



# PIPETEC<sup>®</sup> TECHNICAL MANUAL

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## PIPES

### ALUMINIUM MULTILAYER COMPOSITE PIPE

The Pipetec metal composite pipe was developed to withstand the wide range of temperatures and pressures in cold and hot water systems.

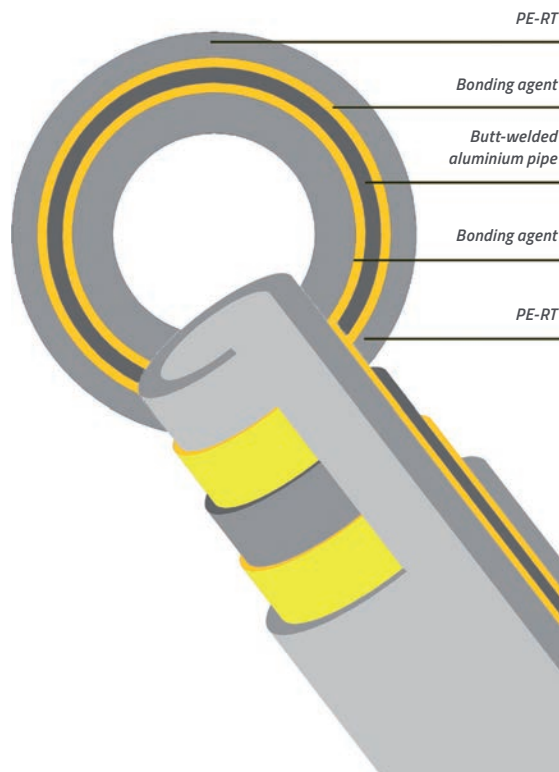
#### ► DESIGN

A basic polyethylene pipe is extruded and a bonding agent is applied. An aluminium strip is formed around the pipe, butt welded longitudinally and calibrated to the inner pipe. A further adhesive layer and a covering layer of polyethylene are then applied. The weld seam is checked inline during the production process. The internal diameter of the finished product is checked with a ball.

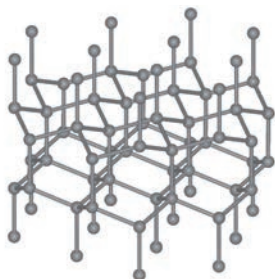
#### ► MATERIALS

#### PE-RT – ELASTICITY AT ANY TEMPERATURE

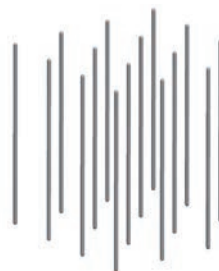
The internal pipe material PE-RT (Raised Temperature) was specially developed for applications in cold and hot water systems. Only pure materials from established raw material producers are used. The interlinked structure of the material has high thermal resistance and is therefore particularly suitable for use in this area.



### POLYETHYLENE



Interlinked (physically)  
Better structure



Not interlinked (physically)  
Weaker structure

High-temperature-resistant polyethylene or PE-RT extends the typical properties of polyethylene. Because of its molecular structure and its process properties, it is also extremely stable at high temperatures. This makes it perfect for applications in the field of cold and hot water systems. The combination of PE-RT, aluminium and bonding

agent offers some big advantages in terms of processing and cost-effectiveness of installations in comparison to conventional raw materials such as copper or C-steel. All materials are tested and safe for use in drinking water installations.

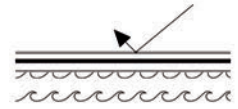


## ► ADVANTAGES OF ALUMINIUM MULTILAYER COMPOSITE PIPE

The Pipetec pipe system is designed for universal use and offers some important advantages to those who work with it:

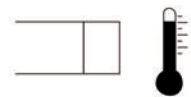
### 100% DIFFUSION-TIGHT

The Pipetec multilayer composite pipe is 100% diffusion-tight thanks to the internal butt-welded aluminium pipe (oxygen barrier).



### LITTLE THERMAL EXPANSION

The internal aluminium pipe reduces the thermal expansion considerably (compared to conventional plastic pipes). It is roughly equivalent to that of metal pipes (0.024 mm/m x K).



### PHYSICALLY INTERLINKED PLASTIC INSIDE AND OUT PE-RT

The Pipetec System multilayer composite pipe has the same quality plastic both inside and outside. This prevents different ageing processes or material properties.



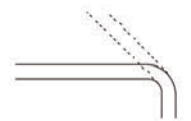
### NO MATERIAL ABRASION, NO DEPOSITS

The lower roughness of the interlinked plastic prevents any material abrasion or deposits that would change the pipe cross-section.



### DIMENSIONALLY STABLE, HARDLY ANY FITTINGS FOR DIRECTIONCHANGES

The Pipetec System multilayer composite pipe can be bent easily by hand and stays in the required shape without any spring-back. Changes of direction can be achieved without any moulded parts. Only in exceptional cases are appropriate Fittings required.



### DURABILITY 70° AT 10 BAR

The Pipetec System multilayer composite pipe has continuous durability at 70°C and 10 bar. Brief temperature spikes of 95°C are feasible in accordance with DVGW Worksheet W542 and W534.



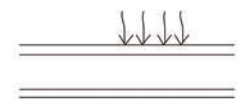
### NOISE REDUCTION FEATURES

The smooth inside wall of the pipe means there are no audible flow noises. Fittings, moulded parts and taps can be separated from the construction base with appropriate insulation (DIN 4109 / EnEV).



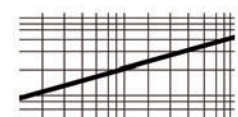
### CORROSION RESISTANCE

The fittings are just as resistant to corrosion as the Pipetec System multilayer composite pipes. The components in the range are therefore suitable for all types of drinking water.



### SERVICE LIFE

The Pipetec System multilayer composite pipe is designed for a service life of at least 50 years under the continuous load described above (70°C at 10 bar, 95°C for short periods). Laying and testing in accordance with DIN 1988.



### MEETS THE REQUIREMENTS OF THE UBA POSITIVE LIST (DVGW AND KIWA CERTIFICATION)




**► TECHNICAL DATA FOR ALUMINIUM MULTILAYER COMPOSITE PIPE (AS OF 11/2018)**

| DIMENSIONS                                                      | 16X2.0                                    | 16X2.0                              | 20X2.0                              | 26X3.0                              | 32X3.0                 | 40X3.5         | 50X4.0       | 63X4.5       |
|-----------------------------------------------------------------|-------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------|----------------|--------------|--------------|
| Item no.                                                        | VR1620...HZ                               | VR1620...<br>VS1620...<br>VRI162... | VR2020...<br>VS2020...<br>VRI202... | VR2630...<br>VS2630...<br>VRI263... | VR3230...<br>VS3230... | VS402<br>VS405 | VS505        | VS635        |
| Certifications / Tests                                          | none<br>(heating<br>applications<br>only) | DVGW<br>KIWA                        | DVGW<br>KIWA                        | DVGW<br>KIWA                        | DVGW<br>KIWA           | DVGW<br>KIWA   | DVGW<br>KIWA | DVGW<br>KIWA |
| Colour                                                          | white                                     | white                               | white                               | white                               | white                  | white          | white        | white        |
| Pipe structure in layers                                        | 5                                         | 5                                   | 5                                   | 5                                   | 5                      | 5              | 5            | 5            |
| External pipe diameter (mm)                                     | 16.0                                      | 16.0                                | 20.0                                | 26.0                                | 32.0                   | 40.0           | 50.0         | 63.0         |
| Pipe wall thickness (mm)                                        | 2.0                                       | 2.0                                 | 2.0                                 | 3.0                                 | 3.0                    | 3.5            | 4.0          | 4.5          |
| Internal pipe diameter (mm)                                     | 12.0                                      | 12.0                                | 16.0                                | 20.0                                | 26.0                   | 33.0           | 42.0         | 54.0         |
| Aluminium layer thickness (mm)                                  | 0.15                                      | 0.20                                | 0.25                                | 0.35 / 0.3                          | 0.50                   | 0.50           | 0.60         | 0.80         |
| Density                                                         |                                           |                                     |                                     |                                     |                        |                |              |              |
| Smallest bending radius (mm)<br>without bending tool (T = 20°C) | 80                                        | 80                                  | 100                                 | 260                                 | -                      |                |              | -            |
| Smallest bending radius (mm)<br>with bending tool (T = 20°C)    | 32                                        | 48                                  | 60                                  | 104                                 | 128                    | 160            | 200          | 252          |
| Metre weight (g / m)                                            | 100                                       | 105                                 | 140                                 | 260                                 | 350                    | 500            | 700          | 1,100        |
| Water content (litre / m)                                       | 0.113                                     | 0.113                               | 0.201                               | 0.314                               | 0.531                  | 0.855          | 1.385        | 2.290        |
| Linear expansion coefficient (mm / (m K))                       | 0.023                                     | 0.023                               | 0.023                               | 0.023                               | 0.023                  | 0.023          | 0.026        | 0.026        |
| Thermal resistance (m <sup>2</sup> k / W)                       | 0.0046                                    | 0.0045                              | 0.0044                              | 0.0066                              | 0.0063                 | 0.0075         | 0.0085       | 0.0093       |
| Thermal conductivity (W / m K)                                  | 0.43                                      | 0.44                                | 0.46                                | 0.45                                | 0.48                   | 0.47           | 0.47         | 0.49         |
| Max. operating temperature, over 50 years (°C)                  | 60.0                                      | 70.0                                | 70.0                                | 70.0                                | 70.0                   | 70.0           | 70.0         | 70.0         |
| Max. operating temperature, max. 1 year (°C)                    | 80                                        | 95                                  | 95                                  | 95                                  | 95                     | 95             | 95           | 95           |
| Fail-safe temperature, max. 100 hours (°C)                      | 95                                        | 110                                 | 110                                 | 110                                 | 110                    | 110            | 110          | 110          |
| Max. operating pressure, over 50 years (bar)                    | 6                                         | 10                                  | 10                                  | 10                                  | 10                     | 10             | 10           | 10           |
| Max. operating pressure, max. 1 year (bar)                      | 8                                         | 12                                  | 12                                  | 12                                  | 12                     | 12             | 12           | 12           |
| Max. operating pressure, app. classes 4/5 (bar)                 |                                           |                                     |                                     |                                     |                        |                |              |              |
| Surface roughness (mm)                                          | 0.007                                     | 0.007                               | 0.007                               | 0.007                               | 0.007                  | 0.007          | 0.007        | 0.007        |
| Oxygen permeability (g /m <sup>3</sup> d)                       | <0.1                                      | <0.1                                | <0.1                                | <0.1                                | <0.1                   | <0.1           | <0.1         | <0.1         |



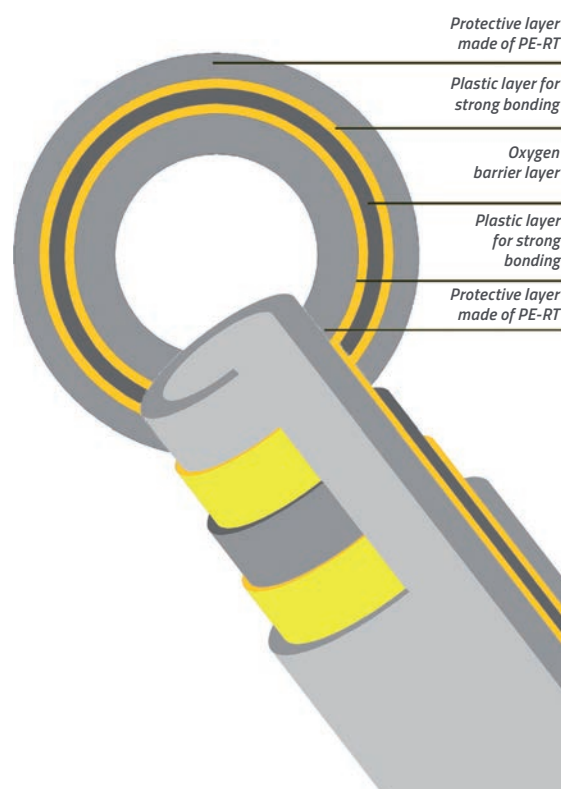
## SOLID PLASTIC PIPE PE-RT

Thermally stable solid plastic pipe for underfloor heating systems - PE-RT is a high-quality, five-layer underfloor heating pipe. This structure provides high oxygen tightness, which is not affected even by rough building site conditions.

### ► STRUCTURE – MATERIAL

A specially modified polyethylene is used for PE-RT (Raised Temperature) heating pipes, the molecular structure and composition of which guarantee very good thermal stability and high mechanical strength up to temperatures of 90°C.

The five-layer pipe structure is made in a single work operation using the extrusion process. A layer of EVOH provides a very effective oxygen barrier, while the outer PE-RT layer protects the entire layer structure from external factors. The layers are securely and permanently glued together by means of a bonding agent. This production process makes the pipe particularly suitable for cost-effective and safe installation of underfloor heating systems.



### ► ADVANTAGES OF SOLID PLASTIC PIPE PE-RT

- Oxygen tightness with co-extruded EVOH coating as per DIN 4726
- Range of use max. 90°C, max. 6 bar, continuous temperature 70°C
- Pipes made of PE-RT are free from corrosion. The materials will not react or change.
- Weldable basic pipe
- Excellent stress crack resistance
- Suitable for particularly rough laying conditions thanks to 5-layer technology
- Flexible and easy to lay – can be laid cold
- Tight bending radii possible
- Resistant to numerous chemicals (details on request)
- No encrustation thanks to smooth internal pipe surface
- Light weight


**► TECHNICAL DATA FOR SOLID PLASTIC PIPE PE-RT (AS OF 11/2018) INCL. ULTRAFLEX**

| DIMENSIONS                                                      | 12X2.0   | 14X2.0    | 16X2.0    | 17X2.0    |
|-----------------------------------------------------------------|----------|-----------|-----------|-----------|
| Item no.                                                        | HR120... | HR1420... | HR1620... | HR1720... |
| Certifications / Tests (only Type 2)                            | SKZ      | SKZ       | SKZ       | SKZ       |
| Colour                                                          | natural  | natural   | natural   | natural   |
| Pipe structure in layers                                        | 5        | 5         | 5         | 5         |
| External pipe diameter (mm)                                     | 12.0     | 14.0      | 16.0      | 17.0      |
| Pipe wall thickness (mm)                                        | 2.0      | 2.0       | 2.0       | 2.0       |
| Internal pipe diameter (mm)                                     | 8.0      | 10.0      | 12.0      | 13.0      |
| Density                                                         | 0.945    | 0.945     | 0.945     | 0.945     |
| Smallest bending radius (mm)<br>without bending tool (T = 20°C) | 60       | 70        | 80        | 90        |
| Smallest bending radius (mm)<br>with bending tool (T = 20°C)    | 24       | 28        | 32        | 36        |
| Metre weight (g / m)                                            | 62       | 75        | 87        | 94        |
| Water content (litre / m)                                       | 0.050    | 0.079     | 0.113     | 0.133     |
| Linear expansion coefficient (mm / (m K))                       | 0.195    | 0.195     | 0.195     | 0.195     |
| Thermal resistance (m <sup>2</sup> k / W)                       | 0.0050   | 0.0050    | 0.0050    | 0.0050    |
| Thermal conductivity (W / m K)                                  | 0.40     | 0.40      | 0.40      | 0.40      |
| Max. operating temperature, over 50 years (°C)                  | 70.0     | 70.0      | 70.0      | 70.0      |
| Max. operating temperature, max. 1 year (°C)                    | 90       | 90        | 90        | 90        |
| Fail-safe temperature, max. 100 hours (°C)                      | 100      | 100       | 100       | 100       |
| Max. operating pressure, over 50 years (bar)                    | -        | -         | -         | -         |
| Max. operating pressure, max. 1 year (bar)                      | -        | -         | -         | -         |
| Max. operating pressure, app. classes 4/5 (bar)                 | 8        | 8         | 8         | 8         |
| Surface roughness (mm)                                          | 0.007    | 0.007     | 0.007     | 0.007     |
| Oxygen permeability (g / m <sup>3</sup> d)                      | <0.01    | <0.01     | <0.01     | <0.01     |



