

Fittings



*Your Reliable Brand*



# FITTINGS

## Technical Catalog

BSP  
Medium Pressure NPT Class 150  
High Pressure NPT Class 300  
TUPYPRES®



# INDEX

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# Malleable Iron

## Definition

Malleable Cast Iron is the cast iron which has in its microstructure, in the crude casting state, carbon in a totally combined manner and which after thermal malleabilization treatment can have annealing graphite (compact), ferrite, perlite or microstructure of hardening and tempering, without a significant presence of eutectic carbides.

## Properties

The main properties of the material used in the TUPY fittings are specified by the Brazilian Technical Standards Association (ABNT), among which the following stand out:

- Mechanical Resistance • Resistance to Corrosion • Resistance to Wear

## Applications

Malleable, or wrought, iron is a material used in practically all industrial fields.

Its use is indispensable in manufacturing parts with complex shapes, subject to the most varied works, where it has an excellent performance for all the life of the machine or equipment of which it is a part.

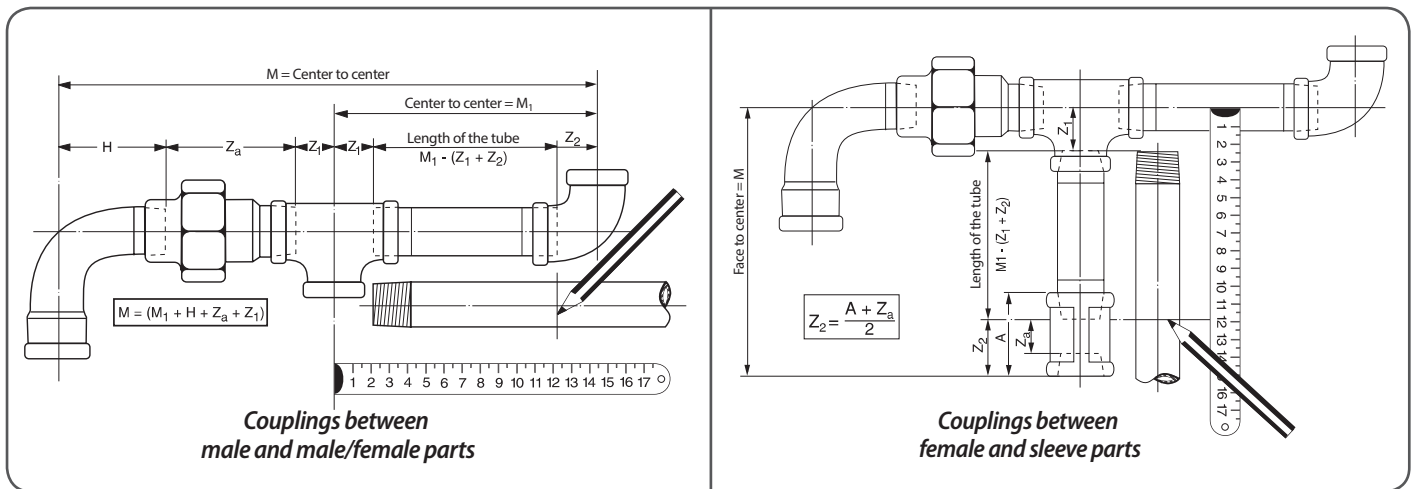
Malleable iron, with properties of proven worth, is foreseen for parts of the automotive, electro-electronic, railroad, etc. industry, which undergo extremely severe conditions of use. TUPY S.A., one of the largest suppliers of these parts, uses the same material for manufacturing its line of fittings.

## Assemblies with TUPY Fittings

Standard method for determining the distance from center to center and length of the pipe.

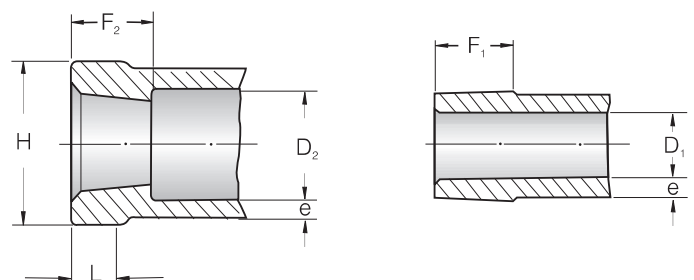
### Measure -Z-

To obtain it, just reduce from the length appearing in the figures (fittings) of this catalog the length of the threads in the table below. In the fittings with an external thread (male), measure Z is equal to the length appearing in these figures.

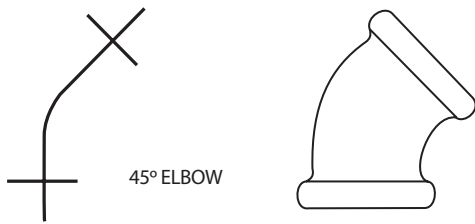


### Length of Threads of Fittings in (mm)

| Nominal Diameter | BSP   | Medium NPT |         | High NPT |         |
|------------------|-------|------------|---------|----------|---------|
|                  | F1=F2 | F1(min)    | F2(min) | F1(min)  | F2(min) |
| ¼                | 11,0  | 10,2       | 8,1     | 10,2     | 10,9    |
| ⅜                | 11,5  | 10,4       | 9,1     | 10,4     | 11,9    |
| ½                | 15,0  | 13,5       | 10,9    | 13,5     | 14,5    |
| ¾                | 16,5  | 14,0       | 12,7    | 14,0     | 16,3    |
| 1                | 19,0  | 17,3       | 14,7    | 17,3     | 19,1    |
| 1¼               | 21,5  | 18,0       | 17,0    | 18,0     | 21,3    |
| 1½               | 21,5  | 18,3       | 17,8    | 18,3     | 22,1    |
| 2                | 26,0  | 19,3       | 19,1    | 19,3     | 25,4    |
| 2½               | 30,5  | 29,0       | 23,4    | 29,0     | 29,7    |
| 3                | 33,5  | 30,5       | 24,9    | 30,5     | 31,2    |
| 4                | 39,5  | 33,0       | 27,4    | 33,0     | 33,7    |
| 6                | 43,5  | 38,4       | 32,5    | 38,4     | 39,0    |



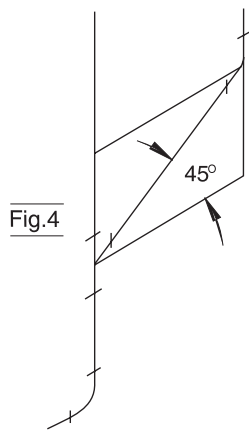
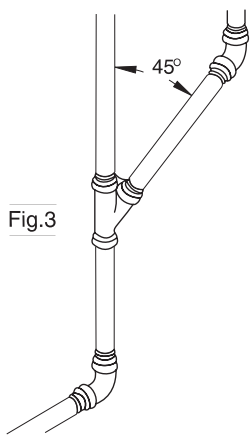
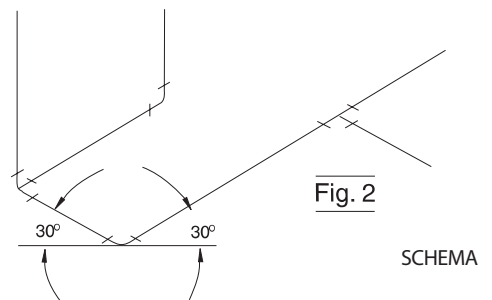
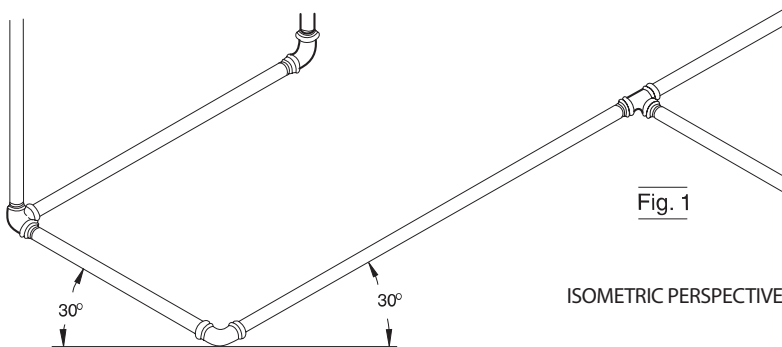
# Schemata and Symbols



To facilitate and speed up the representation and reading of hydraulic systems, symbols are used to represent the various components.

The isometric perspective is the manner of representing in drawing:  
- the piping which allows the advanced localization of the parts required  
- the dimensions of pipes and quantity of material.

In the isometric drawings the representation of vertical pipes is executed by vertical lines and the horizontal pipes are represented by lines inclined at 30° to the horizontal, as shown in fig. 1 and 2.



The pipes outside the horizontal or vertical are represented by lines at an inclination differing from 30°, the actual angle of pipe inclination having to be marked in the drawing (fig. 3 and 4).

In the isometric drawings it is impossible to represent and locate all the accessories and splices (threads, welds, flanges, etc.) of the piping. Pre-assembly is an installation technique which allows the cutting and threading of pipes and the specification of fittings and other accessories. It is advisable to assemble the parts of the circuit in the workshop, where there are more resources, and then take them to the installation site. These facilities are only achieved through preparing an isometric plan.

## TupyCAD

It is a complete library of hydraulic graphic symbols composed of all the TUPY BSP and NPT fittings, to operate in AutoCAD™ hydraulic projects.

Request your cd-rom by email [engaplic@tupy.com.br](mailto:engaplic@tupy.com.br)



# Graphic Symbols for Hydraulic Diagrams

| DENOMINATION                                 | SYMBOL | STANDARD   |
|--|--------|------------|
| Reducing Bushing                             |        | ANSI       |
| Plug   |        | ANSI       |
| Elbow  |        | ANSI       |
| Elbow (turned downwards)                     |        | ANSI       |
| Elbow ( turned upwards)                      |        | ANSI       |
| Reducing Elbow (the Nos indicate the gauges) |        | ANSI       |
| 45° Elbow                                    |        | ANSI       |
| Male-Female Elbow                            |        | ANSI       |
| Elbow with side outlet (outlet downwards)    |        | ANSI       |
| Elbow with side outlet (outlet upwards)      |        | ANSI       |
| Cross  |        | ANSI       |
| Reducing Cross (Elbow with side outlet)      |        | ANSI       |
| Female Bend                                  |        | ANSI       |
| Male-Female Bend                             |        | RECOM.TUPY |
| Male Bend                                    |        | RECOM.TUPY |
| 45° Male-Female Bend                         |        | RECOM.TUPY |
| Transposition Bend                           |        | ANSI       |
| Return Bend                                  |        | RECOM.TUPY |
| Sleeve                                       |        | RECOM.TUPY |
| Concentric Reducing Sleeve                   |        | ANSI       |
| Eccentric Reducing Sleeve                    |        | ANSI       |
| Double Nipple                                |        | RECOM.TUPY |
| Cap  |        | ANSI       |
| Tee  |        | ANSI       |

| DENOMINATION                               | SYMBOL | STANDARD   |
|--|--------|------------|
| Tee (with outlet downwards)                |        | ANSI       |
| Tee (with outlet upwards)                  |        | ANSI       |
| 45° Tee                                    |        | RECOM.TUPY |
| Reducing Tee (the Nos indicate the gauges) |        | ANSI       |
| Double Bend Tee                            |        | ANSI       |
| Union with Flat Seat                       |        | DIN        |
| Union with Lon Conic Iron Seat             |        | RECOM.TUPY |
| Union with Bronze Conic Seat               |        | RECOM.TUPY |
| Union with MF Lon Conic Iron Seat          |        | RECOM.TUPY |
| Expansion Joint                            |        | ANSI       |
| Joint Connecting in Pipe                   |        | ANSI       |
| Angle Valve                                |        | DIN        |
| Angle Float Valve                          |        | DIN        |
| Angle Retaining Valve                      |        | ANSI       |
| Angle Slide Valve (elevation)              |        | ANSI       |
| Angle Slide Valve (plant)                  |        | ANSI       |
| Angle Globe Valve (elevation)              |        | ANSI       |
| Angle Globe Valve (plant)                  |        | ANSI       |
| Angle Valve with Hose Connection           |        | ANSI       |
| Slide Valve                                |        | ANSI       |
| Retaining Clapper Válve                    |        | DIN        |
| Slide Valve with Hose Connection           |        | ANSI       |
| Globe Valve                                |        | ANSI       |
| Globe Valve Operated by Motor              |        | ANSI       |


















# Graphic Symbols for Hydraulic Diagrams


















| DENOMINATION                               | SYMBOL | STANDARD |
|--|--------|----------|
| Globe Valve with Hose Connection           |        | ANSI     |
| Safety Valve                               |        | ANSI     |
| Safety Valve with Diaph. & Load for Spring |        | DIN      |
| Safety Valve with Counterweight            |        | DIN      |
| Retaining Valve                            |        | ANSI     |
| Foot Retaining Valve                       |        | DIN      |
| Straight Passage Retaining Valve           |        | ANSI     |
| Diaphragm Valve                            |        | ANSI     |
| Control Valve with Opening for Pressure    |        | ANSI     |
| Control Valve with Closing for Pressure    |        | ANSI     |
| Clapper Valve                              |        | DIN      |
| Foot Clapper Valve                         |        | DIN      |
| Slide Valve Operated by Motor              |        | ANSI     |
| Valve Operated by Motor                    |        | ANSI     |
| Hydraulic Operated Valve                   |        | ANSI     |
| Electrical Operated Valve                  |        | ANSI     |
| Pneumatic Operate Valve                    |        | ANSI     |
| Solenoid Operated Valve                    |        | ANSI     |
| Float Valve                                |        | DIN      |
| Float Operated Valve                       |        | ANSI     |
| Needle Valve                               |        | ISA      |
| Relief or Safety Valve                     |        | ISA      |
| Piston Operated Valve                      |        | ISA      |
| 3-way Valves                               |        | ISA      |

| DENOMINATION                        | SYMBOL | STANDARD |
|-------------------------------------|--------|----------|
| Auxiliary Valve                     |        | ANSI     |
| Auxiliary Pressure Valve            |        | ANSI     |
| Blocking Valve                      |        | ANSI     |
| Control Valve                       |        | ANSI     |
| Discharge Valve                     |        | DIN      |
| Instantaneous Opening Valve         |        | ANSI     |
| Valve with Male Thread              |        | ANSI     |
| Change Valve                        |        | DIN      |
| Valve Usually Closed                |        | ISA      |
| Discharge Valve                     |        | DIN      |
| Pressure Reducing Valve             |        | DIN      |
| Quick Closing Valve                 |        | ANSI     |
| Flow Valve with Connection for Hose |        | DIN      |
| Current Operated Valve              |        | ISA      |
| Line or "Y" Filter                  |        | DIN      |
| Tap                                 |        | DIN      |
| Angle Tap                           |        | DIN      |
| 3-way Tap                           |        | DIN      |
| Valve with Male Thread              |        | ANSI     |
| Gas Meter                           |        | DIN      |
| Hydrometer                          |        | DIN      |



# Graphic Symbols for Hydraulic Diagrams

| DENOMINATION                   | SYMBOL  | STANDARD |
|--------------------------------|---|----------|
| Filter                         |    | DIN      |
| Drain                          |    | ANSI     |
| Ejector                        |    | ISA      |
| Siphon                         |    | ANSI     |
| Discharge Funnel (exhaust)     |    | DIN      |
| Passage with Inspection Window |    | DIN      |
| Sprinkler Hose                 |  | DIN      |
| Condensation Water Collector   |  | DIN      |
| Condensation Water Conductor   |  | DIN      |
| Pressure Container (boiler)    |  | DIN      |
| Open Tank                      |  | DIN      |
| Fixed Point                    |  | DIN      |
| Pneumatic Flow Direction       |  | ANSI     |
| Hydraulic Flow Direction       |  | ANSI     |
| Lines in Transposition         |  | ANSI     |
| Junction Line                  |  | ANSI     |
| Flexible Line                  |  | ANSI     |

| DENOMINATION                       | SYMBOL  | STANDARD |
|------------------------------------|---|----------|
| Piping                             |    | DIN      |
| Piping with Insulation             |    | DIN      |
| Piping with Insulation             |    | DIN      |
| Hydrant                            |    | DIN      |
| Underground Hydrant on the Pipe    |    | DIN      |
| Underground Hydrant Touching       |    | DIN      |
| Underground Hydrant Next to Pipe   |  | DIN      |
| Hydrant Above Ground On Pipe       |  | DIN      |
| Hydrant Above Ground Touching Pipe |  | DIN      |
| Hydrant Above Ground Next to Pipe  |  | DIN      |
| Garden Hydrant On Pipe             |  | DIN      |
| Garden Hydrant Touching Pipe       |  | DIN      |
| Garden Hydrant Next to Pipe        |  | DIN      |
| Pressure Gauge                     |  | DIN      |
| Thermometer                        |  | DIN      |
| Counterweight                      |  | DIN      |
| Float                              |  | DIN      |

# Graphic Symbols for Hydraulic Diagrams

| DENOMINATION               | SYMBOL | STANDARD |
|----------------------------|--------|----------|
| Fitting for Hose           |        | ISA      |
| Fountain                   |        | DIN      |
| Start of Process or System |        | ISA      |
| End of Process or System   |        | ISA      |
| Liquid Flow                |        | ISA      |
| Gas Flow                   |        | ISA      |
| Temperature                |        | ISA      |
| Pressure                   |        | ISA      |
| Steam Purger               |        | ISA      |
| Purger                     |        | ISA      |
| Ground Connection          |        | DIN      |
| Hydraulic Injector         |        | DIN      |





















| DENOMINATION        | SYMBOL | STANDARD |
|---------------------|--------|----------|
| Breather            |        | DIN      |
| Discharge with Gate |        | DIN      |
| Cleaning Box        |        | DIN      |
| Sand Collector      |        | DIN      |
| Sieve               |        | ISA      |
| Exhaust             |        | DIN      |
| Gas Lamp            |        | DIN      |
| Centrifugal Pump    |        | ISA      |
| Alternative Pump    |        | ISA      |
| Compressor          |        | ISA      |
| Furnace             |        | ISA      |


## Special Conventions

| DENOMINATION              | REPRESENTATION |
|---------------------------|----------------|
| Piping with Varying Level |                |
| Piping with Varying Level |                |
| Vertical Branch Downwards |                |
| Vertical Branch Upwards   |                |
| Horizontal Branch Upwards |                |

| DENOMINATION                | REPRESENTATION |
|-----------------------------|----------------|
| Horizontal Branch Downwards |                |
| Vertical Pipe Upwards       |                |
| Vertical Pipe Downwards     |                |
| Anchoring                   |                |

# Equivalence of Loss of Load of TUPY BSP Fittings in Meters of Galvanized Steel Pipes








| NOMINAL DIAMETER  | ¼    | ⅜    | ½    | ¾    | 1    | 1¼   | 1½   | 2    | 2½   | 3    | 4    | 5    | 6    |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|
|    | 0,23 | 0,35 | 0,47 | 0,70 | 0,94 | 1,17 | 1,41 | 1,88 | 2,35 | 2,82 | 3,76 | 4,70 | 5,64 |
|    | 0,22 | 0,33 | 0,44 | 0,67 | 0,89 | 1,11 | 1,33 | 1,78 | 2,23 | 2,68 |      |      |      |
|    |      | 0,16 | 0,22 | 0,32 | 0,43 | 0,54 | 0,65 | 0,86 | 1,08 | 1,30 | 1,73 | 2,16 | 2,59 |
|    |      | 0,61 | 0,81 | 1,22 | 1,63 | 2,03 | 2,44 | 3,25 |      |      |      |      |      |
|    |      |      | 0,27 | 0,41 | 0,55 | 0,68 | 0,82 | 1,04 | 1,37 | 1,64 | 2,18 |      |      |
|    | 0,16 | 0,24 | 0,32 | 0,48 | 0,64 | 0,79 | 0,95 | 1,27 | 1,59 | 1,91 | 2,54 |      |      |
|    |      | 0,25 | 0,34 | 0,50 | 0,67 | 0,84 | 1,01 | 1,35 | 1,68 | 2,02 | 2,69 |      | 4,04 |
|    | 0,10 | 0,15 | 0,20 | 0,30 | 0,41 | 0,51 | 0,61 | 0,81 | 1,02 | 1,22 |      |      |      |
|   |      |      | 0,43 | 0,65 | 0,86 | 1,08 | 1,30 | 1,73 |      |      |      |      |      |
|  | 0,04 | 0,06 | 0,08 | 0,12 | 0,17 | 0,21 | 0,25 | 0,33 | 0,41 | 0,50 | 0,66 | 0,83 | 0,99 |
|  | 0,34 | 0,51 | 0,69 | 1,03 | 1,37 | 1,71 | 2,06 | 2,74 | 3,43 | 4,11 | 5,49 | 6,86 | 8,23 |
|  | 0,42 | 0,62 | 0,83 | 1,25 | 1,66 | 2,08 | 2,50 | 3,33 | 4,16 | 4,99 | 6,65 | 8,32 | 9,98 |
|  |      |      | 0,09 | 0,13 | 0,18 | 0,22 | 0,27 | 0,36 | 0,44 | 0,55 | 0,73 |      |      |
|  |      |      | 0,44 | 0,66 | 0,88 | 1,10 | 1,31 | 1,75 | 2,19 | 2,70 | 3,51 |      |      |
|  | 0,05 | 0,08 | 0,10 | 0,15 | 0,20 | 0,25 | 0,30 | 0,41 | 0,49 | 0,59 |      |      |      |
|  | 0,34 | 0,50 | 0,67 | 1,01 | 1,35 | 1,68 | 2,02 | 2,69 | 3,36 | 4,02 |      |      |      |
|  |      |      | 0,28 |      |      |      |      |      |      |      |      |      |      |
|  |      |      | 0,30 |      |      |      |      |      |      |      |      |      |      |
|  | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 |
|  | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |      |      |

| NOMINAL DIAMETER  | ½ - ½       | ½ - 1       | ½ - 1½      | ¾ - ¾       | ¾ - 1       | ¾ - 1½      | 1 - 1½      |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|  | <b>1,17</b> | <b>0,96</b> | <b>0,93</b> | <b>1,06</b> | <b>1,03</b> | <b>1,23</b> | <b>1,57</b> |

Values based upon tests made by the Department of Hydraulics and Sanitation of the Engineering School of São Carlos (SP).  
Note: Valid only in conducting water at ambient temperature.

