18.2           | 163.6             | 21.010        |
| 250mm     |              | 250      | 22.7           | 204.6             | 32.861        |
| 315mm     | 3m           | 315      | 28.6           | 257.8             | 52.172        |
| 355mm     | 3m           | 355      | 32.2           | 290.6             | 66.292        |
| 400mm     | 3m           | 400      | 36.3           | 327.4             | 84.145        |

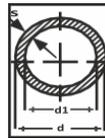


**KPT PIPE SDR 7.4/  
S 3.2 / PN 16**

| Pipe      |              | Diameter | Wall Thickness | Internal Diameter | Water Content |
|-----------|--------------|----------|----------------|-------------------|---------------|
| Dimension | Packing Unit | d(mm)    | S(mm)          | di(mm)            | l/m           |
| 16mm      | 300m         | 16       | 2.2            | 11.6              | 0.106         |
| 20mm      | 240m         | 20       | 2.8            | 14.4              | 0.163         |
| 25mm      | 180m         | 25       | 3.5            | 18.0              | 0.254         |
| 32mm      | 120m         | 32       | 4.4            | 23.2              | 0.423         |
| 40mm      | 75m          | 40       | 5.5            | 29.0              | 0.660         |
| 50mm      | 45m          | 50       | 6.9            | 36.2              | 1.029         |
| 63mm      | 30m          | 63       | 8.6            | 45.8              | 1.647         |
| 75mm      | 21m          | 75       | 10.3           | 54.4              | 2.323         |
| 90mm      | 15m          | 90       | 12.3           | 65.4              | 3.358         |
| 110mm     | 9m           | 110      | 15.1           | 79.8              | 4.999         |
| 160mm     | 6m           | 160      | 21.9           | 116.2             | 10.599        |
| 200mm     | 3m           | 200      | 27.4           | 145.2             | 16.550        |
| 250mm     | 3m           | 250      | 34.2           | 181.6             | 25.888        |
| 315mm     | 3m           | 315      | 43.4           | 228.2             | 40.879        |
| 355mm     | 3m           | 355      | 49.0           | 257               | 51.848        |

**KPT PPR SDR 9/  
S 4 PN 12.5**

| Pipe      |              | Diameter | Wall Thickness | Internal Diameter | Water Content |
|-----------|--------------|----------|----------------|-------------------|---------------|
| Dimension | Packing Unit | d(mm)    | S(mm)          | di(mm)            | l/m           |
| 20mm      | 240m         | 20       | 2.2            | 15.6              | 0.190         |
| 25mm      | 180m         | 25       | 2.8            | 19.4              | 0.297         |
| 32mm      | 120m         | 32       | 3.6            | 24.9              | 0.486         |
| 40mm      | 75m          | 40       | 4.4            | 31.1              | 0.760         |
| 50mm      | 45m          | 50       | 5.6            | 38.9              | 1.187         |
| 63mm      | 30m          | 63       | 7.0            | 49.0              | 1.885         |
| 75mm      | 21m          | 75       | 8.3            | 58.3              | 2.671         |
| 90mm      | 15m          | 90       | 10.0           | 70.0              | 3.847         |
| 110mm     | 9m           | 110      | 12.2           | 85.6              | 5.746         |
| 160mm     | 6m           | 160      | 17.8           | 124.4             | 12.157        |
| 200mm     | 3m           | 200      | 22.2           | 155.6             | 18.995        |
| 250mm     | 3m           | 250      | 27.8           | 194.4             | 29.680        |
| 315mm     | 3m           | 315      | 35.0           | 245.0             | 47.120        |
| 355mm     | 3m           | 355      | 39.4           | 276.1             | 59.846        |
| 400mm     | 3m           | 400      | 44.4           | 311.1             | 75.980        |



**KPT PIPE SDR 6/  
S 2.5 / PN 20**

| Pipe      |              | Diameter | Wall Thickness | Internal Diameter | Water Content |
|-----------|--------------|----------|----------------|-------------------|---------------|
| Dimension | Packing Unit | d(mm)    | S(mm)          | di(mm)            | l/m           |
| 16mm      | 240m         | 16       | 2.7            | 10.6              | 0.088         |
| 20mm      | 210m         | 20       | 3.4            | 13.2              | 0.137         |
| 25mm      | 150m         | 25       | 4.2            | 16.6              | 0.216         |
| 32mm      | 60m          | 32       | 5.4            | 21.2              | 0.353         |
| 40mm      | 36m          | 40       | 6.7            | 26.6              | 0.556         |
| 50mm      | 24m          | 50       | 8.3            | 33.4              | 0.876         |
| 63mm      | 21m          | 63       | 10.5           | 42.0              | 1.385         |
| 75mm      | 12m          | 75       | 12.5           | 50.0              | 1.963         |
| 90mm      | 9m           | 90       | 15.0           | 60.0              | 2.827         |
| 110mm     | 3m           | 110      | 18.3           | 73.4              | 4.229         |
| 160mm     | 3m           | 160      | 26.6           | 106.8             | 8.954         |
| 200mm     | 3m           | 200      | 33.2           | 133.6             | 14.011        |

## PERMISSIBLE WORKING PRESSURE

The below table list is the allowable working pressure for pipes with different pressure class under specific temperature and work life. Under normal work pressure and conditions, the life of KPT PPR Piping system is guaranteed to be 50 years at least.

| Temperature | Pressure Class | PN-12.5 |      |      |      |
|-------------|----------------|---------|------|------|------|
|             |                | 1       | 5    | 10   | 100  |
| 10°C        | 1              | 17.6    | 24.0 | 27.8 | 35.0 |
|             | 5              | 16.6    | 23.2 | 26.4 | 33.2 |
|             | 10             | 16.1    | 22.9 | 25.5 | 32.1 |
|             | 25             | 15.6    | 22.5 | 24.7 | 31.1 |
|             | 50             | 15.2    | 22.2 | 24.0 | 30.3 |
|             | 100            | 14.8    | 21.6 | 23.4 | 29.5 |
| 20°C        | 1              | 15.0    | 20.9 | 23.8 | 30.0 |
|             | 5              | 14.1    | 20.2 | 22.3 | 28.1 |
|             | 10             | 13.7    | 19.9 | 21.7 | 27.3 |
|             | 25             | 13.3    | 19.6 | 21.1 | 26.5 |
|             | 50             | 12.9    | 19.3 | 20.4 | 25.7 |
|             | 100            | 12.5    | 18.7 | 19.8 | 24.9 |
| 30°C        | 1              | 12.8    | 18.1 | 20.2 | 25.5 |
|             | 5              | 12.0    | 17.4 | 19.0 | 23.9 |
|             | 10             | 11.6    | 17.2 | 18.3 | 23.1 |
|             | 25             | 11.2    | 16.9 | 17.7 | 22.3 |
|             | 50             | 10.9    | 16.6 | 17.3 | 21.8 |
|             | 100            | 10.6    | 16.0 | 16.9 | 21.2 |
| 40°C        | 1              | 10.8    | 15.5 | 17.1 | 21.5 |
|             | 5              | 10.1    | 15.0 | 16.0 | 20.2 |
|             | 10             | 9.8     | 14.7 | 15.6 | 19.6 |
|             | 25             | 9.4     | 14.4 | 15.0 | 18.8 |
|             | 50             | 9.2     | 14.2 | 14.5 | 18.3 |
|             | 100            | 8.9     | 13.7 | 14.1 | 17.8 |

| Temperature | Pressure Class | PN-12.5 |        |        |        |
|-------------|----------------|---------|--------|--------|--------|
|             |                | 1       | 5      | 10     | 100    |
| 50°C        | 1              | 9.1     | 13.3   | 14.4   | 18.2   |
|             | 5              | 8.5     | 12.8   | 13.5   | 17.0   |
|             | 10             | 8.2     | 12.6   | 13.1   | 16.5   |
|             | 25             | 8.0     | 12.3   | 12.6   | 15.9   |
|             | 50             | 7.7     | 12.1   | 12.2   | 15.4   |
|             | 100            | 7.4     | 11.5   | 11.8   | 14.9   |
| 60°C        | 1              | 7.6     | 11.2   | 12.1   | 15.5   |
|             | 5              | 7.2     | 10.8   | 11.4   | 14.3   |
|             | 10             | 6.9     | 10.6   | 11.0   | 13.8   |
|             | 25             | 6.7     | 10.4   | 10.5   | 13.3   |
|             | 50             | 6.4     | 10.2   | 10.1   | 12.7   |
|             | 100            | 6.4     | 10.2   | 10.1   | 12.7   |
| 70°C        | 1              | 6.5     | 9.4    | 10.3   | 13.0   |
|             | 5              | 6.0     | 9.1    | 9.5    | 11.9   |
|             | 10             | 5.9     | 8.9    | 9.3    | 11.7   |
|             | 25             | 5.1     | 7.6    | 8.0    | 10.1   |
|             | 50             | 4.3     | 6.3    | 6.7    | 8.5    |
|             | 100            | 4.3     | 6.3    | 6.7    | 8.5    |
| 80°C        | 1              | 5.5     | 7.9    | 8.6    | 10.9   |
|             | 5              | 4.8     | 7.5    | 7.6    | 9.6    |
|             | 10             | 4.0     | 6.2    | 6.3    | 8.0    |
|             | 25             | 3.2     | 5.0    | 5.1    | 6.4    |
|             | 50             | 3.2     | 5.0    | 5.1    | 6.4    |
|             | 100            | 3.2     | 5.0    | 5.1    | 6.4    |
| 95°C        | 1              | 3.9     | 5.9    | 6.1    | 7.7    |
|             | 5              | 2.5     | 3.8    | 4.0    | 5.0    |
|             | (10)'          | (2.1)'  | (3.1)' | (3.4)' | (4.2)' |
|             | (10)'          | (2.1)'  | (3.1)' | (3.4)' | (4.2)' |
|             | (10)'          | (2.1)'  | (3.1)' | (3.4)' | (4.2)' |
|             | (10)'          | (2.1)'  | (3.1)' | (3.4)' | (4.2)' |

| STANDARDS          | FIELDS  |
|--------------------|---|
| DIN2999            | Whitworth pipe threads for tubes and fitting  |
| DIN 4109           | Sound insulation in building constructions  |
| DIN 8077           | Polypropylene (pp) pipes dimensions   |
| DIN 8078           | Polypropylene (pp) pipes general quality requirements and testing.  |
| DIN 16962          | Polypropylene (pp) pipes fitting  |
| DIN 16928          | Pipe connections and components-pipes of thermoplastic materials: pipe joints, element for pipe, laying: general directions.                |
| DIN 16928(6-9)     | Pipe joints and elements for polypropylene (pp) pressure pipelines, types 1 and 2; injection molded elbows for socket - welding, dimension. |
| DIN 16925.5        | Pipe joints and elements for polypropylene (pp) for pipes under, -part 5; general quality   |
| DIN 2207.11        | Welding regulations for plastic pipes.  |
| DVS 2203           | Test of thermoplastic pipe fitting for weld   |
| DVS 2208.1         | Machines and devices for welding thermoplastic pipes.   |
| EN ISO 1587 4(1-7) | Plastic piping systems for hot cold water installations polypropylene(pp)   |

## Testing

We have well equipped in house testing facility for the control of quality by

- Testing of incoming Raw material.
- Final inspection and dispatch.
- Inspection and testing during production as per standards.
- Periodical calibration of testing equipments