## TECHNICAL DATA FITTINGS

### ZETA VALUES PIPETEC PRESS FITTINGS

Loss coefficient  $\zeta$

| COMPONENT                                        | SYMBOL | DIM 16 | DIM 20 | DIM 26 | DIM 32 | DIM 40 | DIM 50 |
|--------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| T-CONNECTOR FLOW SEPARATION                      |        | 9.8    | 7.6    | 5.5    | 3.4    | 2.8    | 2.2    |
| T-CONNECTOR RUN (COUPLING)                       |        | 5.4    | 4.2    | 3.1    | 2.6    | 2.1    | 1.6    |
| T-CONNECTOR COUNTER-FLOW<br>FOR FLOW SEPARATION  |        | 12.2   | 8.5    | 6.8    | 5.1    | 3.4    | 2.8    |
| T-CONNECTOR COUNTER-FLOW<br>FOR FLOW COMBINATION |        | 12.2   | 8.5    | 6.8    | 5.1    | 3.4    | 2.8    |
| 90° ELBOW                                        |        | 8.7    | 6.3    | 4.5    | 2.9    | 1.3    | 1.3    |
| PIPE BEND                                        |        | 1.3    | 0.9    | 0.7    | 0.4    | 0.2    | -      |
| TRANSITION REDUCER                               |        | 8.3    | 6.3    | 5.1    | 2.8    | 1.6    | 1.3    |
| WALL BUSHING                                     |        | 5.5    | 5.4    | -      | -      | -      | -      |

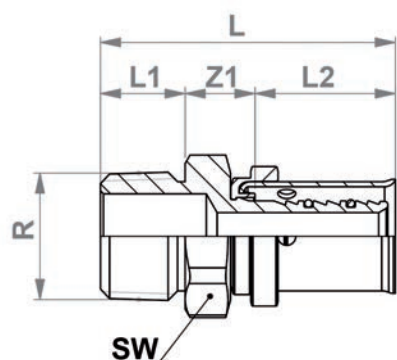


# INSTALLATION DIMENSIONS / Z-DIMENSIONS

## PIPETEC PRESSFITTINGS



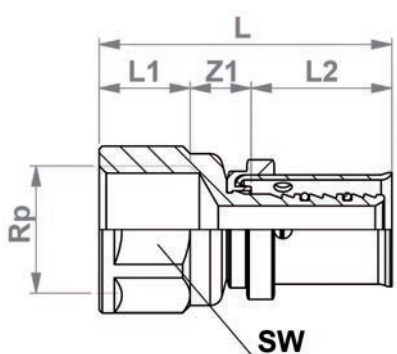
### PRESS CONNECTOR WITH MALE THREAD



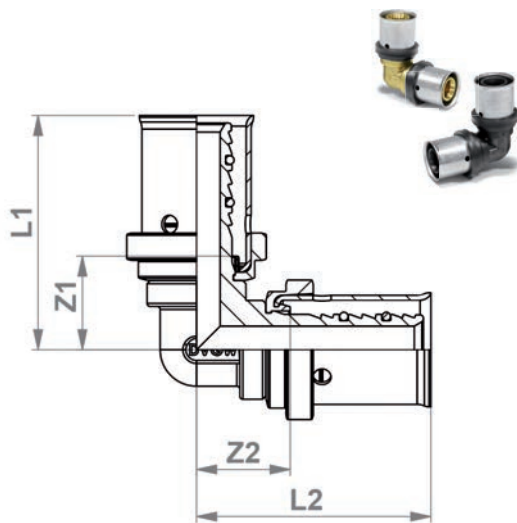
| ITEM NO. | SIZE              | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm | SW<br>mm | R<br>" |
|----------|-------------------|----------|---------|----------|----------|----------|----------|--------|
| PFUA1604 | 16 x 2 - 1/2"     | Brass    | 48      | 14       | 23       | 11       | 24       | 1/2    |
| PFUA1605 | 16 x 2 - 3/4"     | Brass    | 51      | 16       | 23       | 12       | 27       | 3/4    |
| PFUA2004 | 20 x 2 - 1/2"     | Brass    | 48      | 14       | 23       | 11       | 24       | 1/2    |
| PFUA2005 | 20 x 2 - 3/4"     | Brass    | 51      | 16       | 23       | 12       | 27       | 3/4    |
| PFUA2006 | 20 x 2 - 1"       | Brass    | 57      | 20       | 23       | 14       | 36       | 1      |
| PFUA2604 | 26 x 3 - 1/2"     | Brass    | 48      | 14       | 23       | 11       | 24       | 1/2    |
| PFUA2605 | 26 x 3 - 3/4"     | Brass    | 51      | 16       | 23       | 12       | 27       | 3/4    |
| PFUA2606 | 26 x 3 - 1"       | Brass    | 57      | 20       | 23       | 14       | 36       | 1      |
| PFUA3206 | 32 x 3 - 1"       | Brass    | 57      | 20       | 23       | 14       | 36       | 1      |
| PFUA3207 | 32 x 3 - 1 1/4"   | Brass    | 59      | 22       | 23       | 14       | 46       | 1 1/4  |
| PFUA4006 | 40 x 3,5 - 1"     | Brass    | 47      | 20       | 23       | 14       | 36       | 1      |
| PFUA4007 | 40 x 3,5 - 1 1/4" | Brass    | 59      | 22       | 23       | 14       | 46       | 1 1/4  |
| PFUA5007 | 50 x 4 - 1 1/4"   | Brass    | 71      | 22       | 35       | 14       | 46       | 1 1/4  |
| PFUA5008 | 50 x 4 - 1 1/2"   | Brass    | 71      | 22       | 35       | 14       | 51       | 1 1/2  |
| PFUA6309 | 63 x 4,5 - 2"     | Brass    | 79      | 25       | 39       | 15       | 65       | 2      |



### PRESS CONNECTOR WITH FEMALE THREAD



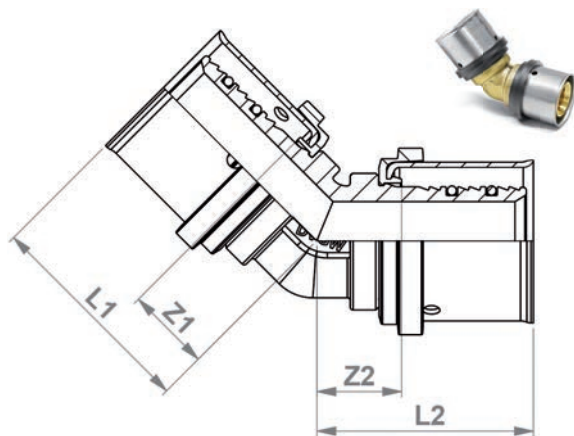
| ITEM NO. | SIZE              | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm | SW<br>mm | Rp<br>" |
|----------|-------------------|----------|---------|----------|----------|----------|----------|---------|
| PFUI1604 | 16 x 2 - 1/2"     | Brass    | 48      | 16       | 23       | 9        | 25       | 1/2     |
| PFUI1605 | 16 x 2 - 3/4"     | Brass    | 51      | 17       | 23       | 11       | 32       | 3/4     |
| PFUI2004 | 20 x 2 - 1/2"     | Brass    | 47      | 16       | 23       | 8        | 27       | 1/2     |
| PFUI2005 | 20 x 2 - 3/4"     | Brass    | 50      | 17       | 23       | 10       | 32       | 3/4     |
| PFUI2605 | 26 x 3 - 3/4"     | Brass    | 49      | 17       | 23       | 9        | 32       | 3/4     |
| PFUI2606 | 26 x 3 - 1"       | Brass    | 54      | 21       | 23       | 10       | 41       | 1       |
| PFUI3206 | 32 x 3 - 1"       | Brass    | 53      | 21       | 23       | 9        | 41       | 1       |
| PFUI3207 | 32 x 3 - 1 1/4"   | Brass    | 57      | 23       | 23       | 11       | 50       | 1 1/4   |
| PFUI4006 | 40 x 3,5 - 1"     | Brass    | 53      | 21       | 23       | 9        | 38       | 1       |
| PFUI4007 | 40 x 3,5 - 1 1/4" | Brass    | 59      | 23       | 23       | 13       | 50       | 1 1/4   |
| PFUI4008 | 40 x 3,5 - 1 1/2" | Brass    | 59      | 23       | 23       | 13       | 55       | 1 1/2   |
| PFUI5007 | 50 x 4 - 1 1/4"   | Brass    | 66      | 23       | 35       | 8        | 50       | 1 1/4   |
| PFUI5008 | 50 x 4 - 1 1/2"   | Brass    | 67      | 23       | 35       | 9        | 55       | 1 1/2   |
| PFUI6309 | 63 x 4,5 - 2"     | Brass    | 72      | 27       | 39       | 6        | 65       | 2       |



## PRESS ELBOW 90°



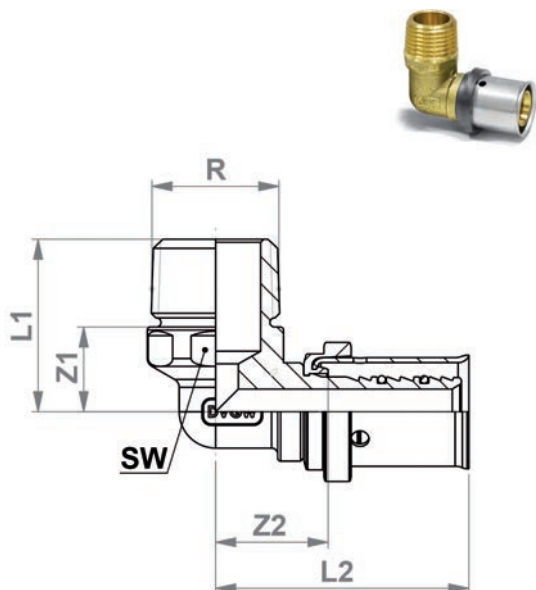
| ITEM NO. | SIZE     | MATERIAL | Z1<br>mm | L1<br>mm | Z2<br>mm | L2<br>mm |
|----------|----------|----------|----------|----------|----------|----------|
| PFW1616  | 16 x 2   | Brass    | 16       | 39       | 16       | 39       |
| KPFW1616 | 16 x 2   | PPSU     | 16       | 39       | 16       | 39       |
| PFW2020  | 20 x 2   | Brass    | 18       | 41       | 18       | 41       |
| KPFW2020 | 20 x 2   | PPSU     | 18       | 41       | 18       | 41       |
| PFW2626  | 26 x 3   | Brass    | 18       | 41       | 18       | 41       |
| KPFW2626 | 26 x 3   | PPSU     | 18       | 41       | 18       | 41       |
| PFW3232  | 32 x 3   | Brass    | 24       | 47       | 24       | 47       |
| KPFW3232 | 32 x 3   | PPSU     | 24       | 47       | 24       | 47       |
| PFW4040  | 40 x 3,5 | Brass    | 26       | 49       | 26       | 49       |
| PFW5050  | 50 x 4   | Brass    | 32       | 67       | 32       | 67       |
| PFW6363  | 63 x 4,5 | Brass    | 43       | 81       | 43       | 81       |



## PRESS ELBOW 45°



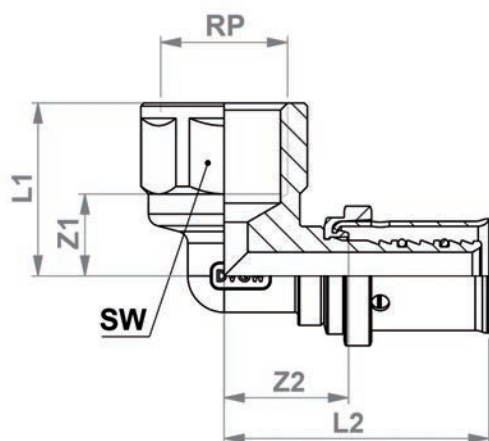
| ITEM NO. | SIZE     | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm |
|----------|----------|----------|----------|----------|----------|----------|
| PFWH2626 | 26 x 3   | Brass    | 38       | 15       | 38       | 15       |
| PFWH3232 | 32 x 3   | Brass    | 39       | 16       | 39       | 16       |
| PFWH4040 | 40 x 3,5 | Brass    | 45       | 22       | 45       | 22       |
| PFWH5050 | 50 x 4   | Brass    | 57       | 22       | 57       | 22       |
| PFWH6363 | 63 x 4,5 | Brass    | 62,5     | 24       | 62,5     | 24       |



## PRESS ELBOW WITH MALE THREAD



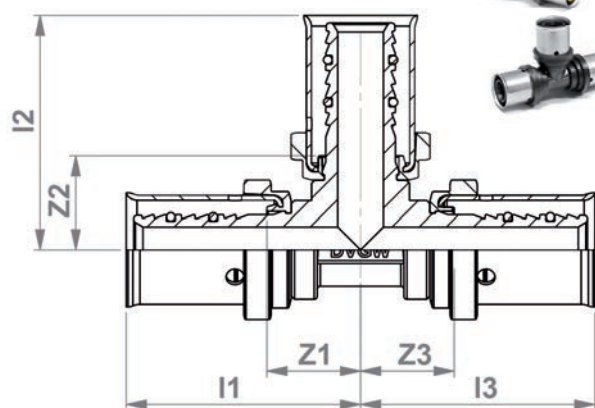
| ITEM NO. | SIZE              | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm | SW<br>mm | Rp<br>" |
|----------|-------------------|----------|---------|----------|----------|----------|----------|---------|
| PFWA1604 | 16 x 2 - 1/2"     | Brass    | 30      | 16       | 41       | 18       | 22       | 1/2     |
| PFWA1605 | 16 x 2 - 3/4"     | Brass    | 32      | 16       | 45       | 22       | 27       | 3/4     |
| PFWA2004 | 20 x 2 - 1/2"     | Brass    | 32      | 18       | 42       | 19       | 22       | 1/2     |
| PFWA2005 | 20 x 2 - 3/4"     | Brass    | 34      | 18       | 44       | 21       | 27       | 3/4     |
| PFWA2605 | 26 x 3 - 3/4"     | Brass    | 34      | 18       | 44       | 21       | -        | 3/4     |
| PFWA2606 | 26 x 3 - 1"       | Brass    | 42      | 22       | 48       | 25       | 34       | 1       |
| PFWA3206 | 32 x 3 - 1"       | Brass    | 45      | 25       | 48       | 25       | 34       | 1       |
| PFWA4007 | 40 x 3,5 - 1 1/4" | Brass    | 56      | 34       | 53       | 30       | 43       | 1 1/4   |
| PFWA5007 | 50 x 4 - 1 1/4"   | Brass    | 61      | 39       | 65       | 30       | 43       | 1 1/4   |
| PFWA5008 | 50 x 4 - 1 1/2"   | Brass    | 61      | 39       | 68       | 33       | 50       | 1 1/2   |
| PFWA6309 | 63 x 4,5 - 2"     | Brass    | 70      | 45       | 78       | 39       | 60       | 2       |