# Equivalence of Loss of Load of TUPY BSP Fittings in Meters of Galvanized Steel Pipes

| NOMINAL DIAMETER | $\frac{3}{8} \times \frac{1}{4}$ | $\frac{1}{2} \times \frac{1}{4}$ | $\frac{1}{2} \times \frac{3}{8}$ | $\frac{3}{4} \times \frac{1}{4}$ | $\frac{3}{4} \times \frac{3}{8}$ | $\frac{3}{4} \times \frac{1}{2}$ | $1 \times \frac{3}{8}$             | $1 \times \frac{1}{2}$             | $1 \times \frac{3}{4}$  | $1\frac{1}{4} \times \frac{1}{2}$ | $1\frac{1}{4} \times \frac{3}{4}$ | $1\frac{1}{4} \times 1$ | $1\frac{1}{2} \times \frac{1}{2}$ | $1\frac{1}{2} \times \frac{3}{4}$ | $1\frac{1}{2} \times 1$ | $1\frac{1}{2} \times 1\frac{1}{4}$ |
|------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------------------|------------------------------------|-------------------------|-----------------------------------|-----------------------------------|-------------------------|-----------------------------------|-----------------------------------|-------------------------|------------------------------------|
|                  | $2 \times \frac{1}{2}$           | $2 \times \frac{3}{4}$           | $2 \times 1$                     | $2 \times 1\frac{1}{4}$          | $2 \times 1\frac{1}{2}$          | $2\frac{1}{2} \times 1$          | $2\frac{1}{2} \times 1\frac{1}{4}$ | $2\frac{1}{2} \times 1\frac{1}{2}$ | $2\frac{1}{2} \times 2$ | $3 \times 1$                      | $3 \times 1\frac{1}{4}$           | $3 \times 1\frac{1}{2}$ | $3 \times 2$                      | $3 \times 2\frac{1}{2}$           | $4 \times 2$            | $4 \times 3$                       |

|  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|    | 0,05 | 0,06 | 0,07 |      | 0,09 | 0,10 |      | 0,11 | 0,14 | 0,13 | 0,14 | 0,17 |      | 0,15 | 0,17 | 0,21 |
|  |      |      | 0,20 | 0,23 | 0,28 |      | 0,25 | 0,29 | 0,35 |      |      | 0,30 | 0,34 | 0,42 | 0,46 | 0,56 |
|    | 0,31 | 0,30 | 0,49 |      | 0,49 | 0,59 | 0,44 | 0,68 | 0,95 | 0,40 | 0,56 | 0,71 | 0,31 | 0,53 | 0,79 | 1,22 |
|  | 0,19 | 0,31 | 0,46 | 0,78 | 1,00 | 0,42 | 0,71 | 1,02 | 1,98 | 0,34 | 0,62 | 0,84 | 1,29 | 2,16 |      |      |
|  | 0,10 | 0,16 | 0,14 | 0,22 | 0,23 | 0,24 |      | 0,24 | 0,24 | 0,24 | 0,22 | 0,19 | 0,29 | 0,26 | 0,24 | 0,20 |
|  | 0,34 |      | 0,36 | 0,40 | 0,43 | 0,28 | 0,33 | 0,36 | 0,39 |      | 0,65 | 0,69 | 0,75 |      |      |      |
|  | 0,24 |      | 0,45 |      | 0,45 | 0,59 |      | 0,49 | 0,84 |      | 0,50 | 0,55 |      | 0,65 | 0,73 | 0,86 |
|  |      |      |      |      | 0,85 |      |      |      | 1,63 |      |      |      |      |      |      |      |
|  | 0,32 | 0,20 | 0,21 |      | 0,20 | 0,27 |      | 0,23 | 0,19 |      | 0,32 | 0,34 |      |      | 0,36 | 0,29 |
|  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|  | 0,11 | 0,18 | 0,18 |      | 0,26 | 0,32 | 0,30 | 0,32 | 0,29 | 0,33 | 0,43 | 0,16 |      | 0,53 | 0,27 | 0,12 |
|  |      |      | 0,30 | 0,35 | 0,38 |      | 0,44 | 0,48 | 0,64 |      |      | 0,71 | 0,70 | 0,71 |      |      |
|  | 0,26 | 0,24 | 0,30 |      | 0,24 | 0,44 |      | 0,41 | 0,41 | 0,28 | 0,34 | 0,41 |      | 0,37 | 0,34 | 0,27 |
|  |      |      | 0,52 | 0,60 | 0,64 |      | 0,51 | 0,65 | 0,89 |      |      | 0,64 | 0,77 | 0,86 |      |      |

Values based upon tests made by the Department of Hydraulics and Sanitation of the Engineering School of São Carlos (SP).  
Note: Valid only in conducting water at ambient temperature.

# Loss of Load in Galvanized Steel Pipes

## Loss of load in Galvanized Steel Pipes

| Nominal Diameter | 1/2    |       | 3/4    |       | 1      |       | 1 1/4  |       | 1 1/2  |       | 2      |       | 2 1/2 |       | 3     |       | 4     |       | 5     |       | 6     |      |  |
|------------------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|--|
|                  | SPEED  | LOOS  | SPEED  | LOOS  | SPEED  | LOOS  | SPEED  | LOOS  | SPEED  | LOOS  | SPEED  | LOOS  | SPEED | LOOS  | SPEED | LOOS  | SPEED | LOOS  | SPEED | LOOS  | SPEED | LOOS |  |
| 0,321            | 2,10   |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       |       |       |      |  |
| 0,641            | 7,40   | 0,366 | 1,90   |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       |       |       |      |  |
| 0,964            | 15,80  | 0,549 | 4,10   | 0,342 | 1,26   |       |        |       |        |       |        |       |       |       |       |       |       |       |       |       |       |      |  |
| 1,248            | 27,00  | 0,735 | 7,00   | 0,454 | 2,14   |       |        |       |        |       |        |       |       |       |       |       |       |       |       |       |       |      |  |
| 1,604            | 41,00  | 0,918 | 10,50  | 0,567 | 3,25   |       |        |       |        |       |        |       |       |       |       |       |       |       |       |       |       |      |  |
| 3,209            | 147,00 | 1,836 | 38,00  | 1,134 | 11,70  | 0,653 | 3,05   | 0,479 | 1,43   | 0,311 | 0,50   | 0,198 | 0,17  | 0,137 | 0,07  |       |       |       |       |       |       |      |  |
|                  |        | 2,751 | 80,00  | 1,708 | 25,00  | 0,976 | 6,50   | 0,720 | 3,00   | 0,467 | 1,08   | 0,299 | 0,36  | 0,207 | 0,15  |       |       |       |       |       |       |      |  |
|                  |        | 3,669 | 136,00 | 2,269 | 42,00  | 1,308 | 11,10  | 0,961 | 5,20   | 0,622 | 1,82   | 0,399 | 0,61  | 0,277 | 0,25  |       |       |       |       |       |       |      |  |
|                  |        |       |        | 2,837 | 64,00  | 1,635 | 16,60  | 1,202 | 7,80   | 0,778 | 2,73   | 0,497 | 0,92  | 0,344 | 0,38  |       |       |       |       |       |       |      |  |
|                  |        |       |        | 3,400 | 89,00  | 1,961 | 23,50  | 1,440 | 11,00  | 0,933 | 3,84   | 0,598 | 1,29  | 0,414 | 0,54  |       |       |       |       |       |       |      |  |
|                  |        |       |        | 3,971 | 119,00 | 2,290 | 31,20  | 1,681 | 14,70  | 1,089 | 5,10   | 0,698 | 1,72  | 0,485 | 0,71  |       |       |       |       |       |       |      |  |
|                  |        |       |        | 4,538 | 152,00 | 2,617 | 40,00  | 1,922 | 18,80  | 1,244 | 6,60   | 0,796 | 2,20  | 0,555 | 0,91  | 0,311 | 0,22  |       |       |       |       |      |  |
|                  |        |       |        |       |        | 2,943 | 50,00  | 2,159 | 23,20  | 1,403 | 8,20   | 0,896 | 2,80  | 0,625 | 1,15  | 0,357 | 0,28  |       |       |       |       |      |  |
|                  |        |       |        |       |        | 3,269 | 60,00  | 2,400 | 28,40  | 1,560 | 9,90   | 0,997 | 3,32  | 0,692 | 1,38  | 0,390 | 0,34  |       |       |       |       |      |  |
|                  |        |       |        |       |        | 4,578 | 113,00 | 3,361 | 53,00  | 2,181 | 18,40  | 1,396 | 6,21  | 0,970 | 2,57  | 0,546 | 0,63  | 0,347 | 0,21  |       |       |      |  |
|                  |        |       |        |       |        |       |        | 3,560 | 60,00  | 2,336 | 20,90  | 1,527 | 7,10  | 1,036 | 3,05  | 0,585 | 0,73  | 0,372 | 0,24  |       |       |      |  |
|                  |        |       |        |       |        |       |        | 4,800 | 102,00 | 3,114 | 35,80  | 1,994 | 12,00 | 1,384 | 4,96  | 0,777 | 1,22  | 0,497 | 0,41  | 0,347 | 0,14  |      |  |
|                  |        |       |        |       |        |       |        | 5,761 | 143,00 | 3,736 | 50,00  | 2,390 | 16,80 | 1,661 | 7,00  | 0,933 | 1,71  | 0,597 | 0,58  | 0,433 | 0,25  |      |  |
|                  |        |       |        |       |        |       |        |       |        | 3,889 | 54,00  | 2,487 | 18,20 | 1,728 | 7,60  | 0,972 | 1,86  | 0,622 | 0,64  | 0,451 | 0,28  |      |  |
|                  |        |       |        |       |        |       |        |       |        | 4,673 | 76,00  | 2,988 | 25,50 | 2,073 | 10,50 | 1,170 | 2,55  | 0,740 | 0,88  | 0,521 | 0,32  |      |  |
|                  |        |       |        |       |        |       |        |       |        | 5,444 | 102,00 | 3,445 | 38,80 | 2,420 | 14,00 | 1,356 | 3,44  | 0,872 | 1,18  | 0,610 | 0,48  |      |  |
|                  |        |       |        |       |        |       |        |       |        | 6,222 | 129,00 | 3,985 | 43,10 | 2,768 | 17,80 | 1,558 | 4,40  | 0,997 | 1,48  | 0,695 | 0,62  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        | 4,485 | 54,30 | 3,109 | 22,30 | 1,759 | 5,45  | 1,119 | 1,86  | 0,783 | 0,74  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        | 4,469 | 66,00 | 3,451 | 27,20 | 1,951 | 6,72  | 1,244 | 2,24  | 0,853 | 0,92  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       | 3,735 | 31,30 | 2,103 | 7,70  | 1,347 | 2,60  | 0,924 | 1,13  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       | 3,811 | 32,50 | 2,143 | 7,99  | 1,372 | 2,72  | 0,933 | 1,15  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       | 4,153 | 38,00 | 2,335 | 9,30  | 1,494 | 3,14  | 1,036 | 1,29  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       | 2,713 | 2,32  | 1,743 | 4,19  | 1,213 | 1,75  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       | 3,112 | 16,00 | 1,993 | 5,40  | 1,384 | 2,21  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       | 3,505 | 19,80 | 2,240 | 6,70  | 1,561 | 2,65  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       | 3,688 | 22,40 | 2,347 | 7,22  | 1,673 | 2,90  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       | 3,719 | 22,96 | 2,365 | 7,42  | 1,692 | 2,95  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       | 3,892 | 24,00 | 2,490 | 8,12  | 1,707 | 3,30  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       | 2,740 | 9,60  | 1,878 | 3,93  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       | 2,987 | 11,30 | 2,048 | 4,70  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       | 3,237 | 13,20 | 2,219 | 5,40  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       | 3,489 | 15,10 | 2,390 | 6,20  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       | 3,737 | 17,20 | 2,591 | 7,00  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 2,750 | 7,50  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 2,768 | 8,00  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 2,920 | 8,95  |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 3,134 | 10,11 |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 3,267 | 10,80 |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 3,450 | 12,04 |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 3,627 | 13,30 |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 3,810 | 14,31 |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       | 3,947 | 15,60 |      |  |
|                  |        |       |        |       |        |       |        |       |        |       |        |       |       |       |       |       |       |       |       |       |       |      |  |

Speed (m/s)  
Loss (mH<sub>2</sub>O / 100m of pipe)

## Equivalent Lengths in meters for Openings and Valves

| Nominal Diameter | Piping Outlet | Normal Inlet | Edge Inlet | Slide Valves | Open Globe Valves | Open Angle Valves | Foot Valves & Sieve Open | Retaining Valve |          |
|------------------|---------------|--------------|------------|--------------|-------------------|-------------------|--------------------------|-----------------|----------|
|                  |               |              |            |              |                   |                   |                          | Horizontal      | Vertical |
| 1/2              | 0,4           | 0,2          | 0,4        | 0,1          | 4,9               | 2,6               | 3,6                      | 1,1             | 1,6      |
| 3/4              | 0,5           | 0,2          | 0,5        | 0,1          | 6,7               | 3,6               | 5,6                      | 1,6             | 2,4      |
| 1                | 0,7           | 0,3          | 0,7        | 0,2          | 8,2               | 4,6               | 7,3                      | 2,1             | 3,2      |
| 1 1/4            | 0,9           | 0,4          | 0,9        | 0,2          | 11,3              | 5,6               | 10,0                     | 2,7             | 4,0      |
| 1 1/2            | 1,0           | 0,5          | 1,0        | 0,3          | 13,4              | 6,7               | 11,6                     | 3,2             | 4,8      |
| 2                | 1,5           | 0,7          | 1,5        | 0,4          | 17,4              | 8,5               | 14,0                     | 4,2             | 6,4      |
| 2 1/2            | 1,9           | 0,9          | 1,9        | 0,4          | 21,0              | 10,0              | 17,0                     | 5,2             | 8,1      |
| 3                | 2,2           | 1,1          | 2,2        | 0,5          | 26,0              | 13,0              | 20,0                     | 6,3             | 9,7      |
| 4                | 3,2           | 1,6          | 3,2        | 0,7          | 34,0              | 17,0              | 23,0                     | 8,4             | 12,9     |
| 5                | 4,0           | 2,0          | 4,0        | 0,9          | 43,0              | 21,0              | 30,0                     | 10,4            | 16,1     |
| 6                | 5,0           | 2,5          | 5,0        | 1,1          | 51,0              | 26,0              | 39,0                     | 12,5            | 19,3     |

# Equivalence between Nominal Diameters

| US Standard System (in) | 1/4 | 3/8 | 1/2 | 3/4 | 1  | 1 1/4 | 1 1/2 | 2  | 2 1/2 | 3  | 4   | 5   | 6   |
|-------------------------|-----|-----|-----|-----|----|-------|-------|----|-------|----|-----|-----|-----|
| Metric System (mm)      | 8   | 10  | 15  | 20  | 25 | 32    | 40    | 50 | 65    | 80 | 100 | 125 | 150 |

## Conversions

| To Convert from      | To                  | Multiply by |
|----------------------|---------------------|-------------|
| kgf/cm <sup>2</sup>  | lbf/in <sup>2</sup> | 14,223197   |
| kgf/cm <sup>2</sup>  | bar                 | 0,980665    |
| kgf/cm <sup>2</sup>  | MPa                 | 0,0980665   |
| kgf/cm <sup>2</sup>  | atm                 | 0,967842    |
| kgf/cm <sup>2</sup>  | w.c.a.              | 10,0        |
| kgf/cm <sup>2</sup>  | N/mm <sup>2</sup>   | 0,0980665   |
| lbf/pol <sup>2</sup> | kgf/cm <sup>2</sup> | 0,07030768  |
| lbf/pol <sup>2</sup> | bar                 | 0,06894414  |
| lbf/pol <sup>2</sup> | MPa                 | 0,00689441  |
| lbf/pol <sup>2</sup> | atm                 | 0,0680492   |
| lbf/pol <sup>2</sup> | w.c.a.              | 0,7030768   |
| lbf/pol <sup>2</sup> | N/mm <sup>2</sup>   | 0,00689441  |
| bar                  | kgf/cm <sup>2</sup> | 1,0197162   |
| bar                  | lbf/in <sup>2</sup> | 14,5044963  |
| bar                  | MPa                 | 0,1         |
| bar                  | atm                 | 0,9869304   |
| bar                  | w.c.a.              | 10,197162   |
| bar                  | N/mm <sup>2</sup>   | 0,1         |
| MPa                  | kgf/cm <sup>2</sup> | 10,197162   |
| MPa                  | lbf/in <sup>2</sup> | 145,044963  |
| MPa                  | bar                 | 10,0        |
| MPa                  | atm                 | 9,869304    |
| MPa                  | w.c.a.              | 101,97162   |
| MPa                  | N/mm <sup>2</sup>   | 1,0         |

| To Convert from   | To                  | Multiply by |
|-------------------|---------------------|-------------|
| atm               | kgf/cm <sup>2</sup> | 1,033226    |
| atm               | lbf/in <sup>2</sup> | 14,695257   |
| atm               | bar                 | 1,0132427   |
| atm               | MPa                 | 0,10132427  |
| atm               | w.c.a.              | 10,33226    |
| atm               | mmHg                | 760,0       |
| atm               | N/mm <sup>2</sup>   | 0,10132427  |
| w.c.a.            | kgf/cm <sup>2</sup> | 0,1         |
| w.c.a.            | lbf/in <sup>2</sup> | 1,4223197   |
| w.c.a.            | bar                 | 0,0980665   |
| w.c.a.            | MPa                 | 0,00980665  |
| w.c.a.            | atm                 | 0,0967842   |
| w.c.a.            | N/mm <sup>2</sup>   | 0,00980665  |
| mmHg              | atm                 | 0,00131579  |
| N/mm <sup>2</sup> | kgf/cm <sup>2</sup> | 10,197162   |
| N/mm <sup>2</sup> | lbf/in <sup>2</sup> | 145,044963  |
| N/mm <sup>2</sup> | bar                 | 10,0        |
| N/mm <sup>2</sup> | MPa                 | 1,0         |
| N/mm <sup>2</sup> | atm                 | 9,869304    |
| N/mm <sup>2</sup> | w.c.a.              | 101,97162   |

Note: Approximate values

|                     |   |  |
|---------------------|---|--|
| w.c.a.              | = | water column meter (mH <sub>2</sub> O) |
| atm                 | = | atmosphere                             |
| Mpa                 | = | Mega Pascal                            |
| N/mm <sup>2</sup>   | = | Newton per square millimeter           |
| lbf/in <sup>2</sup> | = | psi = pound force per square inch      |
| mmHg                | = | mercury millimeter (torr)              |
| kgf/cm <sup>2</sup> | = | kilogram force per square centimeter   |

## PRESSURE TABLE

| Service Pressures in Conducting Fluids<br>(As per ABNT NBR 6943, ISO 49 and EN 10242) |                           |             | Test Pressure |
|---|---------------------------|-------------|---------------|
| Temperature   | Up to 120°C               | Up to 300°C | Ambient       |
| Pressure  | lbf/in <sup>2</sup> (psi) | 360         | 1.500         |
|   | kgf/cm <sup>2</sup> (bar) | 25          | 100           |
| Nominal Diameter  | ¼ a 6                     |             |               |

Note: 1 bar  $\cong$  14,5 psi • 1 bar  $\cong$  1 kgf/cm<sup>2</sup> • 1 bar = 0,1 MPa • 1 psi = 1 lbf/in<sup>2</sup>

### MANUFACTURING STANDARDS

The **TUPY** BSP fittings are produced in compliance with the specifications of standards ABNT NBR 6943, ISO 49 and EN 10242 and TUPY specifications. We point out that, depending upon the figure, some diameters may appear in one standard and not in another one.

### MATERIAL

The **TUPY** BSP fittings are produced in black malleable iron, in compliance with standards ABNT NBR 6590, ISO 5922 and EN 1562.

### THREAD

The sealing threads of the **TUPY** BSP fittings are produced in compliance with the specifications of standards ABNT NBR NM ISO 7-1 and the coupling threads as per ABNT NBR 8133 and ISO 228. Other thread types can be made to order.

### INSPECTION

The **TUPY** BSP fittings are inspected so as to ensure the specifications of standards ABNT NBR 6943, ISO 49 and EN 10242.

### MARCAS

The **TUPY** BSP fittings, when the dimensions allow, have recorded on them the brand **TUPY**® or  and/or the identification of nominal diameter.

### SURFACE PROTECTION

The **TUPY** BSP fittings are produced with a black finishing (non-toxic oil) or hot-dip galvanizing, as per ABNT NBR 6323, ISO 49 and EN 10242. Other special coatings (Epoxy paints, cathophoretic, hybrid, double galvanizing, etc.) can be furnished upon inquiry.

### APPLICATIONS

The **TUPY** BSP fittings are applied for conducting water, gas, steam, oil and other hydraulic applications in general.

### NOTE

**TUPY S.A.** reserves the right to introduce in its product lines the alterations which it deems appropriate.

The weights (g) appear in this price list are subject to alteration without prior notice.

For your safety demand that the fittings acquired are in compliance with the said standards and that tightness tests are executed before final use of the networks installed.