### GF-PPR Composite Topilene R200P-G20N(GF 20%) ND R200P-G40N(GF 40%)

| Property                     | Method (ASTM) | Units              | R200P    | R200P-G20N (GF 20%) | R200P-G40N (GF 40%) |
|------------------------------|---------------|--------------------|----------|---------------------|---------------------|
| Density                      | D792          | g/cm <sup>3</sup>  | 0.9      | 1.03                | 1.21                |
| Ash content                  | D2584         | %                  | 0        | 20                  | 40                  |
| M.I                          | D1238         | g/10min            | 0.25     | 0.3                 | 0.3                 |
| Tensile Strength at Yield    | D638          | kg/cm <sup>2</sup> | 270      | 420                 | 530                 |
| Flexural Modulus             | D790          | kg/cm <sup>2</sup> | 9,000    | 20,000              | 7,000               |
| Notched Izod Impact Strength | 23°C          | D256               | kg·cm/cm | N.B                 | 14                  |
|                              | -10°C         |                    |          | 5.0                 | 5.0                 |
| Hardness                     | D785          | R-scale            | 75       | 85                  | 90                  |
| Heat Deflection Temp.        | D648          | °C                 | 90       | 125                 | 135                 |

\*These data listed here are typical values not for the specification warranty

## TESTING EQUIPMENT & QUALITY CONTROL

|   |                                      |  |  |  |
|---|--------------------------------------|--|--|--|
| 1 Density   | Weighing Balance                     |  | IS: 15801/2008<br>IS:13360(Part 3/section 1<br>IS: 12235 (Part 14) | This test is carried out to know the density of pipe, specially for green pipe which are used in hot and cold water supply. Density should be 900 to 925 kg/m <sup>3</sup> |
| 2 M.F.R   | M.F.I Machine                        |  | IS: 15801/2008<br>IS:13360 (Part 4 section 1)                      | This test is carried out to know the melt ow rate of Material used in manufacturing of pipe. M.F.R Value should be Less or equal to 1.5 GM /1 0 Minutes                    |
| 3 Visual appearance                                 | Manually                             |  | DIN:8077/8078  | This test is carried out to know the Visual appearance of pipe It includes smooth and clean internal and external surface of pipe as well as square cutting of pipe ends   |
| 4 Reversion test                                    | Hot air Oven                         |  | DIN:8077/8078  | This test is carried out to know the longitudinal reversion of pipe . Its value shall not be more then 2%  |
| 5 Fusion Compatibility                              | Hydrostatic Machine & Hot water bath |  | IS: 15801/2008   | This test is carried out to know about fusion strength of pipe and fittings to bear the hydraulic characteristic in accordance 9.1 & TABLE 3 Serial No (iii)               |
| 6 Impact test                                       | Charpy Impact Testing machine        |  | DIN:8077/8078  | This test is carried out to know the specific internal strength of the pipe as per standard  |
| 7 Hydraulic characteristic (Internal creep rupture) | Hydrostatic Machine                  |  | DIN:8077/8078  | This test is carried out to know the internal hydrostatic pressure applied by fluid under specific temperature and pressure  |
| 8 Outsider Diameter and Ovality                     | vernier Caliper and pie tape         |  | DIN:8077/8078  | This test is carried out to know the specific outside diameter and ovality of pipe as per standard   |
| 9 Wall Thickness                                    | Micrometer                           |  | DIN:8077/8078  | This test is carried out to know the specific wall thickness of pipe as per standard   |
| 10 Length of straight pipe                          | Measuring tape                       |  | DIN:8077/8078  | This test is carried out to know the specific length of pipe as per standard   |

KPT is having in-house testing facility to do above tests as per the DIN & IS standard.



## Linear expansion of KPT Pipes and fittings

| Pipe Length<br>L(m) | Temperature Difference DT (°C) |      |      |      |      |      |      |      |      |       |
|---------------------|--------------------------------|------|------|------|------|------|------|------|------|-------|
|                     | 10                             | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 95    |
| 1                   | 1.0                            | 2.0  | 3.0  | 4.0  | 5.0  | 6.0  | 7.0  | 8.0  | 9.0  | 10.0  |
| 2                   | 2.0                            | 4.0  | 6.0  | 8.0  | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0  |
| 3                   | 3.0                            | 6.0  | 9.0  | 12.0 | 15.0 | 18.0 | 21.0 | 24.0 | 27.0 | 30.0  |
| 4                   | 4.0                            | 8.0  | 12.0 | 16.0 | 20.0 | 24.0 | 28.0 | 32.0 | 36.0 | 40.0  |
| 5                   | 5.0                            | 10.0 | 15.0 | 20.0 | 25.0 | 30.0 | 35.0 | 40.0 | 45.0 | 50.0  |
| 6                   | 6.0                            | 12.0 | 18.0 | 24.0 | 30.0 | 36.0 | 42.0 | 48.0 | 54.0 | 60.0  |
| 7                   | 7.0                            | 14.0 | 21.0 | 28.0 | 35.0 | 42.0 | 49.0 | 56.0 | 63.0 | 70.0  |
| 8                   | 8.0                            | 16.0 | 24.0 | 32.0 | 40.0 | 48.0 | 56.0 | 64.0 | 72.0 | 80.0  |
| 9                   | 9.0                            | 18.0 | 27.0 | 36.0 | 45.0 | 54.0 | 63.0 | 72.0 | 81.0 | 90.0  |
| 10                  | 10.0                           | 20.0 | 30.0 | 40.0 | 50.0 | 60.0 | 70.0 | 80.0 | 90.0 | 100.0 |

Note: Linear expansion unit in mm.

## Support Intervals

| Pipe Diameters<br>mm | Temperature |      |      |      |      |      |      |      |      |       |
|----------------------|-------------|------|------|------|------|------|------|------|------|-------|
|                      | 0°C         | 20°C | 30°C | 40°C | 50°C | 60°C | 70°C | 80°C | 95°C | 110°C |
| 16mm                 | 80          | 60   | 60   | 50   | 50   | 45   | 40   | 30   | 25   | 30    |
| 20mm                 | 90          | 65   | 65   | 60   | 60   | 55   | 50   | 40   | 35   | 40    |
| 25mm                 | 110         | 80   | 75   | 70   | 70   | 65   | 60   | 50   | 45   | 50    |
| 32mm                 | 120         | 95   | 95   | 85   | 80   | 75   | 70   | 60   | 55   | 65    |
| 40mm                 | 145         | 110  | 110  | 90   | 90   | 85   | 80   | 70   | 60   | 75    |
| 50mm                 | 170         | 130  | 120  | 110  | 110  | 100  | 95   | 75   | 70   | 90    |
| 63mm                 | 190         | 150  | 140  | 130  | 120  | 110  | 100  | 90   | 75   | 105   |
| 75mm                 | 210         | 160  | 150  | 140  | 130  | 120  | 110  | 100  | 85   | 110   |
| 90mm                 | 220         | 160  | 160  | 150  | 150  | 140  | 125  | 105  | 90   | 110   |
| 110mm                | 250         | 180  | 180  | 170  | 170  | 160  | 140  | 125  | 110  | 110   |
| 160mm                | 300         | 210  | 210  | 190  | 180  | 170  | 150  | 135  | 120  | 120   |
| 200mm                | 330         | 230  | 220  | 200  | 190  | 180  | 160  | 145  | 130  | 160   |
| 250mm                | 360         | 260  | 250  | 220  | 200  | 190  | 170  | 155  | 135  | 210   |
| 315mm                | 490         | 420  | 395  | 355  | 355  | 345  | 335  | 310  | 290  | 270   |
| 355mm                | 550         | 480  | 455  | 415  | 415  | 405  | 395  | 370  | 350  | 330   |
| 400mm                | 620         | 550  | 525  | 485  | 485  | 475  | 465  | 440  | 420  | 400   |

Support Intervals (CM)

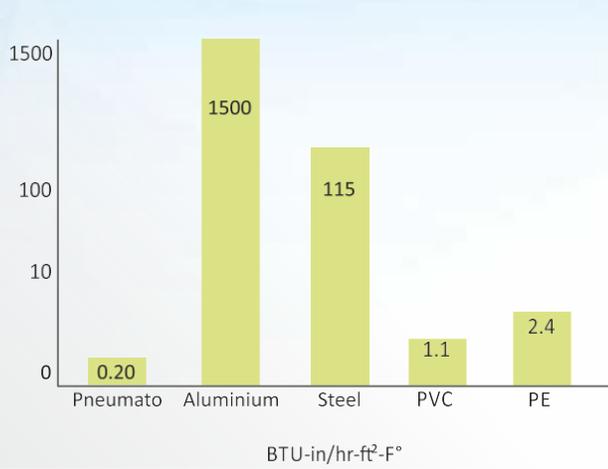
## For all size of KPT Pneumato Pipe and Fittings

Allowable working pressure for KPT Pneumato Pipe and Fittings

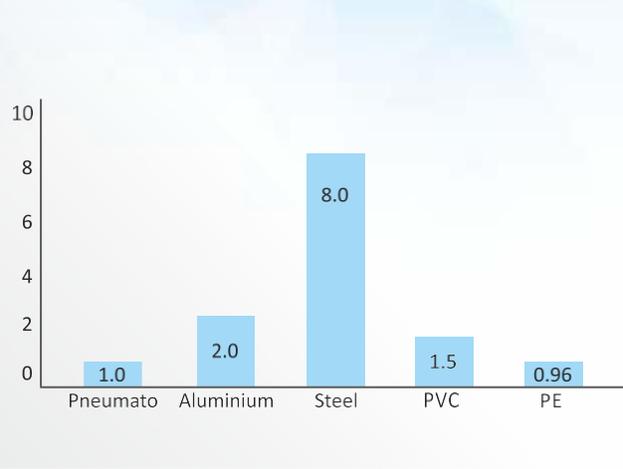
| Temperature,<br>in °C              | Years of<br>Service | Standard Dimension Ratio (SDR) |         |       |       |
|------------------------------------|---------------------|--------------------------------|---------|-------|-------|
|                                    |                     | 11                             | 7.4     | 7.4   |       |
|                                    |                     | PN-10                          | PN-12.5 | PN-16 | PN-20 |
| Allowable working pressure, in bar |                     |                                |         |       |       |
| 10                                 | 1                   | 20.5                           | 28.8    | 34.8  | 43.8  |
|                                    | 5                   | 19.1                           | 27.8    | 33.0  | 41.5  |
|                                    | 10                  | 18.5                           | 27.5    | 31.9  | 40.1  |
|                                    | 25                  | 17.8                           | 27.0    | 30.9  | 38.9  |
|                                    | 50                  | 17.3                           | 26.6    | 30.0  | 37.9  |
| 20                                 | 1                   | 18.8                           | 25.1    | 29.8  | 37.5  |
|                                    | 5                   | 17.6                           | 24.2    | 27.9  | 35.1  |
|                                    | 10                  | 17.1                           | 23.9    | 27.1  | 34.1  |
|                                    | 25                  | 16.6                           | 23.5    | 26.4  | 33.1  |
|                                    | 50                  | 16.1                           | 23.2    | 25.5  | 32.1  |
| 30                                 | 1                   | 16.0                           | 21.7    | 25.3  | 31.9  |
|                                    | 5                   | 15.0                           | 20.9    | 23.8  | 29.9  |
|                                    | 10                  | 14.5                           | 20.6    | 22.9  | 28.9  |
|                                    | 25                  | 14.0                           | 20.3    | 22.1  | 27.9  |
|                                    | 50                  | 13.6                           | 19.9    | 21.6  | 27.3  |
| 40                                 | 1                   | 13.5                           | 18.6    | 21.4  | 26.9  |
|                                    | 5                   | 12.6                           | 18.0    | 20.0  | 25.3  |
|                                    | 10                  | 12.3                           | 17.6    | 19.5  | 24.5  |
|                                    | 25                  | 11.8                           | 17.3    | 18.8  | 23.5  |
|                                    | 50                  | 11.5                           | 17.0    | 18.1  | 22.9  |
| 50                                 | 1                   | 11.4                           | 16.0    | 18.0  | 22.8  |
|                                    | 5                   | 10.6                           | 15.4    | 16.9  | 21.3  |
|                                    | 10                  | 10.3                           | 15.1    | 16.4  | 20.6  |
|                                    | 25                  | 10.0                           | 14.8    | 15.8  | 19.9  |
|                                    | 50                  | 9.6                            | 14.5    | 15.3  | 19.3  |
| 60                                 | 1                   | 9.5                            | 13.4    | 15.1  | 19.1  |
|                                    | 5                   | 9.0                            | 13.0    | 14.3  | 17.9  |
|                                    | 10                  | 8.6                            | 12.7    | 13.8  | 17.3  |
|                                    | 25                  | 8.4                            | 12.5    | 13.1  | 16.6  |
|                                    | 50                  | 8.0                            | 12.2    | 12.6  | 15.9  |
| 70                                 | 1                   | 8.1                            | 11.3    | 12.9  | 16.3  |
|                                    | 5                   | 7.5                            | 10.9    | 11.9  | 14.9  |
|                                    | 10                  | 7.4                            | 10.7    | 11.6  | 14.6  |
|                                    | 25                  | 6.4                            | 9.1     | 10.0  | 12.6  |
|                                    | 50                  | 5.4                            | 7.6     | 8.4   | 10.6  |
| 80                                 | 1                   | 6.9                            | 9.5     | 10.8  | 13.6  |
|                                    | 5                   | 6.0                            | 9.0     | 9.5   | 12.0  |
|                                    | 10                  | 5.0                            | 7.4     | 7.9   | 10.0  |
|                                    | 25                  | 4.0                            | 6.0     | 6.4   | 8.0   |
| 95                                 | 1                   | 4.9                            | 7.1     | 7.6   | 9.6   |
|                                    | 5                   | 3.1                            | 4.6     | 5.0   | 6.3   |
|                                    | 10                  | 2.6                            | 3.7     | 4.3   | 5.3   |
| 110                                | 1                   | 2.9                            | 3.7     | 5.0   | 5.6   |
|                                    | 5                   | 2.0                            | 2.6     | 3.0   | 3.5   |