## PRESS ELBOW WITH FEMALE THREAD



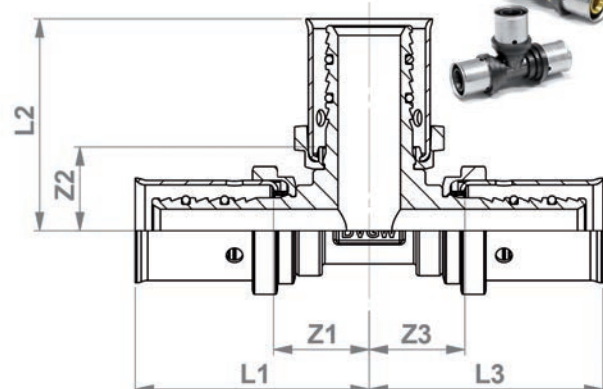
| ITEM NO. | SIZE              | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | SW<br>mm | Rp<br>" |
|----------|-------------------|----------|----------|----------|----------|----------|----------|---------|
| PFWI1604 | 16 x 2 - 1/2"     | Brass    | 29       | 13       | 45       | 22       | 27       | 1/2     |
| PFWI1605 | 16 x 2 - 3/4"     | Brass    | 32       | 15       | 48       | 25       | 33       | 3/4     |
| PFWI2004 | 20 x 2 - 1/2"     | Brass    | 31       | 15       | 45       | 22       | 27       | 1/2     |
| PFWI2005 | 20 x 2 - 3/4"     | Brass    | 33       | 16       | 48       | 25       | 33       | 3/4     |
| PFWI2605 | 26 x 3 - 3/4"     | Brass    | 34       | 17       | 48       | 25       | 33       | 3/4     |
| PFWI2606 | 26 x 3 - 1"       | Brass    | 41       | 20       | 53       | 30       | 41       | 1       |
| PFWI3206 | 32 x 3 - 1"       | Brass    | 42       | 21       | 53       | 30       | 41       | 1       |
| PFWI4007 | 40 x 3,5 - 1 1/4" | Brass    | 50       | 27       | 58       | 35       | 50       | 1 1/4   |
| PFWI5007 | 50 x 4 - 1 1/2"   | Brass    | 51       | 28       | 72       | 37       | 50       | 1 1/2   |
| PFWI5008 | 50 x 4 - 1 1/2"   | Brass    | 52       | 29       | 73       | 38       | 56       | 1 1/2   |
| PFWI6309 | 63 x 4,5 - 2"     | Brass    | 62       | 35       | 81       | 42       | 67       | 2       |



## PRESS T-CONNECTOR



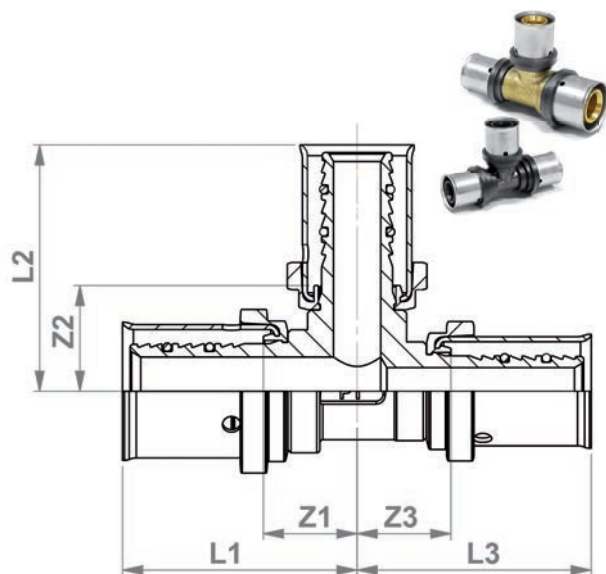
| ITEM NO.   | SIZE     | MATERIAL | Z1<br>mm | L1<br>mm | Z2<br>mm | L2<br>mm | Z3<br>mm | L3<br>mm |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|
| PFT161616  | 16 x 2   | Brass    | 16       | 39       | 16       | 39       | 16       | 39       |
| KPFT161616 | 16 x 2   | PPSU     | 16       | 39       | 16       | 39       | 16       | 39       |
| PFT202020  | 20 x 2   | Brass    | 18       | 41       | 18       | 41       | 18       | 41       |
| KPFT202020 | 20 x 2   | PPSU     | 18       | 41       | 18       | 41       | 18       | 41       |
| PFT262626  | 26 x 3   | Brass    | 18       | 41       | 18       | 41       | 18       | 41       |
| KPFT262626 | 26 x 3   | PPSU     | 18       | 41       | 18       | 41       | 18       | 41       |
| PFT323232  | 32 x 3   | Brass    | 24       | 47       | 24       | 47       | 24       | 47       |
| KPFT323232 | 32 x 3   | PPSU     | 24       | 47       | 24       | 47       | 24       | 47       |
| PFT404040  | 40 x 3,5 | Brass    | 26       | 49       | 26       | 49       | 26       | 49       |
| PFT505050  | 50 x 4   | Brass    | 32       | 67       | 32       | 67       | 32       | 67       |
| PFT636363  | 63 x 4,5 | Brass    | 43       | 81       | 43       | 81       | 43       | 81       |



## PRESS T-CONNECTOR, ENLARGED CENTRAL OUTLET



| ITEM NO.   | SIZE                       | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | L3<br>mm | Z3<br>mm |
|------------|----------------------------|----------|----------|----------|----------|----------|----------|----------|
| PFT162016  | 16 x 2 - 20 x 2 - 16 x 2   | Brass    | 40       | 17       | 38       | 15       | 40       | 17       |
| KPFT162016 | 16 x 2 - 20 x 2 - 16 x 2   | PPSU     | 40       | 17       | 38       | 15       | 40       | 17       |
| PFT202620  | 20 x 2 - 26 x 3 - 20 x 2   | Brass    | 43       | 20       | 41       | 8        | 43       | 20       |
| KPFT202620 | 20 x 2 - 26 x 3 - 20 x 2   | PPSU     | 43       | 20       | 41       | 8        | 43       | 20       |
| PFT263226  | 26 x 3 - 32 x 3 - 26 x 3   | Brass    | 45       | 22       | 43       | 20       | 45       | 22       |
| PFT324032  | 32 x 3 - 40 x 3,5 - 32 x 3 | Brass    | 49       | 26       | 45       | 22       | 49       | 26       |



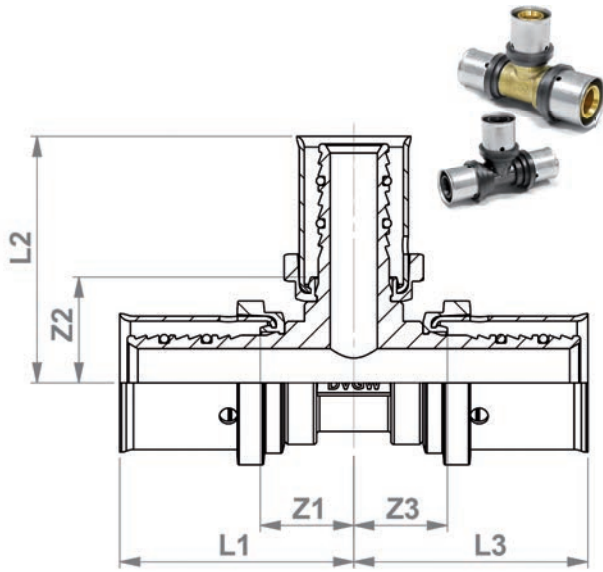
## PRESS REDUCED T-CONNECTOR



| ITEM NO.   | SIZE                           | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | L3<br>mm | Z3<br>mm |
|------------|--------------------------------|----------|----------|----------|----------|----------|----------|----------|
| PFT201616  | 20 x 2 - 16 x 2 - 16 x 2       | Brass    | 38       | 15       | 40       | 17       | 39       | 16       |
| KPFT201616 | 20 x 2 - 16 x 2 - 16 x 2       | PPSU     | 38       | 15       | 40       | 17       | 39       | 16       |
| PFT202016  | 20 x 2 - 20 x 2 - 16 x 2       | Brass    | 40       | 17       | 40       | 17       | 41       | 18       |
| KPFT202016 | 20 x 2 - 20 x 2 - 16 x 2       | PPSU     | 40       | 17       | 40       | 17       | 41       | 18       |
| PFT261620  | 26 x 3 - 16 x 2 - 20 x 2       | Brass    | 39       | 16       | 43       | 20       | 38       | 15       |
| KPFT261620 | 26 x 3 - 16 x 2 - 20 x 2       | PPSU     | 39       | 16       | 43       | 20       | 38       | 15       |
| PFT262016  | 26 x 3 - 20 x 2 - 16 x 2       | Brass    | 41       | 18       | 44       | 21       | 39       | 16       |
| KPFT262016 | 26 x 3 - 20 x 2 - 16 x 2       | PPSU     | 41       | 18       | 44       | 21       | 39       | 16       |
| PFT262020  | 26 x 3 - 20 x 2 - 20 x 2       | Brass    | 41       | 18       | 43       | 20       | 40       | 17       |
| KPFT262020 | 26 x 3 - 20 x 2 - 20 x 2       | PPSU     | 41       | 18       | 43       | 20       | 40       | 17       |
| PFT262616  | 26 x 3 - 26 x 3 - 16 x 2       | Brass    | 44       | 21       | 43       | 20       | 43       | 20       |
| KPFT262616 | 26 x 3 - 26 x 3 - 16 x 2       | PPSU     | 44       | 21       | 43       | 20       | 43       | 20       |
| PFT262620  | 26 x 3 - 26 x 3 - 20 x 2       | Brass    | 44       | 21       | 43       | 20       | 43       | 20       |
| KPFT262620 | 26 x 3 - 26 x 3 - 20 x 2       | PPSU     | 44       | 21       | 43       | 20       | 43       | 20       |
| PFT322020  | 32 x 3 - 20 x 2 - 20 x 2       | Brass    | 41       | 18       | 47       | 24       | 41       | 18       |
| PFT322026  | 32 x 3 - 20 x 2 - 26 x 3       | Brass    | 41       | 18       | 47       | 24       | 41       | 18       |
| PFT322626  | 32 x 3 - 26 x 3 - 26 x 3       | Brass    | 44       | 21       | 47       | 24       | 43       | 20       |
| KPFT322626 | 32 x 3 - 26 x 3 - 26 x 3       | PPSU     | 44       | 21       | 47       | 24       | 43       | 20       |
| PFT323220  | 32 x 3 - 32 x 3 - 20 x 2       | Brass    | 47       | 24       | 47       | 24       | 46       | 23       |
| PFT323226  | 32 x 3 - 32 x 3 - 26 x 3       | Brass    | 47       | 24       | 47       | 24       | 46       | 23       |
| PFT402632  | 40 x 3.5 - 26 x 3 - 32 x 3     | Brass    | 43       | 20       | 49       | 26       | 42       | 19       |
| PFT403232  | 40 x 3.5 - 32 x 3 - 32 x 3     | Brass    | 47       | 24       | 50       | 27       | 46       | 23       |
| PFT404026  | 40 x 3.5 - 40 x 3.5 - 26 x 3   | Brass    | 49       | 26       | 49       | 26       | 49       | 26       |
| PFT404032  | 40 x 3.5 - 40 x 3.5 - 32 x 3   | Brass    | 49       | 26       | 49       | 26       | 49       | 26       |
| PFT503240  | 50 x 4 - 32 x 3 - 40 x 3.5     | Brass    | 58       | 23       | 54       | 31       | 46       | 23       |
| PFT504040  | 50 x 4 - 40 x 3.5 - 40 x 3.5   | Brass    | 61       | 26       | 54       | 31       | 50       | 27       |
| PFT505032  | 50 x 4 - 50 x 4 - 32 x 3       | Brass    | 67       | 32       | 67       | 32       | 55       | 32       |
| PFT505040  | 50 x 4 - 50 x 4 - 40 x 3.5     | Brass    | 67       | 32       | 67       | 32       | 56       | 33       |
| PFT634050  | 63 x 4.5 - 40 x 3.5 - 50 x 4   | Brass    | 65       | 26       | 61       | 38       | 61       | 26       |
| PFT635050  | 63 x 4.5 - 50 x 4 - 50 x 4     | Brass    | 71       | 32       | 73       | 38       | 66       | 31       |
| PFT636340  | 63 x 4.5 - 63 x 4.5 - 40 x 3.5 | Brass    | 77       | 38       | 77       | 38       | 62       | 39       |
| PFT636350  | 63 x 4.5 - 63 x 4.5 - 50 x 4   | Brass    | 77       | 38       | 77       | 38       | 73       | 38       |

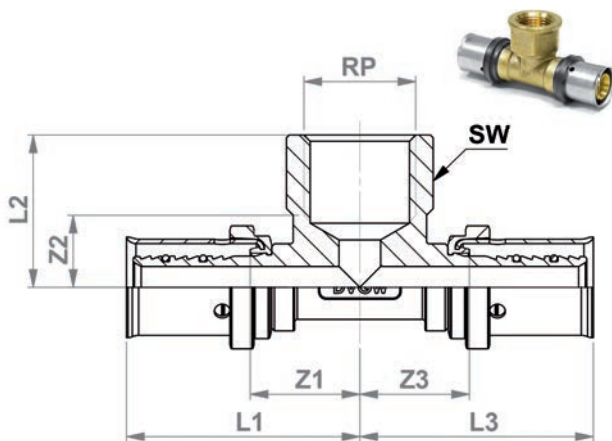


## PRESS T-CONNECTOR, REDUCING CENTRAL OUTLET

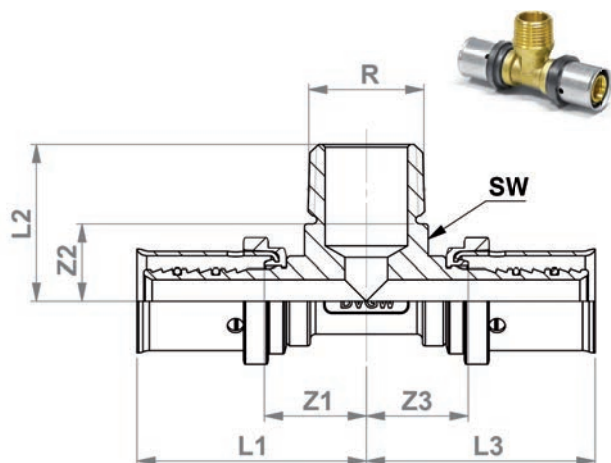


| ITEM NO.   | SIZE                           | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | L3<br>mm | Z3<br>mm |
|------------|--------------------------------|----------|----------|----------|----------|----------|----------|----------|
| PFT201620  | 20 x 2 - 16 x 2 - 20 x 2       | Brass    | 38       | 15       | 41       | 18       | 38       | 15       |
| KPFT201620 | 20 x 2 - 16 x 2 - 20 x 2       | PPSU     | 39       | 16       | 43       | 20       | 38       | 15       |
| PFT261626  | 26 x 3 - 16 x 2 - 26 x 3       | Brass    | 39       | 16       | 44       | 21       | 39       | 16       |
| KPFT261626 | 26 x 3 - 16 x 2 - 26 x 3       | PPSU     | 39       | 16       | 44       | 21       | 39       | 16       |
| PFT262026  | 26 x 3 - 20 x 2 - 26 x 3       | Brass    | 41       | 18       | 44       | 21       | 41       | 18       |
| KPFT262026 | 26 x 3 - 20 x 2 - 26 x 3       | PPSU     | 41       | 18       | 44       | 21       | 41       | 18       |
| PFT321632  | 32 x 3 - 16 x 2 - 32 x 3       | Brass    | 39       | 16       | 47       | 24       | 39       | 16       |
| KPFT321632 | 32 x 3 - 16 x 2 - 32 x 3       | PPSU     | 39       | 16       | 47       | 24       | 39       | 16       |
| PFT322032  | 32 x 3 - 20 x 2 - 32 x 3       | Brass    | 41       | 18       | 47       | 24       | 41       | 18       |
| KPFT322032 | 32 x 3 - 20 x 2 - 32 x 3       | PPSU     | 41       | 18       | 47       | 24       | 41       | 18       |
| PFT322632  | 32 x 3 - 26 x 3 - 32 x 3       | Brass    | 42       | 19       | 47       | 24       | 42       | 19       |
| KPFT322632 | 32 x 3 - 26 x 3 - 32 x 3       | PPSU     | 42       | 19       | 47       | 24       | 42       | 19       |
| PFT402040  | 40 x 3,5 - 20 x 2 - 40 x 3,5   | Brass    | 41       | 18       | 49       | 26       | 41       | 18       |
| PFT402640  | 40 x 3,5 - 26 x 3 - 40 x 3,5   | Brass    | 43       | 20       | 49       | 26       | 43       | 20       |
| PFT403240  | 40 x 3,5 - 32 x 3 - 40 x 3,5   | Brass    | 46       | 23       | 49       | 26       | 46       | 23       |
| PFT502650  | 50 x 4 - 26 x 3 - 50 x 4       | Brass    | 55       | 20       | 56       | 33       | 55       | 20       |
| PFT503250  | 50 x 4 - 32 x 3 - 50 x 4       | Brass    | 58       | 23       | 56       | 33       | 58       | 23       |
| PFT504050  | 50 x 4 - 40 x 3,5 - 50 x 4     | Brass    | 62       | 27       | 56       | 33       | 62       | 27       |
| PFT633263  | 63 x 4,5 - 32 x 3 - 63 x 4,5   | Brass    | 62       | 23       | 61       | 38       | 62       | 23       |
| PFT634063  | 63 x 4,5 - 40 x 3,5 - 63 x 4,5 | Brass    | 66       | 27       | 62       | 39       | 66       | 27       |
| PFT635063  | 63 x 4,5 - 50 x 4 - 63 x 4,5   | Brass    | 71       | 32       | 72       | 37       | 71       | 32       |

