SHURJOINT

Grooved, Plain-end &
Hole-cut Piping Systems

2009 Edition

INSTALLATION INSTRUCTIONS

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.

SHURJOINT

Shurjoint Piping Products, Inc.
Shurjoint Metals Inc.

www.shurjoint.com

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Installation Instructions I-1000
2009 Edition

The 2009 edition of 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.

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 and aluminum pipe of ASTM dimensions.

Shurjoint grooved couplings, flanges 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.

If additional or more detailed information is required please contact your local ***Shurjoint*** Distributor or ***Shurjoint Piping Products***. Visit us on the World Wide Web at ***www.shurjoint.com*** or e-mail us at ***world@shurjoint.com***.

General Notes

1. Always read this installation manual before installing any product.
2. Always depressurize and drain the piping system before attempting disassembly, adjustment or removal of any piping component.
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. Special attention is required for selection of suitable rubber gaskets for the intended service.
6. 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.

SHURJOINT
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PIPE END PREPARATION

Check pipe OD

Check to insure that the pipe to be prepared has the proper OD and wall thickness for the intended service.

While ***Shurjoint*** fittings are normally identified by the nominal size, always check the actual OD of the pipe and fittings to be connected, as in some markets it is customary to refer to different OD pipes with the same nominal size.

For example: The nominal size 65 (2 1/2") is referred to 73.0mm (2.875") pipe OD in IPS and 76.1mm (3.000") pipe OD 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 ?

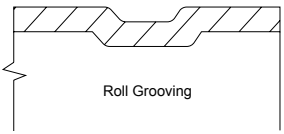
Shurjoint grooved piping systems require a roll or cut-groove to be applied to the pipe ends being connected. The groove dimensions and configurations may vary depending on several factors including pipe material, wall thickness and desired working pressures. Roll grooving is the most common practice and can be performed in the fabrication shop or in the field on 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 37-1/2° ± 2-1/2° (ANSI B16.25). Spiral welded pipe may also be used as long as the welding beads are removed from all of the sealing and seating surfaces.

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 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	Sch. 80, 40	Sch. 80, 40
Ductile Iron Pipe	Not applicable	Class 54 (See ANSI/AWWA C606 (latest edition) Tables 2 & 3)

About roll-grooving

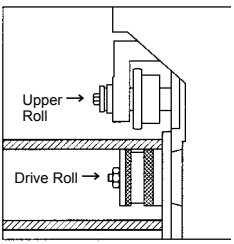
Roll grooving was first used with light or thin wall pipe, which had insufficient wall thickness for cut grooving. Today roll grooving is commonly used on standard and Schedule 40 wall pipe (max. 9.5mm thick) for sizes to 42”(1050) depending on the type of roll-grooving machine and roll sets used.



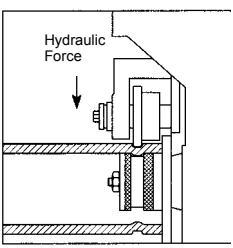
Roll grooving radially displaces the pipe material. Because roll grooving removes no material from the pipe itself, the integrity of the pipe remains intact. The inside protrusion or upset of roll groove is small and smooth at its entry and exit and thus has insignificant or negligible effect on both 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 or tubing as well as PVC pipe (up to Sch. 80). 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 (9.5mm 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)

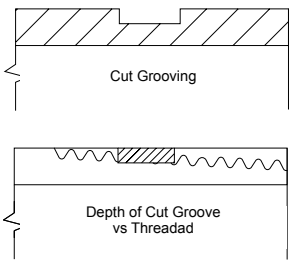


A groove is processed as the roll set is compressed and rotated

☞ *Refer to pages 8~18 for specific groove dimensions.*

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.



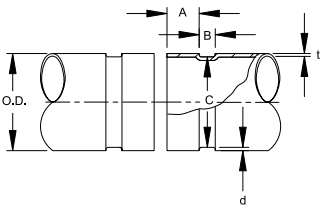
Unlike with roll-grooving, cut grooving produces a square cut groove in the pipe, without any protrusion on the inside of the pipe. Cut grooving is commonly used on piping components such as 90°elbows, tees, grooved-end valves, etc. It is also good practice to process a cut groove into plastic-coated or cement-lined pipe as roll grooving may damage the internal coatings or linings of such pipe.

Ductile iron pipe must be cut grooved using a radius cut groove in accordance with ANSI/AWWA C606 (latest edition).

☞ *Refer to pages 19~25 for specific cut groove dimensions.*

GROOVE DIMENSIONS

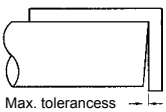
General Notes for Roll Groove Dimensions



Standard Roll Groove

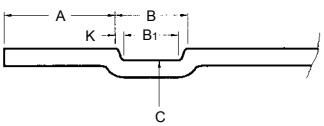
Nominal Size: ***Shurjoint*** couplings and fittings are identified by the nominal IPS pipe size in inches or nominal diameter of pipe (DN) in millimeters

O D: Pipe ends must be square cut. The maximum allowable tolerances from square ends is 0.03”(0.8mm) for sizes up to 3-1/2”, 0.045” (1.2mm) for 4” thru 6” and 0.060”(1.6mm) 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. The corners of the groove may be rounded as long as the ‘K’ and "B_1" values are within the maximum allowed tolerances as shown below.

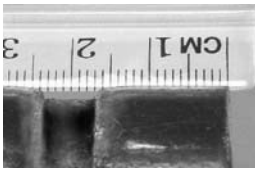


Pipe Size	A	B	B_1 Min.	K Max.
25 – 40	15.9 ± 0.8	7.1 ± 0.8	4.1	1.5
1” – 1 1/2”	0.625 ± 1/16”	0.281 ± 1/16”	0.161”	0.059”
50 – 150	15.9 ± 0.8	8.7 ± 0.8	4.7	2.0
2” – 6”	0.625 ± 1/16”	0.344 ± 1/16”	0.185”	0.079”
200 – 300	19.0 ± 0.8	11.9 ± 0.8	7.9	2.0
8” – 12”	0.75 ± 1/16”	0.469 ± 1/16”	0.311”	0.079”

Note: The K dimension begins where the pipe O.D. starts reducing and ends at the contact point with the groove ground.

To achieve optimum joint performance the "K" dimension should be as small as possible. When processing a roll groove the machine operator should manage the feed pressure of the upper roll set so as to achieve the best possible groove profile.

To check: Use a rule to ensure that the "B_1" and "K" dimensions are within the above listed tolerance dimensions.

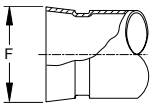


Groove Diameter ("C" Dimension): The groove diameters are average values. The groove must be of uniform depth around the entire pipe circumference.

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

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.

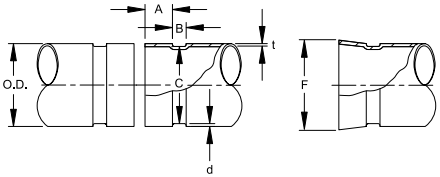


Standard Roll Groove Specification

For ANSI B36.10 and Other IPS Pipe

Nominal Size mm/in	Pipe O.D.			A ±0.76 ±0.030	B ±0.76 ±0.030
	Basic mm/in	Tolerance			
20	26.7	+0.25	-0.25	15.88	7.14
3/4	1.050	+0.010	-0.010	0.625	0.281
25	33.4	+0.33	-0.33	15.88	7.14
1	1.315	+0.013	-0.013	0.625	0.281
32	42.2	+0.41	-0.41	15.88	7.14
1 1/4	1.660	+0.016	-0.016	0.625	0.281
40	48.3	+0.48	-0.48	15.88	7.14
1 1/2	1.900	+0.019	-0.019	0.625	0.281
50	60.3	+0.61	-0.61	15.88	8.74
2	2.375	+0.024	-0.024	0.625	0.344
65	73.0	+0.74	-0.74	15.88	8.74
2 1/2	2.875	+0.029	-0.029	0.625	0.344
80	88.9	+0.89	-0.79	15.88	8.74
3	3.500	+0.035	-0.31	0.625	0.344
90	101.6	+1.02	-0.79	15.88	8.74
3 1/2	4.000	+0.040	-0.031	0.625	0.344
100	114.3	+1.14	-0.79	15.88	8.74
4	4.500	+0.045	-0.031	0.625	0.344
125	141.3	+1.42	-0.79	15.88	8.74
5	5.563	+0.056	0.031	0.625	0.344
150	168.3	+1.60	-0.79	15.88	8.74
6	6.625	+0.063	0.031	0.625	0.344
200	219.1	+1.60	-0.79	19.05	11.91
8	8.625	+0.063	-0.031	0.750	0.469
250	273.0	+1.60	-0.79	19.05	11.91
10	10.750	+0.063	0.031	0.750	0.469
300	323.9	+1.60	-0.79	19.05	11.91
12	12.750	+0.063	0.031	0.750	0.469
350	355.6	+1.60	-0.79	23.83	11.91
14	14.000	+0.063	-0.031	0.938	0.469
400	406.4	+1.60	-0.79	23.83	11.91
16	16.000	+0.063	0.031	0.938	0.469
450	457.2	+1.60	-0.79	25.40	11.91
18	18.000	+0.063	0.031	1.000	0.469
500	508.0	+1.60	-0.79	25.40	11.91
20	20.000	+0.063	-0.031	1.000	0.469
550	558.8	+1.60	-0.79	25.40	12.70
22	22.000	+0.063	0.031	1.000	0.500
600	609.6	+1.60	-0.79	25.40	12.70
24	24.000	+0.063	0.031	1.000	0.500

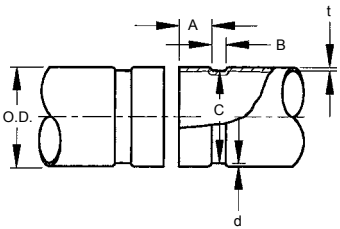
☞ *Refer to page 8 for General notes.*



C +0.00 +0.000	Min. Wall t mm/in	Groove Depth d (ref.) mm/in	Max. Allowed Flare Dia. F mm/in	Nominal Size mm/in
23.83 - 0.38 0.938 - 0.015	1.65 0.065	1.42 0.056	29.2 1.15	20 3/4
30.23 - 0.38 1.190 - 0.015	1.65 0.065	1.60 0.063	36.3 1.43	25 1
38.99 - 0.38 1.535 - 0.015	1.65 0.065	1.60 0.063	45.0 1.77	32 1 1/4
45.09 - 0.38 1.775 - 0.015	1.65 0.065	1.60 0.063	51.1 2.01	40 1 1/2
57.15 - 0.38 2.250 - 0.015	1.65 0.065	1.60 0.063	63.0 2.48	50 2
69.09 - 0.46 2.720 - 0.018	2.11 0.083	1.98 0.078	75.7 2.98	65 2 1/2
84.94 - 0.46 3.344 - 0.018	2.11 0.083	1.98 0.078	91.4 3.60	80 3
97.38 - 0.51 38.34 - 0.020	2.11 0.083	2.11 0.083	104.1 4.10	90 3 1/2
110.08 - 0.51 4.334 - 0.020	2.11 0.083	2.11 0.083	116.8 4.60	100 4
137.03 - 0.56 5.395 - 0.022	2.77 0.109	2.11 0.083	143.8 5.66	125 5
163.96 - 0.56 6.455 - 0.022	2.77 0.109	2.16 0.085	170.9 6.73	150 6
214.40 - 0.64 8.441 - 0.025	2.77 0.109	2.34 0.092	223.5 8.80	200 8
268.27 - 0.69 10.562 - 0.027	3.40 0.134	2.39 0.094	277.4 10.92	250 10
318.29 - 0.76 12.531 - 0.030	3.96 0.156	2.77 0.109	328.2 12.92	300 12
350.04 - 0.76 13.781 - 0.030	3.96 0.156	2.77 0.109	358.1 14.10	350 14
400.84 - 0.76 15.781 - 0.030	4.19 0.165	2.77 0.109	408.9 16.10	400 16
451.64 - 0.76 17.781 - 0.030	4.19 0.165	2.77 0.109	461.3 18.16	450 18
502.44 - 0.76 19.781 - 0.030	4.78 0.188	2.77 0.109	512.1 20.16	500 20
550.06 - 0.76 21.656 - 0.030	4.78 0.188	4.37 0.172	563.9 22.20	550 22
600.86 - 0.76 23.656 - 0.030	4.78 0.188	4.37 0.172	614.7 24.20	600 24

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

Nominal Size mm/in	Pipe O.D.			A +0.8,-1.6 +0.03,-0.06 mm/in	B ±0.8 ±0.03 mm/in
	Basic mm/in	Tolerance			
		mm/in	mm/in		
650	660.4	-0.79	+2.36	44.5	15.9
26 OD	26.0	-0.031	+0.093	1.75	0.625
700	711.2	-0.79	+2.36	44.5	15.9
28 OD	28.0	-0.031	+0.093	1.75	0.625
750	762.0	-0.79	+2.36	44.5	15.9
30 OD	30.0	-0.031	+0.093	1.75	0.625
800	812.8	-0.79	+2.36	44.5	15.9
32 OD	32.0	-0.031	+0.093	1.75	0.625
850	863.6	-0.79	+2.36	44.5	15.9
34 OD	34.0	-0.031	+0.093	1.75	0.625
900	914.4	-0.79	+2.36	44.5	15.9
36 OD	36.0	-0.031	+0.093	1.75	0.625
1000	1016.0	-0.79	+2.36	50.8	15.9
40 OD	40.0	-0.031	+0.093	2.00	0.625
1050	1066.8	-0.79	+2.36	50.8	15.9
42 OD	42.0	-0.031	+0.093	2.00	0.625



C +0,-1.6 +0,-0.063 mm/in	Min. Wall t mm/in	Groove Depth d (ref) mm/in	Max. Allowed Flare Dia. mm/in	Nominal Size mm/in
647.7	6.4	6.4	665.5	650
25.5	0.25	0.25	26.2	26 OD
698.5	6.4	6.4	716.3	700
27.5	0.25	0.25	28.2	28 OD
749.3	6.4	6.4	767.1	750
29.5	0.25	0.25	30.2	30 OD
800.1	6.4	6.4	817.9	800
31.5	0.25	0.25	32.2	32 OD
850.9	6.4	6.4	868.7	850
33.5	0.25	0.25	34.2	34 OD
901.7	6.4	6.4	919.5	900
35.5	0.25	0.25	36.2	36 OD
1003.3	6.4	6.4	1026.2	1000
39.5	0.25	0.25	40.4	40 OD
1054.1	6.4	6.4	1071.9	1050
41.5	0.25	0.25	42.2	42 OD

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

For ISO 4200:1991 Plain-end Steel Tubes, Welded and Seamless (Superseding BS1387 and DIN 2440 & DIN 2448)

Pipe or tube				
	Outside diameter (O.D.)		Gasket seat	Groove width
Nominal	Actual		A	B
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.