The bracketed values apply where testing can be shown to have been carried out for longer than one year at 120°C.

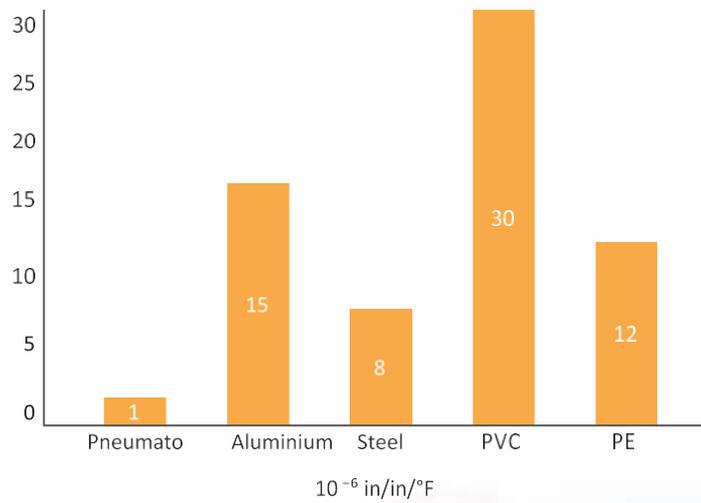
### KPT Pneumato Thermal Conductivity



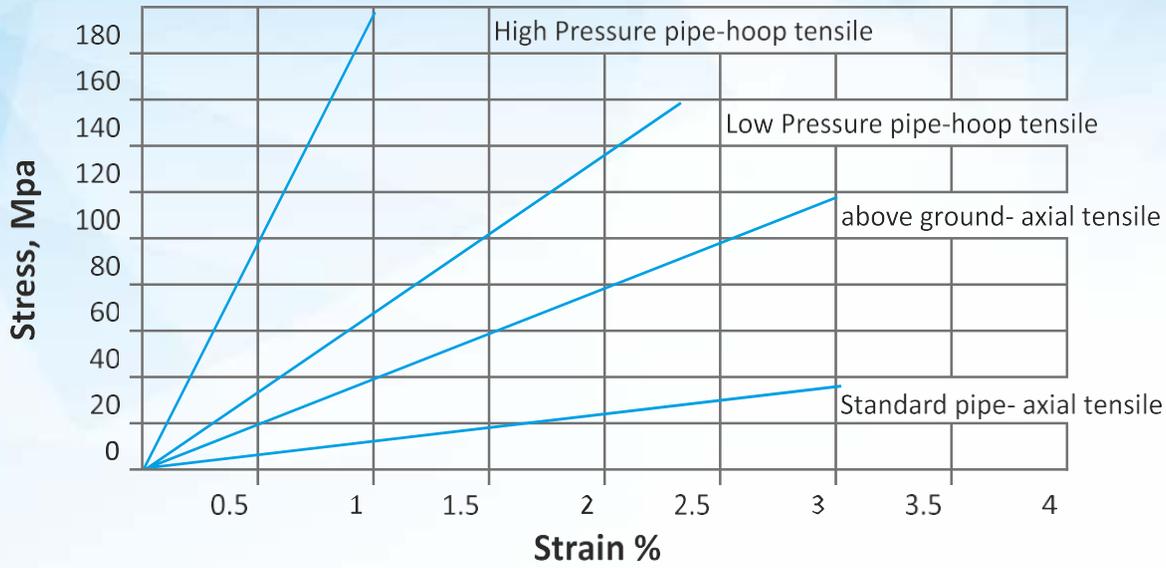
### KPT Pneumato pipe Wall- Specific Gravity



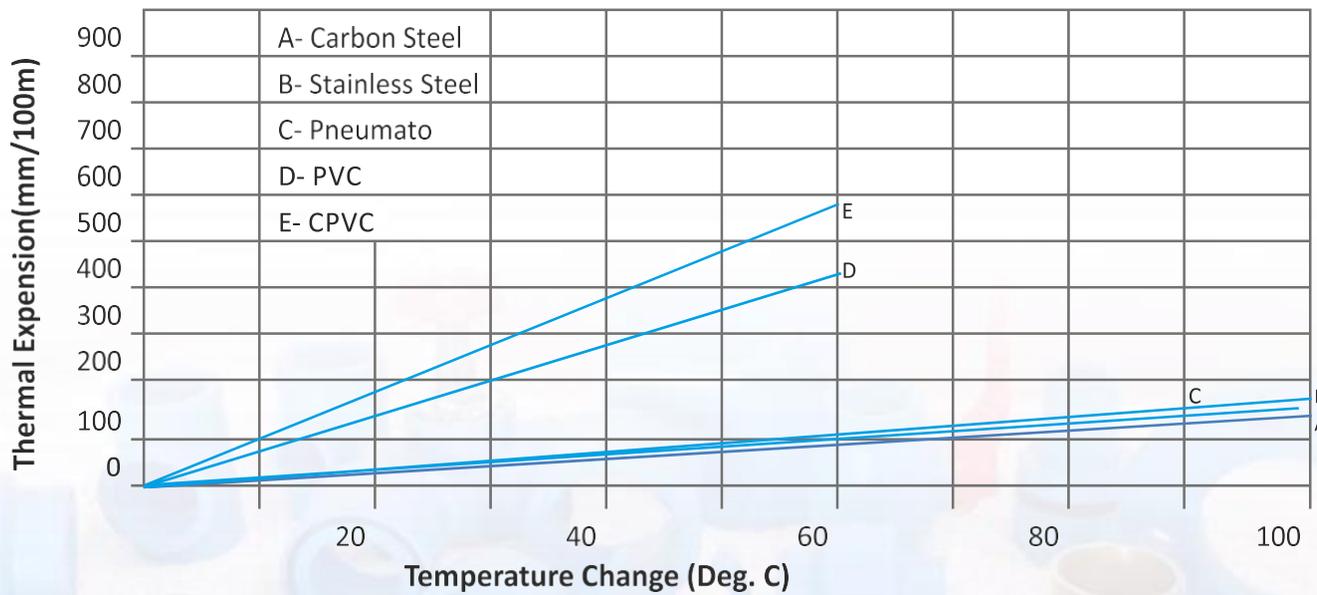
### KPT Pneumato pipes and fitting coefficient of thermal expansion $1.0 \times 10^{-4}$



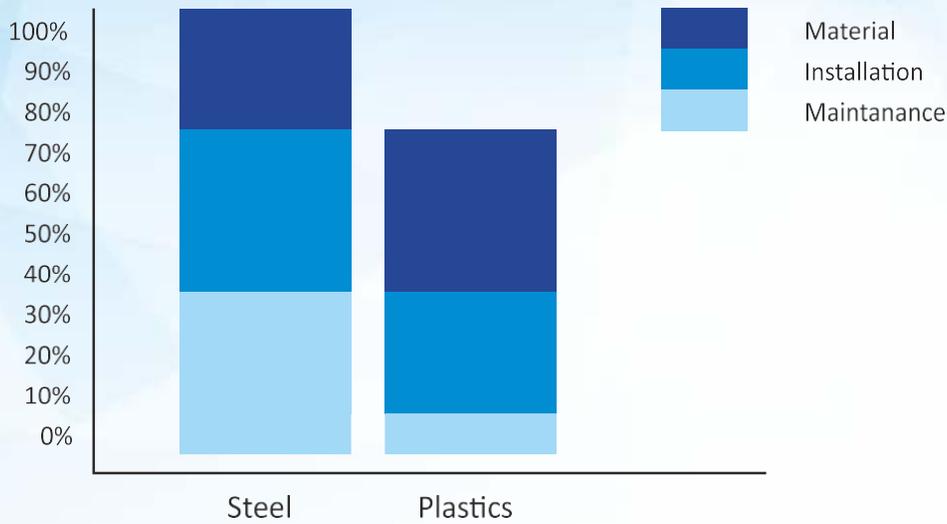
## KPT Pneumato pipe Stress - Strain



## KPT Pneumato pipes and fitting coefficient of thermal expansion



## Saving Time and Money-Life Cycle Cost



### Applications

1. Compressed Air lines for hot and cold air
2. Solar Heaters, under floor heating
3. Effluent Treatment Plants (ETP)
4. Vacuum pipelines
5. Chilled Water Application and air conditioning
6. Instrument Air
7. Nitrogen Gas
8. Chemical Plants and aggressive fluids
9. Industrial Water and Wastewater
10. Flue-gas Desulfurization
11. Pulp and Paper Mills
12. Irrigation
13. Wall Heating
14. Application in the field of ship building
15. Pharmaceuticals
16. Suitable usage for more than 400 chemicals
17. Industrial waste applications
18. Water transmission lines
19. Pressure/forced mains sewers
20. Rehabilitation applications
21. Water distribution systems
22. Storm water Drainage
23. Above ground piping
24. Sewage Drainage
25. Re-lining, Slip-lining applications
26. Desalination Plants

### Conclusions and Recommendations

1. KPT brand pipes and fittings are suitable for all applications better than other traditional thermoplastics.
2. KPT brand pipes and fittings are most suitable for potable hot and cold water in building services.
3. No maintenance, **Install it forget it**
4. Commercially viable
5. Adopted in various applications

## Jointing method of KPT piping systems

### CUTTING

1. Cut the pipe right angle to its axis using burr free cutter.
2. Ensure that pipes is free from burrs or cutting chip
3. Clean the pipe & fitting perfectly before welding.
4. Mark welding depth at the end of pipes.