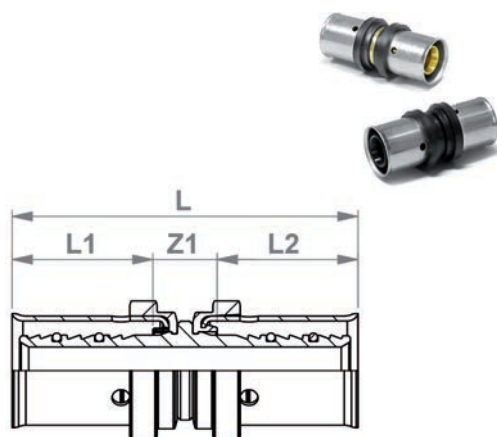
## PRESS T-CONNECTOR WITH FEMALE THREAD



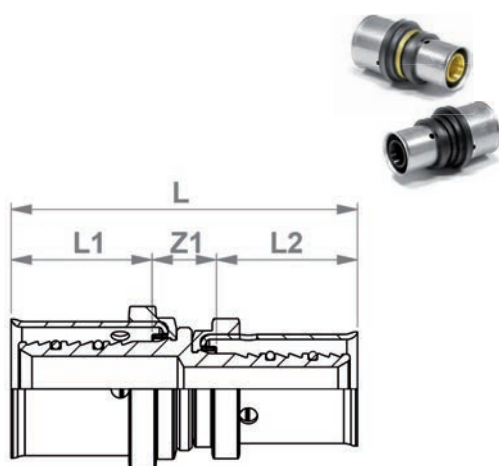
| ITEM NO.   | SIZE                       | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | Z3<br>mm | L3<br>mm | Rp<br>" | SW<br>mm |
|------------|----------------------------|----------|----------|----------|----------|----------|----------|----------|---------|----------|
| PFTI160416 | 16 x 2 - ½" - 16 x 2       | Brass    | 46       | 23       | 30       | 14       | 46       | 23       | ½       | 27       |
| PFTI200420 | 20 x 2 - ½" - 20 x 2       | Brass    | 46       | 23       | 30       | 14       | 46       | 23       | ½       | 27       |
| PFTI200520 | 20 x 2 - ¾" - 20 x 2       | Brass    | 49       | 26       | 33       | 16       | 49       | 26       | ¾       | 33       |
| PFTI260426 | 26 x 3 - ½" - 26 x 3       | Brass    | 46       | 23       | 32       | 16       | 46       | 23       | ½       | 27       |
| PFTI260526 | 26 x 3 - ¾" - 26 x 3       | Brass    | 49       | 26       | 34       | 17       | 49       | 26       | ¾       | 33       |
| PFTI320432 | 32 x 3 - ½" - 32 x 3       | Brass    | 46       | 23       | 35       | 19       | 46       | 23       | ½       | 27       |
| PFTI320532 | 32 x 3 - ¾" - 32 x 3       | Brass    | 49       | 26       | 38       | 21       | 49       | 26       | ¾       | 33       |
| PFTI320632 | 32 x 3 - 1" - 32 x 3       | Brass    | 53       | 30       | 43       | 22       | 53       | 30       | 1       | 41       |
| PFTI320732 | 32 x 3 - 1 ¼" - 32 x 3     | Brass    | 57       | 34       | 47       | 24       | 57       | 34       | 1 ¼     | 50       |
| PFTI400640 | 40 x 3,5 - 1" - 40 x 3,5   | Brass    | 53       | 30       | 44       | 23       | 53       | 30       | 1       | 41       |
| PFTI400740 | 40 x 3,5 - 1 ¼" - 40 x 3,5 | Brass    | 58       | 35       | 49       | 26       | 58       | 35       | 1 ¼     | 50       |
| PFTI500750 | 50 x 4 - 1 ¼" - 50 x 4     | Brass    | 69       | 34       | 50       | 27       | 69       | 34       | 1 ¼     | 50       |
| PFTI500850 | 50 x 4 - 1 ½" - 50 x 4     | Brass    | 72       | 37       | 52       | 29       | 72       | 37       | 1 ½     | 56       |
| PFTI630663 | 63 x 4,5 - 1" - 63 x 4,5   | Brass    | 68       | 29       | 55       | 34       | 68       | 29       | 1       | 41       |
| PFTI630863 | 63 x 4,5 - 1 ½" - 63 x 4,5 | Brass    | 76       | 37       | 56       | 33       | 76       | 37       | 1 ½     | 56       |

PRESS T-CONNECTOR WITH MALE THREAD  

| ITEM NO.   | SIZE                     | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | Z3<br>mm | L3<br>mm | Rp<br>" | SW<br>mm |
|------------|--------------------------|----------|----------|----------|----------|----------|----------|----------|---------|----------|
| PFTA160416 | 16 x 2 - 1/2" - 16 x 2   | Brass    | 42       | 19       | 30       | 16       | 42       | 19       | 1/2     | 21       |
| PFTA200420 | 20 x 2 - 1/2" - 20 x 2   | Brass    | 42       | 19       | 32       | 18       | 42       | 19       | 1/2     | 21       |
| PFTA200520 | 20 x 2 - 3/4" - 20 x 2   | Brass    | 45       | 22       | 34       | 18       | 45       | 22       | 3/4     | 27       |
| PFTA260426 | 26 x 3 - 1/2" - 26 x 3   | Brass    | 41       | 18       | 34       | 18       | 41       | 18       | 1/2     | 21       |
| PFTA260526 | 26 x 3 - 3/4" - 26 x 3   | Brass    | 44       | 21       | 36       | 20       | 44       | 21       | 3/4     | 27       |
| PFTA260626 | 26 x 3 - 1" - 26 x 3     | Brass    | 49       | 26       | 42       | 22       | 49       | 26       | 1       | 34       |
| PFTA320532 | 32 x 3 - 3/4" - 32 x 3   | Brass    | 45       | 22       | 40       | 24       | 45       | 22       | 3/4     | 27       |
| PFTA320632 | 32 x 3 - 1" - 32 x 3     | Brass    | 49       | 26       | 45       | 25       | 49       | 26       | 1       | 34       |
| PFTA320732 | 32 x 3 - 1 1/4" - 32 x 3 | Brass    | 53       | 30       | 52       | 30       | 53       | 30       | 1 1/4   | 43       |
| PFTA400640 | 40 x 3,5 - 1" - 40 x 3,5 | Brass    | 49       | 26       | 48       | 28       | 49       | 26       | 1       | 34       |
| PFTA500750 | 50 x 4 - 1 1/4" - 50 x 4 | Brass    | 65       | 30       | 62       | 40       | 65       | 30       | 1 1/4   | 43       |
| PFTA500850 | 50 x 4 - 1 1/2" - 50 x 4 | Brass    | 68       | 33       | 62       | 40       | 68       | 33       | 1 1/2   | 50       |
| PFTA630963 | 63 x 4,5 - 2" - 63 x 4,5 | Brass    | 78       | 39       | 69       | 44       | 78       | 39       | 2       | 60       |

PRESS COUPLING  

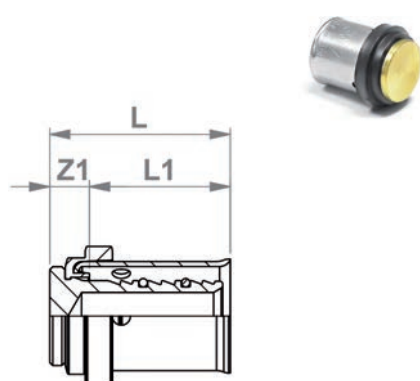
| ITEM NO. | SIZE                | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm |
|----------|---------------------|----------|---------|----------|----------|----------|
| PFK1616  | 16 x 2 - 16 x 2     | Brass    | 57      | 23       | 23       | 11       |
| KPFK1616 | 16 x 2 - 16 x 2     | PPSU     | 57      | 23       | 23       | 11       |
| PFK2020  | 20 x 2 - 20 x 2     | Brass    | 57      | 23       | 23       | 11       |
| KPFK2020 | 20 x 2 - 20 x 2     | PPSU     | 57      | 23       | 23       | 11       |
| PFK2626  | 26 x 3 - 26 x 3     | Brass    | 57      | 23       | 23       | 11       |
| KPFK2626 | 26 x 3 - 26 x 3     | PPSU     | 57      | 23       | 23       | 11       |
| PFK3232  | 32 x 3 - 32 x 3     | Brass    | 58      | 23       | 23       | 12       |
| KPFK3232 | 32 x 3 - 32 x 3     | PPSU     | 58      | 23       | 23       | 12       |
| PFK4040  | 40 x 3,5 - 40 x 3,5 | Brass    | 59      | 23       | 23       | 13       |
| PFK5050  | 50 x 4 - 50 x 4     | Brass    | 83      | 35       | 35       | 13       |
| PFK6363  | 63 x 4,5 - 63 x 4,5 | Brass    | 90      | 38,5     | 38,5     | 13       |



## PRESS REDUCED COUPLING



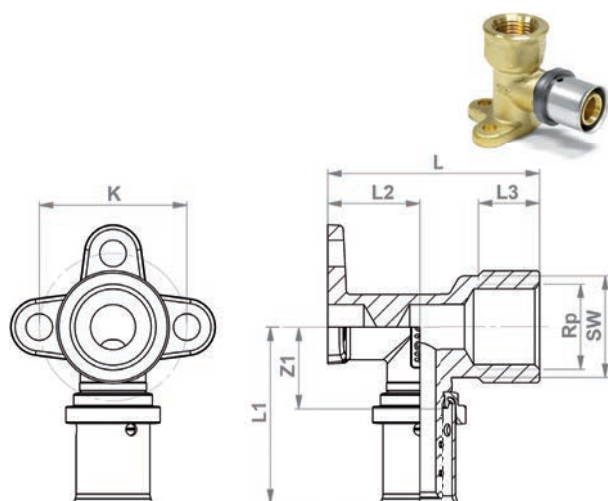
| ITEM NO. | SIZE                | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | L1<br>mm |
|----------|---------------------|----------|---------|----------|----------|----------|
| PFK2016  | 20 x 2 - 16 x 2     | Brass    | 57      | 23       | 23       | 11       |
| KPFK2016 | 20 x 2 - 16 x 2     | PPSU     | 57      | 23       | 23       | 11       |
| PFK2616  | 26 x 3 - 16 x 2     | Brass    | 57      | 23       | 23       | 11       |
| PFK2620  | 26 x 3 - 20 x 2     | Brass    | 57      | 23       | 23       | 11       |
| KPFK2620 | 26 x 3 - 20 x 2     | PPSU     | 57      | 23       | 23       | 11       |
| PFK3216  | 32 x 3 - 16 x 2     | Brass    | 58      | 23       | 23       | 12       |
| PFK3220  | 32 x 3 - 20 x 2     | Brass    | 58      | 23       | 23       | 12       |
| PFK3226  | 32 x 3 - 26 x 3     | Brass    | 58      | 23       | 23       | 12       |
| KPFK3226 | 32 x 3 - 26 x 3     | PPSU     | 58      | 23       | 23       | 12       |
| PFK4026  | 40 x 3,5 - 26 x 3   | Brass    | 59      | 23       | 23       | 13       |
| PFK4032  | 40 x 3,5 - 32 x 3   | Brass    | 59      | 23       | 23       | 13       |
| PFK5032  | 50 x 4 - 32 x 3     | Brass    | 71      | 35       | 23       | 13       |
| PFK5040  | 50 x 4 - 40 x 3,5   | Brass    | 71      | 35       | 23       | 13       |
| PFK6340  | 63 x 4,5 - 40 x 3,5 | Brass    | 75      | 39       | 23       | 13       |
| PFK6350  | 63 x 4,5 - 50 x 4   | Brass    | 87      | 39       | 35       | 13       |



## PRESS END PLUG



| ITEM NO. | SIZE     | MATERIAL | L<br>mm | L1<br>mm | Z1<br>mm |
|----------|----------|----------|---------|----------|----------|
| PFS16    | 16 x 2   | Brass    | 30      | 23       | 7        |
| PFS20    | 20 x 2   | Brass    | 30      | 23       | 7        |
| PFS26    | 26 x 3   | Brass    | 30      | 23       | 7        |
| PFS32    | 32 x 3   | Brass    | 31      | 23       | 8        |
| PFS40    | 40 x 3,5 | Brass    | 32      | 23       | 9        |
| PFS50    | 50 x 4   | Brass    | 45      | 35       | 10       |
| PFS63    | 63 x 4,5 | Brass    | 48      | 39       | 9        |



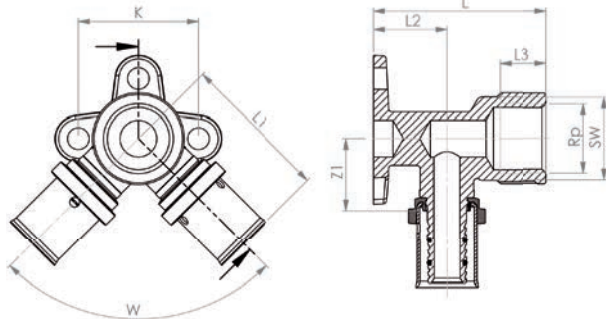
## PRESS WALL ELBOW



| ITEM NO.  | SIZE                  | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | L3<br>mm | L<br>mm | K<br>mm | Rp<br>" | SW<br>mm |
|-----------|-----------------------|----------|----------|----------|----------|----------|---------|---------|---------|----------|
| PFWWK1603 | 16 x 2 - 3/8" - 39 mm | Brass    | 44       | 21       | 175      | 14       | 39      | 36      | 3/8     | 25       |
| PFWWK1604 | 16 x 2 - 1/2" - 39 mm | Brass    | 46       | 23       | 175      | 14       | 39      | 36      | 1/2     | 27       |
| PFWWM1604 | 16 x 2 - 1/2" - 52 mm | Brass    | 46       | 23       | 225      | 14       | 52      | 36      | 1/2     | 27       |
| PFWWL1604 | 16 x 2 - 1/2" - 78 mm | Brass    | 46       | 23       | 225      | 14       | 78      | 36      | 1/2     | 27       |
| PFWWM2004 | 20 x 2 - 1/2" - 52 mm | Brass    | 46       | 23       | 225      | 14       | 52      | 36      | 1/2     | 27       |
| PFWWL2004 | 20 x 2 - 1/2" - 78 mm | Brass    | 46       | 23       | 225      | 14       | 78      | 36      | 1/2     | 27       |
| PFWWM2005 | 20 x 2 - 3/4" - 52 mm | Brass    | 48       | 23       | 225      | 14       | 78      | 36      | 1/2     | 27       |
| PFWWM2605 | 26 x 3 - 3/4" - 52 mm | Brass    | 48       | 25       | 225      | 16       | 52      | 36      | 3/4     | 33       |