**250**

**ADAPTOR FOR CONCRETE WATER-RESERVOIR 150mm**

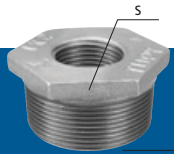
| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 2                | 50  | 150              |  | 1107         |
| 2½               | 65  | 150              |  | 1461         |
| 3                | 80  | 150              |  | 1880         |
| 4                | 100 | 150              |  | 2933         |



**250a**

**ADAPTERS FOR CONCRETE WATER-RESERVOIR 200mm**

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 2                | 50  | 200              |  | 1425         |
| 2½               | 65  | 200              |  | 1790         |
| 3                | 80  | 200              |  | 2411         |
| 4                | 100 | 200              |  | 3860         |



**241**

**REDUCING BUSH**

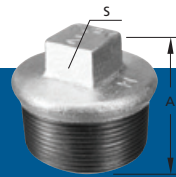
| Nominal Diameter |           | Dimensions in mm |         | Unit. Weight |
|------------------|-----------|------------------|---------|--------------|
| Inch             | mm        | A                | S (max) | Galv. g      |
| ¾ x ¼            | 10 x 8    | 20               | 19      | 17           |
| ½ x ¼            | 15 x 8    | 24               | 22      | 35           |
| ½ x ⅜            | 15 x 10   | 24               | 22      | 27           |
| ¾ x ¼            | 20 x 8    | 26               | 30      | 72           |
| ¾ x ⅜            | 20 x 10   | 26               | 30      | 63           |
| ¾ x ½            | 20 x 15   | 26               | 30      | 50           |
| 1 x ⅜            | 25 x 10   | 29               | 36      | 107          |
| 1 x ½            | 25 x 15   | 29               | 36      | 102          |
| 1 x ¾            | 25 x 20   | 29               | 36      | 86           |
| 1¼ x ½           | 32 x 15   | 31               | 46      | 200          |
| 1¼ x ¾           | 32 x 20   | 31               | 46      | 183          |
| 1¼ x 1           | 32 x 25   | 31               | 46      | 146          |
| 1½ x ½           | 40 x 15   | 31               | 50      | 261          |
| 1½ x ¾           | 40 x 20   | 31               | 50      | 236          |
| 1½ x 1           | 40 x 25   | 31               | 50      | 201          |
| 1½ x 1¼          | 40 x 32   | 31               | 50      | 124          |
| 2 x ½            | 50 x 15   | 35               | 65      | 412          |
| 2 x ¾            | 50 x 20   | 35               | 65      | 405          |
| 2 x 1            | 50 x 25   | 35               | 65      | 416          |
| 2 x 1¼           | 50 x 32   | 35               | 65      | 352          |
| 2 x 1½           | 50 x 40   | 35               | 65      | 288          |
| 2½ x 1           | 65 x 25   | 40               | 80      | 622          |
| 2½ x 1¼          | 65 x 32   | 40               | 80      | 644          |
| 2½ x 1½          | 65 x 40   | 40               | 80      | 604          |
| 2½ x 2           | 65 x 50   | 40               | 80      | 500          |
| 3 x 1½           | 80 x 40   | 44               | 95      | 921          |
| 3 x 2            | 80 x 50   | 44               | 95      | 969          |
| 3 x 2½           | 80 x 65   | 44               | 95      | 642          |
| 4 x 2            | 100 x 50  | 51               | 120     | 1711         |
| 4 x 2½           | 100 x 65  | 51               | 120     | 1752         |
| 4 x 3            | 100 x 80  | 51               | 120     | 1484         |
| 5 x 4            | 125 x 100 | 57               | 145     | 2049         |
| 6 x 4            | 150 x 100 | 58               | 175     | 3809         |
| 6 x 5            | 150 x 125 | 58               | 175     | 2765         |



**291**

**PLUG, PLAY**

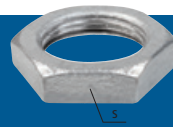
| Nominal Diameter |     | Dimensions in mm |         | Unit. Weight |
|------------------|-----|------------------|---------|--------------|
| Inch             | mm  | H                | S (max) | Galv. g      |
| ¼                | 8   | 20               | 8       | 12           |
| ⅜                | 10  | 20               | 10      | 22           |
| ½                | 15  | 24               | 11      | 36           |
| ¾                | 20  | 27               | 17      | 55           |
| 1                | 25  | 30               | 19      | 83           |
| 1¼               | 32  | 35               | 22      | 138          |
| 1½               | 40  | 36               | 22      | 161          |
| 2                | 50  | 45               | 27      | 303          |
| 2½               | 65  | 51               | 32      | 538          |
| 3                | 80  | 57               | 36      | 769          |
| 4                | 100 | 71               | 41      | 1548         |



**290**

**PLUGS, BEADED**

| Nominal Diameter |    | Dimensions in mm |         | Unit. Weight |
|------------------|----|------------------|---------|--------------|
| Inch             | mm | A                | S (max) | Galv. g      |
| ¼                | 8  | 27,5             | 8       | 22           |
| ⅜                | 10 | 28               | 10      | 37           |
| ½                | 15 | 33,5             | 11      | 48           |
| ¾                | 20 | 36,5             | 17      | 87           |
| 1                | 25 | 41,5             | 19      | 148          |
| 1¼               | 32 | 46               | 22      | 212          |
| 1½               | 40 | 48               | 22      | 264          |
| 2                | 50 | 56               | 27      | 429          |
| 2½               | 65 | 63               | 32      | 707          |
| 3                | 80 | 68               | 36      | 1059         |



**312**

**BACKNUT, RECESSED**

| Nominal Diameter |    | Dimensions in mm |     | Unit. Weight |
|------------------|----|------------------|-----|--------------|
| Inch             | mm | A                | S   | Galv. g      |
| ⅜                | 10 | 8                | 27  | 23           |
| ½                | 15 | 9                | 32  | 30           |
| ¾                | 20 | 10               | 36  | 36           |
| 1                | 25 | 11               | 46  | 65           |
| 1¼               | 32 | 12               | 55  | 99           |
| 1½               | 40 | 13               | 60  | 110          |
| 2                | 50 | 14               | 75  | 174          |
| 2½               | 65 | 17               | 95  | 355          |
| 3                | 80 | 20               | 105 | 413          |





## 90 ELBOW

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 1/4              | 8   | 21               |  | 37           |
| 3/8              | 10  | 25               |  | 70           |
| 1/2              | 15  | 28               |  | 90           |
| 3/4              | 20  | 33               |  | 138          |
| 1                | 25  | 38               |  | 215          |
| 1 1/4            | 32  | 45               |  | 328          |
| 1 1/2            | 40  | 50               |  | 471          |
| 2                | 50  | 58               |  | 714          |
| 2 1/2            | 65  | 69               |  | 1138         |
| 3                | 80  | 78               |  | 1730         |
| 4                | 100 | 96               |  | 2875         |
| 5                | 125 | 115              |  | 4630         |
| 6                | 150 | 131              |  | 8157         |



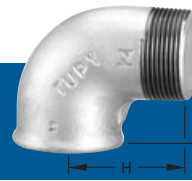
## 90R ELBOW REDUCING

| Nominal Diameter |         | Dimensions in mm |    | Unit. Weight |
|------------------|---------|------------------|----|--------------|
| Inch             | mm      | A                | B  | Galv. g      |
| 3/8 x 1/4        | 10 x 8  | 23               | 23 | 48           |
| 1/2 x 1/4        | 15 x 8  | 25               | 25 | 82           |
| 1/2 x 3/8        | 15 x 10 | 26               | 26 | 80           |
| 3/4 x 3/8        | 20 x 10 | 28               | 28 | 129          |
| 3/4 x 1/2        | 20 x 15 | 30               | 31 | 118          |
| 1 x 1/2          | 25 x 15 | 32               | 34 | 146          |
| 1 x 3/4          | 25 x 20 | 35               | 36 | 180          |
| 1 1/4 x 3/4      | 32 x 20 | 36               | 41 | 263          |
| 1 1/4 x 1        | 32 x 25 | 40               | 42 | 280          |
| 1 1/2 x 3/4      | 40 x 20 | 39               | 44 | 306          |
| 1 1/2 x 1        | 40 x 25 | 42               | 46 | 370          |
| 1 1/2 x 1 1/4    | 40 x 32 | 46               | 48 | 428          |
| 2 x 1 1/2        | 50 x 40 | 52               | 55 | 624          |
| 2 1/2 x 2        | 65 x 50 | 61               | 66 | 1006         |



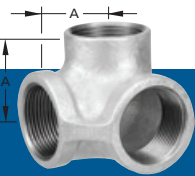
## 120 45° ELBOW

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 3/8              | 10  | 20               |  | 52           |
| 1/2              | 15  | 22               |  | 72           |
| 3/4              | 20  | 25               |  | 111          |
| 1                | 25  | 28               |  | 165          |
| 1 1/4            | 32  | 33               |  | 269          |
| 1 1/2            | 40  | 36               |  | 390          |
| 2                | 50  | 43               |  | 511          |
| 2 1/2            | 65  | 50               |  | 905          |
| 3                | 80  | 55               |  | 1155         |
| 4                | 100 | 66               |  | 1966         |
| 5                | 125 | 80               |  | 3715         |
| 6                | 150 | 85               |  | 5905         |



## 92 ELBOW

| Nominal Diameter |     | Dimensions in mm |     | Unit. Weight |
|------------------|-----|------------------|-----|--------------|
| Inch             | mm  | A                | H   | Galv. g      |
| 1/4              | 8   | 21               | 28  | 43           |
| 3/8              | 10  | 25               | 32  | 61           |
| 1/2              | 15  | 28               | 37  | 107          |
| 3/4              | 20  | 33               | 43  | 148          |
| 1                | 25  | 38               | 52  | 240          |
| 1 1/4            | 32  | 45               | 60  | 365          |
| 1 1/2            | 40  | 50               | 65  | 494          |
| 2                | 50  | 58               | 74  | 736          |
| 2 1/2            | 65  | 69               | 88  | 1200         |
| 3                | 80  | 78               | 98  | 1750         |
| 4                | 100 | 96               | 118 | 2883         |



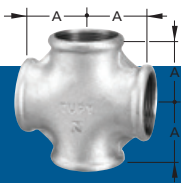
## 221 SIDE OUTLET ELBOW

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | A                |  | Galv. g      |
| 1/2              | 15 | 28               |  | 137          |
| 3/4              | 20 | 33               |  | 210          |
| 1                | 25 | 38               |  | 333          |
| 1 1/4            | 32 | 45               |  | 526          |
| 1 1/2            | 40 | 50               |  | 691          |
| 2                | 50 | 58               |  | 1074         |



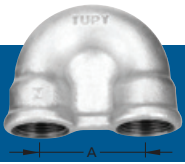
## 121 45° ELBOW

| Nominal Diameter |    | Dimensions in mm |    | Unit. Weight |
|------------------|----|------------------|----|--------------|
| Inch             | mm | A                | H  | Galv. g      |
| 3/8              | 10 | 25               | 20 | 44           |
| 1/2              | 15 | 28               | 22 | 65           |
| 3/4              | 20 | 32               | 25 | 102          |
| 1                | 25 | 37               | 28 | 164          |



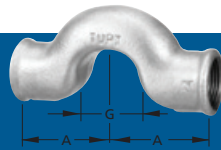
## 180 CROSSE

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 1/4              | 8   | 21               |  | 75           |
| 3/8              | 10  | 25               |  | 108          |
| 1/2              | 15  | 28               |  | 172          |
| 3/4              | 20  | 33               |  | 235          |
| 1                | 25  | 38               |  | 391          |
| 1 1/4            | 32  | 45               |  | 618          |
| 1 1/2            | 40  | 50               |  | 799          |
| 2                | 50  | 58               |  | 1143         |
| 2 1/2            | 65  | 69               |  | 1973         |
| 3                | 80  | 78               |  | 2699         |
| 4                | 100 | 97               |  | 4980         |



## 60 RETUM BEND

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | A                |  | Galv. g      |
| 1/2              | 15 | 38               |  | 176          |
| 3/4              | 20 | 50               |  | 318          |
| 1                | 25 | 64               |  | 547          |
| 1 1/4            | 32 | 76               |  | 878          |
| 1 1/2            | 40 | 89               |  | 1267         |
| 2                | 50 | 102              |  | 1854         |



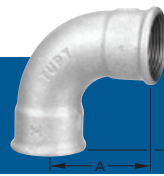
## 85 CROSSOVER

| Nominal Diameter |         | Dimensions in mm |    | Unit. Weight |
|------------------|---------|------------------|----|--------------|
| Inch             | mm      | G                | A  | Galv. g      |
| 1/2 - 1/2        | 15 - 15 | 15               | 46 | 174          |
| 1/2 - 1          | 15 - 25 | 25               | 54 | 244          |
| 3/4 - 3/4        | 20 - 20 | 20               | 56 | 299          |
| 3/4 - 1          | 20 - 25 | 25               | 59 | 337          |



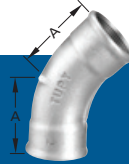
## 2 LONG SWEEP BEND

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 3/8              | 10  | 48               |  | 105          |
| 1/2              | 15  | 55               |  | 151          |
| 3/4              | 20  | 69               |  | 255          |
| 1                | 25  | 85               |  | 459          |
| 1 1/4            | 32  | 105              |  | 726          |
| 1 1/2            | 40  | 116              |  | 890          |
| 2                | 50  | 140              |  | 1619         |
| 2 1/2            | 65  | 176              |  | 2434         |
| 3                | 80  | 205              |  | 4183         |
| 4                | 100 | 260              |  | 6558         |



## 2a SHORT BEND

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | A                |  | Galv. g      |
| 1/2              | 15 | 45               |  | 132          |
| 3/4              | 20 | 50               |  | 225          |
| 1                | 25 | 63               |  | 324          |
| 1 1/4            | 32 | 76               |  | 664          |
| 1 1/2            | 40 | 85               |  | 684          |
| 2                | 50 | 102              |  | 1212         |



## 41 45° LONG SWEEP BEND

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | A                |  | Galv. g      |
| 1/2              | 15 | 36               |  | 115          |
| 3/4              | 20 | 43               |  | 186          |
| 1                | 25 | 51               |  | 298          |
| 1 1/4            | 32 | 64               |  | 512          |
| 1 1/2            | 40 | 68               |  | 712          |
| 2                | 50 | 81               |  | 1183         |



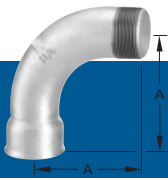
## 3 LONG SWEEP BEND

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 3/8              | 10  | 42               |  | 66           |
| 1/2              | 15  | 48               |  | 104          |
| 3/4              | 20  | 60               |  | 178          |
| 1                | 25  | 75               |  | 352          |
| 1 1/4            | 32  | 95               |  | 581          |
| 1 1/2            | 40  | 105              |  | 734          |
| 2                | 50  | 130              |  | 1370         |
| 2 1/2            | 65  | 165              |  | 2221         |
| 3                | 80  | 190              |  | 3118         |
| 4                | 100 | 245              |  | 5562         |
| 6                | 150 | 290              |  | 14336        |



## 40 45° LONG SWEEP BEND

| Nominal Diameter |    | Dimensions in mm |     | Unit. Weight |
|------------------|----|------------------|-----|--------------|
| Inch             | mm | A                | H   | Galv. g      |
| 3/8              | 10 | 30               | 24  | 62           |
| 1/2              | 15 | 36               | 30  | 108          |
| 3/4              | 20 | 43               | 36  | 182          |
| 1                | 25 | 51               | 42  | 273          |
| 1 1/4            | 32 | 64               | 54  | 423          |
| 1 1/2            | 40 | 68               | 58  | 537          |
| 2                | 50 | 81               | 70  | 982          |
| 2 1/2            | 65 | 99               | 86  | 1322         |
| 3                | 80 | 113              | 100 | 2073         |



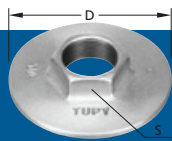
## 1 LONG SWEEP BEND

| Nominal Diameter |     | Dimensions in mm |     | Unit. Weight |
|------------------|-----|------------------|-----|--------------|
| Inch             | mm  | A                | H   | Galv. g      |
| ¼                | 8   | 40               | 36  | 51           |
| ⅜                | 10  | 48               | 42  | 101          |
| ½                | 15  | 55               | 48  | 129          |
| ¾                | 20  | 69               | 60  | 211          |
| 1                | 25  | 85               | 75  | 363          |
| 1¼               | 32  | 105              | 95  | 639          |
| 1½               | 40  | 116              | 105 | 800          |
| 2                | 50  | 140              | 130 | 1336         |
| 2½               | 65  | 176              | 165 | 2215         |
| 3                | 80  | 205              | 190 | 3132         |
| 4                | 100 | 260              | 245 | 5737         |



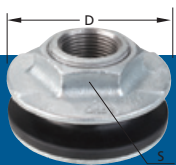
## 1a SHORT BEND

| Nominal Diameter |    | Dimensions in mm | Unit. Weight |
|------------------|----|------------------|--------------|
| Inch             | mm | A                | Galv. g      |
| ½                | 15 | 45               | 109          |
| ¾                | 20 | 50               | 170          |
| 1                | 25 | 63               | 325          |
| 1¼               | 32 | 76               | 564          |
| 1½               | 40 | 85               | 666          |
| 2                | 50 | 102              | 975          |



## 321 FLANGE

| Nominal Diameter |     | Dimensions in mm |      |    |     | Unit. Weight |
|------------------|-----|------------------|------|----|-----|--------------|
| Inch             | mm  | D                | A    | e  | S   | Galv. g      |
| ¼                | 8   | 70               | 11   | 5  | 18  | 137          |
| ⅜                | 10  | 75               | 11   | 5  | 22  | 162          |
| ½                | 15  | 80               | 15   | 5  | 26  | 187          |
| ¾                | 20  | 90               | 16   | 5  | 32  | 262          |
| 1                | 25  | 100              | 19   | 6  | 39  | 350          |
| 1¼               | 32  | 120              | 21   | 6  | 49  | 553          |
| 1½               | 40  | 130              | 21   | 7  | 55  | 674          |
| 2                | 50  | 140              | 26   | 8  | 69  | 929          |
| 2½               | 65  | 160              | 30   | 9  | 84  | 1353         |
| 3                | 80  | 190              | 33   | 10 | 98  | 1954         |
| 4                | 100 | 210              | 39   | 11 | 124 | 2807         |
| 5                | 125 | 240              | 43,5 | 12 | 152 | 4190         |
| 6                | 150 | 265              | 43   | 13 | 177 | 4785         |



## 350 FLANGE FOR WATER-RESERVOIR

| Nominal Diameter |    | Dimensions in mm |    | Unit. Weight |
|------------------|----|------------------|----|--------------|
| Inch             | mm | D                | S  | Galv. g      |
| ½                | 15 | 73               | 37 | 423          |
| ¾                | 20 | 80               | 44 | 571          |
| 1                | 25 | 90               | 51 | 752          |
| 1¼               | 32 | 100              | 61 | 1023         |
| 1½               | 40 | 100              | 68 | 1359         |



## 270 SOCKET

| Nominal Diameter |     | Dimensions in mm | Unit. Weight |
|------------------|-----|------------------|--------------|
| Inch             | mm  | A                | Galv. g      |
| ¼                | 8   | 27               | 31           |
| ⅜                | 10  | 30               | 41           |
| ½                | 15  | 36               | 62           |
| ¾                | 20  | 39               | 104          |
| 1                | 25  | 45               | 164          |
| 1¼               | 32  | 50               | 231          |
| 1½               | 40  | 55               | 286          |
| 2                | 50  | 65               | 431          |
| 2½               | 65  | 74               | 712          |
| 3                | 80  | 80               | 1113         |
| 4                | 100 | 94               | 1672         |
| 5                | 125 | 109              | 3015         |
| 6                | 150 | 120              | 4747         |



## 271 SOCKET LEFT/RIGHT THREAD

| Nominal Diameter |    | Dimensions in mm | Unit. Weight |
|------------------|----|------------------|--------------|
| Inch             | mm | A                | Galv. g      |
| ⅜                | 10 | 30               | 43           |
| ½                | 15 | 36               | 65           |
| ¾                | 20 | 39               | 109          |
| 1                | 25 | 45               | 166          |
| 1¼               | 32 | 50               | 233          |
| 1½               | 40 | 55               | 294          |
| 2                | 50 | 65               | 430          |



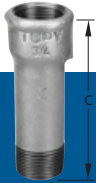
## 240 SOCKET REDUCING

| Nominal Diameter |          | Dimensions in mm | Unit. Weight |
|------------------|----------|------------------|--------------|
| Inch             | mm       | A                | Galv. g      |
| ⅜ x ¼            | 10 x 8   | 30               | 37           |
| ½ x ¼            | 15 x 8   | 36               | 58           |
| ½ x ⅜            | 15 x 10  | 36               | 65           |
| ¾ x ⅜            | 20 x 10  | 39               | 95           |
| ¾ x ½            | 20 x 15  | 39               | 95           |
| 1 x ⅜            | 25 x 10  | 45               | 129          |
| 1 x ½            | 25 x 15  | 45               | 123          |
| 1 x ¾            | 25 x 20  | 45               | 142          |
| 1¼ x ½           | 32 x 15  | 50               | 213          |
| 1¼ x ¾           | 32 x 20  | 50               | 208          |
| 1¼ x 1           | 32 x 25  | 50               | 229          |
| 1½ x ¾           | 40 x 20  | 55               | 284          |
| 1½ x 1           | 40 x 25  | 55               | 256          |
| 1½ x 1¼          | 40 x 32  | 55               | 260          |
| 2 x 1            | 50 x 25  | 65               | 373          |
| 2 x 1¼           | 50 x 32  | 65               | 401          |
| 2 x 1½           | 50 x 40  | 65               | 405          |
| 2½ x 1¼          | 65 x 32  | 74               | 602          |
| 2½ x 1½          | 65 x 40  | 74               | 579          |
| 2½ x 2           | 65 x 50  | 74               | 620          |
| 3 x 1½           | 80 x 40  | 80               | 795          |
| 3 x 2            | 80 x 50  | 80               | 912          |
| 3 x 2½           | 80 x 65  | 80               | 870          |
| 4 x 2            | 100 x 50 | 94               | 1535         |
| 4 x 2½           | 100 x 65 | 94               | 1595         |
| 4 x 3            | 100 x 80 | 94               | 1687         |



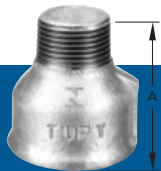
## 529a EXTENSION SOCKET

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | C                |  | Galv. g      |
| 1/2              | 15 | 43               |  | 66           |
| 3/4              | 20 | 48               |  | 102          |
| 1                | 25 | 55               |  | 165          |
| 1 1/4            | 32 | 60               |  | 247          |



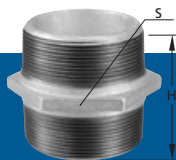
## 526 EXTENSION TUBE

| Nominal Diameter |         | Dimensions in mm |  | Unit. Weight |
|------------------|---------|------------------|--|--------------|
| Inch             | mm      | C                |  | Galv. g      |
| 1/2 - 60         | 15 - 60 | 60               |  | 84           |
| 3/4 - 70         | 20 - 70 | 70               |  | 139          |
| 3/4 - 90         | 20 - 90 | 90               |  | 168          |



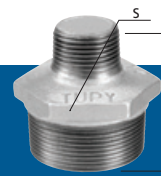
## 246 SOCKET REDUCING

| Nominal Diameter |         | Dimensions in mm |  | Unit. Weight |
|------------------|---------|------------------|--|--------------|
| Inch             | mm      | A                |  | Galv. g      |
| 3/8 x 1/4        | 10 x 8  | 35               |  | 36           |
| 1/2 x 1/4        | 15 x 8  | 43               |  | 61           |
| 1/2 x 3/8        | 15 x 10 | 43               |  | 60           |
| 3/4 x 3/8        | 20 x 10 | 48               |  | 91           |
| 3/4 x 1/2        | 20 x 15 | 48               |  | 90           |
| 1 x 1/2          | 25 x 15 | 55               |  | 137          |
| 1 x 3/4          | 25 x 20 | 55               |  | 149          |
| 1 1/4 x 3/4      | 32 x 20 | 60               |  | 220          |
| 1 1/4 x 1        | 32 x 25 | 60               |  | 224          |
| 1 1/2 x 1        | 40 x 25 | 63               |  | 287          |
| 1 1/2 x 1 1/4    | 40 x 32 | 63               |  | 271          |
| 2 x 1            | 50 x 25 | 70               |  | 371          |
| 2 x 1 1/4        | 50 x 32 | 70               |  | 391          |
| 2 x 1 1/2        | 50 x 40 | 70               |  | 405          |