### HEATING

1. Mount the suitable dies on heating element of welding machine according to the diameter of Pipe and fitting to be welded.
2. Connect the welding machine to 220/230 volts A.C. power supply.
3. Select 260 Deg. C. temperatures on the welding machine thermostat.
4. Wait for reaching the required working temperature.
5. Insert the pipe and the fitting in the dies by exerting light pressure.
6. For heating time, refer the table given for different sizes of Pipes.

### WELDING

1. After heating, quickly insert pipe into the fitting by exerting light pressure.
2. Any misalignment should be corrected immediately after insertion to avoid any Stress in the weld.
3. Allow the joint to cool as per cooling time given in table. This type of connection ensures perfect sealing even under the severe working Conditions.

## Recommended Time For PPR Systems Fusion Joints

| PIPE DIA.<br>(MM) | WELDING<br>DEPTH (MM) | HEATING TIME<br>(SEC) | WELDING TIME<br>(SEC) | COOLING TIME<br>(MIN) |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 16                | 14.00                 | 6                     | 4                     | 2                     |
| 20                | 14.50                 | 6                     | 4                     | 2                     |
| 25                | 16.00                 | 7                     | 4                     | 2                     |
| 32                | 18.00                 | 8                     | 6                     | 4                     |
| 40                | 20.50                 | 12                    | 6                     | 4                     |
| 50                | 23.50                 | 18                    | 6                     | 4                     |
| 63                | 27.50                 | 24                    | 8                     | 6                     |
| 75                | 30.00                 | 30                    | 8                     | 6                     |
| 90                | 32.50                 | 40                    | 8                     | 6                     |
| 110               | 37.00                 | 50                    | 10                    | 8                     |
| 160               | 42.00                 | 60                    | 15                    | 10                    |

## Recommended Time For PPR Systems Butt Joints

| PIPE DIA.<br>(MM) | WELDING<br>MACHINE<br>TEMPERATURE<br>°C | HEATING<br>TIME (MIN) | WELDING<br>TIME (SEC) | COOLING<br>TIME (MIN) |
|-------------------|---|-----------------------|-----------------------|-----------------------|
| 200               | 220-240                                 | 30                    | 180                   | 15-20                 |
| 250               | 220-240                                 | 30                    | 240                   | 16-24                 |
| 315               | 225-240                                 | 30                    | 300                   | 20-25                 |
| 355               | 225-240                                 | 30                    | 360                   | 25-30                 |
| 400               | 223-240                                 | 30                    | 420                   | 30-35                 |

## FUSION METHOD

The process of joining PPR-C pipes and fittings is very simple and results in inseparable watertight joints. It is carried out using a simple welding machine that fuses the internal surface of the fitting and the external surface of the pipe, so that the material of the pipe and the fitting will be bonded together.

### THE FOLLOWING DESCRIBE THE STEPS OF THE WELDING PROCESS

Prepare the welding machine by fitting it with the welding dies of the diameters to be welded. Connect the plug to the 220V power supply socket and wait until the green light on the machine goes out indicating the welding machine has reached the working temperature.

- Cut the pipe at right angles to the pipe axis using suitable pipe cutter.
- Remove any burrs or cutting chips by deburring the cutting area.
- Mark the welding depth on the pipe using suitable marker.
- Insert the end of the pipe without turning into the heating sleeve up to the marked welding depth and at the same time slide the fitting without turning into the other side of the heating tool up to the stop. It is essential to observe the mentioned heating times (refer to the below table)
- Leave the pipe and fitting into the heating tool until the heating time is elapsed.
- At the end of the heating time, remove the pipe and fitting from the heating tool and push them immediately against each other up to the mark indicating the welding depth. At this stage the depth mark will be covered with the welding bead.
- During this process, do not rotate the pipe and fitting relative to each other.
- Allow the joint to cool fully before using.

**STEP 01**



**STEP 02**



**RESULT**



## HOLE REPAIRING

If a hole is accidentally made in the pipe (with a drill bit or screws) and if the hole is on only one side of the pipe, it can be repaired using the hole repairing die, bearing in mind that the pipe size must be compatible with the die diameter.

### THE REPAIR PROCEDURE IS AS FOLLOWS:

- Clean and dry the part to be repaired.
- Fit the male part of the Hole repairing die into the hole; it must melt the surface to be adjusted by the operator to suit the pipe thickness, to ensure that the die cannot be inserted too far and melt the other side of the pipe. To make this adjustment, undo the screw which fixes the bush and then move it along the die.
- At same time as the male part of the die melts the area around the hole, the female part melts the repair bar usually supplied with die. Once the heating time has passed (5sec.) the repair bar must be inserted in the hole. When this operation is complete, wait for everything to cool and then cut off the excess part of the repair bar.
- If the diameter of the hole to be repaired is greater than that of the die, or both sides of the pipe are punctured, the piece of pipe must be cut out and the repair made using normal pipe fittings.

**STEP 01**



**STEP 02**



**RESULT**



## FUSION TECHNIQUE II

### WELD-IN SADDLE TECHNIQUE

Branches can easily be made by weld-in saddles, even at a later stage of installation. By using weld-in saddles you save material and time. Whereas in case of tees three joints have to be welded, installation of saddle is restricted to mounting the saddle and branch pipe only.

Steps Follows

- Drill the pipe
- Warm up the saddle
- Pipe wall and outside pipe
- Connect the elements

**STEP 01**



**STEP 02**



**RESULT**



### ADVANCED BUTT WELDING TECHNOLOGY

KPT is having advanced US and Italian made machines to perform butt welding procedures on sizes above 110MM. Internationally butt jointing is the most suitable and acceptable procedure for sizes like 160MM, 200MM, 250MM and beyond to adhere to the best quality and durable international standards

**Step 01**



**Step 02**



**Step 02**

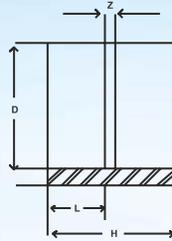


**Result**



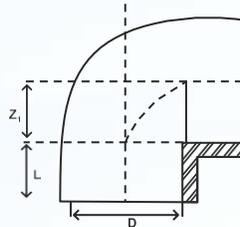
## KPT PPR C FITTINGS

### Coupling



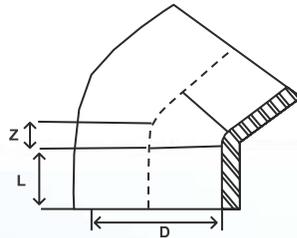
| CODE         | SIZE   | D     | L    | Z   | H    |
|--------------|--------|-------|------|-----|------|
| P-KPT C-0001 | 16MM   | 15.4  | 16.0 | 1.6 | 33.6 |
| P-KPT C-0002 | 20 MM  | 19.2  | 14.5 | 3.9 | 32.9 |
| P-KPT C-0003 | 25 MM  | 24.1  | 18.0 | 2.6 | 38.6 |
| P-KPT C-0004 | 32 MM  | 31.0  | 18.4 | 3.0 | 39.8 |
| P-KPT C-0005 | 40 MM  | 38.9  | 20.7 | 3.4 | 44.8 |
| P-KPT C-0006 | 50 MM  | 48.0  | 24.4 | 3.1 | 51.9 |
| P-KPT C-0007 | 63 MM  | 60.7  | 28.2 | 8.2 | 64.6 |
| P-KPT C-0008 | 75 MM  | 71.9  | 31.5 | 4.0 | 67.0 |
| P-KPT C-0009 | 90 MM  | 86.4  | 32.5 | 6.1 | 71.1 |
| P-KPT C-0010 | 110 MM | 106.8 | 38.8 | 3.0 | 80.6 |
| P-KPT C-0011 | 160 MM | 153.0 | 42.5 | 5.4 | 90.4 |

### Elbow 90°



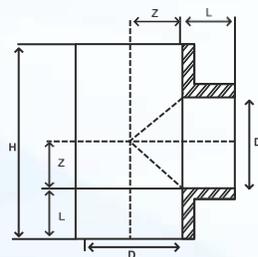
| CODE           | SIZE   | D     | L    | Z    | H     |
|----------------|--------|-------|------|------|-------|
| P-KPT E90-0020 | 16MM   | 15.5  | 14.4 | 8.5  | 34.3  |
| P-KPT E90-0021 | 20 MM  | 19.1  | 15.5 | 10.9 | 40.0  |
| P-KPT E90-0022 | 25 MM  | 24.2  | 16.9 | 14.1 | 47.4  |
| P-KPT E90-0023 | 32 MM  | 31.1  | 18.0 | 16.4 | 54.2  |
| P-KPT E90-0024 | 40 MM  | 39.5  | 20.0 | 20.0 | 66.2  |
| P-KPT E90-0025 | 50 MM  | 48.4  | 23.8 | 26.2 | 80.3  |
| P-KPT E90-0026 | 63 MM  | 60.5  | 27.4 | 32.2 | 98.2  |
| P-KPT E90-0027 | 75 MM  | 72.6  | 31.5 | 38.0 | 115.4 |
| P-KPT E90-0028 | 90 MM  | 86.8  | 33.0 | 44.7 | 130.6 |
| P-KPT E90-0029 | 110 MM | 106.5 | 39.0 | 54.8 | 160.6 |
| P-KPT E90-0030 | 160 MM | 153.6 | 45.0 | 78.7 | 220.8 |
| P-KPT E90-0031 | 200MM  | ...   | ...  | ...  | ...   |
| P-KPT E90-0032 | 250MM  | ...   | ...  | ...  | ...   |
| P-KPT E90-0033 | 315MM  | ...   | ...  | ...  | ...   |
| P-KPT E90-0034 | 355MM  | ...   | ...  | ...  | ...   |
| P-KPT E90-0035 | 400MM  | ...   | ...  | ...  | ...   |

### Elbow 45°



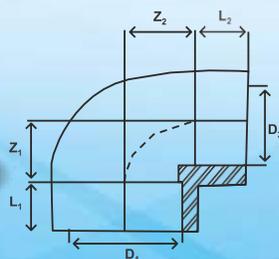
| CODE           | SIZE   | D     | L    | Z    |
|----------------|--------|-------|------|------|
| P-KPT E45-0041 | 20 MM  | 19.3  | 15.5 | 6.0  |
| P-KPT E45-0042 | 25 MM  | 23.7  | 17.6 | 7.0  |
| P-KPT E45-0043 | 32 MM  | 30.6  | 16.5 | 8.0  |
| P-KPT E45-0044 | 40 MM  | 38.2  | 21.3 | 9.0  |
| P-KPT E45-0045 | 50 MM  | 47.7  | 22.5 | 12.0 |
| P-KPT E45-0046 | 63 MM  | 60.0  | 26.0 | 13.0 |
| P-KPT E45-0047 | 75 MM  | 72.5  | 26.7 | 20.0 |
| P-KPT E45-0048 | 90 MM  | 86.8  | 34.5 | 32.0 |
| P-KPT E45-0049 | 110 MM | 106.2 | 35.3 | 40.0 |
| P-KPT E45-0050 | 160 MM | 154.9 | 48.2 | 50.0 |
| P-KPT E45-0051 | 200 MM | ...   | ...  | ...  |
| P-KPT E45-0052 | 250 MM | ...   | ...  | ...  |
| P-KPT E45-0053 | 315 MM | ...   | ...  | ...  |
| P-KPT E45-0054 | 355 MM | ...   | ...  | ...  |
| P-KPT E45-0055 | 400 MM | ...   | ...  | ...  |