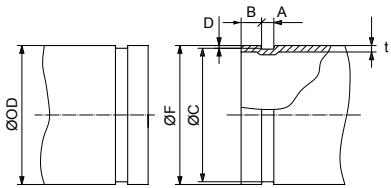


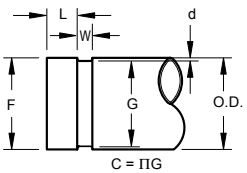
Figure 1 - Roll grooved-end dimensional reference points for Table 1

Dimensions in millimeters

Dimensional specifications[a]				
Grooved diameter C		Groove depth D[b]	Wall thickness t Min. allow.	Flare F Max. Dia.
Actual Size	Tolerance			
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

For JIS G3452 Carbon Steel Pipe



Nominal Size		Pipe	Gasket Seat		Groove Width		Groove Dia.		Groove Circumference		Groove Depth	Max. Flare
A mm	B inch	O.D. mm	L mm		W mm		G mm		C mm		d (ref) mm	F mm
25	1	34.0	16.0	+0.4 -0.9	7.1	±0.8	30.4	0 -1.0	95.5	0 -3.1	1.80	35.5
32	1 1/4	42.7	16.0	+0.4 -0.9	7.1	±0.8	39.1	0 -1.0	122.8	0 -3.1	1.80	44.2
40	1 1/2	48.6	16.0	+0.4 -0.9	7.1	±0.8	45.0	0 -1.0	141.4	0 -3.1	1.80	50.1
50	2	60.5	16.0	+0.4 -0.9	8.7	±0.8	56.9	0 -1.0	178.8	0 -3.1	1.80	62.0
65	2 1/2	76.3	16.0	+0.4 -0.9	8.7	±0.8	72.2	0 -1.0	226.8	0 -3.1	2.05	77.8
80	3	89.1	16.0	+0.4 -0.9	8.7	±0.8	84.9	0 -1.0	266.7	0 -3.1	2.10	90.6
100	4	114.3	16.0	+0.4 -0.9	8.7	±0.8	110.1	0 -1.0	345.9	0 -3.1	2.10	116.8
125	5	139.8	16.0	+0.4 -0.9	8.7	±0.8	135.5	0 -1.0	425.7	0 -3.1	2.15	142.3
150	6	165.2	16.0	+0.4 -0.9	8.7	±0.8	160.8	0 -1.0	505.2	0 -3.1	2.20	167.7
200	8	216.3	19.0	±0.8	11.9	±0.8	(211.6)		664.8	0 -3.1	2.35	219.8
250	10	267.4	19.0	±0.8	11.9	±0.8	(262.6)		825.0	0 -3.1	2.40	270.9
300	12	318.5	19.0	±0.8	11.9	±0.8	(312.9)		983.0	0 -3.1	2.80	322.0

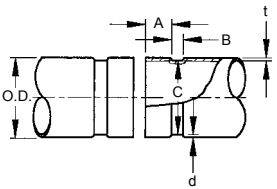
Groove Diameter: Groove Diameters "G" are only applicable to pipe sizes 150A or smaller. Grooves for 200A thru 300A are to be determined by the groove circumference.

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

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

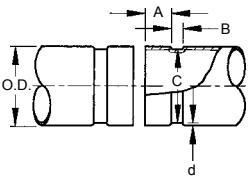
☞ *Refer to page 8 for General notes.*

Standard Roll Groove for U.S. Standard Copper Tubing



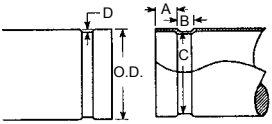
Nominal Size mm/in	Pipe O. D. mm/in	Gasket Seat A ±0.79 ±0.03	Groove Width B ±0.79 ±0.03	Groove Dia. C +0/-0.51 +0/-0.02	Groove Depth d (ref) mm/in	Min. Wall t mm/in	Max. Flare Dia. mm/in
50	54.0	15.5	7.6	51.5	1.2	1.6	56.4
2	2.125	0.610	0.300	2.029	0.048	0.064	2.220
65	66.7	15.5	7.6	64.1	1.3	1.7	69.1
2.5	2.625	0.610	0.300	2.525	0.050	0.065	2.720
80	79.4	15.5	7.6	76.8	1.3	DWV	81.8
3	3.125	0.610	0.300	3.025	0.050		3.220
100	104.8	15.5	7.6	102.1	1.4	DWV	107.2
4	4.125	0.610	0.300	4.019	0.053		4.220
125	130.2	15.5	7.6	127.0	1.4	DWV	132.6
5	5.125	0.610	0.300	4.999	0.053		5.220
150	155.6	15.5	7.6	152.3	1.6	DWV	158.0
6	6.125	0.610	0.300	5.999	0.063		6.220
200	206.4	15.5	7.6	202.2	2.1	DWV	208.8
8	8.125	0.610	0.300	7.959	0.083		8.220

Standard Roll Groove for BS EN 1057 Copper Tubing



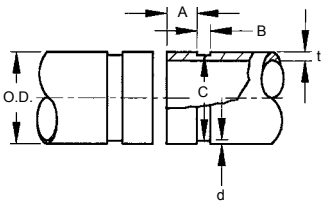
Actual Outside Diameter Min. mm	Actual Outside Diameter Max. mm	Gasket Seat " A " ±0.8 mm	Groove Width " B " + 0.8/-0 mm	Groove Diameter " C " + 0/-0.5 mm	Groove Depth d (ref) mm	Max. Flare Dia. mm
53.99	54.07	15.87	7.6	51.53	1.25	56.39
66.60	66.75	15.87	7.6	64.14	1.27	69.09
76.15	76.30	15.87	7.6	73.53	1.35	78.61
108.00	108.25	15.87	7.6	104.93	1.60	110.54
133.25	133.50	15.87	7.6	129.67	1.85	135.79
159.25	159.50	15.87	7.6	155.68	1.85	161.80

Standard Roll Groove for Australian Standard (AS1432) Copper Tubing



Nominal Size	Actual Outside Diameter mm		Gasket Seat "A" ±0.8 mm	Groove Width "B" ±0.8 mm	Groove Dia. "C" Min. - Max. mm	Groove Depth "D" (Ref.) mm	Max Flare Dia. mm
	Min.	Max.					
DN50	50.67	50.80	15.87	7.60	47.73-48.23	1.25	53.06
DN65	63.35	63.50	15.87	7.60	60.38-60.88	1.27	65.83
DN80	76.02	76.20	15.87	7.60	73.06-73.56	1.27	78.51
DN100	101.35	101.6	15.87	7.60	98.28-98.78	1.35	103.88
DN125	126.75	127.00	15.87	7.60	123.17-123.67	1.60	128.77
DN150	152.10	152.40	15.87	7.60	148.55-149.05	1.60	154.66

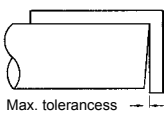
General Notes For Cut Groove Dimensions



Standard Cut Groove

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

O.D.: Pipe ends must be square cut. The Maximum allowable tolerances from square of end is 0.03"(0.8mm) for sizes up to 3-1/2", 0.045" (1.2mm) for 4" thru 6" and 0.060"(1.6mm) 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.

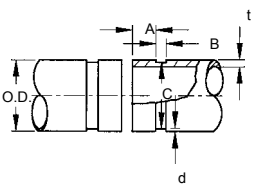
Groove Diameter ("C" Dimension): The groove diameters are average values. The groove must be of uniform depth around the entire pipe circumference.

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.

Standard Cut Groove Specification

For IPS / BS / DIN(ISO) / AS / JIS / KS Pipe



Nominal Size mm/in	Pipe O.D.		
	Basic mm/in	Tolerance	
20	26.7	+0.25	-0.25
3/4	1.050	+0.010	-0.010
25	33.4	+0.33	-0.33
1	1.315	+0.013	-0.013
32	42.2	+0.41	-0.41
1 1/4	1.660	+0.016	-0.016
40	48.3	+0.48	-0.48
1 1/2	1.900	+0.019	-0.019
50	60.3	+0.61	-0.61
2	2.375	+0.024	-0.024
65	73.0	+0.74	-0.74
2 1/2	2.875	+0.029	-0.029
65	76.1	+0.76	-0.76
2 1/2	3.000	+0.030	-0.030
80	88.9	+0.89	-0.79
3	3.500	+0.035	-0.031
90	101.6	+1.02	-0.79
3 1/2	4.000	+0.040	-0.031
100	108.0	+1.07	-0.79
4	4.250	+0.042	-0.031
100	114.3	+1.14	-0.79
4	4.500	+0.045	-0.031
125	133.0	+1.32	-0.79
5	5.250	+0.052	-0.031
125	139.7	+1.42	-0.79
5	5.500	+0.055	-0.031
125	141.3	+1.42	-0.79
5	5.563	-0.056	-0.031
150	159.0	+1.60	-0.79
6	6.250	+0.063	-0.031
150	165.1	+1.60	-0.79
6	6.500	+0.063	-0.031
150	168.3	+1.60	-0.79
6	6.625	+0.063	-0.031
200	216.3	+1.60	-0.79
8	8.516	+0.063	-0.031
200	219.1	+1.60	-0.79
8	8.625	+0.063	-0.031
250	267.4	+1.60	-0.79
10	10.528	+0.063	-0.031
250	273.0	+1.60	-0.79
10	10.750	+0.063	-0.031
300	318.5	+1.60	-0.79
12	12.539	+0.063	-0.031
300	323.9	+1.60	-0.79
12	12.750	+0.063	-0.031
350	355.6	+1.60	-0.79
14	14.000	+0.063	-0.031
400	406.4	+1.60	-0.79
16	16.000	+0.063	-0.031
450	457.2	+1.60	-0.79
18	18.000	+0.063	-0.031
500	508.0	+1.60	-0.79
20	20.000	+0.063	-0.031
550	558.8	+1.60	-0.79
22	22.000	+0.063	-0.031
600	609.6	+1.60	-0.79
24	24.000	+0.063	-0.031

