aalberts integrated piping systems

# SHURJOINT®



EN

installation instructions

## Installation Instructions I-1000

The ***Shurjoint*** Installation Instructions I-1000 covers the latest technical information on ***Shurjoint*** products including newly added products, correction of typographical errors in the previous edition and revisions of torque values and other technical data. Thus, all the data and descriptions contained in this edition supersede any preceding editions of ***Shurjoint*** catalogs, brochures and installation instructions.

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To ensure correct installation and operation of your ***Shurjoint*** product(s), read this manual carefully before installation, assembly or use. Keep this manual on hand for future reference. For the latest updates and products not covered in this manual please refer to our website; www.shurjoint.com

# INSTALLATION INSTRUCTION HAND BOOK

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# INTRODUCTION

Thank you for selecting a ***Shurjoint*** product. This manual covers the proper installation and assembly procedures for your product. To ensure the proper installation, assembly and performance of the product, read this manual thoroughly before the installation of any product and keep this manual on hand for future reference.

This manual covers carbon steel and stainless steel pipe of IPS, BS, DIN (ISO), AS, JIS, and KS pipe dimensions, ductile iron pipe of AWWA and BS EN dimensions, copper tubing of ASTM, BS and AS dimensions.

***Shurjoint*** grooved couplings, flange adapters and grooved end fittings are manufactured for use with standard roll or cut grooves as specified in ANSI/AWWA C606 (latest edition) and ISO/FDIS 6182-12. For other pipe sizes not specified in ANSI/AWWA C606 (latest edition) and ISO/FDIS 6182-12, refer to the relative groove specifications shown in this manual or ***Shurjoint*** catalog.

In addition to this handbook, ***Shurjoint*** offers installation instructions for Valves, Ring Joint System, Threaded Fittings and Expansion Joints on the World Wide Web at ***www.shurjoint.com***.

If additional or more detailed information is required please contact your local ***Shurjoint*** Distributor***.***

## General Notes

1. Always read this installation manual before installing any product.
2. To avoid serious personal injury, wear safety glasses, hard hat and foot protection.
3. Designers must know and understand all relevant building and/or piping standards, codes and other specifications. It is the responsibility of the designer to select and/or specify the appropriate products for the intended use and service.
4. Always refer to the maximum pressure rating and range of service temperatures allowed for the ***Shurjoint*** products and ensure that they are used within these limitations.
5. Always depressurize and drain the piping system before attempting disassembly, adjustment or removal of any piping component. Failure to do so may result in serious personal injury.
6. The pipe groove dimensions must be in accordance with ***Shurjoint*** Cut Groove or Roll Groove specifications. Refer to page 10 to 33 or visit ***Shurjoint*** website, ***www.shurjoint.com*** for details.
7. Ensure that the coupling keys are engaged in the grooves.

8. Always tighten nuts evenly by alternating sides. Uneven tightening can cause the gasket to pinch or bind. If a gasket becomes pinched, replace immediately.
9. Special attention is required for selection of suitable rubber gaskets for the intended service. To prevent deterioration of the gasket material, a petroleum lubricant should never be used. Use a recommended lubricant to install the gasket.
10. Torque values are supplied as a guideline and may be used when setting the torque on power impact wrenches. Always refer to the power impact wrench manufacturer's instructions for settings.
11. Exceeding the suggested torque values may cause damage to the coupling and/or result in pipe-joint failure. Minimum bolt torque is required for coupling to meet the published performance parameters.
12. All information and data contained herein supersedes all previous published data. ***Shurjoint*** reserves the right to change product designs and/or specifications without notice and/or obligation.

# Hazard Identification

Please notice the definitions for various hazard levels below.

**⚠ WARNING**

The use of the word "WARNING" identifies the presence of hazards or unsafe practices that could result in death or serious injury if instructions, including recommended precautions, are not followed.

**⚠ CAUTION**

The use of the word "CAUTION" identifies possible hazards or unsafe practices that could result in personal injury and product or property damage if instructions, including recommended precautions, are not followed.

The use of the word "NOTE" identifies special instructions that are important but not related to hazards.

# Pipe End Preparation

## Check pipe O.D.

Check to insure that the pipe to be prepared has the proper O.D. and wall thickness for the intended service.
While ***Shurjoint*** fittings are normally identified by the nominal size, always check the actual O.D. of the pipe and fittings to be connected, as in some markets it is customary to refer to different O.D. pipes with the same nominal size.

For example: The nominal size 65 (2-1/2") is referred to 2.875"(73.0 mm) pipe O.D. in IPS and 3.000"(76.1 mm) pipe O.D. in AS, BS, DIN (ISO), JIS or KS pipes.

IPS - United States Standard (Inch)
AS - Australian Standard (Metric)
BS - British Standard (Metric)
DIN - German Standard (Metric)
JIS - Japanese Industrial Standard (Metric)
KS - Korean Standard (Metric)

| Sizes - Inches | | Sizes - Millimeters | |
|---|---|---|---|
| Nominal Size | Actual Size | Nominal Size | Actual Size |
| 1/2 | 0.840 | 15 | 21.3 |
| 3/4 | 1.050 | 20 | 26.7 |
| 1 | 1.315 | 25 | 33.4 |
| 1 1/4 | 1.660 | 32 | 42.2 |
| 1 1/2 | 1.900 | 40 | 48.3 |
| 2 | 2.375 | 50 | 60.3 |
| 2 1/2 | 2.875 | 65 | 73.0 |
| 3 O.D. | 3.000 | 65 | 76.1 |
| 3 | 3.500 | 80 | 88.9 |
| 3 1/2 | 4.000 | 90 | 101.6 |
| 4 1/4 O.D. | 4.250 | 100 | 108.0 |
| 4 | 4.500 | 100 | 114.3 |
| 5 | 5.563 | 125 | 141.3 |
| 5 1/4 O.D. | 5.250 | 125 | 133.0 |
| 5 1/2 O.D. | 5.500 | 125 | 139.7 |
| 6 1/4 O.D. | 6.250 | 150 | 159.0 |
| 6 1/2 O.D. | 6.500 | 150 | 165.1 |
| 6 | 6.625 | 150 | 168.3 |
| 8 J/K* | 8.516 | 200 | 216.3* |
| 8 | 8.625 | 200 | 219.1 |
| 10 J/K* | 10.528 | 250 | 267.4* |
| 10 | 10.750 | 250 | 273.0 |
| 12 J/K* | 12.539 | 300 | 318.5* |
| 12 | 12.750 | 300 | 323.9 |
| 14 | 14.000 | 350 | 355.6 |
| 16 | 16.000 | 400 | 406.4 |
| 18 | 18.000 | 450 | 457.2 |
| 20 | 20.000 | 500 | 508.0 |
| 22 | 22.000 | 550 | 558.8 |
| 24 | 24.000 | 600 | 609.6 |
| 28 | 28.000 | 700 | 711.2 |
| 30 | 30.000 | 750 | 762.0 |
| 32 | 32.000 | 800 | 812.8 |
| 36 | 36.000 | 900 | 914.4 |
| 40 | 40.000 | 1000 | 1016.0 |
| 42 | 42.000 | 1050 | 1066.8 |

* JIS/KS

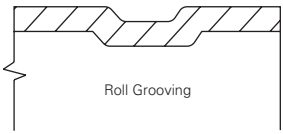
## What pipe can be roll or cut grooved ?

***Shurjoint*** grooved piping systems require a roll or cut-groove to be applied to the pipe ends being connected. The groove dimensions and configurations may vary depending on several factors including pipe material, wall thickness and desired working pressures. Roll grooving is the most common practice and can be performed in the fabrication shop or in the field or the job site. Cut grooving on the other hand is primarily performed at the factory or fabrication shop, as cut grooving machines are not as common or portable as roll grooving machines. All roll and cut grooves must meet the specifications and requirements of ANSI/AWWA C606 (latest edition) and ISO/FDIS 6182-12. For other pipe sizes not specified in ANSI/AWWA C606 (latest edition) and ISO/FDIS 6182-12, refer to the relative groove specifications shown in this manual or ***Shurjoint*** catalog. When grooving pipe, it is preferable to start with plain-end pipe, although in some cases the use of beveled pipe is acceptable providing that the wall thickness is standard or thinner and the bevel is 37½° ± 2½° (ANSI B16.25). Spiral welded pipe may also be used as long as

| Roll & Cut-Grooving Applications | | |
|---|---|---|
| Pipe Materials | Roll Groove | Cut Groove |
| Carbon Steel Pipe | Standard wall, Sch. 40 (10" and below), 30, 20, 10, 7, 5, BS1387 Medium & Light, JIS SGP | Sch. 80, 40, 30 BS1387 Medium & Heavy, JIS SGP |
| Stainless Steel Pipe | Sch. 40S, 20S, 10S, 5S | Sch. 80S, 40S |
| Copper Tubing | K, L, M, DWV, AS | Not applicable |
| Aluminum Pipe | Sch. 40, 30, 20, 10 | Sch. 80, 40, 30 |
| PVC Pipe | Not applicable | Sch. 80, 40 |
| Ductile Iron Pipe | Not applicable | Class 54 (See ANSI/AWWA C606 (latest edition) Tables 2 & 3) |

## About roll-grooving

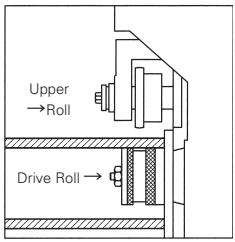
Roll grooving was first used with light or thin wall pipe, which had insufficient wall thickness for cut grooving. Today roll grooving is commonly used on standard and Schedule 40 wall pipe (max. 9.5 mm thick) for sizes to 42"(1050 mm) depending on the type of roll-grooving machine and roll sets used.



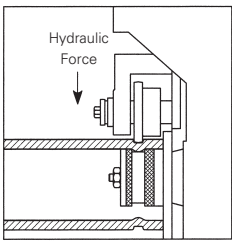

Roll grooving radially displaces the pipe material. Because roll grooving removes no material from the pipe itself, the integrity of the pipe remains intact when properly grooved. The inside protrusion or upset of roll groove is small and smooth at its entry and exit and thus has insignificant or negligible effect on both flow and/or line pressure. Roll grooving is limited to pipe having a hardness of HB180 or less.

To groove the pipe, the end is placed between a roll set and as the roll set is compressed and rotated a groove is processed around the diameter of the pipe, recessed on the outside and protruding on the inside.

Roll grooving can be processed on carbon steel, stainless steel, copper and aluminum pipe. Care must be taken to use the proper equipment and roll sets for the piping material being grooved. Different materials can require the use of different roll sets as in the case with copper, stainless steel and heavy wall (9.5 mm thick) carbon steel pipe. Consult your grooving machine / roll set instructions or operators manual or contact ***Shurjoint*** for more information.




Pipe end is placed between the roll set (upper roll & drive roll)

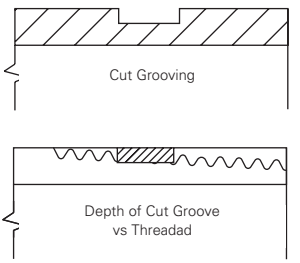



A groove is processed as the roll set is compressed and rotated

☞ Refer to roll groove dimensions section

## About cut-grooving

The cut grooving process actually removes material from the pipe O.D. to form a groove. Thus cut grooving is intended for use with standard and heavier wall pipe. Most all pipes which are designed to be threaded can be cut grooved, as the depth of a cut groove is typically less than that of a standard thread. Please refer to the minimum wall thickness shown in the published standard cut groove specifications.

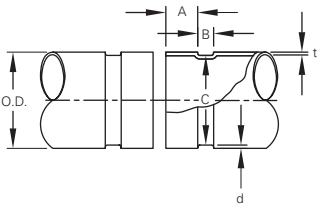



Unlike with roll-grooving, cut grooving produces a square cut groove in the pipe, without any protrusion on the inside of the pipe. Cut grooving is commonly used on piping components such as 90° elbows, tees, grooved-end valves, etc. It is also good practice to process a cut groove into plastic-coated or cement-lined pipe as roll grooving may damage the internal coatings or linings of such pipe. The cut grooving process typically uses cutting oils to cool and assist in the cutting process. Residual oils must be removed as they are not compatible and could cause damage to some rubber gasket compounds. Ductile iron pipe must be cut grooved using a radius cut groove in accordance with ANSI/AWWA C606 (latest edition).

☞ Refer to cut groove dimensions section

# Groove Dimensions

## General Notes for Roll Groove Dimensions




Standard Roll Groove

Nominal Size: *Shurjoint* couplings and fittings are identified by the nominal IPS pipe size in inches or nominal outside diameter of pipe in millimeters

O.D.: Pipe ends must be square cut. The maximum allowable tolerances from square ends is 0.03"(0.8 mm) for sizes up to 3½", 0.045" (1.2 mm) for 4" thru 6" and 0.060"(1.6 mm) for sizes 8" and above.




Gasket Seating Surface ("A" Dimension): The exterior surface of the gasket seating area shall be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

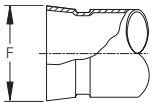
Groove Width ("B" Dimension): is to be measured between vertical flanks of the groove side walls, and is determined by the width of the upper roller as it is pressed into the pipe. Visually inspect the pipe groove to insure the groove has well defined edges for the coupling keys to engage properly. If they appear to be rounded with little or no vertical lip, they should be replaced as this could lead to reduced product performance or joint failure.

Groove Diameter ("C" Dimension): are given in the tables on the following page. These should be inspected for dimensional accuracy to insure proper product performance of the couplings, to the required systems pressures. The groove diameters are average values. The groove must be of uniform depth around the entire pipe circumference.

Minimum Wall Thickness ("t" Dimension): The "t" is the minimum allowable wall thickness that may be roll-grooved.

Groove Depth ("d" Dimension): The values listed in the Groove Specification tables are for reference only.

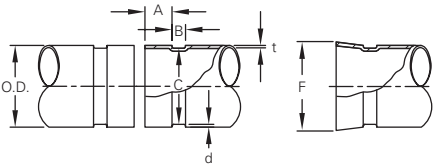
Flare Diameter ("F" Dimension): The pipe end that may flare when roll grooved shall measure within this limit when measured at the extreme end of the pipe.



## Roll Grooving Dimensions for ANSI B36.10, BS 1387 (M) & AS 1074 (M) Pipe

Basic roll groove dimensions conform to ANSI/AWWA C606-06 Table 5 with slightly adjusted tolerances to incorporate international standards including CSA B242, ISO/FDIS 6152-12, VdS 2100-6en and JPF MP-006.

| Nominal Size in / mm | Pipe O.D. | | | A | B |
|---|---|---|---|---|---|
| | Basic | Tolerance | | ±0.030 / ±0.76 | ±0.030 / ±0.76 |
| | in / mm | in / mm | in / mm | in / mm | in / mm |
| ¾ | 1.050 | +0.010 | -0.010 | 0.625 | 0.281 |
| 20 | 26.7 | +0.25 | -0.25 | 15.88 | 7.14 |
| 1 | 1.315 | +0.013 | -0.013 | 0.625 | 0.281 |
| 25 | 33.4 | +0.33 | -0.33 | 15.88 | 7.14 |
| 1¼ | 1.660 | +0.016 | -0.016 | 0.625 | 0.281 |
| 32 | 42.2 | +0.41 | -0.41 | 15.88 | 7.14 |
| 1½ | 1.900 | +0.019 | -0.019 | 0.625 | 0.281 |
| 40 | 48.3 | +0.48 | -0.48 | 15.88 | 7.14 |
| 2 | 2.375 | +0.024 | -0.024 | 0.625 | 0.344 |
| 50 | 60.3 | +0.61 | -0.61 | 15.88 | 8.74 |
| 2½ | 2.875 | +0.029 | -0.029 | 0.625 | 0.344 |
| 65 | 73.0 | +0.74 | -0.74 | 15.88 | 8.74 |
| 76.1 mm | 3.000 | +0.030 | -0.030 | 0.625 | 0.344 |
| | 76.1 | +0.76 | -0.76 | 15.88 | 8.74 |
| 3 | 3.500 | +0.035 | -0.031 | 0.625 | 0.344 |
| 80 | 88.9 | +0.89 | -0.79 | 15.88 | 8.74 |
| 101.6 mm | 4.000 | +0.040 | -0.031 | 0.625 | 0.344 |
| | 101.6 | +1.02 | -0.79 | 15.88 | 8.74 |
| 108.0 mm | 4.250 | +0.042 | -0.031 | 0.625 | 0.344 |
| | 108.0 | +1.07 | -0.79 | 15.88 | 8.74 |
| 4 | 4.500 | +0.040 | -0.031 | 0.625 | 0.344 |
| 100 | 114.3 | +1.02 | -0.79 | 15.88 | 8.74 |
| 133.0 mm | 5.250 | +0.051 | -0.031 | 0.625 | 0.344 |
| | 133.0 | +1.32 | -0.79 | 15.88 | 8.74 |
| 139.7 mm | 5.500 | +0.050 | -0.031 | 0.625 | 0.344 |
| | 139.7 | +1.40 | -0.79 | 15.88 | 8.74 |
| 5 | 5.563 | +0.056 | -0.031 | 0.625 | 0.344 |
| 125 | 141.3 | +1.42 | -0.79 | 15.88 | 8.74 |
| 159.0 mm | 6.250 | +0.063 | -0.031 | 0.625 | 0.344 |
| | 159.0 | +1.60 | -0.79 | 15.88 | 8.74 |
| 165.1 mm | 6.500 | +0.063 | -0.031 | 0.625 | 0.344 |
| | 165.1 | +1.60 | -0.79 | 15.88 | 8.74 |
| 6 | 6.625 | +0.063 | -0.031 | 0.625 | 0.344 |
| 150 | 168.3 | +1.60 | -0.79 | 15.88 | 8.74 |
| 216.3 mm | 8.516 | +0.063 | -0.031 | 0.750 | 0.469 |
| | 216.3 | +1.60 | -0.79 | 19.05 | 11.91 |
| 8 | 8.625 | +0.063 | -0.031 | 0.750 | 0.469 |
| 200 | 219.1 | +1.60 | -0.79 | 19.05 | 11.91 |
| 10 | 10.750 | +0.063 | -0.031 | 0.750 | 0.469 |
| 250 | 273.0 | +1.60 | -0.79 | 19.05 | 11.91 |
| 12 | 12.750 | +0.063 | -0.031 | 0.750 | 0.469 |
| 300 | 323.9 | +1.60 | -0.79 | 19.05 | 11.91 |
| 14 | 14.000 | +0.063 | -0.031 | 0.938 | 0.469 |
| 350 | 355.6 | +1.60 | -0.79 | 23.83 | 11.91 |




| C<br>+0.000 / +0.00<br>in / mm | t<br>Min. Wall<br>in / mm | d<br>Groove Depth (ref.)<br>in / mm | F<br>Max. Allowed Flare Dia.<br>in / mm | Nominal<br>Size<br>in / mm |
|---|---|---|---|---|
| 0.938-0.015 | 0.065 | 0.056 | 1.15 | ¾ |
| 23.83-0.38 | 1.65 | 1.42 | 29.21 | 20 |
| 1.190-0.015 | 0.065 | 0.063 | 1.43 | 1 |
| 30.23-0.38 | 1.65 | 1.60 | 36.30 | 25 |
| 1.535-0.015 | 0.065 | 0.063 | 1.77 | 1¼ |
| 38.99-0.38 | 1.65 | 1.60 | 44.96 | 32 |
| 1.775-0.015 | 0.065 | 0.063 | 2.01 | 1½ |
| 45.09-0.38 | 1.65 | 1.60 | 51.05 | 40 |
| 2.250-0.015 | 0.065 | 0.063 | 2.48 | 2 |
| 57.15-0.38 | 1.65 | 1.60 | 62.99 | 50 |
| 2.720-0.018 | 0.083 | 0.078 | 2.98 | 2½ |
| 69.09-0.46 | 2.11 | 1.98 | 75.69 | 65 |
| 2.844-0.018 | 0.090 | 0.075 | 3.10 | 76.1 mm |
| 72.26-0.46 | 2.30 | 1.93 | 78.74 | |
| 3.344-0.018 | 0.083 | 0.078 | 3.60 | 3 |
| 84.94-0.46 | 2.11 | 1.98 | 91.44 | 80 |
| 3.834-0.020 | 0.083 | 0.083 | 4.10 | 101.6 mm |
| 97.38-0.51 | 2.11 | 2.11 | 104.10 | |
| 4.084-0.020 | 0.083 | 0.083 | 4.35 | 108.0 mm |
| 103.73-0.51 | 2.11 | 2.11 | 110.49 | |
| 4.334-0.020 | 0.083 | 0.083 | 4.60 | 4 |
| 110.08-0.51 | 2.11 | 2.11 | 116.84 | 100 |
| 5.084-0.020 | 0.109 | 0.083 | 5.35 | 133.0 mm |
| 129.13-0.51 | 2.77 | 2.11 | 135.89 | |
| 5.333-0.020 | 0.109 | 0.083 | 5.60 | 139.7 mm |
| 135.46-0.51 | 2.77 | 2.11 | 142.24 | |
| 5.395-0.022 | 0.109 | 0.083 | 5.66 | 5 |
| 137.03-0.56 | 2.77 | 2.11 | 143.76 | 125 |
| 6.084-0.030 | 0.109 | 0.083 | 6.35 | 159.0 mm |
| 154.53-0.76 | 2.77 | 2.11 | 161.29 | |
| 6.334-0.022 | 0.109 | 0.085 | 6.60 | 165.1 mm |
| 160.88-0.56 | 2.77 | 2.16 | 167.64 | |
| 6.455-0.022 | 0.109 | 0.085 | 6.73 | 6 |
| 163.96-0.56 | 2.77 | 2.16 | 170.94 | 150 |
| 8.331-0.025 | 0.109 | 0.092 | 8.69 | 216.3 mm |
| 211.61-0.64 | 2.77 | 2.34 | 220.73 | |
| 8.441-0.025 | 0.109 | 0.092 | 8.80 | 8 |
| 214.40-0.64 | 2.77 | 2.34 | 223.52 | 200 |
| 10.562-0.027 | 0.134 | 0.094 | 10.92 | 10 |
| 268.27-0.69 | 3.40 | 2.39 | 277.37 | 250 |
| 12.531-0.030 | 0.156 | 0.109 | 12.92 | 12 |
| 318.29-0.76 | 3.96 | 2.77 | 328.17 | 300 |
| 13.781-0.030 | 0.156 | 0.109 | 14.10 | 14 |
| 350.04-0.76 | 3.96 | 2.77 | 358.14 | 350 |

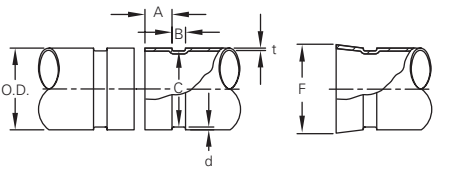
Continued on next page

## Roll Grooving Dimensions for ANSI B36.10, BS 1387 (M) & AS 1074 (M) Pipe

Basic roll groove dimensions conform to ANSI/AWWA C606-06 Table 5 with slightly adjusted tolerances to incorporate international standards including CSA B242, ISO/FDIS 6152-12, VdS 2100-6en and JPF MP-006.

| Nominal Size in / mm | Pipe O.D. | | | A | B |
|---|---|---|---|---|---|
| | Basic | Tolerance | | ±0.030 / ±0.76 | ±0.030 / ±0.76 |
| | in / mm | in / mm | in / mm | in / mm | in / mm |
| 16 | 16.000 | +0.063 | -0.031 | 0.938 | 0.469 |
| 400 | 406.4 | +1.60 | -0.79 | 23.83 | 11.91 |
| 18 | 18.000 | +0.063 | -0.031 | 1.000 | 0.469 |
| 450 | 457.2 | +1.60 | -0.79 | 25.40 | 11.91 |
| 20 | 20.000 | +0.063 | -0.031 | 1.000 | 0.469 |
| 500 | 508.0 | +1.60 | -0.79 | 25.40 | 11.91 |
| 22 | 22.000 | +0.063 | -0.031 | 1.000 | 0.469 |
| 550 | 558.8 | +1.60 | -0.79 | 25.40 | 11.91 |
| 24 | 24.000 | +0.063 | -0.031 | 1.000 | 0.500 |
| 600 | 609.6 | +1.60 | -0.79 | 25.40 | 12.70 |

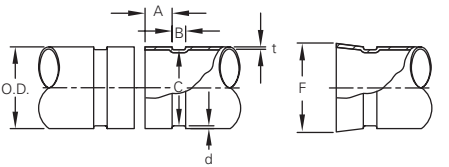
☞ Refer to page 14 for General notes.




| C<br>+0.000 / +0.00<br>in / mm | t<br>Min. Wall<br>in / mm | d<br>Groove Depth (ref.)<br>in / mm | F<br>Max. Allowed Flare Dia.<br>in / mm | Nominal<br>Size<br>in / mm |
|---|---|---|---|---|
| 15.781-0.030 | 0.165 | 0.109 | 16.10 | 16 |
| 400.84-0.76 | 4.19 | 2.77 | 408.94 | 400 |
| 17.781-0.030 | 0.165 | 0.109 | 18.16 | 18 |
| 451.64-0.76 | 4.19 | 2.77 | 461.26 | 450 |
| 19.781-0.030 | 0.188 | 0.109 | 20.16 | 20 |
| 502.44-0.76 | 4.78 | 2.77 | 512.06 | 500 |
| 21.656-0.030 | 0.188 | 0.172 | 22.20 | 22 |
| 550.06-0.76 | 4.78 | 4.37 | 563.88 | 550 |
| 23.656-0.030 | 0.218 | 0.172 | 24.20 | 24 |
| 600.86-0.76 | 5.54 | 4.37 | 614.68 | 600 |

# Standard Roll Groove for Large Diameter IPS Pipe ANSI B36.10

| Nominal Size in / mm | Pipe O.D. | | | A ±0.03 / ±0.8 in / mm | B ±0.03 / ±0.8 in / mm |
|---|---|---|---|---|---|
| | Basic in / mm | Tolerance in / mm | Tolerance in / mm | | |
| 26 | 26.0 | +0.093 | -0.031 | 1.75 | 0.625 |
| 650 | 660.4 | +2.36 | -0.79 | 44.5 | 15.9 |
| 28 | 28.0 | +0.093 | -0.031 | 1.75 | 0.625 |
| 700 | 711.2 | +2.36 | -0.79 | 44.5 | 15.9 |
| 30 | 30.0 | +0.093 | -0.031 | 1.75 | 0.625 |
| 750 | 762.0 | +2.36 | -0.79 | 44.5 | 15.9 |
| 32 | 32.0 | +0.093 | -0.031 | 1.75 | 0.625 |
| 800 | 812.8 | +2.36 | -0.79 | 44.5 | 15.9 |
| 36 | 36.0 | +0.093 | -0.031 | 1.75 | 0.625 |
| 900 | 914.4 | +2.36 | -0.79 | 44.5 | 15.9 |
| 40 | 40.0 | +0.093 | -0.031 | 2.00 | 0.625 |
| 1000 | 1016.0 | +2.36 | -0.79 | 50.8 | 15.9 |
| 42 | 42.0 | +0.093 | -0.031 | 2.00 | 0.625 |
| 1050 | 1066.8 | +2.36 | -0.79 | 50.8 | 15.9 |




| C<br>+0, -0.063 / +0, -1.6<br>in / mm | d Groove<br>Depth (ref)<br>in / mm | t<br>Min. Wall<br>in / mm | F Max. Allowed<br>Flare Dia.<br>in / mm | Nominal<br>Size<br>in / mm |
|---|---|---|---|---|
| 25.5 | 0.25 | 0.25 | 26.2 | 26 |
| 647.7 | 6.4 | 6.4 | 665.5 | 650 |
| 27.5 | 0.25 | 0.25 | 28.2 | 28 |
| 698.5 | 6.4 | 6.4 | 716.3 | 700 |
| 29.5 | 0.25 | 0.25 | 30.2 | 30 |
| 749.3 | 6.4 | 6.4 | 767.1 | 750 |
| 31.5 | 0.25 | 0.25 | 32.2 | 32 |
| 800.1 | 6.4 | 6.4 | 817.9 | 800 |
| 35.5 | 0.25 | 0.25 | 36.2 | 36 |
| 901.7 | 6.4 | 6.4 | 919.5 | 900 |
| 39.5 | 0.25 | 0.25 | 40.4 | 40 |
| 1003.3 | 6.4 | 6.4 | 1026.2 | 1000 |
| 41.5 | 0.25 | 0.25 | 42.2 | 42 |
| 1054.1 | 6.4 | 6.4 | 1071.9 | 1050 |

## Standard Roll Groove Specification per ISO/FDIS 6182-12 Table 1

For ISO 4200:1991 Plain-end Steel Tubes, Welded and Seamless (Superseding BS 1387 and DIN 2440 & DIN 2448)

| Pipe or tube | | | C Grooved diameter | |
|---|---|---|---|---|
| | Outside diameter (O.D.) | | A | |
| Nominal | Actual | | Gasket seat | Groove width |
| Size | Size | Tolerance | ±0,76 | ±0,76 |
| 25 | 33,7 | $^{+0,41}_{-0,68}$ | 15,88 | 7,14 |
| 32 | 42,4 | $^{+0,50}_{-0,60}$ | 15,88 | 7,14 |
| 40 | 48,3 | $^{+0,44}_{-0,52}$ | 15,88 | 7,14 |
| 50 | 60,3 | ±0,61 | 15,88 | 8,74 |
| 65 | 73,0 | ±0,74 | 15,88 | 8,74 |
| 65 | 76,1 | ±0,76 | 15,88 | 8,74 |
| 80 | 88,9 | $^{+0,89}_{-0,79}$ | 15,88 | 8,74 |
| 90 | 101,6 | $^{+1,02}_{-0,79}$ | 15,88 | 8,74 |
| 100 | 108,0 | $^{+1,07}_{-0,79}$ | 15,88 | 8,74 |
| 100 | 114,3 | $^{+1,14}_{-0,79}$ | 15,88 | 8,74 |
| 125 | 133,9 | $^{+1,32}_{-0,79}$ | 15,88 | 8,74 |
| 125 | 139,7 | $^{+1,40}_{-0,79}$ | 15,88 | 8,74 |
| 125 | 141,3 | $^{+1,42}_{-0,79}$ | 15,88 | 8,74 |
| 150 | 159,0 | $^{+1,60}_{-0,79}$ | 15,88 | 8,74 |
| 150 | 165,1 | $^{+1,60}_{-0,79}$ | 15,88 | 8,74 |
| 150 | 168,3 | $^{+1,60}_{-0,79}$ | 15,88 | 8,74 |
| 200 | 219,1 | $^{+1,60}_{-0,79}$ | 19,05 | 11,91 |
| 250 | 277,4 | $^{+1,60}_{-0,79}$ | 19,05 | 11,91 |
| 300 | 328,2 | $^{+1,60}_{-0,79}$ | 19,05 | 11,91 |

[a] See Figure 1 for dimensional diagram.

[b] Dimension for reference only, groove diameter is determined by C.

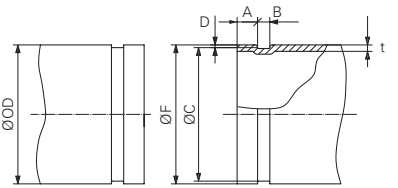


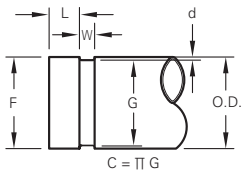

Figure 1- Roll Grooved-End Dimensional Reference Points for Table 1

Dimensions in millimeters

| Dimensional specifications[a] | | | | |
|---|---|---|---|---|
| D[b] | t | F | | |
| Actual Size | Tolerance | Groove depth | Wall thickness Min. allow. | Max. Allowed Flare Dia. |
| 30,23 | $^{0}_{-0,38}$ | 1,70 | 1,8 | 34,5 |
| 38,99 | $^{0}_{-0,38}$ | 1,70 | 1,8 | 43,3 |
| 45,09 | $^{0}_{-0,38}$ | 1,60 | 1,8 | 49,4 |
| 57,15 | $^{0}_{-0,38}$ | 1,60 | 1,8 | 62,2 |
| 69,09 | $^{0}_{-0,46}$ | 1,98 | 2,3 | 75,2 |
| 72,26 | $^{0}_{-0,46}$ | 1,93 | 2,3 | 77,7 |
| 84,94 | $^{0}_{-0,46}$ | 1,98 | 2,3 | 90,6 |
| 97,38 | $^{0}_{-0,51}$ | 2,11 | 2,3 | 103,4 |
| 103,73 | $^{0}_{-0,51}$ | 2,11 | 2,3 | 109,7 |
| 110,08 | $^{0}_{-0,51}$ | 2,11 | 2,3 | 116,2 |
| 129,13 | $^{0}_{-0,51}$ | 1,93 | 2,9 | 134,9 |
| 135,48 | $^{0}_{-0,51}$ | 2,11 | 2,9 | 141,7 |
| 137,03 | $^{0}_{-0,56}$ | 2,13 | 2,9 | 143,5 |
| 154,50 | $^{0}_{-0,56}$ | 2,20 | 2,9 | 161,0 |
| 160,90 | $^{0}_{-0,56}$ | 2,16 | 2,9 | 167,1 |
| 163,96 | $^{0}_{-0,56}$ | 2,16 | 2,9 | 170,7 |
| 214,40 | $^{0}_{-0,64}$ | 2,34 | 2,9 | 221,5 |
| 268,28 | $^{0}_{-0,69}$ | 2,39 | 3,6 | 275,4 |
| 318,29 | $^{0}_{-0,76}$ | 2,77 | 4,0 | 326,2 |

## Standard Roll Groove Specification

KS D3507 & JIS G3452 Carbon Steel Pipe




| Nominal size | | Pipe | L Gasket Seat | W Groove Width | G Groove Dia. | | C Groove Circumference | | d Max. Depth | F Allowed |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Basic | Tolerance | | | (ref) | Flare Dia. |
| A mm | B in | O.D. mm | +0.76* mm | +0.76* mm | +0.00* mm | mm | mm | | mm | mm |
| 25A | 1 | 34.0 | 16.0 | 7.1 | 30.4 | -0.38 | 95.5 | 0 / -3.1 | 1.80 | 35.5 |
| 32A | 1¼ | 42.7 | 16.0 | 7.1 | 39.1 | -0.38 | 122.8 | 0 / -3.1 | 1.80 | 44.2 |
| 40A | 1½ | 48.6 | 16.0 | 7.1 | 45.0 | -0.38 | 141.4 | 0 / -3.1 | 1.80 | 50.1 |
| 50A | 2 | 60.5 | 16.0 | 8.7 | 56.9 | -0.38 | 178.8 | 0 / -3.1 | 1.80 | 62.0 |
| 65A | 2½ | 76.3 | 16.0 | 8.7 | 72.2 | -0.46 | 226.8 | 0 / -3.1 | 2.05 | 77.8 |
| 80A | 3 | 89.1 | 16.0 | 8.7 | 84.9 | -0.46 | 266.7 | 0 / -3.1 | 2.10 | 90.6 |
| 100A | 4 | 114.3 | 16.0 | 8.7 | 110.1 | -0.51 | 345.9 | 0 / -3.1 | 2.10 | 116.8 |
| 125A | 5 | 139.8 | 16.0 | 8.7 | 135.5 | -0.56 | 425.7 | 0 / 3.1 | 2.15 | 142.3 |
| 150A | 6 | 165.2 | 16.0 | 8.7 | 160.8 | -0.56 | 505.2 | 0 / -3.1 | 2.20 | 167.7 |
| 200A | 8 | 216.3 | 19.0 | 11.9 | 211.6 | -0.64 | 664.8 | 0 / -3.1 | 2.35 | 219.8 |
| 250A | 10 | 267.4 | 19.0 | 11.9 | 262.6 | -0.69 | 825.0 | 0 / -3.1 | 2.40 | 270.9 |
| 300A | 12 | 318.5 | 19.0 | 11.9 | 312.9 | -0.76 | 983.0 | 0 / -3.1 | 2.80 | 322.0 |

**Groove Diameter:** Groove Diameters "G" are only applicable to pipe sizes 150A or smaller. Grooves for 200A thru 300A are to be determined by the groove circumference.

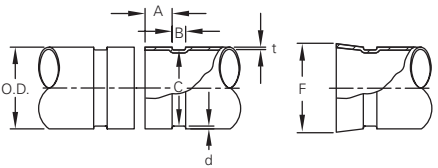
**Groove Depth:** The "d" is for reference use only.

**Flare Diameter:** The maximum flare diameters (F) are target values.

* The tolerance for the JIS & KS pipe has a little difference.

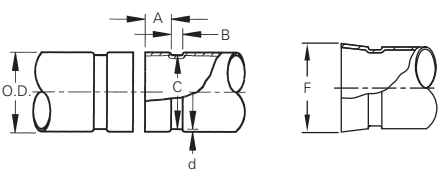
☞ Refer to page 14 for General notes.

## Standard Roll Groove for U.S. Standard Copper Tubing



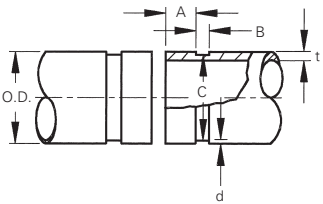

| Nominal Size<br>in / mm | Pipe O.D. Basic Size<br>in / mm | A Gasket Seat ±0.03 ±0.79<br>in / mm | B Groove Width ±0.03 ±0.79<br>in / mm | C Groove Dia. +0/-0.02 +0/-0.51<br>in / mm | d Groove Depth (ref.)<br>in / mm | t Min. Wall<br>in / mm | F Max. Allowed Flare Dia.<br>in / mm |
|---|---|---|---|---|---|---|---|
| 2 | 2.125 | 0.610 | 0.300 | 2.029 | 0.048 | 0.064 | 2.220 |
| 50 | 54.0 | 15.5 | 7.6 | 51.5 | 1.2 | 1.6 | 56.4 |
| 2½ | 2.625 | 0.610 | 0.300 | 2.525 | 0.050 | 0.065 | 2.720 |
| 65 | 66.7 | 15.5 | 7.6 | 64.1 | 1.3 | 1.7 | 69.1 |
| 3 | 3.125 | 0.610 | 0.300 | 3.025 | 0.050 | DWV | 3.220 |
| 80 | 79.4 | 15.5 | 7.6 | 76.8 | 1.3 | | 81.8 |
| 4 | 4.125 | 0.610 | 0.300 | 4.019 | 0.053 | DWV | 4.220 |
| 100 | 104.8 | 15.5 | 7.6 | 102.1 | 1.4 | | 107.2 |
| 5 | 5.125 | 0.610 | 0.300 | 4.999 | 0.053 | DWV | 5.220 |
| 125 | 130.2 | 15.5 | 7.6 | 127.0 | 1.4 | | 132.6 |
| 6 | 6.125 | 0.610 | 0.300 | 5.999 | 0.063 | DWV | 6.220 |
| 150 | 155.6 | 15.5 | 7.6 | 152.3 | 1.6 | | 158.0 |

## Standard Roll Groove for BS EN 1057 Copper Tubing




| Nominal Size<br>mm | Pipe O.D. Min.<br>mm | Pipe O.D. Max.<br>mm | A Gasket Seat +0.8/-0<br>mm | B Gasket Width +0.8/-0<br>mm | C Groove Groove Dia. +0/-0.5<br>mm | d Groove Depth (ref.)<br>mm | F Max. Allowed Flare Dia.<br>mm |
|---|---|---|---|---|---|---|---|
| 54.0 | 53.99 | 54.07 | 15.87 | 7.6 | 51.53 | 1.25 | 56.39 |
| 66.7 | 66.60 | 66.75 | 15.87 | 7.6 | 64.14 | 1.27 | 69.09 |
| 76.1 | 76.15 | 76.30 | 15.87 | 7.6 | 73.53 | 1.35 | 78.61 |
| 108.0 | 108.00 | 108.25 | 15.87 | 7.6 | 104.93 | 1.60 | 110.54 |
| 133.0 | 133.25 | 133.50 | 15.87 | 7.6 | 129.67 | 1.85 | 135.79 |
| 159.0 | 159.25 | 159.50 | 15.87 | 7.6 | 155.68 | 1.85 | 161.80 |

## General Notes for Cut Groove Dimensions




Standard Cut Groove

Nominal Size: *Shurjoint* couplings and fittings are identified by the nominal IPS pipe size in inches or nominal outside diameter of pipe in millimeters.

O.D.: Pipe ends must be square cut. The Maximum allowable tolerances from square of end is 0.03"(0.8 mm) for sizes up to 3½", 0.045" (1.2 mm) for 4" thru 6" and 0.060"(1.6 mm) for sizes 8" and above.




Gasket Seating Surface ("A" Dimension): The exterior surface of the gasket seating area shall be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

Groove Width ("B" Dimension): The groove width is to be measured between vertical flanks of the groove side walls.

Groove Diameter ("C" Dimension): The groove diameters are average values. The groove must be of uniform depth around the entire pipe circumference.

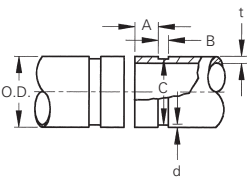
Minimum Wall Thickness ("t" Dimension): The "t" is the minimum allowable wall thickness that may be cut-grooved.

Groove Depth ("d" Dimension): The values listed in the Groove Specification tables are for reference only and a slightly deeper groove may be acceptable. However, a shallower groove is never acceptable as it may lead to joint failure.

## Cut Grooving Dimensions

for IPS / BS / AS / ISO / JIS / KS Pipe

| Nominal Size in / mm | Pipe O.D. | | | A ±0.031 ±0.79 |
|---|---|---|---|---|
| | Basic in / mm | Tolerance | | |
| | | in / mm | in / mm | |
| ¾ | 1.050 | +0.010 | -0.010 | 0.625 |
| 20 | 26.7 | +0.25 | -0.25 | 15.88 |
| 1 | 1.315 | +0.028 | -0.015 | 0.625 |
| 25 | 33.4 | +0.71 | -0.38 | 15.88 |
| 1¼ | 1.660 | +0.029 | -0.016 | 0.625 |
| 32 | 42.2 | +0.74 | -0.41 | 15.88 |
| 1½ | 1.900 | +0.019 | -0.019 | 0.625 |
| 40 | 48.3 | +0.48 | -0.48 | 15.88 |
| 2 | 2.375 | +0.024 | -0.024 | 0.625 |
| 50 | 60.3 | +0.61 | -0.61 | 15.88 |
| 2½ | 2.875 | +0.029 | -0.029 | 0.625 |
| 65 | 73.0 | +0.74 | -0.74 | 15.88 |
| 76.1 mm | 3.000 | +0.030 | -0.030 | 0.625 |
| | 76.1 | +0.76 | -0.76 | 15.88 |
| 3 | 3.500 | +0.035 | -0.031 | 0.625 |
| 80 | 88.9 | +0.89 | -0.79 | 15.88 |
| 101.6 mm | 4.000 | +0.040 | -0.031 | 0.625 |
| | 101.6 | +1.02 | -0.79 | 15.88 |
| 108.0 mm | 4.250 | +0.042 | -0.031 | 0.625 |
| | 108.0 | +1.07 | -0.79 | 15.88 |
| 4 | 4.500 | +0.045 | -0.031 | 0.625 |
| 100 | 114.3 | +1.14 | -0.79 | 15.88 |
| 133.0 mm | 5.250 | +0.052 | -0.031 | 0.625 |
| | 133.0 | +1.32 | -0.79 | 15.88 |
| 139.7 mm | 5.500 | +0.056 | -0.031 | 0.625 |
| | 139.7 | +1.42 | -0.79 | 15.88 |
| 5 | 5.563 | +0.056 | -0.031 | 0.625 |
| 125 | 141.3 | +1.42 | -0.79 | 15.88 |
| 159.0 mm | 6.250 | +0.063 | -0.031 | 0.625 |
| | 159.0 | +1.60 | -0.79 | 15.88 |
| 165.1 mm | 6.500 | +0.063 | -0.031 | 0.625 |
| | 165.1 | +1.60 | -0.79 | 15.88 |
| 6 | 6.625 | +0.063 | -0.031 | 0.625 |
| 150 | 168.3 | +1.60 | -0.79 | 15.88 |
| 8 | 8.625 | +0.063 | -0.031 | 0.750 |
| 200 | 219.1 | +1.60 | -0.79 | 19.05 |
| 10 | 10.750 | +0.063 | -0.031 | 0.750 |
| 250 | 273.0 | +1.60 | -0.79 | 19.05 |
| 12 | 12.750 | +0.063 | -0.031 | 0.750 |
| 300 | 323.9 | +1.60 | -0.79 | 19.05 |




| B<br>±0.031<br>±0.79 | C<br>±0.031<br>±0.79 | t<br>Min. Wall<br>in / mm | d<br>Groove Depth (ref.)<br>in / mm | Nominal<br>Size<br>in / mm |
|---|---|---|---|---|
| 0.313 | 0.938-0.015 | 0.113 | 0.056 | ¾ |
| 7.95 | 23.83-0.38 | 2.87 | 1.42 | 20 |
| 0.313 | 1.190-0.015 | 0.133 | 0.063 | 1 |
| 7.95 | 30.23-0.38 | 3.38 | 1.60 | 25 |
| 0.313 | 1.535-0.015 | 0.140 | 0.063 | 1¼ |
| 7.95 | 38.99-0.38 | 3.56 | 1.60 | 32 |
| 0.313 | 1.775-0.015 | 0.145 | 0.063 | 1½ |
| 7.95 | 45.09-0.38 | 3.68 | 1.60 | 40 |
| 0.313 | 2.250-0.015 | 0.154 | 0.063 | 2 |
| 7.95 | 57.15-0.38 | 3.91 | 1.60 | 50 |
| 0.313 | 2.720-0.018 | 0.188 | 0.078 | 2½ |
| 7.95 | 69.09-0.46 | 4.78 | 1.98 | 65 |
| 0.313 | 2.845-0.018 | 0.188 | 0.076 | 76.1 mm |
| 7.95 | 72.26-0.46 | 4.78 | 1.93 | |
| 0.313 | 3.344-0.018 | 0.188 | 0.078 | 3 |
| 7.95 | 84.94-0.46 | 4.78 | 1.98 | 80 |
| 0.313 | 3.834-0.020 | 0.188 | 0.078 | 101.6 mm |
| 7.95 | 97.38-0.51 | 4.78 | 1.98 | |
| 0.375 | 4.084-0.020 | 0.203 | 0.083 | 108.0 mm |
| 9.53 | 103.73-0.51 | 5.16 | 2.11 | |
| 0.375 | 4.334-0.020 | 0.203 | 0.083 | 4 |
| 9.53 | 110.08-0.51 | 5.16 | 2.11 | 100 |
| 0.375 | 5.084-0.020 | 0.203 | 0.083 | 133.0 mm |
| 9.53 | 129.13-0.51 | 5.16 | 2.11 | |
| 0.375 | 5.334-0.022 | 0.203 | 0.083 | 139.7 mm |
| 9.53 | 135.48-0.56 | 5.16 | 2.11 | |
| 0.375 | 5.395-0.022 | 0.203 | 0.083 | 5 |
| 9.53 | 137.03-0.56 | 5.16 | 2.11 | 125 |
| 0.375 | 6.084-0.022 | 0.219 | 0.083 | 159.0 mm |
| 9.53 | 154.53-0.56 | 5.56 | 2.11 | |
| 0.375 | 6.330-0.022 | 0.203 | 0.085 | 165.1 mm |
| 9.53 | 160.78-0.56 | 5.16 | 2.16 | |
| 0.375 | 6.455-0.022 | 0.219 | 0.085 | 6 |
| 9.53 | 163.96-0.56 | 5.56 | 2.16 | 150 |
| 0.438 | 8.441-0.025 | 0.238 | 0.092 | 8 |
| 11.13 | 214.40-0.64 | 6.05 | 2.34 | 200 |
| 0.500 | 10.562-0.027 | 0.250 | 0.094 | 10 |
| 12.70 | 268.27-0.69 | 6.35 | 2.39 | 250 |
| 0.500 | 12.531-0.030 | 0.279 | 0.109 | 12 |
| 12.70 | 318.29-0.76 | 7.09 | 2.77 | 300 |

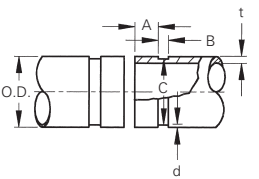
Continued on next page

## Cut Grooving Dimensions

for IPS / BS / AS / ISO / JIS / KS Pipe

| Nominal Size in / mm | Pipe O.D. | | | A ±0.031 ±0.79 |
|---|---|---|---|---|
| | Basic in / mm | Tolerance | | |
| | | in / mm | in / mm | |
| 200 JIS | 8.516 | +0.063 | -0.031 | 0.750 |
| | 216.3 | +1.60 | -0.79 | 19.05 |
| 250 JIS | 10.528 | +0.063 | -0.031 | 0.750 |
| | 267.4 | +1.60 | -0.79 | 19.05 |
| 300 JIS | 12.539 | +0.063 | -0.031 | 0.750 |
| | 318.5 | +1.60 | -0.79 | 19.05 |
| 14 | 14.000 | +0.063 | -0.031 | 0.938 |
| 350 | 355.6 | +1.60 | -0.79 | 23.83 |
| 16 | 16.000 | +0.063 | -0.031 | 0.938 |
| 400 | 406.4 | +1.60 | -0.79 | 23.83 |
| 18 | 18.000 | +0.063 | -0.031 | 1.000 |
| 450 | 457.2 | +1.60 | -0.79 | 25.40 |
| 20 | 20.000 | +0.063 | -0.031 | 1.000 |
| 500 | 508.0 | +1.60 | -0.79 | 25.40 |
| 22 | 22.000 | +0.063 | -0.031 | 1.000 |
| 550 | 558.8 | +1.60 | -0.79 | 25.40 |
| 24 | 24.000 | +0.063 | -0.031 | 1.000 |
| 600 | 609.6 | +1.60 | -0.79 | 25.40 |

☞Refer to page 26 for General notes.




| B<br>±0.031<br>±0.79 | C<br>±0.031<br>±0.79 | t<br>Min. Wall<br>in / mm | d<br>Groove Depth (ref.)<br>in / mm | Nominal<br>Size<br>in / mm |
|---|---|---|---|---|
| 0.438 | 8.331-0.022 | 0.238 | 0.092 | 200 JIS |
| 11.13 | 211.61-0.56 | 6.05 | 2.34 | |
| 0.500 | 10.339-0.027 | 0.250 | 0.094 | 250 JIS |
| 12.70 | 262.60-0.69 | 6.35 | 2.39 | |
| 0.500 | 12.319-0.030 | 0.279 | 0.109 | 300 JIS |
| 12.70 | 312.90-0.76 | 7.09 | 2.77 | |
| 0.500 | 13.781-0.030 | 0.281 | 0.109 | 14 |
| 12.70 | 350.04-0.76 | 7.14 | 2.77 | 350 |
| 0.500 | 15.781-0.030 | 0.312 | 0.109 | 16 |
| 12.70 | 400.84-0.76 | 7.92 | 2.77 | 400 |
| 0.500 | 17.781-0.030 | 0.312 | 0.109 | 18 |
| 12.70 | 451.64-0.76 | 7.92 | 2.77 | 450 |
| 0.500 | 19.781-0.030 | 0.312 | 0.109 | 20 |
| 12.70 | 502.44-0.76 | 7.92 | 2.77 | 500 |
| 0.563 | 21.656-0.030 | 0.375 | 0.172 | 22 |
| 14.30 | 550.06-0.76 | 9.53 | 4.37 | 550 |
| 0.562 | 23.656-0.030 | 0.375 | 0.172 | 24 |
| 14.27 | 600.86-0.76 | 9.53 | 4.37 | 600 |

## "EP" End Protection Cut Groove Specification

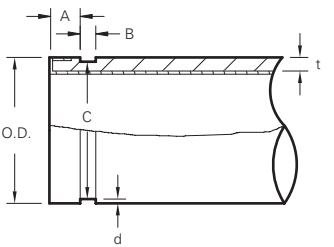
for XH-70EP Couplings (IPS sizes)

This standard is for high pressure rigid systems used with ***Shurjoint*** XH-70EP couplings.

**Caution:** Groove dimensions and tolerances are different from that of standard cut-grooves shown on page 28. Special attention is required when processing
cut-grooves to this standard.

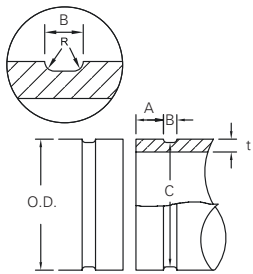
| Nominal Nominal Size | Pipe O.D. | | | A | |
|---|---|---|---|---|---|
| | | Tolerance | | Gasket Seat | |
| | Basic | + | - | Basic | Tol. ± |
| in / mm | in / mm | in / mm | in / mm | in / mm | in / mm |
| 2 | 2.375 | +0.024 | -0.024 | 0.562 | ±0.010 |
| 50 | 60.3 | +0.61 | -0.61 | 14.27 | ±0.25 |
| 2½ | 2.875 | +0.029 | -0.029 | 0.562 | ±0.010 |
| 65 | 73.0 | +0.74 | -0.74 | 14.27 | ±0.25 |
| 3 | 3.500 | +0.035 | -0.031 | 0.562 | ±0.010 |
| 80 | 88.9 | +0.89 | -0.79 | 14.27 | ±0.25 |
| 4 | 4.500 | +0.045 | -0.031 | 0.605 | ±0.015 |
| 100 | 114.3 | +1.14 | -0.79 | 15.37 | ±0.38 |
| 6 | 6.625 | +0.063 | -0.031 | 0.605 | ±0.015 |
| 150 | 168.3 | +1.60 | -0.79 | 15.37 | ±0.38 |
| 8 | 8.625 | +0.063 | -0.031 | 0.714 | ±0.015 |
| 200 | 219.1 | +1.60 | -0.79 | 18.14 | ±0.38 |
| 10 | 10.750 | +0.063 | -0.031 | 0.714 | ±0.015 |
| 250 | 273.0 | +1.60 | -0.79 | 18.14 | ±0.38 |
| 12 | 12.750 | +0.063 | -0.031 | 0.714 | ±0.015 |

☞ Refer to page 26 for general notes.




| B | | C | | d | t | |
|---|---|---|---|---|---|---|
| Gasket Width | | | | Groove dia. | Groove | Min. |
| Basic | Tol. +0.010 / +0.25 | Basic | Tol. +0 / +0 | Depth (ref.) | Wall | Size |
| in / mm | in / mm | in / mm | in / mm | in / mm | in / mm | in / mm |
| 0.255 | -0.005 | 2.250 | -0.015 | 0.063 | 0.154 | 2 |
| 6.48 | -0.13 | 57.15 | -0.38 | 1.60 | 3.91 | 50 |
| 0.255 | -0.005 | 2.720 | -0.018 | 0.078 | 0.188 | 2½ |
| 6.48 | -0.13 | 69.09 | -0.46 | 1.98 | 4.78 | 65 |
| 0.255 | -0.005 | 3.344 | -0.018 | 0.078 | 0.188 | 3 |
| 6.48 | -0.13 | 84.94 | -0.46 | 1.98 | 4.78 | 80 |
| 0.305 | -0.005 | 4.334 | -0.020 | 0.083 | 0.203 | 4 |
| 7.75 | -0.13 | 110.08 | -0.51 | 2.11 | 5.16 | 100 |
| 0.305 | -0.005 | 6.455 | -0.022 | 0.085 | 0.219 | 6 |
| 7.75 | -0.13 | 163.96 | -0.56 | 2.16 | 5.56 | 150 |
| 0.400 | -0.010 | 8.441 | -0.025 | 0.092 | 0.238 | 8 |
| 10.16 | -0.25 | 214.40 | -0.64 | 2.34 | 6.05 | 200 |
| 0.400 | -0.010 | 10.562 | -0.027 | 0.094 | 0.250 | 10 |
| 10.16 | -0.25 | 268.28 | -0.69 | 2.39 | 6.35 | 250 |
| 0.400 | -0.010 | 12.531 | -0.030 | 0.109 | 0.279 | 12 |

# Radius Cut Grooving Dimensions - Ductile Iron Pipe




## AWWA Ductile Iron Pipe

| Nominal Size | Pipe O.D. | | | A Gasket Seat | |
|---|---|---|---|---|---|
| | | Tolerance | | Rigid | Flex. |
| Nominal | Basic | + | - | +0 / -0.02 | +0.016 / -0.047 |
| in / mm | in / mm | in / mm | in / mm | +0 / -0.51 | +0.41 / -1.19 |
| 3 | 3.96 | +0.045 | -0.045 | 0.840 | 0.750 |
| 80 | 100.6 | +1.14 | -1.14 | 21.34 | 19.05 |
| 4 | 4.80 | +0.045 | -0.045 | 0.840 | 0.750 |
| 100 | 121.9 | +1.14 | -1.14 | 21.34 | 19.05 |
| 6 | 6.90 | +0.060 | -0.060 | 0.840 | 0.750 |
| 150 | 175.3 | +1.52 | -1.52 | 21.34 | 19.05 |
| 8 | 9.05 | +0.060 | -0.060 | 0.840 | 0.875 |
| 200 | 229.9 | +1.52 | -1.52 | 21.34 | 22.83 |
| 10 | 11.10 | +0.060 | -0.060 | 1.015 | 0.938 |
| 250 | 281.9 | +1.52 | -1.52 | 25.78 | 23.83 |
| 12 | 13.20 | +0.060 | -0.060 | 1.015 | 0.938 |
| 300 | 335.3 | +1.52 | -1.52 | 25.78 | 23.83 |
| 14 | 15.30 | +0.050 | -0.080 | 1.015 | 0.938 |
| 350 | 388.6 | +1.27 | -2.03 | 25.78 | 23.83 |
| 16 | 17.40 | +0.050 | -0.080 | 1.340 | 1.188 |
| 400 | 442.0 | +1.27 | -2.03 | 34.04 | 30.18 |
| 18 | 19.50 | +0.050 | -0.080 | 1.340 | 1.188 |
| 450 | 495.3 | +1.27 | -2.03 | 34.04 | 30.18 |
| 20 | 21.60 | +0.050 | -0.080 | 1.340 | 1.188 |
| 500 | 548.6 | +1.27 | -2.03 | 34.04 | 30.18 |

### Gasket Seating Surface (A)

The same coupling can be used either as a rigid joint or a flexible joint depending on the groove. Gasket seat "A Rigid" is for rigid joints and Gasket seat "A Flex." for flexible joints. The gasket seating surface shall be free from deep scores, marks, or ridges indentations, projections, and cracks that could prevent a positive seal. The peened surfaces of Ductile Iron Pipe are not always consistent and in some cases, may require rework to provide a leak free sealing surface. (see CSA B242 5.9 or AWWA C606).

### Groove Diameter (C)

The 'C' diameters are average values. The groove must be of uniform depth around the entire pipe circumference.

### Radius (R)

The groove must be cut with a radius "R" at the corners of the groove to reduce stress concentration.

### Minimum Wall Thickness (t)

"t" is the minimum allowable wall thickness that may be cut-grooved; tolerances are to conform to ANSI /AWWA C151/A21.51.

| B<br>Gasket Width<br><br>+0.031 / -0.016<br>+0.79 / -0.41 | C<br>Groove Dia.<br><br>Basic | <br><br>Tol.<br>+0 +0 | R<br><br>Radius | t<br><br>Allow Wall<br>Thickness | Min.<br><br>Size |
|---|---|---|---|---|---|
| in / mm | in / mm | in / mm | in / mm | in / mm | in / mm |
| 0.375 | 3.723 | -0.020 | 0.120 | 0.31 | 3 |
| 9.53 | 94.56 | -0.51 | 3.05 | 7.9 | 80 |
| 0.375 | 4.563 | -0.020 | 0.120 | 0.32 | 4 |
| 9.53 | 115.90 | -0.51 | 3.05 | 8.1 | 100 |
| 0.375 | 6.656 | -0.020 | 0.120 | 0.34 | 6 |
| 9.53 | 169.06 | -0.51 | 3.05 | 8.6 | 150 |
| 0.500 | 8.781 | -0.025 | 0.145 | 0.36 | 8 |
| 12.70 | 223.04 | -0.64 | 3.68 | 9.1 | 200 |
| 0.500 | 10.813 | -0.025 | 0.145 | 0.38 | 10 |
| 12.70 | 274.65 | -0.64 | 3.68 | 9.7 | 250 |
| 0.500 | 12.906 | -0.030 | 0.145 | 0.40 | 12 |
| 12.70 | 327.81 | -0.76 | 3.68 | 10.2 | 300 |
| 0.625 | 14.969 | -0.030 | 0.165 | 0.42 | 14 |
| 15.88 | 380.21 | -0.76 | 4.19 | 10.7 | 350 |
| 0.625 | 17.063 | -0.030 | 0.165 | 0.43 | 16 |
| 15.88 | 433.40 | -0.76 | 4.19 | 10.9 | 400 |
| 0.625 | 19.125 | -0.030 | 0.185 | 0.44 | 18 |
| 15.88 | 485.78 | -0.76 | 4.70 | 11.2 | 450 |
| 0.625 | 21.219 | -0.030 | 0.185 | 0.45 | 20 |
| 15.88 | 538.96 | -0.76 | 4.70 | 11.4 | 500 |

# Bolts & Nuts

## Carbon Steel Bolts & Nuts

*Shurjoint* products utilize oval neck track bolts conforming to ASTM A449 and ASTM A183 Gr. 2 and heavy duty hex nuts to ASTM A563 Gr. B, available with UNC threads or ISO metric threads. The UNC track bolts and nuts are supplied electro zinc plated in a silver chromate color and ISO metric bolts and nuts in a gold chromate color. Hot-dip galvanized bolts and nuts are also available upon request.

## Recommended Bolt Torque

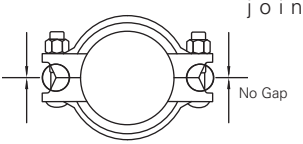
Always use factory supplied bolts and nuts for assembly of ***Shurjoint*** couplings. Shown below are the general recommended torque ranges for common sizes of carbon steel bolts. Never exceed the recommended torque range as excessive torque can lead to joint failure, personal injury and/or property damage. Always depressurize and drain the piping system before attempting disassembly, adjustment or removal of any piping component. Follow installation instructions for proper assembly of all ***Shurjoint*** components. For questions contact ***Shurjoint*** .

| Bolt Size | | Torque Range | |
|---|---|---|---|
| mm | inch | Lbs-Ft | Nm |
| M8 | 5/16" - 18 | 15-25 | 20-34 |
| M10 | 3/8" - 16 | 30-45 | 40-61 |
| M12 | 1/2" - 13 | 90-105 | 120-140 |
| M16 | 5/8" - 11 | 100-130 | 135-175 |
| M20 | 3/4" - 10 | 150-200 | 200-270 |
| M22 | 7/8" - 9 | 180-220 | 240-300 |
| M24 | 1" - 8 | 200-225 | 270-305 |
| M29 | 1 1/8" - 7 | 250-300 | 340-400 |
| M32 | 1 1/4" - 7 | 375-500 | 510-680 |

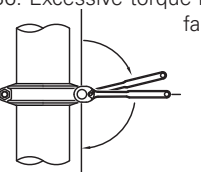
## Helpful Information to Ensure Proper Assembly

Some couplings and components require the housing bolt pads to make metal-to-metal contact for proper assembly, while others require a specific bolt torque while maintaining equal bolt pad gaps. The icons and information below will help to identify those items to ensure proper assembly. Read and follow all installation instructions for the component being installed.

**Metal-to-metal contact:** Tighten bolts and nuts until bolt pads make metal-to-metal contact. After metal-to-metal contact is achieved, tighten nuts by another one quarter or one half turn to make sure the bolts and nuts are snug and secure. No torque wrench is required. Never exceed torque stated in the table on page 36. Excessive torque may lead to bolt or joint failure.




Metal-to-metal contact



After metal-to-metal, further tighten one quarter or half turn

If bolt pad gaps are evident after installation, disassemble and reinstall the coupling after checking the following:

- The coupling, pipe and/or fitting being connected are the correct size.
- The coupling keys are fully engaged in the pipe and/or component grooves.
- The gasket is not being pinched.
- The grooves conform to the applicable groove dimension specifications.
- The pipe end flare is within the specification tolerance.

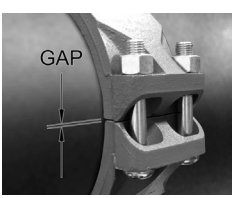
Torque required! Bolts and nuts must always be tightened to the required torque by using a torque wrench. Normally there will be some gaps seen between the bolt pads after the bolts and nuts are fully tightened. Models that require torque tightening include 2" through 4" of Model XH-1000, all sizes of Models XH-70EP, SS-7X and 79 couplings.