### Equal Tee



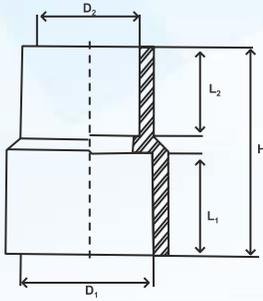
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|---------------|--------|-------|------|------|-------|
| P-KPT ET-0060 | 16MM   | 15.3  | 14.6 | 8.9  | 46.9  |
| P-KPT ET-0061 | 20 MM  | 19.3  | 15.8 | 10.5 | 52.6  |
| P-KPT ET-0062 | 25 MM  | 24.2  | 18.0 | 12.7 | 61.4  |
| P-KPT ET-0063 | 32 MM  | 31.4  | 20.2 | 16.1 | 72.5  |
| P-KPT ET-0064 | 40 MM  | 39.0  | 20.3 | 20.9 | 82.4  |
| P-KPT ET-0065 | 50 MM  | 48.6  | 24.4 | 24.5 | 97.8  |
| P-KPT ET-0066 | 63 MM  | 61.7  | 27.4 | 32.6 | 120.0 |
| P-KPT ET-0067 | 75 MM  | 72.2  | 31.3 | 36.7 | 136.0 |
| P-KPT ET-0068 | 90 MM  | 86.9  | 32.9 | 47.1 | 160.0 |
| P-KPT ET-0069 | 110 MM | 106.7 | 38.8 | 55.3 | 188.2 |
| P-KPT ET-0070 | 160 MM | 153.7 | 45.0 | 85.0 | 260.0 |
| P-KPT ET-0071 | 200MM  | ...   | ...  | ...  | ...   |
| P-KPT ET-0072 | 250MM  | ...   | ...  | ...  | ...   |
| P-KPT ET-0073 | 315MM  | ...   | ...  | ...  | ...   |
| P-KPT ET-0074 | 355MM  | ...   | ...  | ...  | ...   |
| P-KPT ET-0075 | 400MM  | ...   | ...  | ...  | ...   |

### Reducing Elbow



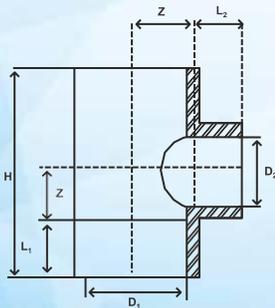
| CODE         | SIZE  | D1   | D2   | L1   | L2   | Z1   | Z2   |
|--------------|-------|------|------|------|------|------|------|
| PKPT RE-0121 | 25/20 | 24.0 | 19.2 | 18.5 | 16.0 | 17.8 | 14.4 |
| PKPT RE-0122 | 32/20 | 31.3 | 19.2 | 21.1 | 16.0 | 18.3 | 18.0 |
| PKPT RE-0123 | 32/25 | 31.3 | 24.2 | 20.0 | 17.8 | 22.2 | 20.7 |
| PKPT RE-0124 | 40/20 | 38.7 | 19.2 | 21.6 | 16.3 | 19.6 | 24.2 |
| PKPT RE-0125 | 40/25 | 38.7 | 24.2 | 21.6 | 17.8 | 21.4 | 20.7 |
| PKPT RE-0126 | 40/32 | 38.6 | 31.2 | 21.9 | 19.8 | 24.2 | 25.3 |

**Reducer**



| CODE         | SIZE    | D1    | D2    | L1   | L2   | H    |
|--------------|---------|-------|-------|------|------|------|
| P-KPT R-0081 | 25/20   | 24.0  | 19.2  | 18.5 | 15.7 | 38.1 |
| P-KPT R-0082 | 32/20   | 31.3  | 19.2  | 20.0 | 15.7 | 39.3 |
| P-KPT R-0083 | 32/25   | 31.4  | 24.4  | 21.0 | 18.4 | 41.7 |
| P-KPT R-0084 | 40/20   | 38.7  | 19.3  | 22.9 | 16.9 | 48.0 |
| P-KPT R-0085 | 40/25   | 39.0  | 24.2  | 24.2 | 18.0 | 48.5 |
| P-KPT R-0086 | 40/32   | 38.6  | 31.0  | 21.1 | 18.8 | 44.9 |
| P-KPT R-0087 | 50/20   | 48.0  | 18.8  | 24.6 | 16.6 | 44.5 |
| P-KPT R-0088 | 50/25   | 48.0  | 23.8  | 24.5 | 16.2 | 45.6 |
| P-KPT R-0089 | 50/32   | 48.0  | 31.1  | 24.4 | 18.0 | 48.1 |
| P-KPT R-0090 | 50/40   | 48.2  | 38.8  | 24.3 | 20.9 | 48.2 |
| P-KPT R-0091 | 63/20   | 60.9  | 19.2  | 28.2 | 15.9 | 48.3 |
| P-KPT R-0092 | 63/25   | 60.7  | 24.1  | 28.2 | 18.0 | 49.5 |
| P-KPT R-0093 | 63/32   | 60.6  | 30.7  | 28.0 | 18.0 | 48.0 |
| P-KPT R-0094 | 63/40   | 60.8  | 38.3  | 25.3 | 25.5 | 56.8 |
| P-KPT R-0095 | 63/50   | 60.9  | 48.2  | 29.2 | 25.8 | 64.8 |
| P-KPT R-0096 | 75/20   | 72.5  | 19.0  | 42.7 | 21.1 | 63.8 |
| P-KPT R-0097 | 75/25   | 72.5  | 24.3  | 42.7 | 21.1 | 63.8 |
| P-KPT R-0098 | 75/32   | 72.5  | 31.0  | 42.7 | 21.1 | 63.8 |
| P-KPT R-0099 | 75/40   | 72.2  | 38.7  | 31.6 | 22.5 | 63.6 |
| P-KPT R-0100 | 75/50   | 72.1  | 48.4  | 31.7 | 27.0 | 63.2 |
| P-KPT R-0101 | 75/63   | 71.8  | 60.9  | 31.4 | 30.0 | 67.0 |
| P-KPT R-0102 | 90/20   | 87.3  | 19.0  | 43.5 | 27.0 | 70.5 |
| P-KPT R-0103 | 90/25   | 87.3  | 24.1  | 43.5 | 27.0 | 70.5 |
| P-KPT R-0104 | 90/32   | 87.3  | 31.0  | 42.5 | 27.0 | 70.5 |
| P-KPT R-0105 | 90/40   | 87.3  | 38.9  | 42.5 | 27.0 | 70.5 |
| P-KPT R-0106 | 90/50   | 86.5  | 48.1  | 33.0 | 26.3 | 70.0 |
| P-KPT R-0107 | 90/63   | 86.6  | 60.9  | 32.8 | 29.9 | 68.8 |
| P-KPT R-0108 | 90/75   | 86.7  | 72.7  | 37.2 | 31.5 | 71.7 |
| P-KPT R-0109 | 110/20  | 106.8 | 19.0  | 58.1 | 19.5 | 76.0 |
| P-KPT R-0110 | 110/25  | 106.8 | 24.0  | 53.3 | 19.2 | 76.0 |
| P-KPT R-0111 | 110/32  | 106.8 | 31.0  | 57.6 | 19.5 | 76.0 |
| P-KPT R-0112 | 110/40  | 106.8 | 39.0  | 56.6 | 19.3 | 76.0 |
| P-KPT R-0113 | 110/50  | 106.8 | 48.4  | 38.9 | 26.0 | 76.0 |
| P-KPT R-0114 | 110/63  | 106.8 | 61.2  | 38.9 | 30.1 | 76.0 |
| P-KPT R-0115 | 110/75  | 106.8 | 72.6  | 38.9 | 31.8 | 76.0 |
| P-KPT R-0116 | 110/90  | 106.8 | 86.6  | 38.9 | 33.0 | 76.0 |
| P-KPT R-0117 | 160/20  | 155.3 | 18.9  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0118 | 160/25  | 155.3 | 23.9  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0119 | 160/32  | 155.3 | 30.6  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0120 | 160/40  | 155.3 | 38.7  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0121 | 160/50  | 155.3 | 48.5  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0122 | 160/63  | 155.3 | 61.8  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0123 | 160/75  | 155.3 | 73.5  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0124 | 160/90  | 155.3 | 88.5  | 61.8 | 29.5 | 91.2 |
| P-KPT R-0125 | 160/110 | 155.3 | 106.3 | 61.8 | 29.5 | 91.2 |