☞ *Refer to page 19 for General notes.*

A ±0.79 ±0.031	B ±0.79 ±0.031	C +0.00 +0.000	Min. Wall t mm/in	Groove Depth d (ref.) mm/in	Nominal Size mm/in
15.88	7.95	23.83-0.38	2.87	1.42	20
0.625	0.313	0.938-0.015	0.113	0.056	3/4
15.88	7.95	30.23-0.38	3.38	1.60	25
0.625	0.313	1.190-0.015	0.133	0.063	1
15.88	7.95	38.99-0.38	3.56	1.60	32
0.625	0.313	1.535-0.015	0.140	0.063	1 1/4
15.88	7.95	45.09-0.38	3.68	1.60	40
0.625	0.313	1.775-0.015	0.145	0.063	1 1/2
15.88	7.95	57.15-0.38	3.91	1.60	50
0.625	0.313	2.250-0.015	0.154	0.063	2
15.88	7.95	69.09-0.46	4.78	1.98	65
0.625	0.313	2.720-0.018	0.188	0.078	2 1/2
15.88	7.95	72.26-0.46	4.78	1.93	65
0.625	0.313	2.845-0.018	0.188	0.076	2 1/2
15.88	7.95	84.94-0.46	4.78	1.98	80
0.625	0.313	3.344-0.018	0.188	0.078	3
15.88	7.95	97.38-0.51	4.78	1.98	90
0.625	0.313	3.834-0.020	0.188	0.078	3 1/2
15.88	9.53	103.73-0.51	5.16	2.11	100
0.625	0.375	4.084-0.020	0.203	0.083	4
15.88	9.53	110.08-0.51	5.16	2.11	100
0.625	0.375	4.334-0.020	0.203	0.083	4
15.88	9.53	129.13-0.51	5.16	1.93	125
0.625	0.375	5.084-0.020	0.203	0.076	5
15.88	9.53	135.48-0.51	5.16	2.11	125
0.625	0.375	5.334-0.020	0.203	0.083	5
15.88	9.53	137.03-0.56	5.16	2.11	125
0.625	0.375	5.395-0.022	0.203	0.083	5
15.88	9.53	154.50-0.56	5.56	2.20	150
0.625	0.375	6.080-0.022	0.219	0.087	6
15.88	9.53	160.80-0.56	5.56	2.16	150
0.625	0.375	6.330-0.022	0.219	0.085	6
15.88	9.53	163.96-0.56	5.56	2.16	150
0.625	0.375	6.455-0.022	0.219	0.085	6
19.05	11.13	211.60-0.64	6.05	2.34	200A
0.750	0.438	8.331-0.025	0.238	0.092	8
19.05	11.13	214.40-0.64	6.05	2.34	200
0.750	0.438	8.441-0.025	0.238	0.092	8
19.05	12.70	262.60-0.69	6.35	2.39	250A
0.750	0.500	10.339-0.027	0.250	0.094	10
19.05	12.70	268.27-0.69	6.35	2.39	250
0.750	0.500	10.562-0.027	0.250	0.094	10
19.05	12.70	312.90-0.76	7.09	2.77	300A
0.750	0.500	12.319-0.030	0.279	0.109	12
19.05	12.70	318.29-0.76	7.09	2.77	300
0.750	0.500	12.531-0.030	0.279	0.109	12
23.83	12.70	350.04-0.76	7.14	2.77	350
0.938	0.500	13.781-0.030	0.281	0.109	14
23.83	12.70	400.84-0.76	7.92	2.77	400
0.938	0.500	15.781-0.030	0.312	0.109	16
25.40	12.70	451.64-0.76	7.92	2.77	450
1.000	0.500	17.781-0.030	0.312	0.109	18
25.40	12.70	502.44-0.76	7.92	2.77	500
1.000	0.500	19.781-0.030	0.312	0.109	20
25.40	14.30	550.06-0.76	9.53	4.37	550
1.000	0.563	21.656-0.030	0.375	0.172	22
25.40	14.30	600.86-0.76	9.53	4.37	600
1.000	0.563	23.656-0.030	0.375	0.172	24

"EP" End Protection Cut Groove Specification

For XH-70 / XH-70EP Coupling (IPS sizes)

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

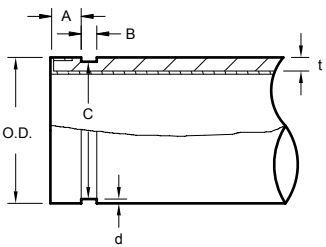
Caution: Groove dimensions and tolerances are different from that of standard cut-grooves shown on page 20. Special attention is required when processing cut-grooves to this standard.

When plastic coatings are applied to the pipe end, the thickness shall not exceed 0.010" (0.25mm).

For roll groove specifications for XH-70 / XH-70EP couplings, contact ***Shurjoint***.

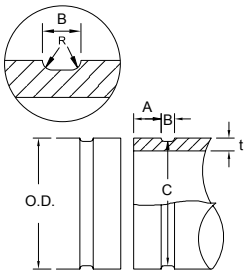
Nominal Size mm/in	Pipe O.D.			Gasket Seat A	
	Basic mm/in	Tolerance mm/in		Basic mm/in	Tol. ± mm/in
50	60.3	+0.61	-0.61	14.27	±0.25
2	2.375	+0.024	-0.024	0.562	±0.010
65	73.0	+0.74	-0.74	14.27	±0.25
2 1/2	2.875	+0.029	-0.29	0.562	±0.010
80	88.9	+0.89	-0.79	14.27	±0.25
3	3.500	+0.035	-0.031	0.562	±0.010
100	114.3	+1.14	-0.79	15.37	±0.38
4	4.500	+0.045	-0.031	0.605	±0.015
150	168.3	+1.60	-0.79	15.37	±0.38
6	6.625	+0.063	-0.031	0.605	±0.015
200	219.1	+1.60	-0.79	18.14	±0.38
8	8.625	+0.063	-0.031	0.714	±0.015
250	273.0	+1.60	-0.79	18.14	±0.38
10	10.750	+0.063	-0.031	0.714	±0.015
300	323.9	+1.60	-0.79	18.14	±0.38
12	12.750	+0.063	-0.031	0.714	±0.015

☞ *Refer to page 19 for general notes.*



Groove Width B		Groove Dia. C		Grv. Depth d (ref.)	Min. Wall t mm/in	Nominal Size mm/in
Basic mm/in	Tol.+0.25/+0.010 mm/in	Basic mm/in	Tol. +0/+0 mm/in			
6.48 0.255	-0.13 -0.005	57.15 2.250	-0.38 -0.015	1.60 0.063	3.91 0.154	50 2
6.48 0.255	-0.13 -0.005	69.09 27.20	-0.46 -0.018	1.98 0.078	4.78 0.188	65 2 1/2
6.48 0.255	-0.13 -0.005	84.94 3.344	-0.46 -0.018	1.98 0.078	4.78 0.188	80 3
7.75 0.305	-0.13 -0.005	110.08 4.334	-0.51 -0.020	2.11 0.083	5.16 0.203	100 4
7.75 0.305	-0.13 -0.005	163.96 6.455	-0.56 -0.022	2.16 0.085	5.56 0.219	150 6
10.16 0.400	-0.25 -0.010	214.4 8.441	-0.64 -0.025	2.34 0.092	6.05 0.238	200 8
10.16 0.400	-0.25 -0.010	268.28 10.562	-0.69 -0.027	2.39 0.094	6.35 0.250	250 10
10.16 0.400	-0.25 -0.010	318.29 12.531	-0.76 -0.030	2.77 0.109	7.09 0.279	300 12

Radius Cut Groove Specification For Ductile Iron Pipe



AWWA Ductile Iron Pipe

Nominal Size mm/in	Pipe O. D.			Gasket Seat A	
		Tolerance		Rigid +0/-0.51 +0/-0.02	Flex. +0.41/-1.19 +0.016/-0.047
	Basic mm/in	+ mm/in	- mm/in	mm/in	mm/in
80	100.6	+1.14	-1.14	21.34	19.05
3	3.96	+0.045	-0.045	0.840	0.750
100	121.9	+1.14	-1.14	21.34	19.05
4	4.80	+0.045	-0.045	0.840	0.750
150	175.3	+1.52	-1.52	21.34	19.05
6	6.90	+0.060	-0.060	0.840	0.750
200	229.9	+1.52	-1.52	24.13	22.23
8	9.05	+0.060	-0.060	0.950	0.875
250	281.9	+1.52	-1.52	25.78	23.83
10	11.10	+0.060	-0.060	1.015	0.938
300	335.3	+1.52	-1.52	25.78	23.83
12	13.20	+0.060	-0.060	1.015	0.938

BS Ductile Iron Pipe

Nominal Size mm	Pipe O. D.			Gasket Seat A	
		Tolerance		Rigid	Flex.
	Basic mm	Max. mm	Min. mm	+0/-0.51 mm	+0/-0.51 mm
80	98.0	99	97	20.6	18.6
100	118.0	119	117	20.6	18.6
150	170.0	171	169	20.6	18.6

General Notes for Radius Cut Groove

Gasket Seating Surface A: The same coupling can be used either as a rigid joint or a flexible joint depending on the groove gasket seating dimension. “Rigid” is for a rigid joint and “Flex.” for a flexible joint. The gasket seating surface shall be free from deep scores, marks, or ridges that would prevent a positive seal.

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 Allowable Wall Thickness t: The ‘t’ is the minimum allowable wall thickness that may be cut-grooved; tolerances must conform to ANSI/ AWWA C151/ A21.51.

Groove Width B +0.79/-0.41 +0.031/-0.016 mm/in	Groove Dia. C		Radius R mm/in	Min. Wall t mm/in	Nominal Size mm/in
	Basic mm/in	Tol. +0 +0 mm/in			
9.53	94.56	-0.51	3.05	7.9	80
0.375	3.723	-0.020	0.120	0.31	3
9.53	115.90	-0.51	3.05	8.1	100
0.375	4.563	-0.020	0.120	0.32	4
9.53	169.06	-0.51	3.05	8.6	150
0.375	6.656	-0.020	0.120	0.34	6
12.70	223.04	-0.64	3.68	9.1	200
0.500	8.781	-0.025	0.145	0.36	8
12.70	274.65	-0.64	3.68	9.7	250
0.500	10.813	-0.025	0.145	0.38	10
12.70	327.81	-0.76	3.68	10.2	300
0.500	12.906	-0.030	0.145	0.40	12

Groove Width B +0.78/-0.41 mm	Groove Dia. C		R mm	Min. Wall t mm	Nominal Size mm
	Basic mm	Tol. +0.00 mm			
10	93	-0.51	3	4.8	80
10	114	-0.51	3	4.8	100
10	166	-0.51	3	4.8	150

Bolts and Nuts

Bolt Torque for Proper Assembly of Couplings

Shurjoint pipe couplings are always supplied with factory bolts and nuts. Always use factory supplied bolts and nuts for assembly of ***Shurjoint*** pipe couplings. Shown below are required torque ranges for proper installation with factory supplied bolts and nuts. These are not maximum torques, though never exceed the listed torque values by more than 25%, as excessive torque could lead to bolt or joint failure. Always tighten nuts evenly and equally by alternating sides to prevent the gasket from being pinched. Pinching of gasket may cause an immediate or delayed leak.

These torque range values can be used for setting the torque on power drivers.

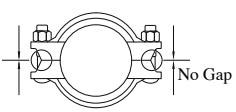
Table 1: Carbon Steel Track Bolts

Bolt Size		Torque Range	
mm	inch	N-m	Lbs - ft
M10	3/8	20 - 30	15 - 22
M12	1/2	40 - 68	30 - 50
M16	5/8	80 - 120	60 - 90
M20	3/4	100 - 235	74 - 170
M22	7/8	170 - 275	125 - 200
M24	1	275 - 400	200 - 300

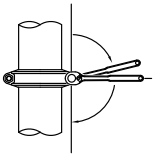
Table 2: Stainless Steel Track Bolts

Bolt Size		Torque Range	
mm	inch	N-m	Lbs - ft
M8	5/16	8 - 15	6 - 11
M10	3/8	17 - 25	12 - 18
M12	1/2	35 - 60	25 - 45
M16	5/8	68 - 100	50 - 75
M20	3/4	85 - 200	65 - 150
M22	7/8	145 - 235	105 - 175

Metal-to-metal Contact: Except those products as listed or page 27, all ***Shurjoint*** grooved couplings are designed so that bolt pads make metal-to-metal contact when properly installed. For these couplings, bolt pad gaps are not acceptable. In many cases proper installation can be achieved with smaller torque values than listed. For couplings smaller than 300 mm / 12" size, the use of a torque wrench is usually not required. After metal-to-metal contact is achieved, tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. For couplings larger than 350 mm / 14" size, tighten nuts until the bolt pads make metal-to-metal contact and continue to tighten nuts until the required torque value is achieved.



Metal - to - metal contact



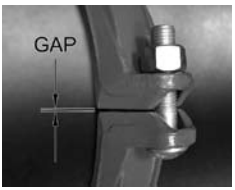
After metal-to-metal, further tighten one quarter or half turn

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

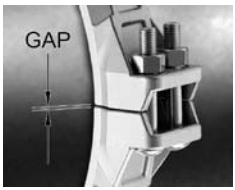
- ☑ The coupling, pipe and or fitting being connected are the correct size.
- ☑ The coupling keys are fully engaged in the pipe and or component grooves.
- ☑ The gasket is not being pinched.
- ☑ The grooves conform to the applicable groove dimension specifications.
- ☑ The pipe end flare is within the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

Metal-to-metal Contact Exceptions:

1. Model 7771 rigid couplings sizes 350 mm / 14" through 600mm / 24"
2. Model SS-7X rigid couplings sizes 250 mm / 10" through 600mm / 24"



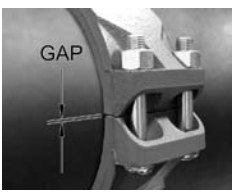
#7771 14" ~ 24"



#SS-7X 10" ~ 24"

For these products, bolts and nuts should be tightened until the applicable bolt torque is achieved. ***Shurjoint*** strongly recommends the use of a torque wrench. Full metal-to-metal contact is not always required but bolt pad gaps, if any, must be even at both sides.

3. Model 79 plain-end couplings 50mm / 2" through 500 mm / 20"



#79 2" ~ 20"


Always use a torque wrench

The Model 79 coupling is designed so that embedded hardened jaws bite into and grip the steel pipe as bolts and nuts are strongly tightened. Therefore, it is essential to tighten bolts and nuts to the required torque values as listed below for the coupling to positively grip the pipe. There will be some gap between the bolts pads even after bolts and nuts are fully tightened.