Always use a torque wrench




#SS-7X 10" ~ 24"




#79 2" ~ 20"

# Rubber Gaskets
## Grades and Recommended Services



*Shurjoint* utilizes the finest gasket materials available in our products. Over the past 50 years great advances have been made in synthetic elastomer technologies, allowing us to offer a full range of synthetic rubber gasket materials for a wide variety of piping applications. ***Shurjoint*** gaskets are engineered and designed to meet and exceed standards such as ASTM D2000, AWWA C606, NSF 61 and IAPMO. Our own stringent internal laboratory testing confirms this. Our continual research, development and testing are designed to advance the elastomer field and to develop new and better solutions for our ever changing industry.

Chemical resistance is primarily determined by the grade and/or the compound of the gasket. The color coding identifies the gasket grade and/or compound. Always verify that the gasket selected is correct for the intended service.

Service temperature is controlled by factors including the gasket compound, fluid medium (air, water, oils, etc.), and continuity (continuous or intermittent) of service. Under no circumstances should gaskets be exposed to temperatures above or below their individual ratings. For additional information or specific applications contact ***Shurjoint*** for recommendations.

## Gasket Selection Guide

Proper gasket selection is essential for the optimum performance of *Shurjoint* grooved couplings, flange adapters and mechanical tees.

1. Gasket styles: *Shurjoint* grooved couplings utilize several different gasket styles, standard, GapSeal, EP (End Protection) and FF (Fast Fit). GapSeal gaskets are compatible with standard gaskets and they are interchangeable with each other. Other special styles are not compatible with standard or GapSeal gaskets. Always use the correct gasket style for the coupling model you selected.



Standard



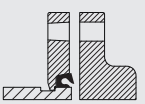
GapSeal



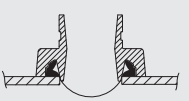
End Protection



FastFit®



Flange Adapter



Mechanical Tee



Saddle-Let



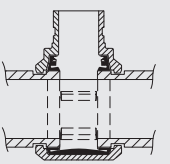
Wildcat



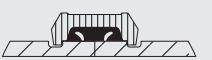
Reducing



Reducing
(2" x 1½", 2½" x 2", 3" x 2½")



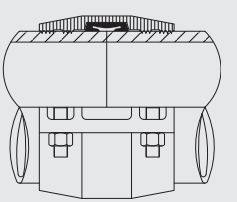
Outlet Coupling



AWWA Ductile Iron Pipe



IPS to AWWA



HDPE Pipe

2. Vacuum service: ***Shurjoint*** standard gaskets are designed to seal well under vacuum conditions up to 10 inHg 254 mmHg which may occur when a system is drained. For continuous services greater than 10 inHg 254 mmHg the use of GapSeal gaskets or EP (End Protection) gaskets in combination with rigid style couplings is recommended. Contact ***Shurjoint*** for specific recommendations.

3. Dry pipe and freezer services: ***Shurjoint*** recommends the use of GapSeal Grade "E" gaskets for dry pipe fire protection systems and freezer applications. The GapSeal gasket closes off the gap between the pipes or gasket cavity. This will prevent any remaining liquid from entering the cavities and freezing when the temperature drops. Rigid couplings are preferred for dry pipe, freezer and vacuum applications. Reducing couplings are not recommended

NOTE: Do not use the ***Shurjoint*** standard Lubricant for dry pipe and freezer systems, instead use ***Shurjoint*** EHC silicone Lubricant designed for extreme hot and cold temperatures.

4. ANSI/NSF 61 Standard: ANSI/NSF 61 classified gaskets are good for potable water services. The classification categories are 'cold' which is limited to +86°F (+30°C) (or maximum ambient distribution temperatures of unheated water) maximum and 'hot' which is limited to +180°F (+82°C) (or scalding temperatures of hot domestic water).




5.Lubricant: ***Shurjoint*** Lubricant is recommended for proper gasket installation to prevent the gasket from being pinched. Apply a thin coat to the gasket exterior, gasket lips and/or housing interiors. ***Shurjoint*** Lubricant is available in one pound (450 grams) and one quart ( 2 pounds or 900 grams) containers. Certified to ANSI/NSF 61. ***Shurjoint*** EHC silicone lubricant is also available upon request. Other branded lubricants may be used; lubrication is always required on Shurjoint products unless otherwise stated in Shurjoint published literature. Chemical compatibility should be confirmed prior to using any lubricant on a Shurjoint gasket. When considering a lubrication choice, always consider the temperatures the lube and joint will be exposed to. If a joint will be exposed freezing or very high temperatures at any point either internally or externally, a lubricant that meets the temperature requirements must be used.

## Gasket Grade Index

| Compound | Grade | Color Code | General Service Recommendations | Maximum Temp. Range |
|---|---|---|---|---|
| EPDM | **E** | Green Stripe | Good for cold & hot water up to +230°F (+110°C). Also good for services for water with acid, water with chlorine, deionized water, seawater and waste water, dilute acids, oil-free air and many chemicals. **Not recommended for petroleum oils, mineral oils, solvents and aromatic hydrocarbons.** | -30°F (-34°C) to +230°F (+110°C) |
| Nitrile | **T** | Orange Stripe | Good for petroleum oils, mineral oils, vegetable oils, non-aromatic hydrocarbons, many acids and water +150°F (+65°C). | -20°F (-29°C) to +180°F (+82°C) |
| EPDM | **EHM** | Green + Red Stripe | Good for cold & hot water up to +250°F (+121°C). Also good for services for water with acid, water with chlorine, deionized water, seawater and waste water, dilute acids, oil-free air and many chemicals. ANSI/NSF 61 certified. **Not recommended for petroleum oils, mineral oils, solvents and aromatic hydrocarbons.** | -30°F (-34°C) to +250°F (+121°C) |
| EPDM | **E-pw** | Double Green Stripe | Specially compounded for cold +86°F (+30°C) and hot +180°F (+82°C) potable water services. The compound is UL classified per ANSI/NSF 61. | ≤+180°F (+82°C) |
| EPDM | **Lube-E** | Green + Violet Stripe | A pre-lubricated gasket intended primarily for the fire protection industry. | -30°F (-34°C) to +230°F (+110°C) |
| White Nitrile | **A** | White Gasket | Good for oily and greasy food products and processing, as well as pharmaceutical and cosmetics manufacturing. Compounded from FDA approved ingredients (CFR Title 21 Part 177.2600). | +20°F (-7°C) to +180°F (+82°C) |
| Silicone | **L** | Red Gasket | Good for dry, hot air without hydrocarbons and some high temperature chemical services. May also be used for fire protection dry systems. | -30°F (-34°C) to +350°F (+177°C) |
| Neoprene | **V** | Yellow Stripe | Good for hot lubricating oils and certain chemicals. | -30°F (-34°C) to +180°F (+82°C) |
| Fluoro-elastomer (Viton) | **O** | Blue Stripe | Good for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons to +300°F (+149°C). | +20°F (-7°C) to +300°F (+149°C) |
| Epichloro-hydrin | **M2** | White Stripe | Good for aromatic fuels at low temperatures and also for ambient temperature water. | -40°F (-40°C) to +160°F (+71°C) |

## Special Gaskets for AWWA Ductile Iron Pipe

| Compound | Grade | Color Code | General Service Recommendations | Maximum Temp. Range |
|---|---|---|---|---|
| Nitrile | **S** | Red Stripe | Specially compounded for use with AWWA ductile iron pipe and used for petroleum products, mineral oils, vegetable oils and air with oil vapors. | -20°F (-29°C) to +180°F (+82°C) |
| Haloganated Butyl | **M** | Brown Stripe | Good for water services, mild dilute acids, oil-free air and many chemicals. The compound is UL classified per ANSI/NSF 61.(AWWA ductile iron pipe use) | -20°F (-29°C) to +200°F (+93°C) |

Please note that EPDM grade "EH" gaskets can be used for all applications and services that EPDM grade "E" gaskets are suitable for.

**⚠ WARNING**

EPDM gaskets for water services are not recommended for steam services. In many systems additives are introduced for maintenance and preventive reasons. Compatibility of gasket material and these additives should be considered in your gasket selection.
Failure to select the proper gasket and compound may result in joint leakage or failure resulting in personal injury and/or property damage. Gaskets should never be exposed to temperatures outside their ratings.

## General Gasket Service Recommendations

The following are general service recommendations only and the information provided is based on the best information available from various resources including elastomer manufacturers, leading rubber molders, industry publications and our own laboratory testing and field experience. The information contained herein shall be considered for evaluation purposes and not as a guarantee. When and wherever possible, gasket materials should be tested with simulated service conditions to determine suitability for the intended service application. Unless otherwise noted, the recommendations are based on ambient temperatures. These recommendations do not apply to rubber lined products or rubber sealed valves. If more than one gasket grade is listed the preferred grade is listed first for general services. For chemicals not listed, a combination of chemicals listed or not, service temperatures not listed or borderline services, contact a ***Shurjoint*** Engineering Representative for a recommendation.

Note: NR = Not Recommended

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Acetaldehyde | E |
| Acetamide | T |
| Acetic Acid up to 10% 100°C (38°C) | E/L |
| Acetic Acid up to 10-50% 100°C (38°C) | L |
| Acetic Acid, Glacial 100°C (38°C) | L |
| Acetic Anhydride | E |
| Acetone | E |
| Acetonitrile | T |
| Acetophenone | E |
| Acetylene | E/T |
| Acrylic Resin | V |
| Acrylonitrile | NR |
| Adipic Acid | T |
| Air, oil free | E |
| Air with vapored oil | T |
| Alkalis | E |
| Allyl Alcohol to 96% | E |
| Allyl Chloride | NR |
| Alum Sulfuric Acid | O |
| Alums | E/T |
| Aluminum Chloride | E/T |
| Aluminum Fluoride | E/T/O |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Aluminum Hydroxide | E/O |
| Aluminum Nitrate | E/T/V |
| Aluminum Oxychloride | T |
| Aluminum Phosphate | E |
| Aluminum Salts | E/T |
| Aluminum Sulfate | E/T |
| Alums | E/T |
| Ammonia Anhydrous (Pure Ammonia) | NR |
| Ammonia Gas, Cold | E |
| Ammonia, Aqua, 10-25% | E |
| Ammonia, Liquid | E |
| Ammonium Alum | V |
| Ammonium Bifluoride | T |
| Ammonium Carbonate | E |
| Ammonium Chloride | E/T |
| Ammonium Fluoride | E |
| Ammonium Hydroxide | E |
| Ammonium Metaphosphate | E |
| Ammonium Nitrate | E/T |
| Ammonium Nitrite | E |
| Ammonium Persulfate, to 10% | E |
| Ammonium Phosphate | T |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Ammonium Sulfamate | T |
| Ammonium Sulfate | E/T |
| Ammonium Sulfide | E |
| Ammonium Thiocyanate | E |
| Amyl Acetate | E |
| Amyl Alcohol | E |
| Amyl Borate | V |
| Amyl Chloride | NR |
| Amyl Chloronaphthalene | T |
| Anderol | O |
| Aniline | E |
| Aniline Dyes | E |
| Aniline Hydrochloride | E |
| Aniline Oil | E |
| Animal Fats | A |
| Anthraquinone | NR |
| Anthraquinone Sulfonic Acid | NR |
| Antimony Chloride | E |
| Antimony Trichloride | E |
| Argon Gas | E/O |
| Aroclor(S) | O |
| Arsenic Acid, to 75% | E/T/O |
| Arylsulfonic Acid | NR |
| ASTM #1, 2 & 3 Oil | T |
| Barium Carbonate | E |
| Barium Chloride | E/T |
| Barium Hydroxide | E/T |
| Barium Nitrate | V |
| Barium Sulfide | T |
| Beer | A |
| Beet Sugar liquors | A |
| Benzaldehyde | E |
| Benzene | O |
| Benzine (see Petroleum Ether) | O |
| Benzoic Acid | E |
| Benzol | O |
| Benzyl Alcohol | E |
| Benzyl Benzoate | E |
| Benzyl Chloride | E |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Black Sulfate Liquor | T |
| Blast Furnace Gas | T |
| Bleach,12% Active Cl2 | E |
| Borax Solutions | E |
| Bordeaux Mixture | E |
| Boric Acid | E/T |
| Bromine | O |
| Bromine Water | V |
| Butane Gas | T |
| Bromotoluene | NR |
| Butanol (see Butyl Alcohol) | E/T |
| Butter | A |
| Butyl Acetate Ricinoleate | E/T |
| Butyl Alcohol | E/T |
| Butyl "Cellosolve Adipate" | E/T |
| Butyl Phenol | E |
| Butyl Stearate | T/O |
| Butylene | T/O |
| Butylene Glycol | E |
| Butyne Diol | NR |
| Calcium Acetate | T |
| Calcium Bisulphite | T/O |
| Calcium Carbonate | E/T |
| Calcium Chlorate | E/T |
| Calcium Chloride | E/T |
| Calcium Hydroxide (Lime) | E/T |
| Calcium Hypochlorite | E |
| Calcium Hypochloride | E |
| Calcium Nitrate | E/T/V |
| Calcium Sulfate | E/T |
| Calcium Sulfide | E/T |
| Caliche Liquors | T |
| Cane Sugar Liquors | A |
| Carbitol | E/T |
| Carbonic Acid, Phenol | O |
| Carbon Bisulphide | O |
| Carbon Dioxide, Dry | E/T |
| Carbon Dioxide, Wet | E/T |
| Carbon Disulphide | O |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Carbon Monoxide | E |
| Carbon Tetrachloride | O |
| Carbonic Acid, Dry | O |
| Caster Oil | T/A |
| Caustic Potash | E/T |
| Cellosolve | E/V |
| Cellosolve Acetate | E |
| Cellosolve (Alcohol Ether) | E |
| Cellulose Acetate | E |
| Cellulube 220 (Tri-Aryl-Phosphate) | E |
| Cellulube Hydraulic Fluids | E |
| China Wood Oil, Tung Oil | T |
| Chloric Acid to 20% | E |
| Chlorine, Dry | O |
| Chlorine, Water 4000 PPM (max.) | E |
| Chlorinated Paraffin (Chlorocosane) | T |
| Chloroacetic Acid | E |
| Chloroacetone | E |
| Chlorobenzene | O |
| Chloralhydrate | NR |
| Chlorobromomethane | NR |
| Chloroform | O |
| Chlorosulphonic Acid | NR |
| Chrome Alum | E/T |
| Chromic Acid, to 10% | O |
| Chromic Acid, to 25% | O |
| Chrome Plating Solutions | O |
| Citric Acid, Saturated | E |
| Citric Acid | E/T |
| Coconut Oil | A |
| Cod Liver Oil | A |
| Coke Oven Gas | T/O |
| Copper Carbonate | E/T |
| Copper Chloride | E/T |
| Copper Cyanide | E/T |
| Copper Fluoride | E |
| Copper Nitrate | E/T |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Copper Sulfate | E/T |
| Corn Oil | A |
| Cotton Seed Oil | A |
| Creosol, Cresylic Acid | O |
| Creosote, Coal Tar | T/O |
| Creosote, Wood | T/O |
| Cupric Fluoride | E/T |
| Cupric Sulfate | E/T |
| Cyclohexane (Alicyclic Hydrocarbon) | O |
| Cyclohexanol | V/O |
| Cyclohexanone | E |
| Deionized Water | E |
| Dextrim | T |
| Diacetone Alcohol | V |
| Dibutyl Phthalate | E |
| Dichloro Difloro Methane | T |
| Dicyclohexylamine | T |
| Diesel Oil | T |
| Diethyl Ether | T |
| Diethyl Sebacate | E |
| Diethylamine | T |
| Diethylene Glycol | E/T |
| Digester Gas | T |
| Dimethylamine | T |
| Dioctyl Phthalate | E |
| Dioxane | E |
| Dipentene(Terpene-Hydrocarbon) | T |
| Dipropylene Glycol | T |
| Dowtherm A | O |
| Dowtherm E | O |
| Dowtherm SR-1 | T/E |
| Ethane | E |
| Ethanolamine | E |
| Ethers | NR |
| Ethyl Acetoacetate | E |
| Ethyl Acrylate | L |
| Ethyl Alcohol (Ethanol) | E |
| Ethyl Cellulose | E |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Ethyl "Cellusolve" | E |
| Ethyl Chloride | E/T |
| Ethyl Ether | T |
| Ethyl Oxalate | E |
| Ethyl Silicate | T |
| Ethylene Chlorohydrin | E |
| Ethylene Diamine | E/T |
| Ethylene Dichloride (Dichloroethane) | O |
| Ethylene Glycol | E/T |
| Ethylene Oxide | NR |
| Fatty Acid | A |
| Ferric Chloride, to 35% | E/T/O |
| Ferric Chloride, Saturated | E |
| Ferrous Nitrate | V |
| Ferric Hydroxide | E |
| Ferric Sulfate | T |
| Fish Oils (Solubles) | A |
| Fire Fighting Foam Concentrate | E/O |
| Fluboric Acid | E/T |
| Fluorine Gas, Wet | NR |
| Fluorosilicic Acid, to 30% | V |
| Fly Ash | E |
| FM200 HFC-227ea | E |
| Foam | E |
| Fog Oil | T |
| Formaldehyde | E/T |
| Formamide | E/T |
| Formic Acid, to 25% | E |
| Freon 11, 130°F (54°C) | T |
| Freon 12, 130°F (54°C) | T |
| Freon 113 130°F (54°C) | T |
| Freon 114,130°F (54°C) | T |
| Freon F-12 | T |
| Freon 123 | NR |
| Freon 134a,176° (80°C) | E/T |
| Freon F-21 | NR |
| Freon 22, 130°F (54°C) | V |
| Fructose | E/T |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Fuel Oil | T |
| Fumaric Acid | E |
| Furan | NR |
| Furfuryl Alcohol | E |
| Gallic Acid | NR |
| Gasoline, Refined | T |
| Gasoline, Refined, Unleaded | O |
| Gelatin | A |
| Glucose | A |
| Glue | E/T |
| Glycerin | E/T |
| Glycerol | E/T |
| Glycol | E/T |
| Glycolic Acid | E |
| Grease | T/V/O |
| Green Sulfate Liquor | T |
| Halon 1301 | E |
| Heptane | T |
| Hexaldehyde | E |
| Hexane | T |
| Hexanol | T |
| Hexanol Tertiary | T |
| Hexyl Alcohol | V/T |
| Hexylene Glycol | T |
| Hydrobromic Acid, to 40% | E |
| Hydrochloric Acid, to 36%, 75°F (24°C) | E |
| Hydrochloric Acid, to 36%, 158°F (70°C) | O |
| Hydrocyanic Acid | E |
| Hydrofluoric Acid, to 75%, 75°F (24°C) | O |
| Hydrofluosilicic Acid | E |
| Hydrocyanic Acid, to 10% | E |
| Hydrofluoric Acid, to 30% | V/O |
| Hydrofluosilicic Acid, to 50% | T |
| Hydrogen Phosphide | NR |
| Hydrogen Gas, Cold | E/T |
| Hydrogen Gas, Hot | E |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Hydrogen Peroxide, to 50% | L |
| Hydrogen Peroxide, to 90% | O |
| Hydrogen Sulfide | E |
| Hydroquinone | T/O |
| Hydroxylamine Sulfate | E |
| Hypochlorous Acid, Dilute | E |
| Isododecane | V |
| Isobutyl Alcohol | E |
| Iso Octane, 100°F (38°C) | T |
| Isobutyl Alcohol | E |
| Isopropyl Acetate | E |
| Isopropyl Alcohol | E |
| Isopropyl Ether | T |
| JP-3 | T |
| JP-4 | T/O |
| JP-5 | T/O |
| JP-6, 7, 8 | T |
| Kerosene | T |
| Ketones | E |
| Lactic Acid | A |
| Lard Oil | V |
| Latex (1% Styrene & Butadiene) | O |
| Lauric Acid | T |
| Lauryl Chloride | NR |
| Lavender Oil | T |
| Lead Acetate | T |
| Lead Chloride | E |
| Lead Sulfamate | V |
| Lead Sulfate | T |
| Lime and H2O | E/T |
| Lime Sulfur | O |
| Linoleic Acid | O |
| Lithium Bromide | T |
| Lithium Chloride | T |
| Linseed Oil | A |
| Lithium Bromide (Brine) | T/O |
| Lithium Chloride | T/O |
| Lubricating Oil, Refined | T |
| Lubricating Oil, Sour | T |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Lubricating Oil, to 150°F (66°C) | T |
| Lubricating Oil, 150°F (66°C) to 180°F (82°C) | V/T |
| Magnesium Chloride | E/T |
| Magnesium Hydroxide | E/T |
| Magnesium Nitrate | E/V |
| Magnesium Sulfate | E/T |
| Maleic Acid, Saturate | T |
| Malic Acid | T |
| Mercuric Chloride | E/T |
| Mercuric Cyanide | E/T |
| Mercurous Nitrate | E/T |
| Mercury | E/T |
| Methane | T |
| Methyl Acetate | V |
| Methyl Alcohol, Methanol | E/T |
| Methyl Cellosolve (Ether) | V |
| Methyl Chloride | O |
| Methyl Ethyl Ketone | NR |
| Methyl Isobutyl Carbinol | E |
| Methylene Chloride | O |
| Methylene Chlorobromide | NR |
| Methylene Dichloride 100°F (38°C) | O |
| MIL-L7808 | O |
| MIL-05606 | O |
| MIL-08515 | O |
| Milk | A |
| Mineral Oils | T |
| Naphta | O |
| Naohtalene | NR |
| Naptha, 160°F (71°C) | O |
| Napthenic Acid | T |
| Natural Gas | T |
| Nevoil | E |
| Nickel Acetate to 10%, 100°F (38°C) | V |
| Nickel mmonium Sulfate | V |
| Nickel Chloride | E/T |
| Nickel Nitrate | V |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Nickel Plating Solution 125°F (52°C) - Max. | E/T |
| Nickel Sulfate | E/T |
| Nitric Acid to 10%, 75°F (24°C) - Max. | E |
| Nitric Acid, 10-50%, 75°F (24°C) - Max. | O |
| Nitric Acid, 50-86%, 75°F (24°C) | O |
| Nitric Acid, Red Fuming | O |
| Nitrocellulose | V |
| Nitrogen | E |
| Nitromethane | E |
| Nitrous Oxide | E |
| NOVEC 1230 FK-5-1-12 | E |
| Octyl Alcohol VOgisogiric Acid, to 75%, 150°F (66°C) | O |
| Oil, Crude Sour | T |
| Oil, Motor | T |
| Oleic Acid | T |
| Oilve Oil | T/A |
| Oronite 8200 Silicate Ester Fluid | O |
| Orthodichlorobenzene | O |
| OS-45 Silicate Ester Fluid | O |
| OS-45-1 | O |
| Oxalic Acid | E |
| Oxygen, Cold | E |
| Ozone (100 ppm) | E |
| Palm Oil | T/A |
| Peanut Oil | A |
| Palmitic Acid | T |
| Pentane | T |
| Perchloric Acid | NR |
| Perchloroethylene | O |
| Petroleum Ether (see Benzene) | O |
| Petroleum Oils | T |
| Phenol (Carbolic Acid) | O |
| Phenylhydrazine | E |
| Phenylhydrazine Hydrochloride | E |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Phosphate Ester | E |
| Phosphoric Acid, to 50% | E |
| Phosphoric Acid, to 75% and 70°F | E/T |
| Phosphoric Acid, to 85%, 150°F (66°C) - Max. | O |
| Phosphate Ester | E |
| Photographic Solutions | T |
| Phthalic Anhydride | E |
| Picric Acid | V |
| Plating Solutions, (gold, brass cadmium, copper, lead, silver, tin, zinc) | V |
| Polybutene | T |
| Polyvinyl Acetate, Solid (In Liquid State is 50% solution of Methanol or 60% solution of H2O) | E |
| Potash | E |
| Potassium Alum | E/T |
| Potassium Aluminum Sulfate | E/T |
| Potassium Bicarbonate | E/T |
| Potassium Bichromate | E/T |
| Potassium Borate | E |
| Potassium Bromate | E |
| Potassium Bromide | E/T |
| Potassium Carbonate | E/T |
| Potassium Chlorate | E |
| Potassium Chloride | E/T |
| Potassium Chromate | T |
| Potassium Cyanide | E/T |
| Potassium Dichromate | E |
| Potassium Ferricyanide | E |
| Potassium Ferrocyanide | E |
| Potassium Fluoride | E |
| Potassium Hydroxide | T |
| Potassium Iodide | V |
| Potassium Nitrate | E/T |
| Potassium Perborate | E |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Potassium Perchlorate | T |
| Potassium Permanganate, Saturated to 10% | E |
| Potassium Permaganate Saturate 10-25% | E |
| Potassium Persulfate | T |
| Potassium Silicate | E/T/V |
| Potassium Sulfate | E/T |
| Prestone | T |
| Propane Gas | T |
| Propanol | E |
| Propargyl Alcohol | E |
| Propyl Alcohol | E/T |
| Propylene Dichloride | L |
| Propylene Glycol | E |
| Pydraul F-9 and F-150 | NR |
| Pyranol 1467 | T |
| Pyranol 1476 | T |
| Pyroguard "C" | T |
| Pyroguard "D" | T |
| Pyroguard 55 | E |
| Pyrrole | E |
| Ref. Fuel (70 ISO Octane, 30 Toluene) | T |
| Rapeseed Oil | A |
| Rosin Oil | T/V |
| Salicylic Acid | E |
| Secondary Butyl Alcohol | T |
| Sewage | E/T |
| Silver Nitrate | E |
| Silver Sulfate | E |
| Skydrol, 200°F (93°C) - Max. | L |
| Skydrol 500 Phosphate Ester | E |
| Soap Solutions | E/T |
| Soda Ash, Sodium Carbonate | E/T |
| Sodium Acetate | E |
| Sodium Alum | T |
| Sodium Benzoate | E/T |
| Sodium Bicarbonate | E/T |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Sodium Bisulfate | E/T |
| Sodium Bisulfite (Black Liquor) | E/T |
| Sodium Bromide | E/T |
| Sodium Carbonate | E/T |
| Sodium Chlorate | E |
| Sodium Chloride | E/T |
| Sodium Cyanide | E/T |
| Sodium Dichromate, to 20% | E/T |
| Sodium Ferricyanide | E/T |
| Sodium Ferrocyanide | E/T |
| Sodium Fluoride | E/T |
| Sodium Hydroxide, to 15% | E |
| Sodium Hydro Sulfide | T |
| Sodium Hydroxide to 50% | E |
| Sodium Hypochlorite, to 20% | E |
| Sodium Metaphosphate | T |
| Sodium Nitrate | E |
| Sodium Nitrite | E/T |
| Sodium Perborate | E |
| Sodium Peroxide | E |
| Sodium Phosphate | T |
| Sodium Phosphate, Dibasic | T |
| Sodium Phosphate, Monobasic | T |
| Sodium Phosphate, Tribasic | T |
| Sodium Silicate | T |
| Sodium Sulfate | E/T |
| Sodium Sulfide | E/T |
| Sodium Sulfite Solution, to 20% | T |
| Sodium Thiosulfate, "Hypo" | T |
| Sohovis 47 | T |
| Sohovis 78 | T |
| Solvasol #1 | T |
| Solvasol #2 | T |
| Solvasol #3 | T |
| Solvasol #73 | T |
| Solvasol #74 | NR |
| Soybean Oil | A |
| Spindle Oil | T |
| Stannic Chloride | T |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Stannous Chloride, to 15% | T |
| Starch | E/T |
| Steam | NR |
| Stearic Acid | T |
| Stoddard Solvent | T |
| Styrene | O |
| Sulfonic Acid | E |
| Sulphite Acid Liquor | E |
| Sucrose Solutions | A |
| Sulfur | E/V |
| Sulfur Chloride | O |
| Sulfur Dioxide, Dry | E |
| Sulfur Dioxide, Wet | E |
| Sulfur Trioxide, Dry | O |
| Sulfuric Acid, to 25%, 150°F (66°C) | E |
| Sulfuric Acid, 25-50%, 200°F (93°C) | O |
| Sulfuric Acid, 50-95%, 150°F (66°C) | O |
| Sulfuric Acid, Fuming | O |
| Sulfuric Acid, Oleum | O |
| Sulfurous Acid | O |
| Tall Oil | T |
| Tannic Acid, all conc.<br>Tanning Liquors<br>(50g. alum. solution, | V |
| 50g. dichromate solution) | T |
| Tartaric Acid | E |
| Tertiary Butyl Alcohol | E/T |
| Tetrabutyl Titanate | E |
| Tetrachloroethylene | O |
| Thionyl Chloride | T |
| Terpineol | V |
| Tertiary Butyl Alcohol | E/T/V |
| Tetrachloroethylene | O |
| Tetrahydrofuran | NR |
| Tetralin | NR |
| Thiopene | NR |
| Titanium Tetrachloride | O |
| Toluene, to 30% | T |
| Transmission Fluid, Type A | O |

| CHEMICAL SERVICES | |
|---|---|
| Chemical Composition | Gasket Grade |
| Triacetin | T |
| Trichloroethane | O |
| Trichloroethylene | O |
| Trichloroethylene, to 200°F (93°C) | O |
| Tricresyl Phosphate | E |
| Triethanolamine | E/T |
| Trisodium Phosphate | E |
| Tung Oil | T |
| Turbo Oil #15 Diester Lubricant | O |
| Turpentine | T |
| Urea | T/E |
| Vegetable Oils | T/A |
| Vinyl Acetate | E |
| Vinegar | A |
| Vinyl Chloride | O |
| Vi-Pex | T |
| Water, to 150°F (66°C) | E/T/M/S |
| Water, to 200°F (93°C) | E/M |
| Water, to 230°F (110°C) | E |
| Water, to 250°F (121°C) | EH |
| Water, Acid Mine | E/T |
| Water, Bromine | O |
| Water, Chlorinated, to 3500 ppm | E |
| Water, Chlorine | E |
| Water, Deionized | E/M |
| Water, Potable | E-pw |
| Water, Seawater | E |
| Water, Waste | E/T/M/S |
| Whiskey | A |
| White Liquor | E |
| Wood Oil | T |
| Xylene | O |
| Zinc Chloride, to 50% | E |
| Zinc Nitrate | E |
| Zinc Sulfate | E/T |

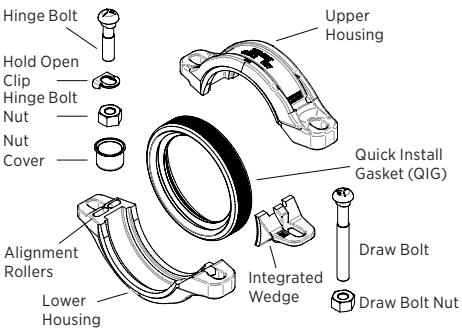
# INSTALLATION INSTRUCTIONS

2023 Edition

Please read these instructions carefully before installation, assembly or use of any product and keep this manual on hand for future use and reference.

# M07 Quick Install Coupling

Please read these instructions carefully before installation.



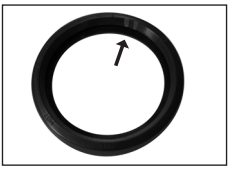



1. DO NOT DISASSEMBLE THE COUPLING: M07, Quick Install Couplings, are designed so that disassembly of the coupling is not required prior to installation. The Quick Install Coupling is designed to allow the installer to directly place the coupling onto the grooved pipe end or fitting.



2. INSPECT PIPE ENDS: The exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

Note: If assembling the M07 onto Grooved Stainless Steel Pipe, ensure the proper Rollers/Dies for Stainless Steel Pipe were used. Please contact your local Shurjoint sales Rep for further deatils.



3. CHECK GASKET:
Verify the gasket supplied is correct for the intended service. Gasket material is identified by a single or multi-stripe color code located on the sealing lip. The standard EHM gasket is identified by red and green stripes.



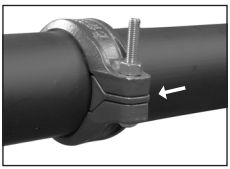
4. LUBRICATE GASKET: Shurjoint Lubricant should always be applied to the gasket lips to aid in coupling installation. Other compatible lubricants may be used so long as they are not harmful to the gasket and suitable for the intended application. The gasket does not need to be removed for lubrication, as the outside diameter of the EHM gasket is pre-lubricated from the factory. For systems with an operating temperature of 150F and above, or 32F and below, Shurjoint EHC lubricant, or equal silicone lubricant is required.



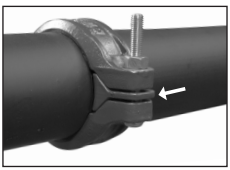
5. INSTALLING COUPLING: Install the coupling on to the grooved pipe end or fitting. Align the center axis of the gasket with the grooved fitting and apply even pressure on the coupling until the gasket is seated onto the pipe/ fitting. Install the other mating pipe end into the coupling. To ensure the gasket lip is seated in the right location, it's recommended to rotate after both pipes/fittings have been inserted. The gasket is designed with a center leg that will stop the coupling when fully seated onto the pipe/fitting. Visually check to make sure the coupling keys are aligned with the grooves in the pipes/fittings.

Note: The coupling can be rotated on the pipe to ensure the gasket is properly seated.

Good

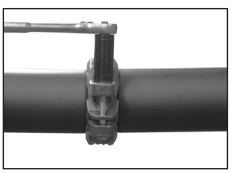


Bad



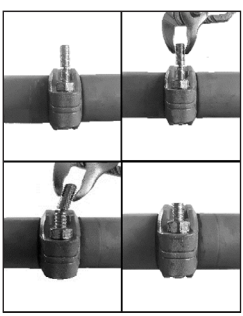
6. TIGHTEN NUT: Tighten the exposed nut until metal-to-metal contact occurs between the two housing segments and the wedge.

Note: an impact wrench or socket wrench can be used to tighten the nut





Standard deep-well sockets are required for assembly. Recommended torque ranges are provided to help set impact wrenches for proper installation.



7. SNAP BOLT FOR INSULATION PURPOSES: The draw bolt is supplied with a pre-machined section which allows the user to snap off the extended length of the bolt by using a wrench or a piece of tube which slides over the bolt. The bolt can be easily snapped by angling from side to side.

The post snapped bolt provides maximum convenience for insulation. This prevents the bolt from penetrating the insulation material.

**⚠ WARNING**

For initial installation only the nut of the draw bolt needs tightened. Do not remove the nut cover of the hinge bolt. See disassembly instructions for more details.

Continuing to tighten the nut after visual indicators are met could result in coupling or component damage, resulting in joint failure, personal injury, or property damage.

1. Impact wrenches remove the physical torque feedback that you would experience from ratchets or hand wrenches, to determine tightness. For this reason, it is important to know the impact torque wrenches capabilities and judge them to avoid damaging the bolts and or couplings.

2. Larger bolts may require a greater torque to achieve the correct visual installation indicators. Be sure to use an impact wrench capable of achieving the torque needed. We typically recommend mid torque impact wrenches when installing 2" – 6" M07 couplings and recommend high torque impact wrenches when installing 8" M07 couplings. This will also help extend the battery life of a properly sized impact wrench. If a mid torque impact wrench is used to install the 8" M07, a small gap between the wedge and housing bolts pads might result. A 1/16" (1.5mm) gap is allowed in these cases. Performing assembly trials with various impact wrench manufacturers may help you choose the best wrench for your assembly needs. Always refer to the manufacturer's instruction for the proper use of the impact

| *Coupling Sizes* | *Bolt Size* | *Socket Size* |
|---|---|---|
| *2" (DN50), 2.5" (DN65), 3" (DN80), 4" (DN100)* | *1/2 - 13 M12* | *7/8" 19mm* |
| *5" (DN125), 6" (DN15)* | *5/8 - 11 M16* | *1-1/16" 24mm* |
| *8" (DN200)* | *3/4 - 10 M20* | *1-1/4" 30mm* |

| *B o l t* | | *Torque Val-* | |
|---|---|---|---|
| *mm* | *inch* | *Lbs-Ft* | *Nm* |
| *M12* | *1/2" - 13* | *90-105* | *120 -* |
| *M16* | *5/8" - 11* | *100-130* | *135 - 175* |
| *M20* | *3/4" - 10* | *150-200* | *200 -* |

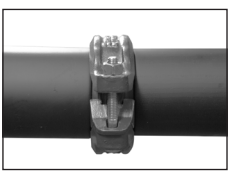
# Disassembly - M07 Quick

Please read these instructions carefully before installation.

**⚠ CAUTION**

Make sure the system is depressurized and drained completely before disassembling, adjusting, or removing any coupling or piping.

Note: There are two methods for disassembly and reinstalling of M07 coouplings.



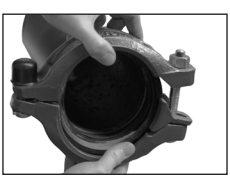
*METHOD 1*

1. LOOSEN THE DRAW BOLT:
Loosen ONLY the draw bolt, until there are 2-3 threads between the nut and bottom of the bolt.

Note: If this bolt is fully removed during disassembly, install the nut and bolt and thread the nut onto the bolt until 2-3 threads are exposed between the nut and bolt end.



2. SEPERATE HOUSINGS: Pull apart the upper and lower housing segments of the coupling to disengage the coupling keys and the mating groove. Remove the pipe/fitting from one side of the coupling.



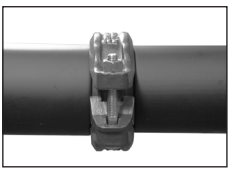
3. REMOVE COUPLING: Pull apart the upper and lower housing segments of the coupling and then remove the coupling from the corresponding pipe/fitting it is still attached to. (If bolt has been snapped, the coupling can usually still be removed without disassembly when the nut is engaging with 1-2 bolt threads. The 4" M07 might require disengagement of the nut if the bolt has been snapped.)

*REINSTALLATION*

Follow steps 2-6 of the "Installation Instructions for the M07 Couplings." Confirm housings segments make metal-to-metal contact at both bolt pads. A gap up to 1/16" is allowed per top and bottom of the wedge to accommodate flared pipe.

Note: Inspect the gasket for signs of damage and/or wear and replace if necessary. If the coupling had been placed in service for a period of time prior to disassembly, best piping practices call for replacing the gasket; lubricate the interior and exterior surfaces of the gasket with a compatible lubricant for the intended application before

*METHOD 2*

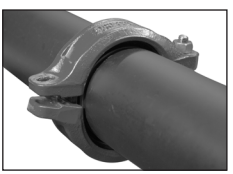


1. LOOSEN THE DRAW BOLT:
Loosen the draw bolt, until there are 2-3 threads between the nut and bottom of the bolt. This bolt/nut does not need to be fully removed, as it will keep the housings segments and the wedge contained.



2. REMOVE NUT COVER Remove the nut cover. A screwdriver or pick can be used to help





3. REMOVE COUPLING: Loosen and remove the bolt/nut on the hinge side



4. SWING HOUSING:
Swing the lower housing segment down and around 180°. Lift/remove the upper housing segment and the wedge from the gasket.



5. REMOVE PIPE/FITTING
Remove the grooved pipe/fittings ends from the gasket.



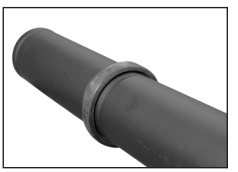
# Reassembly - M07 Quick

Please read these instructions carefully before installation.

Follow steps 2-4 of the "Installation Instructions for the M07 Couplings.". Inspect the gasket for signs of damage or wear and replace if necessary. Lubricate the interior and exterior surfaces of the gasket with a lubricant appropriate for the intended application.



1. INSTALL GASKET: Slide the gasket onto the corresponding end of the grooved pipe/ fitting until it contacts the center leg of the gasket.



2. JOIN MATING PIPES: Bring together and align the second pipe/fitting, by sliding into the gasket until it contacts the center leg of the gasket. No part of the gasket should protrude into the groove of either pipe/ fitting.



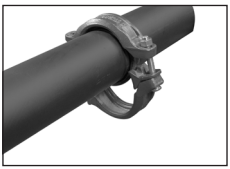
3. ASSEMBLE COUPLING: For a "swing-over" assembly loosely install the draw bolt/ nut with the two housing halves and the wedge, until there are 2-3 threads between the nut and bottom of the bolt.

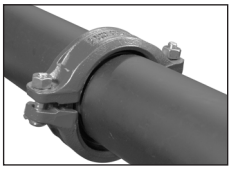


4. INSTALL COUPLING HALVES: For a "swing-over" installation, place one of the coupling halves around the top side of the gasket and align the wedge with top housing half. Swing over the other coupling half into position over the bottom side of the gasket. Make sure the coupling keys are aligned to engaged in the grooves.



5. INSERT BOLT AND NUT: Insert the hinge bolt and apply the nut hand- tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.





6. TIGHTEN NUTS: Tighten nuts starting with the draw bolt/nut, alternately and equally until the wedge and bolt pad make metal-to-metal contact on the wedge side.



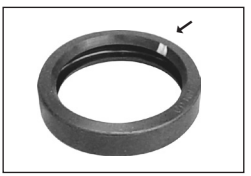
7. INSTALL NUT COVER: Install the black nut cover onto the shorter bolt by pushing on or tapping with a hammer.

# STANDARD GROOVED COUPLINGS

## Gasket Installation - Preliminary Steps -



1. INSPECT PIPE ENDS: For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.



2. CHECK GASKET: Verify the gasket supplied is correct for the intended service. Color code identifies gasket grade.

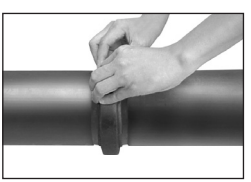


3. LUBRICATE GASKET: To help insert pipe smoothly and mount couplings smoothly without pinching, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket and as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket. System temperature should also be considered when selecting a lubricant. See page 40 for details.

Note: Lube-E gasket: Normally no lubricant is required when using a Lube-E gasket.



4. INSTALL GASKET: Install the gasket over one end of the pipe so that the pipe end is exposed. No part of the gasket should overhang this end of the pipe.

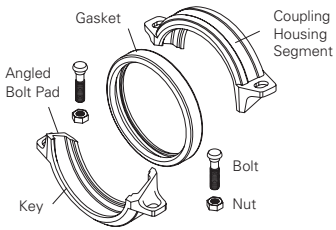


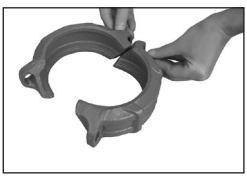
5. BRING THE MATING PIPE TOGETHER: Bring together and align the two pipe ends to be joined. Slide the gasket over the ends and center it between the grooves of the pipe to be joined. No part of the gasket should protrude into the groove of either pipe.

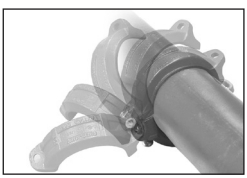
# Models Z07, Z07N & Z05 Angle Pad Rigid Couplings

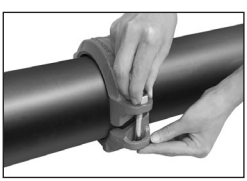
Please read these instructions carefully before installation.

1. Refer to page 61 for preliminary steps 1 - 5 for standard groove cou-









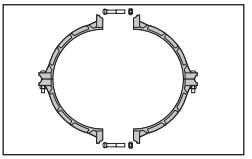
2. ASSEMBLE COUPLING: For a "swing-over" assembly loosely install one bolt and nut on one side of the coupling. For a standard assembly start with the two housings separated.

3. INSTALL COUPLING HALVES: For a "swing-over" installation, place one of the coupling halves around the bottom side of the gasket and swing over the other coupling half into position over the top side of the gasket. In tight areas where a swing-over is not possible, install the coupling halves one at a time. In both cases make sure the coupling keys are engaged in the grooves.

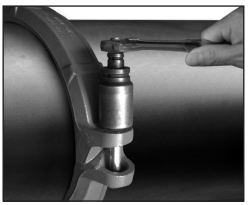
4. INSERT BOLT & NUT: Insert the remaining bolt and apply the nut hand-tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.

5. TIGHTEN NUTS (For 1¼" to 12" Models Z07 and Z05 Couplings and 14" to 24" Model Z07N Couplings): Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

6. LARGE DIAMETER COUPLING: When preparing installation on large diameter couplings consisting of three to four housings,



segments, pre-assemble the segments loosely into two or three equal assemblies depending on sizes. Install those assemblies over the gasket in the same manner as described above.

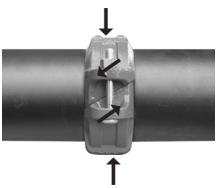


7. TIGHTEN NUTS (For 14" to 24" Models Z07 & Z07N Couplings): Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.



## ⚠ CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

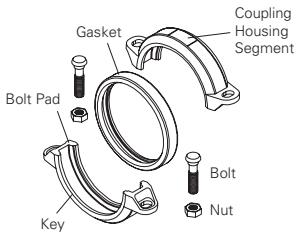


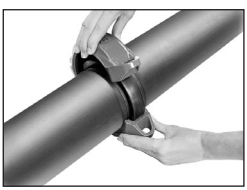
NOTE: As the coupling bolts are tightened, the angled bolt pads slide in opposite directions causing the coupling keys to tightly grip the pipe, while at the same time the pipe grooves are forced outward against the coupling keys. The bolt pads should always maintain metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

# Models 7705, 7705H & 7707 Couplings

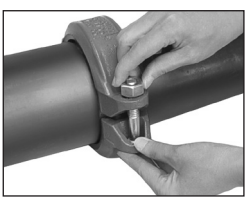
Please read these instructions carefully before installation.

**1.** Refer to page 61 for preliminary steps 1 - 5 for standard groove couplings.



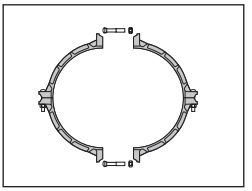
2. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.



3. INSERT BOLT & NUT: Insert the remaining bolt and apply the nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



4. TIGHTEN NUTS (For ¾" to 12" Models 7705, 7707 Couplings and 14" to 26" Model 7707N Couplings): Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.



5. LARGE DIAMETER COUPLING: (28" to 42" Model 7707L Couplings) Large diameter couplings over 26" consist of six to eight housing segments. To prepare installation, pre-assemble the segments loosely into two or three equal segments depending on sizes. Install those assemblies over the gasket in the same manner as described above.



6. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.



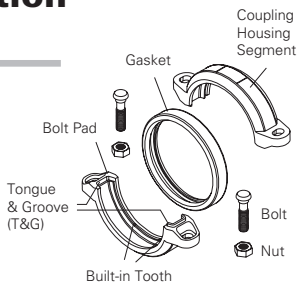

## ⚠ CAUTION

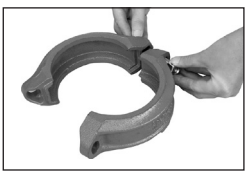
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

# Models K-9, K-9H & 7771 Rigid Couplings Model 7771-T* Transition Coupling

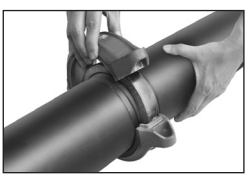
Please read these instructions carefully before installation.

**1.** Refer to page 61 for preliminary steps 1 - 5 for standard groove couplings.



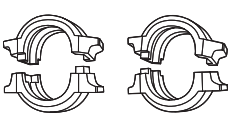



2. ASSEMBLE COUPLING: For a "swing-over" assembly loosely install one bolt and nut on one side of the coupling. For a standard assembly start with the two housings separated.

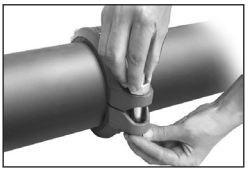


3. INSTALL COUPLING HALVES: For a "swing-over" installation, place one of the coupling halves around the bottom side of the gasket and swing over the other coupling half into position over the top side of the gasket. In tight areas where a swing-over is not possible, install the coupling halves one at a time. In both cases make sure the coupling keys are engaged in the grooves.

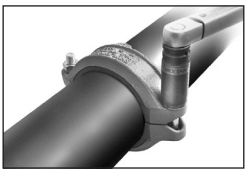
## ⚠ WARNING



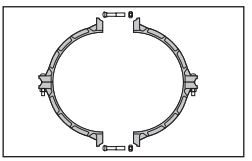

The ***Shurjoint*** Models K-9, K-9H, 7771 & 7771-T couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage or serious injury.



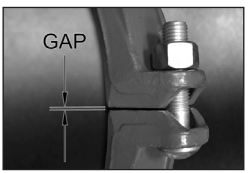
4. INSERT BOLT & NUT: Insert the remaining bolt and apply the nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



5. TIGHTEN NUTS (For 1¼" to 12" Models K9 and 7771 Couplings): Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.



6. LARGE DIAMETER COUPLING: Large diameter 7771 couplings over 12" consist of three to four housing segments. To prepare installation, preassemble the segments loosely into two or three equal assemblies depending on sizes. Install those assemblies over the gasket in the same manner as described above.




7. TIGHTEN NUTS (For 14" to 24" Model 7771 Couplings): Tighten nuts alternately and equally using a torque wrench until the required torque value is achieved. Full metal-to-metal contact is not always required but bolt pad gaps, if any, shall be equal on both sides.

| Coupling Size Pipe O.D. in / mm | Required Torque Lbs-Ft / Nm |
|---|---|
| 14" ~ 18" | 320 ~ 400 |
| 355.6 ~ 457.2 | 434 ~ 542 |
| 20" ~ 24" | 360 ~ 520 |
| 508.0 ~ 609.6 | 488 ~ 705 |

If the bolt pad gaps are greater than ⅛" (3.2 mm) at any, or each of the bolt pads, disassemble and reinstall the coupling after checking the following.

- The coupling, pipe and/or fitting being connected are the correct size.
- The coupling keys are fully engaged in the pipe and/or component grooves.
- The gasket is not being pinched.
- The grooves conform to the applicable groove dimension specifications.
- The pipe end flare is within the specification tolerance.

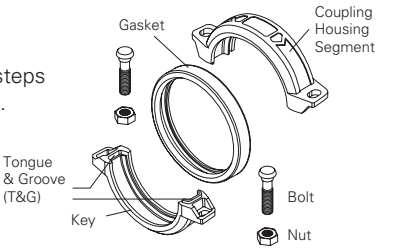
**⚠ CAUTION**

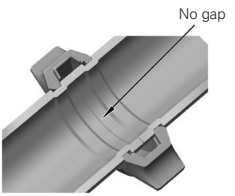
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

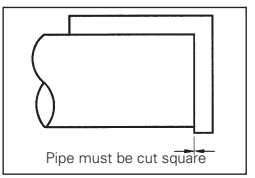
# Model R20 Rigid Coupling

Please read these instructions carefully before installation.

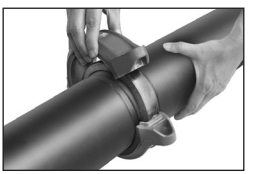
1. Refer to page 61 for preliminary steps 1 - 5 for standard groove couplings.



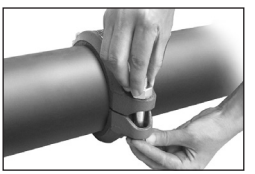



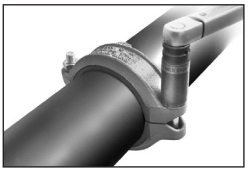

2. SQAURE CUTTING OF PIPE: The Model R20 is designed to eliminate the gap between pipes after installation. In order to achieve a butt joint of the pipe ends, the pipe ends must be cut square.



3. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.



4. INSERT BOLTS & NUTS: Insert the bolts and apply the nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



5. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

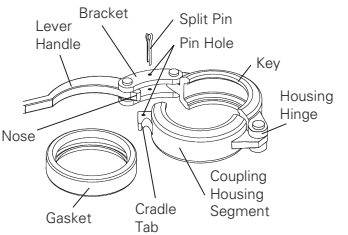
NOTE: The use of ***Shurjoint*** GapSeal gaskets is recommended to enhance the effect of the butt joint and to avoid fluid from entering into the gasket pocket.

## ⚠ CAUTION

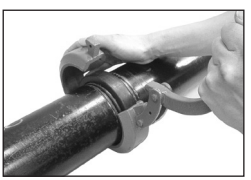
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

# Model G-28 Hinged Lever Coupling

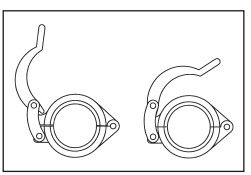
Please read these instructions carefully before installation.



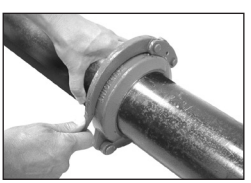

1. Refer to page 61 for preliminary steps 1 - 5 for standard groove couplings.



2. APPLY HOUSING: Open the hinged coupling and mount it around the gasket so that the coupling keys are securely engaged into the grooves.

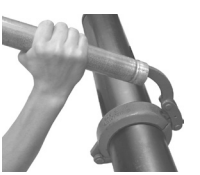


3. ENGAGE HOUSING: Squeeze the housing segments tightly and hook up the nose of the locking handle in the cradle tab of the other housing segment.



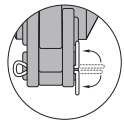
4. CLOSE LEVER HANDLE: Firmly close the lever handle and force it down until it touches the back of the housing.

NOTE: If the lever handle is difficult to open or close the use of a section of steel pipe as shown for increased leverage can avoid injury such as pinched fingers.



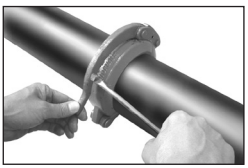


5. INSERT SPLIT PIN:
Insert the split pin through the hole on the bracket of the lever handle to prevent accidental opening of the coupling.



Insert and bend

## To Disassemble



1. REMOVE THE SPLIT PIN: Remove the split pin by hand or with the aid of pliers.

2. LIFT LEVER HANDLE: Lift the lever handle to open the coupling. Use a screwdriver or any other similar tool when necessary for initial leverage.

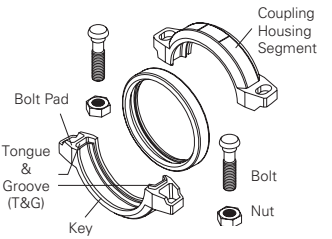
**⚠ WARNING**

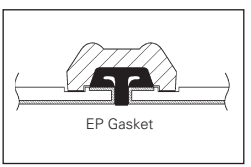
Always depressurize and drain the piping system before attempting disassembly of any component. Failure to do so may result in personal injury and/or property damage.

# Model XH-70EP Extra Heavy Rigid Coupling

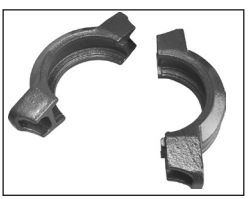
Please read these instructions carefully before installation.

1. Refer to page 61 for preliminary steps 1 - 5 for standard groove couplings.

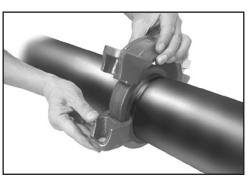



2. Use the ***Shurjoint*** factory supplied EP (end protection) gasket. The XH-70EP must be installed on pipes with Shurjoint EP cut grooves. Refer to page 32.

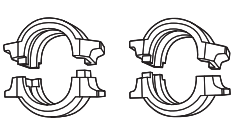


3. ASSEMBLE COUPLING: Start with the two halves separated.

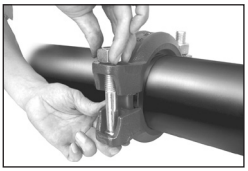


4. ASSEMBLE COUPLING HALVES: Install one half at a time over the gasket ensuring that the coupling keys engage the grooves.

## ⚠ WARNING




The ***Shurjoint*** Model XH-70EP couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage or serious injury.



5. INSERT BOLT & NUT: Insert the first bolt and apply the nut hand tight. Insert the second bolt and nut in the same manner making sure that the oval neck of both bolts engaged the holes in the coupling housing.



6. TIGHTEN NUTS: The XH-70EP assembly has a torque requirement (refer to the table below). Normally you can see some gaps between the bolt pads. Bolt pad gaps should be equal on both sides of the coupling.

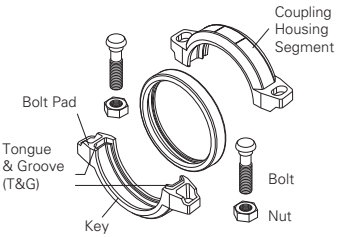
| Coupling Size Pipe O.D. in / mm | Required Torque Lbs-Ft / Nm |
|---|---|
| 2" ~ 3" | 100 ~ 130 |
| 60.3 ~ 88.9 | 135 ~ 175 |
| 4" | 150 ~ 200 |
| 114.3 | 200 ~ 270 |
| 6" | 180 ~ 220 |
| 168.3 | 240 ~ 300 |
| 8" ~ 12" | 200 ~ 300 |
| 219.1 ~ 323.9 | 270 ~ 400 |

## ⚠ CAUTION

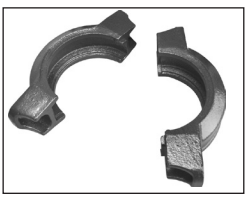
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

# Model XH-1000 Extra Heavy Rigid Coupling

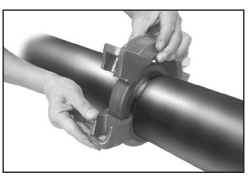
Please read these instructions carefully before installation.




1. Refer to page 61 for preliminary steps 1 - 5 for standard groove couplings.

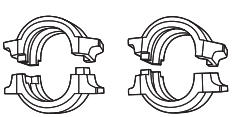


2. ASSEMBLE COUPLING: Start with the two coupling halves separated.



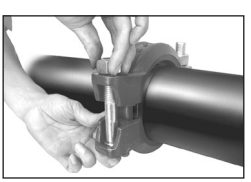
3. ASSEMBLE COUPLING HALVES: Install one half at a time over the gasket making sure that the coupling keys engage the grooves.

**⚠ WARNING**



Yes No

The ***Shurjoint*** Model XH-1000 couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage or serious injury.



4. INSERT BOLT & NUT: Insert the first bolt and apply the nut hand tight. Insert the second bolt and nut in the same manner making sure that the oval neck of both bolts engage the holes in the coupling housing.



5. TIGHTEN NUTS: Sizes 2" through 4" have a torque requirement (refer to the table below). It is normal to see some small gaps between the bolt pads. Bolt pad gaps should be equal on both sides of the coupling.

| Coupling Size Pipe O.D. in / mm | Required Torque Lbs-Ft / Nm |
|---|---|
| 2" ~ 3" | 100 ~ 130 |
| 60.3 ~ 114.3 | 135 ~ 175 |
| 4" | 150 ~ 200 |
| 60.3 ~ 114.3 | 200 ~ 270 |

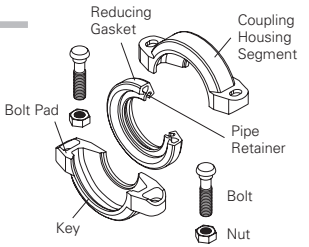
For sizes 6" to 12", tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

**⚠ CAUTION**

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

# Models 7706 & 7706-T Reducing Coupling

Please read these instructions carefully before installation.





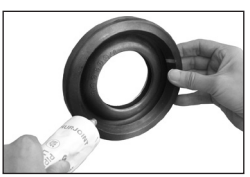

1. INSPECT PIPE ENDS: Make sure that two pipes prepared have the right O.D.'s and are properly roll or cut-grooved. For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.



2. CHECK GASKET: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

**⚠ CAUTION**

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

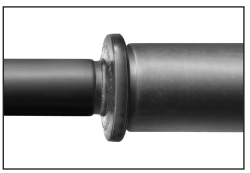


3. LUBRICATE GASKET: To help insert pipe smoothly and mount couplings without pinching, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket and as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket.



4. MOUNT GASKET ON LARGER PIPE: Mount the larger opening of the gasket over the larger pipe end.

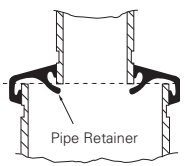
NOTE: To aid a proper installation, always mount the larger pipe



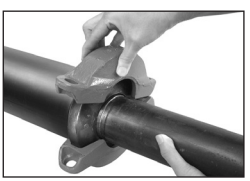
5. INSERT SMALLER PIPE: Bring together and align the two pipes to be mated. Insert the smaller pipe into the gasket. A slight twisting motion of the pipe will make for easier assembly. The gasket should not overhang the end of the pipe or the grooves of either pipe.

**⚠ CAUTION**

The Model 7706 coupling must not be used with an end cap, as the



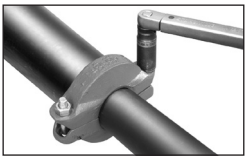

NOTE: No metal washer is required to prevent the smaller pipe from telescoping into the larger pipe. The built-in pipe stopper (or pipe retainer) inside the gasket will help prevent immediate telescoping of the smaller pipe. Nevertheless, careful and gentle insertion of the smaller pipe is required until housings are applied and



6. INSTALL COUPLING HALVES: Place the coupling housing segments over the gasket and make sure that the coupling keys are engaged into the grooves.



7. INSERT BOLT & NUT: Insert the bolts and apply the nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

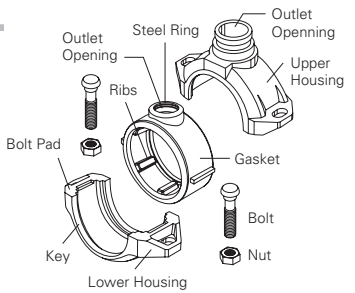



**⚠ CAUTION**

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

# Models C-7 & C-7G Outlet Couplings

Please read these instructions carefully before installation.





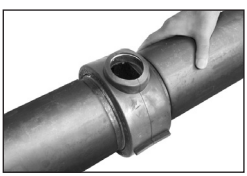

1. LUBRICATE GASKET: Apply a thin layer of *Shurjoint* or other compatible lubricant to the sealing lips and exterior of the gasket as well as to interior of the coupling housings.

**⚠ CAUTION**

The C-7/C-7G gasket contains a plated steel ring inside the outlet neck to aid sealing. Do not remove this steel ring as this could result in a leak or joint failure.



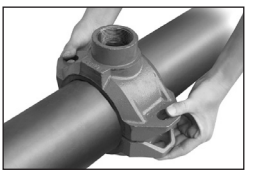
2. INSTALL GASKET: Mount the gasket over one end of the pipe so that the gasket lip covers the area between the pipe end and the groove.



3. INSERT MATING PIPE: Insert the mating pipe into the other end of the gasket. Both pipes shall be installed until their ends touch the built-in internal rib of the gasket, which works as a pipe stop. No part of the gasket should protrude into the groove of either pipe.



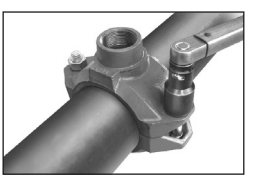
4. INSTALL LOWER HOUSING: Place the lower coupling housing over the gasket around the bottom side of the gasket.



5. POSITION UPPER HOUSING: Place the upper coupling housing over the gasket so that the outlet opening of the housing properly fits on gasket outlet opening. Make sure the housing keys engage the pipe grooves.



6. INSERT BOLT & NUT: Insert bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



7. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

**⚠ CAUTION**

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause a bolt or joint failure.

## Model C-7/C-7G Outlet Coupling Flow Characteristics

| GROOVED OUTLET | |
|---|---|
| Outlet Size in / mm | Equivalent Length Feet (meter) |
| 1 | 9 |
| 25 | 2.7 |
| 1¼ | 4 |
| 32 | 1.2 |
| 1½ | 4 |
| 40 | 1.2 |
| 2 | 13 |
| 50 | 4.0 |

| THREADED OUTLET | |
|---|---|
| Outlet Size in / mm | Equivalent Length feet (meter) |
| 1 | 3 |
| 25 | 0.9 |
| 1½ | 3 |
| 40 | 0.9 |

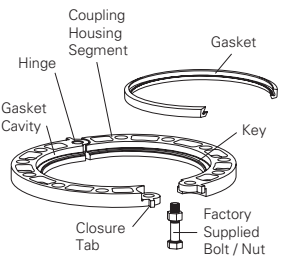
Feet and meter of Schedule 40 steel outlet pipe with a Hazen-Williams coefficient of friction value of 120.

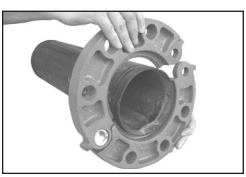
## GROOVED FLANGE ADAPTERS

# Models 7041 & 7043 Grooved Flange Adapters (2" - 12")

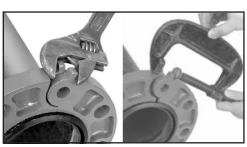
Please read these instructions carefully before installation.

The ***Shurjoint*** Model 7041 flange adapter is drilled to ANSI Class 125/150 and Model 7043 to ANSI Class 300. Model 7041 are also available with drilling to PN10/16 or JIS10K. Please contact ***Shurjoint*** for additional information.