**Reducing Tee**



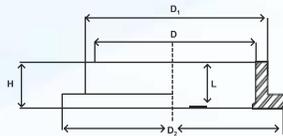
| CODE          | SIZE        | D1    | D2    | L1   | L2   | Z    | H     |
|---------------|-------------|-------|-------|------|------|------|-------|
| P-KPT RT-0141 | 25/20/25    | 24.2  | 19.1  | 17.6 | 16.2 | 10.8 | 56.8  |
| P-KPT RT-0142 | 32/20/32    | 31.1  | 19.1  | 19.8 | 16.5 | 11.3 | 62.2  |
| P-KPT RT-0143 | 32/25/32    | 31.4  | 24.2  | 20.0 | 17.8 | 13.4 | 66.8  |
| P-KPT RT-0144 | 40/20/40    | 39.0  | 19.1  | 21.4 | 16.5 | 11.1 | 65.0  |
| P-KPT RT-0145 | 40/25/40    | 38.8  | 24.2  | 21.4 | 17.6 | 13.5 | 69.8  |
| P-KPT RT-0146 | 40/32/40    | 38.8  | 31.0  | 21.4 | 19.5 | 16.8 | 76.4  |
| P-KPT RT-0147 | 50/20/50    | 48.4  | 19.1  | 24.4 | 18.1 | 24.5 | 97.7  |
| P-KPT RT-0148 | 50/25/50    | 48.6  | 24.1  | 24.3 | 17.9 | 24.7 | 98.0  |
| P-KPT RT-0149 | 50/32/50    | 48.6  | 30.5  | 24.3 | 18.8 | 24.6 | 97.8  |
| P-KPT RT-0150 | 50/40/50    | 48.6  | 38.7  | 22.4 | 22.0 | 26.1 | 96.9  |
| P-KPT RT-0151 | 63/20/63    | 61.2  | 19.0  | 27.5 | 16.2 | 32.2 | 119.4 |
| P-KPT RT-0152 | 63/25/63    | 61.3  | 23.8  | 27.5 | 19.4 | 32.2 | 119.4 |
| P-KPT RT-0153 | 63/32/63    | 61.3  | 30.8  | 27.5 | 19.3 | 32.2 | 119.4 |
| P-KPT RT-0154 | 63/40/63    | 61.3  | 38.9  | 27.3 | 22.5 | 32.4 | 119.4 |
| P-KPT RT-0155 | 63/50/63    | 61.2  | 48.0  | 27.4 | 25.8 | 32.3 | 119.4 |
| P-KPT RT-0156 | 75/20/75    | 72.5  | 19.0  | 31.4 | 15.9 | 26.4 | 115.5 |
| P-KPT RT-0157 | 75/25/75    | 72.5  | 24.0  | 31.4 | 17.6 | 26.4 | 115.5 |
| P-KPT RT-0158 | 75/32/75    | 72.5  | 30.9  | 31.4 | 19.7 | 26.4 | 115.5 |
| P-KPT RT-0159 | 75/40/75    | 72.3  | 38.4  | 31.4 | 20.3 | 26.4 | 115.5 |
| P-KPT RT-0160 | 75/50/75    | 72.3  | 47.9  | 31.4 | 29.8 | 26.4 | 115.5 |
| P-KPT RT-0161 | 75/63/75    | 72.2  | 60.2  | 31.4 | 29.8 | 26.4 | 115.5 |
| P-KPT RT-0162 | 90/20/90    | 86.5  | 19.0  | 32.8 | 15.6 | 31.3 | 128.1 |
| P-KPT RT-0163 | 90/25/90    | 86.5  | 24.0  | 32.8 | 17.6 | 31.3 | 128.1 |
| P-KPT RT-0164 | 90/32/90    | 86.5  | 31.0  | 32.8 | 19.5 | 31.3 | 128.1 |
| P-KPT RT-0165 | 90/40/90    | 86.5  | 38.6  | 32.8 | 21.2 | 31.3 | 128.1 |
| P-KPT RT-0166 | 90/50/90    | 86.5  | 48.1  | 32.8 | 26.0 | 31.3 | 128.1 |
| P-KPT RT-0167 | 90/63/90    | 86.5  | 61.2  | 32.8 | 30.1 | 31.3 | 128.1 |
| P-KPT RT-0168 | 90/75/90    | 86.5  | 72.4  | 32.9 | 31.7 | 46.9 | 159.5 |
| P-KPT RT-0169 | 110/20/110  | 106.5 | 19.0  | 38.7 | 15.8 | 38.5 | 154.3 |
| P-KPT RT-0170 | 110/25/110  | 106.5 | 24.2  | 38.7 | 17.7 | 38.5 | 154.3 |
| P-KPT RT-0171 | 110/32/110  | 106.5 | 31.0  | 38.7 | 19.7 | 38.5 | 154.3 |
| P-KPT RT-0172 | 110/40/110  | 106.5 | 38.9  | 38.7 | 21.5 | 38.5 | 154.3 |
| P-KPT RT-0173 | 110/50/110  | 106.5 | 48.6  | 38.9 | 26.2 | 38.3 | 154.3 |
| P-KPT RT-0174 | 110/63/110  | 106.7 | 61.3  | 39.0 | 30.2 | 38.2 | 154.3 |
| P-KPT RT-0175 | 110/75/110  | 106.4 | 72.5  | 39.0 | 32.0 | 38.2 | 154.3 |
| P-KPT RT-0176 | 110/90/110  | 106.7 | 87.1  | 38.9 | 33.0 | 54.8 | 187.4 |
| P-KPT RT-0177 | 160/20/160  | 155.4 | 19.0  | 45.0 | 15.8 | 80.9 | 251.8 |
| P-KPT RT-0178 | 160/25/160  | 155.4 | 23.8  | 45.0 | 18.5 | 80.9 | 251.8 |
| P-KPT RT-0179 | 160/32/160  | 155.4 | 31.0  | 45.0 | 19.5 | 80.9 | 251.8 |
| P-KPT RT-0180 | 160/40/160  | 155.4 | 38.9  | 45.0 | 21.5 | 80.9 | 251.8 |
| P-KPT RT-0181 | 160/50/160  | 155.4 | 48.8  | 45.0 | 25.4 | 80.9 | 251.8 |
| P-KPT RT-0182 | 160/63/160  | 157.5 | 61.9  | 45.0 | 27.6 | 80.9 | 251.8 |
| P-KPT RT-0183 | 160/75/160  | 157.5 | 73.9  | 45.0 | 32.1 | 80.9 | 251.8 |
| P-KPT RT-0184 | 160/90/160  | 157.5 | 88.5  | 45.0 | 33.0 | 80.9 | 251.8 |
| P-KPT RT-0185 | 160/110/160 | 157.5 | 107.4 | 45.0 | 44.9 | 80.9 | 251.8 |

PPR-C With Steel Inlay Flanges



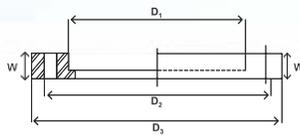
| CODE         | SIZE   | D1    | D3    | W    | No. of Bolt |
|--------------|--------|-------|-------|------|-------------|
| P-KPT F-0221 | 90 MM  | ...   | ...   | ...  | ...         |
| P-KPT F-0222 | 110 MM | ...   | ...   | ...  | ...         |
| P-KPT F-0223 | 160 MM | ...   | ...   | ...  | ...         |
| P-KPT F-0224 | 200 MM | 217.0 | 292.1 | 24.5 | 8           |
| P-KPT F-0225 | 250 MM | 267.0 | 355.0 | 27.5 | 8           |
| P-KPT F-0226 | 315 MM | 323.0 | 406.4 | 32.6 | 12          |

Flange Core(Stub End)



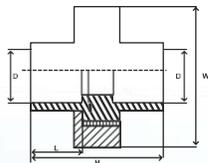
| CODE          | SIZE   | D     | D1    | D2    | L    | H     |
|---------------|--------|-------|-------|-------|------|-------|
| P-KPT FC-0201 | 32 MM  | 31.1  | 42.9  | 50.5  | 19.9 | 23.3  |
| P-KPT FC-0202 | 40 MM  | 31.1  | 49.6  | 60.2  | 20.3 | 25.8  |
| P-KPT FC-0203 | 50 MM  | 48.1  | 62.6  | 72.3  | 22.2 | 27.2  |
| P-KPT FC-0204 | 63 MM  | 61.0  | 80.7  | 95.0  | 20.9 | 35.4  |
| P-KPT FC-0205 | 75 MM  | 72.6  | 95.0  | 111.3 | 31.9 | 39.0  |
| P-KPT FC-0206 | 90 MM  | 87.1  | 111.8 | 129.4 | 24.2 | 42.1  |
| P-KPT FC-0207 | 110 MM | 106.8 | 133.3 | 151.0 | 25.4 | 43.3  |
| P-KPT FC-0208 | 160 MM | 155.0 | 194.4 | 214.0 | 31.0 | 52.8  |
| P-KPT FC-0209 | 200MM  | 166.1 | 211.0 | 251.5 | 54.8 | 80.3  |
| P-KPT FC-0210 | 250MM  | 213.8 | 261.4 | 312.0 | 80.5 | 84.4  |
| P-KPT FC-0211 | 315MM  | 253.5 | 310.5 | 380.0 | 71.0 | 94.0  |
| P-KPT FC-0212 | 355MM  | 300.0 | 355.0 | 427.0 | 63.8 | 119.0 |
| P-KPT FC-0213 | 400MM  | 352.0 | 400.0 | 477.0 | 70.0 | 117.0 |

Slip-on(PPR Flanges)



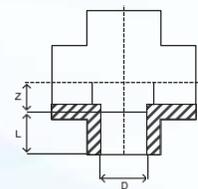
| CODE         | SIZE   | D1    | D2    | D3    | W    |
|--------------|--------|-------|-------|-------|------|
| P-KPT F-0221 | 32 MM  | 43.6  | 97.0  | 115.7 | 20.6 |
| P-KPT F-0222 | 40 MM  | 50.0  | 109.0 | 128.0 | 21.6 |
| P-KPT F-0223 | 50 MM  | 62.5  | 122.0 | 140.7 | 22.5 |
| P-KPT F-0224 | 63 MM  | 83.0  | 141.4 | 157.4 | 24.3 |
| P-KPT F-0225 | 75 MM  | 97.0  | 175.3 | 172.3 | 26.2 |
| P-KPT F-0226 | 90 MM  | 113.7 | 178.3 | 194.8 | 26.4 |
| P-KPT F-0227 | 110 MM | 135.7 | 197.9 | 216.0 | 30.6 |
| P-KPT F-0228 | 160 MM | 195.8 | 266.0 | 292.0 | 35.5 |

Plain Union



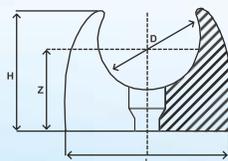
| CODE        | SIZE  | D    | L    | W    | H     |
|-------------|-------|------|------|------|-------|
| PKPT U-0241 | 20 MM | 19.2 | 17.7 | 52.2 | 44.4  |
| PKPT U-0242 | 25 MM | 24.2 | 18.6 | 51.4 | 55.2  |
| PKPT U-0243 | 32 MM | 31.2 | 22.1 | 61.5 | 67.5  |
| PKPT U-0244 | 40 MM | 39.2 | 29.2 | 79.0 | 79.9  |
| PKPT U-0245 | 50 MM | 47.7 | 23.6 | 78.0 | 96.1  |
| PKPT U-0246 | 63 MM | 60.7 | 27.7 | 89.0 | 107.6 |

4Way/Cross Tee



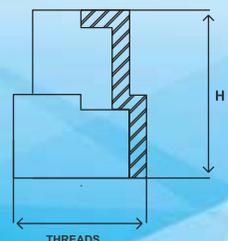
| CODE         | SIZE  | D    | L    | Z    |
|--------------|-------|------|------|------|
| PKPT CT-0261 | 20 MM | 18.8 | 15.5 | 15.4 |
| PKPT CT-0262 | 25 MM | 24.1 | 17.1 | 24.9 |
| PKPT CT-0263 | 32 MM | 30.6 | 17.8 | 32.2 |
| PKPT CT-0264 | 40 MM | 38.0 | 20.8 | 39.2 |
| PKPT CT-0265 | 50 MM | 48.0 | 21.3 | 52.2 |
| PKPT CT-0266 | 63 MM | 60.7 | 23.3 | 63.6 |

Pipe Clamp



| CODE | SIZE  | D    | L    | Z    | H    |
|------|-------|------|------|------|------|
| P-   | 20 MM | 18.9 | 27.0 | 19.2 | 31.0 |
| P-   | 25 MM | 24.0 | 32.0 | 21.0 | 36.0 |
| P-   | 32 MM | 30.7 | 39.5 | 27.5 | 43.5 |
| P-   | 40 MM | 39.1 | 48.3 | 30.9 | 49.8 |
| P-   | 50 MM | 50.0 | 60.0 | 37.3 | 61.5 |
| P-   | 63 MM | 63.0 | 74.7 | 45.0 | 75.3 |

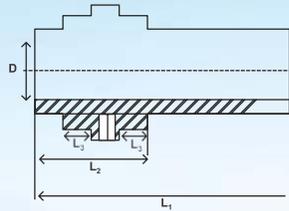
Long Plug



| CODE | SIZE | D | L | Z | H |
|------|------|---|---|---|---|
| P-   |      |   |   |   |   |
| P-   |      |   |   |   |   |
| P-   |      |   |   |   |   |

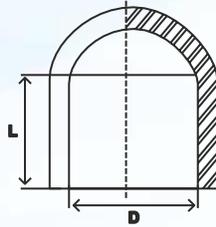
PNEUMATIC PIPES & FITTINGS

### Tank Connector



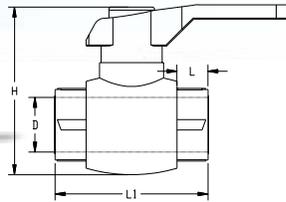
| CODE          | SIZE  | D    | L1    | L2   | L3   |
|---------------|-------|------|-------|------|------|
| P-KPT TC-0321 | 20 MM | 19.2 | 69.0  | 43.6 | 15.2 |
| P-KPT TC-0322 | 25 MM | 24.1 | 69.0  | 52.5 | 19.5 |
| P-KPT TC-0323 | 32 MM | 30.6 | 74.3  | 54.5 | 21.5 |
| P-KPT TC-0324 | 40 MM | 38.4 | 88.4  | 55.3 | 25.6 |
| P-KPT TC-0325 | 50 MM | 48.3 | 96.7  | 58.4 | 24.6 |
| P-KPT TC-0326 | 63 MM | 60.7 | 101.5 | 65.5 | 27.0 |