Minimum Required Torque For Model 79 Plain-End Coupling

Nom. Size mm / in	Bolt Size in	Required Torque N-m / Lbs-Ft
50 / 2	5/8" (2)	200 / 150
65 / 2 1/2	5/8" (2)	200 / 150
80 / 3	3/4" (2)	270 / 200
100 / 4	3/4" (2)	270 / 200
125 / 5	7/8" (2)	340 / 250
150 / 6	7/8" (2)	340 / 250
200 / 8	3/4" (4)	270 / 200

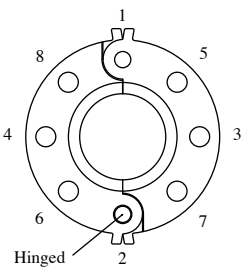
Nom. Size mm / in	Bolt Size in	Required Torque N-m / Lbs-Ft
250 / 10	7/8" (4)	340 / 250
300 / 12	1" (4)	470 / 350
350 /14	1" (4)	470 / 350
400 / 16	1" (4)	470 / 350
450 / 18	1" (8)	470 / 350
500 / 20	1" (8)	470 / 350

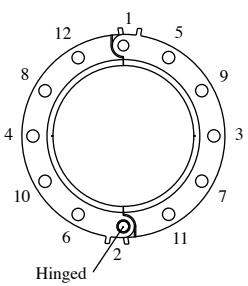
( ) : No. of bolts

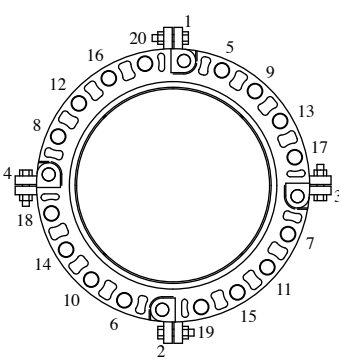
Bolt Torque for Proper Assembly of Flanges

Assembly Bolts & Nuts: Installers are requested to prepare conventional hexagonal bolts and nuts for assembly of ***Shurjoint*** flanges as ***Shurjoint*** does not supply assembly bolts and nuts except for those that are necessary to put the flange segments together.

Bolt Tightening Sequence: ***Shurjoint*** flanges are designed for direct connection of the grooved system to flanged components sealed with elastic gaskets. 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 metal-to-metal contact.







Required Bolt Torque: Shown below are standard torque values for proper assembly of ***Shurjoint*** flanges. Use a torque wrench so that all the nuts are tightened equally with a same torque value. These are not maximum torque values and bolts may be tightened far above the torque values shown here but it is not necessary as ***Shurjoint*** flanges are sealed with elastic (rubber) gaskets, which require much lower torques than that of metallic gaskets.

Table 3: Shurjoint Flanges ANSI Class 125/150 Models 7041-A, H312, SS-41, C341 & A512

Nom. Size inch	Bolt Size inch	Required Torque	
		N-m	Lbs-Ft
2"	5/8 (4)	30 - 50	22 - 37
2 1/2"	5/8 (4)	30 - 50	22 - 37
3"	5/8 (4)	40 - 68	30 - 50
4"	5/8 (8)	40 - 68	30 - 50
5"	3/4 (8)	40 - 68	30 - 50
6"	3/4 (8)	40 - 68	30 - 50
8"	3/4 (8)	68 - 90	50 - 66
10"	7/8 (12)	80 - 120	59 - 89
12"	7/8 (12)	80 - 120	59 - 89
14"	1 (12)	100 - 135	74 - 100
16"	1 (16)	100 - 135	74 - 100
18"	1 1/8 (16)	110 - 160	81 - 118
20"	1 1/8 (20)	110 - 160	81 - 118
24"	1 1/4 (20)	135 - 190	100 - 140

( ): No. of bolts

Table 3a: Shurjoint Flanges PN 10/16 Model 7041-B

Nom. Size mm	Bolt Size mm	Required Torque	
		N-m	Lbs-Ft
50	M16 (4)	30 - 50	22 - 37
65	M16 (4)	30 - 50	22 - 37
80	M16 (8)	40 - 68	30 - 50
100	M16 (8)	40 - 68	30 - 50
125	M20 (8)	40 - 68	30 - 50
150	M20 (8)	40 - 68	30 - 50
200	M20 (12)	68 - 90	50 - 66
250	M24 (12)	80 - 120	59 - 89
300	M24 (12)	80 - 120	59 - 89
350	M24 (16)	100 - 135	74 - 100
400	M27 (16)	100 - 135	74 - 100
450	M27 (20)	110 - 160	81 - 118
500	M30 (20)	110 - 160	81 - 118
600	M33 (20)	135 - 190	100 - 140

( ): No. of bolts

Table 4: Shurjoint Flanges ANSI Class 300 Model 7043

Nom. Size inch	Bolt Size inch	Required Torque	
		N-m	Lbs-Ft
2"	5/8 (8)	40 - 68	30 - 50
2 1/2"	3/4 (8)	68 - 90	50 - 66
3"	3/4 (8)	68 - 90	50 - 66
4"	3/4 (8)	68 - 90	50 - 66
5"	3/4 (8)	68 - 90	50 - 66
6"	3/4 (12)	80 - 120	59 - 89
8"	7/8 (12)	80 - 120	59 - 89
10"	1 (16)	100 - 135	74 - 100
12"	1 1/8 (16)	110 - 160	81 - 118

( ): No. of bolts

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.

Standard Gaskets

Compound	Grade	Color Code	Recommended Services	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)

Special Gaskets

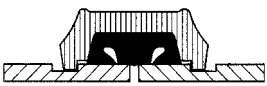
Compound	Grade	Color Code	Recommended Services	Maximum Temp. Range
EPDM	**E-pw**	Double Green Stripes	Specially compounded for cold +86°F (+30°C) and hot +180°F (+82°C) potable water services. The compound is UL classified per ANSI/NSF 61.	≤ +180°F (+82°C)
White Nitrile	**A**	White Gasket	Good for oily 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 (-29°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.	-29°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, aromatic hydrocarbons, lubricants hydraulic fluids, organic liquids and air with hydrocarbons to +300°F (+149°C).	-20°F (-29°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	Recommended Services	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)
Halogenat-ed 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)

Dry Pipe, Freezer and Vacuum Services

1. ***Shurjoint*** recommends the use of the GapSeal Grade E gasket for dry pipe fire protection systems and freezer applications. The GapSeal gasket closes off the gap between the pipe ends and the gasket cavity. This will prevent any remaining liquid from entering the cavities and freezing when temperatures drop.
2. Use a petroleum free silicone based lubricant for dry pipe and freezer systems. Do not use the ***Shurjoint*** standard lubricant.
3. The GapSeal gasket should be used for vacuum services greater than 10 inHg (absolute) / 254 mm Hg (absolute).
4. Rigid couplings are preferred for dry pipe, vacuum and freezer applications. Reducing couplings are not recommended for these applications.



GapSeal Gasket

Pre-Lubricated Gasket

Pre-Lubricated Grade E gaskets are provided with a proprietary coating which eliminates the need for the installer to apply a lubricant during the assembly process.

Lubricant

Shurjoint lubricant Model 550H is a tan colored non-toxic paste. The lubricant is recommended for proper gasket installation and to help prevent the gasket from being pinched. The lubricant is applied in a thin coat to the gasket exterior, the gasket lips and/or the housing interiors. ***Shurjoint*** lubricant is available in one pound (450 grams) and one quart (2 pounds or 900 grams) containers. Certified to ANSI/NSF61.

Size of Gasket (inches)	Number of Gaskets Per Quart
2	400
3	270
4	200
6	125
8	100
10	80
12	60
14	50
16	45
18	35
20	30
24	20

INSTALLATION INSTRUCTIONS

2009 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.

INSTALLATION INSTRUCTIONS

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.

☞ *Refer to page 30 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 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.

Pre-Lube gasket: Normally no lubricant is required when using a pre-lube gasket.

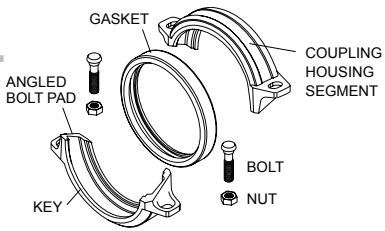
4. INSTALL GASKET: Install the gasket over one end of the pipe so that the pipe end is exposed. No part of the gasket should overhang this end of the pipe.

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 & Z05 Angle Pad Rigid Couplings

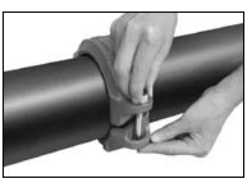
Please read the instructions carefully before installation.

☞ *Refer to page 34 for preliminary steps 1,2,3,4 & 5.*



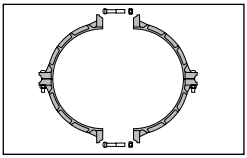
6. ASSEMBLE COUPLING: For a "swing-over" assembly loosely install one bolt and nut on one side of the coupling. For a standard assembly start with the two housings separated.

7. 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. For a standard installation install the coupling halves one at a time. In both cases make sure the coupling keys are engaged in the grooves.



8. 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.

9. TIGHTEN NUTS (For 1 1/4" to 12" Models Z07 and Z05 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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

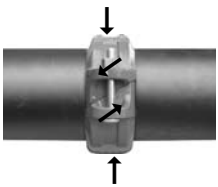


10. LARGE DIAMETER COUPLING: Large diameter couplings over 14" consist of three to four housing segments. To prepare installation, preassemble the segments loosely into two or three equal assemblies depending on sizes. Install those assemblies over the gasket in the same manner as described above.

10a. TIGHTEN NUTS (For 14" to 24" Model Z07 couplings): Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Use a torque wrench and further tighten the nuts until the required torque value is achieved. See page 26 Table 1 for required torque values.

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 a bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

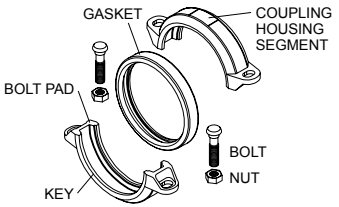


NOTE: As the coupling bolts are tightened, the angled bolt pads slide in opposite directions causing the coupling keys to tightly grip the pipe, while at the same time the pipe grooves are forced outward against the coupling keys. The bolt pads should always maintain metal-to-metal contact.

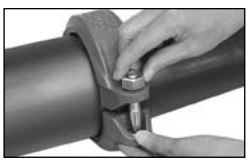
Models 7705, 7705H & 7707 Couplings

Please read the instructions carefully before installation.

☞ *Refer to page 34 for preliminary steps 1,2,3,4 & 5.*

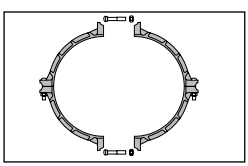


6. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.



7. INSERT BOLT & NUT: Insert the 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.

8. TIGHTEN NUTS (For 3/4" to 12" Models 7705 and 7707 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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.



9. LARGE DIAMETER COUPLING: (14" to 42" Model 7707 couplings) Large diameter couplings over 14" consist of three to four housing segments. To prepare installation, preassemble the segments loosely into two or three equal halves depending on sizes. Install those assemblies over the gasket in the same manner as described above.

9a. TIGHTEN NUTS Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Use a torque wrench and further tighten the nuts until the required torque value is achieved. See page 26 Table 1 for required torque values.

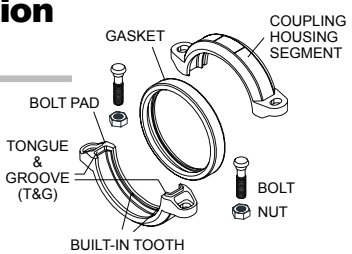
CAUTION

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 a bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

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

Please read the instructions carefully before installation.

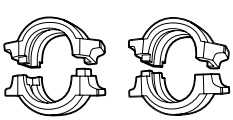
☞ *Refer to page 34 for preliminary steps 1,2,3,4 & 5.*



6. 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.

7. 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. For a standard installation install the coupling halves one at a time. In both cases make sure the coupling keys are engaged in the grooves.

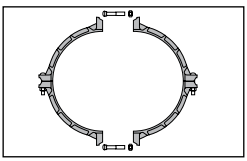
WARNING



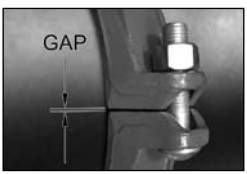
The ***Shurjoint*** Model K-9, K-9H, 7771 & 7771-T couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure,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

8. INSERT BOLT & NUT: For a "swing-over" installation, insert the remaining bolt and apply the nut hand tight. For standard installation, 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.

9. TIGHTEN NUTS (For 1 1/4" 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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.



10. 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.



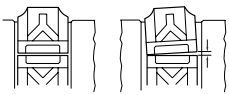
10a. TIGHTEN NUTS (For 14" to 24" Model 7771 couplings): Tighten nuts alternately and equally using a torque wrench until the required torque value is achieved. See page 26 Table 1 for required torque values. Full metal-to-metal contact is not always required but bolt pad gaps, if any, shall be equal on both sides.

If the bolt pad gaps are greater than 3.2mm (1/8"), 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. Excessive tightening of nuts may cause a bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

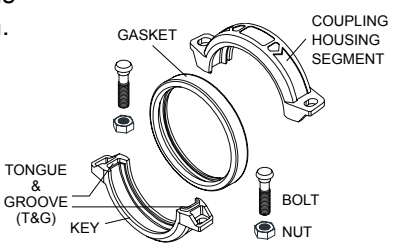


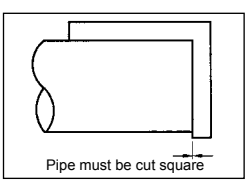
NOTE: When connecting to grooved fittings or cut grooved pipe the gaps between the bolt pads may exceed the designated range. In such cases, grind away the teeth inside the coupling housing keys and re-install the coupling.

*#7771-T is not UL listed

Model R20 Rigid Coupling

Please read the instructions carefully before installation.





1a. 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.

☞ *Refer to page 34 for preliminary steps 1,2,3,4 & 5.*

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 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.