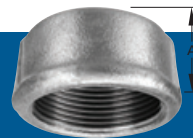
## 280 HEXAGON NIPPLE

| Nominal Diameter |     | Dimensions in mm |         | Unit. Weight |
|------------------|-----|------------------|---------|--------------|
| Inch             | mm  | H                | S (max) | Galv. g      |
| 1/4              | 8   | 36               | 19      | 31           |
| 3/8              | 10  | 38               | 22      | 40           |
| 1/2              | 15  | 44               | 27      | 68           |
| 3/4              | 20  | 47               | 32      | 108          |
| 1                | 25  | 53               | 41      | 178          |
| 1 1/4            | 32  | 57               | 50      | 256          |
| 1 1/2            | 40  | 59               | 55      | 332          |
| 2                | 50  | 68               | 70      | 585          |
| 2 1/2            | 65  | 75               | 85      | 953          |
| 3                | 80  | 83               | 100     | 946          |
| 4                | 100 | 95               | 130     | 1888         |
| 5                | 125 | 114              | 150     | 3192         |
| 6                | 150 | 110              | 180     | 3930         |



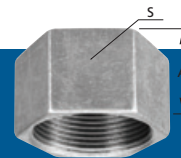
## 245 HEXAGON NIPPLE REDUCING

| Nominal Diameter |         | Dimensions in mm |         | Unit. Weight |
|------------------|---------|------------------|---------|--------------|
| Inch             | mm      | H                | S (max) | Galv. g      |
| 3/8 x 1/4        | 10 x 8  | 38               | 19      | 33           |
| 1/2 x 1/4        | 15 x 8  | 44               | 22      | 46           |
| 1/2 x 3/8        | 15 x 10 | 44               | 22      | 51           |
| 3/4 x 3/8        | 20 x 10 | 47               | 30      | 83           |
| 3/4 x 1/2        | 20 x 15 | 47               | 30      | 94           |
| 1 x 1/2          | 25 x 15 | 56               | 36      | 141          |
| 1 x 3/4          | 25 x 20 | 53               | 36      | 149          |
| 1 1/4 x 3/4      | 32 x 20 | 57               | 46      | 191          |
| 1 1/4 x 1        | 32 x 25 | 57               | 46      | 209          |
| 1 1/2 x 3/4      | 40 x 20 | 59               | 50      | 215          |
| 1 1/2 x 1        | 40 x 25 | 59               | 50      | 246          |
| 1 1/2 x 1 1/4    | 40 x 32 | 59               | 50      | 256          |
| 2 x 1            | 50 x 25 | 68               | 65      | 434          |
| 2 x 1 1/4        | 50 x 32 | 68               | 65      | 368          |
| 2 x 1 1/2        | 50 x 40 | 68               | 65      | 422          |
| 2 1/2 x 2        | 65 x 50 | 75               | 80      | 661          |
| 3 x 2            | 80 x 50 | 83               | 95      | 912          |
| 3 x 2 1/2        | 80 x 65 | 83               | 95      | 923          |



## 301 CAP, ROUND

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 1/4              | 8   | 18               |  | 20           |
| 3/8              | 10  | 18               |  | 28           |
| 1/2              | 15  | 23               |  | 54           |
| 3/4              | 20  | 25               |  | 87           |
| 1                | 25  | 29               |  | 107          |
| 1 1/4            | 32  | 31               |  | 172          |
| 1 1/2            | 40  | 31               |  | 231          |
| 2                | 50  | 38               |  | 323          |
| 2 1/2            | 65  | 42               |  | 557          |
| 3                | 80  | 46               |  | 812          |
| 4                | 100 | 56               |  | 1349         |



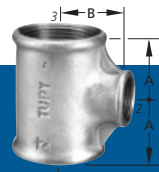
## 300 CAP

| Nominal Diameter |     | Dimensions in mm |     | Unit. Weight |
|------------------|-----|------------------|-----|--------------|
| Inch             | mm  | H                | S   | Galv. g      |
| 1/2              | 15  | 23               | 26  | 59           |
| 3/4              | 20  | 25,5             | 32  | 91           |
| 1                | 25  | 29               | 39  | 147          |
| 1 1/4            | 32  | 31               | 48  | 220          |
| 1 1/2            | 40  | 31               | 54  | 264          |
| 2                | 50  | 38               | 66  | 417          |
| 2 1/2            | 65  | 42               | 84  | 771          |
| 3                | 80  | 46               | 96  | 1029         |
| 4                | 100 | 56               | 123 | 1592         |
| 6                | 150 | 63               | 179 | 3803         |



## 130 TEE

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| 1/4              | 8   | 21               |  | 70           |
| 3/8              | 10  | 25               |  | 87           |
| 1/2              | 15  | 28               |  | 138          |
| 3/4              | 20  | 33               |  | 212          |
| 1                | 25  | 38               |  | 326          |
| 1 1/4            | 32  | 45               |  | 464          |
| 1 1/2            | 40  | 50               |  | 588          |
| 2                | 50  | 58               |  | 902          |
| 2 1/2            | 65  | 69               |  | 1587         |
| 3                | 80  | 78               |  | 2065         |
| 4                | 100 | 96               |  | 4182         |
| 5                | 125 | 115              |  | 6051         |
| 6                | 150 | 131              |  | 10740        |



## 130R TEE REDUCING

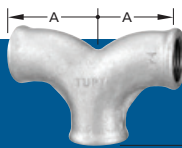
| Nominal Diameter      |                |   | Dimensions in mm |    | Unit. Weight |
|-----------------------|----------------|---|------------------|----|--------------|
| Inch                  | mm             |   | B                | A  | Galv. g      |
| 1                     | 2              | 3 | 1                | 2  | 3            |
| 3/8 x 1/4 x 3/8       | 10 x 8 x 10    |   | 23               | 23 | 71           |
| 1/2 x 1/4 x 1/2       | 15 x 8 x 15    |   | 24               | 24 | 96           |
| 1/2 x 3/8 x 1/2       | 15 x 10 x 15   |   | 26               | 26 | 129          |
| 3/4 x 3/8 x 3/4       | 20 x 10 x 20   |   | 28               | 28 | 168          |
| 3/4 x 1/2 x 3/4       | 20 x 15 x 20   |   | 31               | 30 | 181          |
| 1 x 3/8 x 1           | 25 x 10 x 25   |   | 32               | 30 | 203          |
| 1 x 1/2 x 1           | 25 x 15 x 25   |   | 34               | 32 | 233          |
| 1 x 3/4 x 1           | 25 x 20 x 25   |   | 36               | 35 | 252          |
| 1 1/4 x 1/2 x 1 1/4   | 32 x 15 x 32   |   | 38               | 34 | 307          |
| 1 1/4 x 3/4 x 1 1/4   | 32 x 20 x 32   |   | 41               | 36 | 328          |
| 1 1/4 x 1 x 1 1/4     | 32 x 25 x 32   |   | 42               | 40 | 371          |
| 1 1/2 x 1/2 x 1 1/2   | 40 x 15 x 40   |   | 42               | 36 | 390          |
| 1 1/2 x 3/4 x 1 1/2   | 40 x 20 x 40   |   | 44               | 38 | 405          |
| 1 1/2 x 1 x 1 1/2     | 40 x 25 x 40   |   | 46               | 42 | 451          |
| 1 1/2 x 1 1/4 x 1 1/2 | 40 x 32 x 40   |   | 48               | 46 | 556          |
| 2 x 1/2 x 2           | 50 x 15 x 50   |   | 48               | 38 | 545          |
| 2 x 3/4 x 2           | 50 x 20 x 50   |   | 50               | 40 | 589          |
| 2 x 1 x 2             | 50 x 25 x 50   |   | 52               | 44 | 667          |
| 2 x 1 1/4 x 2         | 50 x 32 x 50   |   | 54               | 48 | 729          |
| 2 x 1 1/2 x 2         | 50 x 40 x 50   |   | 55               | 52 | 793          |
| 2 1/2 x 1 x 2 1/2     | 65 x 25 x 65   |   | 60               | 47 | 933          |
| 2 1/2 x 1 1/4 x 2 1/2 | 65 x 32 x 65   |   | 62               | 52 | 1176         |
| 2 1/2 x 1 1/2 x 2 1/2 | 65 x 40 x 65   |   | 63               | 55 | 1257         |
| 2 1/2 x 2 x 2 1/2     | 65 x 50 x 65   |   | 66               | 61 | 1473         |
| 3 x 1 x 3             | 80 x 25 x 80   |   | 67               | 51 | 1276         |
| 3 x 1 1/4 x 3         | 80 x 32 x 80   |   | 70               | 55 | 1228         |
| 3 x 1 1/2 x 3         | 80 x 40 x 80   |   | 71               | 58 | 1509         |
| 3 x 2 x 3             | 80 x 50 x 80   |   | 73               | 64 | 1716         |
| 3 x 2 1/2 x 3         | 80 x 65 x 80   |   | 76               | 72 | 1931         |
| 4 x 2 x 4             | 100 x 50 x 100 |   | 86               | 70 | 2347         |
| 4 x 2 1/2 x 4         | 100 x 65 x 100 |   | 90               | 78 | 2692         |
| 4 x 3 x 4             | 100 x 80 x 100 |   | 92               | 84 | 3307         |
| 3/4 x 1 x 3/4         | 20 x 25 x 20   |   | 35               | 36 | 270          |



## 165 45° TEE

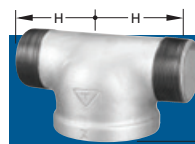
| Nominal Diameter |     | Dimensions in mm |     | Unit. Weight |
|------------------|-----|------------------|-----|--------------|
| Inch             | mm  | A                | B   | Galv. g      |
| 1/2              | 15  | 59               | 43  | 150          |
| 3/4              | 20  | 70               | 52  | 239          |
| 1                | 25  | 83               | 61  | 403          |
| 1 1/4            | 32  | 100              | 74  | 591          |
| 1 1/2            | 40  | 111              | 83  | 776          |
| 2                | 50  | 131              | 100 | 1292         |
| 2 1/2            | 65  | 161              | 123 | 1784         |
| 3                | 80  | 184              | 145 | 2903         |
| 4                | 100 | 228              | 182 | 5020         |

|                     |              | B  | C  | A  |     |
|---------------------|--------------|----|----|----|-----|
| 3/4 x 1/2 x 1/2     | 20 x 15 x 15 | 31 | 28 | 30 | 179 |
| 1 1/4 x 1/2 x 1     | 32 x 15 x 25 | 38 | 32 | 34 | 284 |
| 1 1/4 x 1 x 1       | 32 x 25 x 25 | 42 | 38 | 40 | 320 |
| 1 1/2 x 1/2 x 1 1/4 | 40 x 15 x 32 | 42 | 34 | 36 | 376 |
| 1 1/2 x 1 x 1 1/4   | 40 x 25 x 32 | 46 | 40 | 42 | 460 |
| 2 x 1 x 1 1/2       | 50 x 25 x 40 | 52 | 42 | 44 | 535 |
| 1 1/4 x 1 1/4 x 1   | 32 x 32 x 25 | 42 | 34 | 36 | 415 |



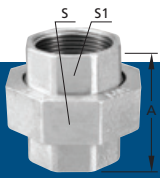
## 132 TWIN ELBOW

| Nominal Diameter |    | Dimensions in mm | Unit. Weight |
|------------------|----|------------------|--------------|
| Inch             | mm | A                | Galv. g      |
| 1/2              | 15 | 45               | 194          |
| 3/4              | 20 | 50               | 289          |



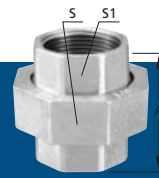
## 138 TEE FOR HYDRANT

| Nominal Diameter |          | Dimensions in mm |     | Unit. Weight |
|------------------|----------|------------------|-----|--------------|
| Inch             | mm       | A                | H   | Galv. g      |
| 4 x 2 1/2        | 100 x 65 | 78               | 105 | 2560         |



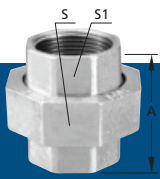
**342** UNION, SINGLE BRASS SEAT

| Nominal Diameter |     | Dimensions in mm |         |     | Unit. Weight |
|------------------|-----|------------------|---------|-----|--------------|
| Inch             | mm  | A                | S (max) | S1  | Galv. g      |
| ¼                | 8   | 42               | 27      | 17  | 104          |
| ⅜                | 10  | 45               | 32      | 20  | 133          |
| ½                | 15  | 48               | 41      | 25  | 196          |
| ¾                | 20  | 52               | 50      | 32  | 293          |
| 1                | 25  | 58               | 55      | 39  | 363          |
| 1¼               | 32  | 65               | 70      | 49  | 635          |
| 1½               | 40  | 70               | 75      | 55  | 766          |
| 2                | 50  | 78               | 90      | 69  | 1211         |
| 2½               | 65  | 85               | 110     | 85  | 1761         |
| 3                | 80  | 95               | 130     | 98  | 2643         |
| 4                | 100 | 110              | 150     | 124 | 3680         |
| 5                | 125 | 122              | 183     | 149 | 5524         |
| 6                | 150 | 132              | 226     | 179 | 10132        |



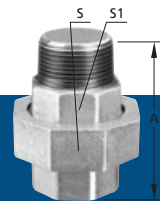
**330** UNION, FLAT SEAT

| Nominal Diameter |     | Dimensions in mm |         |     | Unit. Weight |
|------------------|-----|------------------|---------|-----|--------------|
| Inch             | mm  | A                | S (max) | S1  | Galv. g      |
| ¼                | 8   | 42               | 27      | 17  | 96           |
| ⅜                | 10  | 45               | 32      | 20  | 92           |
| ½                | 15  | 48               | 41      | 25  | 178          |
| ¾                | 20  | 52               | 50      | 32  | 286          |
| 1                | 25  | 58               | 55      | 39  | 375          |
| 1¼               | 32  | 65               | 70      | 49  | 597          |
| 1½               | 40  | 70               | 75      | 55  | 699          |
| 2                | 50  | 78               | 90      | 69  | 1099         |
| 2½               | 65  | 85               | 110     | 85  | 1754         |
| 3                | 80  | 95               | 130     | 98  | 2555         |
| 4                | 100 | 110              | 150     | 124 | 3325         |



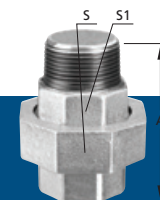
**340** UNION, TAPER SEAT

| Nominal Diameter |     | Dimensions in mm |         |     | Unit. Weight |
|------------------|-----|------------------|---------|-----|--------------|
| Inch             | mm  | A                | S (max) | S1  | Galv. g      |
| ¼                | 8   | 42               | 27      | 17  | 96           |
| ⅜                | 10  | 45               | 32      | 20  | 125          |
| ½                | 15  | 48               | 41      | 25  | 172          |
| ¾                | 20  | 52               | 50      | 32  | 272          |
| 1                | 25  | 58               | 55      | 39  | 365          |
| 1¼               | 32  | 65               | 70      | 49  | 619          |
| 1½               | 40  | 70               | 75      | 55  | 751          |
| 2                | 50  | 78               | 90      | 69  | 1136         |
| 2½               | 65  | 85               | 110     | 85  | 1776         |
| 3                | 80  | 95               | 130     | 98  | 2607         |
| 4                | 100 | 110              | 150     | 124 | 3494         |



**331** UNION, FLAT SEAT

| Nominal Diameter |    | Dimensions in mm |         |    | Unit. Weight |
|------------------|----|------------------|---------|----|--------------|
| Inch             | mm | A                | S (max) | S1 | Galv. g      |
| ⅜                | 10 | 58               | 32      | 20 | 104          |
| ½                | 15 | 66               | 41      | 25 | 202          |
| ¾                | 20 | 72               | 50      | 32 | 344          |
| 1                | 25 | 80               | 55      | 39 | 464          |
| 1¼               | 32 | 90               | 70      | 49 | 751          |
| 1½               | 40 | 95               | 75      | 55 | 895          |
| 2                | 50 | 106              | 90      | 69 | 1372         |



**341** UNION, TAPER SEAT

| Nominal Diameter |     | Dimensions in mm |         |     | Unit. Weight |
|------------------|-----|------------------|---------|-----|--------------|
| Inch             | mm  | A                | S (max) | S1  | Galv. g      |
| ⅜                | 10  | 58               | 32      | 20  | 148          |
| ½                | 15  | 66               | 41      | 25  | 211          |
| ¾                | 20  | 72               | 50      | 32  | 333          |
| 1                | 25  | 80               | 55      | 39  | 458          |
| 1¼               | 32  | 90               | 70      | 49  | 793          |
| 1½               | 40  | 95               | 75      | 55  | 935          |
| 2                | 50  | 106              | 90      | 69  | 1423         |
| 2½               | 65  | 118              | 110     | 85  | 2581         |
| 3                | 80  | 130              | 130     | 98  | 2961         |
| 4                | 100 | 150              | 150     | 124 | 4069         |



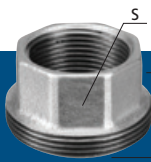
**96** UNION ELBOW, TAPER SEAT

| Nominal Diameter |    | Dimensions in mm |    |         |      | Unit. Weight |
|------------------|----|------------------|----|---------|------|--------------|
| Inch             | mm | A                | B  | S (max) | S1   | Galv. g      |
| ½                | 15 | 58               | 28 | 41      | 25   | 233          |
| ¾                | 20 | 62               | 33 | 50      | 32   | 349          |
| 1                | 25 | 72               | 38 | 55      | 39   | 497          |
| 1¼               | 32 | 82               | 45 | 70      | 49   | 820          |
| 1½               | 40 | 90               | 50 | 75      | 55,5 | 1016         |
| 2                | 50 | 100              | 58 | 90      | 69   | 1492         |
| 2½               | 65 | 127,5            | 69 | 110     | 85   | 2488         |
| 3                | 80 | 144              | 78 | 130     | 98   | 3652         |



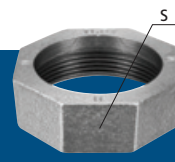
**98** UNION ELBOW, TAPER SEAT

| Nominal Diameter |    | Dimensions in mm |    |         |      | Unit. Weight |
|------------------|----|------------------|----|---------|------|--------------|
| Inch             | mm | A                | B  | S (max) | S1   | Galv. g      |
| ½                | 15 | 76               | 28 | 41      | 25   | 274          |
| ¾                | 20 | 82               | 33 | 50      | 32   | 405          |
| 1                | 25 | 94               | 38 | 55      | 39   | 582          |
| 1¼               | 32 | 107              | 45 | 70      | 49   | 910          |
| 1½               | 40 | 115              | 50 | 75      | 55,5 | 1218         |
| 2                | 50 | 128              | 58 | 90      | 69   | 1788         |
| 2½               | 65 | 160              | 69 | 110     | 85   | 2892         |
| 3                | 80 | 179              | 78 | 130     | 98   | 4380         |



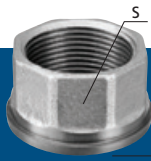
## 370 UNION BUSH

| Nominal Diameter |     | Dimensions in mm |      | Unit. Weight |
|------------------|-----|------------------|------|--------------|
| Inch             | mm  | A                | S    | Galv. g      |
| 3/8              | 10  | 23,0             | 20   | 37           |
| 1/2              | 15  | 24,5             | 25   | 54           |
| 3/4              | 20  | 26,5             | 32   | 100          |
| 1                | 25  | 29,0             | 39   | 141          |
| 1 1/4            | 32  | 32,5             | 49   | 255          |
| 1 1/2            | 40  | 35,0             | 55,5 | 236          |
| 2                | 50  | 39,5             | 69   | 419          |
| 2 1/2            | 65  | 44,0             | 85   | 713          |
| 3                | 80  | 48,5             | 98   | 844          |
| 4                | 100 | 55,5             | 124  | 1376         |



## 374 UNION NUT

| Nominal Diameter |     | Dimensions in mm |         | Unit. Weight |
|------------------|-----|------------------|---------|--------------|
| Inch             | mm  | A                | S (max) | Galv. g      |
| 1/4              | 8   | 16               | 32      | 42           |
| 3/8              | 10  | 17               | 36      | 58           |
| 1/2              | 15  | 18               | 41      | 78           |
| 3/4              | 20  | 20               | 50      | 114          |
| 1                | 25  | 22               | 55      | 135          |
| 1 1/4            | 32  | 24               | 70      | 233          |
| 1 1/2            | 40  | 25               | 75      | 239          |
| 2                | 50  | 27               | 90      | 303          |
| 2 1/2            | 65  | 30               | 110     | 464          |
| 3                | 80  | 31               | 130     | 862          |
| 4                | 100 | 34               | 150     | 919          |



## 372 UNION END

| Nominal Diameter |     | Dimensions in mm |      | Unit. Weight |
|------------------|-----|------------------|------|--------------|
| Inch             | mm  | A                | S    | Galv. g      |
| 1/4              | 8   | 19,5             | 17   | 22           |
| 3/8              | 10  | 21,0             | 20   | 26           |
| 1/2              | 15  | 22,0             | 25   | 41           |
| 3/4              | 20  | 23,5             | 32   | 80           |
| 1                | 25  | 27,0             | 39   | 99           |
| 1 1/4            | 32  | 30,5             | 44   | 191          |
| 1 1/2            | 40  | 33,0             | 55,5 | 232          |
| 2                | 50  | 36,5             | 69   | 414          |
| 2 1/2            | 65  | 39,0             | 85   | 577          |
| 3                | 80  | 44,0             | 98   | 849          |
| 4                | 100 | 52,0             | 124  | 1276         |



## 371 UNION END

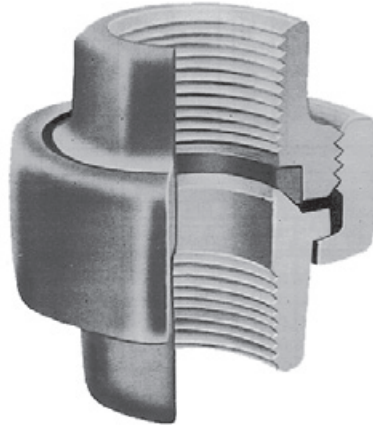
| Nominal Diameter |    | Dimensions in mm |      | Unit. Weight |
|------------------|----|------------------|------|--------------|
| Inch             | mm | A                | S    | Galv. g      |
| 3/8              | 10 | 34               | 20   | 46           |
| 1/2              | 15 | 41               | 25   | 61           |
| 3/4              | 20 | 44               | 32   | 118          |
| 1                | 25 | 49,5             | 39   | 188          |
| 1 1/4            | 32 | 56               | 49   | 293          |
| 1 1/2            | 40 | 59,5             | 55,5 | 388          |
| 2                | 50 | 65,5             | 69   | 630          |

# Advantages of the TUPY Unions

**1 IDEAL GEOMETRY** - The sealing occurs through perfect localization of a spherical zone with an extra wide cone seat.

**2 BRONZE SEAT** - A high quality bronze ring ensures the perfect fitting of the contact areas.

**3 DURABILITY** - The TUPY unions can be installed and reinstalled, time after time, with absolute safety against leakages. These features are ensured by the ideal shape of the seat and the care dedicated to their manufacture.