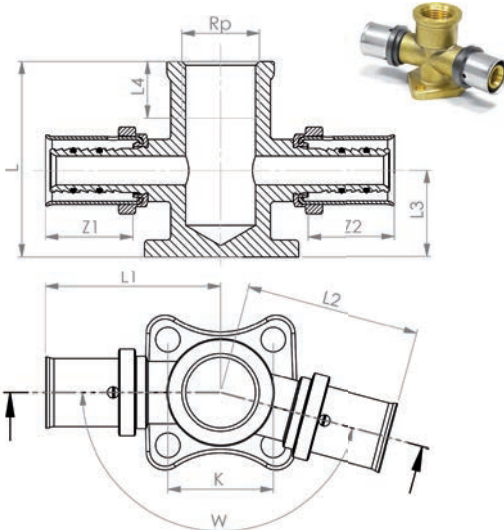


## PRESS WALL ELBOW DOUBLE – V-SHAPED



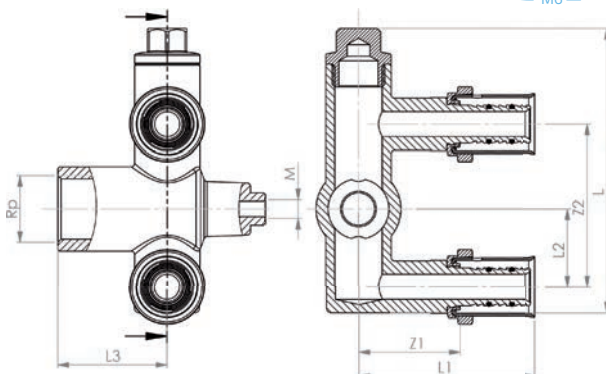
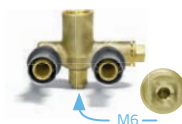
| ITEM NO.    | SIZE                 | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | L<br>mm | L3<br>mm | Rp<br>" | SW<br>mm | W<br>mm | K<br>mm |
|-------------|----------------------|----------|----------|----------|----------|---------|----------|---------|----------|---------|---------|
| PFWWD160416 | 16 x 2 - ½" - 16 x 2 | Brass    | 45       | 22       | 22       | 52      | 14       | ½       | 27       | 90      | 36      |
| PFWWD200420 | 20 x 2 - ½" - 20 x 2 | Brass    | 45       | 22       | 24       | 52      | 14       | ½       | 27       | 90      | 36      |

## PRESS WALL ELBOW DOUBLE – SERIES SHAPED

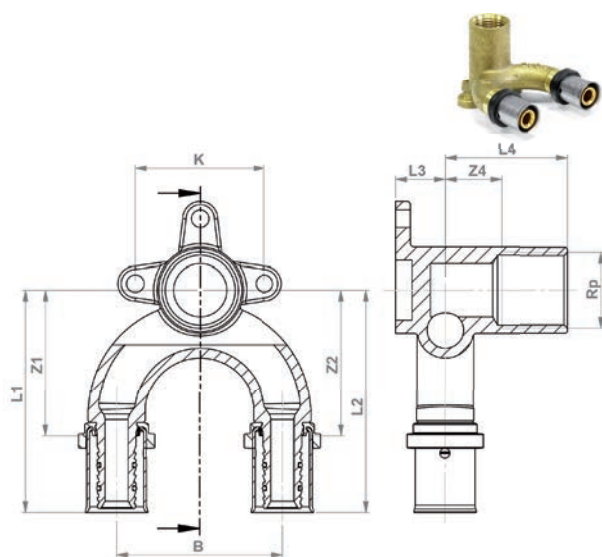


| ITEM NO.    | SIZE                 | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | L3<br>mm | Rp<br>" | L4<br>" | W<br>mm | K<br>mm | Z4<br>mm |
|-------------|----------------------|----------|----------|----------|----------|----------|----------|---------|---------|---------|---------|----------|
| PFWW516416  | 16 x 2 - ½" - 16 x 2 | Brass    | 46       | 23       | 46       | 23       | 23       | ½       | 14      | 165     | 28      | 52       |
| PFWW5200420 | 20 x 2 - ½" - 20 x 2 | Brass    | 46       | 23       | 46       | 23       | 23       | ½       | 14      | 165     | 25      | 52       |

## PRESS WALL ELBOW DOUBLE – U-SHAPED



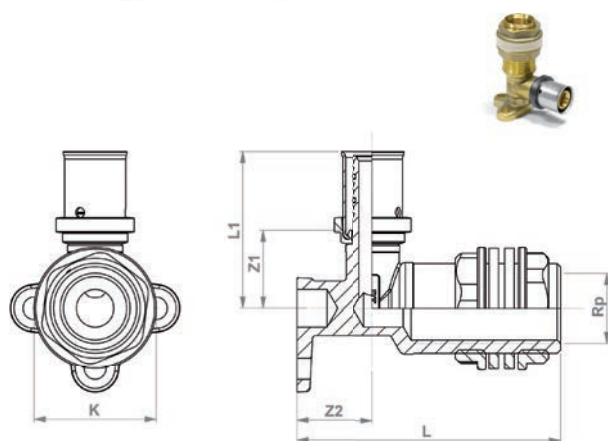
| ITEM NO.    | SIZE                 | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | L<br>mm | Rp<br>" | M<br>mm | L3<br>mm |
|-------------|----------------------|----------|----------|----------|----------|----------|---------|---------|---------|----------|
| PFWWU160416 | 16 x 2 - ½" - 16 x 2 | Brass    | 54       | 31       | 24       | 50       | 88      | ½       | 6       | 34       |
| PFWWU200420 | 20 x 2 - ½" - 20 x 2 | Brass    | 54       | 31       | 24       | 50       | 88      | ½       | 6       | 34       |



## PRESS WALL ELBOW DOUBLE – U-SHAPED CURVED



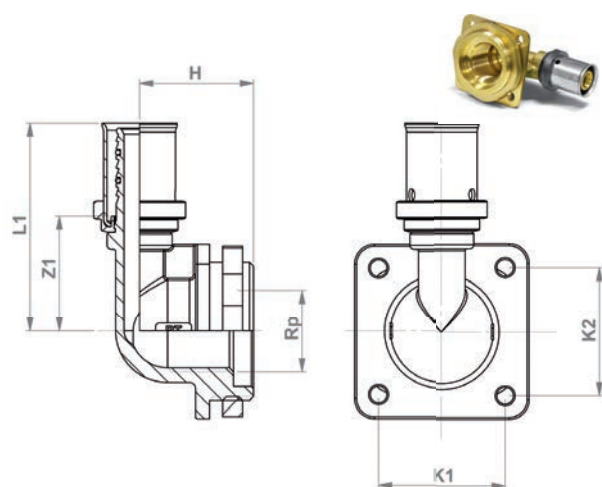
| ITEM NO.      | SIZE                 | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | Z2<br>mm | B<br>mm | K<br>mm | Rp<br>" | L3<br>mm | L4<br>mm | Z4<br>mm |
|---------------|----------------------|----------|----------|----------|----------|----------|---------|---------|---------|----------|----------|----------|
| PFWWUSA160416 | 16 x 2 - ½" - 16 x 2 | Brass    | 67       | 44       | 67       | 44       | 50      | 39      | ½       | 15       | 37       | 17       |
| PFWWUSA200420 | 20 x 2 - ½" - 20 x 2 | Brass    | 67       | 44       | 67       | 44       | 50      | 39      | ½       | 15       | 37       | 17       |



## PRESS WALL BUSHING WITH FEMALE THREAD



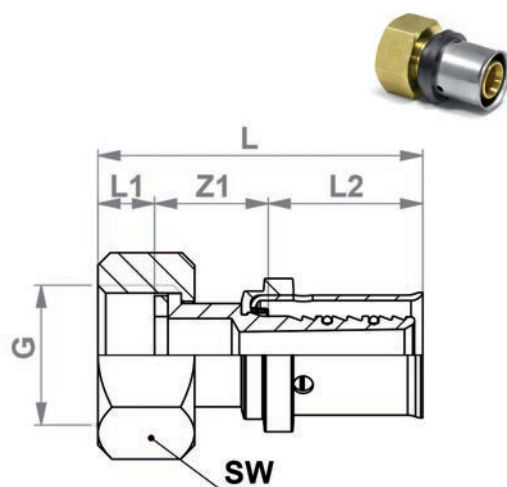
| ITEM NO.  | SIZE           | MATERIAL | L1<br>mm | Z1<br>mm | L<br>mm | Z2<br>mm | Rp<br>" | K<br>mm |
|-----------|----------------|----------|----------|----------|---------|----------|---------|---------|
| PFWDF1604 | 16 x 2 mm - ½" | Brass    | 46       | 23       | 78      | 225      | ½       | 36      |
| PFWDF2004 | 20 x 2 mm - ½" | Brass    | 46       | 23       | 78      | 225      | ½       | 36      |



## PRESS TOILET CONNECTION



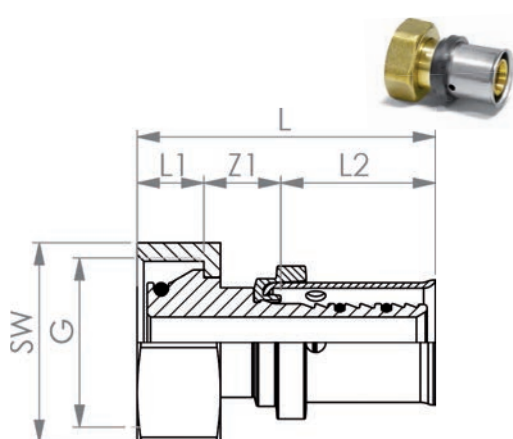
| ITEM NO. | SIZE           | MATERIAL | L1<br>mm | Z1<br>mm | H<br>mm | Rp<br>" | K1<br>mm | K2<br>mm |
|----------|----------------|----------|----------|----------|---------|---------|----------|----------|
| PFTC16   | 16 x 2 mm - ½" | Brass    | 52       | 29       | 285     | ½       | 32       | 32       |



## PRESS CONNECTOR SCREW CONNECTOR WITH FEMALE THREAD



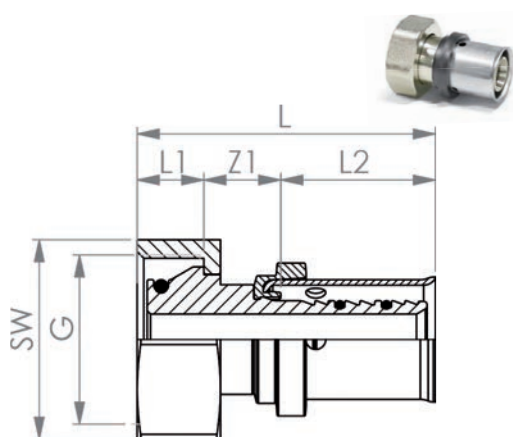
| ITEM NO. | SIZE              | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | L<br>mm | G<br>" | SW<br>mm |
|----------|-------------------|----------|----------|----------|----------|---------|--------|----------|
| PFV1604  | 16 x 2 - 1/2"     | Brass    | 9        | 17       | 23       | 49      | 1/2    | 27       |
| PFV1605  | 16 x 2 - 3/4"     | Brass    | 8        | 15       | 23       | 46      | 3/4    | 32       |
| PFV2004  | 20 x 2 - 1/2"     | Brass    | 9        | 17       | 23       | 49      | 1/2    | 27       |
| PFV2005  | 20 x 2 - 3/4"     | Brass    | 9        | 17       | 23       | 49      | 3/4    | 32       |
| PFV2006  | 20 x 2 - 1"       | Brass    | 10       | 19       | 23       | 53      | 1      | 40       |
| PFV2008  | 20 x 2 - 1 1/2"   | Brass    | 10       | 13       | 23       | 46      | 1 1/2  | 52       |
| PFV2605  | 26 x 3 - 3/4"     | Brass    | 8        | 18       | 23       | 49      | 3/4    | 32       |
| PFV2606  | 26 x 3 - 1"       | Brass    | 10       | 21       | 23       | 54      | 1      | 40       |
| PFV2608  | 26 x 3 - 1 1/2"   | Brass    | 10       | 13       | 23       | 46      | 1 1/2  | 54       |
| PFV3206  | 32 x 3 - 1"       | Brass    | 10       | 19       | 23       | 53      | 1      | 40       |
| PFV3207  | 32 x 3 - 1 1/4"   | Brass    | 10       | 19       | 23       | 53      | 1 1/4  | 48       |
| PFV3208  | 32 x 3 - 1 1/2"   | Brass    | 10       | 20       | 23       | 53      | 1 1/2  | 54       |
| PFV4007  | 40 x 3,5 - 1 1/4" | Brass    | 10       | 22       | 23       | 55      | 1 1/4  | 48       |
| PFV4008  | 40 x 3,5 - 1 1/2" | Brass    | 10       | 20       | 23       | 53      | 1 1/2  | 52       |
| PFV5009  | 50 x 4 - 2"       | Brass    | 13       | 25       | 35       | 73      | 2      | 66       |
| PFV6310  | 63 x 4,5 - 2 1/2" | Brass    | 19       | 34       | 39       | 92      | 2 1/2  | 82       |



## PRESS CONNECTOR SCREW CONNECTOR WITH EUROCONE THREAD

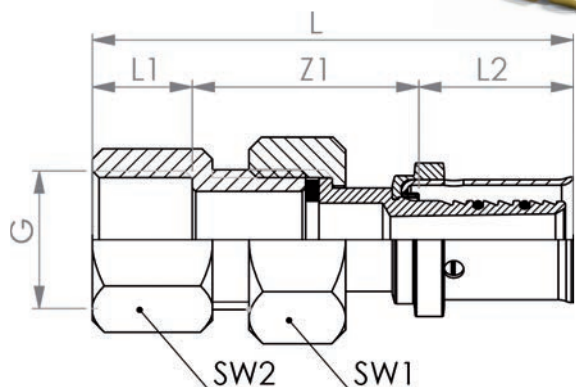


| ITEM NO.  | SIZE          | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm | G<br>mm | SW<br>mm |
|-----------|---------------|----------|---------|----------|----------|----------|---------|----------|
| PFV1605EK | 16 x 2 - 3/4" | Brass    | 45      | 10       | 23       | 12       | 3/4     | 30       |
| PFV2005EK | 20 x 2 - 3/4" | Brass    | 47      | 10       | 23       | 14       | 3/4     | 30       |



## PRESS CONNECTOR SCREW CONNECTOR WITH EUROCONE THREAD, NICKEL-PLATED

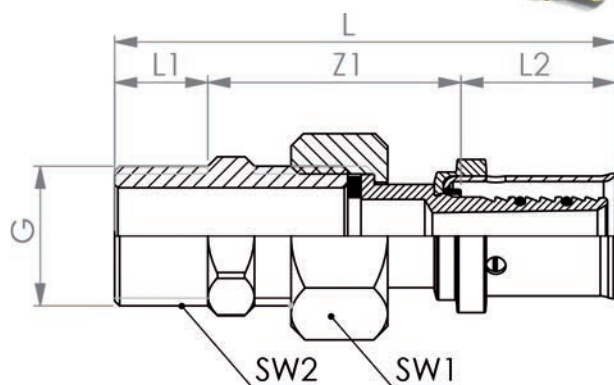
| ITEM NO.  | SIZE          | MATERIAL             | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm | G<br>mm | SW<br>mm |
|-----------|---------------|----------------------|---------|----------|----------|----------|---------|----------|
| PFV1605EK | 16 x 2 - 3/4" | Brass, Nickel-plated | 45      | 10       | 23       | 12       | 3/4     | 30       |
| PFV2005EK | 20 x 2 - 3/4" | Brass, Nickel-plated | 47      | 10       | 23       | 14       | 3/4     | 30       |