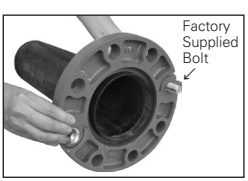


1. MOUNT HINGED FLANGE SEGMENTS: Fully open the Model 7041 or 7043 hinged flange segments. Place the flange segments around the groove of the pipe end and pull together until the mating bolt holes of the ends align.



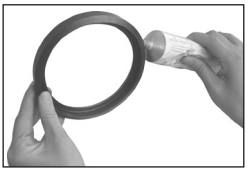
2. DRAW FLANGE SEGMENTS: Use a wrench, C-clamp or other similar tool to draw the closure tabs together until the mating holes are aligned.




3. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** factory supplied bolt through the mating hole making sure that the flange is fully engaged in the pipe grooves.

### ⚠ CAUTION

Use of any bolts other than those supplied with the flange adapter could result in a leak or joint failure.



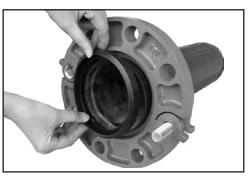
4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

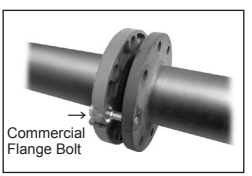
**⚠ CAUTION**

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

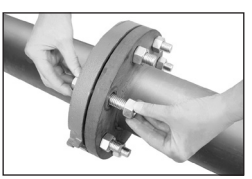
☞ *Refer to page 38 for additional information on gaskets.*



5. INSTALL GASKET: Place the gasket into the gasket cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the gasket pocket.




6. MATE ADJOINING FLANGE: Insert commercial flange bolt in the hinge hole (opposite side the factory supplied bolt) and tighten the nuts of the commercial flange bolt and the factory supplied bolt.

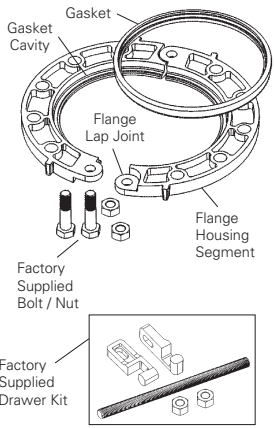


7. ADD BOLTS: Add the remaining commercial flange bolts and apply nuts hand tight. All the bolts shall be inserted from one direction.



8. TIGHTEN NUTS (For 2" to 12" Models 7041 & 7043 Flange Adapters): Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. Use a torque wrench so that all the nuts are tightened with a same torque value. See page 88 Table 1, Table 1a and Table 2 for required torque values.

# Model 7041N
# Flange Adapter (14" - 24")




Please read the instructions carefully before installation.

**1.** Refer to page 61 for preliminary step 1.

The ***Shurjoint*** Model 7041 flange adapter is drilled to ANSI Class 125/150. Model 7041 is also available with drilling to PN16. Please contact ***Shurjoint*** for additional information.

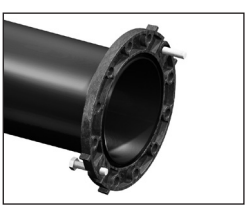


2. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.



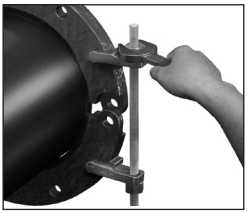
3. ASSEMBLE SEGMENT: Place the half flange segment onto the pipe making sure that the key is engaged in the groove.



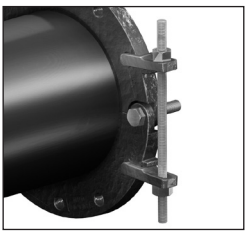
4. INSERT THE FACTORY SUPPLIED BOLT: Apply the other half flange segment and insert the ***Shurjoint*** factory supplied bolts through the mating holes at the flange lap joints and make sure that the flange is fully engaged in the pipe grooves.

**⚠ CAUTION**

Use of any bolts other than those supplied with the flange adapter could result in a leak or joint failure.



5. DRAW FLANGE SEGMENTS: In case it is hard to align the holes at the flange lap joints, use the factory supplied drawer kit to draw the closure tabs together until the mating holes are aligned.



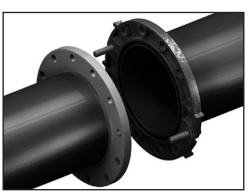
6. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** factory supplied bolt through the mating hole making sure that the flange is fully engaged in the pipe grooves.

**⚠ CAUTION**

Use of any bolts other than those supplied with the flange adapter could result in a leak or joint failure.



7. INSTALL GASKET: Place the gasket into the gasket cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the gasket pocket.



8. MATE ADJOINING FLANGE: Bring the adjoining flange face to face with the Model 7041N flange and insert the two factory supplied bolts through the bolt holes at the flange lap joints. Install remaining commercial bolts as needed for flange size.

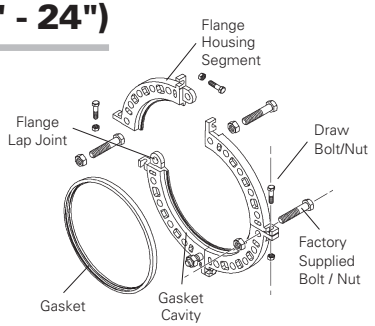


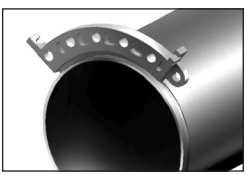
9. TIGHTEN NUTS: Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to metal contact. Use a torque wrench so that all the nuts are tightened with the same torque value. See page 88 Table 1, Table 1a and Table 2 for required torque values.

# Model 7041
# Flange Adapter (14" - 24")

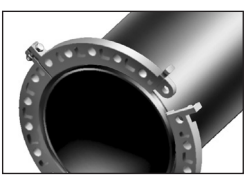
FM APPROVED

Please read these instructions carefully before installation.

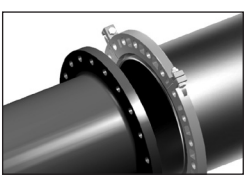


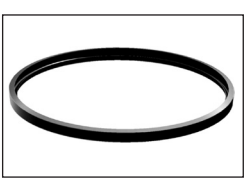
1. ASSEMBLE SEGMENTS: Place the first flange segment onto the pipe making sure that the key is engaged in the groove. As an option, you may put two flange segments together before placing them onto the pipe.



2. ADD OTHER SEGMENTS: Add other flange segments one by one and assemble them with draw bolts. Do not tighten the draw bolt tightly until the final flange segment is brought together and flange alignment is finished.



3. ALIGN FLANGE: Bring the two flanges to be mated together and align their bolt holes. It may sometimes be necessary to loosen the draw bolts to allow for easier rotation and alignment. Once the flanges are properly aligned tighten the draw bolts uniformly to make sure the bolts and nuts are snug and secure.



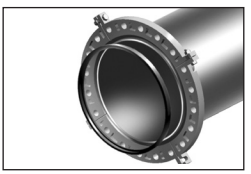
4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

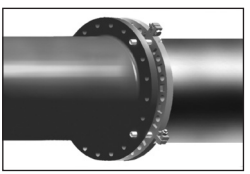
## ⚠ CAUTION

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

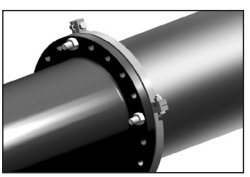
☞ *Refer to page 38 for additional information on gaskets.*



5. INSTALL GASKET: Place the gasket into the gasket cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the gasket pocket.



6. INSERT FACTORY SUPPLIED BOLTS: Bring the adjoining flange face to face with the Model 7041 flange and insert the four factory supplied bolts through the bolt holes at the flange lap joints.



7. MATE ADJOINING FLANGE: Apply four nuts on the four factory supplied bolts and provisionally tighten them. Install remaining commercial bolts as needed for flange size.

## ⚠ CAUTION

Use of any bolts other than those supplied with the flange adapter could result in a leak or joint failure.



8. TIGHTEN NUTS (For 14" to 24" Model 7041 Flange Adapters): Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. Use a torque wrench so that all the nuts are tightened with a same torque value. See page 88 Table 1 and Table 1a for required torque values.

**Required Bolt Torque:** The table below provides the standard torque values for proper assembly of ***Shurjoint*** flange adapters. Use a torque wrench so that all the nuts are tightened equally with a same torque value.

These torque values are not the maximum values and the bolts can be torqued for above the values listed. Attaining maximum torque value is not necessary as the ***Shurjoint*** flange adapters are sealed with elastic (rubber) gaskets,

## Table 1: Flange Adapters
Model 7041 (ANSI Class 125/150)

| Nom. Size inch | Bolt Size inch | Bolt No. | Required Torque Lbs-Ft | Required Torque Nm |
|---|---|---|---|---|
| 2 | ⅝ | 4 | 110 ~ 140 | 149 ~ 190 |
| 2½ | ⅝ | 4 | 110 ~ 140 | 149 ~ 190 |
| 3 | ⅝ | 4 | 110 ~ 140 | 149 ~ 190 |
| 4 | ⅝ | 8 | 110 ~ 140 | 149 ~ 190 |
| 5 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 6 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 8 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 10 | ⅞ | 12 | 320 ~ 400 | 434 ~ 542 |
| 12 | ⅞ | 12 | 320 ~ 400 | 434 ~ 542 |
| 14 | 1 | 12 | 360 ~ 520 | 488 ~ 705 |
| 16 | 1 | 16 | 360 ~ 520 | 488 ~ 705 |
| 18 | 1⅛ | 16 | 450 ~ 725 | 610 ~ 982 |
| 20 | 1⅛ | 20 | 450 ~ 725 | 610 ~ 982 |
| 24 | 1¼ | 20 | 620 ~ 1000 | 841 ~ 1356 |

## Table 1a: Flange Adapters
Model 7041 (PN 10/16)

| Nom. Size inch | Bolt Size inch | Bolt No. | Required Torque Lbs-Ft | Required Torque Nm |
|---|---|---|---|---|
| 50 | M16 | 4 | 110 ~ 140 | 149 ~ 190 |
| 65 | M16 | 4 | 110 ~ 140 | 149 ~ 190 |
| 80 | M16 | 8 | 110 ~ 140 | 149 ~ 190 |
| 100 | M16 | 8 | 110 ~ 140 | 149 ~ 190 |
| 125 | M20 | 8 | 220 ~ 250 | 298 ~ 339 |
| 150 | M20 | 8 | 220 ~ 250 | 298 ~ 339 |
| 200 | M20 | 12 | 220 ~ 250 | 298 ~ 339 |
| 250 | M24 | 12 | 320 ~ 400 | 434 ~ 542 |
| 300 | M24 | 12 | 320 ~ 400 | 434 ~ 542 |
| 350 | M24 | 16 | 320 ~ 400 | 434 ~ 542 |
| 400 | M27 | 16 | 360 ~ 520 | 488 ~ 705 |
| 450 | M27 | 20 | 360 ~ 520 | 488 ~ 705 |
| 500 | M30 | 20 | 450 ~ 725 | 610 ~ 982 |
| 600 | M33 | 20 | 620 ~ 1000 | 841 ~ 1356 |

## Table 2: Flange Adapters
Model 7043 (ANSI Class 300)

| Nom. Size inch | Bolt Size inch | Bolt No. | Required Torque Lbs-Ft | Required Torque Nm |
|---|---|---|---|---|
| 2 | ⅝ | 8 | 110 ~ 140 | 149 ~ 190 |
| 2½ | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 3 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 4 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 5 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 6 | ¾ | 12 | 220 ~ 250 | 298 ~ 339 |
| 8 | ⅞ | 12 | 320 ~ 400 | 434 ~ 542 |
| 10 | 1 | 16 | 360 ~ 520 | 488 ~ 705 |
| 12 | 1⅛ | 16 | 450 ~ 725 | 610 ~ 982 |

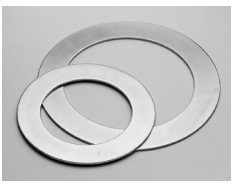
## Table 3: Flange Adapters
Model 7041 (14" - 24")

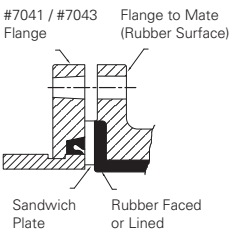
| Nom. Size inch | Bolt Size inch | Bolt No. | Draw Bolt Spec Size |
|---|---|---|---|
| 14 | 1" x 4½" | 12 | 5/8" x 3" |
| 16 | 1" x 4½" | 16 | 5/8" x 3" |
| 18 | 1½" x 5½" | 16 | 5/8" x 3" |
| 20 | 1½" x 5½" | 20 | 5/8" x 3" |
| 22 | 1½" x 5¾" | 20 | ¾" x 3½" |
| 24 | 1½" x 5¾" | 20 | ¾" x 3½" |

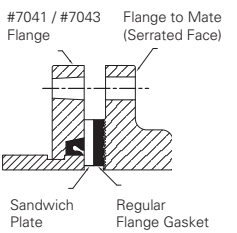
# Models 7041 / 7043 Flange Adapters

## Important Notes

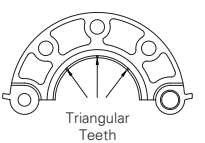
1. Models 7041, 7043, SS-41, and C341 flange adapters require a hard flat face for effective sealing. When the mating surface is not adequate as with the serrated faces of some valves or rubber-faced wafer valves, a sandwich plate (Model 49,) must be used.





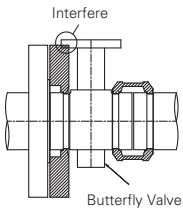




2. The Models 7041 and 7043 flange adapter has small triangular teeth inside the key shoulder to prevent the pipe from rotating.

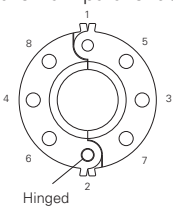


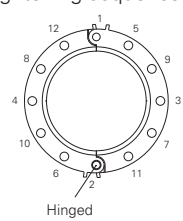
3. Models 7041 and 7043 flange adapters shall not be used as anchor points for tie- rods across non-restrained joints.

4. When assembling a Models 7041 or 7043 flange adapter against a butterfly valve or ball valve, make sure that the outside diameter of the flange adapters do not interfere with the valve actuator or the mounting pad of the actuator.



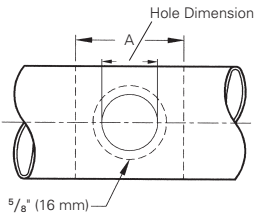

5. Bolt tightening sequence: Like a regular flange joint, it is important to make flange faces contact parallel. Tighten nuts alternately in the sequence of
diagonally opposite pairs as shown below until the flange faces meet and make a metal-to- metal contact and required bolt torque is achieved. When using
two model 7041 flange adapters to mate pipe, or wafer / lug valves, the hinge point locations must be staggered 90° to each other, a model 49 sandwich plate must be used where appropriate, and flange adapter segment housings must remain parallel during nut tightening sequence.



# HOLE-CUT PIPING SYSTEM

The hole-cut method of pipe preparation is required when installing the Models 7721, 7722, M21 & M22 Mechanical Tees and Crosses, Model 723 Saddle-Let, Model SS-723 and Model C723 Mechanical Tees.



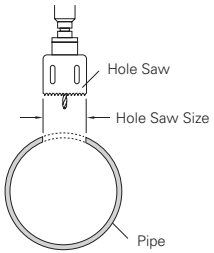

This method of pipe preparation requires the cutting or drilling of a specified hole size on the centerline of the pipe. Always use the correct hole saw size as shown in this handbook and never use a hand torch for cutting a hole. After the hole has been cut all rough edges must be removed and the area within 5/8" (16 mm) of the hole should be inspected to ensure a clean smooth surface, free of any indentations or projections that could affect proper gasket sealing. The area within the "A" dimension should also be inspected and must be free of dirt, scale or any imperfection that could affect proper seating or assembly of the fitting.

## ⚠ CAUTION

The hole must be clearly cut and shall have a smooth edge. Never use a hand torch for cutting a hole as this could affect proper sealing.

# Hole Sizes for Mechanical Tees Models 7721, 7722, M21 & M22

Please refer to the table below for specific hole sizes.

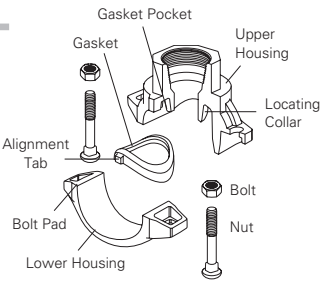



| Models 7721 / 7722 / M21 / M22 Mechanical Tee | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Hole Dimensions | | A | | Hole Dimensions | | A |
| Mechanical Tees Run x Branch in / mm | Hole Saw Size in / mm | Max Dia. Allowed in / mm | Surface Preparation in / mm | Mechanical Tees Run x Branch in / mm | Hole Saw Size in / mm | Max Dia. Allowed in / mm | Surface Preparation in / mm |
| 2 x ½ | 1½ | 1⅝ | 3½ | 4 x 1 | 1½ | 1⅝ | 3½ |
| 50 x 15 | 38 | 41 | 89 | 100 x 25 | 38 | 41 | 89 |
| 2 x ¾ | 1½ | 1⅝ | 3½ | 4 x 1¼ | 2 | 2⅛ | 4 |
| 50 x 20 | 38 | 41 | 89 | 100 x 32 | 51 | 54 | 102 |
| 2 x 1 | 1½ | 1⅝ | 3½ | 4 x 1½ | 2 | 2⅛ | 4 |
| 50 x 25 | 38 | 41 | 89 | 100 x 40 | 51 | 54 | 102 |
| 2 x 1¼ | 1¾* | 1⅞* | 4 | 4 x 2 | 2½ | 2⅝ | 4½ |
| 50 x 32 | 45 | 47 | 102 | 100 x 50 | 64 | 67 | 114 |
| 2 x 1½ | 1¾* | 1⅞* | 4 | 4 x 2½ | 2¾ | 2⅞ | 4¾ |
| 50 x 40 | 45 | 47 | 102 | 100 x 65 | 70 | 73 | 121 |
| 2½ x ½ | 1½ | 1⅝ | 3½ | 4 x 3 | 3½ | 3⅝ | 5½ |
| 65 x 15 | 38 | 41 | 89 | 100 x 80 | 89 | 92 | 140 |
| 2½ x ¾ | 1½ | 1⅝ | 3½ | 5 x 2 | 2½ | 2⅝ | 4½ |
| 65 x 20 | 38 | 41 | 89 | 125 x 50 | 64 | 67 | 114 |
| 2½ x 1 | 1½ | 1⅝ | 3½ | 5 x 2½ | 2¾ | 2⅞ | 4¾ |
| 65 x 25 | 38 | 41 | 89 | 125 x 65 | 70 | 73 | 121 |
| 2½ x 1¼ | 2 | 2⅛ | 4 | 6 x 1¼ | 2 | 2⅛ | 4 |
| 65 x 32 | 51 | 54 | 102 | 150 x 32 | 51 | 54 | 102 |
| 2½ x 1½ | 2 | 2⅛ | 4 | 6 x 1½ | 2 | 2⅛ | 4 |
| 65 x 40 | 51 | 54 | 102 | 150 x 40 | 51 | 54 | 102 |
| 3 x ½ | 1½ | 1⅝ | 3½ | 6 x 2 | 2½ | 2⅝ | 4½ |
| 80 x 15 | 38 | 41 | 89 | 150 x 50 | 64 | 67 | 114 |
| 3 x ¾ | 1½ | 1⅝ | 3½ | 6 x 2½ | 2¾ | 2⅞ | 4¾ |
| 80 x 20 | 38 | 41 | 89 | 150 x 65 | 70 | 73 | 121 |
| 3 x 1 | 1½ | 1⅝ | 3½ | 6 x 3 | 3½ | 3⅝ | 5½ |
| 80 x 25 | 38 | 41 | 89 | 150 x 80 | 89 | 92 | 140 |
| 3 x 1¼ | 2 | 2⅛ | 4 | 6 x 4 | 4½ | 4⅝ | 6½ |
| 80 x 32 | 51 | 54 | 102 | 150 x 100 | 114 | 118 | 165 |
| 3 x 1½ | 2 | 2⅛ | 4 | 8 x 2 | 2¾* | 2⅞* | 4¾ |
| 80 x 40 | 51 | 54 | 102 | 200 x 50 | 70 | 73 | 121 |
| 3 x 2 | 2½ | 2⅝ | 4½ | 8 x 2½ | 2¾ | 2⅞ | 4¾ |
| 80 x 50 | 64 | 67 | 114 | 200 x 65 | 70 | 73 | 121 |
| 4 x ½ | 1½ | 1⅝ | 3½ | 8 x 3 | 3½ | 3⅝ | 5½ |
| 100 x 15 | 38 | 41 | 89 | 200 x 80 | 89 | 92 | 140 |
| 4 x ¾ | 1½ | 1⅝ | 3½ | 8 x 4 | 4½ | 4⅝ | 6½ |
| 100 x 20 | 38 | 41 | 89 | 200 x 100 | 114 | 118 | 165 |

* Important: Make special note of the hole saw size and maximum diameter allowed on these sizes, deviation could lead to joint failure.

# Models 7721 & 7722 Mechanical Tees

Please read these instructions carefully before installation.






1. HOLE CUT: Determine the location for the hole on the pipe. The hole must be directly positioned in the center of the pipe. Any offset can cause the hole to be obround and cause leakage. Use the correct size hole saw as specified on page 83 for cutting the hole.



2. REMOVE BURRS: Remove burrs and clean the pipe surface within ⅝" (16 mm) around the hole where the gasket is to be seated.

**⚠ CAUTION**

The hole must be cleanly cut and shall have a smooth edge. Never use a hand torch for cutting a hole as this could affect proper sealing.



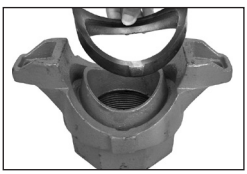
3. CHECK GASKET GRADE AND LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

**⚠ CAUTION**

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

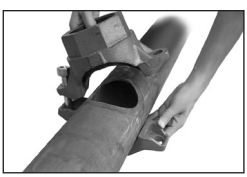
☞ *Refer to page 38 or additional information on gaskets.*



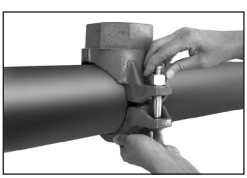
4. INSERT GASKET: Insert the gasket into the gasket pocket of the housing .The alignment tabs on the side of the gasket should properly fit into the recesses.



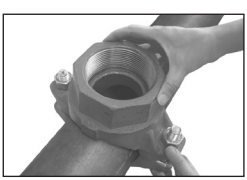
5. PREPARE TO ASSEMBLE: Assemble the coupling housings loosely leaving one nut and bolt off to allow for a "swing-over" installation.



6. POSITION UPPER HOUSING: Place the upper housing on the pipe so that the locating collar engages properly into the hole. Then apply the lower housing from the opposite side of the pipe.



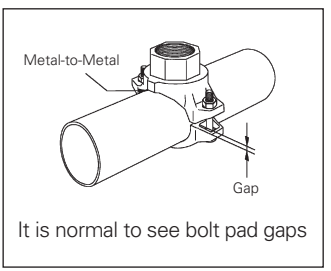
7. INSERT BOLT & NUT: Insert the remaining bolt and apply the nut hand-tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. CHECK LOCATING COLLAR: Double check to ensure the locating collar is properly seated in the hole. This may be checked by rocking the upper housing in the hole. Also make sure that the oval neck of the bolts engages into the bolt hole of the housing.



9. TIGHTEN NUTS: Tighten nuts alternately and equally until the outlet housing comes to contact the outer surface of the pipe, metal-to-metal contact. Gaps between bolts pads are acceptable but the gaps shall be equal on both sides. Use a torque wrench and tighten the nuts to following torque values.




It is normal to see bolt pad gaps

Models 7721 & 7722 Mechanical Tees

| Nom. Size in / mm | Bolt Size inch | Bolt No. | Required Torque Lbs-Ft / Nm |
|---|---|---|---|
| 2 / 50 | ⅜ | 2 | 30 / 40 |
| 2½ / 65 | ½ | 2 | 50 / 68 |
| 3 / 80 | ½ | 2 | |
| 4 / 100 | ½ | 2 | |
| 5 / 125 | ⅝ | 2 | |
| 6 / 150 | ⅝ | 2 | |
| 8 / 200 | ¾ | 2 | |

**⚠ CAUTION**

Do not exceed the above torque values by more than 25% as excessive torque could lead to bolt and/or joint failure.

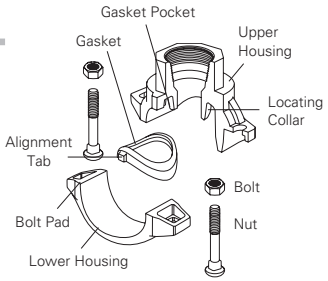
Outlet Flow Characteristics for Mechanical Tee Models 7721 & 7722

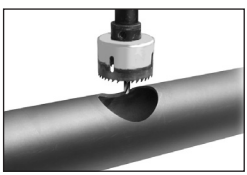
| Outlet Size in / mm | Equivalent Length #7721 feet / meter | Equivalent Length #7722 feet / meter | Outlet Size in / mm | Equivalent Length #7721 feet / meter | Equivalent Length #7722 feet / meter |
|---|---|---|---|---|---|
| 1 | 3.0 | 3.0 | 2½ | 15.0 | 15.0 |
| 25 | 0.9 | 0.9 | 65 | 4.6 | 4.6 |
| 1¼ | 6.0 | 6.0 | 3 | 16.0 | 16.0 |
| 32 | 1.8 | 1.8 | 80 | 4.9 | 4.9 |
| 1½ | 8.0 | 8.0* | 4 | 17.0 | 17.0 |
| 40 | 2.4 | 2.4 | 100 | 5.2 | 5.2 |
| 2 | 9.0 | 9.0 | | | |
| 50 | 2.7 | 2.7 | | | |

Feet and meter of Schedule 40 steel outlet pipe with a Hazen-Williams coefficient of friction value of 120.
*Equivalent length for #7721 with a 1½" outlet and 2" or 2½" main run size is 13 feet (4 meters)

# Models M21 & M22 Mechanical Tees

Please read these instructions carefully before installation.



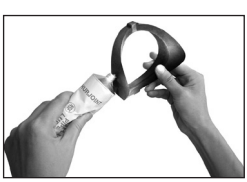
1. HOLE CUT: Determine the location for the hole on the pipe. Use the correct size hole saw as specified on page 83 for cutting the hole.



2. REMOVE BURRS: Remove burrs and clean the pipe surface within ⅝" (16 mm) around the hole where the gasket is to be seated.

**⚠ CAUTION**

The hole must be cleanly cut and shall have a smooth edge. Never use a hand torch for cutting a hole as this could affect proper sealing.

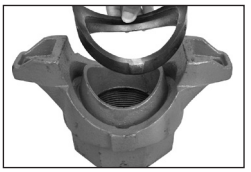


3. CHECK GASKET GRADE AND LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

**⚠ CAUTION**

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.



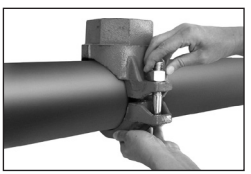
4. INSERT GASKET: Insert the gasket into the gasket pocket of the housing. The alignment tabs on the side of the gasket should properly fit into the recesses.



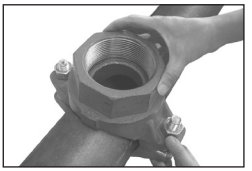
5. PREPARE TO ASSEMBLE: Assemble the coupling housings loosely leaving one nut and bolt off to allow for a "swing-over" installation.



6. POSITION UPPER HOUSING: Place the upper housing on the pipe so that the locating collar engages properly into the hole. Then apply the lower housing from the opposite side of the pipe.



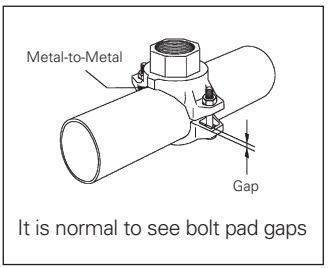
7. INSERT BOLT & NUT: Insert the remaining bolt and apply the nut hand-tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. CHECK LOCATING COLLAR: Double check to ensure the locating collar is properly seated in the hole. This may be checked by rocking the upper housing in the hole. Also make sure that the oval neck of the bolts engages into the bolt hole of the housing.



9. TIGHTEN NUTS: Tighten nuts alternately and equally until the outlet housing comes to contact the outer surface of the pipe, metal-to-metal contact. Gaps between bolts pads are acceptable but the gaps shall be equal on both sides. Use a torque wrench and tighten the nuts to following torque values.



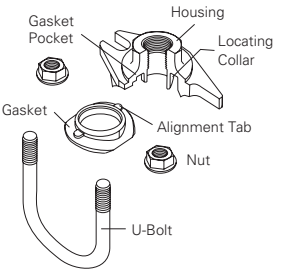
It is normal to see bolt pad gaps

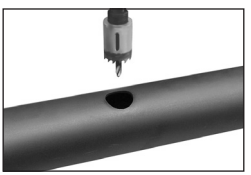
Models M21 & M22 Mechanical Tees

| Nom. Size in / mm | Bolt Size inch | Bolt No. | Required Torque Lbs-Ft / Nm |
|---|---|---|---|
| 2 / 50 | ⅜ | 2 | 30 / 40 |
| 2½ / 65 | ½ | 2 | 50 / 68 |
| 3 / 80 | ½ | 2 | |
| 4 / 100 | ½ | 2 | |
| 5 / 125 | ⅝ | 2 | |
| 6 / 150 | ⅝ | 2 | |
| 8 / 200 | ¾ | 2 | |

# Models 723 & SS-723 Saddle-let Small Mechanical Tees

Please read these instructions carefully before installation.



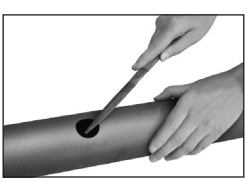



1. HOLE CUT: Determine the location for the hole on the pipe. Use a $1^{3}/_{16}$" (30 mm) hole saw and cut a hole at the desired location. The hole must be directly positioned in the center of the pipe. Any offset can cause the hole to be obround and cause leakage.

Hole Sizes for Mechanical Tees Models 723 & SS-723

| Model 723 Saddle-Let, Models SS-723 Mechanical Tee | | | | |
|---|---|---|---|---|
| | | Hole Dimensions | | Surface Preparation * "A" in / mm |
| Header Size in / mm | Branch Size in / mm | Hole Saw Size in / mm | Max Dia. Allowed in / mm | |
| 1¼ | ½, ¾, 1 | $1^{3}/_{16}$ | 1¼ | 3½ |
| 32 | 15, 20, 25 | 30 | 32 | 89 |
| 1½ | ½, ¾, 1 | $1^{3}/_{16}$ | 1¼ | 3½ |
| 40 | 15, 20, 25 | 30 | 32 | 89 |
| 2 | ½, ¾, 1 | $1^{3}/_{16}$ | 1¼ | 3½ |
| 50 | 15, 20, 25 | 30 | 32 | 89 |
| 2½ | ½, ¾, 1 | $1^{3}/_{16}$ | 1¼ | 3½ |
| 65 | 15, 20, 25 | 30 | 32 | 89 |

* Please refer to page 83.



2. REMOVE BURRS: Remove burrs and clean the pipe surface within $^{5}/_{8}$"(16 mm) around the hole where the gasket is to be seated

## ⚠ CAUTION

The hole must be cleanly cut and shall have a smooth edge. Never use a hand torch for cutting a hole as this could affect proper sealing.

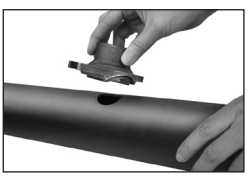


3. INSERT GASKET: Insert the gasket into the gasket pocket of the housing using alignment tabs on side for proper positioning.

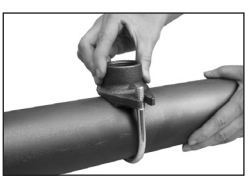
## ⚠ CAUTION

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

☞ *Refer to page 38 for additional information on gaskets.*



4. POSITION LOCATING COLLAR: Position the upper housing on the pipe so that the built-in locating collar fits properly within the hole.





5. INSERT BOLT: Insert the U-bolt from the opposite side of the pipe and apply the nuts hand tight.

NOTE: For SS-723, insert the lower housing from the opposite side of the pipe and apply the bolts and nuts hand tight.



6. TIGHTEN NUT: Check to make sure the locating collar is properly seated in the hole. Tighten the nuts alternately and equally to an approximate torque value of 30 Lbs-Ft (41 Nm).

**⚠ CAUTION**

Excessive torque may lead to gasket distortion, leaks and/or joint failure. To avoid excessive torque use a wrench with a maximum length of 8" (200 mm).

## Outlet Flow Characteristics for Models 723 & SS-723

| Outlet Size in / mm | Equivalent Length feet / meter |
|---|---|
| 1 | 1.2 |
| 25 | 40 |

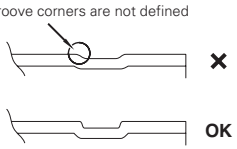
Feet and Meter of Schedule 40 steel outlet pipe with a Hazen-Williams coefficient of friction value of 120.

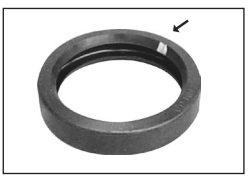
# STAINLESS STEEL COUPLINGS

**How to Install Gaskets - Preliminary Steps -**



1. INSPECT PIPE ENDS: For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust. Insure that the groove has well defined vertical walls.



2. CHECK GASKET: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

## ⚠ CAUTION

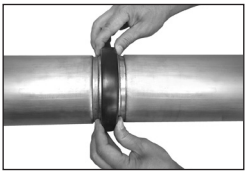
Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.



3. LUBRICATE GASKET: Apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket and as well as to the exterior of the gasket.



4. INSTALL GASKET: Install the gasket over one end of the pipe so that the pipe end is exposed. No part of the gasket should overhang this end of the pipe.

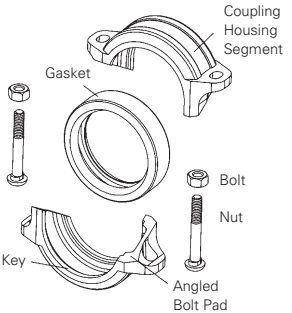


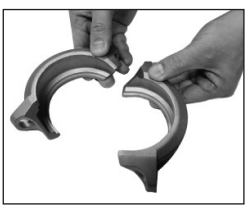
5. BRING THE MATING PIPE TOGETHER: Bring together and align the two pipe ends to be joined. Slide the gasket over the ends and center it between the grooves of the pipe to be joined. No part of the gasket should protrude into the groove of either pipe.

# Model SS-5 Stainless Steel Angle Pad Rigid Couplings

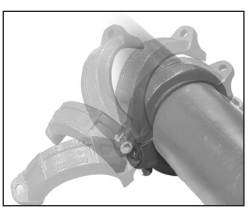
Please read these instructions carefully before installation.

1. Refer to page 93 for preliminary steps 1, 2, 3, 4 & 5.

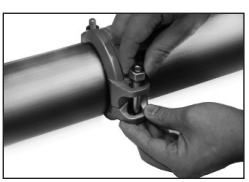


2. ASSEMBLE COUPLING: For a "swing-over" assembly loosely install one bolt and nut on one side of the coupling. For a standard assembly start with the two housings separated.



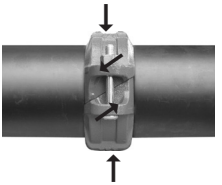
3. INSTALL COUPLING HALVES: For a "swing-over" installation, place one of the coupling halves around the bottom side of the gasket and swing over the other coupling half into position over the top side of the gasket. In tight areas where a swing-over is not possible. install the coupling halves one at a time. In both cases make sure the coupling keys are engaged in the grooves.



4. INSERT BOLT & NUT: Insert the remaining bolt and apply the nut hand-tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



5. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of



NOTE: As the coupling bolts are tightened, the angled bolt pads slide in opposite directions causing the coupling keys to tightly grip the pipe, while at the same time the pipe grooves are forced outward against the coupling keys. The bolt pads should always maintain metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

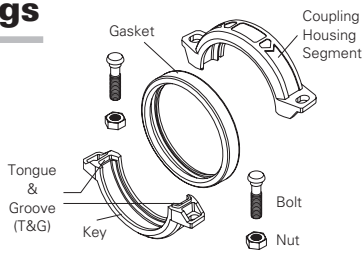
## ⚠ CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

# Models SS-7 & SS-7X* Stainless Steel Rigid Couplings

Please read these instructions carefully before installation.

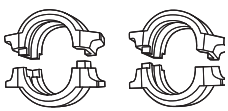
1. Refer to page 102 for preliminary steps 1,2,3,4 & 5.



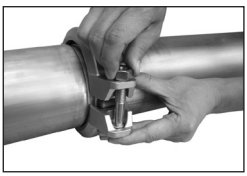



2. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.

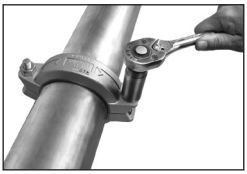
## ⚠ WARNING




The ***Shurjoint*** Models SS-7 & SS-7X couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage or serious injury.

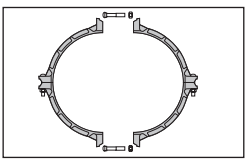


3. INSERT BOLT & NUT: Insert bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.

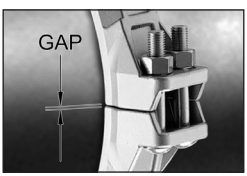


4. TIGHTEN NUTS (For 1¼" to 8" Model SS-7 Couplings): Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.



5. LARGE DIAMETER COUPLING: Large diameter couplings over 14" consist of three to four housing segments. To prepare installation, preassemble the segments loosely into two or three equal assemblies depending on sizes. Install those assemblies over the gasket in the same manner as described above.




6. TIGHTEN NUTS (For 10" to 24" Model SS-7X Couplings): The SS-7X assembly has a torque requirement (refer to the table below). Normally you can see some gaps between the bolt pads. Bolt pad gaps should be equal on all bolt pads of the coupling.




If the bolt pad gaps are greater than ⅛" (3.2 mm), disassemble and reinstall the coupling after checking the following.

- The coupling, pipe and/or fitting being connected are the correct size.

| Stainless recommended torque | | | |
|---|---|---|---|
| bolt size | | torque range | |
| mm | inch | lbs-ft | Nm |
| M8 | 5/16" | 4-8 | 5-11 |
| M10 | 3/8" | 5-10 | 7-14 |
| M12 | 1/2" | 15-25 | 20-34 |
| M16 | 5/8" | 30-45 | 41-61 |
| M20 | 3/4" | 65-80 | 88-108 |
| M22 | 7/8" | 105-135 | 142-183 |

| Nominal Size Pipe O.D. in / mm | Required Torque Lbs-Ft / Nm |
|---|---|
| 10 | 105-135 |
| 273.0 | 142-183 |
| 12 | 105-135 |
| 323.9 | 142-183 |
| 10 JIS | 105-135 |
| 267.4 | 142-183 |
| 12 JIS | 105-135 |
| 318.5 | 142-183 |
| 14 | 105-135 |
| 355.6 | 142-183 |
| 16 | 30-45 |
| 406.4 | 41-61 |
| 18 | 30-45 |
| 457.2 | 41-61 |
| 20 | 65-80 |
| 508.0 | 85-108 |
| 22 | 65-80 |
| 558.8 | 85-108 |
| 24 | 65-80 |
| 609.6 | 85-108 |

- The coupling keys are fully engaged in the pipe and/or component grooves.
- The gasket is not being pinched.
- The grooves conform to the applicable groove dimension specifications.
- The pipe end flare is within the specification tolerance.

NOTE: Excessive torque may cause the galling of stainless steel bolts and nuts. Use of an anti-seize lubricant such as Loctite C5-A to lessen this problem with stainless steel bolts and nuts. The use of silicone bronze nuts is also a good option to avoid galling. Contact ***Shurjoint*** for additional information.

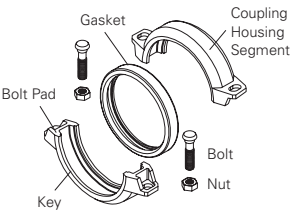
## ⚠ CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 107. Excessive torque may lead to bolt or joint failure.

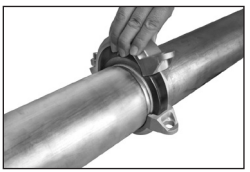
* SS-7X is not UL listed.

# Models SS-8 & SS-8X* Stainless Steel Standard Couplings

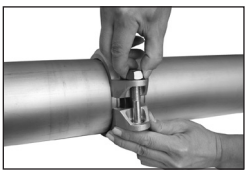
Please read these instructions carefully before installation.




1. Refer to page 102 for preliminary steps 1,2,3,4 & 5.



2. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.



3. INSERT BOLT & NUT: Insert bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



4. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

NOTE: Excessive torque may cause the galling of stainless steel bolts and nuts. Use of an anti-seize lubricant such as Loctite C5-A to lessen this problem with stainless steel bolts and nuts. The use of silicone bronze nuts is also a good option to avoid galling. Contact ***Shurjoint*** for additional information.

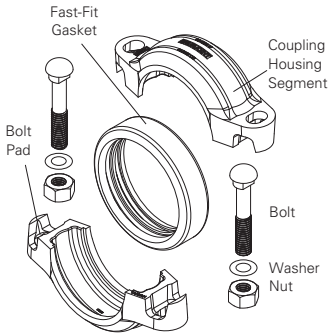
## ⚠ CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 107. Excessive torque may lead to bolt or joint failure.

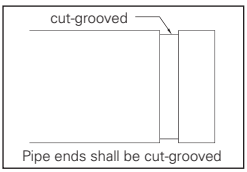
* SS-8X is not UL listed.

# Model SS-1200 Stainless Steel Flexible Coupling

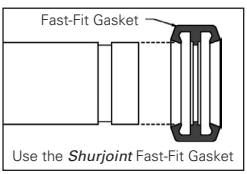
Please read these instructions carefully before installation.



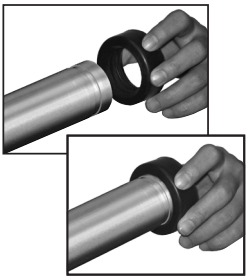

The ***Shurjoint*** Model SS-1200 is designed for high pressure applications including reverse osmosis and desalination systems. The coupling is supplied standard a proprietary ***Shurjoint*** Fast-Fit gasket, type 316 track bolts, washers and silicone bronze nuts. The SS-1200 performance standards are based on use with cut groove pipe ends only.




1. CUT GROOVE PIPE ENDS: Cut groove the pipe ends to be connected. The performance standards do not support use with roll-grooved pipe ends.

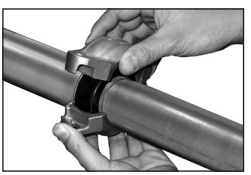



2. CHECK GASKET: Always use the factory supplied ***Shurjoint*** Fast-Fit gasket. Performance standards do not support the use of a standard gasket in the SS-1200 coupling. Use of a lubricant is usually not required. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended. If a lubricant is used make sure to use the ***Shurjoint*** or other compatible NSF 61 approved lubricant.

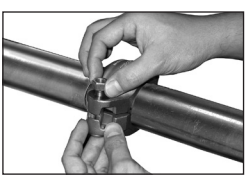


Easy installation with a single hand

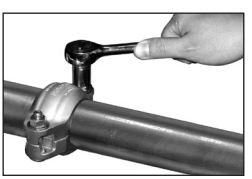
3. MOUNT GASKET ON PIPE ENDS: Insert one pipe end into the Fast-Fit gasket, then insert the other pipe end to be connected into the other side of the gasket. The Fast-Fit gasket design allows for the direct insertion of the pipe ends into the gasket without stretching the gasket.



4. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.



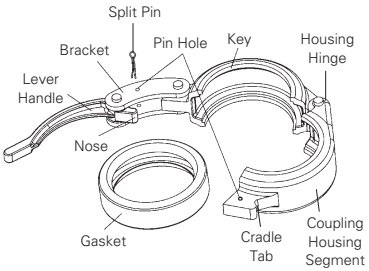
5. INSERT BOLT & NUT: Insert the factory supplied bolt through the bolt pads. Place the washer over the bolt and assemble the silicone bronze nut (hand tight) on the bolt. The use of other bolts and nuts could lead to joint failure or galling.



6. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

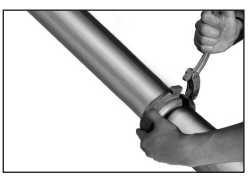


# Model SS-28 Stainless Steel Hinged Lever Coupling

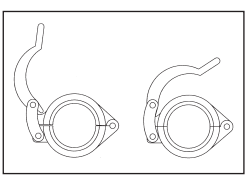



Please read these instructions carefully before installation.

1. Refer to page 102 for preliminary steps 1,2,3,4 & 5.



2. APPLY HOUSING: Open the hinged coupling and mount it around the gasket so that the coupling keys are securely engaged into the grooves.



3. ENGAGE HOUSING: Squeeze the housing segments tightly and hook up the nose of the locking handle in the cradle tab of the other housing segment.



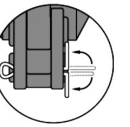
4. CLOSE LEVER HANDLE: Lift the lever handle and force it down until it touches the back of the housing.

NOTE: If the lever handle is difficult to open or close the use of a section of steel pipe as shown for increased leverage can avoid injury such as pinched fingers.





5. INSERT SPLIT PIN: Insert the split pin through the hole on the bracket of the lever handle and bend to prevent accidental opening of the coupling.



Insert and Bend

## To Disassemble



1. REMOVE THE SPLIT PIN: Remove the split pin by hand or with the aid of pliers.

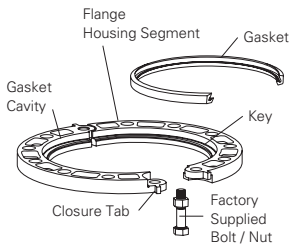
2. LIFT LEVER HANDLE: Lift the lever handle to open the coupling. Use a screwdriver or any other similar tool when necessary for initial leverage.

**⚠ WARNING**

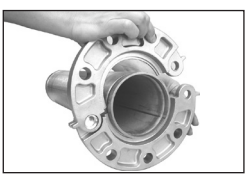
Always depressurize and drain the piping system before attempting disassembly of any component.

# Model SS-41
# Stainless Steel Flange Adapter

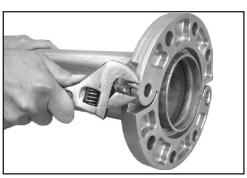
Please read these instructions carefully before installation.



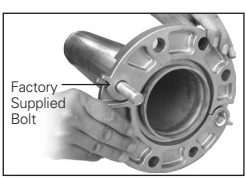

NOTE: The ***Shurjoint*** Model SS-41 flange adapter is drilled to ANSI Class 125/150.



1. MOUNT FLANGE SEGMENTS: Fully open the Model SS-41 flange segments. Place the flange segments around the groove of the pipe end and pull together until the mating bolt holes of the ends come to align.



2. DRAW FLANGE SEGMENTS: Use a wrench, C-clamp or other similar tool to draw the closure tabs together until the mating holes are aligned.




3. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** factory supplied bolt through the mating hole making sure that the flange is fully engaged in the pipe grooves.

**⚠ CAUTION**

Use of any bolt other than the one supplied with the flange adapter could result in a leak or joint failure.



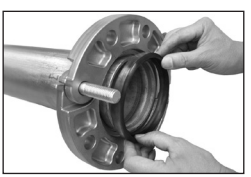

4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

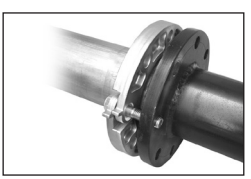
**⚠ CAUTION**

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

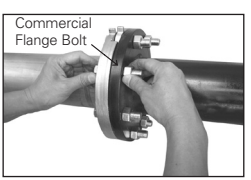
☞ *Refer to page 38 for additional information on gaskets.*



5. INSTALL GASKET: Place the gasket into the cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the flange recess.

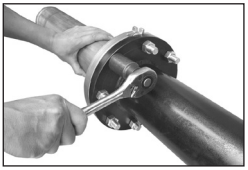


6. MATE ADJOINING FLANGE: Insert commercial flange bolt in the hole (opposite side the factory supplied bolt) and tighten the nuts of the commercial flange bolt and the factory supplied bolt.




7. ADD BOLTS: Add the remaining commercial flange bolts and apply nuts hand tight. All the bolts shall be inserted from the same direction.

☞ *Refer to page 129 for additional information on sandwich plates.*



8. TIGHTEN NUTS: Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. Use a torque wrench so that all the nuts are tightened with a same torque value.

Required Bolt Torque: The table below provides the standard torque values for proper assembly of ***Shurjoint*** flange adapters. Use a torque wrench so that all the nuts are tightened equally with a same torque value.

These torque values are not the maximum values and the bolts can be torqued for above the values listed. Attaining maximum torque value is not necessary as the ***Shurjoint*** flange adapters are sealed with elastic (rubber) gaskets, which require a much lower torque than that of metallic gaskets.

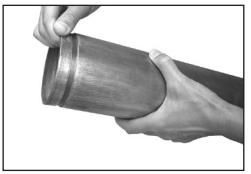
***Shurjoint*** **Flange Adapter ANSI Class 125/150**
**Model SS-41**

| Nom. Size inch | Bolt | | Required Torque | |
|---|---|---|---|---|
| | Size inch | No. | Lbs-Ft | Nm |
| 2 | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 2½ | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 3 | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 4 | 5/8 | 8 | 110 ~ 140 | 149 ~ 190 |
| 5 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 6 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 8 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 10 | 7/8 | 12 | 320 ~ 400 | 434 ~ 542 |
| 12 | 7/8 | 12 | 320 ~ 400 | 434 ~ 542 |
| 14 | 1 | 12 | 360 ~ 520 | 488 ~ 705 |
| 16 | 1 | 16 | 360 ~ 520 | 488 ~ 705 |
| 18 | 1 1/8 | 16 | 450 ~ 725 | 610 ~ 982 |
| 20 | 1 1/8 | 20 | 450 ~ 725 | 610 ~ 982 |
| 24 | 1 ¼ | 20 | 620 ~ 1000 | 841 ~ 1356 |

NOTE: When joining the SS-41 to carbon steel flanges it is recommended that a dielectric flange kit be used. Use of a stainless-steel Model 49 sandwich plate may be necessary to insure a proper seal with dielectric flange gaskets.

# COPPER TUBING SERIES

**How to Install Gaskets - Preliminary Steps -**



1. INSPECT PIPE ENDS: For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.



2. CHECK GASKET: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket for the copper series is a grade E-pw GapSeal gasket for potable water applications (double green stripe).

## ⚠ CAUTION

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

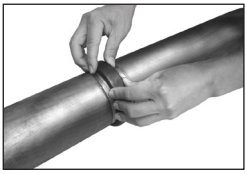
☞ *Refer to page 38 for additional information on gaskets.*




3. LUBRICATE GASKET: Apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket as well as to the exterior of the gasket. For potable water applications a NSF 61 approved lubricant must be used. If you are not using ***Shurjoint*** Lubricant make sure the lubricant you are using is NSF 61 approved. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended.



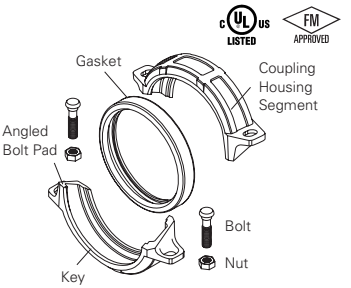
4. INSTALL GASKET: Install the gasket over one end of the pipe so that the pipe end is exposed. No part of the gasket should overhang this end of the pipe.



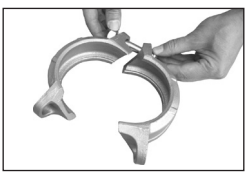
5. BRING THE MATING PIPE TOGETHER: Bring together and align the two pipe ends to be joined. Slide the gasket over the ends and center it between the grooves of the pipes to be joined. No part of the gasket should protrude into the groove of either pipe.

# Model C305 Rigid Coupling

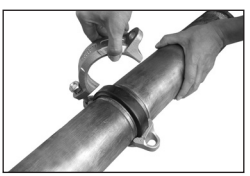
Please read these instructions carefully before installation.



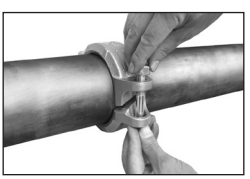

1. Refer to page 108 for preliminary steps 1,2,3,4 & 5.



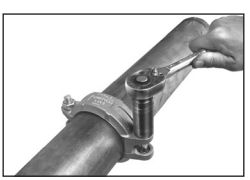
2. ASSEMBLE COUPLING: If assembled remove one nut and bolt from one side of the coupling and loosen the nut on the opposite side. If unassembled loosely install one bolt and nut on one side of the coupling. This assembly with one bolt and nut allows for a "swing-over" installation.



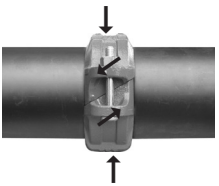
3. INSTALL COUPLING HALVES: Place one of the coupling halves over the gasket and swing-over the other coupling half into position. Make sure that the coupling keys are engaged into the grooves.



4. INSERT BOLT & NUT: Insert the remaining bolt and apply the nut hand-tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



5. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of



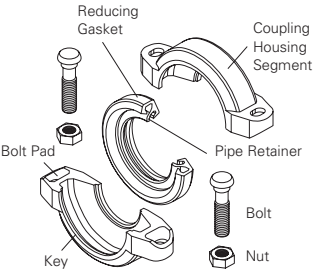
NOTE: As the coupling bolts are tightened, the angled bolt pads slide in opposite directions causing the coupling keys to tightly grip the pipe, while at the same time the pipe grooves are forced outward against the coupling keys. Bolt pads should always maintain metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is

**⚠ CAUTION**

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

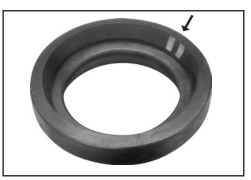
# Model C306 Reducing Coupling

Please read these instructions carefully before installation.






1. INSPECT PIPE ENDS: Make sure that two pipes prepared have the right O.D.'s and are properly grooved. For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.



2. CHECK GASKET: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket for the copper series is a grade E-pw GapSeal gasket for potable water applications (double green stripe).

**⚠ CAUTION**

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.

☞ *Refer to page 38 for additional information on gaskets.*



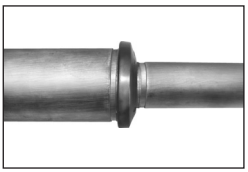
3. LUBRICATE GASKET: To help insert pipe smoothly and mount couplings smoothly without pinching, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket.

NOTE: For potable water applications, a NSF 61 approved lubricant must be used. If you are not using ***Shurjoint*** Lubricant, make sure the lubricant you are using is NSF 61 approved. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended.



4. MOUNT GASKET ON LARGER PIPE: Mount the larger opening of the gasket over the larger pipe end.

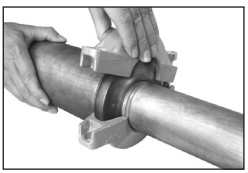
NOTE: To aid a proper installation, always mount the larger pipe first.



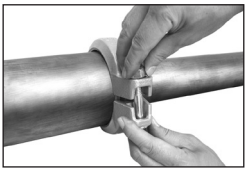
5. INSERT SMALLER PIPE: Insert the smaller pipe into the gasket. A slight twisting motion of the pipe will make for easier assembly. The gasket shall neither overhang pipe end nor go into the groove of either pipe.

**⚠ CAUTION**

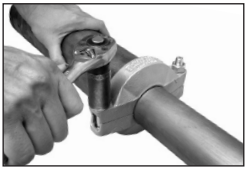
The Model C306 coupling must not be used with an end cap, as the end cap may be sucked into pipe when draining the system.



6. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.



7. INSERT BOLT & NUT: Insert the bolts and apply the nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

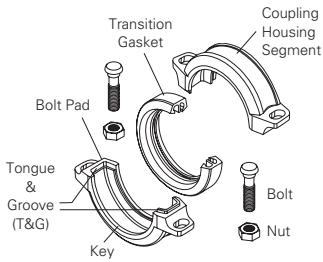



**⚠ CAUTION**

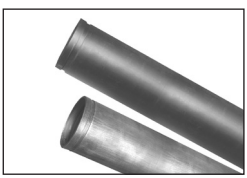
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

# Model C307 Transition Coupling

Please read these instructions carefully before installation.




The ***Shurjoint*** Model C307 provides a direct transition from grooved IPS steel pipe to grooved CTS copper tubing.



1. PREPARE PIPES: Make sure that the IPS steel pipe and copper tubing prepared have the right O.D.'s and are properly roll- or cut-grooved. For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

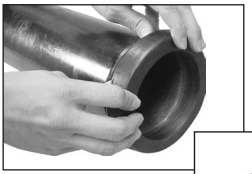


2. CHECK GASKET : Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket for the copper series is a grade E-pw GapSeal gasket for potable water applications (double green stripe).



3. LUBRICATE GASKET: To help insert pipe smoothly and mount couplings smoothly without pinching, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket and as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended.

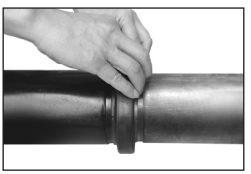
NOTE: For potable water applications, a NSF 61 approved lubricant must be used. If you are not using ***Shurjoint*** Lubricant, make sure the lubricant you are using is NSF 61 approved. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended.



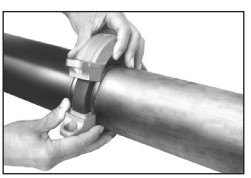
4. MOUNT GASKET ON IPS (STEEL) PIPE: Mount the larger opening of the gasket over the IPS steel pipe end.




NOTE: To aid a proper installation, always mount the larger pipe first.

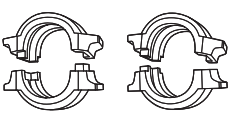


5. INSERT COPPER TUBING: Bring together and align the two pipes to mated. Insert the copper tubing into the gasket. A slight twisting motion will make for a easier assembly. The gasket shall neither overhang the pipe end or either groove on the pipes.



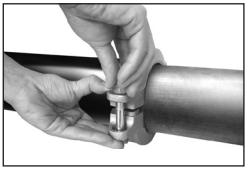
6. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.

## ⚠ WARNING



Yes No

The ***Shurjoint*** Model C307 couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage or serious injury.



7. INSTALL BOLT & NUT: Insert the bolts and apply the nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.



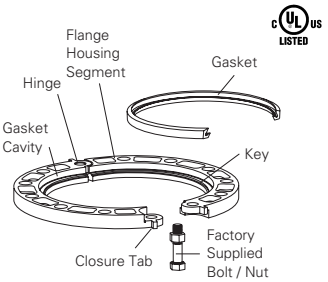

**⚠ CAUTION**

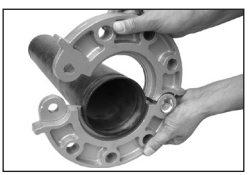
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

# Model C341 Flange Adapter

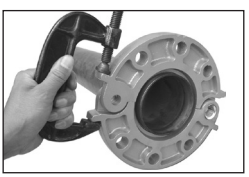
## Please read these instructions carefully before installation.

The ***Shurjoint*** Model C341 flange adapter is drilled to ANSI Class 125/150.

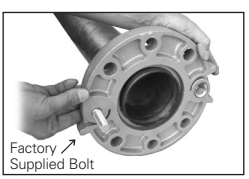


1. MOUNT HINGED FLANGE SEGMENTS: Fully open the Model C341 hinged flange segments. Place the flange segments around the groove of the pipe end and pull together until the mating bolt holes of the ends come to align.



2. DRAW FLANGE SEGMENTS: Use a wrench, C-clamp or other similar tool to draw the closure tabs together until the mating holes are aligned.




3. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** factory supplied bolt through the mating hole making sure that the flange is fully engaged in the pipe grooves.



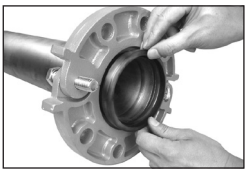
4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended.

The standard factory supplied gasket is grade E-pw gasket, which is double green stripe coded and is acceptable for potable water services.

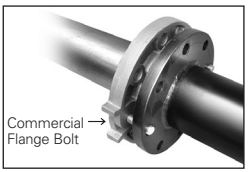
☞ *Refer to page 38 for additional information*

**⚠ CAUTION**

Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.



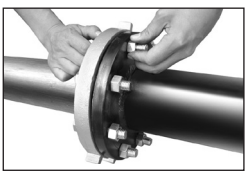
5. INSTALL GASKET: Place the gasket into the cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the flange recess.



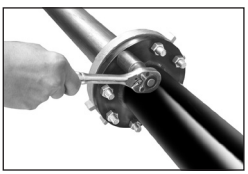

6. MATE ADJOINING FLANGE: Insert commercial flange bolt in the hinge hole (opposite side of the factory supplied bolt) and tighten the nuts of the commercial flange bolt and the factory supplied bolt.

**⚠ CAUTION**

Use of any bolts other than those supplied with the flange adapter could result in a leak or joint failure.



7. ADD BOLTS: Add the remaining commercial flange bolts and apply the nuts hand tight. All the bolts shall be inserted from the same direction.



8. TIGHTEN NUTS: Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. Use a torque wrench so that all the nuts are tightened with the same torque value. See below table for required torque values.

NOTE: When joining the C341 to carbon steel flanges it is recommended that a dielectric flange kit be used. Use of a Model C49 sandwich plate may be necessary to insure a proper seal with dielectric flange gaskets.

Required Bolt Torque: The table below provides the standard torque values for proper assembly of ***Shurjoint*** flange adapter. Use a torque wrench so that all the nuts are tightened equally with a same torque value.

These torque values are not the maximum values and the bolts can be torqued for above the values listed. Attaining maximum torque value is not necessary as the ***Shurjoint*** flange adapter are sealed with elastic (rubber) gaskets, which require a much lower torque than that of metallic gaskets.

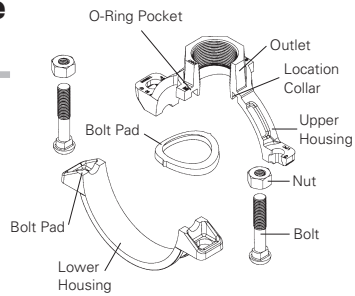
***Shurjoint*** **Flange Adapter ANSI Class 125/150**
**Model C341**

| Nom. Size inch | Bolt | | Required Torque | |
|---|---|---|---|---|
| | Size inch | No. | Lbs-Ft | Nm |
| 2 | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 2½ | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 3 | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 4 | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 5 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 6 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |

NOTE: If using a sandwich plate for sealing needs – insert the plate between the rubber bodied valve and flange adapter seal using loosely fitted bolts and nuts to help support the plate in the correct position between the two faces. Then add additional bolts and tighten evenly.

# Model C723 Bronze Mechanical Tee

Please read these instructions carefully before installation.



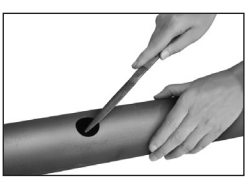



1. HOLE CUT: Determine the proper location on the centerline of the tubing. Use the proper hole saw as specified for cutting the hole. Proper hole size is essential for proper sealing and performance of this component.

**Hole Size for Mechanical Tee Model C723**
**Hole Dimension:**

| Branch Size in / mm | Hole Dimensions | | Surface Preparation "A"* in / mm |
|---|---|---|---|
| | Hole Saw Size in / mm | Max. Dia. Allowed in / mm | |
| ½, ¾, 1 | 1 3/16 | 1 ¼ | 3½ |
| 15, 20, 25 | 30 | 32 | 89 |
| 1 ¼ | 1¾ | 1⅞ | 4 |
| 32 | 45 | 47 | 102 |

* Please refer to page 83.



2. REMOVE BURRS: Remove any burrs and clean the pipe surface within ⅝" (16 mm) of the hole. This surface must be clean, smooth and free of any projections, indentations that could affect the sealing of the o-ring gasket.

**⚠ CAUTION**

The hole must be cleanly cut and shall have a smooth edge. Never use a hand torch for cutting a hole as this could affect proper sealing.



3. CHECK THE O-RING GASKET AND LUBRICATE: Check the color code of the o-ring gasket and make sure that the o-ring gasket supplied is correct for the intended service. Then apply a thin layer of ***Shurjoint*** Lubricant to the o-ring gasket. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended.

The standard factory supplied o-ring gasket is grade E-pw EPDM (color code – double green stripe) and is basically good for potable water services.



4. INSERT GASKET: Insert the o-ring gasket into the gasket pocket of the housing.



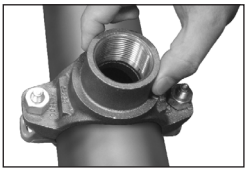
5. PREPARE TO ASSEMBLE: Assemble the coupling housings loosely, leaving one nut and bolt off to allow a "swing-over" installation.