**4 RIGIDITY** - The unit, once mounted, is practically unbreakable as its components were ingeniously planned.

**5 RESISTANCE** - Each component of the union withstands the forces of the piping, vibrations and abuses in applying tools, as they are made of iron; superior quality malleable iron.

**6 PERFORMANCE** - The free passage, without pockets or protuberances, allows a uniform flow, avoiding harmful deposits.

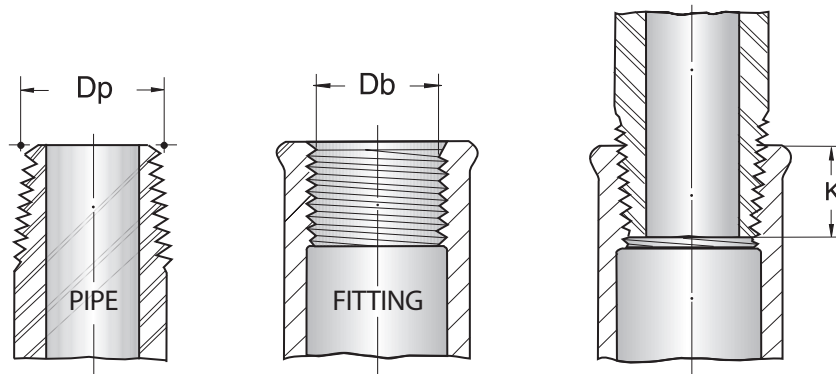
Among the extremely wide and varied line of fittings, TUPY S.A. also makes available to the consumer market seven different types of Union.

- UNIONS WITH FLAT SEAT
- UNIONS WITH MF FLAT SEAT
- UNIONS WITH IRON CONIC SEAT
- UNIONS WITH MF IRON CONIC SEAT

- UNIONS WITH BRONZE/IRON CONIC SEAT
- ELBOW UNIONS WITH IRON CONIC SEAT
- ELBOW UNIONS WITH MF IRON CONIC SEAT



# Identification of Nominal Diameters from Actual BSP Thread Dp and Db Diameters

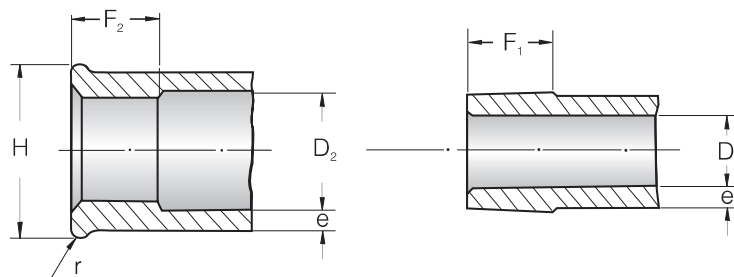


Dimensions in mm

| NOMINAL | 1/4  | 3/8  | 1/2  | 3/4  | 1    | 1 1/4 | 1 1/2 | 2    | 2 1/2 | 3    | 4     | 6      |
|---------|------|------|------|------|------|-------|-------|------|-------|------|-------|--------|
| Dp      | 12,8 | 16,3 | 20,4 | 25,9 | 32,6 | 41,1  | 47,0  | 58,6 | 74,1  | 86,6 | 111,4 | 162,0  |
| Db      | 11,5 | 15,0 | 18,6 | 24,1 | 30,3 | 39,0  | 44,9  | 56,7 | 72,2  | 84,9 | 110,1 | 160,9  |
| K       | 9,7  | 10,1 | 13,2 | 14,5 | 16,8 | 19,1  | 19,1  | 23,4 | 26,7  | 29,8 | 035,8 | 1040,1 |

K = Useful Thread Length

## Dimensions of BSP Fittings

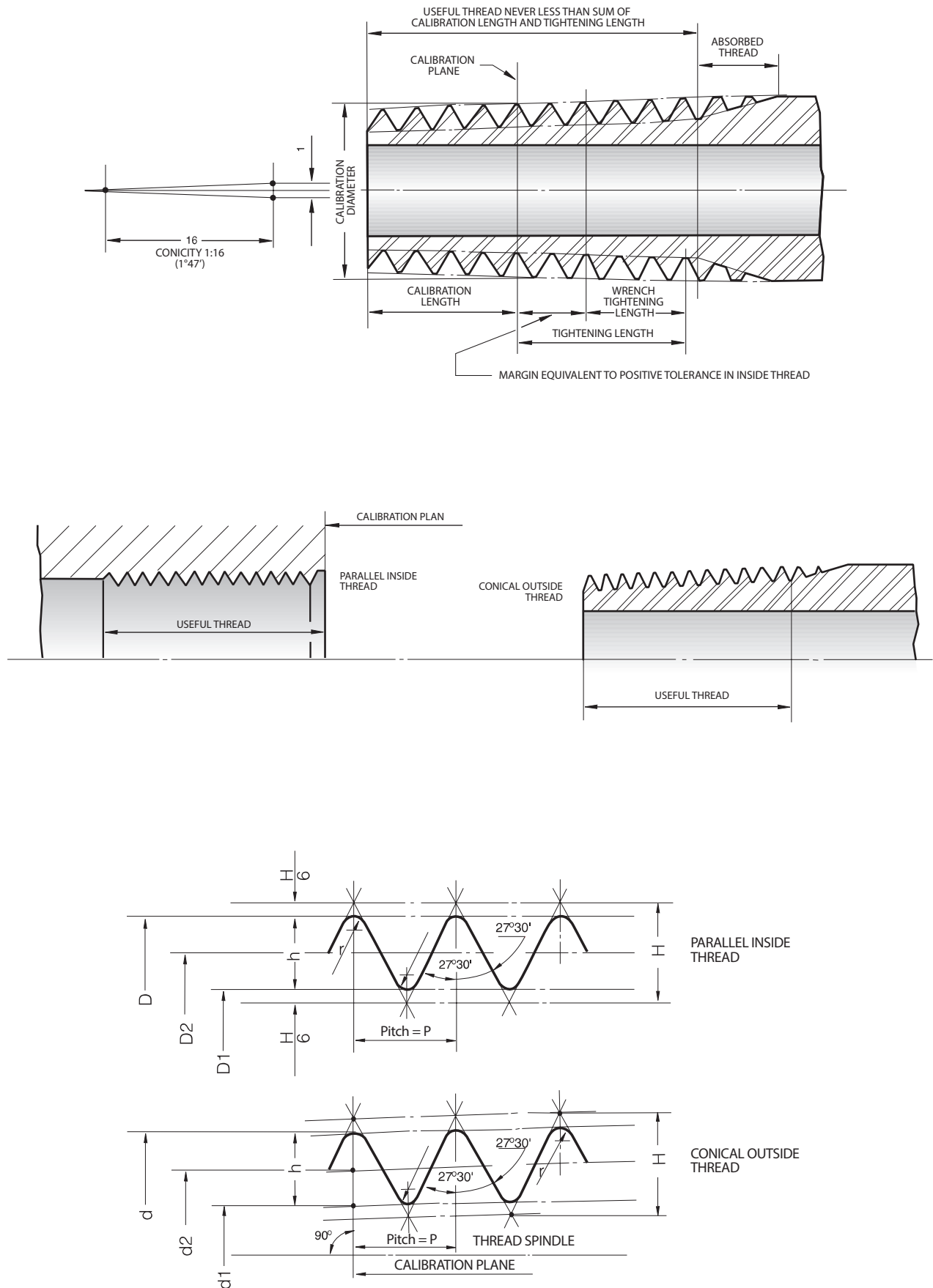


Dimensions in mm

| NOMINAL DIAMETER | $F_1 = F_2$ | $D_1$ | $D_2$ | e   | r   | H     |
|------------------|-------------|-------|-------|-----|-----|-------|
| 1/4              | 11,0        | 7,6   | 11,6  | 2,6 | 2,0 | 19,8  |
| 3/8              | 11,5        | 10,9  | 15,4  | 2,7 | 2,0 | 23,8  |
| 1/2              | 15,0        | 14,8  | 19,6  | 2,8 | 2,5 | 28,6  |
| 3/4              | 16,5        | 19,4  | 25,0  | 3,2 | 2,5 | 34,8  |
| 1                | 19,0        | 25,4  | 31,4  | 3,6 | 3,0 | 42,6  |
| 1 1/4            | 21,5        | 33,5  | 40,4  | 3,8 | 3,0 | 52,0  |
| 1 1/2            | 21,5        | 39,0  | 46,2  | 4,0 | 3,5 | 58,6  |
| 2                | 26,0        | 50,2  | 58,2  | 4,2 | 3,5 | 71,6  |
| 2 1/2            | 30,5        | 65,3  | 73,8  | 4,4 | 4,0 | 88,0  |
| 3                | 33,5        | 76,8  | 86,6  | 4,9 | 4,0 | 102,4 |
| 4                | 39,5        | 99,6  | 111,8 | 5,9 | 4,5 | 130,6 |
| 6                | 43,5        | 146,2 | 162,6 | 7,9 | 6,0 | 188,4 |

# BSP Thread for Pipes (Whitworth gas)

As per ABNT NBR NM ISO 7-1



# Thread Table BSP (Whitworth gas)

As per ABNT NBR NM ISO 7-1

## Thread Table BSP (Whitworth gas)

As per ABNT NBR NM ISO 7-1

| 1     | 2  | 3     | 4     | 5          | 6                                    | 7                                    | 8     | 9                                  | 10    | 11      | 12   | 13      | 14    | 15                                     | 16           | 17                        | 18   | 19   |                  |                               |
|-------|----|-------|-------|------------|--------------------------------------|--------------------------------------|-------|------------------------------------|-------|---------|------|---------|-------|--|--------------|---------------------------|------|------|------------------|-------------------------------|
|       |    |       |       |            |                                      |                                      |       |                                    |       |         |      |         |       |  |              |                           |      |      | Designation (DN) | Qty. Of fillets per 25,4 (mm) |
|       | Z  | P     | h     | Greater    | Side                                 | Less                                 | Basic | Separation + or - T <sub>1/2</sub> |       | Maximum |      | Minimum |       | Separation + or - T <sub>1/2</sub> (A) |              | For length of calibration |      | ≈    | Turns            |                               |
|       |    | (mm)  | (mm)  | d = D (mm) | d <sub>2</sub> = D <sub>2</sub> (mm) | d <sub>1</sub> = D <sub>1</sub> (mm) | (mm)  | ≡ (mm)                             | Turns | (mm)    | (mm) | ≡ (mm)  | Turns | Basic (mm)                             | Maximum (mm) | Minimum (mm)              | (mm) | (mm) |                  |                               |
| 1/6   | 28 | 0,907 | 0,581 | 7,723      | 7,142                                | 6,561                                | 4,0   | 0,9                                | 1     | 4,9     | 3,1  | 1,1     | 1/4   | 6,5                                    | 7,4          | 5,6                       | 2,5  | 2,5  | 2 3/4            |                               |
| 1/8   | 28 | 0,907 | 0,581 | 9,728      | 9,147                                | 8,566                                | 4,0   | 0,9                                | 1     | 4,9     | 3,1  | 1,1     | 1/4   | 6,5                                    | 7,4          | 5,6                       | 2,5  | 2,5  | 2 3/4            |                               |
| 1/4   | 19 | 1,337 | 0,856 | 13,157     | 12,301                               | 11,445                               | 6,0   | 1,3                                | 1     | 7,3     | 4,7  | 1,7     | 1/4   | 9,7                                    | 11,0         | 8,4                       | 3,7  | 3,7  | 2 3/4            |                               |
| 3/8   | 19 | 1,337 | 0,856 | 16,662     | 15,806                               | 14,950                               | 6,4   | 1,3                                | 1     | 7,7     | 5,1  | 1,7     | 1/4   | 10,1                                   | 11,4         | 8,8                       | 3,7  | 3,7  | 2 3/4            |                               |
| 1/2   | 14 | 1,814 | 1,162 | 20,955     | 19,793                               | 18,631                               | 8,2   | 1,8                                | 1     | 10,0    | 6,4  | 2,3     | 1/4   | 13,2                                   | 15,0         | 11,4                      | 5,0  | 5,0  | 2 3/4            |                               |
| 3/4   | 14 | 1,814 | 1,162 | 26,441     | 25,279                               | 24,117                               | 9,5   | 1,8                                | 1     | 11,3    | 7,7  | 2,3     | 1/4   | 14,5                                   | 16,3         | 12,7                      | 5,0  | 5,0  | 2 3/4            |                               |
| 1     | 11 | 2,309 | 1,479 | 33,249     | 31,770                               | 30,291                               | 10,4  | 2,3                                | 1     | 12,7    | 8,1  | 2,9     | 1/4   | 16,8                                   | 19,1         | 14,5                      | 6,4  | 6,4  | 2 3/4            |                               |
| 1 1/4 | 11 | 2,309 | 1,479 | 41,910     | 40,431                               | 38,952                               | 12,5  | 2,3                                | 1     | 15,0    | 10,4 | 2,9     | 1/4   | 19,1                                   | 21,4         | 16,8                      | 6,4  | 6,4  | 2 3/4            |                               |
| 1 1/2 | 11 | 2,309 | 1,479 | 47,803     | 46,324                               | 44,845                               | 12,7  | 2,3                                | 1     | 15,0    | 10,4 | 2,9     | 1/4   | 19,1                                   | 21,4         | 16,8                      | 6,4  | 6,4  | 2 3/4            |                               |
| 2     | 11 | 2,309 | 1,479 | 59,614     | 58,135                               | 56,656                               | 15,9  | 2,3                                | 1     | 18,2    | 13,6 | 2,9     | 1/4   | 23,4                                   | 25,7         | 21,1                      | 7,5  | 7,5  | 3 1/4            |                               |
| 2 1/2 | 11 | 2,309 | 1,479 | 75,184     | 73,705                               | 72,226                               | 17,5  | 3,5                                | 1 1/2 | 21,0    | 14,0 | 3,5     | 1/2   | 26,7                                   | 30,2         | 23,2                      | 9,2  | 9,2  | 4                |                               |
| 3     | 11 | 2,309 | 1,479 | 87,884     | 86,405                               | 84,926                               | 20,6  | 3,5                                | 1 1/2 | 24,1    | 17,1 | 3,5     | 1/2   | 29,8                                   | 33,3         | 26,3                      | 9,2  | 9,2  | 4                |                               |
| 4     | 11 | 2,309 | 1,479 | 113,030    | 111,551                              | 110,072                              | 25,4  | 3,5                                | 1 1/2 | 28,9    | 21,9 | 3,5     | 1/2   | 35,8                                   | 39,3         | 32,3                      | 10,4 | 10,4 | 4 1/2            |                               |
| 5     | 11 | 2,309 | 1,479 | 138,430    | 136,951                              | 135,472                              | 28,6  | 3,5                                | 1 1/2 | 32,1    | 25,1 | 3,5     | 1/2   | 40,1                                   | 43,6         | 36,6                      | 11,5 | 11,5 | 5                |                               |
| 6     | 11 | 2,309 | 1,479 | 163,830    | 162,351                              | 160,872                              | 28,6  | 3,5                                | 1 1/2 | 32,1    | 25,1 | 3,5     | 1/2   | 40,1                                   | 43,6         | 36,6                      | 11,5 | 11,5 | 5                |                               |

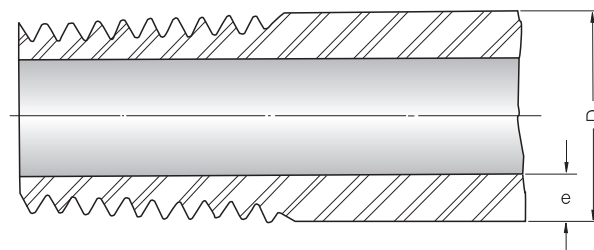
(A) The separations in the parallel thread diameters shall be 1/16 of the values of column 13.

(B) The design of parts with an inside thread shall allow the fitting of pipe spigots for the lengths given in column 16; the length of the useful thread shall not be less than 80% of the values of column 17.

## Carbon Steel Pipes for Thread Whitworth Gas for ordinary uses in Conducting Fluids ABNT NBR 5580

### With or without Seam - Galvanized or Black

- THREAD** ..... : BSP as per ABNT NBR NM ISO 7-1
- CLASS** ..... : The specification foresees 3 classes:  
HEAVY (P)  
MEDIUM (M)  
LIGHT (L)
- MATERIAL** ..... : Carbon steel
- TEMPERATURE** ..... : Advised up to 200°C
- BENDING** ..... : They are not suited to being bent or forming coils.
- TOLERANCES** ..... : In the wall thickness of pipes of classes Light, Medium and Heavy variances are allowed for lack (-) which do not exceed 12.5%.
- ZINC LAYER** ..... : The weight of the zinc coating shall be equal to or greater than 450 g/m<sup>2</sup> (63 microns).
- HYDROSTATIC PRESSURE** .... : The hydrostatic pressure test foreseen is 50 kgf/cm<sup>2</sup>. Pipes above 2" shall be struck near the two ends with a hammer of approximately 1kg.
- DIMENSIONS** ..... : See tables on following page.



### NOTE:

TUPY S.A. does not manufacture carbon steel pipes. The data concerning these pipes was placed in this catalog merely for informative purposes.

# Pipe Dimensions Table

## As per ABNT NBR 5580

Dimensions of steel pipes, of class Heavy (P), with and without seam (similar EN 10255)

| Outside Diameter (mm) | Nominal Diameter |       | Outside Diameter D (mm) |         | Wall Thickness e (mm) | Theoretic Mass of Black Pipe (kg/m) |
|-----------------------|------------------|-------|-------------------------|---------|-----------------------|-------------------------------------|
|                       | (mm)             | (in)  | maximum                 | minimum |                       |                                     |
| 10,2                  | 6                | 1/8   | 10,6                    | 9,8     | 2,65                  | 0,49                                |
| 13,5                  | 8                | 1/4   | 14,0                    | 13,2    | 3,00                  | 0,77                                |
| 17,2                  | 10               | 3/8   | 17,5                    | 16,7    | 3,00                  | 1,05                                |
| 21,3                  | 15               | 1/2   | 21,8                    | 21,0    | 3,00                  | 1,35                                |
| 26,9                  | 20               | 3/4   | 27,3                    | 26,5    | 3,00                  | 1,76                                |
| 33,7                  | 25               | 1     | 34,2                    | 33,3    | 3,75                  | 2,77                                |
| 42,4                  | 32               | 1 1/4 | 42,9                    | 42,0    | 3,75                  | 3,57                                |
| 48,3                  | 40               | 1 1/2 | 48,8                    | 47,9    | 3,75                  | 4,12                                |
| 60,3                  | 50               | 2     | 60,8                    | 59,7    | 4,50                  | 6,19                                |
| 76,1                  | 65               | 2 1/2 | 76,6                    | 75,3    | 4,50                  | 7,95                                |
| 88,9                  | 80               | 3     | 89,5                    | 88,0    | 4,50                  | 9,37                                |
| 101,6                 | 90               | 3 1/2 | 102,1                   | 100,4   | 5,00                  | 11,91                               |
| 114,3                 | 100              | 4     | 115,0                   | 113,1   | 5,60                  | 15,01                               |
| 139,7                 | 125              | 5     | 140,8                   | 138,5   | 5,60                  | 18,52                               |
| 165,1                 | 150              | 6     | 166,5                   | 163,9   | 5,60                  | 22,03                               |

Dimensions of steel pipes, of class Medium (M), with and without seam (similar EN 10255)

| Outside Diameter (mm) | Nominal Diameter |       | Outside Diameter D (mm) |         | Wall Thickness e (mm) | Theoretic Mass of Black Pipe (kg/m) |
|-----------------------|------------------|-------|-------------------------|---------|-----------------------|-------------------------------------|
|                       | (mm)             | (in)  | maximum                 | minimum |                       |                                     |
| 10,2                  | 6                | 1/8   | 10,6                    | 9,8     | 2,00                  | 0,40                                |
| 13,5                  | 8                | 1/4   | 14,0                    | 13,2    | 2,25                  | 0,62                                |
| 17,2                  | 10               | 3/8   | 17,5                    | 16,7    | 2,25                  | 0,83                                |
| 21,3                  | 15               | 1/2   | 21,8                    | 21,0    | 2,65                  | 1,21                                |
| 26,9                  | 20               | 3/4   | 27,3                    | 26,5    | 2,65                  | 1,59                                |
| 33,7                  | 25               | 1     | 34,2                    | 33,3    | 3,35                  | 2,27                                |
| 42,4                  | 32               | 1 1/4 | 42,9                    | 42,0    | 3,35                  | 2,92                                |
| 48,3                  | 40               | 1 1/2 | 48,8                    | 47,9    | 3,35                  | 3,71                                |
| 60,3                  | 50               | 2     | 60,8                    | 59,7    | 3,75                  | 4,71                                |
| 76,1                  | 65               | 2 1/2 | 76,6                    | 75,3    | 3,75                  | 6,69                                |
| 88,9                  | 80               | 3     | 89,5                    | 88,0    | 4,05                  | 7,87                                |
| 101,6                 | 90               | 3 1/2 | 102,1                   | 100,4   | 4,25                  | 10,20                               |
| 114,3                 | 100              | 4     | 115,0                   | 113,1   | 4,50                  | 12,18                               |
| 139,7                 | 125              | 5     | 140,8                   | 138,5   | 5,00                  | 16,61                               |
| 165,1                 | 150              | 6     | 166,5                   | 163,9   | 5,30                  | 20,89                               |

Dimensions of steel pipes, of class Light (L), with and without seam (similar EN 10255)

| Outside Diameter (mm) | Nominal Diameter |       | Outside Diameter D (mm) |         | Wall Thickness e (mm) | Theoretic Mass of Black Pipe (kg/m) |
|-----------------------|------------------|-------|-------------------------|---------|-----------------------|-------------------------------------|
|                       | (mm)             | (in)  | maximum                 | minimum |                       |                                     |
| 10,2                  | 6                | 1/8   | 10,4                    | 9,7     | 1,80                  | 0,37                                |
| 13,5                  | 8                | 1/4   | 13,9                    | 13,2    | 2,00                  | 0,56                                |
| 17,2                  | 10               | 3/8   | 17,4                    | 16,7    | 2,00                  | 0,75                                |
| 21,3                  | 15               | 1/2   | 21,7                    | 21,0    | 2,25                  | 1,05                                |
| 26,9                  | 20               | 3/4   | 27,1                    | 26,4    | 2,25                  | 1,36                                |
| 33,7                  | 25               | 1     | 34,0                    | 33,2    | 2,65                  | 2,03                                |
| 42,4                  | 32               | 1 1/4 | 42,7                    | 41,9    | 2,65                  | 2,63                                |
| 48,3                  | 40               | 1 1/2 | 48,6                    | 47,8    | 3,00                  | 3,35                                |
| 60,3                  | 50               | 2     | 60,7                    | 59,6    | 3,00                  | 4,24                                |
| 76,1                  | 65               | 2 1/2 | 76,3                    | 75,2    | 3,35                  | 6,01                                |
| 88,9                  | 80               | 3     | 89,4                    | 87,9    | 3,35                  | 7,07                                |
| 101,6                 | 90               | 3 1/2 | 101,8                   | 100,3   | 3,35                  | 9,05                                |
| 114,3                 | 100              | 4     | 114,9                   | 113,0   | 3,75                  | 10,22                               |



# NPT Fittings - MEDIUM PRESSURE for applications up to 300 lb at ambient temperature.

## PRESSURE TABLE

|                   | Maximum Service Pressures<br>(As per ASME B 16.3) | Maximum Service Pressures for Union<br>(As per ASME B 16.39) | Maximum Service Pressures<br>(As per ABNT NBR 6925) |
|-------------------|---|--|---|
| Temperature<br>°C | Nominal Diameter                                  | Nominal Diameter   | Nominal Diameter                                    |
|                   | 1/4 a 6<br>lb (psi)                               | 1/4 a 4<br>lb (psi)  | 1/4 a 6<br>MPa                                      |
| -29 a 66          | 300   | 300  | 2,1   |
| 93                | 265   | 265  | 1,8   |
| 121               | 225   | 225  | 1,5   |
| 149               | 185   | 185  | 1,3   |
| 177               | 150   | 150  | 1,0   |
| 204               | -   | 110  | 0,7   |
| 232               | -   | 75   | 0,5   |

Note: 1 bar  $\cong$  14,5 psi • 1 bar  $\cong$  1 kgf/cm<sup>2</sup> • 1 bar = 0,1 MPa • 1 psi = 1 lbf/in<sup>2</sup>

### MANUFACTURING STANDARDS

The TUPY NPT-Medium Pressure fittings are produced in compliance with the specifications of standards ABNT NBR 6925 and ASME B 16.3, except for the Reducing Bushings and Plugs which obey standard ASME B 16.14 and unions ASME B 16.39.