## PRESS CONNECTOR SCREW CONNECTOR WITH FEMALE THREAD



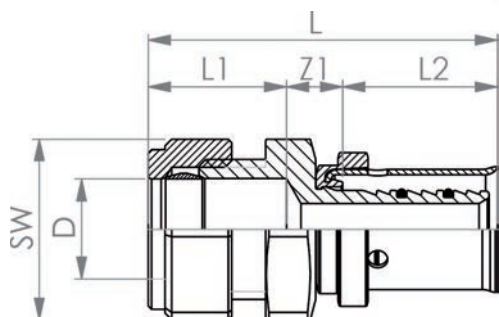
| ITEM NO.  | SIZE          | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | L<br>mm | G<br>mm | SW1<br>mm | SW2<br>mm |
|-----------|---------------|----------|----------|----------|----------|---------|---------|-----------|-----------|
| PFV1604IG | 16 x 2 - ½"   | Brass    | 15       | 34       | 23       | 72      | ½       | 27        | 24        |
| PFV1605IG | 16 x 2 - ¾"   | Brass    | 16       | 33       | 23       | 72      | ¾       | 32        | 31        |
| PFV2004IG | 20 x 2 - ½"   | Brass    | 15       | 35       | 23       | 73      | ½       | 27        | 24        |
| PFV2005IG | 20 x 2 - ¾"   | Brass    | 16       | 34       | 23       | 73      | ¾       | 32        | 31        |
| PFV2605IG | 26 x 3 - ¾"   | Brass    | 16       | 35       | 23       | 74      | ¾       | 32        | 31        |
| PFV2606IG | 26 x 3 - 1"   | Brass    | 16       | 40       | 23       | 79      | 1       | 40        | 37        |
| PFV3206IG | 32 x 3 - 1"   | Brass    | 16       | 42       | 23       | 81      | 1       | 40        | 37        |
| PFV3207IG | 32 x 3 - 1 ¼" | Brass    | 17       | 40       | 23       | 80      | 1 ¼     | 48        | 46        |



## PRESS CONNECTOR SCREW CONNECTOR WITH MALE THREAD



| ITEM NO.  | SIZE          | MATERIAL | L1<br>mm | Z1<br>mm | L2<br>mm | L<br>mm | G<br>mm | SW1<br>mm | SW2<br>mm |
|-----------|---------------|----------|----------|----------|----------|---------|---------|-----------|-----------|
| PFV1604AG | 16 x 2 - ½"   | Brass    | 14       | 38       | 23       | 75      | ½       | 27        | 21        |
| PFV1605AG | 16 x 2 - ¾"   | Brass    | 15       | 37       | 23       | 75      | ¾       | 32        | 27        |
| PFV2004AG | 20 x 2 - ½"   | Brass    | 14       | 39       | 23       | 76      | ½       | 27        | 21        |
| PFV2005AG | 20 x 2 - ¾"   | Brass    | 15       | 38       | 23       | 76      | ¾       | 32        | 32        |
| PFV2605AG | 26 x 3 - ¾"   | Brass    | 15       | 40       | 23       | 78      | ¾       | 32        | 27        |
| PFV2606AG | 26 x 3 - 1"   | Brass    | 16       | 44       | 23       | 83      | 1       | 40        | 35        |
| PFV3206AG | 32 x 3 - 1"   | Brass    | 16       | 45       | 23       | 84      | 1       | 40        | 35        |
| PFV3207AG | 32 x 3 - 1 ¼" | Brass    | 16       | 43       | 23       | 82      | 1 ¼     | 48        | 44        |

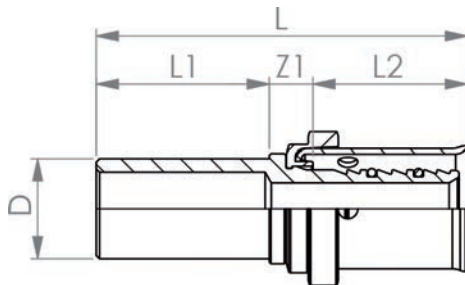


## PRESS CONNECTOR ON COPPER PIPE SCREW CONNECTION

| ITEM NO.  | SIZE             | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm | D<br>mm | SW<br>mm |
|-----------|------------------|----------|---------|----------|----------|----------|---------|----------|
| PFUEK1615 | 16 x 2 - 15 mm   | Brass    | 51      | 20       | 23       | 8        | 15      | 25       |
| PFUEK2018 | 20 x 2 - 18 mm   | Brass    | 54      | 22       | 23       | 9        | 18      | 28       |
| PFUEK2022 | 20 x 2 - 22 mm   | Brass    | 54      | 22       | 23       | 9        | 22      | 35       |
| PFUEK2622 | 26 x 3 - 22 mm   | Brass    | 54      | 22       | 23       | 9        | 22      | 35       |
| PFUEK2628 | 26 x 3 - 28 mm   | Brass    | 56      | 22       | 23       | 11       | 28      | 40       |
| PFUEK3228 | 32 x 3 - 28 mm   | Brass    | 57      | 22       | 23       | 12       | 28      | 40       |
| PFUEK3235 | 32 x 3 - 35 mm   | Brass    | 59      | 25       | 23       | 11       | 35      | 49       |
| PFUEK4035 | 40 x 3,5 - 35 mm | Brass    | 59      | 25       | 23       | 11       | 35      | 49       |



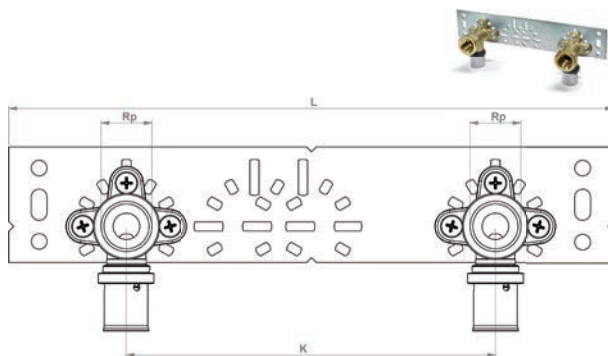
## PRESS CONNECTOR ON COPPER PIPE NICKEL-PLATED – PRESS CONNECTION



| ITEM NO.  | SIZE           | MATERIAL             | L<br>mm | L1<br>mm | L2<br>mm | Z1<br>mm | D<br>mm |
|-----------|----------------|----------------------|---------|----------|----------|----------|---------|
| PFUEK1615 | 16 x 2 - 15 mm | Brass, Nickel-plated | 56      | 26       | 23       | 7        | 15      |
| PFUEK2018 | 20 x 2 - 18 mm | Brass, Nickel-plated | 56      | 26       | 23       | 7        | 15      |
| PFUEK2022 | 20 x 2 - 22 mm | Brass, Nickel-plated | 56      | 26       | 23       | 7        | 18      |
| PFUEK2622 | 26 x 3 - 22 mm | Brass, Nickel-plated | 56      | 26       | 23       | 7        | 22      |
| PFUEK2628 | 26 x 3 - 28 mm | Brass, Nickel-plated | 56      | 26       | 23       | 7        | 22      |
| PFUEK3228 | 32 x 3 - 28 mm | Brass, Nickel-plated | 56      | 25       | 23       | 8        | 28      |

## PRESS WALL ELBOW

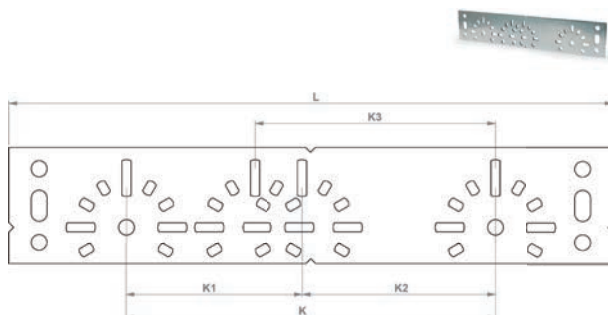
MOUNTED ON MOUNTING PLATE INSIDE MICROMETER 153 MM



| ITEM NO.    | SIZE        | MATERIAL                         | K<br>mm | L<br>mm | Rp<br>" | Rp<br>" |
|-------------|-------------|----------------------------------|---------|---------|---------|---------|
| PFWWSET1604 | 16 x 2 - ½" | Brass / sheet metal DIN EN 10142 | 153     | 250     | ½       | ½       |
| PFWWSET2004 | 20 x 2 - ½" | DX51 D+Z or plastic              | 153     | 250     | ½       | ½       |

## MOUNTING PLATE

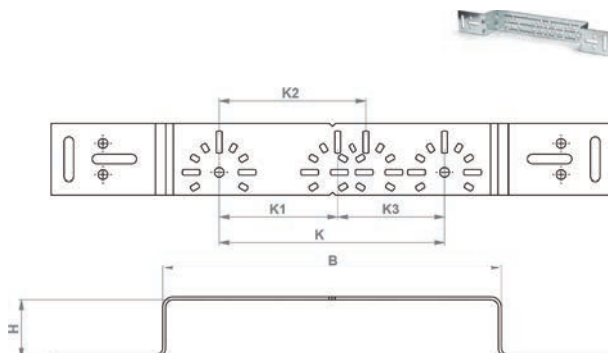
FOR WALL ELBOW, INSIDE MICROMETER 73, 80, 100, 153 MM



| ITEM NO. | SIZE        | MATERIAL                                        | L<br>mm | K<br>mm | K1<br>mm | K2<br>mm | K3<br>mm |
|----------|-------------|-------------------------------------------------|---------|---------|----------|----------|----------|
| MP153    | 250 / 48 mm | Sheet metal DIN EN 10142<br>DX51 D+Z or plastic | 250     | 153     | 73       | 80       | 100      |

## MOUNTING PLATE

MOUNTED ON MOUNTING PLATE, ANGLED, INSIDE MICROMETER 153 MM

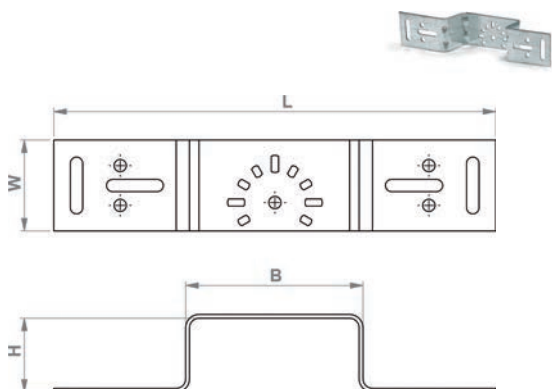


| ITEM NO. | SIZE   | MATERIAL                          | B<br>mm | H<br>mm | K<br>mm | K1<br>mm | K2<br>mm | K3<br>mm |
|----------|--------|-----------------------------------|---------|---------|---------|----------|----------|----------|
| MPGU     | 385 mm | Sheet metal DIN EN 10142 DX51 D+Z | 229     | 39      | 153     | 80       | 100      | 73       |



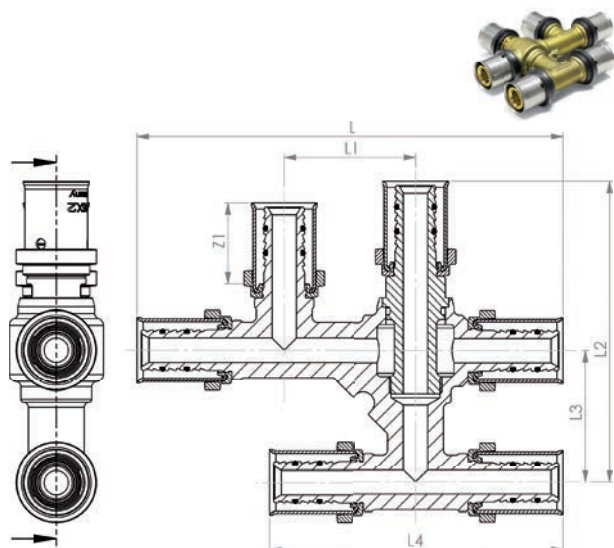
## MOUNTING PLATE

FOR ONE WALL ELBOW



| ITEM NO. | SIZE                          | MATERIAL                             | B<br>mm | H<br>mm | W<br>mm | L<br>mm |
|----------|-------------------------------|--------------------------------------|---------|---------|---------|---------|
| MPKU     | 228 mm, Installation<br>40 mm | Sheet metal DIN EN<br>10142 DX51 D+Z | 94      | 39      | 48      | 228     |

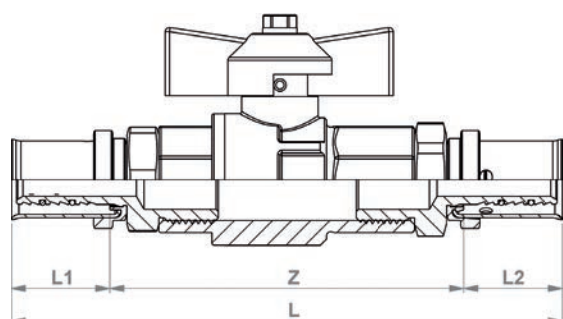
## PRESS T-CONNECTOR, CROSS-FREE



| ITEM NO.    | SIZE                     | MATERIAL | L<br>mm | L1<br>mm | Z1<br>mm | L2<br>mm | L3<br>mm | L4<br>mm |
|-------------|--------------------------|----------|---------|----------|----------|----------|----------|----------|
| PFKFT161616 | 16 x 2 - 16 x 2 - 16 x 2 | Brass    | 122     | 38       | 23       | 86       | 38       | 84       |
| PFKFT201616 | 20 x 2 - 16 x 2 - 16 x 2 | Brass    | 122     | 38       | 23       | 86       | 38       | 84       |
| PFKFT201620 | 20 x 2 - 16 x 2 - 20 x 2 | Brass    | 122     | 38       | 23       | 86       | 38       | 84       |
| PFKFT202020 | 20 x 2 - 20 x 2 - 20 x 2 | Brass    | 122     | 38       | 23       | 86       | 38       | 84       |

## PRESS BALL VALVE

GREEN BUTTERFLY – HANDLE PLUMBING (DVGW CERTIFICATION)

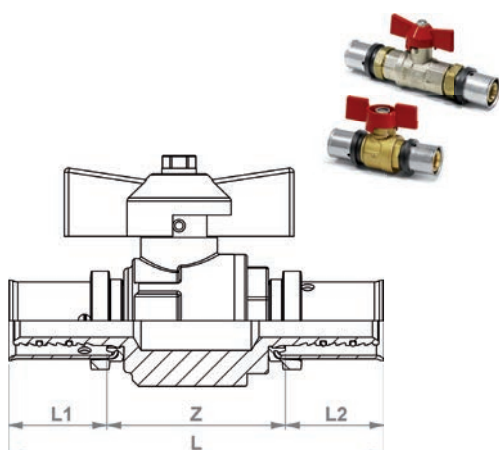


| ITEM NO. | SIZE     | MATERIAL | L1<br>mm | Z<br>mm | L2<br>mm | L<br>mm |
|----------|----------|----------|----------|---------|----------|---------|
| PFKU16D  | 16 x 2   | Brass    | 23       | 83      | 23       | 129     |
| PFKU20D  | 20 x 2   | Brass    | 23       | 84      | 23       | 130     |
| PFKU26D  | 26 x 3   | Brass    | 23       | 91      | 23       | 137     |
| PFKU32D  | 32 x 3   | Brass    | 23       | 113     | 23       | 159     |
| PFKU40D  | 40 x 3,5 | Brass    | 23       | 139     | 23       | 185     |
| PFKU50D  | 50 x 4   | Brass    | 35       | 154     | 35       | 224     |
| PFKU63D  | 63 x 4,5 | Brass    | 39       | 161     | 39       | 239     |



## PRESS BALL VALVE

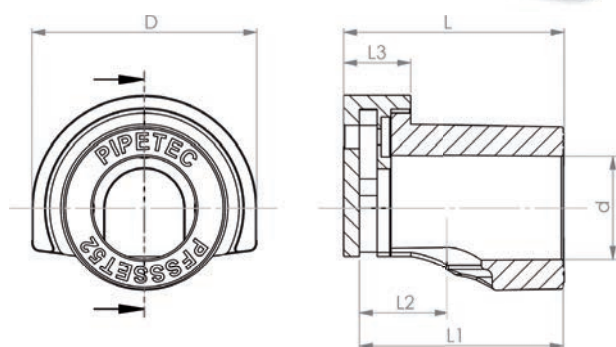
RED BUTTERFLY – HANDLE HEATING (NO DVGW CERTIFICATION)



| ITEM NO. | SIZE     | MATERIAL | L1<br>mm | Z<br>mm | L2<br>mm | L<br>mm |
|----------|----------|----------|----------|---------|----------|---------|
| PFKU16   | 16 x 2   | Brass    | 23       | 39      | 23       | 85      |
| PFKU20   | 20 x 2   | Brass    | 23       | 40      | 23       | 86      |
| PFKU26   | 26 x 3   | Brass    | 23       | 45      | 23       | 91      |
| PFKU32   | 32 x 3   | Brass    | 23       | 106     | 23       | 152     |
| PFKU40   | 40 x 3,5 | Brass    | 23       | 120     | 23       | 166     |
| PFKU50   | 50 x 4   | Brass    | 35       | 126     | 35       | 196     |
| PFKU63   | 63 x 4,5 | Brass    | 39       | 148     | 39       | 226     |