### End Cap



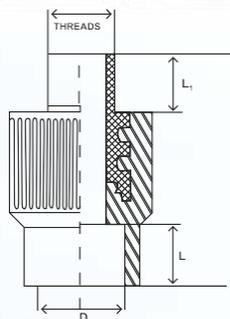
| CODE          | SIZE   | D     | L    |
|---------------|--------|-------|------|
| P-KPT EC-0181 | 20 MM  | 18.9  | 16.2 |
| P-KPT EC-0182 | 25 MM  | 24.0  | 18.3 |
| P-KPT EC-0183 | 32 MM  | 30.6  | 20.2 |
| P-KPT EC-0184 | 40 MM  | 38.7  | 24.3 |
| P-KPT EC-0185 | 50 MM  | 48.0  | 26.4 |
| P-KPT EC-0186 | 63 MM  | 60.9  | 29.7 |
| P-KPT EC-0187 | 75 MM  | 72.3  | 34.0 |
| P-KPT EC-0188 | 90 MM  | 86.1  | 35.0 |
| P-KPT EC-0189 | 110 MM | 106.1 | 38.5 |
| P-KPT EC-0190 | 160 MM | 154.0 | 41.2 |

### Ball Valve Plastic (Single Lever)



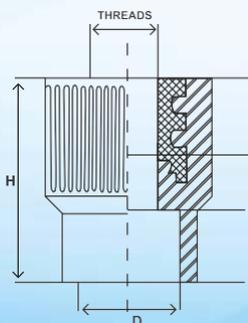
| CODE          | SIZE   | D    | L     | L1   | H     |
|---------------|--------|------|-------|------|-------|
| P-KPT BV-0351 | 20 MM  | 19.4 | 66.0  | 17.0 | 65.0  |
| P-KPT BV-0352 | 25 MM  | 24.4 | 73.2  | 17.3 | 75.9  |
| P-KPT BV-0353 | 32 MM  | 31.5 | 85.3  | 20.9 | 83.9  |
| P-KPT BV-0354 | 40 MM  | 39.4 | 111.8 | 24.5 | 112.6 |
| P-KPT BV-0355 | 50 MM  | 49.5 | 116.3 | 27.5 | 120.0 |
| P-KPT BV-0356 | 63 MM  | 61.7 | 149.0 | 37.0 | 141.7 |
| P-KPT BV-0357 | 75 MM  | ...  | ...   | ...  | ...   |
| P-KPT BV-0358 | 90 MM  | ...  | ...   | ...  | ...   |
| P-KPT BV-0359 | 110 MM | ...  | ...   | ...  | ...   |

### Male Threaded Coupling



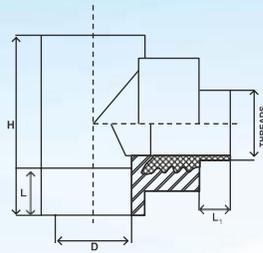
| CODE           | SIZE     | THREADS | D     | L    | L1   | H     |
|----------------|----------|---------|-------|------|------|-------|
| P-KPT MTC-0360 | 16*1/2   | 1/2"    | 15.7  | 17.0 | 13.9 | 57.3  |
| P-KPT MTC-0361 | 20*1/2   | 1/2"    | 19.2  | 16.2 | 14.2 | 57.0  |
| P-KPT MTC-0362 | 25*1/2   | 1/2"    | 23.8  | 18.3 | 14.2 | 56.0  |
| P-KPT MTC-0363 | 25*3/4   | 3/4"    | 24.1  | 18.2 | 14.1 | 59.1  |
| P-KPT MTC-0364 | 32*1/2   | 1/2"    | 31.1  | 19.8 | 14.0 | 64.5  |
| P-KPT MTC-0365 | 32*3/4   | 3/4"    | 31.1  | 20.3 | 14.2 | 67.8  |
| P-KPT MTC-0366 | 32*1     | 1"      | 31.1  | 20.2 | 28.0 | 71.8  |
| P-KPT MTC-0367 | 40*1     | 1"      | 38.7  | 21.6 | 28.0 | 76.0  |
| P-KPT MTC-0368 | 40*1-1/4 | 1 1/4"  | 38.8  | 22.1 | 14.1 | 76.0  |
| P-KPT MTC-0369 | 50*1-1/2 | 1 1/2"  | 48.9  | 25.5 | 21.3 | 80.0  |
| P-KPT MTC-0370 | 63*2     | 2"      | 62.2  | 29.5 | 26.3 | 95.2  |
| P-KPT MTC-0371 | 75*2-1/2 | 2 1/2"  | 72.0  | 32.4 | 24.9 | 100.5 |
| P-KPT MTC-0372 | 90*3     | 3"      | 86.4  | 38.2 | 24.6 | 109.2 |
| P-KPT MTC-0373 | 110*4    | 4"      | 104.9 | 38.1 | 25.5 | 119.0 |

### Female Threaded Coupling



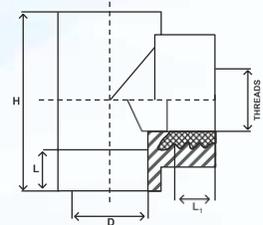
| CODE           | SIZE     | THREADS | D     | L    | L1   | H     |
|----------------|----------|---------|-------|------|------|-------|
| P-KPT FTC-0390 | 16*1/2   | 1/2"    | 15.7  | 17.0 | 15.0 | 43.4  |
| P-KPT FTC-0391 | 20*1/2   | 1/2"    | 19.2  | 16.0 | 15.0 | 43.2  |
| P-KPT FTC-0392 | 20*3/4   | 3/4"    | 23.6  | 18.0 | 14.9 | 41.8  |
| P-KPT FTC-0393 | 25*1/2   | 1/2"    | 23.6  | 18.0 | 14.9 | 41.8  |
| P-KPT FTC-0394 | 25*3/4   | 3/4"    | 24.1  | 18.1 | 15.7 | 45.0  |
| P-KPT FTC-0395 | 32*1/2   | 1/2"    | 31.1  | 20.0 | 15.0 | 50.5  |
| P-KPT FTC-0396 | 32*3/4   | 3/4"    | 31.1  | 20.4 | 16.0 | 52.0  |
| P-KPT FTC-0397 | 32*1     | 1"      | 31.1  | 20.2 | 17.8 | 54.7  |
| P-KPT FTC-0398 | 40*1     | 1"      | 38.7  | 21.6 | 27.0 | 62    |
| P-KPT FTC-0399 | 40*1-1/4 | 1 1/4"  | 38.8  | 22.1 | 18.0 | 62.0  |
| P-KPT FTC-0400 | 50*1-1/2 | 1 1/2"  | 48.8  | 25.3 | 18.5 | 58.0  |
| P-KPT FTC-0401 | 63*2     | 2"      | 61.5  | 28.6 | 25.6 | 68.1  |
| P-KPT FTC-0402 | 75*2-1/2 | 2 1/2"  | 71.8  | 31.7 | 20.2 | 89.2  |
| P-KPT FTC-0403 | 90*3     | 3"      | 86.5  | 38.0 | 21.9 | 101.5 |
| P-KPT FTC-0404 | 110*4    | 4"      | 106.1 | 38.2 | 26.3 | 116.8 |

Male Threaded Tee



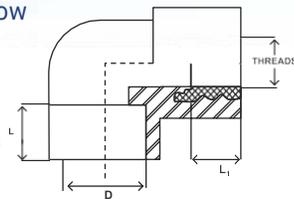
| CODE           | SIZE     | THREADS | D    | L    | L1   | H    |
|----------------|----------|---------|------|------|------|------|
| P-KPT MTT-0441 | 20*1/2   | 1/2"    | 19.2 | 16.5 | 14.0 | 58.2 |
| P-KPT MTT-0443 | 25*1/2   | 1/2"    | 24.2 | 18.2 | 14.0 | 62.2 |
| P-KPT MTT-0444 | 25*3/4   | 3/4"    | 24.2 | 17.6 | 13.9 | 63.8 |
| P-KPT MTT-0445 | 32*1/2   | 1/2"    | 31.3 | 20.0 | 14.2 | 78.0 |
| P-KPT MTT-0446 | 32*3/4   | 3/4"    | 31.3 | 20.0 | 14.2 | 78.2 |
| P-KPT MTT-0447 | 32*1     | 1"      | 31.2 | 20.0 | 15.8 | 77.8 |
| P-KPT MTT-0448 | 40-1-1/4 | 1 1/4"  | 39.0 | 21.4 | 15.2 | 91.0 |

Female Threaded Tee



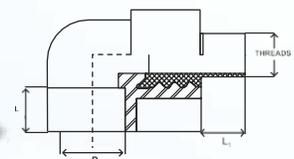
| CODE           | SIZE     | THREADS | D    | L    | L1   | H    |
|----------------|----------|---------|------|------|------|------|
| P-KPT FTT-0421 | 20*1/2   | 1/2"    | 19.2 | 15.0 | 14.0 | 58.2 |
| P-KPT FTT-0422 | 20*3/4   | 3/4"    | 19.2 | 15.0 | 14.0 | 58.2 |
| P-KPT FTT-0423 | 25*1/2   | 1/2"    | 24.2 | 14.9 | 14.0 | 62.2 |
| P-KPT FTT-0424 | 25*3/4   | 3/4"    | 24.2 | 16.2 | 13.9 | 63.8 |
| P-KPT FTT-0425 | 32*1/2   | 1/2"    | 31.3 | 15.0 | 14.2 | 78.0 |
| P-KPT FTT-0426 | 32*3/4   | 3/4"    | 31.3 | 16.2 | 14.2 | 78.2 |
| P-KPT FTT-0427 | 32*1     | 1"      | 31.2 | 17.7 | 15.8 | 77.8 |
| P-KPT FTT-0428 | 40*1-1/4 | 1 1/4"  | 39.0 | 17.6 | 15.2 | 91.0 |

Female Threaded Elbow



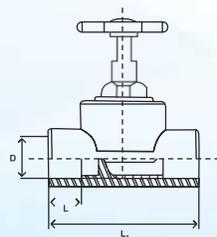
| CODE           | SIZE     | THREADS | D    | L    | L1   |
|----------------|----------|---------|------|------|------|
| P-KPT FTE-0461 | 20*1/2   | 1/2"    | 19.2 | 16.1 | 16.0 |
| P-KPT FTE-0463 | 25*1/2   | 1/2"    | 24.1 | 17.9 | 15.0 |
| P-KPT FTE-0464 | 25*3/4   | 3/4"    | 24.2 | 17.9 | 16.0 |
| P-KPT FTE-0465 | 32*1/2   | 1/2"    | 31.2 | 20.2 | 15.0 |
| P-KPT FTE-0466 | 32*3/4   | 3/4"    | 31.2 | 20.2 | 16.1 |
| P-KPT FTE-0467 | 32*1     | 1"      | 31.2 | 20.3 | 18.3 |
| P-KPT FTE-0468 | 40*1-1/4 | 1 1/4"  | 39.1 | 21.3 | 17.9 |