6. POSITION THE UPPER HOUSING: Place the upper housing on the pipe so that the locating collar engages fully and properly in the hole. Then apply the lower housing from the opposite side of the pipe.



7. INSERT BOLT & NUT: Insert the remaining bolt & nut and apply both nuts hand tight. Make sure the oval neck of the bolts fully engages into the bolt hole of the housing.

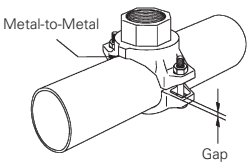


8. CHECK LOCATING COLLAR: Double check to ensure the locating collar is properly seated in the hole. This may be checked by slightly rocking the upper housing in the hole. Also make sure that the oval neck of the bolts is fully engaged into the bolt holes of the housing.



9. TIGHTEN NUTS: Tighten nuts alternately and equally until the outlet housing comes to contact the outer surface of the pipe, metal-to-metal contact. Gaps between bolt pads are normal but the gaps shall be equal on both sides. Use a torque wrench and tighten the nuts to an approximate torque value of 5-9 Lbs-Ft (7-12 Nm).





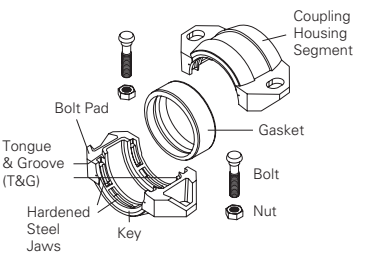

## ⚠ CAUTION

Increased torque does not enhance the sealing capacity of the component. Excessive tightening of nuts may cause a bolt or joint failure, and / or pipe deformation and cause leaking. To help avoid excessive torque use a wrench with a maximum length of 8" (200

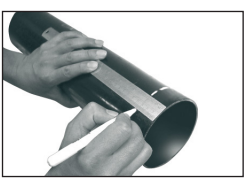
# PLAIN-END IPS PIPING SYSTEM

## Model 79 "Wildcat" Coupling

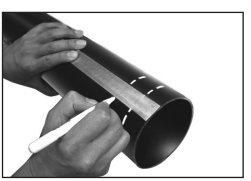
Please read these instructions carefully before installation.




The ***Shurjoint*** Model 79 "WILDCAT" plain end coupling is designed to mechanically join plain-end or beveled end carbon steel pipe. No grooving is required. The Model 79 coupling is recommended for use on carbon steel pipe with a hardness less than HB150, not recommended for stainless steel, plastic, HDPE cast iron or other brittle pipe.



1. MARKING: Use a marking pen or other marking tool and measuring tape to place marks on each pipe end, 1" from each end. This mark will be used for reference in centering the gasket during installation. A minimum of 4 marks equally spaced around the pipe are recommended.



2. Use a measuring tape and a marking pen or other marking tool to mark an additional mark on the pipe ends at the measurement listed in the column "Coupling Centering Marks" of the Table 1 on page 126. This mark will be used for visual inspection to make sure the pipe is inserted properly in the coupling. Make these marks parallel to the marks from the gasket centering reference marks.



3. CHECK GASKET: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

**⚠ CAUTION**

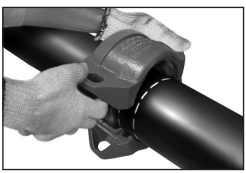
Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.



4. LUBRICATE GASKET: To help insert pipe smoothly and mount couplings smoothly without pinching, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket and as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket. In systems, subject to extreme hot or cold temperatures, the use of ***Shurjoint*** EHC silicone lube is recommended.



5. INSTALL GASKET: Place a gasket over the pipe ends and center the gasket in between the first set inner marks. The pipe ends should always be butted against each other.



6. MOUNT HOUSINGS: Place the housings over the gasket, ensuring the gasket stay centered between the first set inner marks made on the pipe ends and the housings are properly centered between the second set outer marks. Also make sure that housing tongue and groove (T&G) mate correctly.

**⚠ CAUTION**

In order to avoid injuries from the sharp machined teeth, wear gloves when handling.



7. INSERT BOLTS & NUTS: Insert the bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. TIGHTEN NUTS: Tighten nuts alternately and equally, using a torque wrench, until the required torque value is achieved. Insufficient torque can lead to pipe separation, which can cause injuries and / or property damage. For required torque values, see table below.

Table 1
Coupling Centering Mark & Minimum Required Torque for Model 79 Wildcat Coupling

| Size in / mm | Coupling Centering Mark in / mm | Couplings Bolts | | |
|---|---|---|---|---|
| | | Q'ty | Bolt Size in | Required Bolt Torque Lbs-Ft / Nm |
| 1 | 1.50 | 2 | ½ x 2⅜ | 110 |
| 25 | 40 | | | 150 |
| 1½ | 1.50 | 2 | ½ x 2⅜ | 110 |
| 40 | 40 | | | 150 |
| 2 | 1.75 | 2 | ⅝ x 3½ | 150 |
| 50 | 45 | | | 200 |
| 2½ | 1.75 | 2 | ⅝ x 3½ | 150 |
| 65 | 45 | | | 200 |
| 3 | 1.75 | 2 | ¾ x 4¾ | 200 |
| 80 | 45 | | | 270 |
| 4 | 2.00 | 2 | ¾ x 4¾ | 200 |
| 100 | 50 | | | 270 |
| 5 | 2.00 | 2 | ⅞ x 6½ | 250 |
| 125 | 50 | | | 340 |
| 6 | 2.25 | 2 | ⅞ x 6½ | 250 |
| 150 | 55 | | | 340 |
| 8 | 2.50 | 4 | ¾ x 4¾ | 200 |
| 200 | 65 | | | 270 |
| 10 | 2.50 | 4 | ⅞ x 6½ | 300 |
| 250 | 65 | | | 400 |
| 12 | 2.50 | 4 | 1 x 6½ | 350 |
| 300 | 65 | | | 470 |
| 14 | 2.75 | 4 | 1 x 6½ | 350 |
| 350 | 70 | | | 470 |
| 16 | 2.75 | 4 | 1 x 6½ | 350 |
| 400 | 70 | | | 470 |

## ⚠ CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure.

# PLAIN-END HDPE PIPING SYSTEM

The ***Shurjoint*** HDPE series of piping components are designed to provide a fast and easy way to mechanically join HDPE (high density polyethylene) pipe. These components are designed to join HDPE pipe and fittings conforming to ASTM D2447, D3035 or F714 (metric sizes to ISO 161/1, DIN 8074 and AS 8074), at ambient temperatures with wall thickness from SDR 32.5 to 7.3. This method eliminates the need for costly heat fusion equipment, solvent joining and/or complicated adapters. ***Shurjoint*** HDPE piping components are rated to the same pressure as that of the HDPE pipe they are used in conjunction with.

Working Pressure: Since the physical strength of the ***Shurjoint*** HDPE couplings joint is much greater than HDPE pipe, working pressures are governed by the working pressures of the HDPE pipe, which vary depending on pipe composition, wall thickness and service temperature.

## HDPE Pipe

This chart shows the allowed dimensional tolerances of HDPE (high density polyethylene) rigid pipe with SDR 20 at +70°F (+21°C).

## HDPE PIPE DIMENSIONS

Pipe Size/Tolerances – Imperial (ANSI/NPS)

| Nominal Size in / mm | Pipe O.D. in / mm | Tol. in / mm | Max. Out of Round Tol. in / mm | Nominal Size in / mm | Pipe O.D. in / mm | Tol. in / mm | Max. Out of Round Tol. in / mm |
|---|---|---|---|---|---|---|---|
| 2 | 2.375 | 0.016 | 0.040 | 10 | 10.750 | 0.048 | 0.075 |
| 50 | 60.3 | ± 0.406 | ± 1.016 | 250 | 273.0 | ± 1.219 | ± 1.905 |
| 3 | 3.500 | 0.016 | 0.040 | 12 | 12.750 | 0.057 | 0.075 |
| 80 | 88.9 | ± 0.406 | ± 1.016 | 300 | 323.9 | ± 1.448 | ± 1.905 |
| 4 | 4.500 | 0.020 | 0.040 | 14 | 14.000 | 0.063 | 0.075 |
| 100 | 114.3 | ± 0.508 | ± 1.016 | 350 | 355.6 | ± 1.600 | ± 1.905 |
| 5 | 5.563 | 0.025 | 0.050 | 16 | 16.000 | 0.072 | 0.075 |
| 125 | 141.3 | ± 0.635 | ± 1.270 | 400 | 406.4 | ± 1.830 | ± 1.905 |
| 6 | 6.625 | 0.030 | 0.050 | 18 | 18.000 | 0.081 | 0.075 |
| 150 | 168.3 | ± 0.762 | ± 1.270 | 450 | 457.0 | ± 2.060 | ± 1.905 |
| 8 | 8.625 | 0.039 | 0.075 | 20 | 20.000 | 0.090 | 0.07 |
| 200 | 219.1 | ± 0.990 | 1.905 | 500 | 508.0 | ± 2.290 | ± 1.905 |

## Pipe Size/Tolerance – Metric Sizes (DIN and Others)

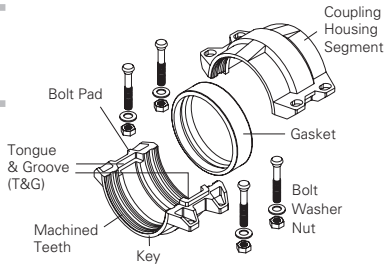
| Pipe O.D. Min. mm | Pipe O.D. Max.* mm |
|---|---|
| 50 | 50.5 |
| 63 | 63.6 |
| 75 | 75.7 |
| 90 | 90.9 |
| 110 | 111.0 |
| 160 | 161.5 |
| 180 | 181.7 |
| 200 | 201.8 |
| 225 | 226.4 |
| 250 | 252.3 |
| 280 | 281.7 |
| 315 | 317.9 |
| 355 | 357.2 |
| 400 | 402.4 |
| 450 | 452.7 |
| 500 | 504.0 |

*Tolerances at ambient temperatures for pipe with SDR of 20 or lower.

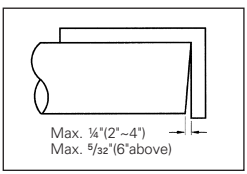
NOTE: The ***Shurjoint*** HDPE couplings are not intended for use on PVC or other material.

# Model H305 HDPE Coupling

Please read these instructions carefully before installation.




The ***Shurjoint*** Model H305 HDPE couplings feature four bolt housings and a series of sharply machined teeth which positively grip the pipe as the coupling bolts and nuts are tightened.




1. SQUARE CUT HDPE PIPE: HDPE pipe must be cut square. The maximum allowed tolerances are ⅛" (3.2 mm) on HDPE pipe sizes 2" to 4" and 5/32" (4.0 mm) on 6" and larger sizes. Make sure that the pipe end, within 1" from the end, is clean and free from indentations, projections, scratches or other harmful surface defects such as scale, chips, grease, etc.



2. MARKING: Use a marking pen or other marking tool and measuring tape to mark the pipe ends at the measurement listed in Table 2 & 2a. This mark will be used for reference in centering the gasket during installation. A minimum of 4 marks equally spaced around the pipe are recommended.



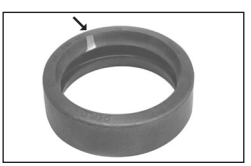
3. Use a marking pen or other marking tool and measuring tape to mark an additional mark on the pipe ends at the measurement listed in the "Coupling Centering Marks" column of the below table 2 & 2a. This mark will be used for visual inspection to make sure the pipe is inserted properly in the coupling. Make these marks parallel to the marks from the gasket centering reference marks.

Table 2 H305 – IPS Size

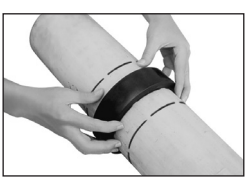
| Nominal Size in / mm | Gasket Centering Reference Marks in / mm | Coupling Centering Reference Marks in / mm |
|---|---|---|
| 2 | 7/8 | 2 5/16 |
| 50 | 22 | 58 |
| 3 | 7/8 | 2 5/16 |
| 80 | 22 | 58 |
| 4 | 7/8 | 3 |
| 100 | 22 | 75 |
| 6 | 1 | 3 |
| 150 | 25 | 75 |
| 8 | 1 1/16 | 3 1/16 |
| 200 | 26 | 77 |
| 10 | 1 1/16 | 3¼ |
| 250 | 26 | 83 |
| 12 | 1 1/16 | 3 9/16 |
| 300 | 26 | 90 |
| 14 | 1 7/16 | 5⅛ |
| 350 | 36 | 129 |
| 16 | 1 7/16 | 5⅛ |
| 400 | 36 | 129 |
| 18 | 1 7/16 | 5⅛ |
| 450 | 36 | 129 |
| 20 | 1⅝ | 5⅛ |
| 500 | 40 | 129 |

Table 2a H305 – Metric Size

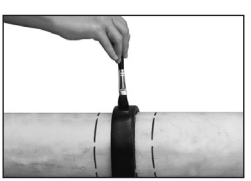
| Nominal Size mm | Gasket Centering Reference Marks mm | Coupling Centering Reference Marks mm |
|---|---|---|
| 50 | 22 | 53 |
| 63 | 22 | 53 |
| 75 | 22 | 53 |
| 90 | 22 | 53 |
| 110 | 22 | 56 |
| 160 | 25 | 59 |
| 180 | 25 | 59 |
| 200 | 26 | 64 |
| 225 | 26 | 64 |
| 250 | 26 | 67 |
| 280 | 26 | 67 |
| 315 | 26 | 67 |
| 355 | 37 | 129 |
| 400 | 37 | 129 |
| 450 | 37 | 129 |
| 500 | 37 | 131 |



4. CHECK GASKET: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service.
The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.



5. INSTALL GASKET: Place a gasket over the pipe ends and center the gasket in between the first set marks. The pipe ends should always be butted against each other.



6. LUBRICATE THE GASKET: Lubricate the back of the gasket with a silicone based lubricant such as the ***Shurjoint*** EHC Lube. Corn oil, soybean oil and glycerin and silicone can also be used on HDPE piping system.

**⚠ WARNING**



Do not use the ***Shurjoint*** standard Lubricant, which is designed for steel pipe use. Do not use hydrocarbon based oils, grease or soap based solutions as this could lead joint failure.

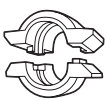


7. MOUNT HOUSINGS: Place the housings over the gasket, ensure the gasket stays centered between the first set marks made on the pipe ends and the housings are properly centered between the second set marks. Also make sure that housing tongue and groove (T&G) mate correctly.

**⚠ CAUTION**

In order to avoid injuries from the sharp machined teeth, wear gloves when handling.

**⚠ WARNING**



Yes

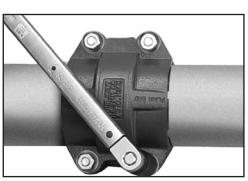


No

The ***Shurjoint*** Model H305 couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage or serious injury.



8. INSERT BOLTS & NUTS: Insert the bolts. Install a washer onto the end of each bolt. Thread a nut onto each bolt and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



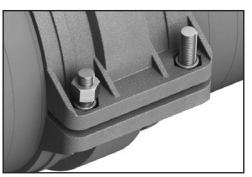
9. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Repeated alternate tightening will reduce tightening torque considerably. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

NOTE: Large Diameter HDPE Coupling: The 14" (355.6 mm) and larger Model H305 HDPE Coupling contain hex bolts, washers & nuts that require special instructions for tightening. Refer to the below steps 9 - 11 for the proper tightening sequence.

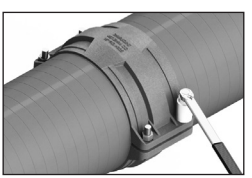


9. INSERT BOLTS & WASHERS: Insert a hex bolt and a washer into each side of a bolt hole in the housings. Make sure the head of each hex bolt & washer engages with the recess in the housing.





10. INSERT NUTS: Thread a nut onto the end of each hex bolt until the washer contacts the coupling housing.



11. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. Inspect the finished assembly to make sure the washers are engaged in the recesses of bolt pads in the coupling housings.

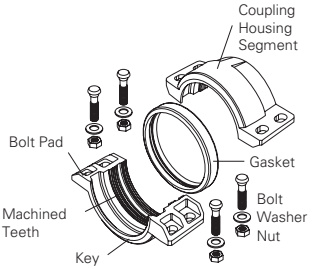



**⚠ CAUTION**

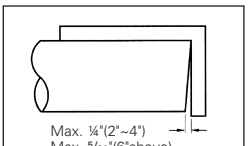
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

# Model H307 HDPE Transition Coupling

Please read these instructions carefully before installation.




The ***Shurjoint*** Model H307 transition coupling provides for a direct transition from HDPE pipe to IPS steel pipe of the same outside diameter. The Model H307 transition coupling must be installed with its machined teeth side on the HDPE pipe and key section side on the grooved steel pipe.




1. SQUARE CUT HDPE PIPE: HDPE pipe must be cut square. The maximum allowed tolerances are ⅛" (3.2 mm) on HDPE pipe sizes 2" to 4" and 5/32" (4.0 mm) on 6" and larger sizes. Make sure that the pipe end, within 1" from the end, is clean and free from indentations, projections, scratches or other harmful surface defects such as scale, chips, grease, etc.

2. Groove the IPS steel pipe to the current ***Shurjoint*** specification



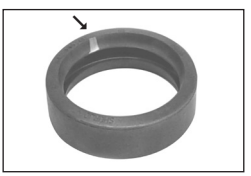
3. MARKING: Use a marking pen or other marking tool and measuring tape to place the marks on the HDPE pipe end, refer to Table 3 & 3a for marking location from the HDPE pipe end. A minimum of 4 marks equally spaced around the pipe are recommended. This mark will be used for visual inspection to make sure the pipe is inserted properly in the coupling.

Table 3 H307 IPS size

| Nominal Size in / mm | Actual HDPE Pipe O.D. in / mm | Mark Location from the HDPE pipe end in / mm |
|---|---|---|
| 2 | 2.375 | 2⅛ |
| 50 | 60.3 | 54 |
| 3 | 3.500 | 2⅛ |
| 80 | 88.9 | 54 |
| 4 | 4.500 | 2¾ |
| 100 | 114.3 | 69 |
| 6 | 6.625 | 2¾ |
| 150 | 168.3 | 69 |
| 8 | 8.625 | 3 |
| 200 | 219.1 | 75 |
| 10 | 10.750 | 3¾ |
| 200 | 273.0 | 94 |
| 12 | 12.750 | 3⅞ |
| 300 | 323.9 | 97 |

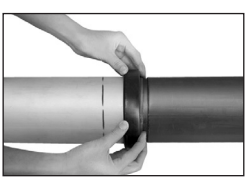
Table 3a H307 ISO Metric Size

| Nominal Size mm | Mark Location from the HDPE pipe end mm |
|---|---|
| 63 | 50 |
| 75 | 50 |
| 90 | 50 |
| 110 | 50 |
| 160 | 50 |
| 200 | 53 |
| 250 | 64 |
| 315 | 64 |



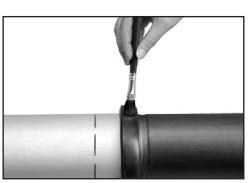
4. CHECK GASKET: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service.
The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

☞ *Refer to page 38 for additional information on gaskets.*



5. INSTALL GASKET: Place a gasket over the pipe ends and center the gasket in between the mark on HDPE pipe and the groove of the IPS steel pipe. The pipe ends are preferably to be butted against each other or with a controlled space (see note).

Note: The maximum allowed space between HDPE pipe and steel pipe is ¼" (6.3 mm) on pipe 2" to 4" and 5/16" (7.9 mm) on pipe 6" and larger.



6. LUBRICATE THE GASKET: Lubricate the back of the gasket with a silicone based lubricant such as the ***Shurjoint*** EHC Lube. Corn oil, soybean oil and glycerin can also be used on HDPE piping system.

## ⚠ WARNING



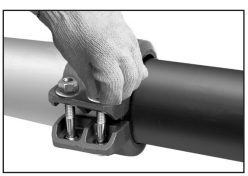
Do not use the ***Shurjoint*** standard Lubricant, which is designed for steel pipe use. Do not use hydrocarbon based oils, grease or soap based solutions as this could lead joint failure.



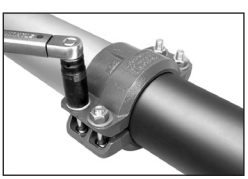
7. MOUNT HOUSING: Place the housings over the gasket, ensuring the gasket stay centered between the marks made on the HDPE pipe and the groove of the IPS steel pipe.

## ⚠ CAUTION

In order to avoid injuries from the sharp machined teeth, wear gloves when handling.



8. INSERT BOLTS & NUTS: Insert the bolts. Install a washer onto the end of each bolt. Thread a nut onto each bolt and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



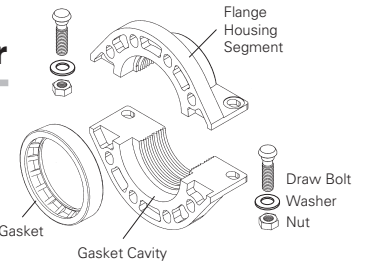
9. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Repeated alternate tightening will reduce tightening torque considerably. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and contact. The use of a torque wrench is not required.

## ⚠ CAUTION

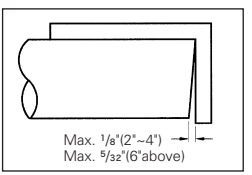
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

# Model H312 HDPE Flange Adapter

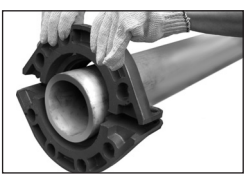
Please read these instructions carefully before installation.




The ***Shurjoint*** Model H312 HDPE flange adapter provides a direct transition from HDPE pipe to ANSI Class 125/150 flanged valves or other components.



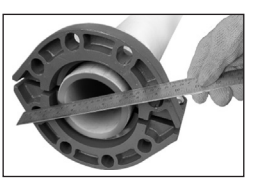

1. SQUARE CUT HDPE PIPE: HDPE pipe must be cut square. The maximum allowed tolerances are ⅛" (3.2 mm) on HDPE pipe sizes 2" to 4" and 5/32" (4.0 mm) on 6" and larger sizes. Make sure that the pipe end, within 1" from the end, is clean and free from indentations, projections, scratches or other harmful surface defects such as scale, chips, grease, etc.



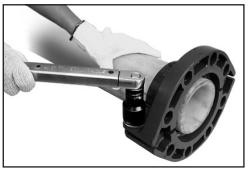
2. MOUNT HOUSING: Place the flange housings over HDPE pipe. The flange must be assembled with its machined teeth on the HDPE pipe. The gasket cavity must face the pipe end. Insert the draw bolts into the flange adapter housings. Install a washer onto the end of each bolt. Thread a nut loosely onto the end of each draw bolt.

**⚠ CAUTION**

In order to avoid injuries from the sharp machined teeth, wear gloves when handling.



3. FLUSH FACE: The HDPE pipe end must be flush with the flange face. Use a ruler or other straight edge tool to verify this and, if not flush as intended, make the necessary adjustment.



4. TIGHTEN DRAW BOLTS: Tighten the draw bolts and nuts alternately and equally until the housing bolt pads meet forming metal-to-meta contact. Repeated alternate tightening will reduce tightening torque considerably.

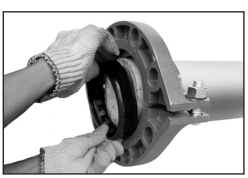


5. CHECK GASKET AND LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Lubricate the back of the gasket with a silicone based lubricant silicone based lubricant, such as the ***Shurjoint*** EHC. Corn oil, soybean oil and glycerin can also be used on HDPE piping system.

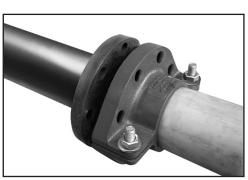
**⚠ WARNING**



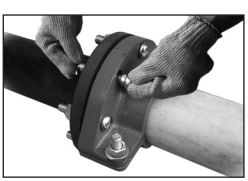
Do not use the ***Shurjoint*** standard Lubricant, which is designed for steel pipe use. Do not use hydrocarbon based oils, grease or soap based solutions as this could lead joint failure.



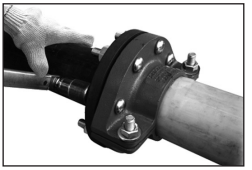
6. INSTALL GASKET: Mount the gasket into the cavity between the pipe O.D. and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the flange recess.



7. MATE ADJOINING FLANGE: Bring the adjoining flange face to face with the Model H312 flange.



8. ADD BOLTS: Add flange bolts and apply nuts hand tight. All the bolts shall be inserted from the same direction. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



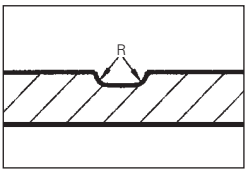
9. TIGHTEN NUTS: Tighten all nuts evenly as with a regular flange assembly, until faces contact firmly. Apply the recommended flange joint torque evenly to all the bolts. See Table 4 for the required torque.

**Table 4 Required torque for H312**

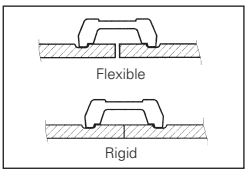
| Nom. Size inch | Bolt | | Required Torque | |
|---|---|---|---|---|
| | Size inch | No. | Lbs-Ft | Nm |
| 3 | 5/8 | 2 | 110 ~ 140 | 149 ~ 190 |
| 4 | 5/8 | 2 | 110 ~ 140 | 149 ~ 190 |
| 6 | 5/8 | 2 | 110 ~ 140 | 149 ~ 190 |
| 8 | ¾ | 2 | 220 ~ 250 | 298 ~ 339 |
| 10 | ¾ | 4 | 220 ~ 250 | 298 ~ 339 |
| 12 | ¾ | 4 | 220 ~ 250 | 298 ~ 339 |

# AWWA DUCTILE IRON SERIES

## How to Install Gaskets - Preliminary Steps -




1. RADIUS CUT GROOVE: Cut grooves to be processed on ductile iron (or gray iron pipe) must have a radius at the corners of the groove as specified in ANSI/AWWA C606 (latest edition).




2. RIGID OR FLEXIBLE: There are two different radius grooves, one for flexible joints and one for rigid joints. The same ***Shurjoint*** AWWA couplings are used for both types of grooves. Standard ***Shurjoint*** AWWA fittings are manufactured with a rigid cut groove.



3. INSPECT PIPE ENDS: The lip-sealing surface of the pipe OD, (A) dimension on Page 35, must be free from deep scores, indentations, projections, and cracks to provide a leak tight gasket sealing surface. Other harmful defects such as loose paint, dirt, scale, grease and rust must also be removed. The peened surfaces of Ductile Iron Pipe are not always consistent and in some cases, may require rework to provide a leak free sealing surface. (see CSA B242 5.9 or AWWA C606).

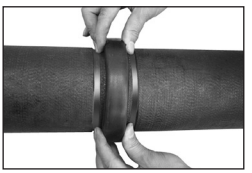


4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket is grade M, Halogenated Butyl gasket, which is brown color coded and is basically good for water services. Apply a thin layer of ***Shurjoint*** Lubricant to the sealing lips of the gasket and as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket.

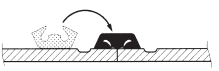
☞ *Refer to page 38 for additional information on gaskets.*



5. INSTALL GASKET: Install the gasket over one end of the pipe so that the pipe end is exposed. No part of the gasket should overhang this end of the pipe.



6. BRING MATING PIPE TOGETHER: Bring the mating pipe together and align the two pipe ends, slide back the gasket into position over the two pipe ends and center between the grooves. No part of the gasket should protrude into the groove on either pipe.



NOTE: For larger sizes you may turn the gasket inside out before mounting on the pipe end. Lubricate the gasket and slide over the pipe end and flip back the gasket into position.

NOTE: Flexible Systems: For proper expansion and contraction, when using flexible pipe grooves, couplings must be installed with proper anchors, bracing, and guides to accommodate for thermal changes. Proper spacing will need to be set at time of installation to account for pipe movement due to future temperature changes.

NOTE: Hanger Spacing: Support of ductile iron piping systems must eliminate stress on piping joints and other components, and allow for pipe movement where required. The table below is a SUGGESTED maximum span for horizontal pipe runs that convey water or similar liquids. System designers must also consider special requirements for concentrated loads and areas where critical calculation have been made. ***Shurjoint*** Piping Products is not responsible for system designs.

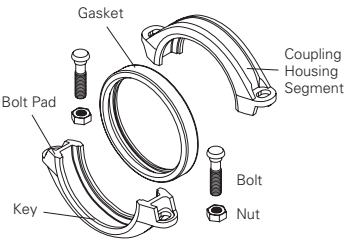
| Flexible Systems | | Rigid | |
|---|---|---|---|
| Systems Size | Suggested Maximum Span | Size | Suggested Maximum Span |
| in / mm | Feet / Meters | in / mm | Feet / Meters |
| 3-4 | 12 | 3-4 | 15 |
| (80-100) | (3.7) | (80-100) | (4.6) |
| 6-8 | 14 | 6-12 | 20 |
| (150-200) | (4.3) | (150-300) | (6.1) |
| 10-12 | 16 | | |

Note: Piping Systems must have at least one support per pipe lenght.

# Model A505 Coupling

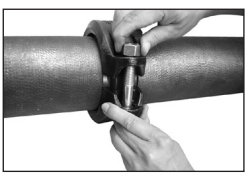
Please read these instructions carefully before installation.

1. Refer to page 139 for preliminary steps 1,2,3,4,5 & 6.

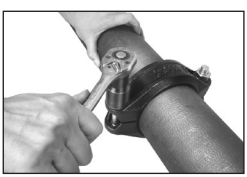





2. APPLY COUPLING HOUSINGS: Place the housings over the gasket and ensure the coupling keys are engaged into the grooves.



3. INSERT BOLT & NUT: Insert bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



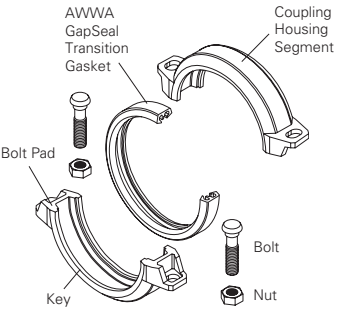
4. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

**⚠ CAUTION**

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

# Model A507 Transition Coupling

Please read these instructions carefully before installation.

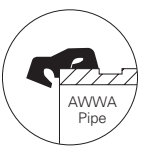



The ***Shurjoint*** Model A507 provides a direct transition from grooved IPS steel pipe to grooved AWWA ductile iron (or cast iron) pipe.

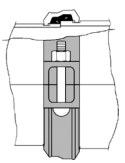
1. Refer to page 139 for preliminary steps 1,2,3,4,5 & 6.



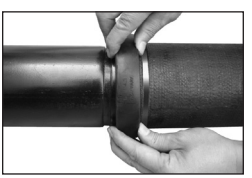
2. INSTALL GASKET: Place the larger (AWWA side) opening of the gasket over the larger (AWWA) pipe end until the pipe end reaches and butts against the pipe stop of the gasket.




## ⚠ CAUTION



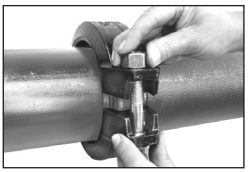
The difference of pipe O.D.'s between AWWA pipe (larger side) and IPS pipe (smaller side) is not always conspicuous. Special attention should be paid when mounting the gasket to ensure proper assembly.



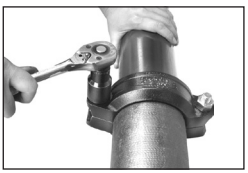
3. JOIN THE PIPE ENDS: Use a slight twisting motion of the pipe and align the two pipe ends to be joined, then slide the gasket into position over the two pipe ends and center between the grooves. No part of the gasket should protrude into the groove on either pipe.



4. APPLY COUPLING HOUSINGS: Place the housings over the gasket and make sure the coupling keys are engaged into the grooves.



5. INSERT BOLT & NUT: Insert bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



6. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of



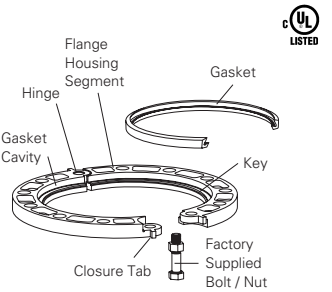

**⚠ CAUTION**

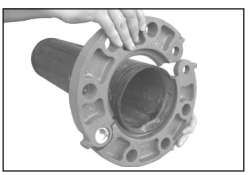
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Never exceed torque stated in the table on page 36. Excessive tightening of nuts may cause bolt or joint failure.

# Model A512* Flange Adapter (2" - 12")

Please read these instructions carefully before installation.

The Model A512 flange adapter is designed for AWWA ductile iron pipe use only, not applicable to any other pipe.

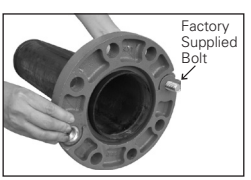


1. MOUNT HINGED FLANGE SEGMENTS: Fully open the Model A512 hinged flange segments. Place the flange segments around the groove of the pipe end and pull together until the mating bolt holes of the ends come to align.



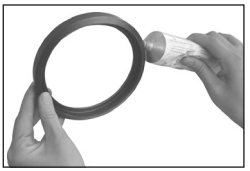
2. DRAW FLANGE SEGMENTS: Use a wrench, C-clamp or other similar tool to draw the closure tabs together until the mating holes are aligned.




3. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** factory supplied bolt through the mating hole making sure that the flange is fully engaged in the pipe grooves.

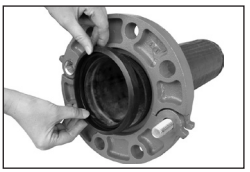
**⚠ CAUTION**

Use of any bolt other than the one supplied with the flange adapter could result in a leak or joint failure.

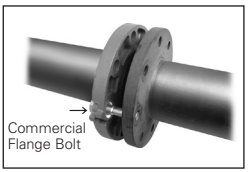


4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

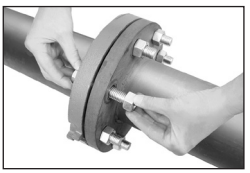
The standard factory supplied gasket is grade M Halogenated Butyl gasket, which is brown stripe coded and is basically good for water services.



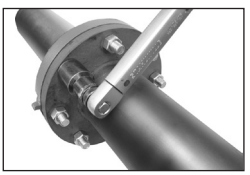
5. INSTALL GASKET: Place the gasket into the cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the flange recess.




6. MATE ADJOINING FLANGE: Insert commercial flange bolt in the hinge hole ( opposite side the factory supplied bolt ) and tighten the nuts of the commercial flange bolt and the factory supplied bolt.



7. ADD BOLTS: Add the remaining commercial flange bolts and apply nuts hand tight. All the bolts shall be inserted from the same direction.



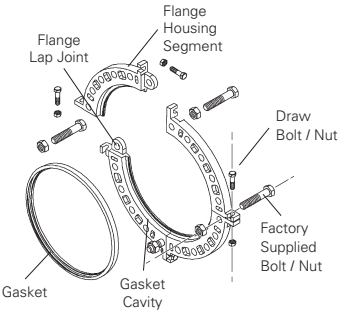
8. TIGHTEN NUTS: Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. Use a torque wrench so that all the nuts are tightened with the same torque value. See page 148 Table 3 for required torque values.

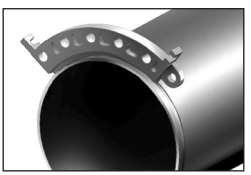
* A512 in size 12" is not cUL listed.

# Model A512 Flange Adapter (14" - 24")

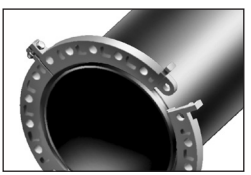
Please read these instructions carefully before installation.

The S*hurjoint* Model A512 flange adapter is drilled to ANSI Class 125/150.

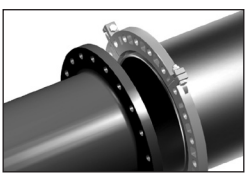


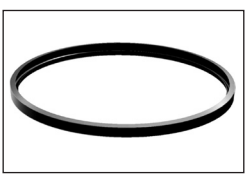
1. ASSEMBLE SEGMENTS: Place the first flange segment onto the pipe making sure that the key is engaged in the groove. As an option, you may put two flange segments together before mounting them onto the pipe.



2. ADD OTHER SEGMENTS: Add other flange segments one by one and assemble them with draw bolts. Do not tighten the draw bolt tightly until the final flange segment is brought together and flange alignment is finished.

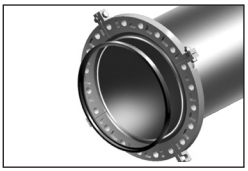


3. ALIGN FLANGE: Rotate the assembled flange so that the bolt holes are aligned to the bolt holes of the mating flange. When necessary, loosen draw bolts to allow easy rotation. Then tighten the draw bolts uniformly to form a complete flange.

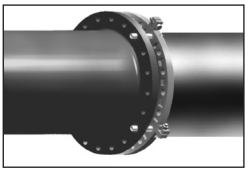


4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

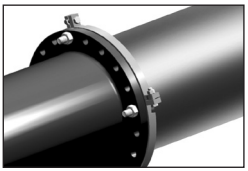
The standard factory supplied gasket is grade M Halogenated Butyl gasket, which is brown stripe coded and is basically good for water services.



5. INSTALL GASKET: Place the gasket into the gasket cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the gasket pocket.



6. INSERT FACTORY SUPPLIED BOLTS: Bring the adjoining flange face to face with the Model A512 flange and insert the four factory supplied bolts through the four bolt holes at the flange lap joints.



7. MATE ADJOINING FLANGE: Apply four nuts on the four factory supplied bolts and provisionally tighten them.



8. TIGHTEN NUTS: Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. Use a torque wrench so that all the nuts are tightened with the same torque value. See below table for required torque values.

Required Bolt Torque: The table below provides the standard torque values for proper assembly of ***Shurjoint*** flange adapters. Use a torque wrench so that all the nuts are tightened equally with a same torque value.

These torque values are not the maximum values and the bolts can be torqued for above the values listed. Attaining maximum torque value is not necessary as the ***Shurjoint*** flange adapters are sealed with elastic (rubber) gaskets, which require a much lower torque than that of metallic gaskets.

***Shurjoint*** **Flange Adapter ANSI Class 125/150**
**Model A512**

| Nom. Size inch | Bolt | | Required Torque | |
|---|---|---|---|---|
| | Size inch | No. | Lbs-Ft | Nm |
| 2 | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 2½ | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 3 | 5/8 | 4 | 110 ~ 140 | 149 ~ 190 |
| 4 | 5/8 | 8 | 110 ~ 140 | 149 ~ 190 |
| 5 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 6 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 8 | ¾ | 8 | 220 ~ 250 | 298 ~ 339 |
| 10 | 7/8 | 12 | 320 ~ 400 | 434 ~ 542 |
| 12 | 7/8 | 12 | 320 ~ 400 | 434 ~ 542 |
| 14 | 1 | 12 | 360 ~ 520 | 488 ~ 705 |
| 16 | 1 | 16 | 360 ~ 520 | 488 ~ 705 |
| 18 | 1 1/8 | 16 | 450 ~ 725 | 610 ~ 982 |
| 20 | 1 1/8 | 20 | 450 ~ 725 | 610 ~ 982 |
| 24 | 1¼ | 20 | 620 ~ 1000 | 841 ~ 1356 |

NOTE: Use of a Model 49 sandwich plate may be necessary to insure a proper seal with rubber faced flanges or other non-metallic flange gaskets.

# APPENDIX

## PRESSURE PERFORMANCE DATA
## PRODUCT DATA
## HELPFUL INFORMATION

- Metric/Imperial Conversion Chart
- Decimal Equivalents of Fractions (inches)
- Minutes Converted to Decimals of a Degree
- Water Pressure to Feet-of-Head
- Feet-of-Head of Water to Pressure
- Pipe Sizes & Wall Thickness

## BOLT & SOCKET SIZES
## HANGERS FOR STRAIGHT RUNS

# PRESSURE PERFORMANCE DATA

## Ductile Iron Couplings on Carbon Steel and/or Stainless Steel Pipe

The following tables show maximum working pressures (CWP) of ***Shurjoint*** ductile iron couplings and flange adapters used on both carbon steel and stainless steel pipes. ***Shurjoint*** ductile iron couplings can be used in conjunction with stainless steel pipe in non-corrosive environment as the flow media does not come in direct contact with the coupling housings but rather only the gasket.

### Model Z05 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1¼ | 600 | 600 | 500 | 400 | 250 |
| 32 | 42 | 42 | 35 | 28 | 17 |
| 1½ | 600 | 600 | 500 | 400 | 250 |
| 40 | 42 | 42 | 35 | 28 | 17 |
| 2 | 600 | 600 | 500 | 400 | 250 |
| 50 | 42 | 42 | 35 | 28 | 17 |
| 2½ | 600 | 600 | 500 | 400 | 250 |
| 65 | 42 | 42 | 35 | 28 | 17 |
| 3 | 600 | 600 | 500 | 400 | 250 |
| 80 | 42 | 42 | 35 | 28 | 17 |
| 4 | 600 | 600 | 500 | 400 | 232 |
| 100 | 42 | 42 | 35 | 28 | 16 |
| 5 | 450 | 450 | 350 | 300 | 232 |
| 125 | 31 | 31 | 24 | 20 | 16 |
| 6 | 450 | 450 | 350 | 300 | 232 |
| 150 | 31 | 31 | 24 | 20 | 16 |
| 8 | 450 | 450 | 350 | 300 | NR |
| 125 | 31 | 31 | 24 | 20 | |

### Model Z05 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1¼ | 600 | 600 | 450 | 300 | 250 |
| 32 | 42 | 42 | 31 | 20 | 17 |
| 1½ | 600 | 600 | 450 | 300 | 250 |
| 40 | 42 | 42 | 31 | 20 | 17 |
| 2 | 600 | 600 | 450 | 300 | 250 |
| 50 | 42 | 42 | 31 | 20 | 17 |
| 2½ | 600 | 600 | 450 | 300 | 250 |
| 65 | 42 | 42 | 31 | 20 | 17 |
| 3 | 600 | 600 | 450 | 300 | 250 |
| 80 | 42 | 42 | 31 | 20 | 17 |
| 4 | 600 | 600 | 450 | 300 | 232 |
| 100 | 42 | 42 | 31 | 20 | 16 |
| 5 | 450 | 450 | 300 | 200 | NR |
| 125 | 31 | 31 | 20 | 14 | |
| 6 | 450 | 450 | 300 | 232 | 232 |
| 150 | 31 | 31 | 20 | 16 | 26 |
| 8 | 450 | 450 | 300 | 150 | 150 |
| 200 | 31 | 31 | 20 | 10 | 10 |

### Model K-9 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1¼ | 600 | 600 | 500 | 400 | 300 |
| 32 | 42 | 42 | 35 | 28 | 20 |
| 1½ | 600 | 600 | 500 | 400 | 300 |
| 40 | 42 | 42 | 35 | 28 | 20 |
| 2 | 600 | 600 | 500 | 400 | 300 |
| 50 | 42 | 42 | 35 | 28 | 20 |
| 2½ | 600 | 600 | 500 | 400 | 300 |
| 65 | 42 | 42 | 35 | 28 | 20 |
| 2½ | 600 | 600 | 500 | 400 | 300 |
| 65 | 42 | 42 | 35 | 28 | 20 |
| 3 | 600 | 600 | 500 | 400 | 300 |
| 80 | 42 | 42 | 35 | 28 | 20 |
| 4 | 600 | 600 | 500 | 400 | 300 |
| 100 | 42 | 42 | 35 | 28 | 20 |
| 5 | 450 | 450 | 450 | 350 | 250 |
| 125 | 31 | 31 | 31 | 24 | 17 |
| 5 | 450 | 450 | 450 | 350 | 250 |
| 125 | 31 | 31 | 31 | 24 | 17 |
| 6 | 450 | 450 | 450 | 350 | 250 |
| 150 | 31 | 31 | 31 | 24 | 17 |
| 6 | 450 | 450 | 450 | 350 | 250 |
| 150 | 31 | 31 | 31 | 24 | 17 |
| 8 | 450 | 450 | 300 | 250 | 200 |
| 200 | 31 | 31 | 20 | 17 | 14 |
| 8 (K-9H) | 450 | 450 | 300 | 250 | 200 |
| 200 | 31 | 31 | 20 | 17 | 14 |

### Model K-9 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1¼ | 600 | 600 | 450 | 300 | 250 |
| 32 | 42 | 42 | 31 | 20 | 17 |
| 1½ | 600 | 600 | 450 | 300 | 250 |
| 40 | 42 | 42 | 31 | 20 | 17 |
| 2 | 600 | 600 | 450 | 300 | 250 |
| 50 | 42 | 42 | 31 | 20 | 17 |
| 2½ | 600 | 600 | 450 | 300 | 250 |
| 65 | 42 | 42 | 31 | 20 | 17 |
| 2½ | 600 | 600 | 450 | 300 | 250 |
| 65 | 42 | 42 | 31 | 20 | 17 |
| 3 | 600 | 600 | 450 | 300 | 250 |
| 80 | 42 | 42 | 31 | 20 | 17 |
| 4 | 600 | 600 | 450 | 300 | 200 |
| 100 | 42 | 42 | 31 | 20 | 14 |
| 5 | 450 | 450 | 300 | 200 | NR |
| 125 | 31 | 31 | 20 | 14 | |
| 5 | 450 | 450 | 300 | 200 | NR |
| 125 | 31 | 31 | 20 | 14 | |
| 6 | 450 | 450 | 300 | 125 | NR |
| 150 | 31 | 31 | 20 | 9 | |
| 6 | 450 | 450 | 300 | 125 | NR |
| 150 | 31 | 31 | 20 | 9 | |
| 8 | 450 | 450 | 350 | 100 | NR |
| 200 | 31 | 31 | 24 | 7 | |
| 8 (K-9H) | 450 | 450 | 350 | 100 | NR |
| 200 | 31 | 31 | 24 | 7 | |

## Model Z07 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1¼ | 750 | 750 | 750 | 600 | 400 |
| 32 | 52 | 52 | 52 | 42 | 28 |
| 1½ | 750 | 750 | 750 | 600 | 400 |
| 40 | 52 | 52 | 52 | 42 | 28 |
| 2 | 750 | 750 | 750 | 600 | 400 |
| 50 | 52 | 52 | 52 | 42 | 28 |
| 2½ | 750 | 750 | 750 | 600 | 400 |
| 65 | 52 | 52 | 52 | 42 | 28 |
| 2½ | 750 | 750 | 750 | 600 | 400 |
| 65 | 52 | 52 | 52 | 42 | 28 |
| 3 | 750 | 750 | 750 | 600 | 400 |
| 80 | 52 | 52 | 52 | 42 | 28 |
| 4 | 750 | 750 | 750 | 600 | 400 |
| 100 | 52 | 52 | 52 | 42 | 28 |
| 5 | 750 | 750 | 750 | 500 | 350 |
| 125 | 52 | 52 | 52 | 35 | 24 |
| 5 | 750 | 750 | 750 | 500 | 350 |
| 125 | 52 | 52 | 52 | 35 | 24 |
| 6 | 700 | 700 | 700 | 400 | 300 |
| 150 | 48 | 48 | 48 | 28 | 20 |
| 6 | 700 | 700 | 700 | 400 | 300 |
| 150 | 48 | 48 | 48 | 28 | 20 |
| 8 | 600 | 600 | 600 | 350 | 250 |
| 200 | 42 | 42 | 42 | 24 | 17 |
| 10 | 500 | 500 | 500 | 300 | 200 |
| 250 | 35 | 35 | 35 | 20 | 14 |
| 12 | 400 | 400 | 400 | 250 | 150 |
| 300 | 28 | 28 | 28 | 17 | 10 |

## Model Z07 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1¼ | 750 | 750 | 750 | 600 | 300 |
| 32 | 52 | 52 | 52 | 42 | 20 |
| 1½ | 750 | 750 | 750 | 600 | 300 |
| 40 | 52 | 52 | 52 | 42 | 20 |
| 2 | 750 | 750 | 750 | 600 | 300 |
| 50 | 52 | 52 | 52 | 42 | 20 |
| 2½ | 750 | 750 | 750 | 600 | 300 |
| 65 | 52 | 52 | 52 | 42 | 20 |
| 2½ | 750 | 750 | 750 | 600 | 300 |
| 65 | 52 | 52 | 52 | 42 | 20 |
| 3 | 750 | 750 | 750 | 500 | 300 |
| 80 | 52 | 52 | 52 | 35 | 20 |
| 4 | 750 | 750 | 750 | 500 | 232 |
| 100 | 52 | 52 | 52 | 35 | 16 |
| 5 | 750 | 750 | 650 | 500 | NR |
| 125 | 52 | 52 | 45 | 35 | |
| 5 | 750 | 750 | 650 | 500 | NR |
| 125 | 52 | 52 | 45 | 35 | |
| 6 | 700 | 700 | 600 | 232 | 232 |
| 150 | 48 | 48 | 42 | 16 | 16 |
| 6 | 700 | 700 | 600 | 232 | 232 |
| 150(168.3 mm) | 48 | 48 | 42 | 16 | 16 |
| 8 | 600 | 600 | 450 | 150 | 150 |
| 200 | 42 | 42 | 31 | 10 | 10 |
| 10 | 500 | 500 | 450 | 150 | NR |
| 250 | 35 | 35 | 31 | 10 | |
| 12 | 400 | 400 | 400 | 125 | NR |
| 300 | 28 | 28 | 28 | 9 | |

## Model 7771 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1½ | 750 | 750 | 750 | 600 | 400 |
| 40 | 52 | 52 | 52 | 42 | 28 |
| 2 | 750 | 750 | 750 | 600 | 400 |
| 50 | 52 | 52 | 52 | 42 | 28 |
| 2½ | 750 | 750 | 750 | 600 | 400 |
| 65 | 52 | 52 | 52 | 42 | 28 |
| 2½ | 750 | 750 | 750 | 600 | 400 |
| 65 | 52 | 52 | 52 | 42 | 28 |
| 3 | 750 | 750 | 750 | 600 | 400 |
| 80 | 52 | 52 | 52 | 42 | 28 |
| 4 | 750 | 750 | 750 | 600 | 400 |
| 100 | 52 | 52 | 52 | 42 | 28 |
| 5 | 750 | 750 | 750 | 500 | 350 |
| 125 | 52 | 52 | 52 | 35 | 24 |
| 5 | 750 | 750 | 750 | 500 | 350 |
| 125 | 52 | 52 | 52 | 35 | 24 |
| 6 | 700 | 700 | 700 | 400 | 300 |
| 150 | 48 | 48 | 48 | 28 | 20 |
| 6 | 700 | 700 | 700 | 400 | 300 |
| 150 | 48 | 48 | 48 | 28 | 20 |
| 8 | 600 | 600 | 600 | 350 | 250 |
| 200 | 42 | 42 | 42 | 24 | 17 |
| 10 | 500 | 500 | 500 | 300 | 200 |
| 250 | 35 | 35 | 35 | 20 | 14 |
| 12 | 400 | 400 | 400 | 250 | 150 |
| 300 | 28 | 28 | 28 | 17 | 10 |

## Model 7771 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1½ | 750 | 750 | 700 | 500 | 300 |
| 40 | 52 | 52 | 48 | 35 | 20 |
| 2 | 750 | 750 | 700 | 500 | 300 |
| 50 | 52 | 52 | 48 | 35 | 20 |
| 2½ | 750 | 750 | 700 | 500 | 300 |
| 65 | 52 | 52 | 48 | 35 | 20 |
| 2½ | 750 | 750 | 700 | 500 | 300 |
| 65 | 52 | 52 | 48 | 35 | 20 |
| 3 | 750 | 750 | 700 | 500 | 300 |
| 80 | 52 | 52 | 48 | 35 | 20 |
| 4 | 750 | 750 | 700 | 400 | 250 |
| 100 | 52 | 52 | 48 | 28 | 17 |
| 5 | 750 | 750 | 600 | 300 | NR |
| 125 | 52 | 52 | 42 | 20 | |
| 5 | 750 | 750 | 600 | 300 | NR |
| 125 | 52 | 52 | 42 | 20 | |
| 6 | 700 | 700 | 500 | 200 | NR |
| 150 | 48 | 48 | 35 | 14 | |
| 6 | 700 | 700 | 500 | 200 | NR |
| 150 | 48 | 48 | 35 | 14 | |
| 8 | 600 | 600 | 400 | 150 | NR |
| 200 | 42 | 42 | 28 | 10 | |
| 10 | 500 | 500 | 300 | 100 | NR |
| 250 | 35 | 35 | 20 | 7 | |
| 12 | 400 | 400 | 250 | 100 | NR |
| 300 | 28 | 28 | 17 | 7 | |

### Model XH-1000 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 2 | 1000 | 1000 | 1000 | 750 | NR |
| 50 | 69 | 69 | 69 | 52 | |
| 2½ | 1000 | 1000 | 1000 | 600 | NR |
| 65 | 69 | 69 | 69 | 42 | |
| 2½ | 1000 | 1000 | 1000 | 600 | NR |
| 65 | 69 | 69 | 69 | 42 | |
| 3 | 1000 | 1000 | 1000 | 600 | NR |
| 80 | 69 | 69 | 69 | 42 | |
| 4 | 1000 | 1000 | 1000 | 600 | NR |
| 100 | 69 | 69 | 69 | 42 | |
| 6 | 1000 | 1000 | 1000 | 450 | NR |
| 150 | 69 | 69 | 69 | 31 | |
| 6 | 1000 | 1000 | 1000 | 450 | NR |
| 150 | 69 | 69 | 69 | 31 | |
| 8 | 800 | 800 | 800 | 300 | NR |
| 200 | 55 | 55 | 55 | 20 | |
| 10 | 800 | 800 | 800 | 300 | NR |
| 250 | 55 | 55 | 55 | 20 | |
| 12 | 800 | 800 | 800 | 200 | NR |
| 300 | 55 | 55 | 55 | 14 | |

### Model XH-1000 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 2 | 1000 | 1000 | 750 | 700 | NR |
| 50 | 69 | 69 | 52 | 48 | |
| 2½ | 1000 | 1000 | 750 | 700 | NR |
| 65 | 69 | 69 | 52 | 48 | |
| 2½ | 1000 | 1000 | 750 | 700 | NR |
| 65 | 69 | 69 | 52 | 48 | |
| 3 | 1000 | 1000 | 750 | 500 | NR |
| 80 | 69 | 69 | 52 | 35 | |
| 4 | 1000 | 1000 | 750 | 500 | NR |
| 100 | 69 | 69 | 52 | 35 | |
| 6 | 1000 | 1000 | 750 | 350 | NR |
| 150 | 69 | 69 | 52 | 24 | |
| 6 | 1000 | 1000 | 600 | 350 | NR |
| 150(168.3 mm) | 69 | 69 | 45 | 24 | |
| 8 | 800 | 800 | 750 | 350 | NR |
| 200 | 55 | 55 | 52 | 24 | |
| 10 | 800 | 800 | 600 | 300 | NR |
| 250 | 55 | 55 | 42 | 20 | |
| 12 | 800 | 800 | 600 | 300 | NR |
| 300 | 55 | 55 | 42 | 20 | |

## Model G28 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1½ | 300 | 300 | 300 | 300 | NR |
| 40 | 20 | 20 | 20 | 20 | |
| 2 | 300 | 300 | 300 | 300 | NR |
| 50 | 20 | 20 | 20 | 20 | |
| 2½ | 300 | 300 | 300 | 300 | NR |
| 65 | 20 | 20 | 20 | 20 | |
| 2½ | 300 | 300 | 300 | 300 | NR |
| 65 | 20 | 20 | 20 | 20 | |
| 3 | 300 | 300 | 300 | 300 | NR |
| 80 | 20 | 20 | 20 | 20 | |
| 4 | 300 | 300 | 300 | 300 | NR |
| 100 | 20 | 20 | 20 | 20 | |
| 5 | 300 | 300 | 300 | 300 | NR |
| 125 | 20 | 20 | 20 | 20 | |
| 5 | 300 | 300 | 300 | 300 | NR |
| 125 | 20 | 20 | 20 | 20 | |
| 6 | 300 | 300 | 300 | 300 | NR |
| 150 | 20 | 20 | 20 | 20 | |
| 6 | 300 | 300 | 300 | 300 | NR |
| 150 | 20 | 20 | 20 | 20 | |
| 8 | 300 | 300 | 300 | 250 | NR |
| 200 | 20 | 20 | 20 | 17 | |
| 10 | 300 | 300 | 300 | 250 | NR |
| 250 | 20 | 20 | 20 | 17 | |
| 12 | 300 | 300 | 300 | 250 | NR |
| 300 | 20 | 20 | 20 | 17 | |

## Model G28 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1½ | 300 | 300 | 300 | 300 | NR |
| 40 | 20 | 20 | 20 | 20 | |
| 2 | 300 | 300 | 300 | 300 | NR |
| 50 | 20 | 20 | 20 | 20 | |
| 2½ | 300 | 300 | 300 | 300 | NR |
| 65 | 20 | 20 | 20 | 20 | |
| 2½ | 300 | 300 | 300 | 300 | NR |
| 65 | 20 | 20 | 20 | 20 | |
| 3 | 300 | 300 | 300 | 300 | NR |
| 80 | 20 | 20 | 20 | 20 | |
| 4 | 300 | 300 | 300 | 175 | NR |
| 100 | 20 | 20 | 20 | 12 | |
| 5 | 300 | 300 | 250 | 150 | NR |
| 125 | 20 | 20 | 17 | 10 | |
| 5 | 300 | 300 | 250 | 150 | NR |
| 125 | 20 | 20 | 17 | 10 | |
| 6 | 300 | 300 | 250 | 150 | NR |
| 150 | 20 | 20 | 17 | 10 | |
| 6 | 300 | 300 | 250 | 150 | NR |
| 150 | 20 | 20 | 17 | 10 | |
| 8 | 300 | 300 | 200 | NR | NR |
| 200 | 20 | 20 | 14 | | |
| 10 | 300 | 300 | 200 | NR | NR |
| 250 | 20 | 20 | 14 | | |
| 12 | 300 | 300 | 200 | NR | NR |
| 300 | 20 | 20 | 14 | | |

## Model 7705 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1 | 600 | 600 | 500 | 400 | 300 |
| 25 | 42 | 42 | 35 | 28 | 20 |
| 1¼ | 600 | 600 | 500 | 400 | 300 |
| 32 | 42 | 42 | 35 | 28 | 20 |
| 1½ | 600 | 600 | 500 | 400 | 300 |
| 40 | 42 | 42 | 35 | 28 | 20 |
| 2 | 600 | 600 | 500 | 400 | 300 |
| 50 | 42 | 42 | 35 | 28 | 20 |
| 2½ | 600 | 600 | 500 | 400 | 300 |
| 65 | 42 | 42 | 35 | 28 | 20 |
| 2½ | 600 | 600 | 500 | 400 | 300 |
| 65 | 42 | 42 | 35 | 28 | 20 |
| 3 | 600 | 600 | 500 | 400 | 300 |
| 80 | 42 | 42 | 35 | 28 | 20 |
| 4 | 600 | 600 | 500 | 400 | 300 |
| 100 | 42 | 42 | 35 | 28 | 20 |
| 5 | 450 | 450 | 450 | 350 | 250 |
| 125 | 31 | 31 | 31 | 24 | 17 |
| 5 | 450 | 450 | 450 | 350 | 250 |
| 125 | 31 | 31 | 31 | 24 | 17 |
| 6 | 450 | 450 | 450 | 350 | 250 |
| 150 | 31 | 31 | 31 | 24 | 17 |
| 6 | 450 | 450 | 450 | 350 | 250 |
| 150 | 31 | 31 | 31 | 24 | 17 |
| 8 | 450 | 450 | 300 | 250 | 200 |
| 200 | 31 | 31 | 20 | 17 | 14 |
| 10 | 350 | 350 | 300 | 200 | 175 |
| 250 | 24 | 24 | 20 | 14 | 12 |
| 12 | 350 | 350 | 300 | 200 | 175 |
| 300 | 24 | 24 | 20 | 14 | 12 |

**Model 7705 on Stainless Steel Pipe**

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1 | 600 | 600 | 750 | 500 | 250 |
| 25 | 42 | 42 | 52 | 35 | 17 |
| 1¼ | 600 | 600 | 750 | 500 | 250 |
| 32 | 42 | 42 | 52 | 35 | 17 |
| 1½ | 600 | 600 | 650 | 500 | 250 |
| 40 | 42 | 42 | 45 | 35 | 17 |
| 2 | 600 | 600 | 500 | 500 | 250 |
| 50 | 42 | 42 | 35 | 35 | 17 |
| 2½ | 600 | 600 | 500 | 500 | 250 |
| 65 | 42 | 42 | 35 | 35 | 17 |
| 2½ | 600 | 600 | 500 | 500 | 250 |
| 65 | 42 | 42 | 35 | 35 | 17 |
| 3 | 600 | 600 | 500 | 400 | 250 |
| 80 | 42 | 42 | 35 | 28 | 17 |
| 4 | 600 | 600 | 500 | 400 | 200 |
| 100 | 42 | 42 | 35 | 28 | 14 |
| 5 | 450 | 450 | 450 | 350 | NR |
| 125 | 31 | 31 | 31 | 24 | |
| 5 | 450 | 450 | 450 | 350 | NR |
| 125 | 31 | 31 | 31 | 24 | |
| 6 | 450 | 450 | 300 | 300 | NR |
| 150 | 31 | 31 | 20 | 20 | |
| 6 | 450 | 450 | 300 | 300 | NR |
| 150 | 31 | 31 | 20 | 20 | |
| 8 | 450 | 450 | 300 | 300 | NR |
| 200 | 31 | 31 | 20 | 20 | |
| 10 | 350 | 350 | 200 | 200 | NR |
| 250 | 24 | 24 | 14 | 14 | |
| 12 | 350 | 350 | 200 | 200 | NR |
| 300 | 24 | 24 | 14 | 14 | |

## Model 7707 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| ¾ | 1000 | 1000 | 750 | 600 | 500 |
| 20 | 69 | 69 | 52 | 42 | 35 |
| 1 | 1000 | 1000 | 750 | 600 | 500 |
| 25 | 69 | 69 | 52 | 42 | 35 |
| 1¼ | 1000 | 1000 | 750 | 600 | 500 |
| 32 | 69 | 69 | 52 | 42 | 35 |
| 1½ | 1000 | 1000 | 750 | 600 | 500 |
| 40 | 69 | 69 | 52 | 42 | 35 |
| 2 | 1000 | 1000 | 750 | 600 | 500 |
| 50 | 69 | 69 | 52 | 42 | 35 |
| 2½ | 1000 | 1000 | 750 | 600 | 500 |
| 65 | 69 | 69 | 52 | 42 | 35 |
| 2½ | 1000 | 1000 | 750 | 600 | 500 |
| 65 | 69 | 69 | 52 | 42 | 35 |
| 3 | 1000 | 1000 | 750 | 600 | 500 |
| 80 | 69 | 69 | 52 | 42 | 35 |
| 4 | 1000 | 1000 | 750 | 600 | 400 |
| 100 | 69 | 69 | 52 | 42 | 28 |
| 5 | 1000 | 1000 | 750 | 500 | 350 |
| 125 | 69 | 69 | 52 | 35 | 24 |
| 5 | 1000 | 1000 | 750 | 500 | 350 |
| 125 | 69 | 69 | 52 | 35 | 24 |
| 6 | 1000 | 1000 | 700 | 450 | 300 |
| 150 | 69 | 69 | 48 | 31 | 20 |
| 6 | 1000 | 1000 | 700 | 450 | 300 |
| 150 | 69 | 69 | 48 | 31 | 20 |
| 8 | 800 | 800 | 600 | 350 | 250 |
| 200 | 55 | 55 | 42 | 24 | 17 |
| 10 | 800 | 800 | 550 | 300 | 200 |
| 250 | 55 | 55 | 38 | 20 | 14 |
| 12 | 800 | 800 | 500 | 300 | 200 |
| 300 | 55 | 55 | 35 | 20 | 14 |