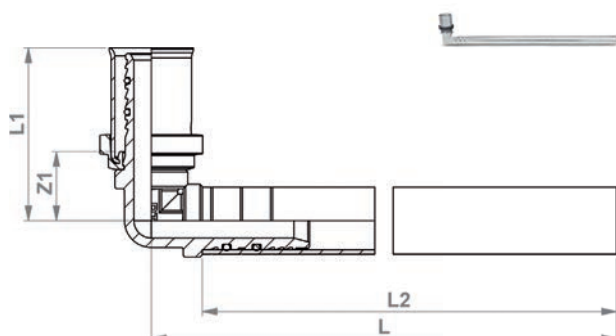


## SOUND INSULATION SET FOR WALL ELBOW



| ITEM NO. | SIZE  | MATERIAL | L<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | D<br>mm | d<br>mm |
|----------|-------|----------|---------|----------|----------|----------|---------|---------|
| PFSSET39 | 39 mm | TPE      | 43      | 39       | 17,5     | 17       | 57      | 26      |
| PFSSET52 | 52 mm | TPE      | 56      | 52       | 22,5     | 17       | 57      | 26      |
| PFSSET78 | 78 mm | TPE      | 82      | 78       | 22,5     | 17       | 57      | 26      |

## PRESS RADIATOR CONNECTION ELBOW, NICKEL-PLATED



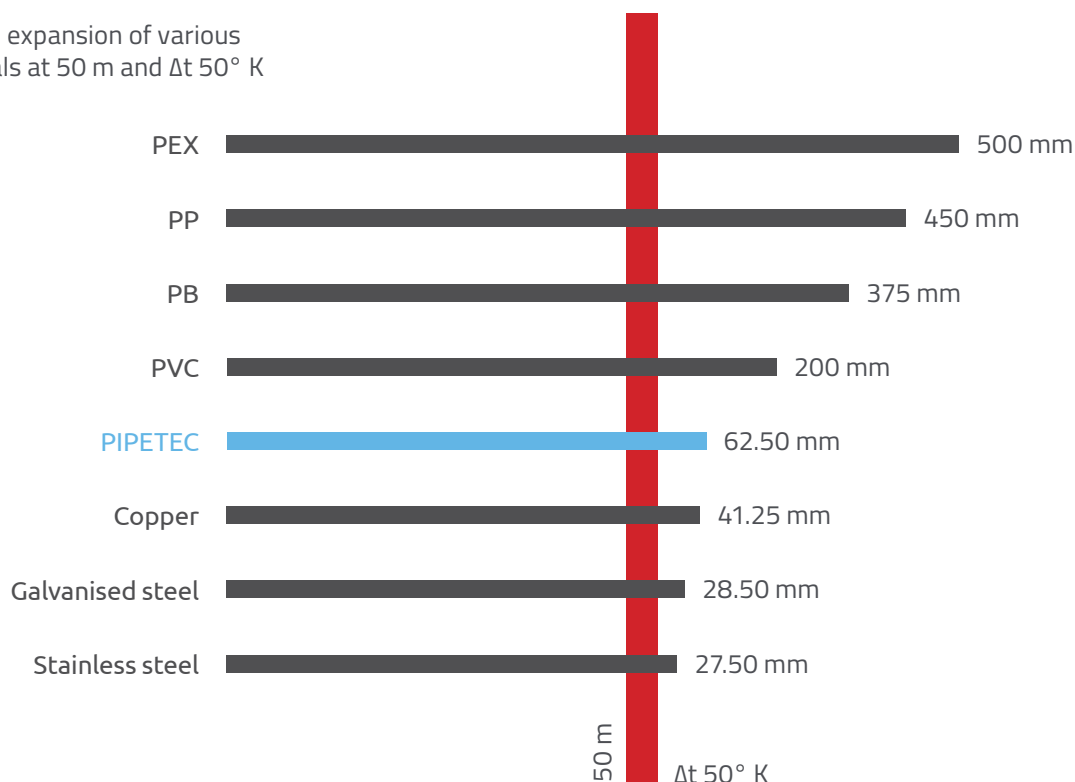
| ITEM NO.   | SIZE                    | MATERIAL                   | L1<br>mm | Z1<br>mm | L<br>mm | L2<br>mm |
|------------|-------------------------|----------------------------|----------|----------|---------|----------|
| PFHAW16300 | 16 x 2 - 15 mm - 300 mm | Brass/Copper nickel-plated | 39       | 15       | 300     | 289      |
| PFHAW20300 | 20 x 2 - 15 mm - 300 mm | Brass/Copper nickel-plated | 41       | 17       | 300     | 287      |



## GENERAL TECHNICAL DATA / INSTALLATION INSTRUCTIONS

### LONGITUDINAL EXPANSION PIPETEC METAL COMPOSITE PIPES

Longitudinal expansion of various pipe materials at 50 m and  $\Delta t$  50° K



### PIPE ROUGHNESS PIPETEC METAL COMPOSITE PIPES AND PE-RT

Pipe wall roughness values for various materials:

#### COPPER

|                   |           |
|-------------------|-----------|
| $k_{\text{new}}$  | 0.0015 mm |
| $k_{\text{used}}$ | 0.03 mm   |

#### PIPETEC / PLASTIC

|                   |          |
|-------------------|----------|
| $k_{\text{new}}$  | 0.007 mm |
| $k_{\text{used}}$ | 0.007 mm |

#### GALVANISED STEEL PIPE

|                   |                   |
|-------------------|-------------------|
| $k_{\text{new}}$  | 0.15 mm - 0.16 mm |
| $k_{\text{used}}$ | up to 4.0 mm      |

#### SEAMLESS STEEL PIPES

|                   |                |
|-------------------|----------------|
| $k_{\text{new}}$  | 0.02 - 0.06 mm |
| $k_{\text{used}}$ | up to 4.0 mm   |



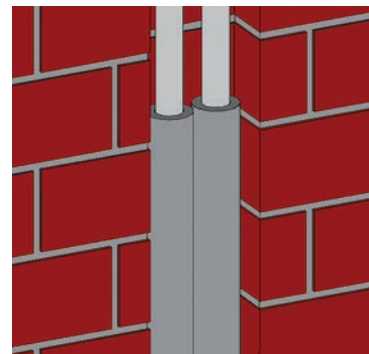
## INSULATION OF PIPELINES

Meets the German Building Energy Act (GEG)

### 50%      Insulation      100%

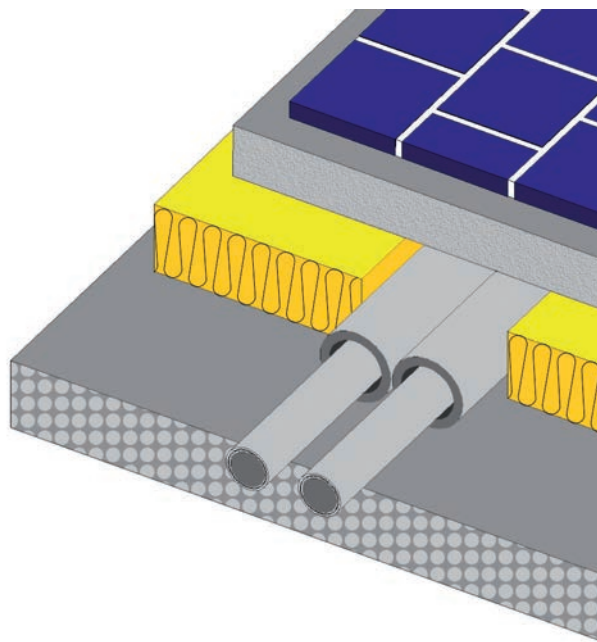
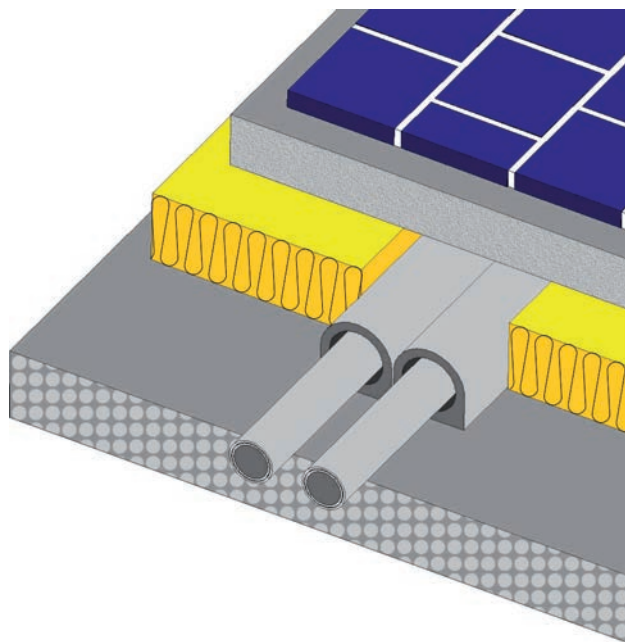
Risers in a shaft or flush-mounted between heated rooms of various users

can be laid next to unheated rooms, the ground and outside air.



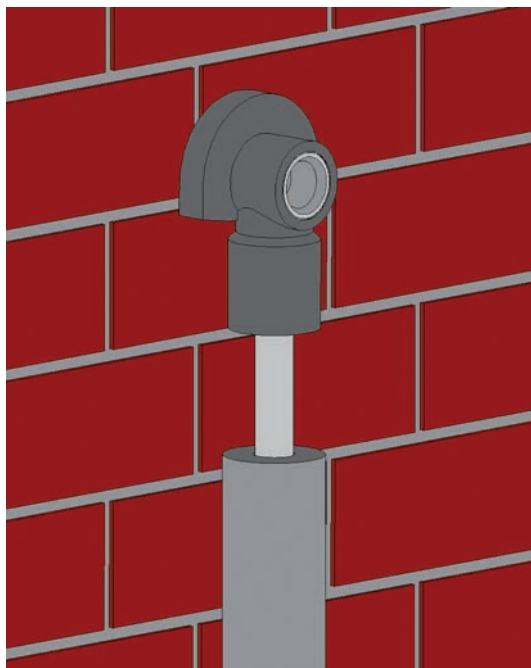
## FLOOR CONSTRUCTION

Pre-insulated Pipetec multilayer composite pipe

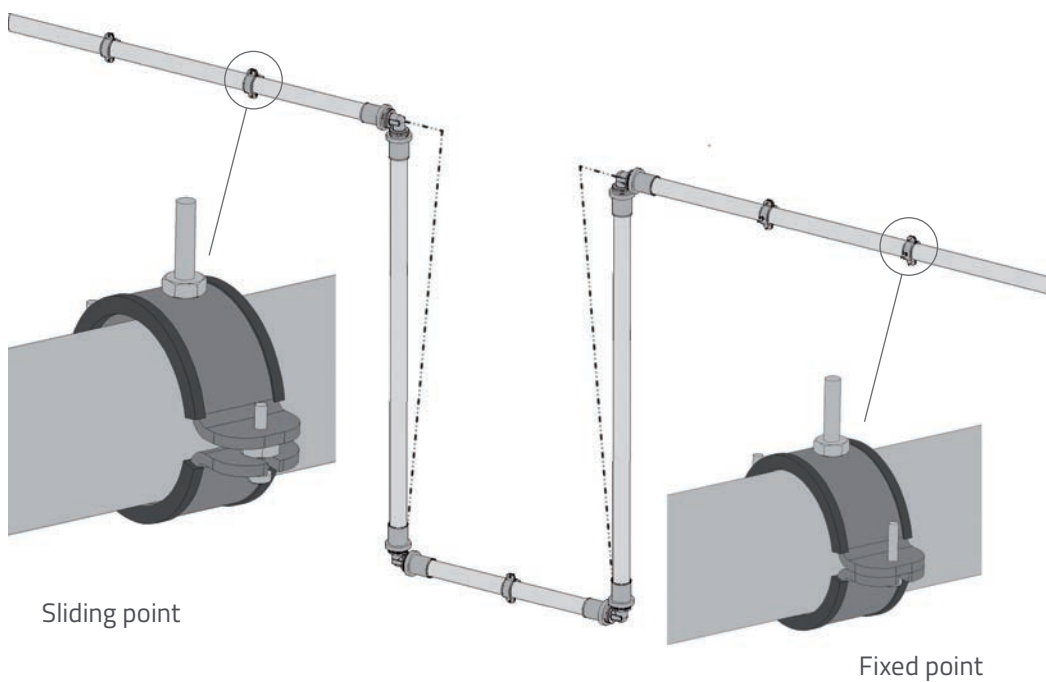




## NOISE PROTECTION



## LONGITUDINAL EXPANSION



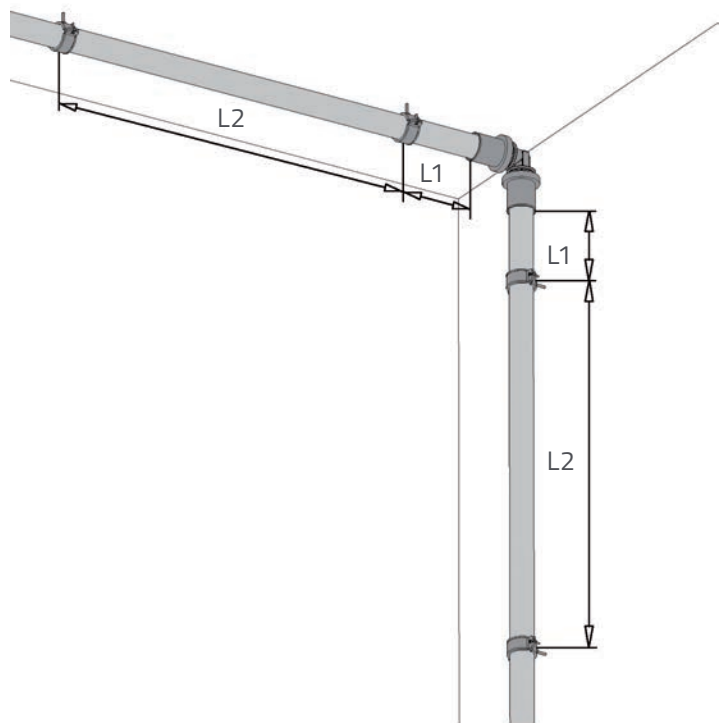
Sliding point

Fixed point



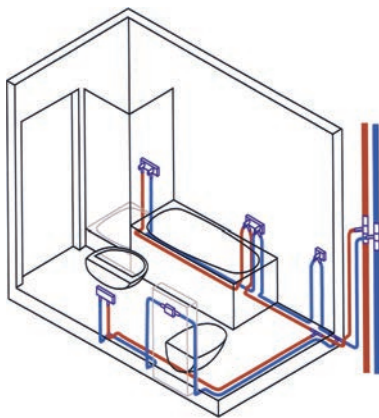
## FIXING SPACINGS

| DN | PIPE DIMENSIONS<br>MM | L2 (CM) MAX.<br>FIXING SPACINGS |            |
|----|-----------------------|---------------------------------|------------|
|    |                       | VERTICAL                        | HORIZONTAL |
| 16 | 16 x 2.00             | 135                             | 150        |
| 20 | 20 x 2.00             | 150                             | 175        |
| 26 | 26 x 3.00             | 165                             | 200        |
| 32 | 32 x 3.00             | 200                             | 200        |
| 40 | 40 x 3.50             | 250                             | 250        |
| 50 | 50 x 4.00             | 250                             | 250        |
| 63 | 63 x 4.50             | 250                             | 250        |