Male Threaded Elbow



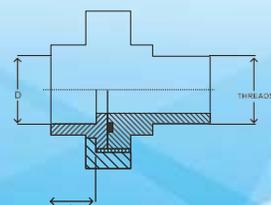
| CODE           | SIZE     | THREADS | D    | L    | L1   |
|----------------|----------|---------|------|------|------|
| P-KPT MTE-0481 | 20*1/2   | 1/2"    | 19.2 | 16.1 | 15.0 |
| P-KPT MTE-0483 | 25*1/2   | 1/2"    | 24.1 | 17.9 | 15.0 |
| P-KPT MTE-0484 | 25*3/4   | 3/4"    | 24.2 | 18.0 | 14.2 |
| P-KPT MTE-0485 | 32*1/2   | 1/2"    | 31.3 | 21.0 | 14.3 |
| P-KPT MTE-0486 | 32*3/4   | 3/4"    | 31.3 | 20.4 | 15.2 |
| P-KPT MTE-0487 | 32*1     | 1"      | 31.3 | 20.1 | 27.0 |
| P-KPT MTE-0488 | 40*1-1/4 | 1 1/4"  | 39.0 | 24.5 | 21.8 |

Gate Valve



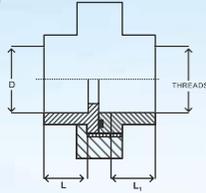
| CODE          | SIZE  | D    | L    | L1    |
|---------------|-------|------|------|-------|
| P-KPT GV-0501 | 20 MM | 19.0 | 15.0 | 60.5  |
| P-KPT GV-0502 | 25 MM | 24.0 | 16.8 | 69.2  |
| P-KPT GV-0503 | 32 MM | 31.1 | 20.0 | 79.5  |
| P-KPT GV-0504 | 40 MM | 39.0 | 21.4 | 92.5  |
| P-KPT GV-0505 | 50 MM | 48.0 | 24.0 | 112.2 |
| P-KPT GV-0506 | 63 MM | 60.6 | 26.0 | 119.1 |

Male Threaded Union



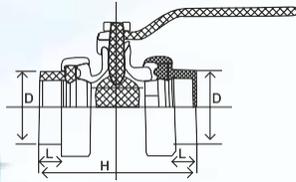
| CODE           | SIZE     | THREADS | D    | L    |
|----------------|----------|---------|------|------|
| P-KPT MTU-0521 | 20*1/2   | 1/2"    | 19.2 | 17.8 |
| P-KPT MTU-0522 | 25*3/4   | 3/4"    | 24.2 | 19.0 |
| P-KPT MTU-0523 | 32*1     | 1"      | 31.3 | 23.5 |
| P-KPT MTU-0524 | 40*1-1/4 | 1 1/4"  | 39.2 | 28.5 |
| P-KPT MTU-0525 | 50*1-1/2 | 1 1/2"  | 47.6 | 24.6 |
| P-KPT MTU-0526 | 63*2     | 2"      | 60.6 | 28.1 |

Female Threaded Union



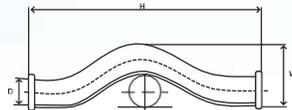
| CODE           | SIZE     | THREADS | D    | L    | L1   |
|----------------|----------|---------|------|------|------|
| P-KPT FTU-0541 | 20*1/2   | 1/2"    | 19.2 | 17.5 | 18.0 |
| P-KPT FTU-0542 | 25*3/4   | 3/4"    | 24.2 | 19.0 | 18.5 |
| P-KPT FTU-0543 | 32*1     | 1"      | 31.2 | 23.6 | 20.4 |
| P-KPT FTU-0544 | 40*1-1/4 | 1 1/4"  | 39.2 | 28.4 | 23.0 |
| P-KPT FTU-0545 | 50*1-1/2 | 1 1/2"  | 47.7 | 23.6 | 31.5 |
| P-KPT FTU-0546 | 63*2     | 2"      | 60.6 | 28.4 | 28.7 |

Double Union Ball Valve



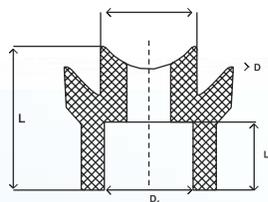
| CODE            | SIZE  | D    | L    | H     |
|-----------------|-------|------|------|-------|
| P-KPT DUBV-0561 | 20 MM | 18.7 | 16.3 | 84.1  |
| P-KPT DUBV-0562 | 25 MM | 23.8 | 17.4 | 95.7  |
| P-KPT DUBV-0563 | 32 MM | 30.8 | 21.8 | 107.3 |
| P-KPT DUBV-0564 | 40 MM | 38.9 | 25.2 | 125.3 |
| P-KPT DUBV-0565 | 50 MM | 48.7 | 27.3 | 147.0 |
| P-KPT DUBV-0566 | 63 MM | 61.4 | 29.0 | 168.5 |

By Pass Bend



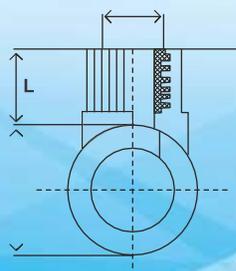
| CODE           | SIZE  | D    | L    | H     |
|----------------|-------|------|------|-------|
| P-KPT BPB-0582 | 32 MM | 31.2 | 58.0 | 106.0 |

Weld in Saddle Reducer



| CODE             | SIZE   | D    | D1   | L    | L1   |
|------------------|--------|------|------|------|------|
| P-KPT WIS R-0629 | 63/32  | 48.8 | 30.8 | 40.2 | 19.9 |
| P-KPT WIS R-0630 | 75/32  | 48.8 | 30.8 | 40.2 | 19.9 |
| P-KPT WIS R-0631 | 90/20  | 78.5 | 19.1 | 62.1 | 15.5 |
| P-KPT WIS R-0632 | 90/25  | 78.5 | 24.2 | 62.1 | 17.5 |
| P-KPT WIS R-0633 | 90/32  | 78.5 | 31.0 | 62.1 | 19.1 |
| P-KPT WIS R-0634 | 90/40  | 79.2 | 38.9 | 62.1 | 21.4 |
| P-KPT WIS R-0635 | 90/50  | 79.2 | 48.8 | 62.1 | 21.7 |
| P-KPT WIS R-0636 | 90/63  | 79.2 | 62.7 | 62.1 | 27.5 |
| P-KPT WIS R-0637 | 110/20 | 88.0 | 19.0 | 66.7 | 15.5 |
| P-KPT WIS R-0638 | 110/25 | 88.0 | 24.0 | 66.7 | 17.3 |
| P-KPT WIS R-0639 | 110/32 | 88.0 | 31.0 | 66.7 | 19.3 |
| P-KPT WIS R-0640 | 110/40 | 88.0 | 39.1 | 66.7 | 21.5 |
| P-KPT WIS R-0641 | 110/50 | 88.0 | 48.8 | 66.7 | 25.2 |
| P-KPT WIS R-0642 | 110/63 | 88.0 | 62.4 | 66.7 | 27.4 |
| P-KPT WIS R-0643 | 160/20 | 89.8 | 19.0 | 62.0 | 15.6 |
| P-KPT WIS R-0644 | 160/25 | 89.8 | 23.9 | 62.0 | 17.3 |
| P-KPT WIS R-0645 | 160/32 | 89.8 | 31.2 | 62.0 | 19.4 |
| P-KPT WIS R-0646 | 160/40 | 89.8 | 38.8 | 62.0 | 21.3 |
| P-KPT WIS R-0647 | 160/50 | 89.8 | 49.1 | 62.0 | 21.5 |
| P-KPT WIS R-0648 | 160/63 | 89.8 | 62.5 | 62.0 | 27.3 |
| P-KPT WIS R-0649 | 200/20 | 90.2 | 19.1 | 66.0 | 15.6 |
| P-KPT WIS R-0650 | 200/25 | 90.2 | 24.1 | 66.0 | 17.7 |
| P-KPT WIS R-0651 | 200/32 | 90.2 | 31.2 | 66.0 | 19.4 |
| P-KPT WIS R-0652 | 200/40 | 90.2 | 39.0 | 66.0 | 21.4 |
| P-KPT WIS R-0653 | 200/50 | 90.2 | 48.8 | 66.0 | 25.0 |
| P-KPT WIS R-0654 | 200/63 | 90.2 | 62.5 | 66.0 | 27.3 |

Weld in Saddle Female Threaded Coupling



| CODE             | SIZE    | THREADS | L    | L1   | H    |
|------------------|---------|---------|------|------|------|
| P-KPT WIS M-0671 | 160*1/2 | 1/2"    | 16.3 | 49.2 | 41.3 |
| P-KPT WIS M-0672 | 110*1/2 | 1/2"    | 16.3 | 49.2 | 41.3 |
| P-KPT WIS M-0673 | 90*1/2  | 1/2"    | 16.3 | 49.2 | 41.3 |
| P-KPT WIS M-0674 | 75*1/2  | 1/2"    | 16.3 | 49.2 | 41.3 |
| P-KPT WIS M-0675 | 63*1/2  | 1/2"    | 16.3 | 49.2 | 41.3 |
| P-KPT WIS M-0676 | 160*3/4 | 3/4"    | 16.0 | 49.1 | 41.3 |
| P-KPT WIS M-0677 | 110*3/4 | 3/4"    | 16.0 | 49.1 | 41.3 |
| P-KPT WIS M-0678 | 90*3/4  | 3/4"    | 16.0 | 49.1 | 41.3 |
| P-KPT WIS M-0679 | 75*3/4  | 3/4"    | 16.0 | 49.1 | 41.3 |
| P-KPT WIS M-0680 | 63*3/4  | 3/4"    | 16.0 | 49.1 | 41.3 |

## PRODUCT INSTALLATION

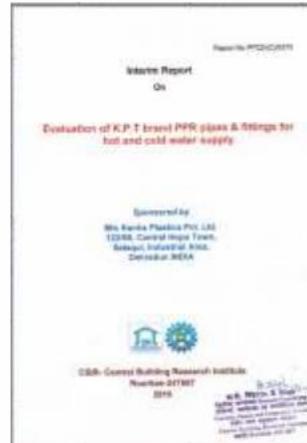
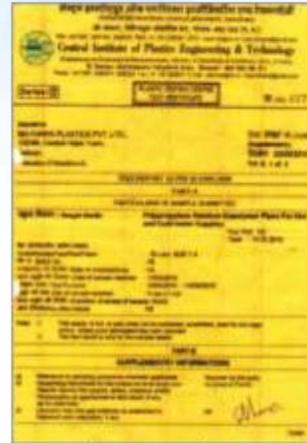
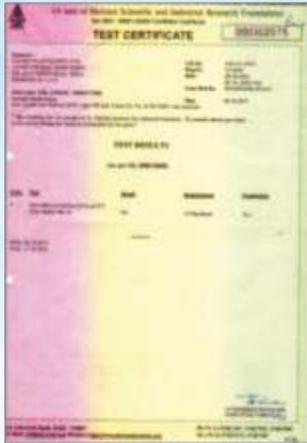


# PNEUMATIC PIPES & FITTINGS

## SOME OF OUR PRESTIGIOUS CLIENTS



## CERTIFICATES & APPRECIATIONS





AN ISO 9001:2015 & ISO 14001:2015  
CERTIFIED COMPANY

## INNOVAIR TECHNOLOGY

Regd. Office: Office NO.77,A Wing Spine City  
Mall,Moshi,Pune-412105.

Works : Gat No.1430,Mhetre Wasti,Chikhali,Pune-411062

Contact – 8600340286/8482888531

Mail id- [info@innovairtechnology.com](mailto:info@innovairtechnology.com)