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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

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

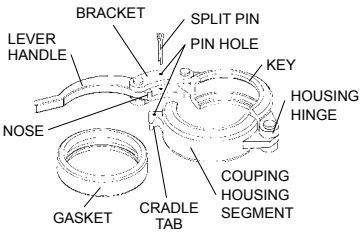
CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause a bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

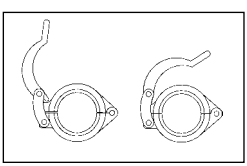
Model G-28 Hinged Lever Coupling

Please read the instructions carefully before installation.

☞ *Refer to page 34 for preliminary steps 1,2,3,4 & 5.*



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

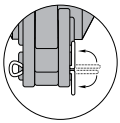


7. ENGAGE HOUSING: Squeeze the housing segments tightly and hook up the nose of the locking handle in the cradle tab of the other housing segment.

8. 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.

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

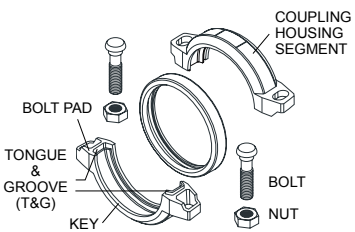
2. Remove the split pin by hand or with the aid of pliers.

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

Model XH-70 Extra Heavy Rigid Coupling

Please read the instructions carefully before installation.

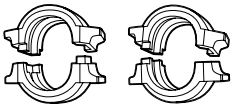
☞ *Refer to pages 34 for preliminary steps 1,2,3,4 & 5*



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

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

WARNING



The ***Shurjoint*** Model XH-70 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 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.

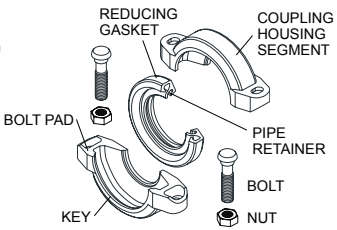
9. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause a bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Model 7706 Reducing Coupling

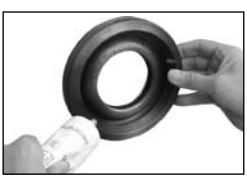
Please read the instructions carefully before installation.



1. INSPECT PIPE ENDS: Make sure that two pipes prepared have the right OD'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. Do not use the EPDM gaskets for hydrocarbons or petroleum services.

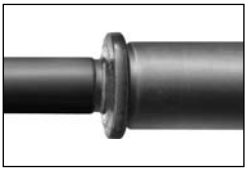
☞ *Refer to page 30 for additional information on **gaskets**.*



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.

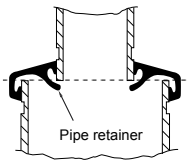
4. MOUNT GASKET ON LARGER PIPE: Mount the larger opening of the gasket over the larger pipe end.

Always mount the larger pipe first.



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 should not be used with an end cap, as the end cap may be sucked into pipe when draining the system.



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 installation is completed.

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.

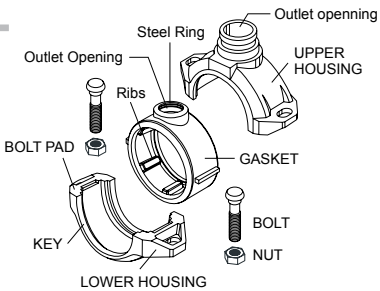
8. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause a bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Models C-7 & C-7G Outlet Couplings

Please read the 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.

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 nuts and bolts are snug and secure. The use of a torque wrench is usually 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. Excessive tightening of nuts may cause a bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

* C-7/C-7G are not UL listed for use on dry pipe fire protection systems.

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

GROOVED OUTLET	
Outlet Size mm / in	Equivalent Length meter (feet)
25	2.7
1	9
32	1.2
1 5/8	4
40	1.2
1 1/2	4
50	4.0
2	13

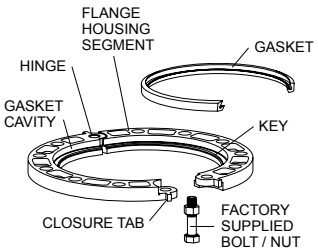
THREADED OUTLET	
Outlet Size mm / in	Equivalent Length meter (feet)
25	0.9
1	3
40	0.9
1 1/2	3

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

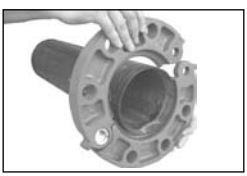
Models 7041 & 7043 Flange (2" - 12")

Please read the instructions carefully before installation.

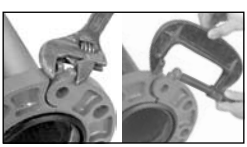
The ***Shurjoint*** Model 7041 flange is drilled to ANSI Class 125/150 and Model 7043 to ANSI Class 300. Model 7041 flanges are also available with drilling to PN10/16 or JIS10K. Please contact ***Shurjoint*** for additional information.



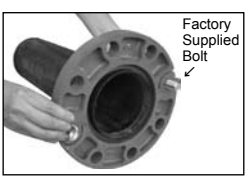
* No closure tabs on # 7043



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

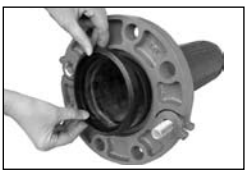
Use of any bolts other than those supplied with the flange could result in a leak or joint failure.

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.

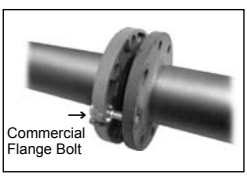
The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

CAUTION: **Do not use EPDM gaskets for hydrocarbons or petroleum services.**

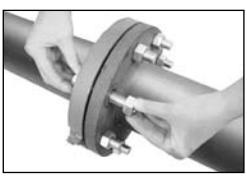
☞ *Refer to page 30 for additional information on **gaskets**.*



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.**



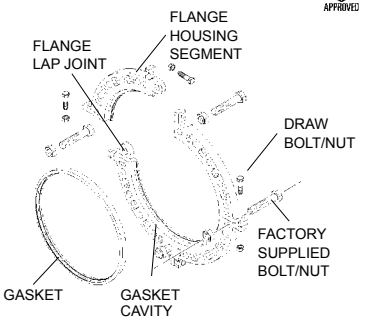
7. ADD BOLTS: Add the remaining **commercial flange bolts** and apply nuts hand tight. All the bolts shall be inserted from one direction.

8. TIGHTEN NUTS (For 2" – 12" Models 7041 & 7043 flanges): 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 29 Table 3, Table 3a and Table 4 for required torque values.

Model 7041 Flange (14" - 24")

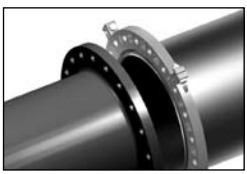
Please read the instructions carefully before installation.

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

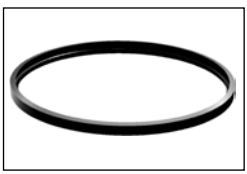


1. ASSEMBLE SEGMENTS: Place the first flange segment onto the pipe making sure that the key is engaged in the groove. As an option, you may put two flange segments together before placing them onto the pipe.

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.

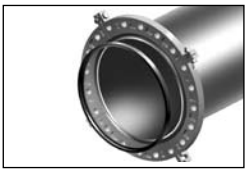


4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

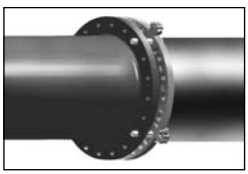
The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services.

CAUTION: **Do not use EPDM gaskets for hydrocarbons or petroleum services.**

☞ *Refer to page 30 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 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.

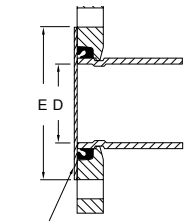
CAUTION

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

8. TIGHTEN NUTS (For 14" – 24" Model 7041 flanges): 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 29 Table 3 and 3a for required torque values.

Model 7041/ 7043 Flange

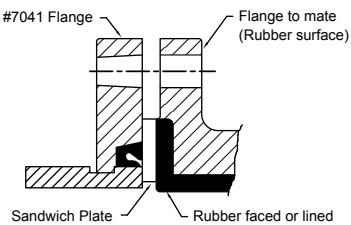
Important Notes:

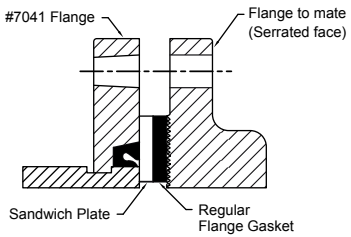


1) The 7041 flange has small triangular teeth inside the key shoulder to prevent the pipe from rotating. The teeth should be ground off when mating to a rubber-lined flange, plastic pipe and or light wall pipe, such as schedule 5.


Sandwich plates

2) The 7041 flange requires a hard flat surface for effective gasket sealing. A sandwich plate must be used when mating to a rubber faced or rubber lined flange and or serrated face flange.



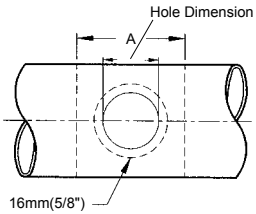


3) When assembling a Model 7041 flange against a butterfly or ball valve, make sure that the outside dimensions of the flange do not interfere with the valve actuator or valve handle.

4) The Model 7041 flange shall not be used as anchor points for tie-rods across non-restrained joints.

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 C-723 Mechanical Tees.



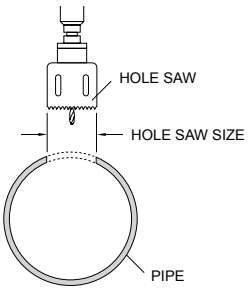
This method of pipe preparation requires the cutting or drilling of a specified hole size on the centerline of the pipe. Always use the correct hole saw size as shown in this handbook and never use a torch for cutting a hole. After the hole has been cut all rough edges must be removed and the area within 5/8" (16mm) 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 torch for cutting a hole.

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

Please refer to the table below for specific hole sizes.

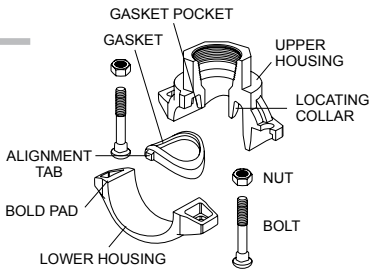


Model 7721 / 7722 / M21 / M22 Mechanical Tee							
	Hole Dimensions		Surface		Hole Dimensions		Surface
Mechanical Tees Run x Branch mm in	Hole Saw Size mm in	Max Dia. Allowed mm in	Preparation A mm in	Mechanical Tees Run x Branch mm in	Hole Saw Size mm in	Max Dia. Allowed mm in	Preparation A mm in
50 x 15	38	41	90	100 x 25	38	41	90
2 x 1/2	1 1/2	1 5/8	3 9/16	4 x 1	1 1/2	1 5/8	3 9/16
50 x 20	38	41	90	100 x 32	51	54	100
2 x 3/4	1 1/2	1 5/8	3 9/16	4 x 1 1/4	2	2 1/8	3 15/16
50 x 25	38	41	90	100 x 40	51	54	100
2 x 1	1 1/2	1 5/8	3 9/16	4 x 1 1/2	2	2 1/8	3 15/16
50 x 32	45*	47*	100	100 x 50	64	67	115
2 x 1 1/4	1 3/4	1 7/8	3 15/16	4 x 2	2 1/2	2 5/8	4 1/2
50 x 40	45*	47*	100	100 x 65	70	73	120
2 x 11/2	1 3/4	1 7/8	3 15/16	4 x 2 1/2	2 3/4	2 7/8	4 3/4
65 x 15	38	41	90	100 x 80	89	92	140
2 1/2 x 1/2	1 1/2	1 5/8	3 9/16	4 x 3	3 1/2	3 5/8	5 1/2
65 x 20	38	41	90	125 x 50	64	67	115
2 1/2 x 3/4	1 1/2	1 5/8	3 9/16	5 x 2	2 1/2	2 5/8	4 1/2
65 x 25	38	41	90	125 x 65	70	73	120
2 1/2 x 1	1 1/2	1 5/8	3 9/16	5 x 2 1/2	2 1/2	2 7/8	4 3/4
65 x 32	51	54	100	150 x 32	51	54	100
2 1/2 x 1 1/4	2	2 1/8	3 15/16	6 x 1 1/4	2	2 1/8	3 15/16
65 x 40	51	54	100	150 x 40	51	54	100
2 1/2 x 1 1/2	2	2 1/8	3 15/16	6 x 1 1/2	2	2 1/8	3 15/16
80 x 15	38	41	90	150 x 50	64	67	115
3 x 1/2	1 1/2	1 5/8	3 9/16	6 x 2	2 1/2	2 5/8	4 1/2
80 x 20	38	41	90	150 x 65	70	73	120
3 x 3/4	1 1/2	1 5/8	3 9/16	6 x 2 1/2	2 3/4	2 7/8	4 3/4
80 x 25	38	41	90	150 x 80	89	92	140
3 x 1	1 1/2	1 5/8	3 9/16	6 x 3	3 1/2	3 5/8	5 1/2
80 x 32	51	54	100	150 x 100	114	117	165
3 x 1 1/4	2	2 1/8	3 15/16	6 x 4	4 1/2	4 5/8	6 1/2
80 x 40	51	54	100	200 x 50	70*	73*	115
3 x 1 1/2	2	2 1/8	3 15/16	8 x 2	2 3/4	2 7/8	4 1/2
80 x 50	64	67	115	200 x 65	70	73	120
3 x 2	2 1/2	2 5/8	4 1/2	8 x 2 1/2	2 3/4	2 7/8	4 3/4
100 x 15	38	41	90	200 x 80	89	92	140
4 x 1/2	1 1/2	1 5/8	3 9/16	8 x 3	3 1/2	3 5/8	5 1/2
100 x 20	38	41	90	200 x 100	114	117	165
4 x 3/4	1 1/2	1 5/8	3 9/16	8 x 4	4 1/2	4 5/8	6 1/2

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

Model 7721 & 7722 Mechanical Tees

Please read the 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 55 for cutting the hole.