**Model 7707 on Stainless Steel Pipe**

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| ¾ | 750 | 750 | 750 | 500 | 325 |
| 20 | 52 | 52 | 52 | 35 | 22 |
| 1 | 750 | 750 | 750 | 500 | 325 |
| 25 | 52 | 52 | 52 | 35 | 22 |
| 1¼ | 750 | 750 | 750 | 500 | 325 |
| 32 | 52 | 52 | 52 | 35 | 22 |
| 1½ | 750 | 750 | 750 | 500 | 325 |
| 40 | 52 | 52 | 52 | 35 | 22 |
| 2 | 750 | 750 | 750 | 500 | 325 |
| 50 | 52 | 52 | 52 | 35 | 22 |
| 2½ | 750 | 750 | 750 | 500 | 325 |
| 65 | 52 | 52 | 52 | 35 | 22 |
| 2½ | 750 | 750 | 750 | 500 | 325 |
| 65 | 52 | 52 | 52 | 35 | 22 |
| 3 | 750 | 750 | 750 | 500 | 325 |
| 80 | 52 | 52 | 52 | 35 | 22 |
| 4 | 750 | 750 | 750 | 500 | 250 |
| 100 | 52 | 52 | 52 | 35 | 17 |
| 5 | 750 | 750 | 650 | 500 | NR |
| 125 | 52 | 52 | 45 | 35 | |
| 5 | 750 | 750 | 650 | 500 | NR |
| 125 | 52 | 52 | 45 | 35 | |
| 6 | 750 | 750 | 500 | 200 | NR |
| 150 | 52 | 52 | 35 | 14 | |
| 6 | 750 | 750 | 500 | 200 | NR |
| 150 | 52 | 52 | 35 | 14 | |
| 8 | 600 | 600 | 450 | 150 | NR |
| 200 | 42 | 42 | 31 | 10 | |
| 10 | 600 | 600 | 400 | 125 | NR |
| 250 | 42 | 42 | 28 | 9 | |
| 12 | 600 | 600 | 400 | 125 | NR |
| 300 | 42 | 42 | 28 | 9 | |

## Model 7706 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1½ x 1¼ | 500 | 500 | 500 | 350 | 300 |
| 40 x 32 | 35 | 35 | 35 | 24 | 20 |
| 2 x 1½ | 500 | 500 | 500 | 350 | 300 |
| 50 x 40 | 35 | 35 | 35 | 24 | 20 |
| 2½ x 2 | 500 | 500 | 500 | 350 | 300 |
| 65 x 50 | 35 | 35 | 35 | 24 | 20 |
| 2½ x 2 | 500 | 500 | 500 | 350 | 300 |
| 65 x 50 | 35 | 35 | 35 | 24 | 20 |
| 3 x 2 | 500 | 500 | 500 | 350 | 300 |
| 80 x 50 | 35 | 35 | 35 | 24 | 20 |
| 3 x 2½ | 500 | 500 | 500 | 350 | 300 |
| 80 x 65 | 35 | 35 | 35 | 24 | 20 |
| 4 x 2 | 500 | 500 | 500 | 350 | 300 |
| 100 x 50 | 35 | 35 | 35 | 24 | 20 |
| 4 x 2 ½ | 500 | 500 | 500 | 350 | 300 |
| 100 x 65 | 35 | 35 | 35 | 24 | 20 |
| 4 x 2 ½ | 500 | 500 | 500 | 350 | 300 |
| 100 x 65 | 35 | 35 | 35 | 24 | 20 |
| 4 x 3 | 500 | 500 | 500 | 300 | 250 |
| 100 x 80 | 35 | 35 | 35 | 20 | 17 |
| 5 x 4 | 400 | 400 | 400 | 300 | 250 |
| 125 x 100 | 28 | 28 | 28 | 20 | 17 |
| 5 x 4 | 400 | 400 | 400 | 300 | 250 |
| 125 x 100 | 28 | 28 | 28 | 20 | 17 |
| 6 x 3 | 400 | 400 | 400 | 300 | 200 |
| 150 x 80 | 28 | 28 | 28 | 20 | 14 |
| 6 x 3 | 400 | 400 | 400 | 300 | 200 |
| 150 x 80 | 28 | 28 | 28 | 20 | 14 |
| 6 x 4 | 400 | 400 | 400 | 300 | 175 |
| 150 x 100 | 28 | 28 | 28 | 20 | 12 |
| 6 x 4 | 400 | 400 | 400 | 300 | 175 |
| 150 x 100 | 28 | 28 | 28 | 20 | 12 |
| 8 x 6 | 400 | 400 | 400 | 300 | 175 |
| 200 x 150 | 28 | 28 | 28 | 20 | 12 |
| 8 x 6 | 400 | 400 | 400 | 300 | 175 |
| 200 x 150 | 28 | 28 | 28 | 20 | 12 |

## Model 7706 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size in / mm | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1 ½ x 1 ¼ | 500 | 500 | 350 | 300 | 250 |
| 40 x 32 | 35 | 35 | 24 | 20 | 17 |
| 2 x 1 ½ | 500 | 500 | 350 | 300 | 250 |
| 50 x 40 | 35 | 35 | 24 | 20 | 17 |
| 2 ½ x 2 | 500 | 500 | 350 | 300 | 250 |
| 65 x 50 | 35 | 35 | 24 | 20 | 17 |
| 2 ½ x 2 | 500 | 500 | 350 | 300 | 250 |
| 65 x 50 | 35 | 35 | 24 | 20 | 17 |
| 3 x 2 | 500 | 500 | 350 | 300 | 250 |
| 80 x 50 | 35 | 35 | 24 | 20 | 17 |
| 3 x 2 ½ | 500 | 500 | 350 | 300 | 250 |
| 80 x 65 | 35 | 35 | 24 | 20 | 17 |
| 4 x 2 | 500 | 500 | 350 | 300 | 250 |
| 100 x 50 | 35 | 35 | 24 | 20 | 17 |
| 4 x 2 ½ | 500 | 500 | 350 | 300 | 200 |
| 100 x 65 | 35 | 35 | 24 | 20 | 14 |
| 4 x 2 ½ | 500 | 500 | 350 | 300 | 200 |
| 100 x 65 | 35 | 35 | 24 | 20 | 14 |
| 4 x 3 | 500 | 500 | 300 | 250 | 200 |
| 100 x 80 | 35 | 35 | 20 | 17 | 14 |
| 5 x 4 | 400 | 400 | 300 | 250 | NR |
| 125 x 100 | 28 | 28 | 20 | 17 | |
| 5 x 4 | 400 | 400 | 300 | 250 | NR |
| 125 x 100 | 28 | 28 | 20 | 17 | |
| 6 x 3 | 400 | 400 | 300 | 200 | NR |
| 150 x 80 | 28 | 28 | 20 | 14 | |
| 6 x 3 | 400 | 400 | 300 | 200 | NR |
| 150 x 80 | 28 | 28 | 20 | 14 | |
| 6 x 4 | 400 | 400 | 300 | 175 | NR |
| 150 x 100 | 28 | 28 | 20 | 12 | |
| 6 x 4 | 400 | 400 | 300 | 175 | NR |
| 150 x 100 | 28 | 28 | 20 | 12 | |
| 8 x 6 | 400 | 400 | 300 | 175 | NR |
| 200 x 150 | 28 | 28 | 20 | 12 | |
| 8 x 6 | 400 | 400 | 300 | 175 | NR |
| 200 x 150 | 28 | 28 | 20 | 12 | |

## Model C-7 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 1½ x * | 500 | 500 | 500 | 350 | 300 |
| 40 x * | 35 | 35 | 35 | 24 | 20 |
| 2 x * | 500 | 500 | 500 | 350 | 300 |
| 50 x * | 35 | 35 | 35 | 24 | 20 |
| 2½ x * | 500 | 500 | 500 | 350 | 300 |
| 65 x * | 35 | 35 | 35 | 24 | 20 |
| 2½ x * | 500 | 500 | 500 | 350 | 300 |
| 65 x * | 35 | 35 | 35 | 24 | 20 |
| 3 x * | 500 | 500 | 500 | 350 | 300 |
| 80 x * | 35 | 35 | 35 | 24 | 20 |
| 4 x * | 500 | 500 | 500 | 350 | 300 |
| 100 x * | 35 | 35 | 35 | 24 | 20 |
| 6 x * | 400 | 400 | 400 | 350 | 300 |
| 150 x * | 28 | 28 | 28 | 24 | 20 |
| 6 x * | 400 | 400 | 400 | 350 | 300 |
| 150 x * | 28 | 28 | 28 | 24 | 20 |

* = all branch sizes, threaded and grooved

## Model C-7 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1½ x * | 500 | 500 | 350 | 300 | 250 |
| 40 x * | 35 | 35 | 24 | 20 | 17 |
| 2 x * | 500 | 500 | 350 | 300 | 250 |
| 50 x * | 35 | 35 | 24 | 20 | 17 |
| 2½ x * | 500 | 500 | 350 | 300 | 250 |
| 65 x * | 35 | 35 | 24 | 20 | 17 |
| 2½ x * | 500 | 500 | 350 | 300 | 250 |
| 65 x * | 35 | 35 | 24 | 20 | 17 |
| 3 x * | 500 | 500 | 350 | 300 | 250 |
| 80 x * | 35 | 35 | 24 | 20 | 17 |
| 4 x * | 500 | 500 | 350 | 300 | 250 |
| 100 x * | 35 | 35 | 24 | 20 | 17 |
| 6 x * | 400 | 400 | 300 | 300 | 250 |
| 150 x * | 28 | 28 | 20 | 20 | 17 |
| 6 x * | 400 | 400 | 300 | 300 | 250 |
| 150 x * | 28 | 28 | 20 | 20 | 17 |

* = all branch sizes, threaded and grooved

## Model 7043 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 2 | 750 | 750 | 750 | 500 | NR |
| 50 | 52 | 52 | 52 | 35 | |
| 2½ | 750 | 750 | 750 | 500 | NR |
| 65 | 52 | 52 | 52 | 35 | |
| 2½ | 750 | 750 | 750 | 500 | NR |
| 65 | 52 | 52 | 52 | 35 | |
| 3 | 750 | 750 | 750 | 500 | NR |
| 80 | 52 | 52 | 52 | 35 | |
| 4 | 750 | 750 | 750 | 500 | NR |
| 100 | 52 | 52 | 52 | 35 | |
| 5 | 750 | 750 | 750 | 450 | NR |
| 125 | 52 | 52 | 52 | 31 | |
| 5 | 750 | 750 | 750 | 450 | NR |
| 125 | 52 | 52 | 52 | 31 | |
| 6 | 750 | 750 | 750 | 450 | NR |
| 150 | 52 | 52 | 52 | 31 | |
| 6 | 750 | 750 | 750 | 450 | NR |
| 150 | 52 | 52 | 52 | 31 | |
| 8 | 750 | 750 | 750 | 300 | NR |
| 200 | 52 | 52 | 52 | 20 | |
| 10 | 750 | 750 | 750 | 300 | NR |
| 250 | 52 | 52 | 52 | 20 | |
| 12 | 750 | 750 | 750 | 250 | NR |
| 300 | 52 | 52 | 52 | 17 | |

Hydrostatic shell test: 1125 psi (77 Bar) per ANSI B16.5

## Model 7043 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 2 | 400 | 400 | 400 | NR | NR |
| 50 | 28 | 28 | 28 | | |
| 2½ | 400 | 400 | 400 | NR | NR |
| 65 | 28 | 28 | 28 | | |
| 2½ | 400 | 400 | 400 | NR | NR |
| 65 | 28 | 28 | 28 | | |
| 3 | 400 | 400 | 400 | NR | NR |
| 80 | 28 | 28 | 28 | | |
| 4 | 300 | 300 | 300 | NR | NR |
| 100 | 20 | 20 | 20 | | |
| 5 | 300 | 300 | 250 | NR | NR |
| 125 | 20 | 20 | 17 | | |
| 5 | 300 | 300 | 250 | NR | NR |
| 125 | 20 | 20 | 17 | | |
| 6 | 300 | 300 | 200 | NR | NR |
| 150 | 20 | 20 | 14 | | |
| 6 | 300 | 300 | 200 | NR | NR |
| 150 | 20 | 20 | 14 | | |
| 8 | 250 | 250 | 150 | NR | NR |
| 200 | 17 | 17 | 10 | | |
| 10 | 250 | 250 | 150 | NR | NR |
| 250 | 17 | 17 | 10 | | |
| 12 | 250 | 250 | 150 | NR | NR |
| 300 | 17 | 17 | 10 | | |

## Model 7041 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 2 | 300 | 300 | 300 | 250 | NR |
| 50 | 20 | 20 | 20 | 17 | |
| 2½ | 300 | 300 | 300 | 250 | NR |
| 65 | 20 | 20 | 20 | 17 | |
| 2½ | 300 | 300 | 300 | 250 | NR |
| 65 | 20 | 20 | 20 | 17 | |
| 3 | 300 | 300 | 300 | 250 | NR |
| 80 | 20 | 20 | 20 | 17 | |
| 4 | 300 | 300 | 300 | 250 | NR |
| 100 | 20 | 20 | 20 | 17 | |
| 5 | 300 | 300 | 300 | 250 | NR |
| 125 | 20 | 20 | 20 | 17 | |
| 5 | 300 | 300 | 300 | 250 | NR |
| 125 | 20 | 20 | 20 | 17 | |
| 6 | 300 | 300 | 300 | 250 | NR |
| 150 | 20 | 20 | 20 | 17 | |
| 6 | 300 | 300 | 300 | 250 | NR |
| 150 | 20 | 20 | 20 | 17 | |
| 8 | 300 | 300 | 300 | 200 | NR |
| 200 | 20 | 20 | 20 | 14 | |
| 10 | 300 | 300 | 300 | 200 | NR |
| 250 | 20 | 20 | 20 | 14 | |
| 12 | 300 | 300 | 300 | 200 | NR |
| 300 | 20 | 20 | 20 | 14 | |
| 14 | 300 | 300 | 300 | 200 | NR |
| 350 | 20 | 20 | 20 | 14 | |
| 16 | 300 | 300 | 300 | 175 | NR |
| 400 | 20 | 20 | 20 | 12 | |
| 18 | 300 | 300 | 300 | 175 | NR |
| 450 | 20 | 20 | 20 | 12 | |
| 20 | 300 | 300 | 300 | 150 | NR |
| 500 | 20 | 20 | 20 | 10 | |
| 24 | 300 | 300 | 300 | 150 | NR |
| 600 | 20 | 20 | 20 | 10 | |

## Model Z07N on Carbon Steel Pipe

Unit: psi / Bar

| Nom. | Cut-Grooved | Roll-Grooved | |
|---|---|---|---|
| Size | XS | STD | LW |
| in / mm | (0.500″) | (0.375″) | (0.312″) |
| 14 | --- | 250 | 200 |
| 350 | --- | 17 | 14 |
| 16 | --- | 250 | 200 |
| 400 | --- | 17 | 14 |
| 18 | --- | 250 | 200 |
| 450 | --- | 17 | 14 |
| 20 | --- | 250 | 200 |
| 500 | --- | 17 | 14 |
| 22 | --- | 250 | 200 |
| 550 | --- | 17 | 14 |
| 24 | --- | 250 | 200 |
| 600 | --- | 17 | 14 |

## Model 7041 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size in / mm | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| | Sch. 80S | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 2 | 300 | 300 | 275 | 275 | 250 |
| 50 | 20 | 20 | 19 | 19 | 17 |
| 2½ | 300 | 300 | 275 | 275 | 250 |
| 65 | 20 | 20 | 19 | 19 | 17 |
| 2½ | 300 | 300 | 275 | 275 | 250 |
| 65 | 20 | 20 | 19 | 19 | 17 |
| 3 | 300 | 300 | 275 | 275 | 250 |
| 80 | 20 | 20 | 19 | 19 | 17 |
| 4 | 300 | 300 | 275 | 275 | 250 |
| 100 | 20 | 20 | 19 | 19 | 17 |
| 5 | 300 | 300 | 275 | 200 | 200 |
| 125 | 20 | 20 | 19 | 14 | 14 |
| 5 | 300 | 300 | 275 | 200 | 200 |
| 125 | 20 | 20 | 19 | 14 | 14 |
| 6 | 300 | 300 | 250 | 200 | 200 |
| 150 | 20 | 20 | 17 | 14 | 14 |
| 6 | 300 | 300 | 250 | 200 | 200 |
| 150 | 20 | 20 | 17 | 14 | 14 |
| 8 | 300 | 300 | 200 | 75 | NR |
| 200 | 20 | 20 | 14 | 5 | |
| 10 | 300 | 300 | 200 | 75 | NR |
| 250 | 20 | 20 | 14 | 5 | |
| 12 | 300 | 300 | 200 | 50 | NR |
| 300 | 20 | 20 | 14 | 3 | |
| 14 | 250 | 250 | 125 | NR | NR |
| 350 | 17 | 17 | 9 | | |
| 16 | 250 | 250 | 125 | NR | NR |
| 400 | 17 | 17 | 9 | | |
| 18 | 250 | 250 | 125 | NR | NR |
| 450 | 17 | 17 | 9 | | |
| 20 | 250 | 250 | 100 | NR | NR |
| 500 | 17 | 17 | 7 | | |
| 24 | 250 | 250 | 100 | NR | NR |
| 600 | 17 | 17 | 7 | | |

## Model 7707N on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size in / mm | Cut-Grooved | Roll-Grooved | |
|---|---|---|---|
| | XS (0.500″) | STD (0.375″) | LW (0.312″) |
| 14 | 300 | 300 | 250 |
| 350 | 20 | 20 | 17 |
| 16 | 300 | 300 | 250 |
| 400 | 20 | 20 | 17 |
| 18 | 300 | 300 | 250 |
| 450 | 20 | 20 | 17 |
| 20 | 300 | 300 | 250 |
| 500 | 20 | 20 | 17 |
| 22 | 300 | 300 | 250 |
| 550 | 20 | 20 | 17 |
| 24 | 300 | 300 | 250 |
| 600 | 20 | 20 | 17 |

## Model 7707L on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size in / mm | Cut-Grooved | Roll-Grooved | |
|---|---|---|---|
| | XS (0.500″) | STD (0.375″) | LW (0.312″) |
| 14 | 250 | 175 | 125 |
| 350 | 17 | 12 | 9 |
| 16 | 250 | 175 | 125 |
| 400 | 17 | 12 | 9 |
| 18 | 250 | 175 | 125 |
| 450 | 17 | 12 | 9 |
| 20 | 250 | 175 | 125 |
| 500 | 17 | 12 | 9 |
| 22 | 250 | 175 | 125 |
| 550 | 17 | 12 | 9 |
| 24 | 250 | 175 | 125 |
| 600 | 17 | 12 | 9 |

### Model M07 on Carbon Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | STD | Sch. 10 | Sch. 7 |
| 2 | 750 | 750 | 750 | 750 | NR |
| 50 | 52 | 52 | 52 | 52 | |
| 2½ | 750 | 750 | 750 | 600 | NR |
| 65 | 52 | 52 | 52 | 42 | |
| 3 | 750 | 750 | 750 | 600 | NR |
| 80 | 52 | 52 | 52 | 42 | |
| 4 | 750 | 750 | 750 | 600 | NR |
| 100 | 52 | 52 | 52 | 42 | |
| 5 | 750 | 750 | 750 | 600 | NR |
| 125 | 52 | 52 | 52 | 42 | |
| 6 | 700 | 700 | 700 | 600 | NR |
| 150 | 48 | 48 | 48 | 42 | |
| 8 | 600 | 600 | 750 | 300 | NR |
| 200 | 42 | 42 | 52 | 20 | |

### Model M07 on Stainless Steel Pipe

Unit: psi / Bar

| Nom. Size | Cut-Grooved | | Roll-Grooved | | |
|---|---|---|---|---|---|
| in / mm | XS | STD | Sch. 40S | Sch. 10S | Sch. 5S |
| 2 | 600 | 600 | 600 | 300 | NR |
| 50 | 42 | 42 | 42 | 20 | |
| 2½ | 600 | 600 | 600 | 300 | NR |
| 65 | 42 | 42 | 42 | 20 | |
| 3 | 600 | 600 | 600 | 300 | NR |
| 80 | 42 | 42 | 42 | 20 | |
| 4 | 600 | 600 | 600 | 300 | NR |
| 100 | 42 | 42 | 42 | 20 | |
| 5 | 600 | 600 | 600 | 300 | NR |
| 125 | 42 | 42 | 42 | 20 | |
| 6 | 600 | 600 | 600 | 300 | NR |
| 150 | 42 | 42 | 42 | 20 | |
| 8 | 400 | 400 | 400 | 150 | NR |
| 200 | 28 | 28 | 28 | 10 | |

# PRESSURE PERFORMANCE DATA

## Stainless Steel Couplings on Stainless Steel Pipe

The following tables show maximum cold working pressures (CWP) of *Shurjoint* stainless steel couplings used on stainless steel pipes.
In general it is more difficult to achieve defined groove corners on stainless steel pipe than on carbon steel pipe. Always select the correct roll set for the pipe being grooved and process grooves as defined as possible. Contact your roll-groove tool manufacturer for recommendations.
Proof test pressure: 1.5 times the listed working pressure.
Burst pressure: 3 times the listed working pressure unless otherwise specified.

### Model SS-7 Rigid Coupling

Unit: psi / Bar

| Nom. Size | Roll-Grooved | | |
|---|---|---|---|
| in / mm | Sch. 40S | Sch. 10S | Sch. 5S |
| 1¼ | 750 | 500 | 200 |
| 32 | 52 | 35 | 14 |
| 1½ | 750 | 500 | 200 |
| 40 | 52 | 35 | 14 |
| 2 | 600 | 500 | 200 |
| 50 | 42 | 35 | 14 |
| 2½ | 600 | 500 | 200 |
| 65 | 42 | 35 | 14 |
| 3 | 600 | 500 | 200 |
| 80 | 42 | 35 | 14 |
| 4 | 600 | 400 | 200 |
| 100 | 42 | 28 | 14 |
| 5 | 600 | 350 | 200 |
| 125 | 42 | 24 | 14 |
| 6 | 600 | 300 | 200 |
| 150 | 42 | 20 | 14 |
| 8 | 600 | 300 | 200 |
| 200 | 42 | 20 | 14 |

### Model SS-5 Rigid Coupling

Unit: psi / Bar

| Nom. Size | Roll-Grooved | | |
|---|---|---|---|
| in / mm | Sch. 40S | Sch. 10S | Sch. 5S |
| 1¼ | 600 | 300 | 200 |
| 32 | 42 | 20 | 14 |
| 1½ | 600 | 300 | 200 |
| 40 | 42 | 20 | 14 |
| 2 | 600 | 300 | 200 |
| 50 | 42 | 20 | 14 |
| 2½ | 600 | 300 | 200 |
| 65 | 42 | 20 | 14 |
| 3 | 600 | 300 | 200 |
| 80 | 42 | 20 | 14 |
| 4 | 600 | 300 | 200 |
| 100 | 42 | 20 | 14 |
| 5 | 600 | 300 | 200 |
| 125 | 42 | 20 | 14 |
| 6 | 600 | 300 | 200 |
| 150 | 42 | 20 | 14 |
| 8 | 600 | 300 | 200 |
| 200 | 42 | 20 | 14 |

### Model SS-7X Rigid Coupling

Unit: psi / Bar

| Nom. Size | Roll-Grooved | | |
|---|---|---|---|
| in / mm | Sch. 40S | Sch. 10S | Sch. 5S |
| 10 | 600 | 300 | 200 |
| 250 | 42 | 20 | 14 |
| 12 | 600 | 300 | 200 |
| 300 | 42 | 20 | 14 |
| 14 | 400 | 300 | 200 |
| 350 | 28 | 20 | 14 |
| 16 | 400 | 300 | 200 |
| 400 | 28 | 20 | 14 |
| 18 | 350 | 300 | 200 |
| 450 | 24 | 20 | 14 |
| 20 | 350 | 300 | 200 |
| 500 | 24 | 20 | 14 |
| 22 | 300 | 300 | 200 |
| 550 | 20 | 20 | 14 |
| 24 | 300 | 300 | 200 |
| 600 | 20 | 20 | 14 |

*Burst pressure: 2 times the listed working pressure

### Model SS-8 Flexible Coupling

Unit: psi / Bar

| Nom. Size | Cut-Grooved | Roll-Grooved | | |
|---|---|---|---|---|
| in / mm | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1 | 500 | 500 | 450 | 225 |
| 25 | 35 | 35 | 31 | 16 |
| 1¼ | 500 | 500 | 450 | 225 |
| 32 | 35 | 35 | 31 | 16 |
| 1½ | 500 | 500 | 450 | 225 |
| 40 | 35 | 35 | 31 | 16 |
| 2 | 500 | 500 | 450 | 225 |
| 50 | 35 | 35 | 31 | 16 |
| 2½ | 500 | 500 | 450 | 225 |
| 65 | 35 | 35 | 31 | 16 |
| 3 | 500 | 500 | 450 | 225 |
| 80 | 35 | 35 | 31 | 16 |
| 4 | 425 | 425 | 400 | 200 |
| 100 | 29 | 29 | 28 | 14 |
| 5 | 425 | 425 | 400 | 125 |
| 125 | 29 | 29 | 28 | 9 |
| 6 | 425 | 425 | 350 | 125 |
| 150 | 29 | 29 | 24 | 9 |
| 8 | 300 | 300 | 200 | 125 |
| 200 | 20 | 20 | 14 | 9 |

### Model SS-8X Heavy Duty Flexible Coupling

Unit: psi / Bar

| Nom. Size | Cut-Grooved | Roll-Grooved | | |
|---|---|---|---|---|
| in / mm | Sch. 40S | Sch. 40S | Sch. 10S | Sch. 5S |
| 1 | 750 | 750 | 500 | 200 |
| 25 | 52 | 52 | 35 | 14 |
| 1¼ | 750 | 750 | 500 | 200 |
| 32 | 52 | 52 | 35 | 14 |
| 1½ | 750 | 750 | 500 | 200 |
| 40 | 52 | 52 | 35 | 14 |
| 2 | 750 | 750 | 500 | 200 |
| 50 | 52 | 52 | 35 | 14 |
| 2½ | 750 | 750 | 500 | 200 |
| 65 | 52 | 52 | 35 | 14 |
| 3 | 750 | 750 | 500 | 200 |
| 80 | 52 | 52 | 35 | 14 |
| 4 | 750 | 750 | 400 | 200 |
| 100 | 52 | 52 | 28 | 14 |
| 5 | 750 | 750 | 400 | 200 |
| 125 | 52 | 52 | 28 | 14 |
| 6 | 500 | 500 | 400 | 200 |
| 150 | 35 | 35 | 28 | 14 |
| 8 | 425 | 425 | 300 | 200 |
| 200 | 29 | 29 | 20 | 14 |

### Model SS-1200 High Pressure Flexible Coupling

Unit: psi / Bar

| Nom. Size | Roll-Grooved | |
|---|---|---|
| in / mm | Sch. 80S | Sch. 40S |
| ¾ | 1200 | 1200 |
| 20 | 83 | 83 |
| 1 | 1200 | 1200 |
| 25 | 83 | 83 |
| 1¼ | 1200 | 1200 |
| 32 | 83 | 83 |
| 1½ | 1200 | 1200 |
| 40 | 83 | 83 |
| 2 | 1200 | 1200 |
| 50 | 83 | 83 |
| 2½ | 1200 | 1200 |
| 65 | 83 | 83 |
| 3 | 1200 | 1200 |
| 80 | 83 | 83 |
| 4 | 1200 | 1200 |
| 100 | 83 | 83 |

*Burst pressure: 2 times the listed working pressure

### Model SS-28 Hinged Lever Coupling

Unit: psi / Bar

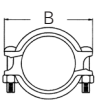
| Nom. Size | Roll-Grooved | | |
|---|---|---|---|
| in / mm | Sch. 40S | Sch. 10S | Sch. 5S |
| 1¼ | 300 | 300 | 200 |
| 32 | 20 | 20 | 14 |
| 1½ | 300 | 300 | 200 |
| 40 | 20 | 20 | 14 |
| 2 | 300 | 300 | 200 |
| 50 | 20 | 20 | 14 |
| 2½ | 300 | 300 | 200 |
| 65 | 20 | 20 | 14 |
| 3 | 300 | 300 | 200 |
| 80 | 20 | 20 | 14 |
| 4 | 300 | 300 | 200 |
| 100 | 20 | 20 | 14 |
| 5 | 200 | 200 | 125 |
| 125 | 14 | 14 | 9 |
| 5 | 200 | 200 | 125 |
| 125 | 14 | 14 | 9 |
| 6 | 200 | 200 | 125 |
| 150 | 14 | 14 | 9 |

# PRODUCT DATA

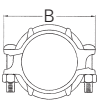
The following charts are the basic dimensions (overall lengths of couplings, center-to-end, end-to-end and take-out) for field cut-in and installation use. Please refer to the latest ***Shurjoint*** data sheet at ***www.shurjoint.com*** for other dimensions.

## Grooved Couplings

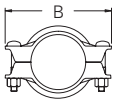
Model Z07 Heavy Duty Rigid Couplings
Z05 Rigid Couplings
7705 Flexible Couplings
7707 Heavy Duty Flexible Couplings



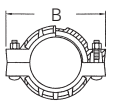
#Z07

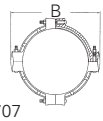


#Z05



#7705

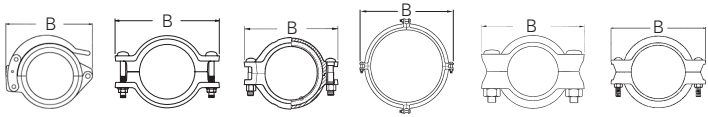




#7707

| Nominal Size in / mm | Pipe O.D. in / mm | #Z07 B in / mm | #Z05 B in / mm | #7705 B in / mm | #7707 B in / mm |
|---|---|---|---|---|---|
| ¾ | 1.050 | --- | --- | --- | 3.74 |
| 20 | 26.7 | --- | --- | --- | 95 |
| 1 | 1.315 | --- | --- | 3.94 | 3.90 |
| 25 | 33.4 | --- | --- | 100 | 99 |
| 1¼ | 1.660 | 4.13 | 4.00 | 4.06 | 4.25 |
| 32 | 42.2 | 105 | 102 | 103 | 108 |
| 1½ | 1.900 | 4.53 | 4.29 | 4.25 | 4.88 |
| 40 | 48.3 | 115 | 109 | 108 | 124 |
| 2 | 2.375 | 4.72 | 4.61 | 5.08 | 5.24 |
| 50 | 60.3 | 120 | 117 | 129 | 133 |
| 2½ | 2.875 | 5.50 | 5.20 | 5.59 | 5.90 |
| 65 | 73.0 | 140 | 132 | 142 | 150 |
| 76.1 mm | 3.000 | 5.75 | 5.35 | 5.79 | 5.90 |
| | 76.1 | 146 | 136 | 147 | 150 |
| 3 | 3.500 | 6.18 | 5.83 | 6.65 | 6.42 |
| 80 | 88.9 | 157 | 148 | 169 | 171 |
| 101.6 mm | 4.000 | --- | --- | 7.90 | --- |
| | 101.6 | --- | --- | 200 | --- |
| 108.0 mm | 4.250 | --- | 6.93 | 7.56 | --- |
| | 108.0 | --- | 176 | 192 | --- |
| 4 | 4.500 | 7.83 | 7.17 | 7.76 | 8.38 |
| 100 | 114.3 | 199 | 182 | 197 | 213 |
| 133.0 mm | 5.250 | --- | 8.82 | 9.09 | --- |
| | 133.0 | --- | 224 | 231 | --- |
| 139.7 mm | 5.500 | 9.25 | 8.94 | 9.17 | 9.50 |
| | 139.7 | 235 | 227 | 233 | 241 |
| 5 | 5.563 | 9.25 | 9.02 | 9.21 | 9.50 |
| 125 | 141.3 | 235 | 229 | 234 | 241 |
| 159.0 mm | 6.250 | --- | 9.84 | 9.96 | --- |
| | 159.0 | --- | 250 | 253 | --- |
| 165.1 mm | 6.500 | 10.20 | 9.69 | 10.28 | 11.26 |
| | 165.1 | 259 | 246 | 261 | 286 |
| 6 | 6.625 | 10.35 | 9.80 | 10.55 | 11.38 |
| 150 | 168.3 | 263 | 249 | 268 | 289 |
| 8 | 8.625 | 13.46 | 12.99 | 13.78 | 14.00 |
| 200 | 219.1 | 342 | 330 | 350 | 356 |
| 8 | 8.625 | --- | --- | 13.50 | --- |
| 200 (7705H/K9H) | 219.1 | --- | --- | 343 | --- |
| 10 | 10.750 | 16.98 | --- | 16.73 | 16.73 |
| 250 | 273.0 | 431 | --- | 425 | 425 |

Model G-28 Hinged Lever Couplings
K-9 Lightweight Rigid Couplings
7771 Standard Rigid Couplings
XH-70EP Extra Heavy Rigid Couplings With EP Gaskets
XH-1000 Extra Heavy Rigid Couplings
R20 Rigid Couplings

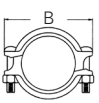



#G-28 #K-9 #7771 #XH-1000 #R20

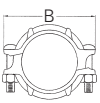
| #G-28 B in / mm | #K-9 B in / mm | #7771 B in / mm | #XH-70EP B in / mm | #XH-1000 B in / mm | #R20 B in / mm | Nominal Size in / mm |
|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | ¾ |
| --- | --- | --- | --- | --- | --- | 20 |
| --- | --- | --- | --- | --- | --- | 1 |
| --- | --- | --- | --- | --- | --- | 25 |
| --- | 4.33 | --- | --- | --- | 4.13 | 1¼ |
| --- | 110 | --- | --- | --- | 105 | 32 |
| 4.65 | 4.45 | 4.33 | --- | --- | 4.25 | 1½ |
| 118 | 113 | 100 | --- | --- | 108 | 40 |
| 4.76 | 4.88 | 4.96 | 5.90 | 5.90 | 4.92 | 2 |
| 121 | 124 | 126 | 150 | 150 | 125 | 50 |
| 5.91 | 5.39 | 5.82 | 6.61 | 6.61 | 5.43 | 2½ |
| 150 | 137 | 148 | 168 | 168 | 138 | 65 |
| 5.91 | 5.51 | 5.90 | --- | --- | 5.55 | 76.1 mm |
| 150 | 140 | 150 | --- | --- | 141 | |
| 6.42 | 5.94 | 6.69 | 7.40 | 6.18 | 6.18 | 3 |
| 163 | 151 | 170 | 188 | 188 | 157 | 80 |
| --- | --- | --- | --- | --- | --- | 101.6 mm |
| --- | --- | --- | --- | --- | --- | |
| --- | 7.00 | 7.59 | --- | --- | --- | 108.0 mm |
| --- | 219 | 193 | --- | --- | --- | |
| 8.07 | 7.48 | 7.79 | 8.74 | 8.74 | 7.52 | 4 |
| 205 | 190 | 198 | 222 | 222 | 191 | 100 |
| --- | 8.61 | 9.72 | --- | --- | --- | 133.0 mm |
| --- | 219 | 247 | --- | --- | --- | |
| 9.96 | 9.21 | 9.80 | --- | --- | 9.21 | 139.7 mm |
| 253 | 234 | 249 | --- | --- | 234 | |
| 9.96 | 8.98 | 9.84 | --- | --- | 9.29 | 5 |
| 253 | 228 | 250 | --- | --- | 236 | 125 |
| --- | 9.67 | 10.70 | --- | --- | --- | 159.0 mm |
| --- | 246 | 272 | --- | --- | --- | |
| 10.94 | 9.92 | 11.02 | --- | --- | 9.92 | 165.1 mm |
| 278 | 252 | 280 | --- | --- | 252 | |
| 11.06 | 10.04 | 11.02 | 11.61 | 11.61 | 10.08 | 6 |
| 281 | 255 | 280 | 295 | 295 | 256 | 150 |
| 14.02 | 13.98 | 13.62 | 14.33 | 14.33 | --- | 8 |
| 356 | 355 | 346 | 364 | 364 | --- | 200 |
| --- | 13.08 | --- | --- | --- | --- | 8 |
| --- | 332 | --- | --- | --- | --- | 200 (7705H/K9H) |
| 17.80 | --- | 16.29 | 16.70 | 16.70 | --- | 10 |
| 452 | --- | 414 | 424 | 424 | --- | 250 |

Continued on next page

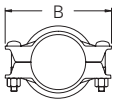
Model Z07 Heavy Duty Rigid Couplings
Z05 Rigid Couplings
7705 Flexible Couplings
7707 Heavy Duty Flexible Couplings



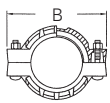
#Z07

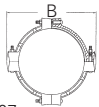


#Z05



#7705

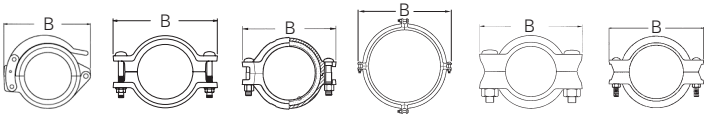




#7707

| Nominal Size in / mm | Pipe O.D. in / mm | #Z07 B in / mm | #Z05 B in / mm | #7705 B in / mm | #7707 B in / mm |
|---|---|---|---|---|---|
| 12 | 12.750 | 18.88 | --- | 18.39 | 18.39 |
| 300 | 323.9 | 480 | --- | 467 | 467 |
| 200 JIS | 8.516 | 13.39 | 13.39 | 13.70 | 14.00 |
| | 216.3 | 340 | 340 | 348 | 356 |
| 250 JIS | 10.528 | 15.63 | --- | 16.54 | 16.54 |
| | 267.4 | 397 | --- | 420 | 420 |
| 300 JIS | 12.539 | 17.80 | --- | 18.81 | 18.81 |
| | 318.5 | 452 | --- | 478 | 478 |
| 14 (Z07N) | 14.000 | 19.89 | --- | --- | 18.0 |
| 350 | 355.6 | 505 | --- | --- | 458 |
| 16 (Z07N) | 16.000 | 21.84 | --- | --- | 21.9 |
| 400 | 406.4 | 554 | --- | --- | 555 |
| 18 (Z07N) | 18.000 | 23.89 | --- | ---- | 24.1 |
| 450 | 457.2 | 607 | --- | --- | 612 |
| 20 (Z07N) | 20.000 | 27.47 | --- | --- | 26.4 |
| 500 | 508.0 | 698 | --- | --- | 670 |
| 22 | 22.000 | --- | --- | --- | 28.7 |
| 550 | 558.8 | --- | --- | --- | 730 |
| 24 (Z07N) | 24.000 | 31.61 | --- | --- | 30.4 |
| 600 | 609.6 | 803 | --- | --- | 773 |

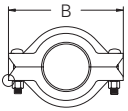
Model G-28 Hinged Lever Couplings
K-9 Lightweight Rigid Couplings
7771 Standard Rigid Couplings
XH-70EP Extra Heavy Rigid Couplings With EP Gaskets
XH-1000 Extra Heavy Rigid Couplings
R20 Rigid Couplings




#G-28 #K-9 #7771 #XH-1000 #R20

| #G-28 B in / mm | #K-9 B in / mm | #7771 B in / mm | #XH-70EP B in / mm | #XH-1000 B in / mm | #R20 B in / mm | Nominal Size in / mm |
|---|---|---|---|---|---|---|
| --- | --- | 18.42 | 18.90 | 18.90 | --- | 12 |
| --- | --- | 468 | 480 | 480 | --- | 300 |
| --- | --- | 13.62 | --- | --- | 13.00 | 200 JIS |
| --- | --- | 346 | --- | --- | 330 | |
| --- | --- | 15.20 | --- | --- | 13.31 | 250 JIS |
| --- | --- | 386 | --- | --- | 338 | |
| --- | --- | 17.48 | --- | --- | 17.49 | 300 JIS |
| --- | --- | 444 | --- | --- | 444 | |
| --- | --- | 19.76 | --- | --- | --- | 14 (Z07N) |
| --- | --- | 502 | --- | --- | --- | 350 |
| --- | --- | 22.24 | --- | --- | --- | 16 (Z07N) |
| --- | --- | 565 | --- | --- | --- | 400 |
| --- | --- | 24.37 | --- | --- | --- | 18 (Z07N) |
| --- | --- | 619 | --- | --- | --- | 450 |
| --- | --- | 26.88 | --- | --- | --- | 20 (Z07N) |
| --- | --- | 683 | --- | --- | --- | 500 |
| --- | --- | 28.35 | --- | --- | --- | 22 |
| --- | --- | 720 | --- | --- | --- | 550 |
| --- | --- | 30.86 | --- | --- | --- | 24 (Z07N) |
| --- | --- | 784 | --- | --- | --- | 600 |

## Model 7706 Reducing Coupling

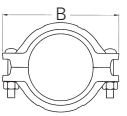



#7706

| Nominal Size in / mm | Pipe O.D. in / mm | #7706 B in / mm |
|---|---|---|
| 1½ x 1¼ | 1.900 x 1.660 | 4.25 |
| 40 x 32 | 48.3 x 42.2 | 108 |
| 2 x 1½ | 2.375 x 1.900 | 4.80 |
| 50 x 40 | 60.3 x 48.3 | 122 |
| 2½ x 2 | 2.875 x 2.375 | 5.67 |
| 65 x 50 | 73.0 x 60.3 | 144 |
| 76.1 mm x 50 | 3.000 x 2.375 | 5.43 |
| | 76.1 x 60.3 | 138 |
| 3 x 2 | 3.500 x 2.375 | 6.61 |
| 80 x 50 | 88.9 x 60.3 | 168 |
| 3 x 2½ | 3.500 x 2.875 | 6.61 |
| 80 x 65 | 88.9 x 73.0 | 168 |
| 80 x 76.1 mm | 3.500 x 3.000 | 6.61 |
| | 88.9 x 76.1 | 168 |
| 4 x 2 | 4.500 x 2.375 | 7.80 |
| 100 x 50 | 114.3 x 60.3 | 198 |
| 4 x 2½ | 4.500 x 2.875 | 7.80 |
| 100 x 65 | 114.3 x 73.0 | 198 |
| 100 x 76.1 mm | 4.500 x 3.000 | 7.80 |
| | 114.3 x 76.1 | 198 |

| Nominal Size in / mm | Pipe O.D. in / mm | #7706 B in / mm |
|---|---|---|
| 4 x 3 | 4.500 x 3.500 | 7.80 |
| 100 x 80 | 114.3 x 88.9 | 198 |
| 139.7 mm x 100 | 5.500 x 4.500 | 9.84 |
| | 139.7 x 114.3 | 242 |
| 5 x 4 | 5.563 x 4.500 | 9.84 |
| 125 x 100 | 141.3 x 114.3 | 242 |
| 165.1 mm x 80 | 6.500 x 3.500 | 10.59 |
| | 165.1 x 88.9 | 269 |
| 6 x 3 | 6.625 x 3.500 | 10.83 |
| 150 x 80 | 168.3 x 88.9 | 275 |
| 165.1 mm x 100 | 6.500 x 4.500 | 10.59 |
| | 165.1 x 114.3 | 269 |
| 6 x 4 | 6.625 x 4.500 | 10.83 |
| 150 x 100 | 168.3 x114.3 | 275 |
| 8 x 6 | 8.625 x 6.625 | 13.15 |
| 200 x 150 | 219.1 x 168.3 | 334 |
| 200 x 165.1 mm | 8.625 x 6.500 | 13.15 |
| | 219.1 x 165.1 | 334 |

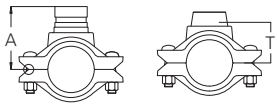
## Model 7771-T Transition Coupling




#7771-T

| Nominal #7771-T B | Actual Pipe O.D. | | JIS |
|---|---|---|---|
| | Size | IPS | |
| mm | in / mm | in / mm | in / mm |
| 200 JIS | 8.625 | 8.515 | 13.19 |
| | 219.1 | 216.3 | 335 |
| 200 JIS | 10.750 | 10.528 | 15.20 |
| | 273.0 | 267.4 | 386 |
| 200 JIS | 12.750 | 12.539 | 17.64 |

## Model C-7 Outlet Coupling




Grooved Outlet Threaded Outlet

#C-7 Outlet Coupling

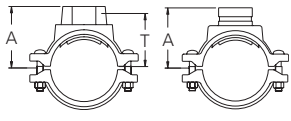
| Nominal Size | | | #C-7 | |
|---|---|---|---|---|
| Run Pipe | Outlet | | | |
| | FPT | Gr / MPT | T* | A |
| in / mm | in / mm | in / mm | in / mm | in / mm |
| | ½ | --- | 2.06 | --- |
| | 15 | --- | 52 | --- |
| 1½ | ¾ | --- | 2.06 | --- |
| 40 | 20 | --- | 52 | --- |
| | 1 | --- | 1.94 | --- |
| | 25 | --- | 49 | --- |
| | ½ | --- | 2.32 | --- |
| | 15 | --- | 59 | --- |
| 2 | ¾ | --- | 2.32 | --- |
| 50 | 20 | --- | 59 | --- |
| | 1 | 1 | 2.20 | 3.50 |
| | 25 | 33.4 | 56 | 89.0 |
| | ½ | --- | 2.20 | --- |
| | 15 | --- | 56 | --- |
| | ¾ | --- | 2.56 | --- |
| | 20 | --- | 65 | --- |
| 2½ | 1 | --- | 2.44 | --- |
| 65 | 25 | --- | 62 | --- |
| | 1¼ | 1¼ | 2.36 | 3.70 |
| | 32 | 42.2 | 60 | 94.0 |
| | --- | 1½ | --- | 3.70 |
| | --- | 48.3 | --- | 94.0 |
| | ¾ | --- | 2.83 | --- |
| | 20 | --- | 72 | --- |
| | 1 | 1 | 2.75 | 4.00 |
| 3 | 25 | 33.4 | 70 | 102.0 |
| 80 | 1¼ | 1¼ | 2.75 | 4.00 |
| | 32 | 42.2 | 70 | 102.0 |
| | 1½ | 1½ | 2.75 | 4.00 |
| | 40 | 48.3 | 70 | 102.0 |

| Nominal Size | | | #C-7 | |
|---|---|---|---|---|
| Run Pipe | Outlet | | | |
| | FPT | Gr / MPT | T* | A |
| in / mm | in / mm | in / mm | in / mm | in / mm |
| | ¾ | --- | 3.70 | --- |
| | 20 | --- | 94 | --- |
| | 1 | 1 | 3.58 | 4.88 |
| 4 | 25 | 33.4 | 91 | 124.0 |
| 100 | 1½ | 1½ | 3.31 | 4.88 |
| | 40 | 48.3 | 84 | 124.0 |
| | 2 | 2 | 3.50 | 4.88 |
| | 50 | 60.3 | 89 | 124.0 |
| | ¾ | --- | 4.76 | --- |
| | 20 | --- | 121 | --- |
| | 1 | --- | 4.76 | --- |
| | 25 | --- | 121 | --- |
| 6 | 1½ | 1½ | 4.76 | 6.06 |
| 150 | 40 | 48.3 | 121 | 154.0 |
| | 2 | 2 | 4.40 | 6.06 |
| | 50 | 60.3 | 111 | 154.0 |
| | --- | 2½ | --- | 6.00 |
| | --- | 76.1 | --- | 152.5 |

FPT: Female threaded outlet
Gr: Grooved outlet
MPT: Male threaded outlet.
*T: Center of run pipe to end of outlet pipe (dimensions approximate). Female threaded outlet only.

## Mechanical Tees

### Model 7721, M21 Mechanical Tee Threaded Outlet
### 7722, M22 Mechanical Tee Grooved Outlet




#7721 #M21 #7722, #M22

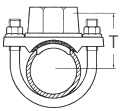
| Nominal Size #M22 | Pipe | #7721 | | #M21 | | | #7722 |
|---|---|---|---|---|---|---|---|
| Run x Branch | O.D. | T* | A | T* | A | A | A |
| in / mm | in / mm | in / mm | in / mm | in / mm | in / mm | in / mm | in / mm |
| 2 x ½ | 2.375 x 0.840 | 1.97 | 2.50 | 1.97 | 2.50 | --- | --- |
| 50 x 15 | 60.3 x 21.3 | 50 | 64 | 50 | 63.5 | --- | --- |
| 2 x ¾ | 2.375 x 1.050 | 1.97 | 2.50 | 1.97 | 2.50 | --- | --- |
| 50 x 20 | 60.3 x 26.7 | 50 | 64 | 50 | 63.5 | --- | --- |
| 2 x 1 | 2.375 x 1.315 | 2.00 | 2.68 | 1.85 | 2.50 | 2.68 | 2.87 |
| 50 x 25 | 60.3 x 33.4 | 51 | 68 | 47 | 63.5 | 68 | 73.0 |
| 2 x 1¼ | 2.375 x 1.660 | 2.08 | 2.80 | 2.05 | 2.87 | 2.80 | 3.00 |
| 50 x 32 | 60.3 x 42.2 | 53 | 71 | 52 | 73.0 | 71 | 76.2 |
| 2 x 1½ | 2.375 x 1.900 | 2.08 | 2.80 | 2.08 | 3.00 | 2.80 | 3.00 |
| 50 x 40 | 60.3 x 48.3 | 53 | 71 | 52 | 76.2 | 71 | 76.2 |
| 2½ x ½ | 2.875 x 0.840 | 2.25 | 2.80 | 2.20 | 2.75 | --- | --- |
| 65 x 15 | 73.0 x 21.3 | 57 | 71 | 56 | 69.9 | --- | --- |
| 2½ x ¾ | 2.875 x 1.050 | 2.32 | 2.88 | 2.20 | 2.75 | --- | --- |
| 65 x 20 | 73.0 x 26.7 | 59 | 73 | 56 | 69.9 | --- | --- |
| 2½ x 1 | 2.875 x 1.315 | 2.28 | 2.95 | 2.09 | 2.75 | 2.95 | 3.13 |
| 65 x 25 | 73.0 x 33.4 | 58 | 75 | 53 | 69.9 | 75 | 79.4 |
| 2½ x 1¼ | 2.875 x 1.660 | 2.40 | 3.11 | 2.28 | 3.00 | 3.11 | 3.25 |
| 65 x 32 | 73.0 x 42.2 | 61 | 79 | 58 | 76.2 | 79 | 82.6 |
| 2½ x 1½ | 2.875 x 1.900 | 2.40 | 3.11 | 2.28 | 3.00 | 3.11 | 3.25 |
| 65 x 40 | 73.0 x 48.3 | 61 | 79 | 58 | 76.2 | 79 | 82.6 |
| 76.1 mm x 15 | 3.000 x 0.840 | 2.25 | 2.80 | 2.20 | 2.75 | --- | --- |
| | 76.1 x 21.3 | 57 | 71 | 56 | 69.9 | --- | --- |
| 76.1 mm x 20 | 3.000 x 1.050 | 2.32 | 2.88 | 2.20 | 2.75 | --- | --- |
| | 76.1 x 26.7 | 59 | 73 | 56 | 69.9 | --- | --- |
| 76.1 mm x 25 | 3.000 x 1.315 | 2.28 | 2.95 | 2.09 | 2.75 | 2.95 | 3.13 |
| | 76.1 x 33.4 | 58 | 75 | 53 | 69.9 | 75 | 79.4 |
| 76.1 mm x 32 | 3.000 x 1.660 | 2.40 | 3.11 | 2.28 | 3.00 | 3.11 | 3.25 |
| | 76.1 x 42.2 | 61 | 79 | 58 | 76.2 | 79 | 82.6 |
| 76.1 mm x 40 | 3.000 x 1.900 | 2.40 | 3.11 | 2.28 | 3.00 | 3.11 | 3.25 |
| | 76.1 x 48.3 | 61 | 79 | 58 | 76.2 | 79 | 82.6 |
| 3 x ½ | 3.500 x 0.840 | 2.47 | 3.19 | 2.36 | 3.06 | --- | --- |
| 80 x 15 | 88.9 x 21.3 | 63 | 81 | 60 | 77.8 | --- | --- |
| 3 x ¾ | 3.500 x 1.050 | 2.44 | 3.19 | 2.32 | 3.06 | --- | --- |
| 80 x 20 | 88.9 x 26.7 | 62 | 81 | 59 | 77.8 | --- | --- |
| 3 x 1 | 3.500 x 1.315 | 2.50 | 3.19 | 2.40 | 3.06 | 3.30 | 3.37 |
| 80 x 25 | 88.9 x 33.4 | 64 | 81 | 61 | 77.8 | 84 | 85.7 |
| 3 x 1¼ | 3.500 x 1.660 | 2.80 | 3.50 | 2.56 | 3.25 | 3.50 | 3.56 |
| 80 x 32 | 88.9 x 42.2 | 71 | 89 | 65 | 82.6 | 89 | 90.5 |
| 3 x 1½ | 3.500 x 1.900 | 2.80 | 3.50 | 2.80 | 3.50 | 3.50 | 3.56 |
| 80 x 40 | 88.9 x 48.3 | 71 | 89 | 71 | 88.9 | 89 | 90.5 |
| 3 x 2 | 3.500 x 2.375 | 2.83 | 3.58 | 2.76 | 3.50 | 3.58 | 3.56 |
| 80 x 50 | 88.9 x 60.3 | 72 | 91 | 70 | 88.9 | 91 | 90.5 |
| 4 x ½ | 4.500 x 0.840 | 3.00 | 3.70 | 2.83 | 3.69 | --- | --- |
| 100 x 15 | 114.3 x 21.3 | 76 | 94 | 72 | 93.7 | --- | --- |
| 4 x ¾ | 4.500 x 1.050 | 2.95 | 3.70 | 2.79 | 3.69 | --- | --- |
| 100 x 20 | 114.3 x 26.7 | 75 | 94 | 71 | 93.7 | --- | --- |
| 4 x 1 | 4.500 x 1.315 | 3.03 | 3.70 | 2.87 | 3.69 | 3.89 | 3.69 |

| Nominal Size #M22 | Pipe | #7721 | | #M21 | | | #7722 |
|---|---|---|---|---|---|---|---|
| Run x Branch | O.D. | T* | A | T* | A | A | A |
| in / mm | in / mm | in / mm | in / mm | in / mm | in / mm | in / mm | in / mm |
| 4 x 1¼ | 4.500 x 1.660 | 3.19 | 3.89 | 3.07 | 3.63 | 3.89 | 3.63 |
| 100 x 32 | 114.3 x 42.2 | 81 | 99 | 78 | 92.1 | 99 | 92.1 |
| 4 x 1½ | 4.500 x 1.900 | 3.19 | 3.89 | 3.31 | 3.63 | 3.89 | 3.63 |
| 100 x 40 | 114.3 x 48.3 | 81 | 99 | 84 | 92.1 | 99 | 92.1 |
| 4 x 2 | 4.500 x 2.375 | 3.38 | 4.13 | 3.27 | 4.00 | 4.13 | 4.00 |
| 100 x 50 | 114.3 x 60.3 | 86 | 105 | 83 | 101.6 | 105 | 101.6 |
| 4 x 2½ | 4.500 x 2.875 | 3.23 | 4.37 | 2.87 | 4.00 | 4.37 | 4.00 |
| 100 x 65 | 114.3 x 73.0 | 82 | 111 | 73 | 101.6 | 111 | 101.6 |
| 100 x 76.1 mm | 4.500 x 3.000 | 3.23 | 4.37 | 2.87 | 4.00 | 4.37 | 4.00 |
| | 114.3 x 76.1 | 82 | 111 | 73 | 101.6 | 111 | 101.6 |
| 4 x 3 | 4.500 x 3.500 | 3.23 | 4.40 | 3.31 | 4.13 | 4.40 | 4.13 |
| 100 x 80 | 114.3 x 88.9 | 82 | 112 | 84 | 104.8 | 112 | 104.8 |
| 139.7 mm x 50 | 5.500 x 2.375 | 4.13 | 4.88 | 3.27 | 4.75 | 4.88 | 4.75 |
| | 139.7 x 60.3 | 105 | 124 | 83 | 120.7 | 124 | 120.7 |
| 139.7 mm x | 5.500 x 3.000 | 3.89 | 5.00 | 3.67 | 4.75 | 5.00 | 4.75 |
| 76.1 mm | 139.7 x 76.1 | 99 | 127 | 93 | 120.7 | 127 | 120.7 |
| 139.7 mm x 80 | 5.500 x 3.500 | --- | --- | 3.82 | 4.75 | --- | 4.63 |
| | 139.7 x 88.9 | --- | --- | 97 | 127.0 | --- | 117.5 |
| 5 x 2 | 5.563 x 2.375 | 4.13 | 4.88 | 3.27 | 4.75 | 4.88 | 4.75 |
| 125 x 50 | 141.3 x 60.3 | 105 | 124 | 83 | 120.7 | 124 | 120.7 |
| 5 x 2½ | 5.563 x 2.875 | 3.89 | 5.00 | 3.67 | 4.75 | 5.00 | 4.75 |
| 125 x 65 | 141.3 x 73.0 | 99 | 127 | 93 | 120.7 | 127 | 120.7 |
| 5 x 3 | 5.563 x 3.500 | --- | --- | 3.82 | 4.75 | --- | 4.63 |
| 125 x 80 | 141.3 x 88.9 | --- | --- | 97 | 127.0 | --- | 117.5 |
| 165.1 mm x 32 | 6.500 x 1.660 | 4.29 | 5.00 | 4.41 | 5.13 | 5.00 | 5.13 |
| | 165.1 x 42.2 | 109 | 127 | 112 | 130.2 | 127 | 130.2 |
| 165.1 mm x 40 | 6.500 x 1.900 | 4.29 | 5.00 | 4.41 | 5.13 | 5.00 | 5.13 |
| | 165.1 x 48.3 | 109 | 127 | 112 | 130.2 | 127 | 130.2 |
| 165.1 mm x 50 | 6.500 x 2.375 | 4.45 | 5.29 | 4.37 | 5.13 | 5.20 | 5.13 |
| | 165.1 x 60.3 | 113 | 132 | 111 | 130.2 | 132 | 130.2 |
| 165.1 mm x 65 | 6.500 x 2.875 | 4.37 | 5.50 | 3.98 | 5.13 | 5.50 | 5.13 |
| | 165.1 x 73.0 | 111 | 140 | 101 | 130.2 | 140 | 130.2 |
| 165.1 mm x | 6.500 x 3.000 | 4.37 | 5.50 | 3.98 | 5.13 | 5.50 | 5.13 |
| 76.1 mm | 165.1 x 76.1 | 111 | 140 | 101 | 130.2 | 140 | 130.2 |
| 165.1 mm x 80 | 6.500 x 3.500 | 4.33 | 5.50 | 4.33 | 5.50 | 5.50 | 5.13 |
| | 165.1 x 88.9 | 110 | 140 | 110 | 139.7 | 140 | 130.2 |
| 165.1 mm x 100 | 6.500 x 4.500 | 4.21 | 5.50 | 4.45 | 5.75 | 5.50 | 5.40 |
| | 165.1 x 114.3 | 107 | 140 | 113 | 146.1 | 140 | 137.1 |
| 6 x 1¼ | 6.625 x 1.660 | 4.29 | 5.00 | 4.41 | 5.13 | 5.00 | 5.13 |
| 150 x 32 | 168.3 x 42.2 | 109 | 127 | 112 | 130.2 | 127 | 130.2 |
| 6 x 1½ | 6.625 x 1.900 | 4.29 | 5.00 | 4.41 | 5.13 | 5.00 | 5.13 |
| 150 x 40 | 168.3 x 48.3 | 109 | 127 | 112 | 130.2 | 127 | 130.2 |
| 6 x 2 | 6.625 x 2.375 | 4.45 | 5.29 | 4.37 | 5.13 | 5.20 | 5.13 |
| 150 x 50 | 168.3 x 60.3 | 113 | 132 | 111 | 130.2 | 132 | 130.2 |
| 6 x 2½ | 6.625 x 2.875 | 4.37 | 5.50 | 3.98 | 5.13 | 5.50 | 5.13 |
| 150 x 65 | 168.3 x 73.0 | 111 | 140 | 101 | 130.2 | 140 | 130.2 |
| 150 x 76.1 mm | 6.625 x 3.000 | 4.37 | 5.50 | 3.98 | 5.13 | --- | --- |
| | 168.3 x 76.1 | 111 | 140 | 101 | 130.2 | --- | --- |
| 6 x 3 | 6.625 x 3.500 | 4.33 | 5.50 | 4.33 | 5.50 | 5.50 | 5.13 |
| 150 x 80 | 168.3 x 88.9 | 110 | 140 | 110 | 139.7 | 140 | 130.2 |
| 6 x 4 | 6.625 x 4.500 | 4.21 | 5.50 | 4.45 | 5.75 | 5.50 | 5.40 |
| 150 x 100 | 168.3 x 114.3 | 107 | 140 | 113 | 146.1 | 140 | 137.1 |
| 8 x 2 | 8.625 x 2.375 | 5.31 | 6.54 | --- | --- | 6.54 | --- |
| 200 x 50 | 219.1 x 60.3 | 135 | 166 | --- | --- | 166 | --- |
| 8 x 2½ | 8.625 x 2.875 | 5.39 | 6.54 | --- | --- | 6.54 | --- |
| 200 x 65 | 219.1 x 73.0 | 137 | 166 | --- | --- | 166 | --- |
| 219.1 x | 8.625 x 3.000 | 5.39 | 6.54 | --- | --- | 6.54 | --- |
| 76.1 mm | 219.1 x 76.1 | 137 | 166 | --- | --- | 166 | --- |
| 8 x 3 | 8.625 x 3.500 | 5.35 | 6.54 | --- | --- | 6.54 | --- |
| 200 x 80 | 219.1 x 88.9 | 136 | 166 | --- | --- | 166 | --- |
| 8 x 4 | 8.625 x 4.500 | 5.24 | 6.54 | --- | --- | 6.54 | --- |

* Take-Out (Center of run to end of pipe to be engaged.)