We point out that, depending upon the figure, certain diameters may appear in one standard but not in another one.

### MATERIAL

The TUPY NPT-Medium Pressure fittings are produced in compliance with standards ABNT NBR 6590 and ASTM A-197M in black malleable iron.

### THREAD

The sealing threads of the TUPY NPT-Medium Pressure fittings are produced in compliance with the specifications of standards ABNT NBR 12912 and ANSI B 1.20.1. (conic outside and inside thread). Other types produced upon inquiry.

### INSPECTION

The TUPY NPT-Medium Pressure fittings are inspected so as to ensure the specifications of standards ABNT NBR 6925, ASME B 16.3, ASME B 16.14 and ASME B 16.39.

### BRANDS

The TUPY NPT - Medium Pressure fittings when the dimensions allow, are identified as follows:

- TUPY® Brand (except in the rated diameters of 3/8 x 1/4 to 3/4 x 1/2 in the Reduction Bushings and 1/4 and 3/8 in the Plugs).
- The nominal diameter.
- The monogram MI (Malleable Iron) except in the Reducing Bushings and Plugs.
- The number 150 (Indicative of class), except in the Reducing Bushings and Plugs.
- The name BRAZIL (Indicative of producing country).
- The monogram NPT (National Pipe Taper), only in the Reducing Bushings and Plugs
- The monogram UL (Underwriters Laboratories Inc.)

### SURFACE PROTECTION

The TUPY NPT-Medium Pressure fittings are produced with black finishing (non-toxic oil) or hot-dip galvanizing, as per ABNT NBR 6323 and ASTM A-153. Other special coatings (Epoxy paints, cataphoretic, hybrid, double galvanizing, etc.) can be furnished upon inquiry.

### APPLICATIONS

The TUPY NPT-Medium Pressure fittings are applied for conducting liquids, gases and vapors.

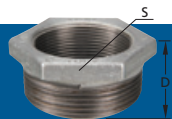
### NOTE

TUPY S.A. reserves the right to introduce in its product lines the alterations which it deems appropriate.

The weights (g) appear in this price list are subject to alteration without prior notice.

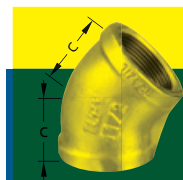
For your safety demand that the fittings acquired are in compliance with the said standards and that tightness tests are executed before final use of the networks installed.





## 1002R REDUCING BUSH

| Nominal Diameter |           | Dimensions in mm |         | Unit. Weight |
|------------------|-----------|------------------|---------|--------------|
| Inch             | mm        | D (min)          | S (min) | Galv. g      |
| 3/8 x 1/4        | 10 x 8    | 16,3             | 17,3    | 16           |
| 1/2 x 1/4        | 15 x 8    | 19               | 22,1    | 36           |
| 1/2 x 3/8        | 15 x 10   | 19               | 22,1    | 26           |
| 3/4 x 3/8        | 20 x 10   | 21,6             | 29,2    | 63           |
| 3/4 x 1/2        | 20 x 15   | 21,6             | 29,2    | 50           |
| 1 x 1/2          | 25 x 15   | 25,5             | 36,1    | 107          |
| 1 x 3/4          | 25 x 20   | 25,5             | 36,1    | 84           |
| 1 1/4 x 1/2      | 32 x 15   | 31               | 34      | 160          |
| 1 1/4 x 3/4      | 32 x 20   | 27,4             | 44,7    | 178          |
| 1 1/4 x 1        | 32 x 25   | 27,4             | 44,7    | 145          |
| 1 1/2 x 3/4      | 40 x 20   | 30,5             | 41,4    | 211          |
| 1 1/2 x 1        | 40 x 25   | 29               | 50,8    | 232          |
| 1 1/2 x 1 1/4    | 40 x 32   | 29               | 50,8    | 151          |
| 2 x 1            | 50 x 25   | 32,8             | 49,5    | 338          |
| 2 x 1 1/4        | 50 x 32   | 31               | 63      | 376          |
| 2 x 1 1/2        | 50 x 40   | 31               | 63      | 324          |
| 2 1/2 x 1 1/2    | 65 x 40   | 38,4             | 68,1    | 581          |
| 2 1/2 x 2        | 65 x 50   | 36,6             | 75,7    | 475          |
| 3 x 2            | 80 x 50   | 40,9             | 83,3    | 866          |
| 3 x 2 1/2        | 80 x 65   | 38,9             | 98      | 815          |
| 4 x 2 1/2        | 100 x 65  | 46,2             | 98      | 1421         |
| 4 x 3            | 100 x 80  | 43,7             | 117,3   | 1461         |
| 6 x 4            | 150 x 100 | 60               | 147,1   | 3595         |



## 1025 45° ELBOW

| Nominal Diameter |    | Dimensions in mm | Unit. Weight |
|------------------|----|------------------|--------------|
| Inch             | mm | A                | Galv. g      |
| 1/2              | 15 | 22,4             | 133          |
| 3/4              | 20 | 24,9             | 189          |
| 1                | 25 | 28,5             | 296          |
| 1 1/4            | 32 | 32,8             | 440          |
| 1 1/2            | 40 | 36,3             | 585          |
| 2                | 50 | 42,7             | 892          |



## 1020R ELBOW REDUCING

| Nominal Diameter |         | Dimensions in mm |      | Unit. Weight |
|------------------|---------|------------------|------|--------------|
| Inch             | mm      | X                | Z    | Galv. g      |
| 3/4 x 1/2        | 20 x 15 | 30,5             | 31   | 166          |
| 1 x 1/2          | 25 x 15 | 32               | 34,5 | 218          |
| 1 x 3/4          | 25 x 20 | 34,8             | 36,8 | 263          |
| 1 1/4 x 1/2      | 32 x 15 | 34               | 39   | 306          |
| 1 1/4 x 3/4      | 32 x 20 | 36,8             | 41,2 | 350          |
| 1 1/4 x 1        | 32 x 25 | 40,1             | 42,4 | 417          |
| 1 1/2 x 3/4      | 40 x 20 | 38,6             | 44,5 | 420          |
| 1 1/2 x 1        | 40 x 25 | 41,9             | 45,7 | 490          |
| 1 1/2 x 1 1/4    | 40 x 32 | 46,2             | 47,8 | 561          |
| 2 x 3/4          | 50 x 20 | 40,6             | 50,2 | 540          |
| 2 x 1            | 50 x 25 | 43,9             | 51,3 | 650          |
| 2 x 1 1/4        | 50 x 32 | 48,3             | 53,3 | 720          |
| 2 x 1 1/2        | 50 x 40 | 51,3             | 54,9 | 780          |



## 1010 PLUG, PAIN

| Nominal Diameter |     | Dimensions in mm |      | Unit. Weight |
|------------------|-----|------------------|------|--------------|
| Inch             | mm  | B                | S    | Galv. g      |
| 1/4              | 8   | 20               | 9,5  | 16           |
| 3/8              | 10  | 21               | 11   | 26           |
| 1/2              | 15  | 26               | 14,3 | 50           |
| 3/4              | 20  | 28               | 16   | 72           |
| 1                | 25  | 34               | 20,7 | 135          |
| 1 1/4            | 32  | 36               | 23,8 | 197          |
| 1 1/2            | 40  | 38               | 28,6 | 270          |
| 2                | 50  | 42               | 33,4 | 438          |
| 2 1/2            | 65  | 54               | 38   | 768          |
| 3                | 80  | 58               | 43   | 1127         |
| 4                | 100 | 66               | 50   | 2152         |
| 6                | 150 | 76               | 70   | 5355         |



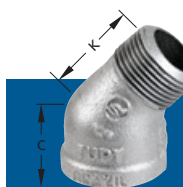
## 1030 ELBOW

| Nominal Diameter |    | Dimensions in mm |      | Unit. Weight |
|------------------|----|------------------|------|--------------|
| Inch             | mm | A                | J    | Galv. g      |
| 1/4              | 8  | 20,6             | 30,2 | 43           |
| 3/8              | 10 | 24,1             | 36,6 | 75           |
| 1/2              | 15 | 28,5             | 41,2 | 117          |
| 3/4              | 20 | 33,3             | 48   | 175          |
| 1                | 25 | 38,1             | 54,4 | 316          |
| 1 1/4            | 32 | 44,5             | 62,2 | 460          |
| 1 1/2            | 40 | 49,3             | 68,3 | 632          |
| 2                | 50 | 57,2             | 82,8 | 999          |



## 1015 ELBOW

| Nominal Diameter |     | Dimensions in mm | Unit. Weight |
|------------------|-----|------------------|--------------|
| Inch             | mm  | A                | Galv. g      |
| 1/2              | 15  | 28,5             | 130          |
| 3/4              | 20  | 33,3             | 204          |
| 1                | 25  | 38,1             | 308          |
| 1 1/4            | 32  | 44,5             | 486          |
| 1 1/2            | 40  | 49,3             | 618          |
| 2                | 50  | 57,2             | 948          |
| 2 1/2            | 65  | 68,6             | 1822         |
| 3                | 80  | 78,2             | 2496         |
| 4                | 100 | 96,3             | 4452         |



## 1035 45° STREET ELBOW

| Nominal Diameter |    | Dimensions in mm |      | Unit. Weight |
|------------------|----|------------------|------|--------------|
| Inch             | mm | C                | K    | Galv. g      |
| 1/2              | 15 | 22,4             | 29,2 | 100          |
| 3/4              | 20 | 24,9             | 32,8 | 148          |
| 1                | 25 | 28,5             | 37,3 | 238          |
| 1 1/4            | 32 | 32,8             | 43,5 | 372          |
| 1 1/2            | 40 | 36,3             | 48   | 510          |
| 2                | 50 | 42,7             | 56,5 | 840          |





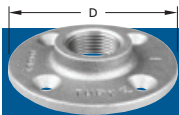
## 1068 CROSSE

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | A                |  | Galv. g      |
| ¼                | 10 | 20,6             |  | 87           |
| ½                | 15 | 28,5             |  | 229          |
| ¾                | 20 | 33,3             |  | 358          |
| 1                | 25 | 38,1             |  | 520          |
| 1¼               | 32 | 44,5             |  | 780          |
| 1½               | 40 | 49,3             |  | 1023         |
| 2                | 50 | 57,2             |  | 1260         |



## 1055 CAP, ROUND

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | P (min)          |  | Galv. g      |
| ¾                | 20 | 24,6             |  | 91           |
| 1                | 25 | 29,5             |  | 184          |
| 1¼               | 32 | 32,5             |  | 275          |
| 1½               | 40 | 33,8             |  | 377          |
| 2                | 50 | 36,8             |  | 622          |



## 1090 FLOOR FLANGE

| Nominal Diameter |    | Dimensions in mm |      |     | Unit. Weight |
|------------------|----|------------------|------|-----|--------------|
| Inch             | mm | D                | A    | e   | Galv. g      |
| ½                | 15 | 89               | 15   | 6   | 189          |
| ¾                | 20 | 89               | 16   | 6   | 286          |
| 1                | 25 | 101,6            | 18   | 6,5 | 340          |
| 1¼               | 32 | 101,6            | 20   | 6,5 | 421          |
| 1½               | 40 | 114,3            | 22,5 | 7   | 575          |
| 2                | 50 | 139,7            | 26   | 9   | 895          |



## 1060 TEE

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| ¼                | 10  | 20,6             |  | 73           |
| ½                | 15  | 28,5             |  | 163          |
| ¾                | 20  | 33,3             |  | 280          |
| 1                | 25  | 38,1             |  | 447          |
| 1¼               | 32  | 44,5             |  | 706          |
| 1½               | 40  | 49,3             |  | 900          |
| 2                | 50  | 57,2             |  | 1320         |
| 2½               | 65  | 68,6             |  | 2362         |
| 3                | 80  | 78,2             |  | 3316         |
| 4                | 100 | 96,3             |  | 5585         |



## 1045 SOCKET

| Nominal Diameter |    | Dimensions in mm |  | Unit. Weight |
|------------------|----|------------------|--|--------------|
| Inch             | mm | W                |  | Galv. g      |
| ¼                | 10 | 26,9             |  | 49           |
| ½                | 15 | 34               |  | 91           |
| ¾                | 20 | 38,6             |  | 156          |
| 1                | 25 | 42,4             |  | 226          |
| 1¼               | 32 | 49               |  | 352          |
| 1½               | 40 | 54,6             |  | 448          |
| 2                | 50 | 64,3             |  | 737          |



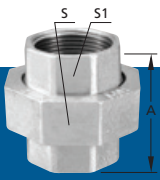
## 1065R TEE REDUCING

| Nominal Diameter |              | Dimensions in mm |      |         | Unit. Weight |
|------------------|--------------|------------------|------|---------|--------------|
| Inch             | mm           | Z                | X    | Galv. g |              |
| 1                | 2            | 3                | 1    | 2       | 3            |
| ¾ x ¾ x ½        | 20 x 20 x 15 | 30,5             | 31   | 132     |              |
| 1 x 1 x ½        | 25 x 25 x 15 | 32               | 34,5 | 354     |              |
| 1 x 1 x ¾        | 25 x 25 x 20 | 34,8             | 36,8 | 395     |              |
| 1¼ x 1¼ x ½      | 32 x 32 x 15 | 38               | 34   | 467     |              |
| 1¼ x 1¼ x ¾      | 32 x 32 x 20 | 36,8             | 41,2 | 527     |              |
| 1¼ x 1¼ x 1      | 32 x 32 x 25 | 40,1             | 42,4 | 581     |              |
| 1½ x 1½ x ½      | 40 x 40 x 15 | 42,2             | 35,8 | 585     |              |
| 1½ x 1½ x ¾      | 40 x 40 x 20 | 44,5             | 38,6 | 649     |              |
| 1½ x 1½ x 1      | 40 x 40 x 25 | 41,9             | 45,7 | 714     |              |
| 1½ x 1½ x 1¼     | 40 x 40 x 32 | 46,2             | 47,8 | 768     |              |
| 2 x 2 x ½        | 50 x 50 x 15 | 47,8             | 37,9 | 830     |              |
| 2 x 2 x ¾        | 50 x 50 x 20 | 50,2             | 40,6 | 889     |              |
| 2 x 2 x 1        | 50 x 50 x 25 | 51,3             | 43,9 | 978     |              |
| 2 x 2 x 1¼       | 50 x 50 x 32 | 48,3             | 53,3 | 1078    |              |
| 2 x 2 x 1½       | 50 x 50 x 40 | 51,3             | 54,9 | 1140    |              |
| ½ x ½ x ¾        | 15 x 15 x 20 | 30,5             | 31,0 | 210     |              |
| ½ x ½ x 1        | 15 x 15 x 25 | 32               | 34,6 | 260     |              |
| ¾ x ¾ x 1        | 20 x 20 x 25 | 34,8             | 36,8 | 340     |              |
| ¾ x ¾ x 1¼       | 20 x 20 x 32 | 36,8             | 41,1 | 410     |              |
| 1 x 1 x 1¼       | 25 x 25 x 32 | 40,1             | 42,4 | 510     |              |
| 1 x 1 x 1½       | 25 x 25 x 40 | 41,9             | 45,7 | 564     |              |
| 1 x 1 x 2        | 25 x 25 x 50 | 46,2             | 47,8 | 765     |              |
| 1¼ x 1¼ x 1½     | 32 x 32 x 40 | 48,9             | 51,3 | 730     |              |
| 1¼ x 1¼ x 2      | 32 x 32 x 50 | 48,3             | 53,3 | 860     |              |
| 1½ x 1½ x 2      | 40 x 40 x 50 | 51,3             | 54,9 | 993     |              |



## 1050R SOCKET REDUCING

| Nominal Diameter |         | Dimensions in mm |  | Unit. Weight |
|------------------|---------|------------------|--|--------------|
| Inch             | mm      | M                |  | Galv. g      |
| ¾ x ½            | 20 x 15 | 36,6             |  | 125          |
| 1 x ½            | 25 x 15 | 42,9             |  | 195          |
| 1 x ¾            | 25 x 20 | 42,9             |  | 193          |
| 1¼ x ½           | 32 x 15 | 52,3             |  | 245          |
| 1¼ x ¾           | 32 x 20 | 52,3             |  | 290          |
| 1¼ x 1           | 32 x 25 | 52,3             |  | 329          |
| 1½ x ½           | 40 x 15 | 58,7             |  | 350          |
| 1½ x ¾           | 40 x 20 | 58,7             |  | 380          |
| 1½ x 1           | 40 x 25 | 58,7             |  | 430          |
| 1½ x 1¼          | 40 x 32 | 58,7             |  | 435          |
| 2 x ½            | 50 x 15 | 71,4             |  | 550          |
| 2 x ¾            | 50 x 20 | 71,4             |  | 563          |
| 2 x 1            | 50 x 25 | 71,4             |  | 599          |
| 2 x 1¼           | 50 x 32 | 71,4             |  | 640          |
| 2 x 1½           | 50 x 40 | 71,4             |  | 698          |

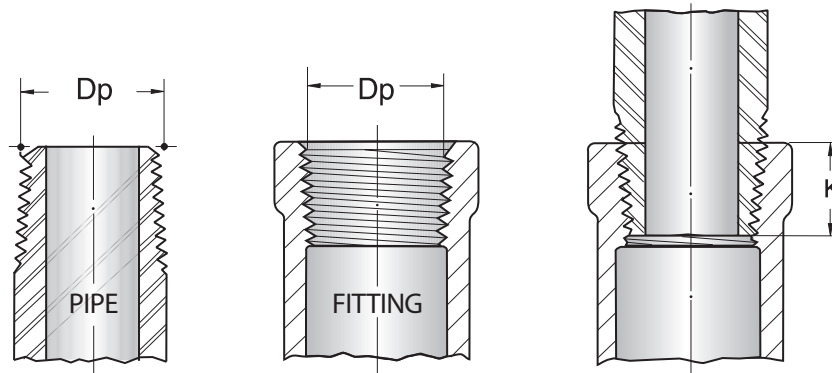


**1070**

**UNION, SINGLE  
BRASS SEAT**

| Nominal Diameter |     | Dimensions in mm |         |       | Unit. Weight |
|------------------|-----|------------------|---------|-------|--------------|
| Inch             | mm  | A                | S (max) | S1    | Galv. g      |
| ¼                | 8   | 36,5             | 28      | 16,6  | 88           |
| ⅜                | 10  | 41               | 32      | 20,1  | 115          |
| ½                | 15  | 43,5             | 37      | 25,4  | 177          |
| ¾                | 20  | 49,5             | 43,5    | 31,6  | 283          |
| 1                | 25  | 52,5             | 52,5    | 38,5  | 376          |
| 1¼               | 32  | 57,5             | 63,5    | 48,5  | 623          |
| 1½               | 40  | 61               | 71,5    | 55    | 740          |
| 2                | 50  | 70               | 86,5    | 68,5  | 1224         |
| 2½               | 65  | 82               | 104,5   | 84,5  | 2063         |
| 3                | 80  | 89               | 129,5   | 97,5  | 2776         |
| 4                | 100 | 98               | 152,5   | 123,5 | 4058         |