Never use a torch for cutting a hole.

2. REMOVE BURRS: Remove burrs and clean the pipe surface within 5/8" (16mm) 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 torch for cutting a hole.

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.

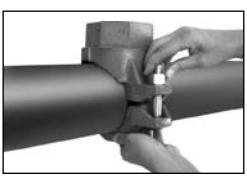
The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services. Do not use EPDM gaskets for hydrocarbons or petroleum services.

☞ *Refer to page 30 for 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.

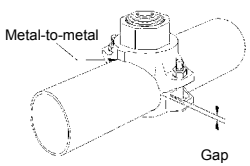
6. POSITION UPPER HOUSING: Place the upper housing on the pipe so that the locating collar engages properly into the hole. Then apply the lower housing from the opposite side of the pipe.



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

Model 7721 & 7722 Mechanical Tees

Nom. Size mm / in	Bolt Size in	Required Torque N-m / Lbs-Ft
50 / 2	3/8 (2)	40 / 30
65 / 2 1/2	1/2 (2)	68 / 50
80 / 3	1/2 (2)	
100 / 4	1/2 (2)	
125 / 5	5/8 (2)	
150 / 6	5/8 (2)	
200 / 8	3/4 (2)	

( ): No. of bolts

CAUTION

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

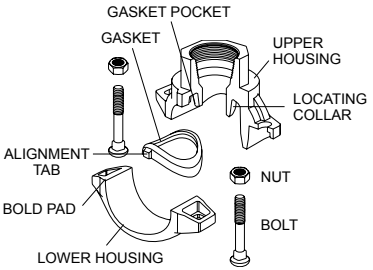
Outlet Flow Characteristics for Mechanical Tee Model #7721 & #7722

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

Meter and feet of Schedule 40 steel outlet pipe with a Hazen-Williams coefficient of friction value of 120.
*Equivalent length for #7721 with a 1-1/2" outlet and 2" or 2-1/2" main run size is 13 feet (4 meters)

Model M21 & M22 Mechanical Tees

Please read the 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 55 for cutting the hole.

Never use a torch for cutting a hole.

2. REMOVE BURRS: Remove burrs and clean the pipe surface within 5/8" (16mm) 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 torch for cutting a hole.

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.

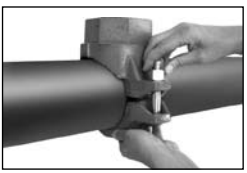
The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services. Do not use EPDM gaskets for hydrocarbons or petroleum services.

☞ *Refer to page 30 for 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.

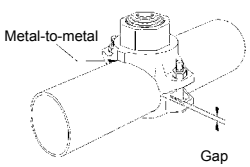
8. CHECK LOCATING COLLAR: Double check to ensure the locating collar is properly seated in the hole. This may be checked by rocking the upper housing in the hole. Also make sure that the oval neck of the bolts engages into the bolt hole of the housing.

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.

Model M21 & M22 Mechanical Tees

Nom. Size mm / in	Bolt Size in	Required Torque N-m / Lbs-Ft
50 / 2	3/8 (2)	40 / 30
65 / 2 1/2	1/2 (2)	68 / 50
80 / 3	1/2 (2)	
100 / 4	1/2 (2)	
125 / 5	5/8 (2)	
150 / 6	5/8 (2)	
200 / 8	3/4 (2)	

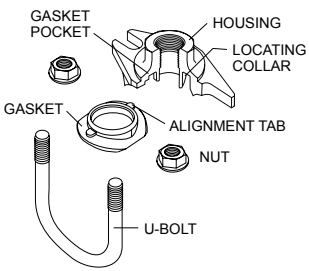
( ): No. of bolts



It is normal to see bolt pad gaps.

Model 723 & SS-723 Saddle-let Small Mechanical Tee

Please read the instructions carefully before installation.



1. HOLE CUT: Determine the location for the hole on the pipe. Use a 1 3/16" (30mm) hole saw and cut a hole at the desired location. Never use a torch for cutting a hole.

Hole Sizes for Mechanical Tees Model 723 & SS-723

Hole Dimension: 1 3/16" (30mm) for all dimensions (1 1/4"~ 2 1/2")

Model 723 Saddle-Let, Model SS-723 Mechanical Tee				
		Hole Dimensions Surface		Surface
Header Size	Branch Size	Hole Saw Size	Max Dia. Allowed	Preparation * "A"
mm in	mm in	mm in	mm in	mm in
32	15, 20, 25	30	32	90
1 1/4	1/2, 3/4 ,1	1 3/16	1 1/4	3 9/16
40	15, 20, 25	30	32	90
1 1/2	1/2, 3/4,1	1 3/16	1 1/4	3 9/16
50	15, 20, 25	30	32	90
2	1/2, 3/4,1	1 3/16	1 1/4	3 9/16
65	15, 20, 25	30	32	90
2 1/2	1/2, 3/4,1	1 3/16	11/4	3 9/16

* Please refer to page 55.

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

CAUTION

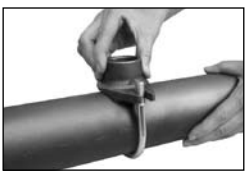
The hole must be cleanly cut and shall have a smooth edge. Never use a torch for cutting a hole.

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

The standard factory supplied gasket is grade E EPDM. Do not use EPDM gaskets for hydrocarbons or petroleum services.

☞ *Refer to page 30 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 22 lb-Ft (30 N-m). **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 mm / in	Equivalent Length meter / feet
25	1.2
1	40

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

STAINLESS STEEL SERIES

How to Install Gaskets - Preliminary Steps -

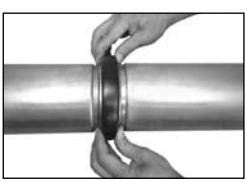
1. INSPECT PIPE ENDS: For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

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 is grade E EPDM, which is green stripe coded and is basically good for water services. Do not use EPDM gaskets for hydrocarbons or petroleum services.

☞ *Refer to page 30 for additional information on **gaskets**.*

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.

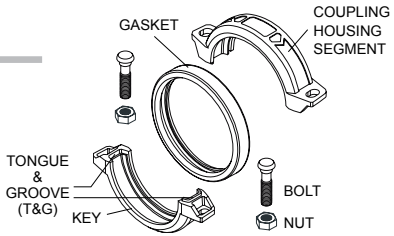


5. BRING THE MATING PIPE TOGETHER: Bring together and align the two pipe ends to be joined. Slide the gasket over the ends and center it between the grooves of the pipe to be joined. No part of the gasket should protrude into the groove of either pipe.

Model SS-7 & SS-7X Stainless Steel Rigid Couplings

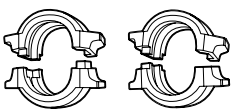
Please read the instructions carefully before installation.

☞ *Refer to page 64 for preliminary steps 1,2,3,4 & 5.*

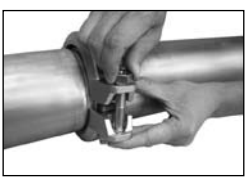


6. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.

WARNING

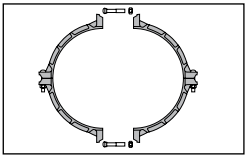


The ***Shurjoint*** Model SS-7 & SS-7X couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage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

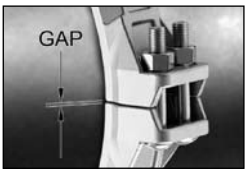


7. INSERT BOLT & NUT: Insert bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.

8. TIGHTEN NUTS (For 1 1/4" to 8" Models 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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.



9. 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.



9a. TIGHTEN NUTS (For 10" – 24" Model SS-7X couplings): Tighten nuts alternately and equally using a torque wrench until the required torque value is achieved. See page 26 Table 2 for required torque values. Full metal-to-metal contact is not always required but bolt pad gaps, if any, shall be equal on both sides.

If the bolt pad gaps are greater than 3.2mm (1/8"), 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.

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

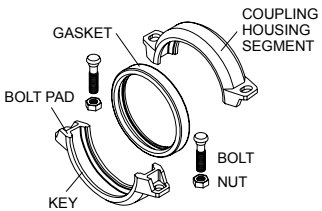
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 2, page 26) by more than 25%.

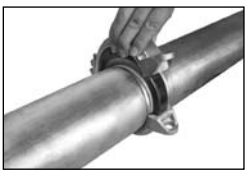
* SS-7X is not UL listed.

Model SS-8 & SS-8X Stainless Steel Standard Couplings

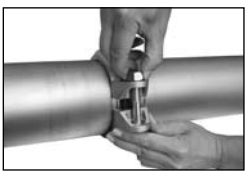
Please read the instructions carefully before installation.

☞ *Refer to page 64 for preliminary steps 1,2,3,4 & 5.*





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 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 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 nuts and bolts are snug and secure. The use of a torque wrench is usually 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 !

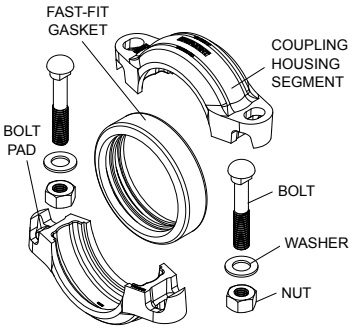
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 2, page 26) by more than 25%.

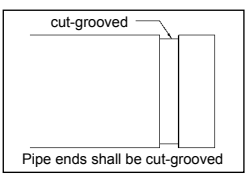
* SS-8X is not UL listed.

Model SS-1200 Stainless Steel Flexible Coupling

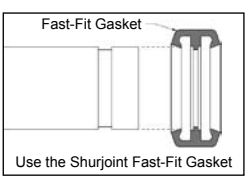
Please read the instructions carefully before installation.

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.

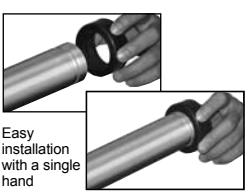




1. CUT GROOVE PIPE ENDS: Cut groove the pipe ends to be connected. The performance standards do not support use with roll-grooved pipe ends.

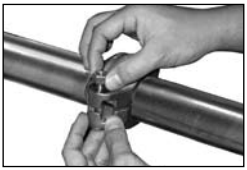


2. CHECK GASKET: Always use the factory supplied ***Shurjoint Fast-Fit*** gasket. Performance standards do not support the use of a standard gasket in the SS-1200 coupling. Use of a lubricant is usually not required. If a lubricant is used make sure to use the Shurjoint or other compatible NSF-61 approved lubricant.

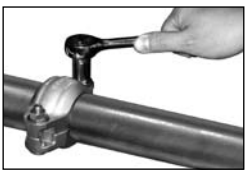


3. MOUNT GASKET ON PIPE ENDS: Insert one pipe end into the ***Fast-Fit*** gasket, then insert the other pipe end to be connected into the other side of the gasket. The ***Fast-Fit*** gasket design allows for the direct insertion of the pipe ends into the gasket without stretching the gasket.

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.

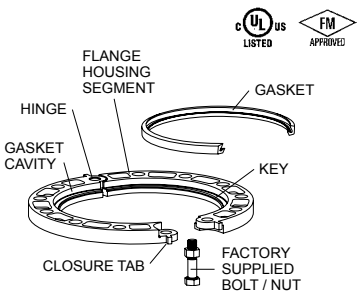


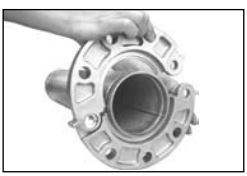
6. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is usually not required.

Model SS-41 Flange

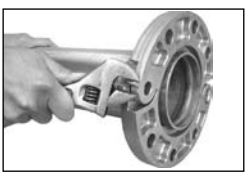
Please read the instructions carefully before installation.

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

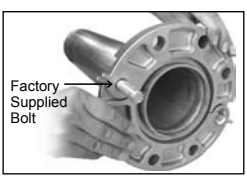




1. MOUNT HINGED FLANGE SEGMENTS: Fully open the Model SS-41 hinged flange segments. Place the flange segments around the groove of the pipe end and pull together until the mating bolt holes of the ends come to align.



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.

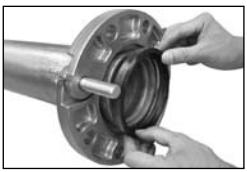


3. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** **factory supplied bolt** through the mating hole making sure that the flange is fully engaged in the pipe grooves. Use of any bolt other than the one supplied with the flange could result in a leak or joint failure.

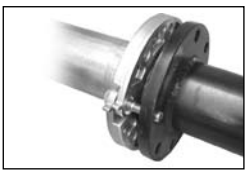
4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

The standard factory supplied gasket is grade E EPDM, which is green stripe coded and is basically good for water services. Do not use EPDM gaskets for hydrocarbons or petroleum services.