## Grooved Flange Adapters

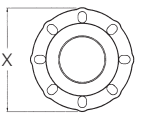
### Model 723 Saddle-Let




#723

| Nominal Size in / mm | Pipe O.D. in / mm | Take-Out, T in / mm |
|---|---|---|
| 1¼ x ½ | 1.660 × 0.840 | 1.38 |
| 32 x 15 | 42.2 × 21.3 | 35.0 |
| 1¼ x ¾ | 1.660 × 1.050 | 1.38 |
| 32 x 20 | 42.2 × 26.7 | 35.0 |
| 1¼ x 1 | 1.660 × 1.315 | 1.50 |
| 32 x 25 | 42.2 × 33.4 | 38.0 |
| 1½ x ½ | 1.900 × 0.840 | 1.38 |
| 40 x 15 | 48.3 × 21.3 | 35.0 |
| 1½ x ¾ | 1.900 × 1.050 | 1.38 |
| 40 x 20 | 48.3 × 26.7 | 35.0 |
| 1½ x 1 | 1.900 × 1.315 | 1.50 |
| 40 x 25 | 48.3 × 33.4 | 38.0 |
| 2 x ½ | 2.375 × 0.840 | 1.65 |
| 50 x 15 | 60.3 × 21.3 | 42.0 |
| 2 x ¾ | 2.375 × 1.050 | 1.65 |
| 50 x 20 | 60.3 × 26.7 | 42.0 |
| 2 x 1 | 2.375 × 1.315 | 1.77 |
| 50 x 25 | 60.3 × 33.4 | 45.0 |
| 2½ x ½ | 2.875 × 0.840 | 2.00 |
| 65 x 15 | 73.0 × 21.3 | 51.0 |
| 2½ x ¾ | 2.875 × 1.050 | 2.00 |
| 65 x 20 | 73.0 × 26.7 | 51.0 |
| 2½ x 1 | 2.875 × 1.315 | 2.13 |
| 65 x 25 | 73.0 × 33.4 | 54.0 |

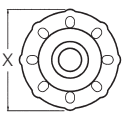
### Model 7180 Flange Adapters




#7180

| Nominal Size in / mm | Pipe O.D. in / mm | #7180 X in / mm |
|---|---|---|
| 2 | 2.375 | 6.50 |
| 50 | 60.3 | 165 |
| 2½ | 2.875 | 7.28 |
| 65 | 73.0 | 185 |
| 76.1 mm | 3.000 | 7.28 |
| | 76.1 | 185 |
| 3 | 3.500 | 7.87 |
| 80 | 88.9 | 200 |
| 4 | 4.500 | 9.00 |
| 100 | 114.3 | 229 |
| 139.7 mm | 5.500 | 9.84 |
| | 139.7 | 250 |
| 5 | 5.563 | 9.84 |
| 125 | 141.3 | 250 |
| 165.1 mm | 6.500 | 11.46 |
| | 165.1 | 291 |
| 6 | 6.625 | 11.46 |
| 150 | 168.3 | 291 |
| 8 | 8.625 | 13.50 |
| 200 | 219.1 | 343 |
| 200 JIS | 8.516 | 13.50 |
| | 216.3 | 343 |

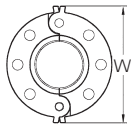
### Model 7181 Universal Reducing Flange Adapters



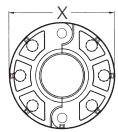

#7181

| Nominal Size in / mm | Pipe O.D. in / mm | #7181 X in / mm |
|---|---|---|
| 3 x 2 | 3.500 x 2.375 | 8.19 |
| 80 x 50 | 88.9 x 60.3 | 208.0 |
| 4 x 2½ | 4.500 x 2.875 | 8.88 |
| 100 x 65 | 114.3 x 73.0 | 225.5 |
| 100 x 76.1 mm | 4.500 x 3.000 | 8.88 |
| | 114.3 x 76.1 | 225.5 |
| 4 x 3 | 4.500 x 3.500 | 8.88 |
| 100 x 80 | 114.3 x 88.9 | 225.5 |
| 6 x 4 | 6.625 x 4.500 | 11.46 |
| 150 x 100 | 168.3 x 114.3 | 291.0 |

## Model 7041/7041N Flange Adapters-ANSI Class 125/150
## 7041/7041N Flange Adapters-PN 10 / PN 16
## 7043 Flange Adapters




#7041 / #7041N

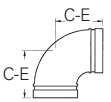



#7043

| Nominal Size<br>in / mm | Pipe O.D.<br>in / mm | #7041<br>#7041N<br>ANSI Class 125/150<br>W<br>in / mm | #7041<br>#7041N<br>PN 10 / PN 16<br>W<br>in / mm | #7043<br>X<br>in / mm |
|---|---|---|---|---|
| 2 | 2.375 | 6.79 | --- | 6.50 |
| 50 | 60.3 | 172 | 185 | 165 |
| 2½ | 2.875 | 7.79 | --- | 7.50 |
| 65 | 73.0 | 198 | --- | 191 |
| 76.1 mm | 3.000 | --- | --- | --- |
| | 76.1 | --- | 205 | --- |
| 3 | 3.500 | 8.29 | --- | 8.25 |
| 80 | 88.9 | 210 | 220 | 210 |
| 4 | 4.500 | 9.79 | --- | 10.00 |
| 100 | 114.3 | 249 | 240 | 254 |
| 5 | 5.563 | 10.79 | --- | 11.00 |
| 125 | 141.3 | 274 | --- | 279 |
| 165.1 mm | 6.500 | --- | --- | --- |
| | 165.1 | --- | 305 | --- |
| 6 | 6.625 | 11.79 | --- | 12.50 |
| 150 | 168.3 | 299 | 305 | 318 |
| 8 | 8.625 | 14.29 | --- | 15.00 |
| 200 | 219.1 | 363 | 360 | 381 |
| 10 | 10.750 | 16.79 | --- | 17.50 |
| 250 | 273.0 | 426 | 425 | 445 |
| 12 | 12.750 | 19.79 | --- | 20.50 |
| 300 | 323.9 | 502 | 480 | 521 |
| 14 | 14.000 | 21.79 | --- | --- |
| 350 | 355.6 | 553 | 540 | --- |
| 16 | 16.000 | 24.29 | --- | --- |
| 400 | 406.4 | 617 | 600 | --- |
| 18 | 18.000 | 25.79 | --- | --- |
| 450 | 457.2 | 655 | 660 | --- |
| 20 | 20.000 | 28.29 | --- | --- |
| 500 | 508.0 | 719 | 735 | --- |
| 22 | 22.000 | 30.29 | --- | --- |
| 550 | 559.0 | 769 | --- | --- |
| 24 | 24.000 | 32.79 | --- | --- |
| 600 | 609.6 | 833 | 860 | --- |

## Grooved Fittings

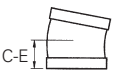
Model 7110 90° Elbow
7111 45° Elbow
7112 22½° Elbow
7113 11¼° ELBOW



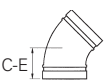
#7110
90˚ Elbow



#7112G
22½˚ Elbow (Gooseneck)



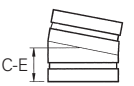
#7113
11¼˚ Elbow



#7111
45˚ Elbow

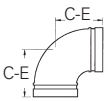


#7112
22½˚ Elbow (Standard)



#7113
11¼˚ Elbow (Welded)

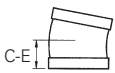
| Nominal Size in / mm | Pipe O.D. in / mm | #7110 C-E in / mm | #7111 C-E in / mm | #7112 C-E in / mm | #7112G E-E in / mm | #7113 C-E in / mm |
|---|---|---|---|---|---|---|
| 1 | 1.315 | 2.25 | 1.75 | --- | --- | 1.38 |
| 25 | 33.4 | 57 | 45 | --- | --- | 35 |
| 1¼ | 1.660 | 2.75 | 1.75 | 1.75 | --- | 1.38 |
| 32 | 42.2 | 70 | 45 | 45 | --- | 35 |
| 1½ | 1.900 | 2.75 | 1.75 | 1.75 | 3.75 | 1.38 |
| 40 | 48.3 | 70 | 45 | 45 | 95 | 35 |
| 2 | 2.375 | 3.25 | 2.00 | 1.88 | 3.75 | 1.38 |
| 50 | 60.3 | 83 | 51 | 48 | 95 | 35 |
| 2½ | 2.875 | 3.75 | 2.25 | 2.01 | 4.00 | 1.50 |
| 65 | 73.0 | 95 | 57 | 51 | 102 | 38 |
| 76.1 mm | 3.000 | 3.75 | 2.25 | 2.01 | 4.00 | 1.50 |
| | 76.1 | 95 | 57 | 51 | 102 | 38 |
| 3 | 3.500 | 4.25 | 2.50 | 2.25 | 4.50 | 1.50 |
| 80 | 88.9 | 108 | 64 | 57 | 114 | 38 |
| 101.6 mm | 4.000 | 4.50 | --- | --- | --- | --- |
| | 101.6 | 114 | --- | --- | --- | --- |
| 4 | 4.500 | 5.00 | 3.00 | 2.88 | 5.00 | 1.75 |
| 100 | 114.3 | 127 | 76 | 73 | 127 | 45 |
| 108.0 mm | 4.250 | 5.00 | 3.00 | --- | --- | --- |
| | 108.0 | 127 | 76 | --- | --- | --- |
| 133.0 mm | 5.250 | 5.50 | 3.25 | --- | --- | --- |
| | 133.0 | 140 | 83 | --- | --- | --- |
| 139.7 mm | 5.500 | 5.50 | 3.25 | 2.88 | 5.00 | 2.00 |
| | 139.7 | 140 | 83 | 73 | 127 | 51 |
| 5 | 5.563 | 5.50 | 3.25 | 2.88 | 5.00 | 2.00 |
| 125 | 141.3 | 140 | 83 | 73 | 127 | 51 |
| 159.0 mm | 6.250 | 6.50 | 3.50 | --- | --- | --- |
| | 159.0 | 165 | 89 | --- | --- | --- |
| 165.1 mm | 6.500 | 6.50 | 3.50 | 3.12 | 6.25 | 2.00 |
| | 165.1 | 165 | 89 | 79 | 159 | 51 |



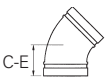

#7110
90˚ Elbow



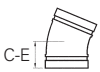

#7112G
22½˚ Elbow (Gooseneck)



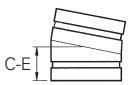

#7113
11¼˚ Elbow




#7111
45˚ Elbow




#7112
22½˚ Elbow (Standard)

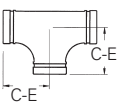



#7113
11¼˚ Elbow (Welded)

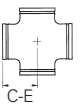
| Nominal Size in / mm | Pipe O.D. in / mm | #7110 C-E in / mm | #7111 C-E in / mm | #7112 C-E in / mm | #7112G E-E in / mm | #7113 C-E in / mm |
|---|---|---|---|---|---|---|
| 6 | 6.625 | 6.50 | 3.50 | 3.12 | 6.25 | 2.00 |
| 150 | 168.3 | 165 | 89 | 79 | 159 | 51 |
| 8 | 8.625 | 7.75 | 4.25 | 3.88 | 7.75 | 2.00 |
| 200 | 219.1 | 197 | 108 | 98 | 197 | 51 |
| 10 | 10.750 | 9.00 | 4.75 | 4.38 | — | 2.13 |
| 250 | 273.0 | 229 | 121 | 111 | — | 54 |
| 12 | 12.750 | 10.00 | 5.25 | 4.88 | — | 2.25 |
| 300 | 323.9 | 254 | 133 | 124 | — | 57 |
| 8 | 8.516 | 7.75 | 4.25 | 3.88 | 7.75 | 2.00 |
| 200JIS | 216.3 | 197 | 108 | 98 | 197 | 51 |
| 10 | 10.528 | 9.00 | 4.75 | 4.38 | — | 2.13 |
| 250JIS | 267.4 | 229 | 121 | 111 | — | 54 |
| 12 | 12.539 | 10.00 | 5.25 | 4.88 | — | 2.25 |
| 300JIS | 318.5 | 254 | 133 | 124 | — | 57 |
| 14 | 14.000 | 11.00 | 6.00 | — | — | — |
| 350 | 355.6 | 280 | 152 | — | — | — |
| 16 | 16.000 | 12.00 | 7.25 | — | — | — |
| 400 | 406.4 | 305 | 184 | — | — | — |
| 18 | 18.000 | 15.50 | 8.00 | — | — | — |
| 450 | 457.2 | 394 | 203 | — | — | — |
| 20 | 20.000 | 17.25 | 9.00 | — | — | — |
| 500 | 508.0 | 438 | 229 | — | — | — |
| 24 | 24.000 | 20.00 | 11.00 | — | — | — |
| 600 | 609.6 | 508 | 280 | — | — | — |

***Shurjoint*** UL listed fittings are intended for use with ***Shurjoint*** listed rubber gasketed fittings.

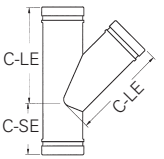
Model 7120 Tee
7135 Cross
7130 45°



#7120



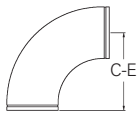
#7135



#7130

| Nominal Size in / mm | Pipe O.D. in / mm | #7120 C-E in / mm | #7135 C-E in / mm | #7130 C-LE in / mm | #7130 C-SE in / mm |
|---|---|---|---|---|---|
| 1 | 1.315 | 2.25 | --- | --- | --- |
| 25 | 33.4 | 57 | --- | --- | --- |
| 1¼ | 1.660 | 2.75 | --- | --- | --- |
| 32 | 42.2 | 70 | --- | --- | --- |
| 1½ | 1.900 | 2.75 | --- | --- | --- |
| 40 | 48.3 | 70 | --- | --- | --- |
| 2 | 2.375 | 3.25 | 3.25 | 7.00 | 2.75 |
| 50 | 60.3 | 83 | 83 | 178 | 70 |
| 2½ | 2.875 | 3.75 | 3.75 | 7.75 | 3.00 |
| 65 | 73.0 | 95 | 95 | 197 | 76 |
| 76.1 mm | 3.000 | 3.75 | 3.75 | 7.75 | 3.00 |
| | 76.1 | 95 | 95 | 197 | 76 |
| 3 | 3.500 | 4.25 | 4.25 | 8.50 | 3.25 |
| 80 | 88.9 | 108 | 108 | 216 | 83 |
| 4 | 4.500 | 5.00 | 5.00 | 10.50 | 3.75 |
| 100 | 114.3 | 127 | 127 | 267 | 95 |
| 108.0 mm | 4.250 | 5.00 | --- | --- | --- |
| | 108.0 | 127 | --- | --- | --- |
| 5 | 5.563 | 5.50 | 5.50 | 12.50 | 4.00 |
| 125 | 141.3 | 140 | 140 | 318 | 102 |
| 133.0 mm | 5.250 | 5.50 | --- | --- | --- |
| | 133.0 | 140 | --- | --- | --- |
| 139.7 mm | 5.500 | 5.50 | 5.50 | 12.50 | 4.00 |
| | 139.7 | 140 | 140 | 318 | 102 |
| 6 | 6.625 | 6.50 | 6.50 | 14.00 | 4.50 |
| 150 | 168.3 | 165 | 165 | 356 | 114 |
| 6 | 6.250 | 6.50 | --- | --- | --- |
| 150 | 159.0 | 165 | --- | --- | --- |
| 165.1 mm | 6.500 | 6.50 | 6.50 | 14.00 | 4.50 |
| | 165.1 | 165 | 165 | 356 | 114 |
| 8 | 8.625 | 7.75 | 7.75 | 18.00 | 6.00 |
| 200 | 219.1 | 197 | 197 | 457 | 152 |
| 10 | 10.750 | 9.00 | --- | 20.50 | 6.50 |
| 250 | 273.0 | 229 | --- | 521 | 165 |
| 12 | 12.750 | 10.00 | --- | 23.00 | 7.00 |
| 300 | 323.9 | 254 | --- | 584 | 178 |
| 200JIS | 8.516 | 7.75 | 7.75 | 18.00 | 6.00 |
| | 216.3 | 197 | 197 | 457 | 152 |
| 250JIS | 10.528 | 9.00 | --- | 20.50 | 6.50 |
| | 267.4 | 229 | --- | 521 | 165 |
| 300JIS | 12.539 | 10.00 | --- | 23.00 | 7.00 |
| | 318.5 | 254 | --- | 584 | 178 |
| 14 | 14.000 | 11.00 | --- | --- | --- |
| 350 | 355.6 | 280 | --- | --- | --- |
| 16 | 16.000 | 12.00 | --- | --- | --- |
| 400 | 406.4 | 305 | --- | --- | --- |

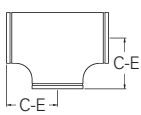
## Model W110LR LR Wrought 90° Elbow
## W111LR LR Wrought 45° Elbow




#W110LR #W111LR

| Nominal Size in / mm | Pipe O.D. in / mm | #W110LR C-E in / mm | #W111LR C-E in / mm | Nominal Size in / mm | Pipe O.D. in / mm | #W110LR C-E in / mm | #W111LR C-E in / mm |
|---|---|---|---|---|---|---|---|
| 14 | 14.000 | 21.00 | 8.75 | 28 | 28.000 | 42.00 | 17.25 |
| 350 | 355.6 | 533.4 | 222.3 | 700 | 711.0 | 1066.8 | 438.2 |
| 16 | 16.000 | 24.00 | 10.00 | 30 | 30.000 | 45.00 | 18.50 |
| 400 | 406.4 | 609.6 | 254.0 | 750 | 762.0 | 1143.0 | 469.9 |
| 18 | 18.000 | 27.00 | 11.25 | 32 | 32.000 | 48.00 | 19.75 |
| 450 | 457.2 | 685.8 | 285.5 | 800 | 812.8 | 1219.2 | 501.7 |
| 20 | 20.000 | 30.00 | 12.50 | 34 | 34.000 | 51.00 | 21.00 |
| 500 | 508.0 | 762.0 | 317.5 | 850 | 863.6 | 1295.4 | 533.4 |
| 22 | 22.000 | 33.00 | 13.50 | 36 | 36.000 | 54.00 | 22.25 |
| 550 | 558.8 | 838.2 | 342.9 | 900 | 914.4 | 1371.6 | 565.2 |
| 24 | 24.000 | 36.00 | 15.00 | 40 | 40.000 | 60.00 | 24.88 |
| 600 | 609.6 | 914.4 | 381.0 | 1000 | 1016.0 | 1524.0 | 632.0 |
| 26 | 26.000 | 39.00 | 16.00 | 42 | 42.000 | 63.00 | 26.00 |
| 650 | 660.4 | 990.6 | 406.4 | 1050 | 1066.8 | 1600.2 | 660.4 |

## Model W120 Wrought Tee

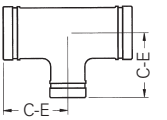



#W120

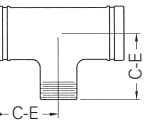
| Nominal Size in / mm | Pipe O.D. in / mm | #W120 Tee C-E in / mm | Nominal Size in / mm | Pipe O.D. in / mm | #W120Tee C-E in / mm |
|---|---|---|---|---|---|
| 14 | 14.000 | 11.00 | 28 | 28.000 | 20.50 |
| 350 | 355.6 | 279.4 | 700 | 711.0 | 520.7 |
| 16 | 16.000 | 12.00 | 30 | 30.000 | 22.00 |
| 400 | 406.4 | 304.8 | 750 | 762.0 | 558.8 |
| 18 | 18.000 | 15.50 | 32 | 32.000 | 23.50 |
| 450 | 457.2 | 393.7* | 800 | 812.8 | 596.9 |
| 20 | 20.000 | 17.25 | 34 | 34.000 | 25.00 |
| 500 | 508.0 | 438.2* | 850 | 863.6 | 635.0 |
| 22 | 22.000 | --- | 36 | 36.000 | 26.50 |
| 550 | 558.8 | --- | 900 | 914.4 | 673.1 |
| 24 | 24.000 | 20.00 | 40 | 40.000 | 29.50 |
| 600 | 609.6 | 508.0* | 1000 | 1016.0 | 749.3 |
| 26 | 26.000 | 19.50 | 42 | 42.000 | 30.00 / 28.00 |
| 650 | 660.4 | 495.3 | 1050 | 1066.8 | 762.0 / 711.2 |

*C-E dimensions are manufacturer's standard.

## Model 7121 Reducing Tee

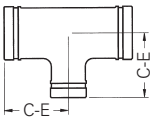



#7121

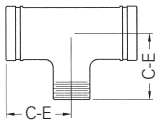



#7121 (Threaded)

| Nominal Size<br>in / mm | Pipe O.D.<br>in / mm | #7121 Standard C-E<br>in / mm | #7121 Threaded Branch C-E<br>in / mm |
|---|---|---|---|
| 2 x 2 x 1¼ | 2.375 x 2.375 x 1.660 | 3.25 | —* |
| 50 x 50 x 32 | 60.3 x 60.3 x 42.2 | 83 | — |
| 2 x 2 x 1½ | 2.375 x 2.375 x 1.900 | 3.25 | 3.25* |
| 50 x 50 x 40 | 60.3 x 60.3 x 48.3 | 83 | 83 |
| 2½ x 2½ x 1 | 2.875 x 2.875 x 1.315 | 3.75 | 3.75* |
| 65 x 65 x 25 | 73.0 x 73.0 x 33.4 | 95 | 95 |
| 2½ x 2½ x 1¼ | 2.875 x 2.875 x 1.660 | 3.75 | 3.75* |
| 65 x 65 x 32 | 73.0 x 73.0 x 42.2 | 95 | 95 |
| 2½ x 2½ x 1½ | 2.875 x 2.875 x 1.900 | 3.75 | 3.75* |
| 65 x 65 x 40 | 73.0 x 73.0 x 48.3 | 95 | 95 |
| 2½ x 2½ x 2 | 2.875 x 2.875 x 2.375 | 3.75 | 3.75* |
| 65 x 65 x 50 | 73.0 x 73.0 x 60.3 | 95 | 95 |
| 76.1 mm x 76.1 mm x 25 | 3.000 x 3.000 x 1.315 | 3.75 | 3.75* |
| | 76.1 x 76.1 x 33.4 | 95 | 95 |
| 76.1 mm x 76.1 mm x 32 | 3.000 x 3.000 x 1.660 | 3.75 | 3.75* |
| | 76.1 x 76.1 x 42.2 | 95 | 95 |
| 76.1 mm x 76.1 mm x 40 | 3.000 x 3.000 x 1.900 | 3.75 | 3.75* |
| | 76.1 x 76.1 x 48.3 | 95 | 95 |
| 76.1 mm x 76.1 mm x 50 | 3.000 x 3.000 x 2.375 | 3.75 | 3.75* |
| | 76.1 x 76.1 x 60.3 | 95 | 95 |
| 3 x 3 x ½ | 3.500 x 3.500 x 0.840 | — | —* |
| 80 x 80 x 15 | 88.9 x 88.9 x 21.3 | — | — |
| 3 x 3 x ¾ | 3.500 x 3.500 x 1.050 | — | —* |
| 80 x 80 x 20 | 88.9 x 88.9 x 26.7 | — | — |
| 3 x 3 x 1 | 3.500 x 3.500 x 1.315 | 4.25 | 4.25 |
| 80 x 80 x 25 | 88.9 x 88.9 x 33.4 | 108 | 108 |
| 3 x 3 x 1¼ | 3.500 x 3.500 x 1.660 | 4.25 | 4.25* |
| 80 x 80 x 32 | 88.9 x 88.9 x 42.2 | 108 | 108 |
| 3 x 3 x 1½ | 3.500 x 3.500 x 1.900 | 4.25 | 4.25* |
| 80 x 80 x 40 | 88.9 x 88.9 x 48.3 | 108 | 108 |
| 3 x 3 x 2 | 3.500 x 3.500 x 2.375 | 4.25 | 4.25* |
| 80 x 80 x 50 | 88.9 x 88.9 x 60.3 | 108 | 108 |
| 3 x 3 x 2½ | 3.500 x 3.500 x 2.875 | 4.25 | 4.25* |
| 80 x 80 x 65 | 88.9 x 88.9 x 73.0 | 108 | 108 |
| 80 x 80 x 76.1 mm | 3.500 x 3.500 x 3.000 | 4.25 | 4.25 |
| | 88.9 x 88.9 x 76.1 | 108 | 108 |
| 4 x 4 x 1 | 4.500 x 4.500 x 1.315 | 5.00 | 5.00 |
| 100 x 100 x 25 | 114.3 x 114.3 x 33.4 | 127 | 127 |
| 4 x 4 x 1½ | 4.500 x 4.500 x 1.900 | 5.00 | 5.00* |
| 100 x 100 x 40 | 114.3 x 114.3 x 48.3 | 127 | 127 |
| 4 x 4 x 2 | 4.500 x 4.500 x 2.375 | 5.00 | 5.00* |
| 100 x 100 x 50 | 114.3 x 114.3 x 60.3 | 127 | 127 |
| 4 x 4 x 2½ | 4.500 x 4.500 x 2.875 | 5.00 | 5.00* |
| 100 x 100 x 65 | 114.3 x 114.3 x 73.0 | 127 | 127 |
| 100 x 100 x 76.1 mm | 4.500 x 4.500 x 3.000 | 5.00 | 5.00* |
| | 114.3 x 114.3 x 76.1 | 127 | 127 |
| 4 x 4 x 3 | 4.500 x 4.500 x 3.500 | 5.00 | 5.00 |
| 100 x 100 x 80 | 114.3 x 114.3 x 88.9 | 127 | 127 |
| 139.7 mm x 139.7 mm x 50 | 5.500 x 5.500 x 2.375 | 5.50 | 5.50* |
| | 139.7 x 139.7 x 60.3 | 140 | 140 |




#7121

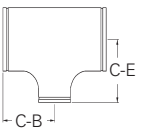



#7121 (Threaded)

| Nominal Size<br>in / mm | Pipe O.D.<br>in / mm | #7121<br>Standard C-E<br>in / mm | #7121<br>Threaded Branch C-E<br>in / mm |
|---|---|---|---|
| 139.7 mm x 139.7 mm x 65 | 5.500 x 5.500 x 2.875 | 5.50 | 5.50 |
| | 139.7 x 139.7 x 73.0 | 140 | 140 |
| 5 x 5 x 2 | 5.563 x 5.563 x 2.375 | 5.50 | 5.50* |
| 125 x 125 x 50 | 141.3 x 141.3 x 60.3 | 140 | 140 |
| 5 x 5 x 2½ | 5.563 x 5.563 x 2.875 | 5.50 | 5.50 |
| 125 x 125 x 65 | 141.3 x 141.3 x 73.0 | 140 | 140 |
| 5 x 5 x 3 | 5.563 x 5.563 x 3.500 | 5.50 | 5.50 |
| 125 x 125 x 80 | 141.3 x 141.3 x 88.9 | 140 | 140 |
| 5 x 5 x 4 | 5.563 x 5.563 x 4.500 | 5.50 | 5.50 |
| 125 x 125 x 100 | 141.3 x 141.3 x 114.3 | 140 | 140 |
| 165.1 mm x 165.1 mm x 50 | 6.500 x 6.500 x 2.375 | 6.50 | 6.50* |
| | 165.1 x 165.1 x 60.3 | 165 | 165 |
| 165.1 mm x 165.1 mm x 76.1 mm | 6.500 x 6.500 x 3.000 | 6.50 | 6.50 |
| | 165.1 x 165.1 x 76.1 | 165 | 165 |
| 165.1 mm x 165.1 mm x 80 | 6.500 x 6.500 x 3.500 | 6.50 | 6.50 |
| | 165.1 x 165.1 x 88.9 | 165 | 165 |
| 165.1 mm x 165.1 mm x 100 | 6.500 x 6.500 x 4.500 | 6.50 | 6.50 |
| | 165.1 x 165.1 x 114.3 | 165 | 165 |
| 6 x 6 x 2 | 6.625 x 6.625 x 2.375 | 6.50 | 6.50* |
| 150 x 150 x 50 | 168.3 x 168.3 x 60.3 | 165 | 165 |
| 6 x 6 x 2½ | 6.625 x 6.625 x 2.875 | 6.50 | 6.50* |
| 150 x 150 x 65 | 168.3 x 168.3 x 73.0 | 165 | 165 |
| 6 x 6 x 3 | 6.625 x 6.625 x 3.500 | 6.50 | 6.50 |
| 150 x 150 x 80 | 168.3 x 168.3 x 88.9 | 165 | 165 |
| 6 x 6 x 4 | 6.625 x 6.625 x 4.500 | 6.50 | 6.50 |
| 150 x 150 x 100 | 168.3 x 168.3 x 114.3 | 165 | 165 |
| 8 x 8 x 2 | 8.625 x 8.625 x 2.375 | 7.75 | 7.75 |
| 200 x 200 x50 | 219.1 x 219.1 x 60.3 | 197 | 197 |
| 8 x 8 x 3 | 8.625 x 8.625 x 3.500 | 7.75 | 7.75 |
| 200 x 200 x 80 | 219.1 x 219.1 x 88.9 | 197 | 197 |
| 8 x 8 x 4 | 8.625 x 8.625 x 4.500 | 7.75 | 7.75 |
| 200 x 200 x 100 | 219.1 x 219.1 x 114.3 | 197 | 197 |
| 8 x 8 x 6 | 8.625 x 8.625 x 6.625 | 7.75 | — |
| 200 x 200 x 150 | 219.1 x 219.1 x 168.3 | 197 | — |
| 10 x 10 x 4 | 10.750 x 10.750 x 4.500 | 9.00 | 9.00 |
| 250 x 250 x 100 | 273.0 x 273.0 x 114.3 | 229 | 229 |
| 10 x 10 x 6 | 10.750 x 10.750 x 6.625 | 9.00 | — |
| 250 x 250 x 150 | 273.0 x 273.0 x 168.3 | 229 | — |
| 10 x 10 x 8 | 10.750 x 10.750 x 8.625 | 9.00 | — |
| 250 x 250 x 200 | 273.0 x 273.0 x 219.1 | 229 | — |
| 12 x 12 x 3 | 12.750 x 12.750 x 3.500 | 10.00 | 10.00 |
| 300 x 300 x 80 | 323.9 x 323.9 x 88.9 | 254 | 254 |
| 12 x 12 x 4 | 12.750 x 12.750 x 4.500 | 10.00 | 10.00 |
| 300 x 300 x 100 | 323.9 x 323.9 x 114.3 | 254 | 254 |
| 12 x 12 x 6 | 12.750 x 12.750 x 6.625 | 10.00 | — |
| 300 x 300 x 150 | 323.9 x 323.9 x 168.3 | 254 | — |
| 12 x 12 x 8 | 12.750 x 12.750 x 8.625 | 10.00 | — |
| 300 x 300 x 200 | 323.9 x 323.9 x 219.1 | 254 | — |
| 12 x 12 x 10 | 12.750 x 12.750 x 10.750 | 10.00 | — |
| 300 x 300 x 250 | 323.9 x 323.9 x 273.0 | 254 | — |

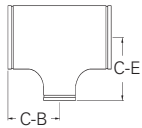
*Female threaded branch is available.

## Model W121 Wrought Reducing Tee




#W121

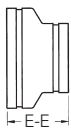
| Nominal Size in / mm | Pipe O.D. in / mm | #W121 C-E in / mm | #W121 C-B in / mm | Nominal Size in / mm | Pipe O.D. in / mm | # W121 C-E in / mm | # W121 C-B in / mm |
|---|---|---|---|---|---|---|---|
| 14 x 6 | 14.000 x 6.625 | 11.00 | 9.37 | 26 x 18 | 26.000 x 18.000 | 19.50 | 17.50 |
| 350 x 150 | 355.6 x 168.3 | 279.0 | 238.0 | 650 x 450 | 660.4 x 457.2 | 495 | 444.0 |
| 14 x 8 | 14.000 x 8.625 | 11.00 | 9.76 | 26 x 20 | 26.000 x 20.000 | 19.50 | 18.00 |
| 350 x 200 | 355.6 x 219.1 | 279.0 | 248.0 | 650 x 500 | 660.4 x 508.0 | 495 | 457.0 |
| 14 x 10 | 14.000 x 10.750 | 11.00 | 10.12 | 28 x 12 | 28.000 x 12.750 | 20.50 | 17.62 |
| 350 x 250 | 355.6 x 273.0 | 279.0 | 257.0 | 700 x 300 | 711.0 x 323.9 | 521 | 448.0 |
| 14 x 12 | 14.000 x 12.750 | 11.00 | 10.63 | 28 x 14 | 28.000 x 14.000 | 20.50 | 18.00 |
| 350 x 300 | 355.6 x 323.9 | 279.0 | 270.0 | 700 x 350 | 711.0 x 355.6 | 521 | 457.0 |
| 16 x 6 | 16.000 x 6.625 | 12.00 | 10.40 | 28 x 16 | 28.000 x 16.000 | 20.50 | 18.00 |
| 400 x 150 | 406.4 x 168.3 | 305.0 | 264.0 | 700 x 400 | 711.0 x 406.4 | 521 | 457.0 |
| 16 x 8 | 16.000 x 8.625 | 12.00 | 10.75 | 28 x 18 | 28.000 x 18.000 | 20.50 | 18.50 |
| 400 x 200 | 406.4 x 219.1 | 305.0 | 273.0 | 700 x 450 | 711.0 x 457.2 | 521 | 470.0 |
| 16 x 10 | 16.000 x 10.750 | 12.00 | 11.14 | 28 x 20 | 28.000 x 20.000 | 20.50 | 19.00 |
| 400 x 250 | 406.4 x 273.0 | 305.0 | 283.0 | 700 x 500 | 711.0 x 508.0 | 521 | 483.0 |
| 16 x 12 | 16.000 x 12.750 | 12.00 | 11.61 | 28 x 22 | 28.000 x 22.000 | 20.50 | 19.50 |
| 400 x 300 | 406.4 x 323.9 | 305.0 | 295.0 | 700 x 550 | 711.0 x 559.0 | 521 | 495.0 |
| 16 x 14 | 16.000 x 14.000 | 12.00 | 12.00 | 28 x 24 | 28.000 x 24.000 | 20.50 | 20.00 |
| 400 x 350 | 406.4 x 355.6 | 305.0 | 305.0 | 700 x 600 | 711.0 x 609.6 | 521 | 508.0 |
| 18 x 6 | 18.000 x 6.625 | 13.50 | 11.38 | 30 x 18 | 30.000 x 18.000 | 22.00 | 19.50 |
| 450 x 150 | 457.2 x 168.3 | 343.0 | 289.0 | 750 x 450 | 762.2 x 457.2 | 559 | 495.0 |
| 18 x 8 | 18.000 x 8.625 | 13.50 | 11.38 | 30 x 20 | 30.000 x 20.000 | 22.00 | 20.00 |
| 450 x 200 | 457.2 x 219.1 | 343.0 | 298.0 | 750 x 500 | 762.2 x 508.0 | 559 | 508.0 |
| 18 x 10 | 18.000 x 10.750 | 13.50 | 12.13 | 30 x 22 | 30.000 x 22.000 | 22.00 | 20.50 |
| 450 x 250 | 457.2 x 273.0 | 343.0 | 308.0 | 750 x 550 | 762.2 x 559.0 | 559 | 521.0 |
| 18 x 12 | 18.000 x 12.750 | 13.50 | 12.64 | 30 x 24 | 30.000 x 24.000 | 22.00 | 21.00 |
| 450 x 300 | 457.2 x 323.9 | 343.0 | 321.0 | 750 x 610 | 762.2 x 609.6 | 559 | 533.0 |
| 18 x 14 | 18.000 x 14.000 | 13.50 | 13.00 | 30 x 28 | 30.000 x 28.000 | 22.00 | 21.50 |
| 450 x 350 | 457.2 x 355.6 | 343.0 | 330.0 | 750 x 700 | 762.2 x 711.0 | 559 | 546.0 |
| 18 x 16 | 18.000 x 16.000 | 13.50 | 13.00 | 32 x 20 | 32.000 x 20.000 | 23.50 | 21.00 |
| 450 x 400 | 457.2 x 406.4 | 343.0 | 330.0 | 800 x 500 | 813.0 x 508.0 | 597 | 533.0 |
| 20 x 6 | 20.000 x 6.625 | 15.00 | 12.36 | 32 x 22 | 32.000 x 22.000 | 23.50 | 21.50 |
| 500 x 150 | 508.0 x 168.3 | 381.0 | 314.0 | 800 x 550 | 813.0 x 559.0 | 597 | 546.0 |
| 20 x 8 | 20.000 x 8.625 | 15.00 | 12.76 | 32 x 24 | 32.000 x 24.000 | 23.50 | 22.00 |
| 500 x 200 | 508.0 x 219.1 | 381.0 | 324.0 | 800 x 600 | 813.0 x 609.6 | 597 | 559.0 |



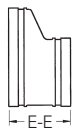
#W121

| Nominal Size in / mm | Pipe O.D. in / mm | #W121 C-E in / mm | #W121 C-B in / mm | Nominal Size in / mm | Pipe O.D. in / mm | #W121 C-E in / mm | #W121 C-B in / mm |
|---|---|---|---|---|---|---|---|
| 20 x 10 | 18.000 x 10.750 | 18.00 | 13.11 | 32 x 28 | 32.000 x 28.000 | 23.50 | 22.50 |
| 500 x 250 | 508.0 x 273.0 | 381.0 | 333.0 | 800 x 700 | 813.0 x 711.0 | 597 | 572.0 |
| 20 x 12 | 20.000 x 12.750 | 15.00 | 13.62 | 32 x 30 | 32.000 x 30.000 | 23.50 | 23.00 |
| 500 x 300 | 508.0 x 323.9 | 381.0 | 346.0 | 800 x 750 | 813.0 x 762.0 | 597 | 584.0 |
| 20 x 14 | 20.000 x 14.000 | 15.00 | 14.02 | 36 x 22 | 36.000 x 22.000 | 26.50 | 23.50 |
| 500 x 350 | 508.0 x 355.6 | 381.0 | 356.0 | 900 x 550 | 914.0 x 559.0 | 673 | 597.0 |
| 20 x 16 | 20.000 x 16.000 | 15.00 | 14.02 | 36 x 24 | 36.000 x 24.000 | 26.50 | 24.00 |
| 500 x 400 | 508.0 x 406.4 | 381.0 | 356.0 | 900 x 600 | 914.0 x 609.6 | 673 | 610.0 |
| 20 x 18 | 20.000 x 18.000 | 15.00 | 14.50 | 36 x 28 | 36.000 x 28.000 | 26.50 | 24.50 |
| 500 x 450 | 508.0 x 457.2 | 381.0 | 368.0 | 900 x 700 | 914.0 x 711.0 | 673 | 622.0 |
| 24 x 6 | 20.000 x 6.625 | 17.00 | 14.38 | 36 x 30 | 36.000 x 30.000 | 26.50 | 25.00 |
| 600 x 150 | 609.6 x 168.3 | 432.0 | 365.0 | 900 x 750 | 914.0 x 762.0 | 673 | 635.0 |
| 24 x 8 | 20.000 x 8.625 | 17.00 | 14.76 | 36 x 32 | 36.000 x 32.000 | 26.50 | 25.50 |
| 600 x 200 | 609.6 x 219.1 | 432.0 | 375.0 | 900 x 800 | 914.0 x 813.0 | 673 | 648.0 |
| 24 x 10 | 24.000 x 10.750 | 17.00 | 15.12 | 40 x 24 | 40.000 x 24.000 | 29.50 | 26.00 |
| 600 x 250 | 609.6 x 273.0 | 432.0 | 384.0 | 1000 x 600 | 1016.0 x 609.6 | 749 | 660.0 |
| 24 x 12 | 24.000 x 12.750 | 17.00 | 15.63 | 40 x 28 | 40.000 x 28.000 | 29.50 | 26.50 |
| 600 x 300 | 609.6 x 323.9 | 432.0 | 397.0 | 1000 x 700 | 1016.0 x 711.0 | 749 | 673.0 |
| 24 x 14 | 24.000 x 14.000 | 17.00 | 16.00 | 40 x 30 | 40.000 x 30.000 | 29.50 | 27.50 |
| 600 x 350 | 609.6 x 355.6 | 432.0 | 406.0 | 1000 x 750 | 1016.0 x 762.0 | 749 | 698.0 |
| 24 x 16 | 24.000 x 16.000 | 17.00 | 16.00 | 42 x 24 | 42.000 x 24.000 | 30.00 | 26.00 |
| 600 x 400 | 609.6 x 406.4 | 432.0 | 406.0 | 1050 x 600 | 1067.0 x 609.6 | 762.0 | 660.0 |
| 24 x 18 | 24.000 x 18.000 | 17.00 | 16.50 | 42 x 28 | 42.000 x 28.000 | 30.00 | 27.50 |
| 600 x 450 | 609.6 x 457.2 | 432.0 | 419.0 | 1050 x 700 | 1067.0 x 711.0 | 762.0 | 698.0 |
| 24 x 20 | 24.000 x 20.000 | 17.00 | 17.00 | 42 x 30 | 42.000 x 30.000 | 30.00 | 28.00 |
| 600 x 500 | 609.6 x 508.0 | 432.0 | 432.0 | 1050 x 750 | 1067.0 x 762.0 | 762.0 | 711.0 |
| 26 x 10 | 26.000 x 10.750 | 19.50 | 16.60 | 42 x 32 | 42.000 x 32.000 | 30.00 | 28.00 |
| 650 x 250 | 660.4 x 273.0 | 495.0 | 422.0 | 1050 x 800 | 1067.0 x 813.0 | 762.0 | 711.0 |
| 26 x 12 | 26.000 x 12.750 | 19.50 | 16.60 | 42 x 36 | 42.000 x 36.000 | 30.00 | 28.00 |
| 650 x 300 | 660.4 x 323.9 | 495.0 | 422.0 | 1050 x 900 | 1067.0 x 914.0 | 762.0 | 711.0 |
| 26 x 14 | 26.000 x 14.000 | 19.50 | 17.00 | 42 x 40 | 42.000 x 40.000 | 30.00 | 28.00 |
| 650 x 350 | 660.4 x 355.6 | 495.0 | 432.0 | 1050 x 1000 | 1067.0 x 1016.0 | 762.0 | 711.0 |
| 26 x 16 | 26.000 x 16.000 | 19.50 | 17.00 | --- | --- | --- | --- |
| 650 x 400 | 660.4 x 406.4 | 495.0 | 432.0 | --- | --- | --- | --- |

## Model 7150 Concentric Reducer
## 7151 Eccentric Reducer

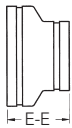



#7150

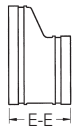



#7151

| Nominal Size in / mm | Pipe O.D. in / mm | #7150 E-E in / mm | #7151 E-E in / mm |
|---|---|---|---|
| 1¼ x 1 | 1.660 x 1.315 | 2.50 | --- |
| 32 x 25 | 42.2 x 33.4 | 64 | --- |
| 1½ x 1 | 1.900 x 1.315 | 2.50 | --- |
| 40 x 25 | 48.3 x 33.4 | 64 | --- |
| 1½ x 1¼ | 1.900 x 1.660 | 2.50 | --- |
| 40 x 32 | 48.3 x 42.2 | 64 | --- |
| 2 x 1 | 2.375 x 1.315 | 2.50 | --- |
| 50 x 25 | 60.3 x 33.4 | 64 | --- |
| 2 x 1¼ | 2.375 x 1.660 | 2.50 | --- |
| 50 x 32 | 60.3 x 42.2 | 64 | --- |
| 2 x 1½ | 2.375 x 1.900 | 2.50 | --- |
| 50 x 40 | 60.3 x 48.3 | 64 | --- |
| 2½ x 2 | 2.875 x 2.375 | 2.50 | 3.50 |
| 65 x 50 | 73.0 x 60.3 | 64 | 89 |
| 76.1 mm x 50 | 3.000 x 2.375 | 2.50 | 3.50 |
| | 76.1 x 60.3 | 64 | 89 |
| 3 x 1 | 3.500 x 1.315 | 2.50 | --- |
| 80 x 25 | 88.9 x 33.4 | 64 | --- |
| 3 x 1¼ | 3.500 x 1.660 | 2.50 | 3.50 |
| 80 x 32 | 88.9 x 42.2 | 64 | 89 |
| 3 x 1½ | 3.500 x 1.900 | 2.50 | --- |
| 80 x 40 | 88.9 x 48.3 | 64 | --- |
| 3 x 2 | 3.500 x 2.375 | 2.50 | 3.50 |
| 80 x 50 | 88.9 x 60.3 | 64 | 89 |
| 3 x 2½ | 3.500 x 2.875 | 2.50 | 3.50 |
| 80 x 65 | 88.9 x 73.0 | 64 | 89 |
| 80 x 76.1 mm | 3.500 x 3.000 | 2.50 | 3.50 |
| | 88.9 x 76.1 | 64 | 89 |
| 4 x 2 | 4.500 x 2.375 | 3.00 | 4.00 |
| 100 x 50 | 114.3 x 60.3 | 76 | 102 |
| 4 x 2½ | 4.500 x 2.875 | 3.00 | 4.00 |
| 100 x 65 | 114.3 x 73.0 | 76 | 102 |
| 100 x 76.1 mm | 4.500 x 3.000 | 3.00 | 4.00 |
| | 114.3 x 76.1 | 76 | 102 |
| 4 x 3 | 4.500 x 3.500 | 3.00 | 4.00 |
| 100 x 80 | 114.3 x 88.9 | 76 | 102 |
| 5 x 4 | 5.563 x 4.500 | 3.50 | 4.00 |
| 125 x 100 | 141.3 x 114.3 | 89 | 102 |



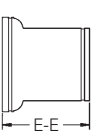

#7150



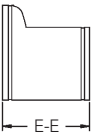

#7151

| Nominal Size in / mm | Pipe O.D. in / mm | #7150 E-E in / mm | #7151 E-E in / mm |
|---|---|---|---|
| 6 x 2 | 6.625 x 2.375 | 4.00 | 4.00 |
| 150 x 50 | 168.3 x 60.3 | 102 | 102 |
| 6 x 2½ | 6.625 x 2.875 | 4.00 | 4.00 |
| 150 x 65 | 168.3 x 73.0 | 102 | 102 |
| 6 x 3 | 6.625 x 3.500 | 4.00 | 4.00 |
| 150 x 80 | 168.3 x 88.9 | 102 | 102 |
| 6 x 4 | 6.625 x 4.500 | 4.00 | 4.00 |
| 150 x 100 | 168.3 x 114.3 | 102 | 102 |
| 6 x 5 | 6.625 x 5.563 | 4.00 | 4.00 |
| 150 x 125 | 168.3 x 141.3 | 102 | 102 |
| 165.1 mm x 50 | 6.500 x 2.375 | 4.00 | 4.00 |
| | 165.1 x 60.3 | 102 | 102 |
| 165.1 mm x 76.1 mm | 6.5 00 x 3.000 | 4.00 | --- |
| | 165.3 x 76.1 | 102 | --- |
| 165.1 mm x 80 | 6.500 x 3.500 | 4.00 | 4.00 |
| | 165.1 x 88.9 | 102 | 102 |
| 165.1 mm x 100 | 6.500 x 4.500 | 4.00 | 4.00 |
| | 165.1 x 114.3 | 102 | 102 |
| 165.1 mm x 139.7 mm | 6.500 x 5.500 | 4.00 | 4.00 |
| | 165.1 x 139.7 | 102 | 102 |
| 8 x 3 | 8.625 x 3.500 | 5.00 | --- |
| 200 x 80 | 219.1 x 88.9 | 127 | --- |
| 8 x 4 | 8.625 x 4.500 | 5.00 | 5.00 |
| 200 x 100 | 219.1 x 114.3 | 127 | 127 |
| 8 x 6 | 8.625 x 6.625 | 5.00 | 5.00 |
| 200 x 150 | 219.1 x 168.3 | 127 | 127 |
| 10 x 4 | 10.750 x 4.500 | 6.00 | 6.00 |
| 250 x 100 | 273.0 x 114.3 | 152 | 152 |
| 10 x 6 | 10.750 x6.625 | 6.00 | 6.00 |
| 250 x 150 | 273.0 x 168.3 | 152 | 152 |
| 10 x 8 | 10.750 x 8.625 | 6.00 | 7.00 |
| 250 x 200 | 273.0 x 219.1 | 152 | 178 |
| 12 x 6 | 12.750 x 6.625 | 7.00 | 7.00 |
| 300x150 | 323.9 x 168.3 | 178 | 178 |
| 12 x 8 | 12.750 x 8.625 | 7.00 | 7.00 |
| 300 x 200 | 323.9 x 219.1 | 178 | 178 |
| 12 x 10 | 12.750 x 10.750 | 7.00 | 7.00 |
| 300 x 250 | 323.9 x 273.0 | 178 | 178 |

## Model W150 Wrought Concentric Reducer
## W151 Wrought Eccentric Reducer



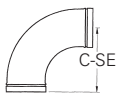

#W150




#W151

| Nominal Size in / mm | Pipe O.D. in / mm | #W150 E-E in / mm | #W151 E-E in / mm |
|---|---|---|---|
| 14 x 6 | 14.000 x 6.625 | 13.00 | 13.00 |
| 350 x 150 | 355.6 x 168.3 | 330.0 | 330.0 |
| 14 x 8 | 14.000 x 8.625 | 13.00 | 13.00 |
| 350 x 200 | 355.6 x 219.1 | 330.0 | 330.0 |
| 14 x 10 | 14.000 x 10.750 | 13.00 | 13.00 |
| 350 x 250 | 355.6 x 273.0 | 330.0 | 330.0 |
| 14 x 12 | 14.000 x 12.750 | 13.00 | 13.00 |
| 350 x 300 | 355.6 x 323.9 | 330.0 | 330.0 |
| 16 x 8 | 16.000 x 8.625 | 14.00 | 14.00 |
| 400 x 200 | 406.4 x 219.1 | 356.0 | 356.0 |
| 16 x 10 | 16.000 x 10.750 | 14.00 | 14.00 |
| 400 x 250 | 406.4 x 273.0 | 356.0 | 356.0 |
| 16 x 12 | 16.000 x 12.750 | 14.00 | 14.00 |
| 400 x 300 | 406.4 x 323.9 | 356.0 | 356.0 |
| 16 x 14 | 16.000 x 14.000 | 14.00 | 14.00 |
| 400 x 350 | 406.4 x 355.6 | 356.0 | 356.0 |
| 18 x 10 | 18.000 x 10.750 | 15.00 | 15.00 |
| 450 x 250 | 457.2 x 273.0 | 381.0 | 381.0 |
| 18 x 12 | 18.000 x 12.750 | 15.00 | 15.00 |
| 450 x 300 | 457.2 x 323.9 | 381.0 | 381.0 |
| 18 x 14 | 18.000 x 14.000 | 15.00 | 15.00 |
| 450 x 350 | 457.2 x 355.6 | 381.0 | 381.0 |
| 18 x 16 | 18.000 x 16.000 | 15.00 | 15.00 |
| 450 x 400 | 457.2 x 406.4 | 381.0 | 381.0 |
| 20 x 12 | 20.000 x 12.750 | 20.00 | 20.00 |
| 500 x 300 | 508.0 x 323.9 | 508.0 | 508.0 |
| 20 x 14 | 20.000 x 14.000 | 20.00 | 20.00 |
| 500 x 350 | 508.0 x 355.6 | 508.0 | 508.0 |
| 20 x 16 | 20.000 x 16.000 | 20.00 | 20.00 |
| 500 x 400 | 508.0 x 406.4 | 508.0 | 508.0 |
| 20 x 18 | 20.000 x 18.000 | 20.00 | 20.00 |
| 500 x 450 | 508.0 x 457.2 | 508.0 | 508.0 |
| 24 x 16 | 24.000 x 16.000 | 20.00 | 20.00 |
| 600 x 400 | 609.6 x 406.4 | 508.0 | 508.0 |
| 24 x 18 | 24.000 x 18.000 | 20.00 | 20.00 |
| 600 x 450 | 609.6 x 457.2 | 508.0 | 508.0 |
| 24 x 20 | 24.000 x 20.000 | 20.00 | 20.00 |
| 600 x 500 | 609.6 x 508.0 | 508.0 | 508.0 |

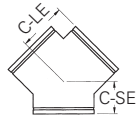
Model 7110LR 1.5D 90° Elbow
7111LR 1.5D 45° Elbow
7137 True-Y




# 7110LR



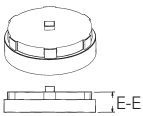

# 7111LR



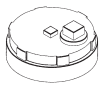

# 7137

| Nominal Size in / mm | Pipe O.D. in / mm | #7110LR C-E in / mm | #7111LR C-E in / mm | #7137 C-LE in / mm | #7137 C-SE in / mm |
|---|---|---|---|---|---|
| 2 | 2.375 | 4.38 | 2.75 | 3.25 | 2.75 |
| 50 | 60.3 | 111 | 70 | 83 | 70 |
| 2½ | 2.875 | 5.00 | 3.00 | 3.75 | 3.00 |
| 65 | 73.0 | 127 | 76 | 95 | 76 |
| 76.1 mm | 3.000 | 5.00 | 3.00 | 3.75 | 3.00 |
| | 76.1 | 127 | 76 | 95 | 76 |
| 3 | 3.500 | 5.88 | 3.38 | 4.25 | 3.25 |
| 80 | 88.9 | 149 | 86 | 108 | 83 |
| 4 | 4.500 | 7.50 | 4.00 | 5.00 | 3.75 |
| 100 | 114.3 | 191 | 102 | 127 | 95 |
| 139.7 mm | 5.500 | 9.50 | 5.00 | 5.50 | 4.00 |
| | 139.7 | 241 | 127 | 140 | 102 |
| 5 | 5.563 | 9.50 | 5.00 | 5.50 | 4.00 |
| 125 | 141.3 | 241 | 127 | 140 | 102 |
| 165.1 mm | 6.500 | 10.75 | 5.50 | 6.50 | 4.50 |
| | 165.1 | 273 | 140 | 165 | 114 |
| 6 | 6.625 | 10.75 | 5.50 | 6.50 | 4.50 |
| 150 | 168.3 | 273 | 140 | 165 | 114 |
| 8 | 8.625 | 14.25 | 7.25 | 7.75 | 6.00 |
| 200 | 219.1 | 362 | 184 | 197 | 152 |
| 10 | 10.750 | 17.25 | 8.50 | 9.00 | 6.50 |
| 250 | 273.0 | 438 | 216 | 229 | 165 |
| 12 | 12.750 | 20.50 | 10.00 | 10.00 | 7.00 |
| 300 | 323.9 | 521 | 254 | 254 | 178 |

## Model 7160 End Cap
## 7160P End Cap With Plug



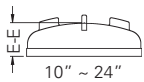

1¼" ~ 12"
#7160



#7160P

| Nominal Size in / mm | Pipe O.D. in / mm | #7160 E-E in / mm | #7160P Plug Size in / mm |
|---|---|---|---|
| 1 | 1.315 | 0.87 | --- |
| 25 | 33.4 | 22 | --- |
| 1¼ | 1.660 | 1.00 | --- |
| 32 | 42.2 | 25 | --- |
| 1½ | 1.900 | 1.00 | --- |
| 40 | 48.3 | 25 | --- |
| 2 | 2.375 | 1.00 | ½ |
| 50 | 60.3 | 25 | 15 |
| 2½ | 2.875 | 1.00 | ½ |
| 65 | 73.0 | 25 | 15 |
| 76.1 mm | 3.000 | 1.00 | ½ |
| | 76.1 | 25 | 15 |
| 3 | 3.500 | 1.00 | ½ |
| 80 | 88.9 | 25 | 15 |
| 4 | 4.500 | 1.00 | 1 |
| 100 | 114.3 | 25 | 25 |
| 108.0 mm | 4.250 | 1.00 | --- |
| | 108.0 | 25 | --- |
| 5 | 5.563 | 1.00 | 1 |
| 125 | 141.3 | 25 | 25 |
| 133.0 mm | 5.250 | 1.00 | --- |
| | 133.0 | 25 | --- |
| 139.7 mm | 5.500 | 1.00 | 1 |
| | 139.7 | 25 | 25 |
| 6 | 6.625 | 1.00 | 1 |
| 150 | 168.3 | 25 | 25 |
| 159.0 mm | 6.250 | 1.00 | --- |
| | 159.0 | 25 | --- |
| 165.1 mm | 6.500 | 1.00 | 1 |
| | 165.1 | 25 | 25 |
| 8 | 8.625 | 1.18 | 1½ |
| 200 | 219.1 | 30 | 40 |
| 10 | 10.750 | 1.25 | 1½ |
| 250 | 273.0 | 32 | 40 |
| 12 | 12.750 | 1.25 | 1½ |
| 300 | 323.9 | 32 | 40 |
| 200 JIS | 8.516 | 1.18 | --- |
| | 216.3 | 30 | --- |
| 250 JIS | 10.528 | 1.25 | --- |
| | 267.4 | 32 | --- |
| 300 JIS | 12.539 | 1.25 | --- |
| | 318.5 | 32 | --- |

## Model 7160H Domed End Cap




10" ~ 24"

#7160H

| Nominal Size in / mm | Pipe O.D. in / mm | #7160H E-E in / mm |
|---|---|---|
| 10 | 10.750 | 3.00 |
| 250 | 273.0 | 76.1 |
| 12 | 12.750 | 3.00 |
| 300 | 323.9 | 76.1 |
| 14 | 14.000 | 4.00 |
| 350 | 355.6 | 102.0 |
| 16 | 16.000 | 4.00 |
| 400 | 406.4 | 102.0 |
| 18 | 18.000 | 5.00 |
| 450 | 457.2 | 127.0 |
| 20 | 20.000 | 6.00 |
| 500 | 508.0 | 152.0 |
| 22 | 22.000 | 6.00 |
| 550 | 558.8 | 152.0 |
| 24 | 24.000 | 6.00 |
| 600 | 609.6 | 152.0 |

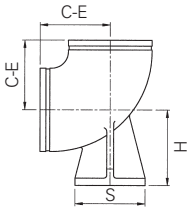
## Model W160 Wrought Cap




#W160

| Nominal Size in / mm | Pipe O.D. in / mm | #W160 E-E in / mm | Nominal Size in / mm | Pipe O.D. in / mm | #W160 E-E in / mm |
|---|---|---|---|---|---|
| 14 | 14.000 | 6.50 | 28 | 28.000 | 10.50 |
| 350 | 355.6 | 165.0 | 700 | 711.0 | 267.0 |
| 16 | 16.000 | 7.00 | 30 | 30.000 | 10.50 |
| 400 | 406.4 | 178.0 | 750 | 762.0 | 267.0 |
| 18 | 18.000 | 8.00 | 32 | 32.000 | 10.50 |
| 450 | 457.2 | 203.0 | 800 | 812.8 | 267.0 |
| 20 | 20.000 | 9.00 | 34 | 34.000 | 10.50 |
| 500 | 508.0 | 229.0 | 850 | 863.6 | 267.0 |
| 22 | 22.000 | 10.00 | 36 | 36.000 | 10.50 |
| 550 | 558.8 | 254.0 | 900 | 914.4 | 267.0 |
| 24 | 24.000 | 10.50 | 40 | 40.000 | 12.00 |
| 600 | 609.6 | 267.0 | 1000 | 1016.0 | 304.8 |
| 26 | 26.000 | 10.50 | 42 | 42.000 | 12.00 |
| 650 | 660.4 | 267.0 | 1050 | 1066.8 | 304.8 |

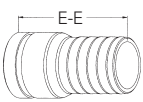
## Model 7110-B 90° Elbow with Base Support




#7110-B

| Nominal Size in / mm | Pipe O.D. in / mm | #7110-B C - E in / mm | #7110-B H in / mm | #7110-B S in / mm |
|---|---|---|---|---|
| 3 | 3.500 | 4.25 | 4.88 | 5.00 |
| 80 | 88.9 | 108 | 124 | 127 |
| 4 | 4.500 | 5.00 | 5.50 | 6.00 |
| 100 | 114.3 | 127 | 140 | 152 |
| 6 | 6.625 | 6.50 | 7.00 | 7.00 |
| 150 | 168.3 | 165 | 178 | 178 |
| 8 | 8.625 | 7.76 | 8.38 | 9.00 |
| 200 | 219.1 | 197 | 213 | 229 |
| 10 | 10.750 | 9.02 | 9.75 | 9.00 |
| 250 | 273.0 | 229 | 248 | 229 |
| 12 | 12.750 | 10.00 | 11.25 | 11.00 |
| 300 | 323.9 | 254 | 286 | 279 |

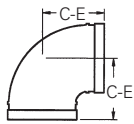
## Model 56 Hose Nipple



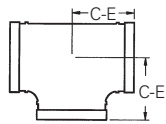

#56

| Nominal Size in / mm | Pipe O.D. in / mm | #56 E-E in / mm | Nominal Size in / mm | Pipe O.D. in / mm | #56 E-E in / mm |
|---|---|---|---|---|---|
| 1 | 1.315 | 3.3 | 4 | 4.500 | 7.25 |
| 25 | 33.4 | 83 | 100 | 114.3 | 184 |
| 1¼ | 1.660 | 3.6 | 5 | 5.563 | 9.75 |
| 32 | 42.2 | 92 | 125 | 141.3 | 248 |
| 1½ | 1.900 | 4.0 | 6 | 6.625 | 11.0 |
| 40 | 48.3 | 102 | 150 | 168.3 | 279 |
| 2 | 2.375 | 4.6 | 8 | 8.625 | 12.5 |
| 50 | 60.3 | 117 | 200 | 219.1 | 318 |
| 2½ | 2.875 | 5.5 | 10 | 10.750 | 14.0 |
| 65 | 73.0 | 140 | 250 | 273.0 | 356 |
| 3 | 3.500 | 6.0 | 12 | 12.750 | 16.0 |
| 80 | 88.9 | 152 | 300 | 323.9 | 406 |

## Model 901 SR 90° Elbow
## 903 Short Radius Tee



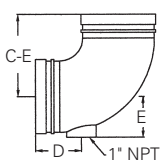
#901



#903

| Nominal Size in / mm | Pipe O.D. in / mm | #901 C-E in / mm | #903 C-E in / mm |
|---|---|---|---|
| 2 | 2.375 | 2.75 | 2.75 |
| 50 | 60.3 | 70 | 70 |
| 2½ | 2.875 | 3.00 | 3.00 |
| 65 | 73.0 | 76 | 76 |
| 2½ | 3.000 | 3.00 | 3.00 |
| 65 | 76.1 | 76 | 76 |
| 3 | 3.500 | 3.38 | 3.38 |
| 80 | 88.9 | 86 | 86 |
| 4 | 4.500 | 4.00 | 4.00 |
| 100 | 114.3 | 102 | 102 |
| 5 | 5.500 | 4.88 | 4.88 |
| 125 | 139.7 | 124 | 124 |
| 5 | 5.563 | 4.88 | 4.88 |
| 125 | 141.3 | 124 | 124 |
| 6 | 6.500 | 5.50 | 5.50 |
| 150 | 165.1 | 140 | 140 |
| 6 | 6.625 | 5.50 | 5.50 |
| 150 | 168.3 | 140 | 140 |
| 8 | 8.625 | 6.94 | 6.94 |
| 200 | 219.1 | 176 | 176 |

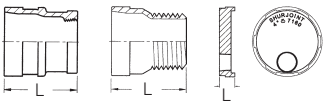
## Model 7110DR Drain Elbow



#7110DR

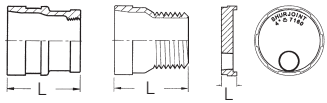
| Nominal Size in / mm | Pipe O.D. in / mm | #7110DR C - E in / mm | #7110DR D in / mm | #7110DR E in / mm |
|---|---|---|---|---|
| 2 | 2.375 | 3.27 | 2.25 | 1.57 |
| 50 | 60.3 | 83 | 57 | 40 |
| 2½ | 2.875 | 3.75 | 2.75 | 1.57 |
| 65 | 73.0 | 95 | 70 | 40 |
| 76.1 mm | 3.000 | 3.75 | 2.75 | 1.57 |
| | 76.1 | 95 | 70 | 40 |
| 3 | 3.500 | 4.25 | 2.75 | 1.93 |
| 80 | 88.9 | 108 | 70 | 49 |
| 4 | 4.500 | 5.00 | 2.75 | 2.48 |
| 100 | 114.3 | 127 | 70 | 63 |
| 165.1 mm | 6.500 | 6.50 | 2.75 | 3.54 |
| | 165.1 | 165 | 70 | 90 |
| 6 | 6.625 | 6.50 | 2.75 | 3.54 |
| 150 | 168.3 | 165 | 70 | 90 |
| 8 | 8.625 | 7.76 | 3.27 | 4.49 |
| 200 | 219.1 | 197 | 83 | 114 |

Model 7150F Reducing Socket (GR x FT)
7150M Reducing Nipple (GR x MT)
7160T Transition Fitting




#7150F #7150M #7160T

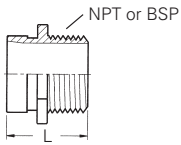
| Nominal Size<br>in / mm | Pipe O.D.<br>in / mm | #7150F (Gr x Ft) L<br>in / mm | #7150M (Gr x Mt) L<br>in / mm | #7160T L<br>in / mm |
|---|---|---|---|---|
| 1½ x 1 | 1.900 x 1.315 | 2.5 | 2.5 | — |
| 40 x 25 | 48.3 x 33.4 | 63.5 | 63.5 | — |
| 2 x 1 | 2.375 x 1.315 | 2.5 | 2.5 | 0.9 |
| 50 x 25 | 60.3 x 33.4 | 63.5 | 63.5 | 23.8 |
| 2 x 1¼ | 2.375 x 1.660 | 2.5 | 2.5 | 0.9 |
| 50 x 32 | 60.3 x 42.2 | 63.5 | 63.5 | 23.8 |
| 2 x 1½ | 2.375 x 1.900 | 2.5 | 2.5 | — |
| 50 x 40 | 60.3 x 48.3 | 63.5 | 63.5 | — |
| 2½ x 1 | 2.875 x 1.315 | 2.5 | 2.5 | 0.9 |
| 65 x 25 | 73.0 x 33.4 | 63.5 | 63.5 | 23.8 |
| 76.1 mm x 25 | 3.000 x 1.315 | 2.5 | 2.5 | 0.9 |
| | 76.1 x 33.4 | 63.5 | 63.5 | 23.8 |
| 2½ x 1¼ | 2.875 x 1.660 | 2.5 | 2.5 | 0.9 |
| 65 x 32 | 73.0 x 42.2 | 63.5 | 63.5 | 23.8 |
| 76.1 mm x 32 | 3.000 x 1.660 | 2.5 | 2.5 | 0.9 |
| | 76.1 x 42.2 | 63.5 | 63.5 | 23.8 |
| 2½ x 1½ | 2.875 x 1.900 | 2.5 | 2.5 | 0.9 |
| 65 x 40 | 73.0 x 48.3 | 63.5 | 63.5 | 23.8 |
| 76.1 mm x 40 | 3.000 x 1.900 | 2.5 | 2.5 | 0.9 |
| | 76.1 x 48.3 | 63.5 | 63.5 | 23.8 |
| 2½ x 2 | 2.875x 2.375 | 2.5 | 2.5 | — |
| 65 x 50 | 73.0 x 60.3 | 63.5 | 63.5 | — |
| 76.1 mm x 50 | 3.000 x 2.375 | 2.5 | 2.5 | — |
| | 76.1 x 60.3 | 63.5 | 63.5 | — |
| 3 x 1 | 3.500 x 1.315 | 2.5 | 2.5 | 1.0 |
| 80 x 25 | 88.9 x 33.4 | 63.5 | 63.5 | 25.4 |
| 3 x 1¼ | 3.500 x 1.660 | 2.5 | 2.5 | 1.0 |
| 80 x 32 | 88.9 x 42.2 | 63.5 | 63.5 | 25.4 |
| 3 x 1½ | 3.500 x 1.900 | 2.5 | 2.5 | 1.0 |
| 80 x 40 | 88.9 x 48.3 | 63.5 | 63.5 | 25.4 |
| 3 x 2 | 3.500 x 2.375 | 2.5 | 2.5 | 1.0 |
| 80 x 50 | 88.9 x 60.3 | 63.5 | 63.5 | 25.4 |
| 3 x 2½ | 3.500 x 2.875 | 2.5 | 2.5 | — |
| 80 x 65 | 88.9 x 73.0 | 63.5 | 63.5 | — |
| 80 x 76.1 mm | 3.500 x 3.000 | 2.5 | 2.5 | — |
| | 88.9 x 76.1 | 63.5 | 63.5 | — |
| 4 x 1 | 4.500 x 1.315 | — | — | 1.0 |
| 100 x 25 | 114.3 x 33.4 | — | — | 25.4 |
| 4 x 1¼ | 4.500 x 1.660 | 3 | 3 | 1.0 |
| 100 x 32 | 114.3 x 42.2 | 76.1 | 76.1 | 25.4 |
| 4 x 1½ | 4.500 x 1.900 | 3 | 3 | 1.0 |
| 100 x 40 | 114.3 x 48.3 | 76.1 | 76.1 | 25.4 |
| 4 x 2 | 4.500 x 2.375 | 3 | 3 | 1.0 |
| 100 x 50 | 114.3 x 60.3 | 76.1 | 76.1 | 25.4 |
| 4 x 2½ | 4.500 x 2.875 | 3 | 3 | — |
| 100 x 65 | 114.3 x 73.0 | 76.1 | 76.1 | — |
| 4 x 2½ | 4.500 x 3.000 | 3 | 3 | — |
| 100 x 65 | 114.3 x 76.1 | 76.1 | 76.1 | — |