# Identification of Nominal Diameters from Actual Medium Pressure NPT Thread Dp and Db Diameters

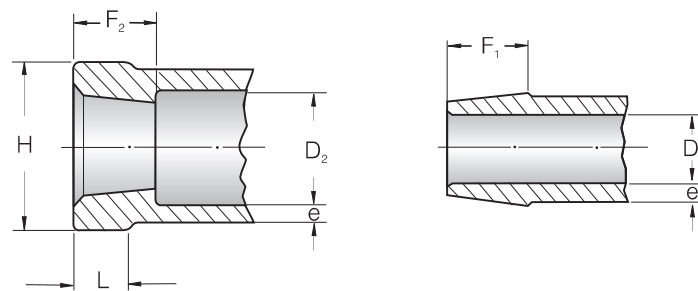


Dimensions in mm

| NOMINAL | 1/4  | 3/8  | 1/2  | 3/4  | 1    | 1 1/4 | 1 1/2 | 2    | 2 1/2 | 3    | 4     | 6     |
|---------|------|------|------|------|------|-------|-------|------|-------|------|-------|-------|
| Dp      | 13,3 | 16,7 | 20,7 | 26,0 | 32,6 | 41,3  | 47,4  | 59,4 | 71,6  | 87,4 | 112,6 | 166,3 |
| Db      | 11,4 | 14,8 | 18,3 | 23,7 | 29,7 | 38,5  | 44,5  | 56,6 | 67,6  | 83,5 | 108,9 | 162,7 |
| K       | 10,2 | 10,4 | 13,6 | 13,9 | 17,3 | 18,0  | 18,4  | 19,2 | 28,9  | 30,5 | 33,0  | 038,4 |

K = Useful Thread Length

# Dimensions of Medium Pressure NPT Fittings



Dimensions in mm

| NOMINAL DIAMETER | F <sub>1</sub><br>(min.) | F <sub>2</sub><br>(min.) | D <sub>1</sub><br>(max.) | D <sub>2</sub><br>(min.) | e   | L<br>(min.) | H<br>(min.) |
|------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----|-------------|-------------|
| 1/4              | 10,2                     | 8,1                      | 6,6                      | 13,7                     | 2,4 | 5,5         | 21,4        |
| 3/8              | 10,4                     | 9,1                      | 9,4                      | 17,1                     | 2,5 | 5,8         | 25,8        |
| 1/2              | 13,5                     | 10,9                     | 13,0                     | 21,3                     | 2,7 | 6,3         | 30,4        |
| 3/4              | 14,0                     | 12,7                     | 17,5                     | 26,7                     | 3,1 | 6,9         | 37,0        |
| 1                | 17,3                     | 14,7                     | 23,1                     | 33,4                     | 3,4 | 7,7         | 45,0        |
| 1 1/4            | 18,0                     | 17,0                     | 30,2                     | 42,2                     | 3,7 | 8,7         | 54,7        |
| 1 1/2            | 18,3                     | 17,8                     | 35,3                     | 48,3                     | 3,9 | 9,3         | 61,6        |
| 2                | 19,3                     | 19,1                     | 45,5                     | 60,3                     | 4,4 | 10,7        | 75,3        |
| 2 1/2            | 29,0                     | 23,4                     | 55,9                     | 73,0                     | 5,3 | 12,1        | 91,2        |
| 3                | 30,5                     | 24,9                     | 70,6                     | 88,9                     | 5,9 | 13,9        | 108,8       |
| 4                | 33,0                     | 27,4                     | 94,0                     | 114,4                    | 6,7 | 16,8        | 137,2       |
| 6                | 38,4                     | 32,5                     | 144,0                    | 168,3                    | 8,5 | 22,9        | 197,3       |



## NPT - HIGH PRESSURE fittings for applications up to 2.000 lb at ambient temperature.

### PRESSURE TABLE

| Temperature<br>°C | Maximum Service Pressures<br>(As per ABNT NBR 6925 and ASME B 16.3) |          |          | Maximum Service Pressures for Union<br>(As per ABNT NBR 6925 and ASME B 16.39) |
|-------------------|---|----------|----------|--|
|                   | Nominal Diameter  |          |          | Nominal Diameter   |
|                   | ¼ a 1   | ¼ a 2    | 2½ a 6   | ¼ a 4  |
|                   | lb (psi)  | lb (psi) | lb (psi) | lb (psi)   |
| -29 a 66          | 2.000   | 1.500    | 1.000    | 600  |
| 93                | 1.785   | 1.350    | 910      | 550  |
| 121               | 1.575   | 1.200    | 825      | 505  |
| 149               | 1.360   | 1.050    | 735      | 460  |
| 177               | 1.150   | 900      | 650      | 415  |
| 204               | 935   | 750      | 560      | 370  |
| 232               | 725   | 600      | 475      | 325  |
| 260               | 510   | 450      | 450      | 280  |
| 288               | 300   | 300      | 300      | 230  |

Note: 1 bar  $\approx$  14,5 psi • 1 bar  $\approx$  1 kgf/cm<sup>2</sup> • 1 bar = 0,1 MPa • 1 psi = 1 lbf/in<sup>2</sup>

#### MANUFACTURING STANDARDS

The TUPY NPT-High Pressure fittings are manufactured in compliance with the specifications of standards ABNT NBR 6925 and ASME B 16.3, except the unions which are in compliance with the specifications of ASME B 16.39.

We point out that, depending upon the figure, certain diameters may appear in one standard but not in another one.

#### MATERIAL

The TUPY NPT-High Pressure fittings are produced in compliance with standards ABNT NBR 6590 and ASTM A 197 in black malleable iron.

#### THREAD

The sealing threads of the TUPY NPT-High Pressure fittings are produced in compliance with the specifications of standards ABNT NBR 12912 and ANSI B 1.20.1. (conic outside and inside thread). Other types are produced upon inquiry.

#### INSPECTION

The TUPY NPT-High Pressure fittings are inspected so as to ensure the specifications of standards ABNT NBR 6925, ASME B 16.3 and ASME B 16.39.

#### BRANDS

The TUPY NPT-High Pressure fittings, when the dimensions allow, have the following identification recorded on them:

- Brand TUPY®.
- The nominal diameter.
- The monogram MI (Malleable Iron)
- The monogram WOG (water, oil and gas).
- The number 300 (Indicative of the class).
- The number 2000 or 1500 or 1000 or 500 (indicative of the service pressure in psi, in the range from -29 to 66°C).
- The name BRAZIL (Indicative of producing country).
- The monogram ® (Underwriters Laboratories Inc.)

#### SURFACE PROTECTION

The TUPY NPT-High Pressure fittings are produced with black finishing (non-toxic oil) or hot-dip galvanizing, as per ABNT NBR 6323 and ASTM A-153. Other special coatings (Epoxy paints, cataphoretic, hybrid, double galvanizing, etc.) can be furnished upon inquiry.

#### APPLICATIONS

The TUPY NPT-High P ressure fittings are applied for conducting liquids, gases and vapors.

#### NOTE

TUPY S.A. reserves the right to introduce in its product lines the alterations which it deems appropriate.

The weights (g) appear in this price list are subject to alteration without prior notice.

For your safety demand that the fittings acquired are in compliance with the said standards and that tightness tests are executed before final use of the networks installed.





## 2015 ELBOW

| Nominal Diameter |     | Dimensions in mm |  | Unit. Weight |
|------------------|-----|------------------|--|--------------|
| Inch             | mm  | A                |  | Galv. g      |
| ¼                | 8   | 23,9             |  | 92           |
| ⅜                | 10  | 26,9             |  | 132          |
| ½                | 15  | 31,8             |  | 217          |
| ¾                | 20  | 36,6             |  | 339          |
| 1                | 25  | 41,4             |  | 515          |
| 1¼               | 32  | 49,3             |  | 842          |
| 1½               | 40  | 54,1             |  | 1081         |
| 2                | 50  | 63,5             |  | 1842         |
| 2½               | 65  | 74,7             |  | 2745         |
| 3                | 80  | 85,9             |  | 4182         |
| 4                | 100 | 114              |  | 8415         |
| 6                | 150 | 159              |  | 18165        |



## 2033 LONG SWEEP BEND

| Nominal Diameter |     | Dimensions in mm | Unit. Weight |
|------------------|-----|------------------|--------------|
| Inch             | mm  | F                | Galv. g      |
| ½                | 15  | 55               | 341          |
| ¾                | 20  | 69               | 542          |
| 1                | 25  | 85               | 849          |
| 1¼               | 32  | 105              | 1383         |
| 1½               | 40  | 116              | 1808         |
| 2                | 50  | 140              | 2854         |
| 2½               | 65  | 176              | 4976         |
| 3                | 80  | 205              | 7842         |
| 4                | 100 | 260              | 14505        |



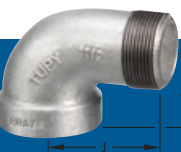
## 2025 45° ELBOW

| Nominal Diameter |     | Dimensions in mm | Unit. Weight |
|------------------|-----|------------------|--------------|
| Inch             | mm  | C                | Galv. g      |
| ¼                | 8   | 20,6             | 85           |
| ⅜                | 10  | 22,4             | 133          |
| ½                | 15  | 25,4             | 211          |
| ¾                | 20  | 28,7             | 299          |
| 1                | 25  | 33,3             | 454          |
| 1¼               | 32  | 38,1             | 718          |
| 1½               | 40  | 42,9             | 1042         |
| 2                | 50  | 50,8             | 1517         |
| 2½               | 65  | 57,2             | 2363         |
| 3                | 80  | 63,5             | 3588         |
| 4                | 100 | 72               | 5956         |
| 6                | 150 | 90               | 13070        |



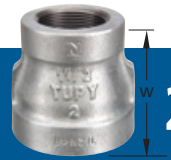
## 2045 SOCKET

| Nominal Diameter |     | Dimensions in mm | Unit. Weight |
|------------------|-----|------------------|--------------|
| Inch             | mm  | W                | Galv. g      |
| ¼                | 8   | 35,1             | 75           |
| ⅜                | 10  | 41,4             | 119          |
| ½                | 15  | 47,8             | 193          |
| ¾                | 20  | 54,1             | 303          |
| 1                | 25  | 60,5             | 533          |
| 1¼               | 32  | 73,2             | 701          |
| 1½               | 40  | 73,2             | 859          |
| 2                | 50  | 92,2             | 1446         |
| 2½               | 65  | 104,9            | 2276         |
| 3                | 80  | 104,9            | 3131         |
| 4                | 100 | 120              | 5346         |
| 6                | 150 | 150              | 12075        |



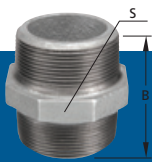
## 2030 ELBOW

| Nominal Diameter |    | Dimensions in mm |       | Unit. Weight |
|------------------|----|------------------|-------|--------------|
| Inch             | mm | A                | J     | Galv. g      |
| ⅜                | 10 | 26,9             | 41,4  | 118          |
| ½                | 15 | 31,8             | 50,8  | 181          |
| ¾                | 20 | 36,6             | 55,6  | 291          |
| 1                | 25 | 41,4             | 65    | 463          |
| 1¼               | 32 | 49,3             | 73,2  | 692          |
| 1½               | 40 | 54,1             | 79,5  | 928          |
| 2                | 50 | 63,5             | 93,7  | 1570         |
| 2½               | 65 | 74,7             | 114,3 | 2616         |
| 3                | 80 | 85,9             | 130,3 | 3915         |



## 2050R SOCKET REDUCING

| Nominal Diameter |           | Dimensions in mm | Unit. Weight |
|------------------|-----------|------------------|--------------|
| Inch             | mm        | W                | Galv. g      |
| ½ x ¼            | 15 x 8    | 42,9             | 132          |
| ½ x ⅜            | 15 x 10   | 42,9             | 147          |
| ¾ x ⅜            | 20 x 10   | 44,5             | 189          |
| ¾ x ½            | 20 x 15   | 44,5             | 216          |
| 1 x ½            | 25 x 15   | 50,8             | 306          |
| 1 x ¾            | 25 x 20   | 50,8             | 332          |
| 1¼ x ¾           | 32 x 20   | 60,5             | 484          |
| 1¼ x 1           | 32 x 25   | 60,5             | 535          |
| 1½ x 1           | 40 x 25   | 68,3             | 670          |
| 1½ x 1¼          | 40 x 32   | 68,3             | 748          |
| 2 x 1¼           | 50 x 32   | 81               | 1119         |
| 2 x 1½           | 50 x 40   | 81               | 1173         |
| 2½ x 1½          | 65 x 40   | 93,7             | 1662         |
| 2½ x 2           | 65 x 50   | 93,7             | 1858         |
| 3 x 2            | 80 x 50   | 103,1            | 2496         |
| 3 x 2½           | 80 x 65   | 103,1            | 2836         |
| 4 x 2½           | 100 x 65  | 117              | 4000         |
| 4 x 3            | 100 x 80  | 117              | 4402         |
| 6 x 4            | 150 x 100 | 137              | 9470         |



## 2001 HEXAGON NIPPLE

| Nominal Diameter |     | Dimensions in mm |     | Unit. Weight |
|------------------|-----|------------------|-----|--------------|
| Inch             | mm  | B                | S   | Galv. g      |
| ¼                | 8   | 41               | 19  | 39           |
| ⅜                | 10  | 42               | 22  | 56           |
| ½                | 15  | 53               | 27  | 96           |
| ¾                | 20  | 53               | 32  | 130          |
| 1                | 25  | 64               | 41  | 255          |
| 1¼               | 32  | 65               | 50  | 371          |
| 1½               | 40  | 67               | 55  | 504          |
| 2                | 50  | 70               | 70  | 774          |
| 2½               | 65  | 100              | 85  | 1392         |
| 3                | 80  | 102              | 100 | 2110         |
| 4                | 100 | 110              | 130 | 3511         |
| 6                | 150 | 125              | 180 | 7345         |



## 2055 CAP, ROUND

| Nominal Diameter |     | Dimensions in mm | Unit. Weight |
|------------------|-----|------------------|--------------|
| Inch             | mm  | P (min)          | Galv. g      |
| ¼                | 8   | 19,8             | 44           |
| ⅜                | 10  | 21,1             | 70           |
| ½                | 15  | 24,9             | 109          |
| ¾                | 20  | 27,4             | 172          |
| 1                | 25  | 32               | 280          |
| 1¼               | 32  | 35,1             | 421          |
| 1½               | 40  | 36,3             | 527          |
| 2                | 50  | 42,7             | 880          |
| 2½               | 65  | 52,3             | 1396         |
| 3                | 80  | 55,1             | 2189         |
| 4                | 100 | 61,2             | 3247         |
| 6                | 150 | 69               | 7815         |



## 2060 TEE

| Nominal Diameter |     | Dimensions in mm | Unit. Weight |
|------------------|-----|------------------|--------------|
| Inch             | mm  | A                | Galv. g      |
| ¼                | 8   | 23,9             | 119          |
| ⅜                | 10  | 26,9             | 185          |
| ½                | 15  | 31,8             | 309          |
| ¾                | 20  | 36,6             | 460          |
| 1                | 25  | 41,4             | 779          |
| 1¼               | 32  | 49,3             | 1102         |
| 1½               | 40  | 54,1             | 1462         |
| 2                | 50  | 63,5             | 2472         |
| 2½               | 65  | 74,7             | 3690         |
| 3                | 80  | 85,9             | 5464         |
| 4                | 100 | 114              | 10485        |
| 6                | 150 | 159              | 25195        |



## 2065R TEE REDUCING

| Nominal Diameter |              |   | Dimensions in mm |       | Unit. Weight |
|------------------|--------------|---|------------------|-------|--------------|
| Inch             | mm           |   | X                | Z     | Galv. g      |
| 1                | 2            | 3 |                  |       |              |
| ½ x ½ x ¼        | 15 x 15 x 8  |   | 28               | 29    | 236          |
| ½ x ½ x ⅜        | 15 x 15 x 10 |   | 30,2             | 30,2  | 259          |
| ¾ x ¾ x ⅜        | 20 x 20 x 10 |   | 30               | 34    | 344          |
| ¾ x ¾ x ½        | 20 x 20 x 15 |   | 33,3             | 35,1  | 388          |
| 1 x 1 x ½        | 25 x 25 x 15 |   | 36,6             | 38,1  | 559          |
| 1 x 1 x ¾        | 25 x 25 x 20 |   | 38,1             | 39,6  | 597          |
| 1¼ x 1¼ x ¾      | 32 x 32 x 20 |   | 41,4             | 44,5  | 876          |
| 1¼ x 1¼ x 1      | 32 x 32 x 25 |   | 44,5             | 46    | 956          |
| 1½ x 1½ x 1      | 40 x 40 x 25 |   | 46               | 50,8  | 1150         |
| 1½ x 1½ x 1¼     | 40 x 40 x 32 |   | 50,8             | 52,3  | 1345         |
| 2 x 2 x 1¼       | 50 x 50 x 32 |   | 54,1             | 58,7  | 1855         |
| 2 x 2 x 1½       | 50 x 50 x 40 |   | 57,2             | 60,5  | 1988         |
| 2½ x 2½ x 1½     | 65 x 65 x 40 |   | 62               | 66,8  | 2837         |
| 2½ x 2½ x 2      | 65 x 65 x 50 |   | 68,3             | 70    | 3269         |
| 3 x 3 x 2        | 80 x 80 x 50 |   | 71,4             | 79,5  | 4294         |
| 3 x 3 x 2½       | 80 x 80 x 65 |   | 77,7             | 84,1  | 4840         |
| 4 x 4 x 2½       | 100x100x 65  |   | 86               | 97    | 7462         |
| 4 x 4 x 3        | 100x400x 80  |   | 92               | 100   | 7904         |
| 6 x 6 x 4        | 150x150x100  |   | 112              | 125,4 | 16920        |



## 2070 UNION, SINGLE BRASS SEAT

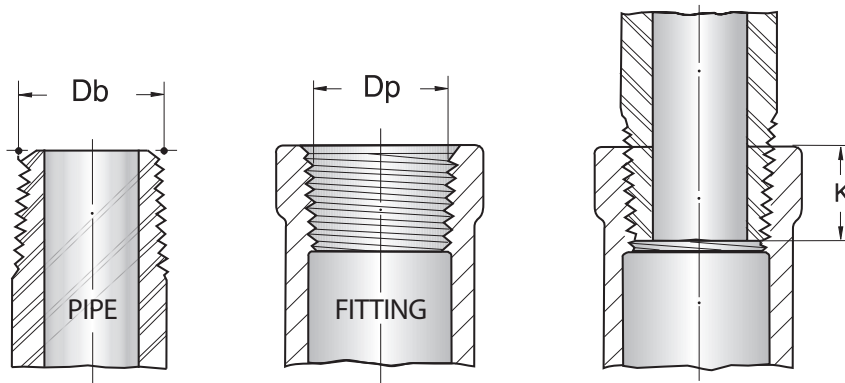
| Nominal Diameter |     | Dimensions in mm |       |     | Unit. Weight |
|------------------|-----|------------------|-------|-----|--------------|
| Inch             | mm  | C                | S     | S1  | Galv. g      |
| ¼                | 8   | 39,5             | 34    | 19  | 144          |
| ⅜                | 10  | 43,5             | 38    | 23  | 204          |
| ½                | 15  | 46               | 44,5  | 27  | 281          |
| ¾                | 20  | 54               | 54,5  | 34  | 523          |
| 1                | 25  | 58,5             | 63    | 41  | 645          |
| 1¼               | 32  | 67,5             | 76,5  | 50  | 941          |
| 1½               | 40  | 72,5             | 83,5  | 57  | 1375         |
| 2                | 50  | 82               | 100,5 | 70  | 1897         |
| 2½               | 65  | 84,5             | 120   | 85  | 3142         |
| 3                | 80  | 104              | 136,5 | 104 | 4471         |
| 4                | 100 | 113,5            | 178   | 132 | 8481         |



## 2075 UNION ELBOW, SINGLE BRASS SEAT

| Nominal Diameter |    | Dimensions in mm |    |     |    | Unit. Weight |
|------------------|----|------------------|----|-----|----|--------------|
| Inch             | mm | E                | D  | S   | S1 | Galv. g      |
| ½                | 15 | 62               | 32 | 47  | 27 | 427          |
| ¾                | 20 | 73               | 37 | 59  | 34 | 731          |
| 1                | 25 | 81               | 42 | 65  | 41 | 968          |
| 1¼               | 32 | 94               | 49 | 77  | 50 | 1489         |
| 1½               | 40 | 100              | 54 | 89  | 57 | 2045         |
| 2                | 50 | 114              | 64 | 103 | 70 | 2955         |

# Identification of Nominal Diameters from Actual High Pressure NPT Thread Dp and Db Diameters

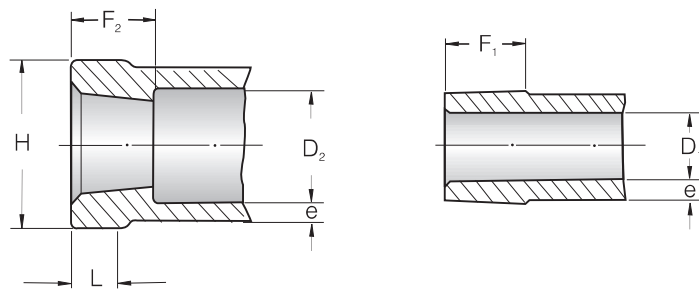


Dimensions in mm

| NOMINAL | 1/4  | 3/8  | 1/2  | 3/4  | 1    | 1 1/4 | 1 1/2 | 2    | 2 1/2 | 3    | 4     | 6     |
|---------|------|------|------|------|------|-------|-------|------|-------|------|-------|-------|
| Dp      | 13,3 | 16,7 | 20,7 | 26,0 | 32,6 | 41,3  | 47,4  | 59,4 | 71,6  | 87,4 | 112,6 | 166,3 |
| Db      | 11,4 | 14,8 | 18,3 | 23,7 | 29,7 | 38,5  | 44,5  | 56,6 | 67,6  | 83,5 | 108,9 | 162,7 |
| K       | 10,2 | 10,4 | 13,6 | 13,9 | 17,3 | 18,0  | 18,4  | 19,2 | 28,9  | 30,5 | 33,0  | 038,4 |

K = Useful Thread Length

# Basic Dimensions of High Pressure NPT Fittings



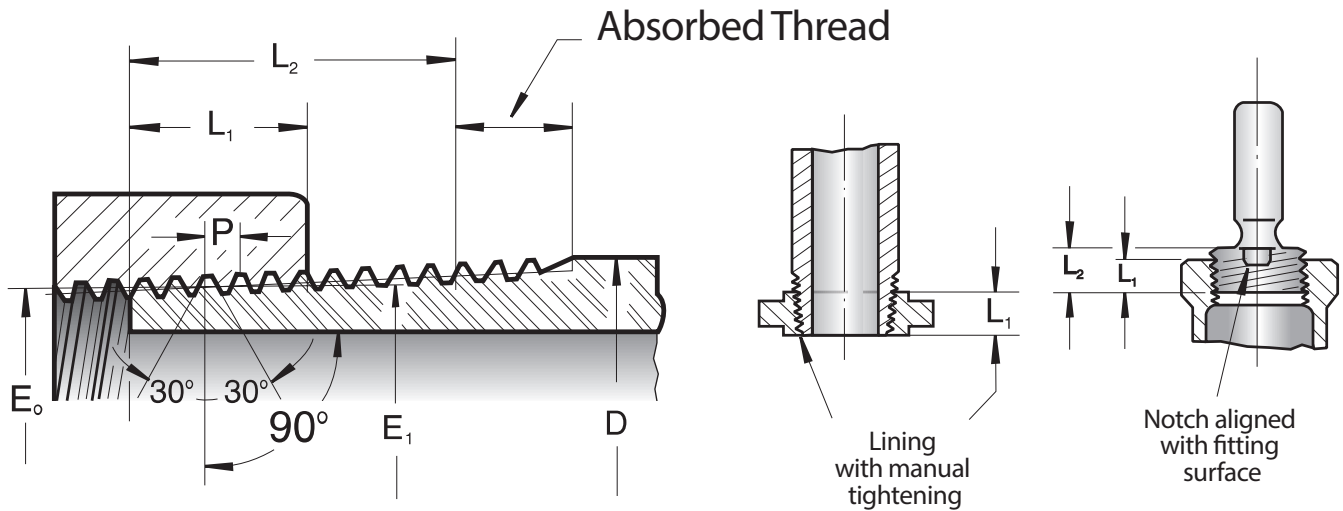
Dimensions in mm

| NOMINAL DIAMETER | F <sub>1</sub><br>(min.) | F <sub>2</sub><br>(min.) | D <sub>1</sub><br>(max.) | D <sub>2</sub><br>(min.) | e    | L<br>(min.) | H<br>(min.) |
|------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|-------------|-------------|
| 1/4              | 10,2                     | 10,9                     | 6,6                      | 13,7                     | 3,6  | 9,7         | 23,6        |
| 3/8              | 10,4                     | 11,9                     | 9,1                      | 17,1                     | 3,8  | 11,2        | 28,5        |
| 1/2              | 13,5                     | 14,5                     | 12,5                     | 21,3                     | 4,1  | 12,7        | 34,0        |
| 3/4              | 14,0                     | 16,3                     | 17,0                     | 26,7                     | 4,6  | 14,2        | 41,4        |
| 1                | 17,3                     | 19,1                     | 22,4                     | 33,4                     | 5,1  | 15,8        | 49,5        |
| 1 1/4            | 18,0                     | 21,3                     | 29,5                     | 42,2                     | 5,6  | 17,5        | 60,7        |
| 1 1/2            | 18,3                     | 22,1                     | 34,3                     | 48,3                     | 6,1  | 19,1        | 68,1        |
| 2                | 19,3                     | 25,4                     | 44,5                     | 60,3                     | 6,6  | 21,3        | 83,3        |
| 2 1/2            | 29,0                     | 29,7                     | 54,9                     | 73,0                     | 7,9  | 23,9        | 98,0        |
| 3                | 30,5                     | 31,2                     | 67,8                     | 88,9                     | 8,9  | 25,4        | 117,3       |
| 4                | 33,0                     | 33,7                     | 88,0                     | 114,0                    | 10,8 | 28,0        | 145,4       |
| 6                | 38,4                     | 39,0                     | 141,0                    | 172,0                    | 12,5 | 32,0        | 211,2       |



# NPT Thread for Pipes

## As per ANSI B 1.20.1 and ABNT NBR 12912



### Tolerance in Product:

One turn more or less related to the notch of the cap calibrator, or surface of the ring calibrator.