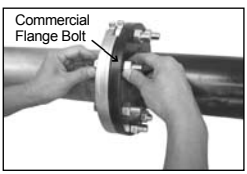
☞ *Refer to page 30 for additional information on **gaskets**.*



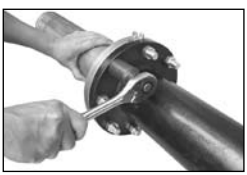
5. INSTALL GASKET: Place the gasket into the cavity between the pipe O.D., and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the flange recess.



6. MATE ADJOINING FLANGE: Insert **commercial flange bolt** in the 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 a same torque value. See page 29 Table 3 for required torque values.

COPPER TUBING SERIES

How to Install Gaskets - Preliminary Steps -

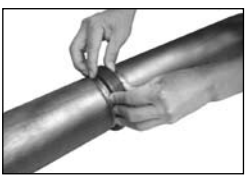
1. INSPECT PIPE ENDS: For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

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 Gap-Seal gasket for potable water applications (double green stripe). Do not use E-pw gaskets for hydrocarbons or petroleum services.

☞ *Refer to page 30 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 NSF61 approved lubricant must be used. If you are not using ***Shurjoint*** lubricant make sure the lubricant you are using is NSF 61 approved.

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.

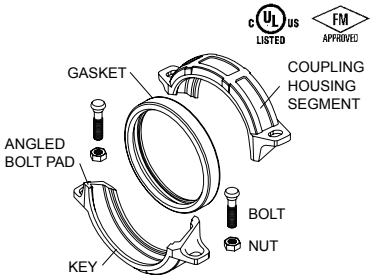


5. BRING THE MATING PIPE TOGETHER: Bring together and align the two pipe ends to be joined. Slide the gasket over the ends and center it between the grooves of the pipes to be joined. No part of the gasket should protrude into the groove of either pipe.

Model C305 Rigid Coupling

Please read the instructions carefully before installation.

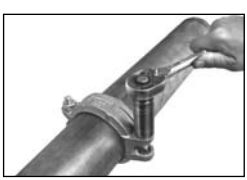
☞ *Refer to page 71 for preliminary steps 1,2,3,4 & 5*



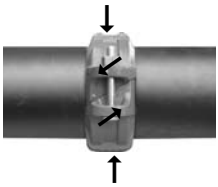
6. ASSEMBLE COUPLING: If assembled remove one nut and bolt from one side of the coupling and loosen the nut on the opposite side. If unassembled loosely install one bolt and nut on one side of the coupling. This assembly with one bolt and nut allows for a “swing-over” installation.

7. 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.

8. 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.



9. 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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.



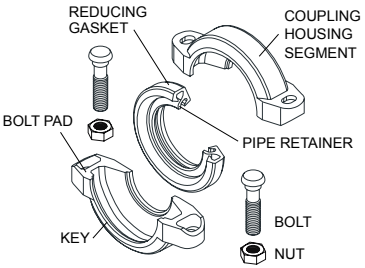
NOTE: As the coupling bolts are tightened, the angled bolt pads slide in opposite directions causing the coupling keys to tightly grip the pipe, while at the same time the pipe grooves are forced outward against the coupling keys. Bolt pads should always maintain metal-to-metal contact.

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. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Model C306 Reducing Coupling

Please read the instructions carefully before installation.



1. INSPECT PIPE ENDS: Make sure that two pipes prepared have the right OD'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 Gap-Seal gasket for potable water applications (double green stripe). Do not use E-pw gaskets for hydrocarbons or petroleum services.

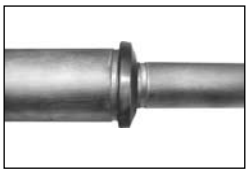
☞ *Refer to page 30 for additional information on **gaskets**.*

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 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.

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.

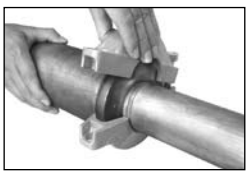
4. MOUNT GASKET ON LARGER PIPE: Mount the larger opening of the gasket over the larger pipe end.

Always mount the larger pipe first.

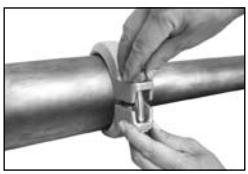


5. INSERT SMALLER PIPE: Insert the smaller pipe into the gasket. A slight twisting motion of the pipe will make for easier assembly. The gasket shall neither overhang pipe end nor go into the groove of either pipe.

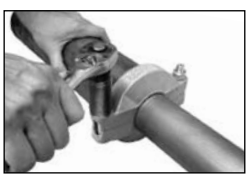
Caution: The model C306 coupling should not be used with an end cap, as the end cap may be sucked into pipe when draining the system.



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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

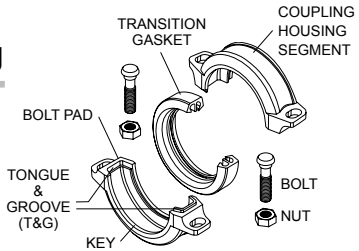
CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Model C307 Transition Coupling

Please read the instructions carefully before installation.

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

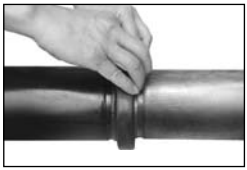


1. PREPARE PIPES: Make sure that the IPS steel pipe and copper tubing prepared have the right OD's and are properly roll- or cut-grooved. For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects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

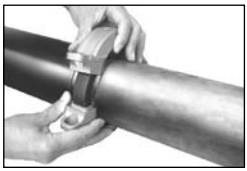
2. CHECK GASKET : Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket for the copper series is a grade E-pw Gap-Seal gasket for potable water applications (double green stripe).

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.

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

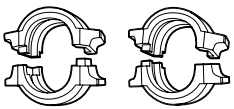


5. INSERT COPPER TUBING: Bring together and align the two pipes to mated. Insert the copper tubing into the gasket. A slight twisting motion will make for a easier assembly. The gasket shall neither overhang the pipe end or either groove on the pipes.



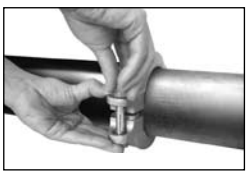
6. INSTALL COUPLING HALVES: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.

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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

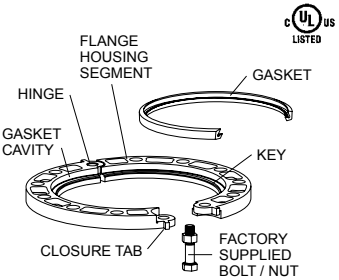
CAUTION

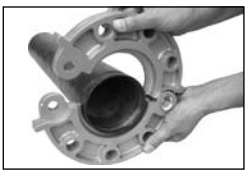
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Model C341 Flange for Copper Tubing

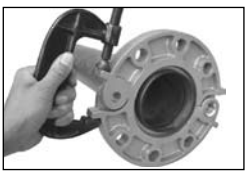
Please read the instructions carefully before installation.

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





1. MOUNT HINGED FLANGE SEGMENTS: Fully open the Model C-341 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.

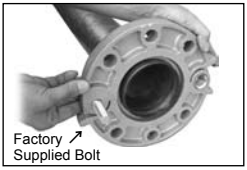


2. DRAW FLANGE SEGMENTS: Use a wrench, C-clamp or other similar tool to draw the closure tabs together until the mating holes are aligned.

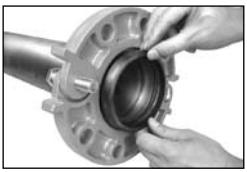
3. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

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

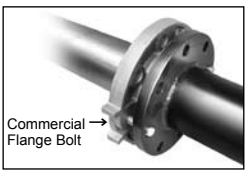
☞ *Refer to page 30 for additional information on **gaskets**.*



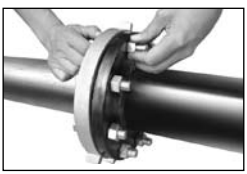
4. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** **factory supplied bolt** through the mating hole making sure that the flange is fully engaged in the pipe grooves. Use of any bolt other than the one supplied with the flange could result in a leak or joint failure.



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.**



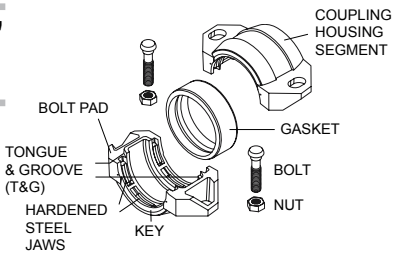
7. ADD BOLTS: Add the remaining **commercial flange bolts** and apply the nuts hand tight. All the bolts shall be inserted from the same direction.

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 page 29 Table 3 for required torque values.

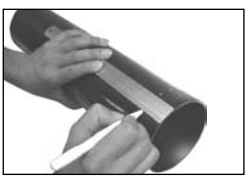
PLAIN-END IPS PIPING SYSTEM

Model 79 "Wildcat" Coupling

Please read the 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, HDP, cast iron or other brittle pipe.



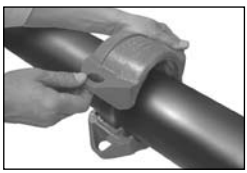
1. MARKING: Use a marking pen or other marking tool and measuring tape to place marks on each pipe end, 1" from each end.

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. Do not use EPDM gaskets for hydrocarbons or petroleum services.

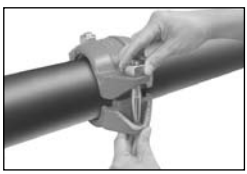
☞ *Refer to page 30 for additional information on **gaskets**.*

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 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.

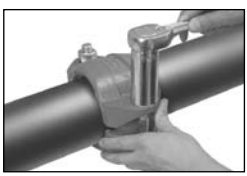
4. INSTALL GASKET: Place a gasket over the pipe ends and center the gasket in between the marks. The pipe ends should always be butted against each other.



5. MOUNT HOUSINGS: Place the housings over the gasket, ensuring the gasket stay centered between the marks made on the pipe ends. Also make sure that housing tongue and groove (T&G) mate correctly.



6. 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.



7. TIGHTEN NUTS: Tighten nuts alternately and equally until the required torque value is achieved. Shurjoint strongly recommends the use of a torque wrench to attain a sufficient and adequate torque for bolt fastening. For required torque values, see table below.

Mininum Required Torque for Model 79 Plain-End Coupling

Nom. Size mm / in	Bolt Size in	Required Torque N-m / Lbs-Ft
50 / 2	5/8" (2)	200 / 150
65 / 2 1/2	5/8" (2)	200 / 150
80 / 3	3/4" (2)	270 / 200
100 / 4	3/4" (2)	270 / 200
125 / 5	7/8" (2)	340 / 250
150 / 6	7/8" (2)	340 / 250
200 / 8	3/4" (4)	270 / 200

Nom. Size mm / in	Bolt Size in	Required Torque N-m / Lbs-Ft
250 / 10	7/8" (4)	340 / 250
300 / 12	1" (4)	470 / 350
350 / 14	1" (4)	470 / 350
400 / 16	1" (4)	470 / 350
450 / 18	1" (8)	470 / 350
500 / 20	1" (8)	470 / 350

( ) : No. of bolts

! 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. Do not exceed the above listed torque values by more than 25%.

PLAIN-END HDP PIPING SYSTEM

The ***Shurjoint*** HDP series of piping components are designed to provide a fast and easy way to mechanically join HDPE (high density polyethylene) or HDPB (high density polybutylene) pipe. These components are designed to join HDP pipe and fittings conforming to ASTM D2447, D3000, D3035 or F714 (metric sizes to ISO 161/1, DIN8074 and AS8074), 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*** HDP piping components are rated to the same pressure as that of the HDP pipe they are used in conjunction with.

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

HDP PIPE

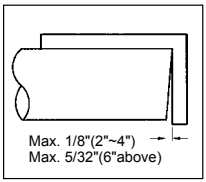
This chart shows the allowed dimensional tolerances of HDPE (high density polyethylene) or HDPB (high density polybutylene) rigid pipe with SDR 20 at +70°F (+21°C).

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

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

How to Install Gaskets - Preliminary Steps -

1. SQUARE CUT HDP PIPE: HDP pipe must be cut square. The maximum allowed tolerances are 1/8" (3.2mm) on HDP pipe sizes 2" to 4" and 5/32" (4.0mm) 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.

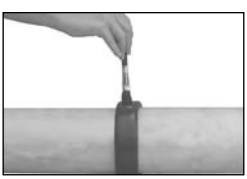


2. MARKING: Use a marking pen or other marking tool and measuring tape to place marks on each pipe end, 1" from each end.

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.

☞ *Refer to page 30 for additional information on **gaskets**.*

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



5. LUBRICATE THE GASKET: Lubricate the back of the gasket with a silicone based lubricant. Corn oil, soybean oil and glycerin can also be used on HDP piping system.

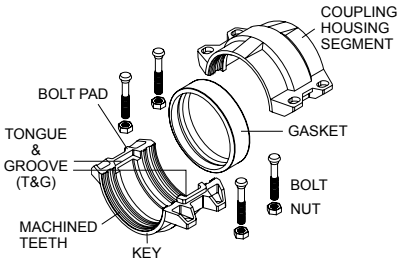
WARNING

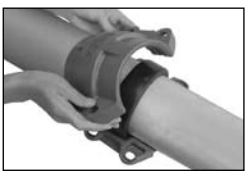
Do not use the ***Shurjoint*** standard lubricant, which is designed for steel pipe use. Do not use hydrocarbon based oils, grease or soap based solutions.