#7150F #7150M #7160T

| Nominal Size<br>in / mm | Pipe O.D.<br>in / mm | #7150F (Gr x Ft)<br>L<br>in / mm | #7150M (Gr x Mt)<br>L<br>in / mm | #7160T<br>L<br>in / mm |
|---|---|---|---|---|
| 5 x 1½ | 5.563 x 1.900 | 3.5 | 3.5 | --- |
| 125 x 40 | 141.3 x 48.3 | 88.9 | 88.9 | --- |
| 139.7 mm x 40 | 5.500 x 1.900 | 3.5 | 3.5 | --- |
| | 139.7 x 48.3 | 88.9 | 88.9 | --- |
| 6 x 1 | 6.625 x 1.315 | --- | --- | 1.0 |
| 150 x 25 | 168.3 x 33.4 | --- | --- | 25.4 |
| 6 x 1¼ | 6.625 x 1.660 | --- | --- | 1.0 |
| 150 x 32 | 168.3 x 42.2 | --- | --- | 25.4 |
| 6 x 1½ | 6.625 x 1.900 | 4 | 4 | 1.0 |
| 150 x 40 | 168.3 x 48.3 | 101.6 | 101.6 | 25.4 |
| 165.1 mm x 40 | 6.500 x 1.900 | 4 | 4 | 1.0 |
| | 165.1 x 48.3 | 101.6 | 101.6 | 25.4 |
| 6 x 2 | 6.625 x 2.375 | 4 | 4 | 1.0 |
| 150 x 50 | 168.3 x 60.3 | 101.6 | 101.6 | 25.4 |
| 165.1 mm x 50 | 6.500 x 2.375 | 4 | 4 | 1.0 |
| | 165.1 x 60.3 | 101.6 | 101.6 | 25.4 |
| 6 x 2½ | 6.625x 2.875 | 4 | 4 | --- |
| 150 x 65 | 168.3 x 73.0 | 101.6 | 101.6 | --- |
| 165.1 mm x 65 | 6.500 x 3.000 | 4 | 4 | --- |
| | 165.1 x 76.1 | 101.6 | 101.6 | --- |
| 6 x 4 | 6.625 x 4.500 | 4 | 4 | --- |
| 150 x 100 | 168.3 x 114.3 | 101.6 | 101.6 | --- |
| 165.1 mm x 100 | 6.500 x 4.500 | 4 | 4 | --- |
| | 165.1 x 114.3 | 101.6 | 101.6 | --- |

## Model 55 Nipple Adapter (GRxMT)

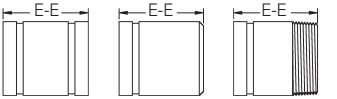



#55

| Nominal Size<br>Groove x Thread<br>in / mm | Pipe<br>O.D.<br>in / mm | #55 Nipple<br>L<br>in / mm |
|---|---|---|
| 1½ G x 1½ M | 1.900 | 2.50 |
| 40 G x 40 M | 48.3 | 63.5 |
| 2 G x 2 M | 2.375 | 2.50 |
| 50 G x 50 M | 60.3 | 63.5 |

G: Grooved M:Threaded

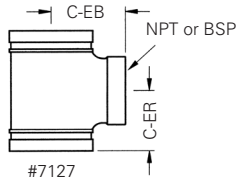
Model 57 Nipple (Groove x Groove)
58 Nipple (Groove x Bevel)
59 Nipple (Groove x Thread)




Gr. x Gr. #57 | Gr. x Bev. #58 | Gr. x Th. #59

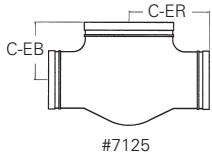
| Nominal Size in / mm | Pipe O.D. in / mm | #57 (Gr x Gr) E-E in / mm | #58 (Gr x Bev) E-E in / mm | #59 (Gr x Th) E-E in / mm |
|---|---|---|---|---|
| ¾ | 1.050 | 3 | 3 | 3 |
| 20 | 26.7 | 76 | 76 | 76 |
| 1 | 1.315 | 3 | 3 | 3 |
| 25 | 33.4 | 76 | 76 | 76 |
| 1¼ | 1.660 | 4 | 4 | 4 |
| 32 | 42.2 | 102 | 102 | 102 |
| 1½ | 1.900 | 4 | 4 | 4 |
| 40 | 48.3 | 102 | 102 | 102 |
| 2 | 2.375 | 4 | 4 | 4 |
| 50 | 60.3 | 102 | 102 | 102 |
| 2½ | 2.875 | 4 | 4 | 4 |
| 65 | 73.0 | 102 | 102 | 102 |
| 76.1 mm | 3.000 | 4 | 4 | 4 |
| | 76.1 | 102 | 102 | 102 |
| 3 | 3.500 | 4 | 4 | 4 |
| 80 | 88.9 | 102 | 102 | 102 |
| 4 | 4.500 | 6 | 6 | 6 |
| 100 | 114.3 | 152 | 152 | 152 |
| 5 | 5.563 | 6 | 6 | 6 |
| 125 | 141.3 | 152 | 152 | 152 |
| 139.7 mm | 5.500 | 6 | 6 | 6 |
| | 139.7 | 152 | 152 | 152 |
| 6 | 6.625 | 6 | 6 | 6 |
| 150 | 168.3 | 152 | 152 | 152 |
| 165.1 mm | 6.500 | 6 | 6 | 6 |
| | 165.1 | 152 | 152 | 152 |
| 8 | 8.625 | 6 | 6 | --- |
| 200 | 219.1 | 152 | 152 | --- |
| 10 | 10.750 | 8 | 8 | --- |
| 250 | 273.0 | 203 | 203 | --- |
| 12 | 12.750 | 8 | 8 | --- |
| 300 | 323.9 | 203 | 203 | --- |
| 200 JIS | 8.516 | 6 | 6 | --- |
| | 216.3 | 152 | 152 | --- |
| 250 JIS | 10.528 | 8 | 8 | --- |
| | 267.4 | 203 | 203 | --- |
| 300 JIS | 12.539 | 8 | 8 | --- |
| | 318.5 | 203 | 203 | --- |

## Model 7127 Standpipe Tee



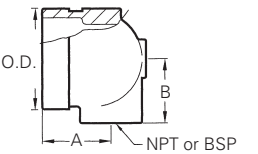

| Nominal Size in / mm | Pipe O.D. in / mm | #7127 | |
|---|---|---|---|
| | | C-ER in / mm | C-EB in / mm |
| 4 x 4 x 2½ | 4.500 x 4.500 x 2.875 | 3.25 | 4.00 |
| 100 x 100 x 65 | 114.3 x 114.3 x 73.0 | 83 | 102 |
| 6 x 6 x 2½ | 6.625 x 6.625 x 2.875 | 3.25 | 5.00 |
| 150 x 150 x 65 | 168.3 x 168.3 x 73.0 | 83 | 127 |

## Model 7125 Bullhead Tee




| Nominal Size in / mm | Pipe O.D. in / mm | #7125 | |
|---|---|---|---|
| | | C-ER in / mm | C-EB in / mm |
| 2 x 2 x 2½ | 2.375 x 2.375 x 2.875 | 3.74 | 3.27 |
| 50 x 50 x 65 | 60.3 x 60.3 x 73.0 | 95 | 83 |
| 2 x 2 x 3 | 2.375 x 2.375 x 3.500 | 4.25 | 3.74 |
| 50 x 50 x 80 | 60.3 x 60.3 x 88.9 | 108 | 95 |
| 2 x 2 x 4 | 2.375 x 2.375 x 4.500 | 5.00 | 4.02 |
| 50 x 50 x 100 | 60.3 x 60.3 x 114.3 | 127 | 102 |
| 2½ x 2½ x 3 | 2.875 x 2.875 x 3.500 | 4.25 | 3.75 |
| 65 x 65 x 80 | 73.0x 73.0 x 88.9 | 108 | 95 |
| 2½ x 2½ x 4 | 2.875 x 2.875 x 4.500 | 5.00 | 4.00 |
| 65 x 65 x 100 | 73.0 x 73.0 x 114.3 | 127 | 102 |
| 3 x 3 x 4 | 3.500 x 3.500 x 4.500 | 5.00 | 4.00 |
| 80 x 80 x 100 | 88.9 x 88.9 x 114.3 | 127 | 102 |
| 4 x 4 x 6 | 4.500 x 4.500 x 6.625 | 6.50 | 5.00 |
| 100x 100 x 150 | 114.3 x 114.3 x 168.3 | 165 | 127 |
| 5 x 5 x 8 | 5.563 x 5.563 x 8.625 | 7.75 | 5.50 |
| 125 x 125 x 200 | 141.3 x 141.3 x 219.1 | 197 | 140 |
| 6 x 6 x 8 | 6.625 x 6.625 x 8.625 | 7.75 | 6.50 |
| 150 x 150 x 200 | 168.3 x 168.3 x 219.1 | 197 | 165 |

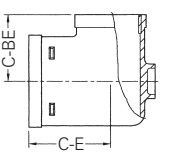
## Model 899 End-All Fitting



#899

| Nominal Size in / mm | Pipe O.D. in / mm | #899 | |
|---|---|---|---|
| | | A in / mm | B in / mm |
| 1¼ x ½ | 1.660 42.2 | 1.750 | 1.190 |
| 32 x 15 | | 44.5 | 30.1 |
| 1¼ x ¾ | | 1.750 | 1.190 |
| 32 x 20 | | 44.5 | 30.1 |
| 1¼ x 1 | | 1.900 | 1.250 |
| 32 x 25 | | 48.3 | 31.8 |
| 1½ x ½ | 1.900 48.3 | 1.750 | 1.313 |
| 40 x 15 | | 44.5 | 33.3 |
| 1½ x ¾ | | 1.750 | 1.313 |
| 40 x 20 | | 44.5 | 33.3 |
| 1½ x 1 | | 1.900 | 1.375 |
| 40 x 25 | | 48.3 | 34.9 |
| 2 x ½ | 2.375 60.3 | 1.750 | 1.562 |
| 50 x 15 | | 44.5 | 39.7 |
| 2 x ¾ | | 1.750 | 1.562 |
| 50 x 20 | | 44.5 | 39.7 |
| 2 x 1 | | 1.900 | 1.625 |
| 50 x 25 | | 48.3 | 41.3 |
| 2½ x ½ | 2.875 73.0 | 1.750 | 1.750 |
| 65 x 15 | | 44.5 | 44.5 |
| 2½ x ¾ | | 1.750 | 1.750 |
| 65 x 20 | | 44.5 | 44.5 |
| 2½ x 1 | | 1.900 | 1.813 |
| 65 x 25 | | 48.3 | 46.0 |

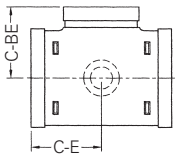
## Model 7114 Hydrant Elbow



#7114

| Nominal Size in / mm | Pipe O.D. in / mm | #7114 | |
|---|---|---|---|
| | | C-E in / mm | C-BE in / mm |
| 4 x 3 x 1 | 4.500 x 3.500 x 1.315 | 4.00 | 3.75 |
| 100 x 80 x 25 | 114.3 x 88.9 x 33.4 | 102 | 95 |
| 6 x 3 x 1 | 6.500 x 3.500 x 1.315 | 5.13 | 5.13 |
| 150 x 80 x 25 | 165.1 x 88.9 x 33.4 | 130 | 130 |

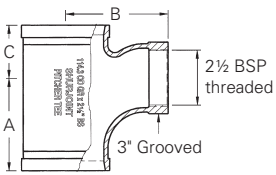
## Model 7122 Hydrant Tee




#7122

| Nominal Size in / mm | Pipe O.D. in / mm | #7122 | |
|---|---|---|---|
| | | C-E in / mm | C-BE in / mm |
| 4 x 4 x 3 | 4.500 x 4.500 x 3.500 | 4.00 | 4.00 |
| 100 x 100 x 80 | 114.3 x 114.3 x 88.9 | 102 | 102 |
| 6 x 6 x 3 | 6.500 x 6.500 x 3.500 | 5.13 | 5.13 |
| 150 x 150 x 80 | 165.1 x 165.1 x 88.9 | 130 | 130 |

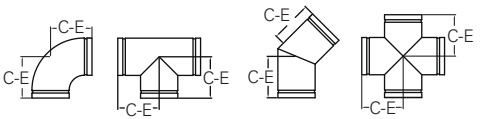
## Model 7133 Pitcher Tee




#7133

| Nominal Size mm | Pipe O.D. in / mm | #7133 | | |
|---|---|---|---|---|
| | | A in / mm | B in / mm | C in / mm |
| 80 x 80 x 76.1 mm | 3.500 x 3.500 x 3.000 | 4.75 | 4.75 | 2.72 |
| | 88.9 x 88.9 x 76.1 | 121 | 121 | 69 |
| 100 x 100 x 76.1 mm | 4.500 x 4.500 x 3.000 | 4.75 | 5.25 | 2.72 |
| | 114.3 x 114.3 x 76.1 | 121 | 133 | 69 |
| 150 x 150 x 76.1 mm | 6.500 x 6.500 x 3.000 | 4.75 | 6.25 | 2.72 |
| | 165.1 x 165.1 x 76.1 | 121 | 159 | 69 |

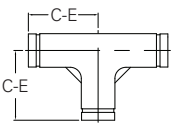
Model 10EP 90° Elbow
11EP 45° Elbow
20EP Tee
35EP Cross




#10EP #20EP #11EP #35EP

| Nominal Size in / mm | Pipe O.D. in / mm | #10EP C-E in / mm | #11EP C-E in / mm | #20EP C-E in / mm | #35EP C-E in / mm |
|---|---|---|---|---|---|
| 2 | 2.375 | 3.25 | 2.00 | 3.25 | 3.25 |
| 50 | 60.3 | 83 | 51 | 83 | 83 |
| 2½ | 2.875 | 3.75 | 2.25 | 3.75 | 3.75 |
| 65 | 73.0 | 95 | 57 | 95 | 95 |
| 3 | 3.500 | 4.25 | 2.50 | 4.25 | 4.25 |
| 80 | 88.9 | 108 | 64 | 108 | 108 |
| 4 | 4.500 | 5.00 | 3.00 | 5.00 | 5.00 |
| 100 | 114.3 | 127 | 76 | 127 | 127 |
| 6 | 6.625 | 6.50 | 3.50 | 6.50 | 6.50 |
| 150 | 168.3 | 165 | 89 | 165 | 165 |

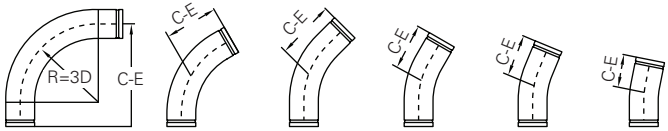
Model 22EP Header Tee




#22EP

| #22EP | Fitting Size Mated C to E | |
|---|---|---|
| Nominal Size in / mm | Pipe O.D. in / mm | C-E |
| 2 to 3 | 2.375 | 4.25 |
| 50 to 80 | 60.3 | 108 |
| 2 to 4 | 2.875 | 5.00 |

Model L90-3D Wrought 3D 90° Elbow
L60-3D Wrought 3D 60° Elbow
L45-3D Wrought 3D 45° Elbow
L30-3D Wrought 3D 30° Elbow
L22-3D Wrought 3D 22½° Elbow
L11-3D Wrought 3D 11¼° Elbow

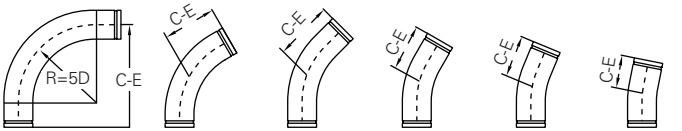



#L90-3D #L60-3D #L45-3D #L30-3D #L22-3D #L11-3D

| Nominal Size in / mm | Pipe O.D. in / mm | #L90-3D C-E in / mm | #L60-3D C-E in / mm | #L45-3D C-E in / mm | #L30-3D C-E in / mm | #L22-3D C-E in / mm | #L11-3D C-E in / mm |
|---|---|---|---|---|---|---|---|
| 2 | 2.375 | 10.00 | 7.50 | 6.50 | 5.75 | 5.25 | 4.50 |
| 50 | 60.3 | 254 | 191 | 165 | 146 | 133 | 114 |
| 2½ | 2.875 | 11.50 | 8.25 | 7.25 | 6.00 | 5.50 | 4.75 |
| 65 | 73.0 | 292 | 210 | 184 | 152 | 140 | 121 |
| 3 | 3.500 | 13.00 | 9.25 | 7.75 | 6.50 | 5.75 | 5.00 |
| 80 | 88.9 | 330 | 235 | 197 | 165 | 146 | 127 |
| 3½ | 4.000 | 14.50 | 10.00 | 8.50 | 6.75 | 6.00 | 5.00 |
| 90 | 101.6 | 368 | 254 | 216 | 171 | 152 | 127 |
| 4 | 4.500 | 16.00 | 11.00 | 9.00 | 7.25 | 6.50 | 5.25 |
| 100 | 114.3 | 406 | 279 | 229 | 184 | 165 | 133 |
| 5 | 5.563 | 20.00 | 13.75 | 11.25 | 9.00 | 8.00 | 6.50 |
| 125 | 141.3 | 508 | 349 | 286 | 229 | 203 | 165 |
| 6 | 6.625 | 24.00 | 16.50 | 13.50 | 10.75 | 9.50 | 7.75 |
| 150 | 168.3 | 610 | 419 | 343 | 273 | 241 | 197 |
| 8 | 8.625 | 32.00 | 22.00 | 18.00 | 14.50 | 12.75 | 10.50 |
| 200 | 219.1 | 813 | 559 | 457 | 368 | 324 | 267 |
| 10 | 10.750 | 40.00 | 27.25 | 22.50 | 18.00 | 16.00 | 13.00 |
| 250 | 273.0 | 1016 | 692 | 572 | 457 | 406 | 330 |
| 12 | 12.750 | 48.00 | 32.75 | 27.00 | 21.75 | 19.25 | 15.50 |
| 300 | 323.9 | 1219 | 832 | 686 | 552 | 489 | 394 |
| 14 | 14.000 | 54.00 | 38.25 | 31.50 | 25.25 | 22.50 | 18.25 |
| 350 | 355.6 | 1372 | 972 | 800 | 641 | 572 | 464 |
| 16 | 16.000 | 60.00 | 43.75 | 36.00 | 29.00 | 25.25 | 20.75 |
| 400 | 406.4 | 1524 | 1111 | 914 | 737 | 648 | 527 |
| 18 | 18.000 | 66.00 | 49.25 | 40.25 | 32.50 | 28.75 | 23.35 |
| 450 | 457.2 | 1676 | 1251 | 1029 | 826 | 730 | 593 |
| 20 | 20.000 | 72.00 | 54.75 | 45.00 | 36.00 | 32.00 | 26.00 |
| 500 | 508.0 | 1829 | 1391 | 1143 | 914 | 813 | 660 |
| 24 | 24.000 | 84.00 | 65.50 | 53.75 | 43.25 | 38.25 | 31.00 |
| 600 | 609.6 | 2134 | 1664 | 1365 | 1099 | 972 | 787 |
| 28 | 28.000 | 95.00 | 70.00 | 62.00 | 47.00 | 45.00 | 35.00 |
| 700 | 711.2 | 2413 | 1778 | 1575 | 1194 | 1143 | 889 |

* For 24" & 28": Made by XS (12.7 mm) carbon steel pipe to ASTM A53.

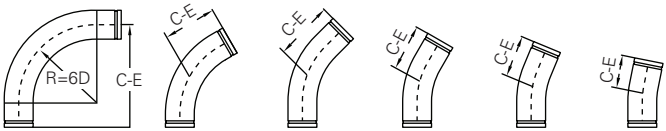
Model L90-5D Wrought 5D 90° Elbow
L60-5D Wrought 5D 60° Elbow
L45-5D Wrought 5D 45° Elbow
L30-5D Wrought 5D 30° Elbow
L22-5D Wrought 5D 22½° Elbow
L11-5D Wrought 5D 11¼° Elbow




#L90-5D #L60-5D #L45-5D #L30-5D #L22-5D #L11-5D

| Nominal Size in / mm | Pipe O.D. in / mm | #L90-5D C-E in / mm | #L60-5D C-E in / mm | #L45-5D C-E in / mm | #L30-5D C-E in / mm | #L22-5D C-E in / mm | #L11-5D C-E in / mm |
|---|---|---|---|---|---|---|---|
| 2 | 2.375 | 14.00 | 9.75 | 8.25 | 6.75 | 6.00 | 5.00 |
| 50 | 60.3 | 356 | 248 | 210 | 171 | 152 | 127 |
| 2½ | 2.875 | 16.50 | 11.25 | 9.25 | 7.50 | 6.50 | 5.25 |
| 65 | 73.0 | 419 | 286 | 235 | 191 | 165 | 133 |
| 3 | 3.500 | 19.00 | 12.75 | 10.25 | 8.00 | 7.00 | 5.50 |
| 80 | 88.9 | 483 | 324 | 260 | 203 | 178 | 140 |
| 3½ | 4.000 | 21.50 | 12.25 | 11.25 | 8.75 | 7.50 | 5.75 |
| 90 | 101.6 | 546 | 311 | 286 | 222 | 191 | 146 |
| 4 | 4.500 | 24.00 | 15.50 | 12.50 | 9.50 | 8.00 | 6.00 |
| 100 | 114.3 | 610 | 394 | 318 | 241 | 203 | 152 |
| 5 | 5.563 | 30.00 | 19.50 | 15.50 | 11.75 | 10.00 | 7.50 |
| 125 | 141.3 | 762 | 495 | 394 | 298 | 254 | 191 |
| 6 | 6.625 | 36.00 | 23.25 | 18.50 | 14.00 | 12.00 | 9.00 |
| 150 | 168.3 | 914 | 591 | 470 | 356 | 305 | 229 |
| 8 | 8.625 | 48.00 | 31.00 | 24.50 | 18.75 | 16.00 | 12.00 |
| 200 | 219.1 | 1219 | 787 | 622 | 476 | 406 | 305 |
| 10 | 10.750 | 60.00 | 39.00 | 30.75 | 23.50 | 20.00 | 15.00 |
| 250 | 273.1 | 1524 | 991 | 781 | 597 | 508 | 381 |
| 12 | 12.750 | 72.00 | 46.75 | 37.00 | 28.00 | 24.00 | 18.00 |
| 300 | 323.9 | 1829 | 1187 | 940 | 711 | 610 | 457 |
| 14 | 14.000 | 82.00 | 54.50 | 43.00 | 32.75 | 28.00 | 21.00 |
| 350 | 355.6 | 2083 | 1384 | 1092 | 832 | 711 | 533 |
| 16 | 16.000 | 92.00 | 62.25 | 49.25 | 37.50 | 32.00 | 24.00 |
| 400 | 406.4 | 2337 | 1581 | 1251 | 953 | 813 | 610 |
| 18 | 18.000 | 102.00 | 70.00 | 55.25 | 42.25 | 36.00 | 27.00 |
| 450 | 457.2 | 2591 | 1778 | 1403 | 1073 | 914 | 686 |
| 20 | 20.000 | 112.00 | 77.75 | 61.50 | 46.75 | 40.00 | 30.00 |
| 500 | 508.0 | 2845 | 1975 | 1562 | 1187 | 1016 | 762 |
| 24 | 24.000 | 132.00 | 93.25 | 73.75 | 56.25 | 48.00 | 35.75 |
| 600 | 609.6 | 3353 | 2369 | 1873 | 1429 | 1219 | 908 |

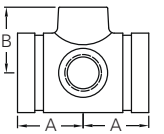
Model L90-6D Wrought 6D 90° Elbow
L60-6D Wrought 6D 60° Elbow
L45-6D Wrought 6D 45° Elbow
L30-6D Wrought 6D 30° Elbow
L22-6D Wrought 6D 22½° Elbow
L11-6D Wrought 6D 11¼° Elbow




#L90-6D #L60-6D #L45-6D #L30-6D #L22-6D #L11-6D

| Nominal Size in / mm | Pipe O.D. in / mm | #L90-6D C-E in / mm | #L60-6D C-E in / mm | #L45-6D C-E in / mm | #L30-6D C-E in / mm | #L22-6D C-E in / mm | #L11-6D C-E in / mm |
|---|---|---|---|---|---|---|---|
| 2 | 2.375 | 16.00 | 11.00 | 9.00 | 7.25 | 6.50 | 5.25 |
| 50 | 60.3 | 406 | 279 | 229 | 184 | 165 | 133 |
| 2½ | 2.875 | 19.00 | 12.75 | 10.25 | 8.00 | 7.00 | 5.50 |
| 65 | 73.0 | 483 | 324 | 260 | 203 | 178 | 140 |
| 3 | 3.500 | 22.00 | 14.50 | 11.50 | 8.75 | 7.50 | 5.75 |
| 80 | 88.9 | 559 | 368 | 292 | 222 | 191 | 146 |
| 3½ | 4.000 | 25.00 | 16.25 | 12.75 | 9.75 | 8.25 | 6.00 |
| 90 | 101.6 | 635 | 413 | 324 | 248 | 210 | 152 |
| 4 | 4.500 | 28.00 | 18.00 | 14.00 | 10.50 | 8.75 | 6.50 |
| 100 | 114.3 | 711 | 457 | 356 | 267 | 222 | 165 |
| 5 | 5.563 | 35.00 | 22.25 | 17.50 | 13.00 | 11.00 | 8.00 |
| 125 | 141.3 | 889 | 565 | 445 | 330 | 279 | 203 |
| 6 | 6.625 | 42.00 | 26.75 | 21.00 | 15.75 | 13.25 | 9.50 |
| 150 | 168.3 | 1067 | 679 | 533 | 400 | 337 | 241 |
| 8 | 8.625 | 56.00 | 35.75 | 28.00 | 21.00 | 17.50 | 12.75 |
| 200 | 219.1 | 1422 | 908 | 711 | 533 | 445 | 324 |
| 10 | 10.750 | 70.00 | 44.75 | 35.00 | 26.00 | 22.00 | 16.00 |
| 250 | 273.1 | 1778 | 1137 | 889 | 660 | 559 | 406 |
| 12 | 12.750 | 84.00 | 53.50 | 41.75 | 31.25 | 26.25 | 19.00 |
| 300 | 323.9 | 2134 | 1359 | 1060 | 794 | 667 | 483 |
| 14 | 14.000 | 96.00 | 62.50 | 48.75 | 36.50 | 30.75 | 22.25 |
| 350 | 355.6 | 2438 | 1588 | 1238 | 927 | 781 | 565 |
| 16 | 16.000 | 108.00 | 71.50 | 55.75 | 41.75 | 35.25 | 25.50 |
| 400 | 406.4 | 2743 | 1816 | 1416 | 1060 | 895 | 648 |
| 18 | 18.000 | 120.00 | 80.50 | 62.75 | 47.00 | 39.50 | 28.75 |
| 450 | 457.2 | 3048 | 2045 | 1594 | 1194 | 1003 | 730 |
| 20 | 20.000 | 132.00 | 89.25 | 69.75 | 52.25 | 44.00 | 31.75 |
| 500 | 508.0 | 3353 | 2267 | 1772 | 1327 | 1118 | 806 |
| 24 | 24.000 | 156.00 | 107.25 | 83.75 | 62.50 | 52.34 | 38.25 |
| 600 | 609.6 | 3962 | 2724 | 2127 | 1588 | 1329 | 972 |

## Model 850 Sprinkler Hub - 3 Outlets

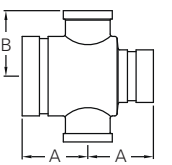



#850

| Nominal Size in / mm | #850 | |
|---|---|---|
| | A in / mm | B in / mm |
| 2 x 2 x 1 (3) | 2.38 | 2.02 |
| 50 x 50 x 25 (3) | 60 | 51 |
| 2½ x 2½ x 1 (3) | 2.38 | 2.25 |
| 65 x 65 x 25 (3) | 60 | 57 |

( ): Number of outlets

## Model 851 Reducing Sprinkler Hub - 3 Outlets

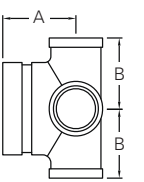



#851

| Nominal Size in / mm | #851 | |
|---|---|---|
| | A in / mm | B in / mm |
| 2 x 1½ x 1 (3) | 2.38 | 2.02 |
| 50 x 40 x 25 (3) | 60 | 51 |
| 2½ x 1½ x 1 (3) | 2.38 | 2.25 |
| 65 x 40 x 25 (3) | 60 | 57 |
| 2½ x 2 x 1 (3) | 2.38 | 2.25 |
| 65 x 50 x 25 (3) | 60 | 60 |

( ): Number of outlets

## Model 853 Sprinkler End Hub - 4 Outlets



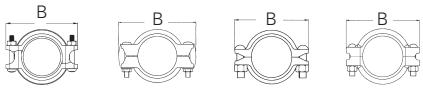

#853

| Nominal Size in / mm | #853 | |
|---|---|---|
| | A in / mm | B in / mm |
| 1½ x 1 (4) | 2.38 | 1.80 |
| 40 x 25 (4) | 60 | 46 |
| 2 x 1 (4) | 2.38 | 2.02 |
| 50 x 25 (4) | 60 | 51 |
| 2½ x 1 (4) | 2.38 | 2.25 |
| 65 x 25 (4) | 60 | 57 |

( ): Number of outlets

## Stainless Steel Series

Model SS-5 Rigid Coupling
SS-7 Rigid Coupling
SS-8 Flexible Coupling
SS-8X Heavy Duty Flexible Coupling




#SS-5 #SS-7 #SS-8 #SS-8X

| Nominal Size in / mm | Pipe O.D. in / mm | #SS-5 B in / mm | #SS-7 B in / mm | #SS-8 B in / mm | #SS-8X B in / mm |
|---|---|---|---|---|---|
| ¾ | 1.050 | – | – | – | 3.75 |
| 20 | 26.7 | – | – | – | 95.0 |
| 1 | 1.315 | – | – | 3.45 | 3.91 |
| 25 | 33.4 | – | – | 87.5 | 99.0 |
| 1¼ | 1.660 | 4.00 | 4.13 | 3.85 | 4.37 |
| 32 | 42.2 | 102 | 105 | 97.8 | 111.0 |
| 1½ | 1.900 | 4.29 | 4.25 | 4.14 | 4.82 |
| 40 | 48.3 | 109 | 108 | 105.1 | 123.0 |
| 2 | 2.375 | 4.61 | 4.92 | 4.88 | 5.28 |
| 50 | 60.3 | 117 | 125 | 124.0 | 134.0 |
| 2½ | 2.875 | 5.20 | 5.43 | 5.51 | 4.06 |
| 65 | 73.0 | 132 | 138 | 139.9 | 103.0 |
| 76.1 mm | 3.000 | 5.35 | 5.63 | 5.71 | – |
| | 76.1 | 136 | 143 | 145.0 | – |
| 3 | 3.500 | 5.83 | 6.30 | 6.18 | 6.74 |
| 80 | 88.9 | 148 | 160 | 157.0 | 171.0 |
| 4 | 4.500 | 7.17 | 8.15 | 7.87 | 7.90 |
| 100 | 114.3 | 182 | 207 | 200.0 | 201.0 |
| 139.7 mm | 5.500 | 8.94 | 9.09 | 9.09 | – |
| | 139.7 | 227 | 231 | 231.0 | – |
| 5 | 5.563 | 9.02 | 9.29 | 8.90 | 9.80 |
| 125 | 141.3 | 229 | 236 | 226.1 | 249.0 |
| 165.1 mm | 6.500 | 9.69 | 10.04 | 9.96 | – |
| | 165.1 | 246 | 255 | 253.0 | – |
| 6 | 6.625 | 9.80 | 10.08 | 9.96 | 10.85 |
| 150 | 168.3 | 249 | 256 | 253.1 | 276.0 |
| 8 | 8.625 | 12.99 | 13.11 | 13.27 | 13.43 |
| 200 | 219.1 | 330 | 333 | 337.0 | 341.0 |
| 10 | 10.750 | – | – | – | – |
| 250 | 273.0 | – | – | – | – |
| 12 | 12.750 | – | – | – | – |
| 300 | 323.9 | – | – | – | – |
| 200 JIS | 8.516 | 13.39 | 13.62 | 13.62 | 13.31 |
| | 216.3 | 340 | 346 | 346.0 | 338.0 |

Model SS-1200 High Pressure Flexible Coupling
SS-41 Flange Adapter
SS-80 Universal Flange Adapter
SS-28 Hinged Lever Coupling



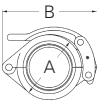
#SS-1200



#SS-41



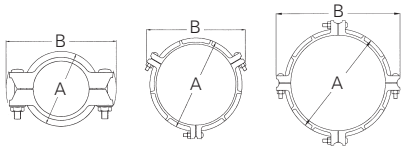
#SS-80



#SS-28

| Nominal Size in / mm | #SS-1200 B in / mm | #SS-41 W in / mm | #SS-80 W in / mm | #SS-28 B in / mm |
|---|---|---|---|---|
| ¾ | 3.70 | – | – | – |
| 20 | 94 | – | – | – |
| 1 | 3.98 | – | – | – |
| 25 | 101 | – | – | – |
| 1¼ | 4.37 | – | – | – |
| 111 | -- | – | – | |
| 1½ | 4.61 | – | – | 4.65 |
| 40 | 117 | – | – | 118 |
| 2 | 5.39 | 6.81 | 6.50 | 4.76 |
| 50 | 137 | 173 | 165 | 121 |
| 2½ | -- | 7.81 | 7.28 | 5.91 |
| 65 | -- | 198 | 185 | 150 |
| 76.1 mm | 6.04 | – | 7.28 | 5.91 |
| | 153 | – | 185 | 150 |
| 3 | 6.61 | 8.31 | 7.78 | 6.42 |
| 80 | 168 | 211 | 200 | 163 |
| 4 | 8.15 | 9.81 | 8.66 | 8.07 |
| 100 | 207 | 249 | 220 | 205 |
| 139.7 mm | -- | – | 10.00 | 9.96 |
| | -- | – | 254 | 253 |
| 5 | -- | – | 10.00 | 9.96 |
| 125 | -- | – | 254 | 253 |
| 165.1 mm | -- | – | 10.63 | 10.94 |
| | -- | – | 270 | 278 |
| 6 | -- | 11.81 | 11.46 | 11.06 |
| 150 | -- | 300 | 291 | 281 |
| 8 | -- | 14.31 | 13.50 | – |
| 200 | -- | 363 | 343 | – |
| 10 | -- | – | 16.00 | – |
| 250 | -- | – | 406 | – |
| 12 | -- | – | 19.00 | – |
| 300 | 30-- | – | 483 | – |
| 200 JIS | -- | – | 13.50 | – |
| | -- | – | 343 | – |

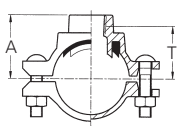
## Model SS-7X Rigid Coupling




10" ~ 14" 16" ~ 18" 20" ~ 24"

| Nominal Size in / mm | Pipe O.D. in / mm | #SS-7X B in / mm |
|---|---|---|
| 10 | 10.750 | 15.98 |
| 250 | 273.0 | 406 |
| 12 | 12.750 | 17.78 |
| 300 | 323.9 | 452 |
| 250 JIS | 10.528 | 16.73 |
| | 267.4 | 425 |
| 300 JIS | 12.539 | 18.31 |
| | 318.5 | 465 |
| 14 | 14.000 | 19.69 |
| 350 | 355.6 | 500 |
| 16 | 16.000 | 21.10 |
| 400 | 406.4 | 536 |
| 18 | 18.000 | 23.11 |
| 450 | 457.2 | 587 |
| 20 | 20.000 | 26.34 |
| 500 | 508.0 | 669 |
| 22 | 22.000 | 28.35 |
| 550 | 558.8 | 720 |
| 24 | 24.000 | 30.35 |
| 600 | 609.6 | 771 |

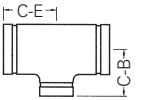
## Model SS-723 Mechanical Tee



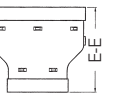

#SS-723

| Nominal Size in / mm | #SS-723 | |
|---|---|---|
| | A in / mm | T in / mm |
| 1¼ x ½ | 1.60 | 1.06 |
| 32 x 15 | 41 | 27 |
| 1¼ x ¾ | 1.70 | 1.14 |
| 32 x 20 | 44 | 29 |
| 1¼ x 1 | 2.00 | 1.34 |
| 32 x 25 | 51 | 34 |
| 1½ x ½ | 1.70 | 1.18 |
| 40 x 15 | 44 | 30 |
| 1½ x ¾ | 1.81 | 1.22 |
| 40 x 20 | 46 | 31 |
| 1½ x 1 | 2.09 | 1.42 |
| 40 x 25 | 53 | 36 |
| 2 x ½ | 2.00 | 1.46 |
| 50 x 15 | 51 | 37 |
| 2 x ¾ | 2.09 | 1.10 |
| 50 x 20 | 53 | 28 |
| 2 x 1 | 2.37 | 1.69 |
| 50 x 25 | 60 | 43 |

## Model SS-21 Reducing Tee
## SS-50 Concentric Reducer

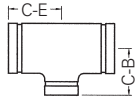


#SS-21

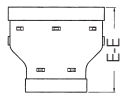


#SS-50

| Nominal Size in / mm | Pipe O.D. in / mm | #SS-21 C-E in / mm | #SS-21 C-B in / mm | #SS-50 E-E in / mm |
|---|---|---|---|---|
| 1¼x 1 | 1.660 x 1.315 | 2.76 | 2.76 | 2.50 |
| 30 x 25 | 42.2 x 33.4 | 70 | 70 | 64 |
| 1½x 1 | 1.900 x 1.315 | 2.75 | 2.75 | 2.50 |
| 40 x 25 | 48.3 x 33.4 | 70 | 70 | 64 |
| 1½ x 1¼ | 1.900 x 1.660 | 2.75 | 2.75 | 2.50 |
| 40 x 32 | 48.3 x 42.2 | 70 | 70 | 64 |
| 2 x 1 | 2.375 x 1.315 | 2.75 | 2.75 | 2.50 |
| 50 x 25 | 60.3 x 33.4 | 70 | 70 | 64 |
| 2 x 1¼ | 2.375 x 1.660 | 2.75 | 2.75 | 2.50 |
| 50 x 32 | 60.3 x 42.2 | 70 | 70 | 64 |
| 2 x 1½ | 2.375 x 1.900 | 2.75 | 2.75 | 2.50 |
| 50 x 40 | 60.3 x 48.3 | 70 | 70 | 64 |
| 2½ x 1 | 2.875 x 1.315 | 3.74 | 3.74 | 2.50 |
| 65 x 25 | 73.0 x 33.4 | 95 | 95 | 64 |
| 2½ x 1½ | 2.875 x 1.660 | 3.74 | 3.74 | 2.50 |
| 65 x 32 | 73.0 x 42.2 | 95 | 95 | 64 |
| 2½x 1½ | 2.875 x 1.900 | 3.74 | 3.74 | 2.50 |
| 65 x 40 | 73.0 x 48.3 | 95 | 95 | 64 |
| 2½ x 2 | 2.875 x 2.375 | 3.00 | 3.00 | 2.50 |
| 65 x 50 | 73.0 x 60.3 | 76 | 76 | 64 |
| 76.1 mm x 25 | 3.000 x 1.315 | 3.74 | 3.74 | 2.50 |
| | 76.1 x 33.4 | 95 | 95 | 64 |
| 76.1 mm x 32 | 3.000 x 1.660 | 3.74 | 3.74 | 2.50 |
| | 76.1 x 42.2 | 95 | 95 | 64 |
| 76.1 mm x 40 | 3.000 x 1.900 | 3.74 | 3.74 | 2.50 |
| | 76.1 x 48.3 | 95 | 95 | 64 |
| 76.1 mm x 50 | 3.000 x 2.375 | 3.00 | 3.00 | 2.50 |
| | 76.1 x 60.3 | 76 | 76 | 64 |
| 3 x 1½ | 3.500 x 1.660 | 4.25 | 4.25 | 2.50 |
| 80 x 32 | 88.9 x 42.2 | 108 | 108 | 64 |
| 3 x 1½ | 3.500 x 1.900 | 4.25 | 4.25 | 2.50 |
| 80 x 40 | 88.9 x 48.3 | 108 | 108 | 64 |
| 3 x 2 | 3.500 x 2.375 | 4.25 | 4.25 | 2.50 |
| 80 x 50 | 88.9 x 60.3 | 108 | 108 | 64 |
| 3 x 2½ | 3.500 x 2.875 | 3.74 | 3.27 | 3.50 |
| 80 x 65 | 88.9 x 73.0 | 95 | 83 | 89 |
| 80 x 76.1 mm | 3.500 x 3.000 | 3.74 | 3.27 | 3.50 |
| | 88.9 x 76.1 | 95 | 83 | 89 |
| 4 x 2 | 4.500 x 2.375 | 5.00 | 5.00 | 3.00 |
| 100 x 50 | 114.3 x 60.3 | 127 | 127 | 76 |
| 4 x 2½ | 4.500 x 2.875 | 4.48 | 3.85 | 4.00 |
| 100 x 65 | 114.3 x 73.0 | 114 | 98 | 102 |
| 100 x 76.1 mm | 4.500 x 3.000 | 4.48 | 3.85 | 4.00 |
| | 114.3 x 76.1 | 114 | 98 | 102 |
| 4 x 3 | 4.500 x 3.500 | 4.48 | 3.85 | 3.00 |
| 100 x 80 | 114.3 x 88.9 | 114 | 98 | 76 |



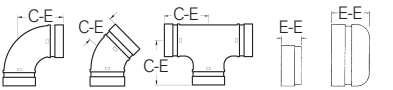

#SS-21




#SS-50

| Nominal Size in / mm | Pipe O.D. in / mm | #SS-21 C-E in / mm | #SS-21 C-B in / mm | #SS-50 E-E in / mm |
|---|---|---|---|---|
| 139.7 mm x 100 | 5.500 x 4.500 | 5.50 | 5.50 | 3.50 |
| 125 x 100 | 139.7 x 114.3 | 140 | 140 | 89 |
| 5 x 4 | 5.563 x 4.500 | 5.50 | 5.50 | 3.50 |
| 125 x 100 | 141.3 x 114.3 | 140 | 140 | 89 |
| 165.1 mm x 80 | 6.500 x 3.500 | 6.50 | 6.50 | 4.00 |
| | 165.1 x 88.9 | 165 | 165 | 102 |
| 165.1 mm x 100 | 6.500 x 4.500 | 6.50 | 6.50 | 4.00 |
| | 165.1 x 114.3 | 165 | 165 | 102 |
| 165.1 mm x 139.7 mm | 6.500 x 5.500 | 6.50 | 6.50 | 4.00 |
| | 165.1 x 139.7 | 165 | 165 | 102 |
| 6 x 3 | 6.625 x 3.500 | 5.90 | 5.90 | 4.00 |
| 150 x 80 | 168.3 x 88.9 | 150 | 150 | 102 |
| 6 x 4 | 6.625 x 4.500 | 6.50 | 6.50 | 4.00 |
| 150 x 100 | 168.3 x 114.3 | 165 | 165 | 102 |
| 6 x 5 | 6.625 x 5.563 | 6.50 | 6.50 | 4.00 |
| 150 x 125 | 168.3 x 141.3 | 165 | 165 | 102 |
| 8 x 4 | 8.625 x 4.500 | 7.76 | 7.76 | 5.00 |
| 200 x 100 | 219.1 x 114.3 | 197 | 197 | 127 |
| 8 x 5 | 8.625 x 5.563 | 7.76 | 7.76 | 5.00 |
| 200 x 125 | 219.1x 141.3 | 197 | 197 | 127 |
| 8 x 6 | 8.625 x 6.625 | 7.76 | 7.76 | 5.00 |
| 200 x 150 | 219.1 x 168.3 | 197 | 197 | 127 |
| 10 x 6 | 10.750 x 6.625 | 9.02 | 9.02 | 6.00 |
| 250 x 150 | 273.0 x 168.3 | 229 | 229 | 152 |
| 10 x 8 | 10.750 x 8.625 | 9.02 | 9.02 | 6.00 |
| 250 x 200 | 273.0 x 219.1 | 229 | 229 | 152 |
| 12 x 8 | 12.750 x 8.625 | 10.00 | 10.00 | 7.00 |
| 300 x 200 | 323.9 x 219.1 | 254 | 254 | 178 |
| 12 x 10 | 12.750 x 10.750 | 10.00 | 10.00 | 7.00 |
| 300 x 250 | 323.9 x 273.0 | 254 | 254 | 178 |
| 200 JIS x 100 | 8.516 x 4.500 | 7.76 | 7.76 | 5.00 |
| | 216.3 x 114.3 | 197 | 197 | 127 |
| 200 JIS x 125 | 8.516 x 5.500 | 7.76 | 7.76 | 5.00 |
| | 216.3 x 139.7 | 197 | 197 | 127 |
| 200 JIS x 165.1 mm | 8.516 x 6.500 | 7.76 | 7.76 | 5.00 |
| | 216.3 x 165.1 | 197 | 197 | 127 |
| 250 JIS x 165.1 mm | 10.528 x 6.500 | 9.02 | 9.02 | 6.00 |
| | 267.4 x 165.1 | 229 | 229 | 152 |
| 250 JIS x 200 JIS | 10.528 x 8.516 | 9.02 | 9.02 | 6.00 |
| | 267.4 x 216.3 | 229 | 229 | 152 |
| 300 JIS x 200 JIS | 12.539 x 8.516 | 10.00 | 10.00 | 7.00 |
| | 318.5 x 216.3 | 254 | 254 | 178 |
| 300 JIS x 250 JIS | 12.539 x 10.528 | 10.00 | 10.00 | 7.00 |
| | 318.5 x 267.4 | 254 | 254 | 178 |

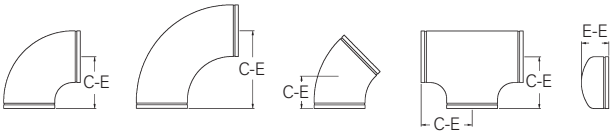
Model SS-10 90° Elbow
SS-11 45° Elbow
SS-20 Tee
SS-60 Cap




#SS-10 #SS-11 #SS-20 #SS-60

| Nominal Size in / mm | Pipe O.D. in / mm | #SS-10 C-E in / mm | #SS-11 C-E in / mm | #SS-20 C-E in / mm | #SS-60 E-E in / mm |
|---|---|---|---|---|---|
| 1 | 1.315 | 2.25 | 1.75 | 2.25 | 0.94 |
| 25 | 33.4 | 57 | 45 | 57 | 24 |
| 1¼ | 1.660 | 2.75 | 1.75 | 2.75 | 0.94 |
| 32 | 42.2 | 70 | 45 | 70 | 24 |
| 1½ | 1.900 | 2.75 | 1.75 | 2.75 | 0.94 |
| 40 | 48.3 | 70 | 45 | 70 | 24 |
| 2 | 2.375 | 3.25 | 2.00 | 3.25 | 0.94 |
| 50 | 60.3 | 83 | 51 | 83 | 24 |
| 2½ | 2.875 | 3.75 | 2.10 | 3.75 | 1.75 |
| 65 | 73.0 | 95 | 54 | 95 | 45 |
| 76.1 mm | 3.000 | 3.75 | 2.25 | 3.75 | 1.75 |
| | 76.1 | 95 | 57 | 95 | 45 |
| 3 | 3.500 | 4.25 | 2.50 | 4.25 | 2.00 |
| 80 | 88.9 | 108 | 64 | 108 | 51 |
| 4 | 4.500 | 5.00 | 3.00 | 5.00 | 2.00 |
| 100 | 114.3 | 127 | 76 | 127 | 51 |
| 139.7 mm | 5.500 | 5.50 | 3.25 | 5.50 | 2.38 |
| | 139.7 | 140 | 83 | 140 | 60 |
| 5 | 5.563 | 5.50 | 3.25 | 5.50 | 2.38 |
| 125 | 141.3 | 140 | 83 | 140 | 60 |
| 165.1 mm | 6.500 | 6.50 | 3.50 | 6.50 | 3.00 |
| | 165.1 | 165 | 89 | 165 | 76 |
| 6 | 6.625 | 6.50 | 3.50 | 6.50 | 3.00 |
| 150 | 168.3 | 165 | 89 | 165 | 76 |
| 8 | 8.625 | 7.75 | 4.25 | 7.75 | 3.50 |
| 200 | 219.1 | 197 | 108 | 197 | 90 |
| 10 | 10.750 | 9.17 | 6.25 | 9.00 | 5.00 |
| 250 | 273.0 | 233 | 159 | 229 | 127 |
| 12 | 12.750 | 10.00 | 5.25 | 10.00 | 6.00 |
| 300 | 323.9 | 254 | 133 | 254 | 154 |
| 200 JIS | 8.516 | 7.75 | 4.25 | 7.75 | 3.50 |
| | 216.3 | 197 | 108 | 197 | 90 |
| 250 JIS | 10.528 | 9.37 | 6.25 | 9.00 | 5.00 |
| | 267.4 | 238 | 159 | 229 | 127 |
| 300 JIS | 12.539 | 12.20 | 5.25 | 10.00 | 6.00 |
| | 318.5 | 310 | 133 | 254 | 154 |

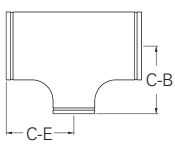
Model WS-10 Wrought 90° Elbow
WS-10L Long Radius Wrought 90° Elbow
WS-11 Wrought 45° Elbow
WS-20 Wrought Tee
WS-60 Wrought Cap




#WS-10 #WS-10L #WS-11 #WS-20 #WS-60

| Nominal Size in / mm | Pipe O.D. in / mm | #WS-10 C-E in / mm | #WS-10L C-E in / mm | #WS-11 C-E in / mm | #WS-20 C-E in / mm | #WS-60 E-E in / mm |
|---|---|---|---|---|---|---|
| 14 | 14.000 | 14.00 | 21.00 | 8.75 | 11.00 | 6.50 |
| 350 | 355.6 | 355.6 | 533.4 | 222.3 | 279.4 | 165.0 |
| 16 | 16.000 | 16.00 | 24.00 | 10.00 | 12.00 | 7.00 |
| 400 | 406.4 | 406.4 | 609.6 | 254.0 | 304.8 | 178.0 |
| 18 | 18.000 | 18.00 | 27.00 | 11.25 | 13.50 | 8.00 |
| 450 | 457.2 | 457.2 | 685.8 | 285.5 | 342.9 | 203.0 |
| 20 | 20.000 | 20.00 | 30.00 | 12.50 | 15.00 | 9.00 |
| 500 | 508.0 | 508.0 | 762.0 | 317.5 | 381.0 | 229.0 |
| 24 | 24.000 | 24.00 | 36.00 | 15.00 | 17.00 | 10.50 |
| 600 | 609.6 | 609.6 | 914.4 | 381.0 | 431.8 | 267.0 |

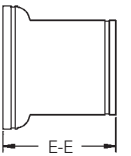
Model WS-21 Wrought Reducing Tee




#WS-21

| Nominal Size in / mm | Pipe O.D. in / mm | #WS-21 | |
|---|---|---|---|
| | | C-E in / mm | C-B in / mm |
| 14 x 6 | 14.000 x 6.625 | 11.0 | 9.37 |
| 350 x 150 | 355.6 x 168.3 | 279.0 | 238.0 |
| 14 x 8 | 14.000 x 8.625 | 11.0 | 9.76 |
| 350 x 200 | 355.6 x 219.1 | 279.0 | 248.0 |
| 14 x 10 | 14.000 x 10.750 | 11.0 | 10.12 |
| 350 x 250 | 355.6 x 273.0 | 279.0 | 257.0 |
| 14 x 12 | 14.000 x 12.750 | 11.0 | 10.63 |
| 350 x 300 | 355.6 x 323.9 | 279.0 | 270.0 |
| 16 x 6 | 16.000 x 6.625 | 12.0 | 10.40 |
| 400 x 150 | 406.4 x 168.3 | 305.0 | 264.0 |
| 16 x 8 | 16.000 x 8.625 | 12.0 | 10.75 |
| 400 x 200 | 406.4 x 219.1 | 305.0 | 273.0 |
| 16 x 10 | 16.000 x 10.750 | 12.0 | 11.10 |
| 400 x 250 | 406.4 x 273.0 | 305.0 | 282.0 |
| 16 x 12 | 16.000 x 12.750 | 12.0 | 11.61 |
| 400 x 300 | 406.4 x 323.9 | 305.0 | 295.0 |
| 16 x 14 | 16.000 x 14.000 | 12.0 | 12.00 |
| 400 x 350 | 406.4 x 355.6 | 305.0 | 305.0 |

## Model WS-50 Wrought Concentric Reducer

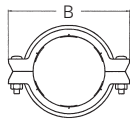



#WS-50

| Nominal Size in / mm | Pipe O.D. in / mm | #WS-50 E-E in / mm |
|---|---|---|
| 14 x 6 | 14.000 x 6.625 | 11.0 |
| 350 x 150 | 355.6 x 168.3 | 279.0 |
| 14 x 8 | 14.000 x 8.625 | 11.0 |
| 350 x 200 | 355.6 x 219.1 | 279.0 |
| 14 x 10 | 14.000 x 10.750 | 11.0 |
| 350 x 250 | 355.6 x 273.0 | 279.0 |
| 14 x 12 | 14.000 x 12.750 | 11.0 |
| 350 x 300 | 355.6 x 323.9 | 279.0 |
| 16 x 16 | 16.000 x 6.625 | 12.0 |
| 400 x 150 | 406.4 x 168.3 | 305.0 |
| 16 x 10 | 16.000 x 8.625 | 12.0 |
| 400 x 250 | 406.4 x 219.1 | 305.0 |
| 16 x 10 | 16.000 x 10.750 | 12.0 |
| 400 x 250 | 406.4 x 273.0 | 305.0 |
| 16 x 12 | 16.000 x 12.750 | 12.0 |
| 400 x 300 | 406.4 x 323.9 | 305.0 |
| 16 x 14 | 16.000 x 14.000 | 12.0 |
| 400 x 350 | 406.4 x 355.6 | 305.0 |

## Plain-end Coupling

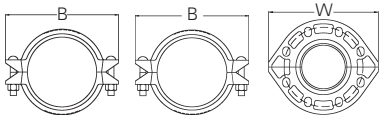
Model 79 “Wildcat“ Coupling




#79

| Nominal Size in / mm | Pipe O.D. in / mm | #79 B in / mm | Nominal Size in / mm | Pipe O.D. in / mm | #79 B in / mm |
|---|---|---|---|---|---|
| 1 | 1.315 | 4.37 | 6 | 6.625 | 11.50 |
| 25 | 33.4 | 111 | 150 | 168.3 | 292 |
| 1½ | 1.900 | 5.08 | 8 | 8.625 | 14.21 |
| 40 | 48.3 | 129 | 200 | 219.1 | 361 |
| 2 | 2.375 | 6.75 | 10 | 10.750 | 16.00 |
| 50 | 60.3 | 171 | 250 | 273.0 | 406 |
| 2½ | 2.875 | 7.13 | 12 | 12.750 | 18.00 |
| 65 | 73.0 | 181 | 300 | 323.9 | 457 |
| 3 | 3.500 | 8.50 | 14 | 14.000 | 20.00 |
| 80 | 88.9 | 216 | 350 | 355.6 | 508 |
| 4 | 4.500 | 8.78 | 16 | 16.000 | 22.00 |
| 100 | 114.3 | 223 | 400 | 406.4 | 559 |
| 5 | 5.563 | 10.31 | | | |
| 125 | 141.3 | 262 | | | |

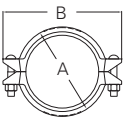
Model H305 HDPE Coupling
H307 HDPE Transition Coupling
H312 HDPE Flange Adapter




#H305 #H307 #H312

| Nominal Size in / mm | Pipe O.D. in / mm | #H305 B in / mm | #H307 B in / mm | #H312 W in / mm |
|---|---|---|---|---|
| 2 | 2.375 | 5.24 | 5.99 | --- |
| 50 | 60.3 | 133 | 152 | --- |
| 3 | 3.500 | 6.50 | 7.13 | 8.86 |
| 80 | 88.9 | 165 | 181 | 225 |
| 4 | 4.500 | 7.99 | 8.50 | 10.25 |
| 100 | 114.3 | 203 | 216 | 260 |
| 6 | 6.625 | 10.75 | 11.26 | 12.25 |
| 150 | 168.3 | 273 | 286 | 311 |
| 8 | 8.625 | 13.11 | 13.63 | 14.75 |
| 200 | 219.1 | 333 | 346 | 375 |
| 10 | 10.750 | 15.63 | 17.00 | 21.00 |
| 250 | 273.0 | 397 | 432 | 533 |
| 12 | 12.750 | 17.64 | 19.49 | 24.00 |
| 300 | 323.9 | 448 | 495 | 610 |
| 14 | 14.000 | 19.37 | --- | --- |
| 350 | 355.6 | 492 | --- | --- |
| 16 | 16.000 | 21.38 | --- | --- |
| 400 | 406.4 | 543 | --- | --- |
| 18 | 18.000 | 23.43 | --- | --- |
| 450 | 457.2 | 595 | --- | --- |
| 20 | 20.000 | 25.63 | --- | --- |
| 500 | 508.0 | 651 | --- | --- |

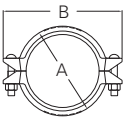
## Model H305 ISO HDPE Coupling




#H305

| Pipe O.D. | | |
|---|---|---|
| #H305 ISO Minimum | Maximum | B |
| mm | mm | mm |
| 50 | 50.5 | 115 |
| 63 | 63.6 | 128 |
| 75 | 75.7 | 140 |
| 90 | 90.9 | 169 |
| 110 | 111.0 | 181 |
| 160 | 161.5 | 232 |
| 180 | 181.7 | 253 |
| 200 | 201.8 | 305 |
| 225 | 226.4 | 330 |
| 250 | 252.3 | 351 |
| 280 | 281.7 | 406 |
| 315 | 317.9 | 438 |
| 355 | 357.2 | 489 |
| 400 | 402.4 | 540 |

## Model H307 ISO HDPE Transition Coupling




#H307

| Pipe O.D. | | |
|---|---|---|
| #H307 ISO HDPE | Steel | B |
| mm | mm | mm |
| 63.0 | 60.3 | 146 |
| 75.0 | 73.0 | 146 |
| 90.0 | 88.9 | 178 |
| 110.0 | 114.3 | 203 |
| 160.0 | 165.1 | 254 |
| 160.0 | 168.3 | 257 |
| 200.0 | 219.1 | 321 |
| 250.0 | 273.0 | 432 |

## Model H312 ISO HDPE Flange Adapter

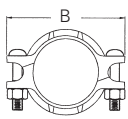



#H312

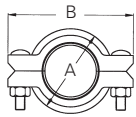
| Pipe O.D. | | |
|---|---|---|
| #H312 ISO HDPE | Steel | B |
| mm | mm | mm |
| 63 | 60.3 | 196.9 |
| 90 | 88.9 | 228 |
| 110 | 114.3 | 251 |
| 160 | 165.1 | 317 |
| 200 | 219.1 | 372 |
| 250 | 273.0 | 532 |

## Copper Series

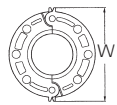
Model C305 Rigid Coupling
C307 Transition Coupling
C341 Flange Adapter



#C305



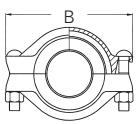
#C307



#C341

| Nominal Size in / mm | Pipe O.D. in / mm | #C305 B in / mm | #C307 B in / mm | #C341 W in / mm |
|---|---|---|---|---|
| 2 | 2.125 | 4.63 | 5.08 | 6.81 |
| 50 | 54.0 | 118 | 129 | 173 |
| 2½ | 2.625 | 5.28 | 5.59 | 7.81 |
| 65 | 66.7 | 134 | 142 | 198 |
| 3 | 3.125 | 6.06 | 6.65 | 8.31 |
| 80 | 79.4 | 154 | 169 | 211 |
| 4 | 4.125 | 7.28 | 7.76 | 9.81 |
| 100 | 104.8 | 185 | 197 | 249 |
| 5 | 5.125 | 8.66 | --- | 10.81 |
| 125 | 130.2 | 220 | --- | 275 |
| 6 | 6.125 | 9.76 | --- | 11.81 |
| 150 | 155.6 | 248 | --- | 300 |

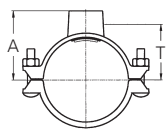
Model C306 Reducing Coupling



#C306

| Nominal Size in / mm | Pipe O.D. in / mm | #C306 B in / mm |
|---|---|---|
| 2½ x 2 | 2.625 x 2.215 | 5.55 |
| 65 x 50 | 66.7 x 54.0 | 141 |
| 3 x 2 | 3.125 x 2.125 | 5.98 |
| 80 x 50 | 79.4 x 54.0 | 152 |
| 3 x 2½ | 3.125 x 2.625 | 5.98 |
| 80 x 65 | 79.4 x 66.7 | 152 |
| 4 x 2½ | 4.125 x 2.625 | 7.20 |
| 100 x 65 | 104.8 x 66.7 | 183 |
| 4 x 3 | 4.125 x 3.125 | 7.20 |
| 100 x 80 | 104.8 x 79.4 | 183 |
| 5 x 4 | 5.125 x 4.125 | 8.82 |
| 125 x 100 | 130.2 x 104.8 | 224 |
| 6 x 4 | 6.125 x 4.125 | 9.88 |
| 150 x 100 | 155.6 x 104.8 | 251 |

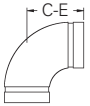
Model C723 Bronze Mechanical Tee



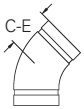
#C723

| Nominal CTS x NPT in / mm | # C723 A in / mm | # C723 T in / mm |
|---|---|---|
| 2½ x ½ | 2.60 | 2.09 |
| 65 x 15 | 66 | 53 |
| 2½ x ¾ | 2.60 | 2.05 |
| 65 x 20 | 66 | 52 |
| 2½x 1 | 2.60 | 1.93 |
| 65 x 25 | 66 | 49 |
| 2½ x 1¼ | 2.87 | 2.15 |
| 65 x 32 | 73 | 55 |
| 3 x ¾ | 2.87 | 2.28 |
| 80 x 20 | 73 | 58 |
| 3 x 1 | 2.87 | 2.20 |
| 80 x 25 | 73 | 56 |
| 3 x 1¼ | 3.31 | 2.59 |
| 80 x 32 | 84 | 66 |
| 4 x ¾ | 3.39 | 2.80 |
| 100 x 20 | 86 | 71 |
| 4 x 1 | 3.39 | 3.11 |
| 100 x 25 | 86 | 79 |
| 4 x 1¼ | 3.81 | 3.11 |
| 100 x 32 | 97 | 79 |

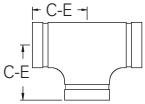
Model C10 90° Elbow
C11 45° Elbow
C20 Tee
C60 Cap