Beveled parts, notch aligned with bevel bottom.

| NOMINAL DIAMETER OF PIPE | EFFECTIVE DIAMETER (SIDES) AT THREAD TIP<br>$E_0$<br>(mm) | MANUAL TIGHTENING |       |                          | OUTSIDE DIAMETER OF PIPE<br>$D$<br>(mm) | OUTSIDE USEFUL THREAD |       | PITCH<br>$P$<br>(mm) | HEIGHT OF THREAD FILLET<br>(mm) | NUMBER OF FILLETS PER INCH<br>(25,4 mm) |
|--------------------------|---|-------------------|-------|--------------------------|---|-----------------------|-------|----------------------|---------------------------------|---|
|                          |   | LENGTH<br>$L_1^*$ |       | DIAM.<br>$E_1^*$<br>(mm) |   | LENGTH<br>$L_2^{**}$  |       |                      |                                 |   |
|                          |   | (mm)              | WIRES |                          |   | (mm)                  | WIRES |                      |                                 |   |
| 1/8                      | 9,233   | 4,102             | 4,36  | 9,489                    | 10,287                                  | 6,703                 | 7,12  | 0,940                | 0,753                           | 27                                      |
| 1/4                      | 12,126  | 5,786             | 4,10  | 12,487                   | 13,716                                  | 10,206                | 7,23  | 1,411                | 1,129                           | 18                                      |
| 3/8                      | 15,545  | 6,096             | 4,32  | 15,926                   | 17,145                                  | 10,358                | 7,34  | 1,411                | 1,129                           | 18                                      |
| 1/2                      | 19,264  | 8,128             | 4,48  | 19,772                   | 21,336                                  | 13,556                | 7,47  | 1,814                | 1,451                           | 14                                      |
| 3/4                      | 24,579  | 8,611             | 4,75  | 25,117                   | 26,670                                  | 13,861                | 7,64  | 1,814                | 1,451                           | 14                                      |
| 1                        | 30,826  | 10,160            | 4,60  | 31,461                   | 33,401                                  | 17,343                | 7,85  | 2,209                | 1,767                           | 11,5                                    |
| 1 1/4                    | 39,551  | 10,668            | 4,83  | 40,218                   | 42,164                                  | 17,953                | 8,13  | 2,209                | 1,767                           | 11,5                                    |
| 1 1/2                    | 45,621  | 10,668            | 4,83  | 46,287                   | 48,260                                  | 18,377                | 8,32  | 2,209                | 1,767                           | 11,5                                    |
| 2                        | 57,633  | 11,074            | 5,01  | 58,325                   | 60,325                                  | 19,215                | 8,70  | 2,209                | 1,767                           | 11,5                                    |
| 2 1/2                    | 69,076  | 17,323            | 5,46  | 70,159                   | 73,025                                  | 28,893                | 9,10  | 3,175                | 2,540                           | 8                                       |
| 3                        | 84,852  | 19,456            | 6,13  | 86,068                   | 88,900                                  | 30,480                | 9,60  | 3,175                | 2,540                           | 8                                       |
| 3 1/2                    | 97,473  | 20,853            | 6,57  | 98,776                   | 101,600                                 | 31,750                | 10,00 | 3,175                | 2,540                           | 8                                       |
| 4                        | 110,093   | 21,438            | 6,75  | 111,433                  | 114,300                                 | 33,020                | 10,40 | 3,175                | 2,540                           | 8                                       |
| 5                        | 136,925   | 23,800            | 7,50  | 138,412                  | 141,300                                 | 35,720                | 11,25 | 3,175                | 2,540                           | 8                                       |
| 6                        | 163,731   | 24,333            | 7,66  | 165,252                  | 168,275                                 | 38,418                | 12 10 | 3,175                | 2,540                           | 8                                       |

Note.: The values in millimeters are the result of the conversion and rounding of the original dimensions in inches.

\* Also diameter of sides in notch of cap calibrator.

\*\* Also length of cap calibrator.

+ Also length of ring calibrator and length of tip up to notch of cap calibrator.



# Table of Pipe Dimensions

## NORMAL CLASS PIPES ABNT NBR 5587 (SIMILAR ASTM A 53)

| Nominal Diameter |       | Outside Diameter (D) | Class | Series (Schedule) | Wall Thickness (e) |              | Massa por Metro |                |
|------------------|-------|----------------------|-------|-------------------|--------------------|--------------|-----------------|----------------|
| mm               | in    |                      |       |                   | mm                 | With Seam mm | Without Seam mm | With Seam kg/m |
| 6                | 1/8   | 10,29                | N     | 40                | 1,70               | 1,72         | 0,36            | 0,36           |
| 8                | 1/4   | 13,72                | N     | 40                | 2,25               | 2,24         | 0,63            | 0,63           |
| 10               | 3/8   | 17,25                | N     | 40                | 2,36               | 2,31         | 0,86            | 0,85           |
| 15               | 1/2   | 21,34                | N     | 40                | 2,80               | 2,77         | 1,28            | 1,27           |
| 20               | 3/4   | 26,67                | N     | 40                | 2,80               | 2,87         | 1,65            | 1,68           |
| 25               | 1     | 33,40                | N     | 40                | 3,35               | 3,38         | 2,48            | 2,50           |
| 32               | 1 1/4 | 42,16                | N     | 40                | 3,55               | 3,56         | 3,38            | 3,39           |
| 40               | 1 1/2 | 48,26                | N     | 40                | 3,75               | 3,68         | 4,12            | 4,05           |
| 50               | 2     | 60,32                | N     | 40                | 4,00               | 3,91         | 5,56            | 5,44           |
| 65               | 2 1/2 | 73,03                | N     | 40                | 5,30               | 5,16         | 8,85            | 8,64           |
| 80               | 3     | 88,90                | N     | 40                | 5,60               | 5,49         | 11,50           | 11,29          |
| 90               | 3 1/2 | 101,60               | N     | 40                | 5,60               | 5,74         | 13,26           | 13,57          |
| 100              | 4     | 114,30               | N     | 40                | 6,00               | 6,02         | 16,02           | 16,07          |
| 125              | 5     | 141,30               | N     | 40                | 6,70               | 6,55         | 22,24           | 21,77          |
| 150              | 6     | 168,28               | N     | 40                | 7,10               | 7,11         | 28,22           | 28,26          |

## REINFORCED CLASS PIPES NBR 5587 (SIMILAR ASTM A 53)

| Nominal Diameter |       | Outside Diameter (D) | Class | Series (Schedule) | Wall Thickness (e) |              | Massa por Metro |                |
|------------------|-------|----------------------|-------|-------------------|--------------------|--------------|-----------------|----------------|
| mm               | in    |                      |       |                   | mm                 | With Seam mm | Without Seam mm | With Seam kg/m |
| 6                | 1/8   | 10,29                | R     | 80                | 2,36               | 2,41         | 0,46            | 0,47           |
| 8                | 1/4   | 13,72                | R     | 80                | 3,00               | 3,02         | 0,79            | 0,80           |
| 10               | 3/8   | 17,25                | R     | 80                | 3,15               | 3,20         | 1,09            | 1,10           |
| 15               | 1/2   | 21,34                | R     | 80                | 3,75               | 3,73         | 1,63            | 1,62           |
| 20               | 3/4   | 26,67                | R     | 80                | 4,00               | 3,91         | 2,24            | 2,19           |
| 25               | 1     | 33,40                | R     | 80                | 4,50               | 4,55         | 3,21            | 3,24           |
| 32               | 1 1/4 | 42,16                | R     | 80                | 5,00               | 4,85         | 4,58            | 4,46           |
| 40               | 1 1/2 | 48,26                | R     | 80                | 5,00               | 5,08         | 5,33            | 5,41           |
| 50               | 2     | 60,32                | R     | 80                | 5,60               | 5,54         | 7,56            | 7,48           |
| 65               | 2 1/2 | 73,03                | R     | 80                | 7,10               | 7,01         | 11,54           | 11,41          |
| 80               | 3     | 89,90                | R     | 80                | 7,50               | 7,62         | 15,24           | 15,46          |
| 90               | 3 1/2 | 101,60               | R     | 80                | 8,00               | 8,08         | 18,47           | 18,63          |
| 100              | 4     | 114,30               | R     | 80                | 8,50               | 8,56         | 22,18           | 22,32          |
| 125              | 5     | 141,30               | R     | 80                | 9,50               | 9,53         | 30,88           | 30,97          |
| 150              | 6     | 168,28               | R     | 80                | 11,20              | 10,97        | 43,38           | 42,56          |

## DOUBLY REINFORCED CLASS PIPES ABNT NBR 5587 (SIMILAR ASTM A 53)

| Nominal Diameter |       | Outside Diameter (D) | Class | Series (Schedule) | Wall Thickness (e) |              | Massa por Metro |                |
|------------------|-------|----------------------|-------|-------------------|--------------------|--------------|-----------------|----------------|
| mm               | in    |                      |       |                   | mm                 | With Seam mm | Without Seam mm | With Seam kg/m |
| 15               | 1/2   | 21,34                | DR    | -                 | 7,50               | 7,47         | 2,56            | 2,55           |
| 20               | 3/4   | 26,67                | DR    | -                 | 8,00               | 7,82         | 3,68            | 3,64           |
| 25               | 1     | 33,40                | DR    | -                 | 9,00               | 9,09         | 5,42            | 5,45           |
| 32               | 1 1/4 | 42,16                | DR    | -                 | 9,50               | 9,70         | 7,65            | 7,76           |
| 40               | 1 1/2 | 48,26                | DR    | -                 | 10,00              | 10,16        | 9,43            | 9,55           |
| 50               | 2     | 60,32                | DR    | -                 | 11,20              | 11,07        | 13,57           | 13,44          |
| 65               | 2 1/2 | 73,03                | DR    | -                 | 14,00              | 14,02        | 20,38           | 20,41          |
| 80               | 3     | 88,90                | DR    | -                 | 15,00              | 15,24        | 27,34           | 27,68          |
| 100              | 4     | 114,30               | DR    | -                 | 17,00              | 17,12        | 40,79           | 41,03          |
| 125              | 5     | 141,30               | DR    | -                 | 19,00              | 19,05        | 57,30           | 57,43          |
| 150              | 6     | 168,28               | DR    | -                 | 22,40              | 21,95        | 80,58           | 79,21          |

Note: These tables only refer to the pipes most used. But in standard ABNT NBR 5587, the scope is greater.



1 - PRODUCT

Line of fittings for steel pipes and polyethylene pipes with smooth spigot, versatile, quick to install, simple and with perfect watertight fit, without using special tools

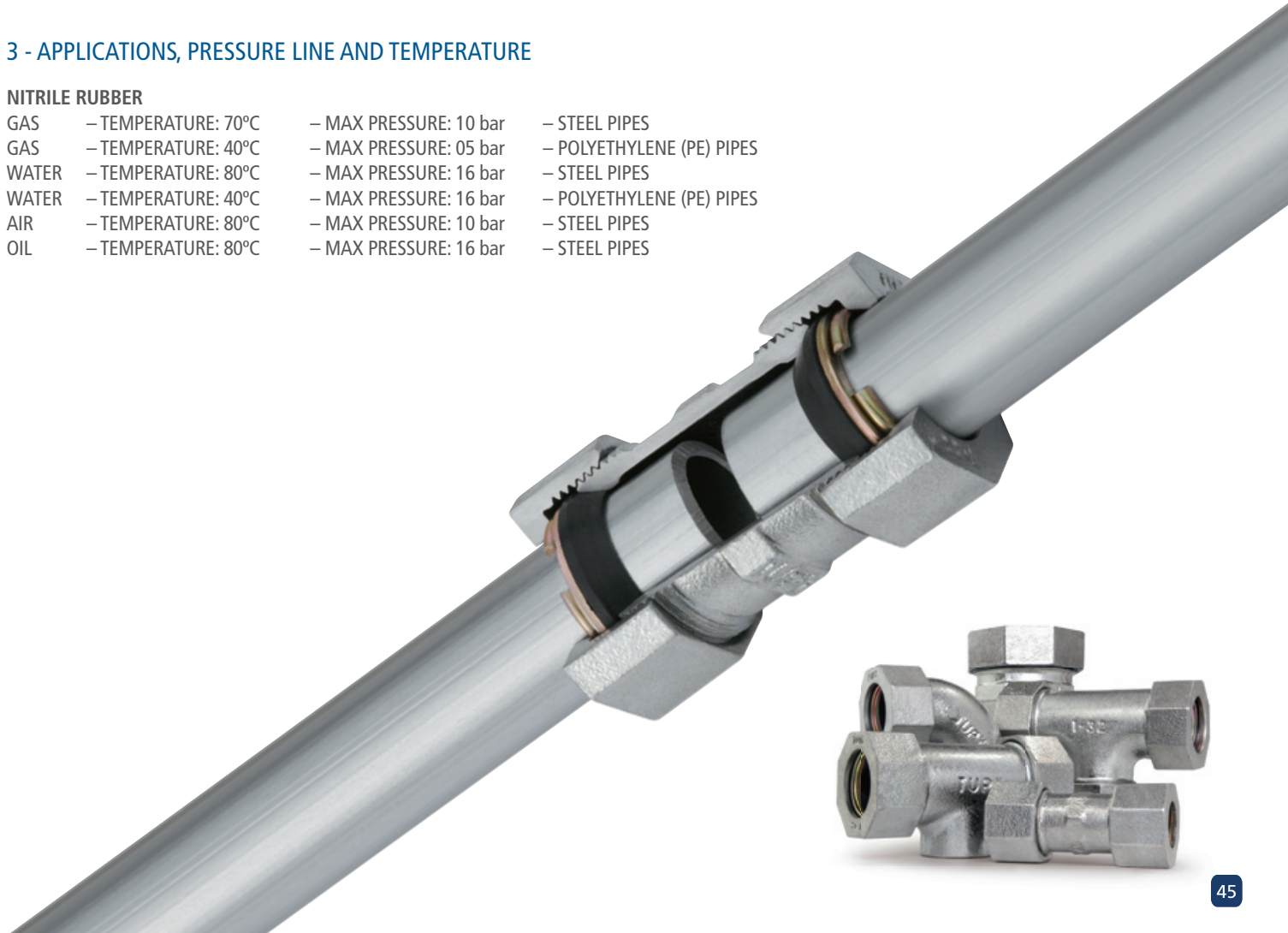
2 - TECHNICAL SPECIFICATIONS

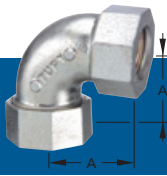
|                    |                          | Applicable Standards |                |
|--------------------|--------------------------|----------------------|----------------|
|                    |                          | ISO                  | ABNT           |
| Body and Nut       |                          | ISO 5922             | NBR 6590       |
| Thread             | of Seal                  | ISO 7-1              | NBR NM-ISO 7-1 |
|                    | of Coupling              | ISO 228-1            | NBR 8133       |
| Double Galvanizing | Hot-Dip Galvanizing      | ISO 1461             | NBR 6323       |
|                    | Electrogalvanizing       | ISO 2081             | NBR 10476      |
| Components         | Snap Ring for steel pipe | ISO 8458-1           | NBR NM 194-1   |
|                    | Compression Ring         | ISO 683-18           | NBR NM 87      |
|                    | Sealing Ring             | ISO 16010            | NBR EB 362     |

3 - APPLICATIONS, PRESSURE LINE AND TEMPERATURE

**NITRILE RUBBER**

|       |                     |                        |                           |
|-------|---------------------|------------------------|---------------------------|
| GAS   | – TEMPERATURE: 70°C | – MAX PRESSURE: 10 bar | – STEEL PIPES             |
| GAS   | – TEMPERATURE: 40°C | – MAX PRESSURE: 05 bar | – POLYETHYLENE (PE) PIPES |
| WATER | – TEMPERATURE: 80°C | – MAX PRESSURE: 16 bar | – STEEL PIPES             |
| WATER | – TEMPERATURE: 40°C | – MAX PRESSURE: 16 bar | – POLYETHYLENE (PE) PIPES |
| AIR   | – TEMPERATURE: 80°C | – MAX PRESSURE: 10 bar | – STEEL PIPES             |
| OIL   | – TEMPERATURE: 80°C | – MAX PRESSURE: 16 bar | – STEEL PIPES             |





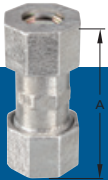
## 1907 ELBOW

| Nominal Diameter |    | Dimensions in mm | Unit. Weight |
|------------------|----|------------------|--------------|
| Inch             | mm | A                | Galv. g      |
| 1/2              | 15 | 53               |              |
| 3/4              | 20 | 57               |              |
| 1                | 25 | 64               | 690          |
| 1 1/4            | 32 | 75               |              |
| 1 1/2            | 40 | 79               | 1445         |
| 2                | 50 | 86               | 1937         |
| 2 1/2            | 65 | 106              | 3056         |



## 1949 TEE WITH CENTRAL THREAD

| Nominal Diameter |    | Dimensions in mm |    | Unit. Weight |
|------------------|----|------------------|----|--------------|
| Inch             | mm | A                | B  | Galv. g      |
| 1/2              | 15 | 53               | 32 |              |
| 3/4              | 20 | 55               | 38 |              |
| 1                | 25 | 59               | 38 | 734          |
| 1 1/4            | 32 | 68               | 78 |              |
| 1 1/2            | 40 | 71               | 48 | 1470         |
| 2                | 50 | 79               | 61 | 2113         |
| 2 1/2            | 65 | 136              | 75 | 3388         |



## 1931 SOCKET

| Nominal Diameter |    | Dimensions in mm | Unit. Weight |
|------------------|----|------------------|--------------|
| Inch             | mm | A                | Galv. g      |
| 1/2              | 15 | 85               | 379          |
| 3/4              | 20 | 94               | 572          |
| 1                | 25 | 92               | 625          |
| 1 1/4            | 32 | 104              | 912          |
| 1 1/2            | 40 | 99               | 1230         |
| 2                | 50 | 115              | 1697         |
| 2 1/2            | 65 | 150              | 2764         |



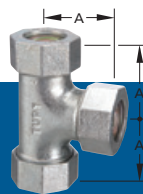
## 1900 KIT COMPONENTS TUPYPRES

| Nominal Diameter |    | Unit. Weight |
|------------------|----|--------------|
| Inch             | mm | Galv. g      |
| 1/2              |    |              |
| 3/4              |    |              |
| 1                |    |              |
| 1 1/4            |    |              |
| 1 1/2            |    |              |
| 2                |    |              |
| 2 1/2            |    |              |



## 1932 SOCKET REDUCION

| Nominal Diameter |         | Dimensions in mm | Unit. Weight |
|------------------|---------|------------------|--------------|
| Inch             | mm      | A                | Galv. g      |
| 1 1/2 x 1        | 40 x 25 | 101              | 975          |
| 2 x 1            | 50 x 25 | 104              | 1200         |
| 2 x 1 1/2        | 50 x 40 | 116              | 1492         |



## 1944 TEE

| Nominal Diameter |    | Dimensions in mm | Unit. Weight |
|------------------|----|------------------|--------------|
| Inch             | mm | A                | Galv. g      |
| 1/2              | 15 | 53               |              |
| 3/4              | 20 | 54               |              |
| 1                | 25 | 64               | 1020         |
| 1 1/4            | 32 | 75               |              |
| 1 1/2            | 40 | 79               | 2065         |
| 2                | 50 | 86               | 2713         |
| 2 1/2            | 65 | 106              | 4536         |





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