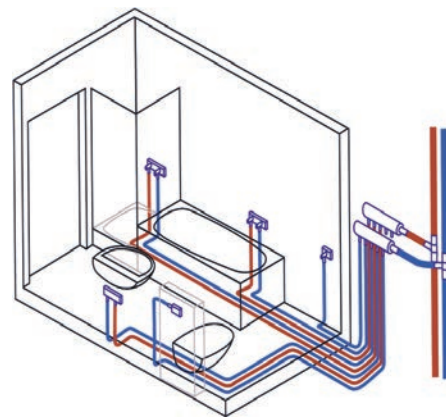


## LAYING INSTRUCTIONS

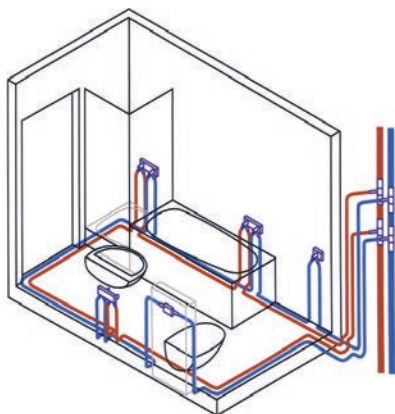
Group connection



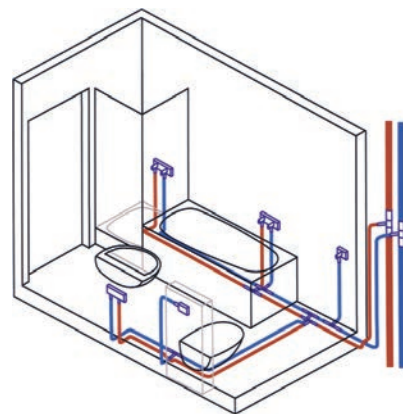
Manifold system



Ring line

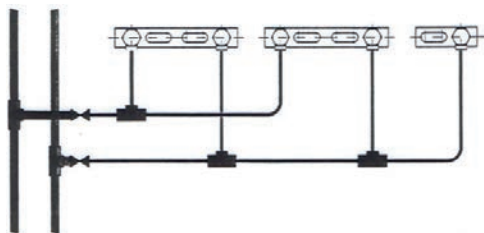


T-piece installation

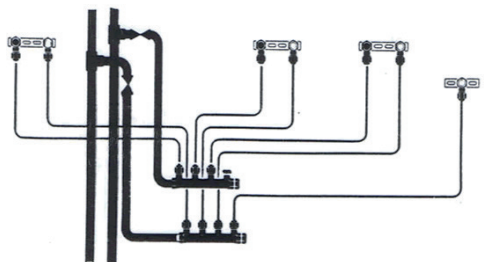




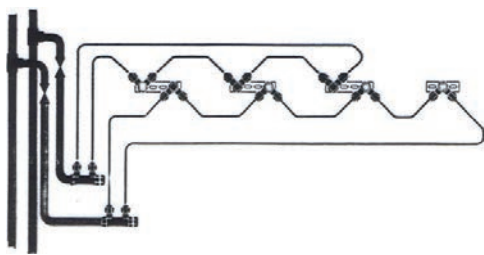
## SAMPLE INSTALLATIONS



Conventional  
distribution system



Individual distribution system



Ring line system

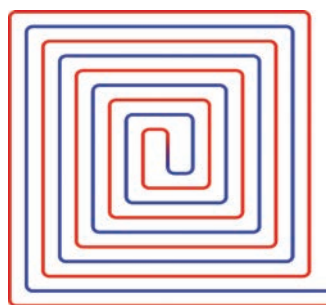


## ASSEMBLY AND LAYING GUIDELINES

### Underfloor heating

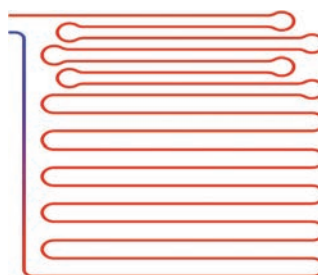
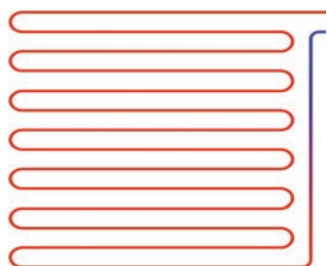
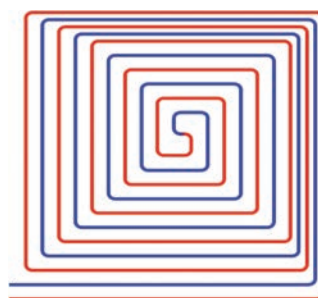
#### BIFILAR INSTALLATION

Spiral pattern with return loop in the centre of the heating circuit. The even installation of feed and return results in a very consistent distribution of heat.



#### BIFILAR INSTALLATION WITH EDGE ZONE

Serpentine pattern with edge zone included on two sides of the room.



#### MEANDERING INSTALLATION

Serpentine pattern with return loop at the end of the heating circuit. Continuous installation without inclusion of the return results in a higher temperature at the start of the heating circuit.

#### MEANDERING INSTALLATION WITH EDGE ZONE

With this type of installation, the edge zone raises the temperature increase at the start of the heating circuit.



## SAMPLE CALCULATION

### Two-pipe heating with radiators

Taking account of the maximum flow speeds, the following heat outputs/volume flows can be connected:

|                                                  |           |
|--------------------------------------------------|-----------|
| <i>Recommendation:</i> Radiator connection pipes | ≤ 0.3 m/s |
| Heating distribution pipes                       | ≤ 0.5 m/s |
| Heating risers and cellar pipes                  | ≤ 1.0 m/s |

Note pressure loss  $\Delta p$ !

## RADIATOR CONNECTION PIPES

| PIPE DIMENSIONS IN MM Ø          | 16 X 2 | 20 X 2 | 26 X 3 | 32 X 3 |
|----------------------------------|--------|--------|--------|--------|
| VOLUME FLOW VMAX IN L/H          | 130    |        |        |        |
| FLOW SPEED MAX IN M/S            | 0.30   |        |        |        |
| HEAT OUTPUT QN IN KCAL/H AT 20°C | 2,600  |        |        |        |
| HEAT OUTPUT QN IN WATTS AT 20°C  | 3,023  |        |        |        |

## HEATING DISTRIBUTION PIPES

| PIPE DIMENSIONS IN MM Ø          | 16 X 2 | 20 X 2 | 26 X 3 | 32 X 3 |
|----------------------------------|--------|--------|--------|--------|
| VOLUME FLOW VMAX IN L/H          | 220    | 450    | 700    | 900    |
| FLOW SPEED MAX IN M/S            | 0.50   | 0.50   | 0.50   | 0.50   |
| HEAT OUTPUT QN IN KCAL/H AT 20°C | 4,400  | 6,800  | 14,500 | 18,000 |
| HEAT OUTPUT QN IN WATTS AT 20°C  | 5,116  | 7,890  | 16,800 | 20,930 |

## HEATING RISERS AND CELLAR PIPES

| PIPE DIMENSIONS IN MM Ø          | 16 X 2 | 20 X 2 | 26 X 3 | 32 X 3 |
|----------------------------------|--------|--------|--------|--------|
| VOLUME FLOW VMAX IN L/H          | 440    | 900    | 1,400  | 1,800  |
| FLOW SPEED MAX IN M/S            | 1.00   | 1.00   | 1.00   | 1.00   |
| HEAT OUTPUT QN IN KCAL/H AT 20°C | 8,800  | 13,600 | 29,000 | 36,000 |
| HEAT OUTPUT QN IN WATTS AT 20°C  | 10,233 | 15,780 | 33,600 | 41,860 |

## SAMPLE CALCULATION OF VOLUME FLOW (FLOW RATE IN L/H)

Heat output:  $Q_N/W \times 0.86$   
 Temperature difference:  $\Delta t$  (TV-TR) = Volume flow V in l/h

$$\frac{Q_N = 1,000 \text{ W} \times 0.86}{\Delta t 20^\circ\text{C}} = V = 43 \text{ l/h}$$

### *Note:*

For heating circuits connected to a system (single pipe heating), the entire ring volume flow of all radiators must be taken into account!



## INSTALLATION INSTRUCTIONS FOR PIPETEC MS / PPSU PRESS FITTINGS

The aluminium composite pipe is cut to the desired length using pipe cutters. The calibrator then ensures that the pipe end is completely round and deburred after cutting. At the same time the pipe interior is chamfered to allow the fitting to be inserted into the pipe without damaging the O-ring. Finally, the three openings (inspection windows) at the end of the stainless steel sleeve, which indicate the correct position of the pipe in the fitting, guarantee a correct pressing operation.

## ► NOTE

Perfect functioning of the pipe connection can only be ensured by using fittings with the DVGW-certified Pipetec aluminium multilayer composite pipe. Please note how important it is to ensure correct and expert calibration and deburring using a suitable tool. Always protect fittings with insulation or suitable adhesive tape to protect them from direct contact with concrete, screed, construction foam, mortar, etc. Make sure installation is stress-free! Brass threads that are sealed too tightly (especially when using hemp) can lead to tension in the brass. This can lead to stress corrosion cracking due to assembly.



1

## CUTTING THE PIPE TO LENGTH

The pipe must be cut to the desired length using a suitable tool. The cross-sectional area of the cut must be perpendicular to the pipe. Diagonal cuts must be avoided.

Handsaws, jigsaws and blunt tools are not suitable for cutting to length.



2

## CALIBRATING AND DEBURRING THE PIPE

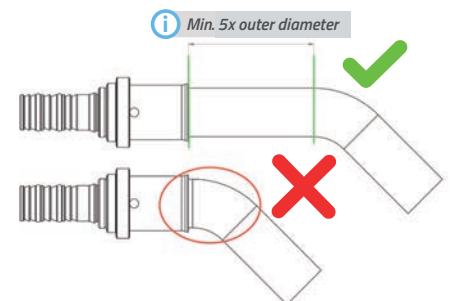
The pipe end must be calibrated and deburred after trimming. To do this, the calibrator must first be inserted into the pipe up to the stop. Deburring is then completed by turning the calibrator. Turning removes material from the interior of the pipe, creating a chamfer on the end of the pipe. This chamfer makes it easier to insert the fitting and protects the O-rings from damage.



3

## ASSEMBLY OF FITTINGS

Use appropriate force to insert the fitting into the end of the pipe axially up to the stop. The three inspection windows on the stainless steel pressing sleeve indicate the correct insertion depth. Please do not use additional lubricant.



4

## PRESSING

Using an appropriate pressing tool and pressing jaws that match the dimensions of the fitting, press until the pressing jaws are fully closed and the pressing process is complete. Then check the connection. It is essential to carry out a pressure and leak test (see page 94).





## ASSEMBLY INSTRUCTIONS FOR PIPETEC SCREW FITTINGS

Neither pressing tools nor pressing jaws are required for assembling compression fittings. Leak-tightness is achieved simply by tightening the union nut. The clamping ring is crimped onto the pipe using the cone on the inside of the union nut.

### ► NOTE

Perfect functioning of the pipe connection can only be ensured by using fittings with the DVGW-certified Pipetec aluminium multilayer composite pipe. Please note how important it is to ensure correct and expert calibration and deburring using a suitable tool. Always protect fittings with insulation or suitable adhesive tape to protect them from direct contact with concrete, screed, construction foam, mortar, etc. Make sure installation is stress-free! Brass threads that are sealed too tightly (especially when using hemp) can lead to tension in the brass. This can lead to stress corrosion cracking due to assembly.


**1**

### CUTTING THE PIPE TO LENGTH

The pipe must be cut to the desired length using a suitable tool. The cross-sectional area of the cut must be perpendicular to the pipe. Diagonal cuts must be avoided.

Handsaws, jigsaws and blunt tools are not suitable for cutting to length.


**2**

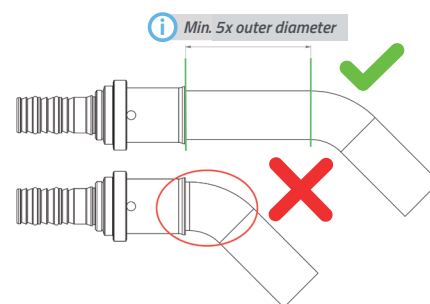
### CALIBRATING AND DEBURRING THE PIPE

The pipe end must be calibrated and deburred after trimming. To do this, the calibrator must first be inserted into the pipe up to the stop. Deburring is then completed by turning the calibrator. Turning removes material from the interior of the pipe, creating a chamfer on the end of the pipe. This chamfer makes it easier to insert the fitting and protects the O-rings from damage.


**3**

### ASSEMBLY OF FITTINGS

Union nut and clamping ring must be positioned on the pipe as per the illustration. The nipple of the basic body is then fully inserted into the pipe. Clamping ring and union nut are pushed into the basic fitting body up to the stop. The union nut can then be tightened by hand.


**4**

### TIGHTENING THE CONNECTION

The union nut must be tightened using a suitable tool until the corresponding resistance is reached. Then check the connection. It is essential to carry out a pressure and leak test (see page 94).

**The recommended tightening torques for our screw fittings are:**

|              |         |
|--------------|---------|
| Size 16 pipe | > 20 Nm |
| Size 20 pipe | > 30 Nm |
| Size 26 pipe | > 45 Nm |
| Size 32 pipe | > 75 Nm |



## ASSEMBLY INSTRUCTIONS FOR PIPETEC PUSH FITTINGS

The aluminium composite pipe is cut to the desired length using pipe cutters. Calibration is required to ensure that the pipe end is completely round and deburred after cutting. At the same time, calibration creates a chamfer. This allows the fitting to be inserted into the pipe without damaging the sealing ring.

## ► NOTE

Perfect functioning of the pipe connection can only be ensured by using fittings with the DVGW-certified Pipetec aluminium multilayer composite pipe. Please note how important it is to ensure correct and expert calibration and deburring using a suitable tool. The connection is permanent! Before attaching the fitting, please ensure that the pipe is the required length and no attachment clips or similar have to be placed over the pipe. Always protect fittings with insulation or suitable adhesive tape to protect them from direct contact with concrete, screed, construction foam, mortar, etc. Make sure installation is stress-free! Brass threads that are sealed too tightly (especially when using hemp) can lead to tension in the brass. This can lead to stress corrosion cracking due to assembly.



1

## CUTTING THE PIPE TO LENGTH

The pipe must be cut to the desired length using a suitable tool. The cross-sectional area of the cut must be perpendicular to the pipe. Diagonal cuts must be avoided.

Handsaws, jigsaws and blunt tools are not suitable for cutting to length.



2

## CALIBRATING AND DEBURRING THE PIPE

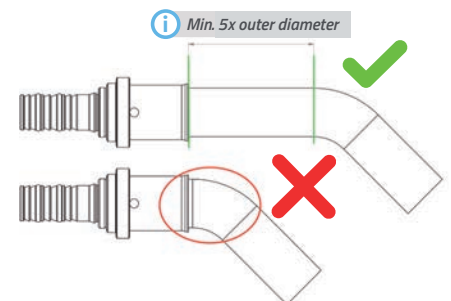
The pipe end must be calibrated and deburred after trimming. To do this, the calibrator must first be inserted into the pipe up to the stop. Deburring is then completed by turning the calibrator. Turning removes material from the interior of the pipe, creating a cone that makes it easier to insert fittings and also protects the wedge seal from damage. **PLEASE NOTE: Please use only our grey K1626 calibrator for calibration!**



3

## ASSEMBLY OF FITTINGS

Use appropriate force to insert the fitting into the end of the pipe axially up to the stop. The two integrated inspection windows indicate the correct insertion depth. Both inspection windows must be filled by the white pipe. The fittings are prepared for immediate assembly in the factory, please do not use additional lubricant.



4

## FINAL TESTING

Check that the pipe is firmly in place. It must not be possible to pull the pipe out. It is essential to carry out a pressure and leak test (see page 94).