#C10



#C11



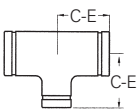
#C20



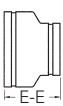
#C60

| Nominal Size in / mm | Pipe O.D. in / mm | #C10 C-E in / mm | #C11 C-E in / mm | #C20 C-E in / mm | #C60 E-E in / mm |
|---|---|---|---|---|---|
| 2 | 2.125 | 2.91 | 2.19 | 2.44 | 0.96 |
| 50 | 54.0 | 74 | 56 | 62 | 24 |
| 2½ | 2.625 | 3.31 | 2.31 | 3.20 | 0.96 |
| 65 | 66.7 | 84 | 59 | 81 | 24 |
| 3 | 3.125 | 3.81 | 2.59 | 3.50 | 0.96 |
| 80 | 79.4 | 97 | 66 | 89 | 24 |
| 4 | 4.125 | 4.75 | 3.35 | 4.25 | 0.96 |
| 100 | 104.8 | 121 | 85 | 108 | 24 |
| 5 | 5.125 | 5.94 | 3.25 | 5.94 | 0.96 |
| 125 | 130.2 | 151 | 83 | 151 | 24 |
| 6 | 6.125 | 6.94 | 3.63 | 6.94 | 0.96 |
| 150 | 155.6 | 176 | 92 | 176 | 24 |

Model C21 Reducing Tee
C50 Concentric Reducer



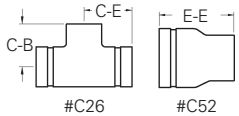
#C21



#C50

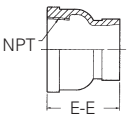
| Nominal Size in / mm | Pipe O.D. in / mm | #C21 C-E in / mm | #C50 E-E in / mm |
|---|---|---|---|
| 2½ x 2 | 2.625 x 2.125 | 3.20 | 2.50 |
| 65 x 50 | 66.7 x 54.0 | 81 | 64 |
| 3 x 2 | 3.125 x 2.125 | 3.50 | 2.50 |
| 80 x 50 | 79.4 x 54.0 | 89 | 64 |
| 3 x 2½ | 3.125 x 2.625 | 3.50 | 2.50 |
| 80 x 65 | 79.4 x 66.7 | 89 | 64 |
| 4 x 2 | 4.125 x 2.125 | 4.25 | 3.00 |
| 100 x 50 | 104.8 x 54.0 | 108 | 76 |
| 4 x 2½ | 4.125 x 2.625 | 4.25 | 3.00 |
| 100 x 65 | 104.8 x 66.7 | 108 | 76 |
| 4 x 3 | 4.125 x 3.125 | 4.25 | 3.00 |
| 100 x 80 | 104.8 x 79.4 | 108 | 76 |
| 5 x 3 | 5.125 x 3.125 | 5.94 | 3.50 |
| 125 x 80 | 130.2 x 79.4 | 151 | 89 |
| 5 x 4 | 5.125 x 4.125 | 5.94 | 3.50 |
| 125 x 100 | 130.2 x 104.8 | 151 | 89 |
| 6 x 2½ | 6.125 x 2.625 | 3.65 / 5.14 | 4.00 |
| 150 x 65 | 155.6 x 66.7 | 93 / 131 | 102 |
| 6 x 3 | 6.125 x 3.125 | 3.71 / 5.20 | 4.00 |
| 150 x 80 | 155.6 x 79.4 | 94 / 132 | 102 |
| 6 x 4 | 6.125 x 4.125 | 4.19 / 5.13 | 4.00 |
| 150 x 100 | 155.6 x 104.8 | 106 / 130 | 102 |
| 6 x 5 | 6.125 x 5.125 | 6.94 | 4.00 |
| 150 x 125 | 155.6 x 130.2 | 176 | 102 |

## Model C26 Reducing Tee
## C52 Concentric Reducer




| Nominal Size in / mm | # C26 | | #C52 |
|---|---|---|---|
| | C-E in / mm | C-B in / mm | E-E in / mm |
| 2 x 2 x ¾ | 2.20 | 2.00 | — |
| 50 x 50 x 20 | 56 | 51 | — |
| 2 x 2 x 1 | 2.33 | 2.16 | 2.70 |
| 50 x 50 x 25 | 59 | 55 | 69 |
| 2 x 2 x 1¼ | 2.48 | 2.36 | 3.00 |
| 50 x 50 x 32 | 63 | 60 | 76 |
| 2 x 2 x 1½ | 2.60 | 2.34 | 2.94 |
| 50 x 50 x 40 | 66 | 59 | 75 |
| 2½ x 2½ x ¾ | 2.28 | 2.25 | — |
| 65 x 65 x 20 | 58 | 57 | — |
| 2½ x 2½ x 1 | 2.40 | 2.41 | 3.19 |
| 65 x 65 x 25 | 61 | 61 | 81 |
| 2½ x 2½ x 1¼ | 2.52 | 2.55 | 3.19 |
| 65 x 65 x 32 | 64 | 65 | 81 |
| 2½ x 2½ x 1½ | 2.70 | 2.67 | 3.19 |
| 65 x 65 x 40 | 69 | 68 | 81 |
| 2½ x 2½ x 2 | 2.95 | 2.84 | 3.19 |
| 65 x 65 x 50 | 75 | 72 | 81 |
| 3 x 3 x ¾ | 2.44 | 2.50 | — |
| 80 x 80 x 20 | 62 | 64 | — |
| 3 x 3 x 1 | 2.54 | 2.80 | — |
| 80 x 80 x 25 | 65 | 71 | — |
| 3 x 3 x 1¼ | 2.63 | 2.87 | — |
| 80 x 80 x 32 | 67 | 73 | — |
| 3 x 3 x 1½ | 2.85 | 2.99 | 3.68 |
| 80 x 80 x 40 | 72 | 76 | 93 |
| 3 x 3 x 2 | 3.11 | 3.09 | 3.94 |
| 80 x 80 x 50 | 79 | 78 | 100 |
| 4 x 4 x ¾ | 3.00 | 3.00 | — |
| 100 x 100 x 20 | 76 | 76 | — |
| 4 x 4 x 1 | 3.10 | 3.16 | — |
| 100 x 100 x 25 | 79 | 80 | — |
| 4 x 4 x 1¼ | 3.25 | 3.46 | — |
| 100 x 100 x 32 | 83 | 88 | — |
| 4 x 4 x 1½ | 3.35 | 3.66 | — |
| 100 x 100 x 40 | 85 | 93 | — |
| 4 x 4 x 2 | 3.62 | 3.59 | 4.56 |
| 100 x 100 x 50 | 92 | 91 | 116 |

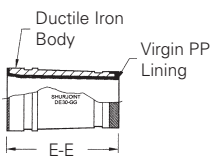
## Model C55 Transition Adapter (FT x GR)




#C55

| Nominal Size IPS (NPT) x CTS (GRV) in / mm | #C55 E-E in / mm |
|---|---|
| 1½ x 2 | 2.50 |
| 40 x 50 | 63 |
| 2 x 2 | 2.50 |
| 50 x 50 | 63 |
| 2½ x 2½ | 2.75 |
| 65 x 65 | 70 |
| 3 x 3 | 3.00 |
| 80 x 80 | 76 |

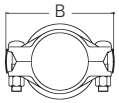
## Model DE30-GG Dielectric Transition Fitting (IPS x CTS)



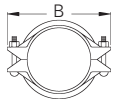

| Nominal Size in / mm | #DE30-GG E-E in / mm |
|---|---|
| 2 | 4.00 |
| 50 | 102 |
| 2½ | 4.00 |
| 65 | 102 |
| 3 | 4.00 |
| 80 | 102 |
| 4 | 4.00 |
| 100 | 102 |
| 5 | 4.00 |
| 125 | 102 |
| 6 | 4.00 |
| 150 | 102 |
| 8 | 4.00 |
| 200 | 102 |

## AWWA Ductile Iron Series

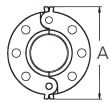
Model A505 Coupling
A507 Transition Coupling
A512 Flange Adapter




#A505




#A507




#A512

| Nominal Size in / mm | Pipe O.D. in / mm | #A505 B in / mm | #A507 B in / mm | #A512 A in / mm |
|---|---|---|---|---|
| 3 | 3.96 | 7.64 | 7.38 | 7.50 |
| 80 | 100.6 | 194 | 187 | 190 |
| 4 | 4.80 | 8.70 | 9.00 | 9.00 |
| 100 | 121.9 | 221 | 229 | 229 |
| 6 | 6.90 | 10.43 | 11.13 | 11.00 |
| 150 | 175.3 | 265 | 283 | 279 |
| 8 | 9.05 | 13.94 | 13.88 | 13.50 |
| 200 | 229.9 | 354 | 353 | 343 |
| 10 | 11.10 | 16.00 | 16.50 | 16.00 |
| 250 | 281.9 | 406 | 419 | 406 |
| 12 | 13.20 | 18.90 | 18.94 | 19.00 |
| 300 | 335.3 | 480 | 481 | 483 |

Model A10 90° Elbow
A11 45° Elbow
A12 22½° Elbow

Model A13 11¼° Elbow
A20 Tee
A60 Cap



#A10



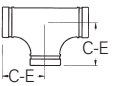
#A11



#A12



#A13



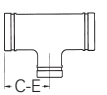
#A20



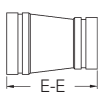
#A60

| Nominal Size in / mm | Pipe O.D. in / mm | #A10 C-E in / mm | #A11 C-E in / mm | #A12 C-E in / mm | #A13 C-E in / mm | #A20 C-E in / mm | #A60 E-E in / mm |
|---|---|---|---|---|---|---|---|
| 3 | 3.96 | 5.50 | 3.00 | 3.00 | 3.00 | 5.50 | 1.6 |
| 80 | 100.6 | 140 | 76 | 76 | 76 | 140 | 2.9 |
| 4 | 4.80 | 6.50 | 4.00 | 4.00 | 4.00 | 6.50 | 1.16 |
| 100 | 121.9 | 165 | 102 | 102 | 102 | 165 | 29 |
| 6 | 6.90 | 8.00 | 5.00 | 5.00 | 5.00 | 8.00 | 1.16 |
| 150 | 175.3 | 203 | 127 | 127 | 127 | 203 | 29 |
| 8 | 9.05 | 9.00 | 5.50 | 5.50 | 5.50 | 9.00 | 1.34 |
| 200 | 229.9 | 229 | 140 | 140 | 140 | 229 | 34 |
| 10 | 11.10 | 11.00 | 6.50 | 6.50 | 6.50 | 11.00 | 1.53 |
| 250 | 281.9 | 279 | 165 | 165 | 165 | 279 | 39 |
| 12 | 13.20 | 12.00 | 7.50 | 7.50 | 7.50 | 12.00 | 1.53 |
| 300 | 335.3 | 305 | 191 | 191 | 191 | 305 | 39 |

Model A25 Reducing Tee
A50 Concentric Reducer
A10R 90° Reducing Elbow



#A25



#A50



#A10R

| AWWA D. I. Pipe | | | | |
|---|---|---|---|---|
| Nominal Size in / mm | Pipe O.D. in / mm | #A25 C-E in / mm | #A50 E-E in / mm | #A10R C-E in / mm |
| 4 x 3 | 4.80 x 3.96 | 6.50 | 7.00 | 6.50 |
| 100 x 80 | 121.9 x 100.6 | 165 | 178 | 165 |
| 6 x 4 | 6.90 x 4.80 | 8.00 | 9.00 | 8.00 |
| 150 x 100 | 175.3 x 121.9 | 203 | 229 | 203 |
| 8 x 4 | 9.05 x 4.80 | 9.00 | 11.00 | 9.00 |
| 200 x 100 | 229.9 x 121.9 | 229 | 279 | 229 |
| 8 x 6 | 9.05 x 6.90 | 9.00 | 11.00 | 9.00 |
| 200 x 150 | 229.9 x 175.3 | 229 | 279 | 229 |
| 10 x 4 | 11.10 x 4.80 | 11.00 | 12.00 | - |
| 250 x 100 | 281.9 x 121.9 | 279 | 305 | - |
| 10 x 6 | 11.10 x 6.90 | 11.00 | 12.00 | 11.00 |
| 250 x 150 | 281.9 x 175.3 | 279 | 305 | 279 |
| 10 x 8 | 11.10 x 9.05 | 11.00 | 12.00 | 11.00 |
| 250 x 200 | 281.9 x 229.9 | 279 | 305 | 279 |
| 12 x 4 | 13.20 x 4.80 | 12.00 | 14.00 | - |
| 300 x 100 | 335.3 x 121.9 | 305 | 356 | - |
| 12 x 6 | 13.20 x 6.90 | 12.00 | 14.00 | 12.00 |
| 300 x 150 | 335.3 x 175.3 | 305 | 356 | 305 |
| 12 x 8 | 13.20 x 9.05 | 12.00 | 14.00 | 12.00 |
| 300 x 200 | 335.3 x 229.9 | 305 | 356 | 305 |
| 12 x 10 | 13.20 x 11.10 | 12.00 | 14.00 | 12.00 |
| 300 x 250 | 335.3 x 281.9 | 305 | 356 | 305 |

# HELPFUL INFORMATION

**Metric/Imperial Conversion Chart**
**Decimal Equivalents of Fractions (inches)**
**Minutes Converted to Decimals of a Degree**
**Water Pressure to Feet-of-Head**
**Feet-of-Head of Water to Pressure**
**Pipe Sizes & Wall Thickness**

## Metric/Imperial Conversion Chart

The below chart is provided as a guide for converting metric and imperial and measurements.

| Convert Imperial to Metricl | | |
|---|---|---|
| To Change | To | Multiple By |
| Inches (in) | MilliMetres (mm) | 25.4 |
| Feet (ft) | Meters (m) | 0.3048 |
| Pounds (lb) | Kilogrammes (kg) | 0.4536 |
| Ounces (oz) | Grammes (g) | 28.35 |
| Pressure (psi) | Kilopascals (kPa) | 6.894 |
| Pressure (psi) | Bar | 0.069 |
| End Load (lb) | Newtons (N) | 4.45 |
| Torque (lb/ft) | Newton Metres (N•m) | 1.356 |
| Temp. (°F) | Celsius (°C) | (F – 32) ÷ 1.8 |
| Horsepower (hp) | Watts (w) | 745.7 |
| Gal. per Min. (gpm) | Litres per Min. (L/M) | 3.785 |
| $10^3$ Gal. per Min. (gpm) | Cubic Metres per Min. (m3/m) | 3.7865 |

| Convert Metric to Imperial | | |
|---|---|---|
| To Change | To | Multiple By |
| MilliMetres (mm) | Inches (in) | 0.03937 |
| Meters (m) | Feet (ft) | 3.281 |
| Kilogrammes (kg) | Pounds (lb) | 2.205 |
| Grammes (g) | Ounces (oz) | 0.03527 |
| Kilopascals (kPa) | Pressure (psi) | 0.145 |
| Bar | Pressure (psi) | 14.5 |
| Newtons (N) | End Load (lb) | 0.2248 |
| Newton Metres (N•m) | Torque (lb/ft) | 0.738 |
| Celsius (°C) | Temp. (°F) | (C+17.78) ×1.8 |
| Watts (w) | Horsepower (hp) | $1.341 \times 10^{-3}$ |
| Litres per Min. (L/M) | Gal. per Min. (gpm) | 0.2642 |
| Cubic Metres per Min. ($m^3$/m) | $10^3$ Gal. per Min. (gpm) | 264.2 |

## Decimal Equivalents of Fractions (inches)

| Fraction in inches | Decimal Equivalent inches | Decimal Equivalent millimeters |
|---|---|---|
| 1/64 | 0.016 | 0,397 |
| 1/32 | 0.031 | 0,794 |
| 3/64 | 0.047 | 1,191 |
| 1/16 | 0.063 | 1,588 |
| 5/64 | 0.781 | 1,984 |
| 3/32 | 0.094 | 2,381 |
| 7/64 | 0.109 | 2,778 |
| 1/8 | 0.125 | 3,175 |
| 9/64 | 0.141 | 3,572 |
| 5/32 | 0.156 | 3,969 |
| 11/64 | 0.172 | 4,366 |
| 3/16 | 0.188 | 4,763 |
| 13/64 | 0.203 | 5,159 |
| 7/32 | 0.219 | 5,556 |
| 15/64 | 0.234 | 5,953 |
| 1/4 | 0.250 | 6,350 |
| 17/64 | 0.266 | 6,747 |
| 9/32 | 0.281 | 7,144 |
| 19/64 | 0.297 | 7,541 |
| 5/16 | 0.313 | 7,938 |
| 21/64 | 0.328 | 8,334 |
| 1/3 | 0.333 | 8,467 |
| 11/32 | 0.344 | 8,731 |
| 23/64 | 0.359 | 9,128 |
| 3/8 | 0.375 | 9,525 |
| 25/64 | 0.391 | 9,922 |
| 13/32 | 0.406 | 10,319 |
| 27/64 | 0.422 | 10,716 |
| 7/16 | 0.438 | 11,113 |
| 29/64 | 0.453 | 11,509 |
| 15/32 | 0.469 | 11,906 |
| 1/2 | 0.500 | 12,700 |

| Fraction in inches | Decimal Equivalent inches | Decimal Equivalent millimeters |
|---|---|---|
| 33/64 | 0.516 | 13,097 |
| 17/32 | 0.531 | 13,494 |
| 35/64 | 0.547 | 13,891 |
| 9/16 | 0.563 | 14,288 |
| 37/64 | 0.578 | 14,684 |
| 19/32 | 0.594 | 15,081 |
| 39/64 | 0.609 | 15,478 |
| 5/8 | 0.625 | 15,875 |
| 41/64 | 0.641 | 16,272 |
| 21/32 | 0.656 | 16,669 |
| 43/64 | 0.672 | 17,066 |
| 11/16 | 0.688 | 17,463 |
| 45/64 | 0.703 | 17,859 |
| 23/32 | 0.719 | 18,256 |
| 47/64 | 0.734 | 18,653 |
| 3/4 | 0.750 | 19,050 |
| 49/64 | 0.766 | 19,447 |
| 25/32 | 0.781 | 19,844 |
| 51/64 | 0.797 | 20,241 |
| 13/16 | 0.813 | 20,638 |
| 53/64 | 0.828 | 21,034 |
| 27/32 | 0.844 | 21,431 |
| 55/64 | 0.859 | 21,828 |
| 7/8 | 0.875 | 22,225 |
| 57/64 | 0.891 | 22,622 |
| 29/32 | 0.906 | 23,019 |
| 59/64 | 0.922 | 23,416 |
| 15/16 | 0.938 | 23,813 |
| 61/64 | 0.953 | 24,209 |
| 31/32 | 0.969 | 24,606 |
| 63/64 | 0.984 | 25,003 |
| 1 | 1.000 | 25,400 |

## Minutes Converted to Decimals of a Degree

| Min. | Deg. |
|---|---|
| 1 | 0.0166 |
| 2 | 0.0333 |
| 3 | 0.0500 |
| 4 | 0.0666 |
| 5 | 0.0833 |
| 6 | 0.1000 |
| 7 | 0.1166 |
| 8 | 0.1333 |
| 9 | 0.1500 |
| 10 | 0.1666 |
| 11 | 0.1833 |
| 12 | 0.2000 |
| 13 | 0.2166 |
| 14 | 0.2333 |
| 15 | 0.2500 |
| 16 | 0.2666 |
| 17 | 0.2833 |
| 18 | 0.3000 |
| 19 | 0.3166 |
| 20 | 0.3333 |
| 21 | 0.3500 |
| 22 | 0.3666 |
| 23 | 0.3833 |
| 24 | 0.4000 |
| 25 | 0.4166 |
| 26 | 0.4333 |
| 27 | 0.4500 |
| 28 | 0.4666 |
| 29 | 0.4833 |
| 30 | 0.5000 |

| Min. | Deg. |
|---|---|
| 31 | 0.5166 |
| 32 | 0.5333 |
| 33 | 0.5500 |
| 34 | 0.5666 |
| 35 | 0.5833 |
| 36 | 0.6000 |
| 37 | 0.6166 |
| 38 | 0.6333 |
| 39 | 0.6500 |
| 40 | 0.6666 |
| 41 | 0.6833 |
| 42 | 0.7000 |
| 43 | 0.7166 |
| 44 | 0.7333 |
| 45 | 0.7500 |
| 46 | 0.7666 |
| 47 | 0.7833 |
| 48 | 0.8000 |
| 49 | 0.8166 |
| 50 | 0.8333 |
| 51 | 0.8500 |
| 52 | 0.8666 |
| 53 | 0.8833 |
| 54 | 0.9000 |
| 55 | 0.9166 |
| 56 | 0.9333 |
| 57 | 0.9500 |
| 58 | 0.9666 |
| 59 | 0.9833 |
| 60 | 1.0000 |

## Water Pressure to Feet-of-Head

| Pounds Per Square Inch | Feet of Head |
|---|---|
| 1 | 2.31 |
| 2 | 4.62 |
| 3 | 6.93 |
| 4 | 9.24 |
| 5 | 11.54 |
| 6 | 13.85 |
| 7 | 16.16 |
| 8 | 18.47 |
| 9 | 20.78 |
| 10 | 23.09 |
| 15 | 34.63 |
| 20 | 46.18 |
| 25 | 57.72 |
| 30 | 69.27 |
| 40 | 92.36 |
| 50 | 115.45 |
| 60 | 138.54 |
| 70 | 161.63 |
| 80 | 184.72 |
| 90 | 207.81 |
| 100 | 230.90 |
| 110 | 253.93 |
| 120 | 277.07 |
| 130 | 300.16 |
| 140 | 323.25 |
| 150 | 346.34 |
| 160 | 369.43 |
| 170 | 392.52 |
| 180 | 415.61 |
| 200 | 461.78 |
| 250 | 577.24 |
| 300 | 692.69 |
| 350 | 808.13 |
| 400 | 922.58 |
| 500 | 1154.48 |
| 600 | 1385.39 |
| 700 | 1616.30 |
| 800 | 1847.20 |
| 900 | 2078.10 |
| 1000 | 2309.00 |

## Feet-of-Head of Water to Pressure

| Feet of Head | Pounds Per Square Inch |
|---|---|
| 1 | 0.43 |
| 2 | 0.87 |
| 3 | 1.30 |
| 4 | 1.73 |
| 5 | 2.17 |
| 6 | 2.60 |
| 7 | 3.03 |
| 8 | 3.46 |
| 9 | 3.90 |
| 10 | 4.33 |
| 15 | 6.50 |
| 20 | 8.66 |
| 25 | 10.83 |
| 30 | 12.99 |
| 40 | 17.32 |
| 50 | 21.65 |
| 60 | 25.99 |
| 70 | 30.32 |
| 80 | 34.65 |
| 90 | 38.98 |
| 100 | 43.31 |
| 110 | 47.64 |
| 120 | 51.97 |
| 130 | 56.30 |
| 140 | 60.63 |
| 150 | 64.96 |
| 160 | 69.29 |
| 170 | 73.63 |
| 180 | 77.96 |
| 200 | 86.62 |
| 250 | 108.27 |
| 300 | 129.93 |
| 350 | 151.58 |
| 400 | 173.24 |
| 500 | 216.55 |
| 600 | 259.85 |
| 700 | 303.16 |
| 800 | 346.47 |
| 900 | 389.78 |
| 1000 | 433.00 |

## Pipe Sizes & Wall Thickness

### ANSI Commercial Pipe Sizes Chart

Based on ASME/ANSI B36.10, standard for Welded and Seamless Wrought Steel Pipe and ASME/ANSI B36.19.

| Pipe Size Nominal Diameter in / mm | Actual Outside Diameter in / mm | Nominal Wall – inches/millimeters | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sch. 5S in / mm | Sch. 10S in / mm | Sch. 10 in / mm | Sch. 20 in / mm | Sch. 30 in / mm | Std. in / mm |
| ⅛ | 0.405 | - | 0.049 | 0.049 | - | 0.057 | 0.068 |
| 6 | 10,3 | - | 1,2 | 1,2 | - | 1,5 | 1,7 |
| ¼ | 0.540 | - | 0.065 | 0.065 | - | 0.073 | 0.088 |
| 8 | 13,7 | - | 1,7 | 1,7 | - | 1,9 | 2,2 |
| 3/8 | 0.675 | - | 0.065 | 0.065 | - | 0.073 | 0.091 |
| 10 | 17,1 | - | 1,7 | 1,7 | - | 1,9 | 2,3 |
| ½ | 0.840 | 0.065 | 0.083 | 0.083 | - | 0.095 | 0.109 |
| 15 | 21,3 | 1,7 | 2,1 | 2,1 | - | 2,4 | 2,8 |
| ¾ | 1.050 | 0.065 | 0.083 | 0.083 | - | 0.095 | 0.113 |
| 20 | 26,9 | 1,7 | 2,1 | 2,1 | - | 2,4 | 2,9 |
| 1 | 1.315 | 0.065 | 0.109 | 0.109 | - | 0.114 | 0.133 |
| 25 | 33,7 | 1,7 | 2,8 | 2,8 | - | 2,9 | 3,4 |
| 1¼ | 1.660 | 0.065 | 0.109 | 0.109 | - | 0.117 | 0.140 |
| 32 | 42,4 | 1,7 | 2,8 | 2,8 | - | 3,0 | 3,6 |
| 1½ | 1.900 | 0.065 | 0.109 | 0.109 | - | 0.125 | 0.145 |
| 40 | 48,3 | 1,7 | 2,8 | 2,8 | - | 3,2 | 3,7 |
| 2 | 2.375 | 0.065 | 0.109 | 0.109 | - | 0.125 | 0.154 |
| 50 | 60,3 | 1,7 | 2,8 | 2,8 | - | 3,2 | 3,9 |
| 2½ | 2.875 | 0.083 | 0.120 | 0.120 | - | 0.188 | 0.203 |
| 65 | 73,0 | 2,1 | 3,0 | 3,0 | - | 4,8 | 5,2 |
| 3 | 3.500 | 0.083 | 0.120 | 0.120 | - | 0.188 | 0.216 |
| 80 | 88,9 | 2,1 | 3,0 | 3,0 | - | 4,8 | 5,5 |
| 3½ | 4.000 | 0.083 | 0.120 | 0.120 | - | 0.188 | 0.226 |
| 90 | 101,6 | 2,1 | 3,0 | 3,0 | - | 4,8 | 5,7 |
| 4 | 4.500 | 0.083 | 0.120 | 0.120 | - | 0.188 | 0.237 |
| 100 | 114,3 | 2,1 | 3,0 | 3,0 | - | 4,8 | 6,0 |
| 5 | 5.563 | 0.109 | 0.134 | 0.134 | - | - | 0.258 |
| 125 | 141,3 | 2,8 | 3,4 | 3,4 | - | - | 6,6 |
| 6 | 6.625 | 0.109 | 0.134 | 0.134 | - | - | 0.280 |
| 150 | 168,3 | 2,8 | 3,4 | 3,4 | - | - | 7,1 |
| 8 | 8.625 | 0.109 | 0.148 | 0.148 | 0.250 | 0.277 | 0.322 |
| 200 | 219,1 | 2,8 | 3,8 | 3,8 | 6,4 | 7,0 | 8,2 |
| 10 | 10.750 | 0.134 | 0.165 | 0.165 | 0.250 | 0.307 | 0.365 |
| 250 | 273,0 | 3,4 | 4,2 | 4.2 | 6,4 | 7,8 | 9,3 |
| 12 | 12.750 | 0.156 | 0.180 | 0.18 | 0.250 | 0.330 | 0.375 |
| 300 | 323,9 | 4,0 | 4,6 | 4,6 | 6,4 | 8,4 | 9,5 |

| Thickness – inches/millimeters | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sch. 40<br>in / mm | Sch. 60<br>in / mm | Extra Heavy<br>in / mm | Sch. 80<br>in / mm | Sch. 100<br>in / mm | Sch. 120<br>in / mm | Sch. 140<br>in / mm | Sch. 160<br>in / mm | XX Heavy<br>in / mm |
| 0.068 | - | 0.095 | 0.095 | - | - | - | - | - |
| 1,7 | - | 2,4 | 2,4 | - | - | - | - | - |
| 0.088 | - | 0.119 | 0.119 | - | - | - | - | - |
| 2,2 | - | 3,0 | 3,0 | - | - | - | - | - |
| 0.091 | - | 0.126 | 0.126 | - | - | - | - | - |
| 2,3 | - | 3,2 | 3,2 | - | - | - | - | - |
| 0.109 | - | 0.147 | 0.147 | - | - | - | 0.188 | 0.294 |
| 2,8 | - | 3,7 | 3,7 | - | - | - | 4,8 | 7,5 |
| 0.113 | - | 0.154 | 0.154 | - | - | - | 0.219 | 0.308 |
| 2,9 | - | 3,9 | 3,9 | - | - | - | 5,6 | 7,8 |
| 0.133 | - | 0.179 | 0.179 | - | - | - | 0.250 | 0.358 |
| 3,4 | - | 4,5 | 4,5 | - | - | - | 6,4 | 9,1 |
| 0.140 | - | 0.191 | 0.191 | - | - | - | 0.250 | 0.382 |
| 3,6 | - | 4,9 | 4,9 | - | - | - | 6,4 | 9,7 |
| 0.145 | - | 0.200 | 0.200 | - | - | - | 0.281 | 0.400 |
| 3,7 | - | 5,1 | 5,1 | - | - | - | 7,1 | 10,2 |
| 0.154 | - | 0.218 | 0.218 | - | - | - | 0.344 | 0.436 |
| 3,9 | - | 5,5 | 5,5 | - | - | - | 8,7 | 11,1 |
| 0.203 | - | 0.276 | 0.276 | - | - | - | 0.375 | 0.552 |
| 5,2 | - | 7,0 | 7,0 | - | - | - | 9,5 | 14,0 |
| 0.216 | - | 0.300 | 0.300 | - | - | - | 0.438 | 0.600 |
| 5,5 | - | 7,6 | 7,6 | - | - | - | 11,1 | 15,2 |
| 0.226 | - | 0.318 | 0.318 | - | - | - | - | - |
| 5,7 | - | 8,1 | 8,1 | - | - | - | - | - |
| 0.237 | - | 0.337 | 0.337 | - | 0.438 | - | 0.531 | 0.674 |
| 6,0 | - | 8,6 | 8,6 | - | 11,1 | - | 13,5 | 17,1 |
| 0.258 | - | 0.375 | 0.375 | - | 0.500 | - | 0.625 | 0.750 |
| 6,6 | - | 9,5 | 9,5 | - | 12,7 | - | 15,9 | 19,1 |
| 0.280 | - | 0.432 | 0.432 | - | 0.562 | - | 0.719 | 0.864 |
| 7,1 | - | 11,0 | 11,0 | - | 14,3 | - | 18,3 | 21,9 |
| 0.322 | 0.406 | 0.500 | 0.500 | 0.594 | 0.719 | 0.812 | 0.906 | 0.875 |
| 8,2 | 10,3 | 12,7 | 12,7 | 15,1 | 18,3 | 20,6 | 23,0 | 22,2 |
| 0.365 | 0.500 | 0.500 | 0.594 | 0.719 | 0.844 | 1.000 | 1.125 | 1.000 |
| 9,3 | 12,7 | 12,7 | 15,1 | 18,3 | 21,4 | 25,4 | 28,6 | 25,4 |
| 0.406 | 0.562 | 0.500 | 0.688 | 0.844 | 1.000 | 1.125 | 1.312 | 1.000 |
| 10,3 | 14,3 | 12,7 | 17,5 | 21,4 | 25,4 | 28,6 | 33,3 | 25,4 |

Continued on next page

## ANSI Commercial Pipe Sizes Chart

| Pipe Size Nominal Diameter in / mm | Actual Outside Diameter in / mm | Nominal Wall – inches/millimeters | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sch. 5S in / mm | Sch. 10S in / mm | Sch. 10 in / mm | Sch. 20 in / mm | Sch. 30 in / mm | Std. in / mm |
| 14 | 14.000 | 0.156 | 0.188 | 0.250 | 0.312 | 0.375 | 0.375 |
| | 355,6 | 4,0 | 4,8 | 6,4 | 7,9 | 9,5 | 9,5 |
| 16 | 16.000 | 0.165 | 0.188 | 0.250 | 0.312 | 0.375 | 0.375 |
| | 406,4 | 4,2 | 4,8 | 6,4 | 7,9 | 9,5 | 9,5 |
| 18 | 18.000 | 0.165 | 0.188 | 0.250 | 0.312 | 0.438 | 0.375 |
| | 457,0 | 4,2 | 4,8 | 6,4 | 7,9 | 11,1 | 9,5 |
| 20 | 20.000 | 0.188 | 0.218 | 0.250 | 0.375 | 0.500 | 0.375 |
| | 508,0 | 4,8 | 5,5 | 6,4 | 9,5 | 12,7 | 9,5 |
| 22 | 22.000 | 0.188 | 0.218 | 0.250 | 0.375 | 0.500 | 0.375 |
| | 559,0 | 4,8 | 5,5 | 6,4 | 9,5 | 12,7 | 9,5 |
| 24 | 24.000 | 0.218 | 0.250 | 0.250 | 0.375 | 0.562 | 0.375 |
| | 610,0 | 5,5 | 6,4 | 6,4 | 9,5 | 14,3 | 9,5 |
| 26 | 26.000 | - | - | 0.312 | 0.500 | - | 0.375 |
| | 660,4 | - | - | 7,9 | 12,7 | - | 9,5 |
| 28 | 28.000 | - | - | 0.312 | 0.500 | 0.625 | 0.375 |
| | 711,0 | - | - | 7,9 | 12,7 | 15,9 | 9,5 |
| 30 | 30.000 | 0.250 | 0.312 | 0.312 | 0.500 | 0.625 | 0.375 |
| | 762,0 | 6,4 | 7,9 | 7,9 | 12,7 | 15,9 | 9,5 |
| 32 | 32.000 | - | - | 0.312 | 0.500 | 0.625 | 0.375 |
| | 813,0 | - | - | 7,9 | 12,7 | 15,9 | 9,5 |
| 34 | 34.000 | - | - | 0.312 | 0.500 | 0.625 | 0.375 |
| | 863,6 | - | - | 7,9 | 12,7 | 15,9 | 9,5 |
| 36 | 36.000 | - | - | 0.312 | 0.500 | 0.625 | 0.375 |
| | 914,0 | - | - | 7,9 | 12,7 | 15,9 | 9,5 |
| 42 | 42.000 | - | - | - | 0.375 | - | - |
| | 1067,0 | - | - | - | 9,5 | - | - |

| Thickness – inches/millimeters | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sch. 40<br>in / mm | Sch. 60<br>in / mm | Extra Heavy<br>in / mm | Sch. 80<br>in / mm | Sch. 100<br>in / mm | Sch. 120<br>in / mm | Sch. 140<br>in / mm | Sch. 160<br>in / mm | XX Heavy<br>in / mm |
| 0.438 | 0.594 | 0.500 | 0.688 | 0.938 | 1.094 | 1.250 | 1.406 | - |
| 11,1 | 15,1 | 12,7 | 17,5 | 23,8 | 27,8 | 31,8 | 35,7 | - |
| 0.500 | 0.656 | 0.500 | 0.750 | 1.031 | 1.219 | 1.438 | 1.594 | - |
| 12,7 | 16,7 | 12,7 | 19,1 | 26,2 | 31,0 | 36,5 | 40,5 | - |
| 0.562 | 0.750 | 0.500 | 0.844 | 1.156 | 1.375 | 1.562 | 1.781 | - |
| 14,3 | 19,1 | 12,7 | 21,4 | 29,4 | 34,9 | 39,7 | 45,2 | - |
| 0.594 | 0.812 | 0.500 | 0.938 | 1.281 | 1.500 | 1.750 | 1.969 | - |
| 15,1 | 20,6 | 12,7 | 23,8 | 32,5 | 38,1 | 44,5 | 50,0 | - |
| - | 0.875 | 0.500 | 1.031 | 1.375 | 1.625 | 1.875 | 2.125 | - |
| - | 22,2 | 12,7 | 26,2 | 34,9 | 41,3 | 47,6 | 54,0 | - |
| 0.688 | 0.969 | 0.500 | 1.125 | 1.531 | 1.812 | 2.062 | 2.344 | - |
| 17,5 | 24,6 | 12,7 | 28,6 | 38,9 | 46,0 | 52,4 | 59,5 | - |
| - | - | 0.500 | 1.218 | - | - | - | - | - |
| - | - | 12,7 | 30,9 | - | - | - | - | - |
| - | - | 0.500 | - | - | - | - | - | - |
| - | - | 12,7 | - | - | - | - | - | - |
| - | - | 0.500 | - | - | - | - | - | - |
| - | - | 12,7 | - | - | - | - | - | - |
| 0.688 | - | 0.500 | - | - | - | - | - | - |
| 17,5 | - | 12,7 | - | - | - | - | - | - |
| 0.688 | - | 0.500 | - | - | - | - | - | - |
| 17,5 | - | 12,7 | - | - | - | - | - | - |
| 0.750 | - | 0.500 | - | - | - | - | - | - |
| 19,1 | - | 12,7 | - | - | - | - | - | - |
| - | - | 0.500 | - | - | - | - | - | - |
| - | - | 12,7 | - | - | - | - | - | - |

## Pipe Dimensions to AS 1074

Unit: mm

| Class | Medium / Heavy | | Medium | |
|---|---|---|---|---|
| Heavy | | | | |
| Nom. | Pipe O.D. | | Wall Thickness | |
| Size | Min. | Max | | |
| DN 8 | 13.3 | 13.9 | 2.3 | 2.9 |
| DN 10 | 16.8 | 17.4 | 2.3 | 2.9 |
| DN 15 | 21.1 | 21.7 | 2.6 | 3.2 |
| DN 20 | 26.6 | 27.2 | 2.6 | 3.2 |
| DN 25 | 33.4 | 34.2 | 3.2 | 4.0 |
| DN 32 | 42.1 | 42.9 | 3.2 | 4.0 |
| DN 40 | 48.0 | 48.8 | 3.2 | 4.0 |
| DN 50 | 59.8 | 60.8 | 3.6 | 4.5 |
| DN 65 | 75.4 | 76.6 | 3.6 | 4.5 |
| DN 80 | 88.1 | 89.5 | 4.0 | 5.0 |
| DN 100 | 113.3 | 114.9 | 4.5 | 5.4 |
| DN 125 | 138.7 | 140.6 | 5.0 | 5.4 |

## Pipe Dimensions to EN 10255:2004

Unit: mm

| Class | | Medium / Heavy | | | Medium |
|---|---|---|---|---|---|
| Heavy | | | | | |
| | Specified | Pipe O.D. | | Wall Thickness | |
| DN | O.D. | Min. | Max. | | |
| 6 | 10,2 | 9,8 | 10,6 | 2,0 | 2,6 |
| 8 | 13,5 | 13,2 | 14,0 | 2,3 | 2,9 |
| 10 | 17,2 | 16,7 | 17,5 | 2,3 | 2,9 |
| 15 | 21,3 | 21,0 | 21,8 | 2,6 | 3,2 |
| 20 | 26,9 | 26,5 | 27,3 | 2,6 | 3,2 |
| 25 | 33,7 | 33,3 | 34,2 | 3,2 | 4,0 |
| 32 | 42,4 | 42,0 | 42,9 | 3,2 | 4,0 |
| 40 | 48,3 | 47,9 | 48,8 | 3,2 | 4,0 |
| 50 | 60,3 | 59,7 | 60,8 | 3,6 | 4,5 |
| 65 | 76,1 | 75,3 | 76,6 | 3,6 | 4,5 |
| 80 | 88,9 | 88,0 | 89,5 | 4,0 | 5,0 |
| 100 | 114,3 | 113,1 | 115,0 | 4,5 | 5,4 |
| 125 | 139,7 | 138,5 | 140,8 | 5,0 | 5,4 |

## Copper Tubing Sizes & Wall Thicknesses

Copper Tube: TYPE K

| inches Nominal Size | Nominal Dimensions, Outside Diameter | Inside Diameter | Wall Thickness |
|---|---|---|---|
| ¾ | 0.875 | 0.745 | 0.065 |
| 1 | 1.125 | 0.995 | 0.065 |
| 1¼ | 1.375 | 1.245 | 0.065 |
| 1½ | 1.625 | 1.481 | 0.072 |
| 2 | 2.125 | 1.959 | 0.083 |
| 2½ | 2.625 | 2.435 | 0.095 |
| 3 | 3.125 | 2.907 | 0.109 |
| 3½ | 3.625 | 3.385 | 0.120 |
| 4 | 4.125 | 3.857 | 0.134 |
| 5 | 5.125 | 4.805 | 0.160 |
| 6 | 6.125 | 5.741 | 0.192 |
| 8 | 8.125 | 7.583 | 0.271 |
| 10 | 10.125 | 9.449 | 0.388 |

Copper Tube: TYPE M

| inches Nominal Size | Nominal Dimensions, Outside Diameter | Inside Diameter | Wall Thickness |
|---|---|---|---|
| ¾ | 0.875 | 0.811 | 0.032 |
| 1 | 1.125 | 1.055 | 0.035 |
| 1¼ | 1.375 | 1.291 | 0.042 |
| 1½ | 1.625 | 1.527 | 0.049 |
| 2 | 2.125 | 2.009 | 0.058 |
| 2½ | 2.625 | 2.495 | 0.065 |
| 3 | 3.125 | 2.981 | 0.072 |
| 3½ | 3.625 | 3.459 | 0.083 |
| 4 | 4.125 | 3.935 | 0.095 |
| 5 | 5.125 | 4.907 | 0.109 |
| 6 | 6.125 | 5.881 | 0.122 |
| 8 | 8.125 | 7.785 | 0.170 |
| 10 | 10.125 | 9.701 | 0.212 |

Copper Tube: TYPE L

| inches Nominal Size | Nominal Dimensions, Outside Diameter | Inside Diameter | Wall Thickness |
|---|---|---|---|
| ¾ | 0.875 | 0.785 | 0.045 |
| 1 | 1.125 | 1.025 | 0.050 |
| 1¼ | 1.375 | 1.265 | 0.055 |
| 1½ | 1.625 | 1.505 | 0.060 |
| 2 | 2.125 | 1.985 | 0.070 |
| 2½ | 2.625 | 2.465 | 0.080 |
| 3 | 3.125 | 2.945 | 0.090 |
| 3½ | 3.625 | 3.425 | 0.100 |
| 4 | 4.125 | 3.905 | 0.110 |
| 5 | 5.125 | 4.875 | 0.125 |
| 6 | 6.125 | 5.845 | 0.140 |
| 8 | 8.125 | 7.725 | 0.200 |
| 10 | 10.125 | 9.625 | 0.250 |

Copper Tube: TYPE DWV

| Nominal or inches tandard Size, inches | Nominal Dimensions, Outside Diameter | Inside Diameter | Wall Thickness |
|---|---|---|---|
| 1¼ | 1.375 | 1.295 | 0.040 |
| 1½ | 1.625 | 1.541 | 0.042 |
| 2 | 2.125 | 2.041 | 0.042 |
| 3 | 3.125 | 3.035 | 0.045 |
| 4 | 4.125 | 4.009 | 0.058 |
| 5 | 5.125 | 4.981 | 0.072 |
| 6 | 6.125 | 5.959 | 0.083 |

# BOLT & SOCKET SIZE: INCH

For *Shurjoint* Grooved Couplings and Mechanical Tees

| Pipe Size | | Z05 / K9 | | Z07 / 7771 | | 7705 | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7707 inch | Actual O.D. | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size |
| ¾ | 1.050 | | | | | | | ⅜ | 11/16 |
| 1 | 1.315 | | | | | ⅜ | 11/16 | ⅜ | 11/16 |
| 1¼ | 1.660 | ⅜ | 11/16 | ⅜ | 11/16 | ⅜ | 11/16 | ½ | ⅞ |
| 1½ | 1.900 | ⅜ | 11/16 | ⅜ | 11/16 | ⅜ | 11/16 | ½ | ⅞ |
| 2 | 2.375 | ⅜ | 11/16 | ⅜ | 11/16 | ⅜ | 11/16 | ½ | ⅞ |
| 2½ | 2.875 | ⅜ | 11/16 | ⅜ | 11/16 | ⅜ | 11/16 | ½ | ⅞ |
| 76.1 mm | 3.000 | ⅜ | 11/16 | ⅜ | 11/16 | ⅜ | 11/16 | ½ | ⅞ |
| 3 | 3.500 | ⅜ | 11/16 | ½ | ⅞ | ½ | ⅞ | ½ | ⅞ |
| 101.6 mm | 4.000 | | | | | ½ | ⅞ | | |
| 108.0 mm | 4.250 | | | | | | | | |
| 4 | 4.500 | ⅜ | 11/16 | ½ | ⅞ | ½ | ⅞ | ⅝ | 1 1/16 |
| 4 | 4.500 | | | | | | | | |
| 133.0 mm | 5.250 | | | | | | | | |
| 139.7 mm | 5.500 | ½ | ⅞ | ⅝ | 1 1/16 | ⅝ | 1 1/16 | ⅝ | 1 1/16 |
| 5 | 5.563 | ½ | ⅞ | ⅝ | 1 1/16 | ⅝ | 1 1/16 | ⅝ | 1 1/16 |
| 159.0 mm | 6.250 | | | | | | | | |
| 165.1 mm | 6.500 | ½ | ⅞ | ⅝ | 1 1/16 | ⅝ | 1 1/16 | ¾ | 1 ¼ |
| 6 | 6.625 | ½ | ⅞ | ⅝ | 1 1/16 | ⅝ | 1 1/16 | ¾ | 1 ¼ |
| 8 | 8.625 | ⅝ | 1 1/16 | ⅝ (7771) | 1 1/16 | ⅝ | 1 1/16 | ¾ | 1 ¼ |
| 8 | 8.625 | | | ¾ (Z07) | 1 ¼ | | | | |
| 10 | 10.750 | | | ¾ (7771) | 1 ¼ | ¾ | 1 ¼ | ⅞ | 1 7/16 |
| 10 | 10.750 | | | ⅞ (Z07) | 1 7/16 | | | | |
| 12 | 12.750 | | | ⅞ | 1 7/16 | ⅞ | 1 7/16 | ⅞ | 1 7/16 |
| 14 | 14.000 | | | ⅞ | 1 7/16 | | | ⅞ | 1 7/16 |
| 16 | 16.000 | | | ⅞ | 1 7/16 | | | 1 | 1⅝ |
| 18 | 18.000 | | | ⅞ | 1 7/16 | | | 1 | 1⅝ |
| 20 | 20.000 | | | 1 | 1⅝ | | | 1 | 1⅝ |
| 22 | 22.000 | | | 1 | 1⅝ | | | 1 | 1⅝ |

Note 1: 7721 / 7722 Mechanical tee 4" x 3" is supplied with ⅝" bolts.

Note 2: 7771 Rigid coupling 8" is supplied with ⅝" bolts and Z07 8" with ¾" bolts.

Note 3: 7771 Rigid coupling 10" is supplied with ¾" bolts and Z07 10" with ⅞" bolts.

| XH-70EP | | 79 | | 7706 | | | | 7721 / 7722 | | 723 |
|---|---|---|---|---|---|---|---|---|---|---|
| Pipe Size | | | | | | | | | | |
| Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | inch |
| | | | | | | | | | | ¾ |
| | | | | | | | | | | 1 |
| | | | | | | | | ⅜ | 11/16 | 1¼ |
| | | | | ⅜ | 11/16 | | | ⅜ | 11/16 | 1½ |
| ⅝ | 1 1/16 | ⅝ | 1 1/16 | ⅜ | 11/16 | ⅜ | 11/16 | ⅜ | 11/16 | 2 |
| ⅝ | 1 1/16 | ⅝ | 1 1/16 | ⅜ | 11/16 | ½ | ⅞ | ⅜ | 11/16 | 2½ |
| | | | | | | | | | | 76.1 mm |
| ⅝ | 1 1/16 | ¾ | 1¼ | ½ | ⅞ | ½ | ⅞ | | | 3 |
| | | | | | | | | | | 101.6 mm |
| | | | | | | | | | | 108.0 mm |
| ¾ | 1¼ | ¾ | 1¼ | ½ | ⅞ | ½ | ⅞ | | | 4 |
| | | | | | | ⅝ | 1 1/16 | | | 4 |
| | | | | | | | | | | 133.0 mm |
| | | | | | | | | | | 139.7 mm |
| | | | | ⅝ | 1 1/16 | ⅝ | 1 1/16 | | | 5 |
| | | | | | | | | | | 159..0 mm |
| | | | | | | | | | | 165.1 mm |
| ⅞ | 1 7/16 | ⅞ | 1 7/16 | ⅝ | 1 1/16 | ⅝ | 1 1/16 | | | 6 |
| 1 | 1⅝ | ¾ | 1¼ | ¾ | 1¼ | ¾ | 1¼ | | | 8 |
| | | | | | | | | | | 8 |
| 1 | 1⅝ | ⅞ | 1 7/16 | | | | | | | 10 |
| | | | | | | | | | | 10 |
| 1 | 1⅝ | 1 | 1⅝ | | | | | | | 12 |
| | | 1 | 1⅝ | | | | | | | 14 |
| | | 1 | 1⅝ | | | | | | | 16 |
| | | | | | | | | | | 18 |
| | | | | | | | | | | 20 |
| | | | | | | | | | | 22 |

## Copper Tubing Series (inch)

| Pipe Size | | C305 | | C307 | | C306 | |
|---|---|---|---|---|---|---|---|
| inch | Actual O.D. (U.S. Standard Copper Tubing) | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size |
| 2 | 2.125 | 3/8 | 1 1/16 | 3/8 | 1 1/16 | | |
| 2½ | 2.625 | 3/8 | 1 1/16 | 3/8 | 1 1/16 | ½ | 7/8 |
| 3 | 3.125 | ½ | 7/8 | ½ | 7/8 | ½ | 7/8 |
| 4 | 4.125 | ½ | 7/8 | ½ | 7/8 | ½ | 7/8 |
| 5 | 5.125 | 5/8 | 1 1/16 | | | 5/8 | 1 1/16 |
| 6 | 6.125 | 5/8 | 1 1/16 | | | 5/8 | 1 1/16 |
| 8 | 8.125 | 5/8 | 1 1/16 | | | | |

## Stainless Steel Series (inch)

| Pipe Size | | SS-7 | | SS-8 | | SS-7X | | SS-8X | |
|---|---|---|---|---|---|---|---|---|---|
| inch | Actual O.D. | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size |
| ¾ | 1.050 | | | | | | | 3/8 | 1 1/16 |
| 1 | 1.315 | | | 5/16 | | | | 3/8 | 1 1/16 |
| 1¼ | 1.660 | 3/8 | 1 1/16 | 5/16 | | | | 3/8 | 1 1/16 |
| 1½ | 1.900 | 3/8 | 1 1/16 | 5/16 | | | | 3/8 | 1 1/16 |
| 2 | 2.375 | 3/8 | 1 1/16 | 3/8 | 1 1/16 | | | 3/8 | 1 1/16 |
| 2½ | 2.875 | 3/8 | 1 1/16 | 3/8 | 1 1/16 | | | 3/8 | 1 1/16 |
| 2½ | 3.000 | 3/8 | 1 1/16 | 3/8 | 1 1/16 | | | | |
| 3 | 3.500 | 3/8 | 1 1/16 | 3/8 | 1 1/16 | | | ½ | 7/8 |
| 4 | 4.500 | ½ | 1 1/16 | ½ | 7/8 | | | ½ | 7/8 |
| 5 | 5.500 | ½ | 7/8 | | | | | | |
| 5 | 5.563 | ½ | 7/8 | ½ | 7/8 | | | 5/8 | 1 1/16 |
| 6 | 6.500 | ½ | 7/8 | ½ | 7/8 | | | | |
| 6 | 6.625 | ½ | 7/8 | ½ | 7/8 | | | 5/8 | 1 1/16 |
| 8 | 8.625 | 5/8 | 1 1/16 | 5/8 | 1 1/16 | | | ¾ | 1 ¼ |
| 10 | 10.750 | | | | | 7/8 | 1 7/16 | | |
| 12 | 12.750 | | | | | 7/8 | 1 7/16 | | |
| 14 | 14.000 | | | | | 7/8 | 1 7/16 | | |
| 16 | 16.000 | | | | | 5/8 | 1 1/16 | | |
| 18 | 18.000 | | | | | 5/8 | 1 1/16 | | |
| 20 | 20.000 | | | | | ¾ | 1 ¼ | | |
| 22 | 22.000 | | | | | ¾ | 1 ¼ | | |
| 24 | 24.000 | | | | | ¾ | 1 ¼ | | |

## AWWA Series (inch)

| Pipe Size | | A505 | | A507 | |
|---|---|---|---|---|---|
| inch | Actual O.D. | Bolt Size | Socket Size | Bolt Size | Socket Size |
| 3 | 3.96 | ½ | ⅞ | ½ | ⅞ |
| 4 | 4.80 | ⅝ | 1 1/16 | ⅝ | 1 1/16 |
| 6 | 6.90 | ⅝ | 1 1/16 | ⅝ | 1 1/16 |
| 8 | 9.05 | ¾ | 1 ¼ | ¾ | 1 ¼ |
| 10 | 11.10 | ¾ | 1 ¼ | ⅞ | 1 7/16 |
| 12 | 13.20 | ⅞ | 1 7/16 | ⅞ | 1 7/16 |

## HDPE Series (inch)

| Pipe Size | | H305 | | H307 | |
|---|---|---|---|---|---|
| inch | Actual O.D. | Bolt Size | Socket Size | Bolt Size | Socket Size |
| 2 | 2.375 | ½ | ⅞ | ½ | ⅞ |
| 3 | 3.500 | ½ | ⅞ | ½ | ⅞ |
| 4 | 4.500 | ½ | ⅞ | ½ | ⅞ |
| 6 | 6.625 | ⅝ | 1 1/16 | ⅝ | 1 1/16 |
| 8 | 8.625 | ⅝ | 1 1/16 | ⅝ | 1 1/16 |
| 10 | 10.750 | ¾ | 1 ¼ | ¾ | 1 ¼ |
| 12 | 12.750 | ¾ | 1 ¼ | ¾ | 1 ¼ |
| 14 | 14.000 | 1 | 1⅝ | | |
| 16 | 16.000 | 1 | 1⅝ | | |
| 18 | 18.000 | 1 | 1⅝ | | |
| 20 | 20.000 | 1 | 1⅝ | | |

# BOLT & SOCKET SIZE: METRIC (MM)

For *Shurjoint* Grooved Couplings and Mechanical Tees

| Nominal Size | Pipe O.D. | Z05 / K9 | | Z07 / 7771 | | 7705 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size |
| 20 | 26.7 | | | | | | | M10 | 17 |
| 25 | 33.4 | | | | | M10 | 17 | M10 | 17 |
| 32 | 42.2 | M10 | 17 | M10 | 17 | M10 | 17 | M12 | 19 |
| 40 | 48.3 | M10 | 17 | M10 | 17 | M10 | 17 | M12 | 19 |
| 50 | 60.3 | M10 | 17 | M10 | 17 | M10 | 17 | M12 | 19 |
| 65 | 73.0 | M10 | 17 | M10 | 17 | M10 | 17 | M12 | 19 |
| 65 | 76.1 | M10 | 17 | M10 | 17 | M10 | 17 | M12 | 19 |
| 80 | 88.9 | M10 | 17 | M12 | 19 | M12 | 19 | M12 | 19 |
| 90 | 101.6 | | | | | M12 | 19 | | |
| 100 | 114.3 | M10 | 17 | M12 | 19 | M12 | 19 | M16 | 24 |
| | | | | | | | | | |
| 125 | 139.7 | M12 | 19 | M16 | 24 | M16 | 24 | M16 | 24 |
| 125 | 141.3 | M12 | 19 | M16 | 24 | M16 | 24 | M16 | 24 |
| 150 | 165.1 | M12 | 19 | M16 | 24 | M16 | 24 | M20 | 30 |
| 150 | 168.3 | M12 | 19 | M16 | 24 | M16 | 24 | M20 | 30 |
| 200 | 219.1 | M16 | 24 | M16(7771) | 24 | M16 | 24 | M20 | 30 |
| | | | | M20(Z07) | 30 | | | | |
| 250 | 273.0 | | | M20 | 30 | M20 | 30 | 7/8" | 17/16" |
| 300 | 323.9 | | | 7/8" | 17/16" | 7/8" | 17/16" | 7/8" | 17/16" |
| 350 | 355.6 | | | 7/8" | 17/16" | | | 7/8" | 17/16" |
| 400 | 406.4 | | | 7/8" | 17/16" | | | 1" | 15/8" |
| 450 | 457.2 | | | 7/8" | 17/16" | | | 1" | 15/8" |
| 500 | 508.0 | | | 1" | 15/8" | | | 1" | 15/8" |
| 550 | 558.8 | | | 1" | 15/8" | | | 1" | 15/8" |

Note 1: 7721/7722 Mechanical tee 4" x 3" is supplied with M16 bolts.

Note 2: 7771 Rigid coupling 8" is supplied with M16 bolts and Z07 8" with M20 bolts.

| XH-70EP | | 79 | | 7706 | | | | 7721 / 7722 | | 723 |
|---|---|---|---|---|---|---|---|---|---|---|
| Nominal | | | | | | | | | | |
| Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Bolt Size | Socket Size | Size in mm |
| | | | | | | | | | | 20 |
| | | | | | | | | | | 25 |
| | | | | | | | | M10 | 17 | 32 |
| | | ½" | ⅞" | M10 | 17 | | | M10 | 17 | 40 |
| ⅝" | 1 1/16" | ⅝" | 1 1/16" | M10 | 17 | M10 | 17 | M10 | 17 | 50 |
| ⅝" | 1 1/16" | ⅝" | 1 1/16" | M10 | 17 | M12 | 19 | | | 65 |
| | | | | M10 | 17 | M12 | 19 | M10 | 17 | 65 |
| ⅝" | 1 1/16" | ¾" | 1¼" | M12 | 19 | M12 | 19 | | | 80 |
| | | | | | | | | | | 90 |
| ¾" | 1¼" | ¾" | 1¼" | M12 | 19 | M12 | 19 | | | 100 |
| | | | | | | M16 | 24 | | | 100 |
| | | | | M16 | 24 | M16 | 24 | | | 125 |
| | | ⅞" | 1 7/16" | M16 | 24 | M16 | 24 | | | 125 |
| | | | | M16 | 24 | M16 | 24 | | | 150 |
| ⅞" | 1 7/16" | ⅞" | 1 7/16" | M16 | 24 | M16 | 24 | | | 150 |
| 1" | 1⅝" | ¾" | 1¼" | M20 | 30 | M20 | 30 | | | 200 |
| | | | | | | | | | | |
| 1" | 1⅝" | ⅞" | 1 7/16" | | | | | | | 250 |
| 1" | 1⅝" | 1" | 1⅝" | | | | | | | 300 |
| | | 1" | 1⅝" | | | | | | | 350 |
| | | 1" | 1⅝" | | | | | | | 400 |
| | | | | | | | | | | 450 |
| | | | | | | | | | | 500 |
| | | | | | | | | | | 550 |

## Copper Series (Metric)

| Pipe Size | | | |
|---|---|---|---|
| C305 mm | Actual O.D (BS/DIN Copper Tubing) | Bolt Size | Socket Size |
| 50 | 54.0 | M10 | 17 |
| 65 | 66.7 | M10 | 17 |
| 80 | 76.1 | M10 | 17 |
| 100 | 108.0 | M12 | 19 |
| 125 | 133.0 | M16 | 24 |

## BS Ductile Iron Pipe Series (Metric)

| Pipe Size | | | |
|---|---|---|---|
| A505-BS mm | Actual O.D. | Bolt Size | Socket Size |
| 80 | 98 | M12 | 19 |
| 100 | 118 | M16 | 24 |

## HDPE Series (Metric)

| Pipe Size | | | |
|---|---|---|---|
| H305 Min. O.D. | Max. O.D. | Bolt Size | Socket Size |
| 50 | 50.5 | M10 | 17 |
| 63 | 63.6 | M10 | 17 |
| 75 | 75.7 | M10 | 17 |
| 90 | 90.9 | M12 | 19 |
| 110 | 111.0 | M12 | 19 |
| 140 | 141.3 | M16 | 24 |
| 160 | 161.5 | M12 | 24 |
| 200 | 201.8 | M16 | 24 |
| 225 | 227.1 | M16 | 24 |
| 250 | 252.3 | M16 | 30 |
| 280 | 282.6 | M20 | 30 |

# HANGERS FOR STRAIGHT RUNS

Like all other pipe joining methods, grooved piping systems require proper support to hold the weight of pipes, equipment and fluids.
For straight runs, you can use both flexible and rigid couplings. When rigid couplings are used, the same hanger spacing as other piping methods can be applied. You can refer to the hanger spacing standards of ANSI B31.1 Power Piping Code, B31.9 Building Services Piping Code, NFPA 13 Sprinkler Systems, or Mechanical Equipment Construction Guide (Japan). See the table below.

## Suggested Max. Span between Supports (steel pipe)

| Nominal Pipe Size in / mm | Water Service (feet/meters) | | | | Air Service (feet/meters) | | Gas or |
|---|---|---|---|---|---|---|---|
| | 1) | 2) | 3) | 4) | 1) | 2) | 3) |
| 1 / 25 | 7 / 2.1 | 9 / 2.7 | 12 / 3.7 | 6.6 / 2.0 | 9 / 2.7 | 9 / 2.7 | 9 / 2.7 |
| 1¼ / 32 | 7 / 2.1 | 11 / 3.4 | 12 / 3.7 | 6.6 / 2.0 | 9 / 2.7 | 9 / 2.7 | 11 / 3.4 |
| 1½ / 40 | 7 / 2.1 | 12 / 3.7 | 15 / 4.6 | 6.6 / 2.0 | 9 / 2.7 | 9 / 2.7 | 13 / 4.0 |
| 2 / 50 | 10 / 3.1 | 13 / 4.0 | 15 / 4.6 | 6.6/2.0 | 13 / 4.0 | 13 / 4.0 | 15 / 4.6 |
| 3 / 80 | 12 / 3.7 | 15 / 4.6 | 15 / 4.6 | 6.6/2.0 | 15 / 4.6 | 15 / 4.6 | 17 / 5.2 |
| 4 / 100 | 14 / 4.3 | 17 / 5.2 | 15 / 4.6 | 6.6/2.0 | 17 / 5.2 | 17 / 5.2 | 21 / 6.4 |
| 6 / 150 | 17 / 5.2 | 20 / 6.1 | 15 / 4.6 | 10/3.0 | 21 / 6.4 | 21 / 6.4 | 25 / 7.6 |
| 8 / 200 | 19v5.8 | 21 / 6.4 | 15 / 4.6 | 10/3.0 | 24 / 7.3 | 24 / 7.3 | 28 / 8.5 |
| 10 / 250 | 19 / 5.8 | 21 / 6.4 | | 10/3.0 | 24 / 7.3 | 24 / 7.3 | 31 / 9.5 |
| 12 / 300 | 23 / 7.0 | 21 / 6.4 | | 10/3.0 | 30 / 9.1 | 30 / 9.1 | 33 / 10.1 |
| 14 / 350 | 23 / 7.0 | 21 / 6.4 | | | 30 / 9.1 | 30 / 9.1 | 33 / 10.1 |
| 16 / 400 | 27 / 8.2 | 21 / 6.4 | | | 35 / 10.7 | 35 / 10.7 | 33 / 10.1 |
| 18 / 450 | 27 / 8.2 | 21 / 6.4 | | | 35 / 10.7 | 35 / 10.7 | 33 / 10.1 |

1) ANSI B31.1 Power Piping Code 2) ANSI B31.9 Building Services Piping Code 3) NFPA 13 Sprinkler systems
4) Ministry of Land & Transportation of Japan: Mechanical Equipment Construction Guide

NOTE: Hanger Spacing: Support of ductile iron piping systems must eliminate stress on piping joints and other components, and allow for pipe movement where required. The table below is a SUGGESTED maximum span for horizontal pipe runs that convey water or similar liquids. System designers must also consider special requirements for concentrated loads and areas where critical calculation have been made. ***Shurjoint*** Piping Products is not responsible for system designs.

| Flexible Systems | | Rigid | |
|---|---|---|---|
| Systems Size | Suggested Maximum Span | Size | Suggested Maximum Span |
| in / mm | Feet / Meters | in / mm | Feet / Meters |
| 3-4 | 12 | 3-4 | 15 |
| (80-100) | (3.7) | (80-100) | (4.6) |
| 6-8 | 14 | 6-12 | 20 |
| (150-200) | (4.3) | (150-300) | (6.1) |
| 10-12 | 16 | | |

Note: Piping Systems must have at least one support per pipe lenght.

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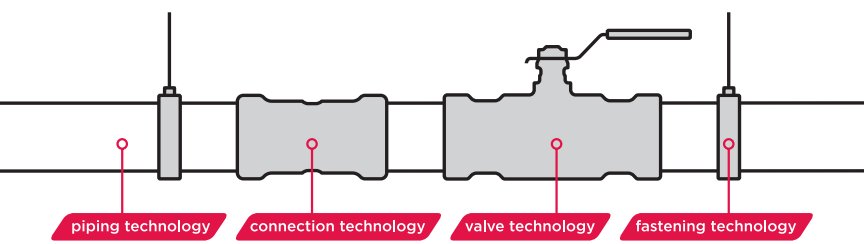


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