Model H305 HDP Series

Please read the instructions carefully before installation.

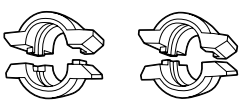
☞ *Refer to page 83 for preliminary steps 1,2,3,4 & 5*





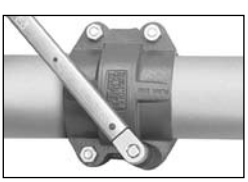
6. MOUNT HOUSINGS: Place the housings over the gasket, ensure the gasket stays centered between the marks made on the pipe ends. Also make sure that housing tongue and groove (T&G) mate correctly.

WARNING



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.

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 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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

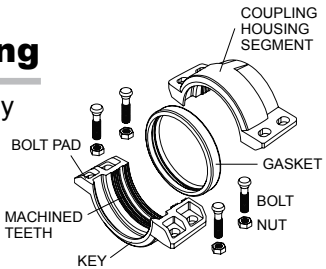
CAUTION

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

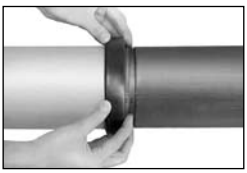
Model H307
HDP Transition Coupling

Please read the instructions carefully before installation.

☞ *Refer to page 83 for preliminary steps 1,2,3,4 & 5*

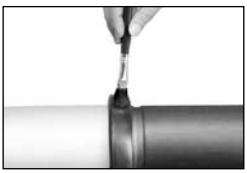


The ***Shurjoint*** Model H307 transition coupling provides for a direct transition from HDP pipe to IPS steel pipe of the same outside diameter. The Model 307 transition coupling must be installed with its machined teeth side on the HDP pipe and key section side on the grooved steel pipe.



6. JOIN THE PIPE ENDS: Place a gasket over the pipe ends and center the gasket in between the mark on HDP 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 HDP pipe and steel pipe is 1/4" (6.3mm) on pipe 2" – 4" and 5/16" (7.9mm) on pipe 6" and larger.



7. LUBRICATE THE GASKET: Lubricate the back of the gasket with a silicone based lubricant. Corn oil, soybean oil and glycerin can also be used on HDP 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.

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

9. 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.

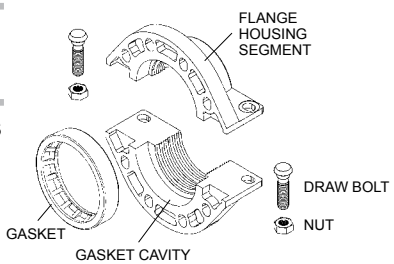
10. TIGHTEN NUTS: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

CAUTION

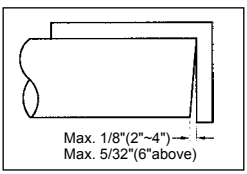
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Model H312 HDP Flange

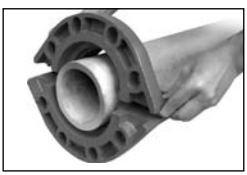
Please read the instructions carefully before Installation.



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



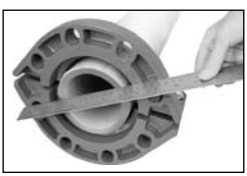
1. SQUARE CUT HDP PIPE: HDP pipe must be cut square. The maximum allowed tolerances are 1/8" (3.2mm) on HDP pipe sizes 2" to 4" and 5/32" (4.0mm) on 6" and larger sizes. Make sure that the pipe end, within 1" from the end, is clean and free from indentations, projections, scratches or other harmful surface defects such as scale, chips, grease, etc.



2. MOUNT HOUSING: Place the flange housings over HDP pipe. The flange must be assembled with its machined teeth on the HDP pipe. The gasket cavity must face the pipe end. Fasten the draw bolts and nuts loosely.

CAUTION

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



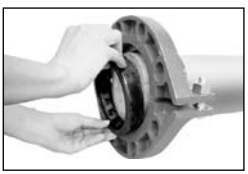
3. FLUSH FACE: The HDP pipe end must be flush with the flange face. Use a ruler or other tool to verify this and, if not flush as intended, make the necessary adjustment.

4. TIGHTEN DRAW BOLTS: Tighten the draw bolts and nuts alternately and equally until the housing bolt pads meet forming metal-to-meta contact.

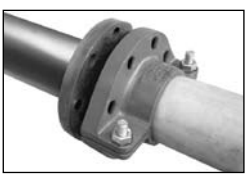
5. CHECK GASKET AND LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service.
Lubricate the back of the gasket with a silicone based lubricant. Corn oil, soybean oil and glycerin can also be used on HDP piping system.

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 either.

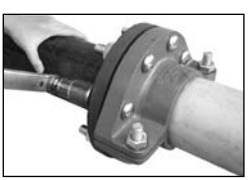


6. INSTALL GASKET: Mount the gasket into the cavity between the pipe OD and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the flange recess.



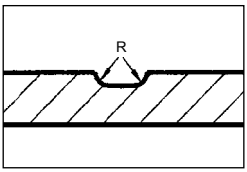
7. MATE ADJOINING FLANGE: Bring the adjoining flange face to face with the Model H312 flange.

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.



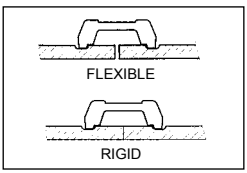
9. TIGHTEN NUTS: Tighten all nuts evenly as with a regular flange assembly, until faces contact firmly. Apply the recommended flange joint torque evenly to all the bolts. See page 29 Table 3 for required torque values.

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).

☞ *Refer to Table page 24 for radius cut grooves.*



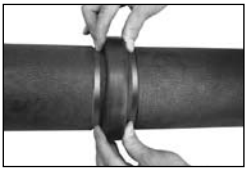
2. RIGID OR FLEXIBLE: There are two different radius grooves, one for flexible joints and one for rigid joints. The same ***Shurjoint*** AWWA couplings are used for both types of grooves. Standard ***Shurjoint*** AWWA fittings are manufactured with a rigid cut groove.

3. INSPECT PIPE ENDS: 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.

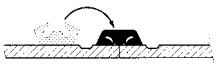
4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. The standard factory supplied gasket is grade M, Halogenated Butyl gasket, which is brown color coded and is basically good for water services. Apply a thin 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 30 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.

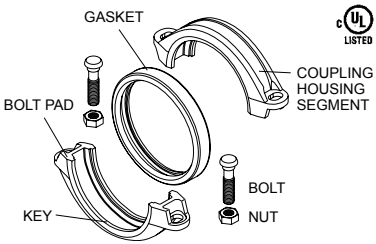


NOTE: For larger sizes you may turn the gasket inside out before mounting on the pipe end. Lubricate the gasket and slide over the pipe end and flip back the gasket into position.

Model A505 Coupling

Please read the instructions carefully before installation.

☞ *Refer to page 89 for preliminary steps 1,2 ,3 ,4 ,5 & 6.*



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

8. 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.

9. 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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

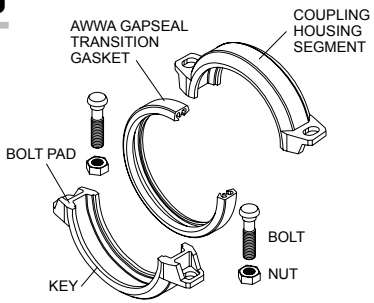
! CAUTION !

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Model A507 Transition Coupling

Please read the instructions carefully before installation.

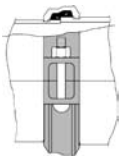
The ***Shurjoint*** Model A507 provides a direct transition from grooved IPS steel pipe to grooved AWWA ductile iron (or cast iron) pipe.



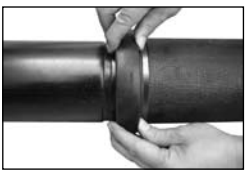
☞ *Refer to page 89 for preliminary steps 1,2 ,3 & 4.*

5. 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

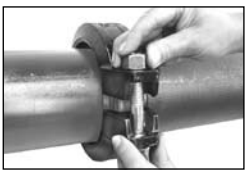


The difference of pipe OD's between AWWA pipe (larger side) and IPS pipe (smaller side) is not always conspicuous. Special attention should be paid when mounting the gasket to ensure proper assembly.



6. 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.

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



8. 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.

9.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 nuts and bolts are snug and secure. The use of a torque wrench is usually not required.

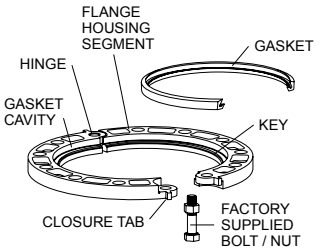
CAUTION

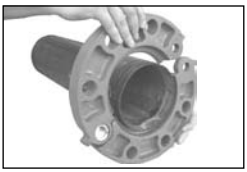
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause bolt or joint failure. Do not exceed the listed torque values (Table 1, page 26) by more than 25%.

Model A512 Flange (2" - 12")

Please read the instructions carefully before installation.

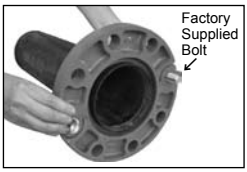
The Model A512 flange is designed for AWWA ductile iron pipe use only, not applicable to any other pipe.





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.

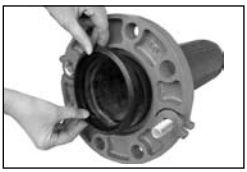


3. INSERT THE FACTORY SUPPLIED BOLT: Insert the ***Shurjoint*** **factory supplied bolt** through the mating hole making sure that the flange is fully engaged in the pipe grooves. Use of any bolt other than the one supplied with the flange could result in a leak or joint failure.

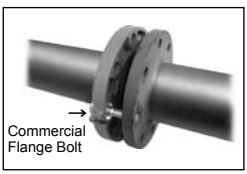
4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

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

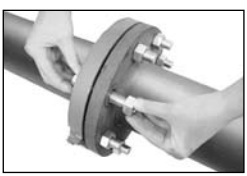
☞ *Refer to page 30 for additional information on **gaskets**.*



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 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.

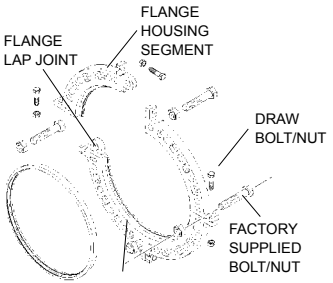
8. TIGHTEN NUTS: Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. Use a torque wrench so that all the nuts are tightened with the same torque value. See page 29 Table 3 for required torque values.

* A-512 in size 12" is not cUL listed.

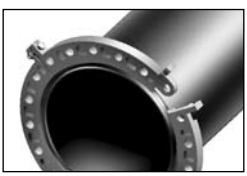
Model A512 Flange (14" - 24")

Please read the instructions carefully before installation.

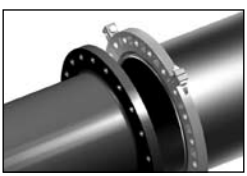
The ***Shurjoint*** Model A512 flange is drilled to ANSI Class 125/150.



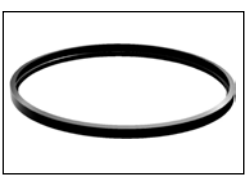
1. ASSEMBLE SEGMENTS: Place the first flange segment onto the pipe making sure that the key is engaged in the groove. As an option, you may put two flange segments together before mounting them onto the pipe.



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.



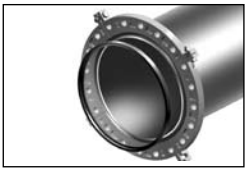
3. ALIGN FLANGE: Rotate the assembled flange so that the bolt holes are aligned to the bolt holes of the mating flange. When necessary, loosen draw bolts to allow easy rotation. Then tighten the draw bolts uniformly to form a complete flange.



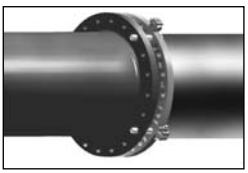
4. CHECK GASKET GRADE & LUBRICATE: Check the color code of the gasket and make sure that the gasket supplied is correct for the intended service. Then, apply a thin layer of ***Shurjoint*** Lubricant to the sealing lip of the gasket.

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

☞ *Refer to page 30 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 A 512 flange and insert the four factory supplied bolts through the four bolt holes at the flange lap joints.

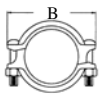
7.MATE ADJOINING FLANGE: Apply four nuts on the four factory supplied bolts and provisionally tighten them.

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 page 29 Table 3 for required torque values.

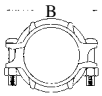
PRODUCT DATA

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*** general catalog for other dimensions.

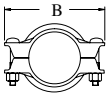
Grooved Couplings



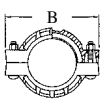
#Z07

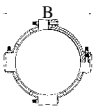


#Z05



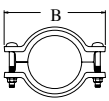
#7705



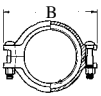


#7707

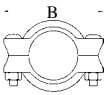
#G-28



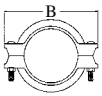
#K-9



#7771



#XH-70

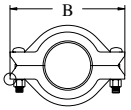


#R20

Nominal Size Inches	#Z07 B	#Z05 B	#7705 B	#7707 B	#G-28 B	#K-9 B	#7771 B	#XH-70 B	#R20 B
3/4				3 3/4					
1			3 15/16	3 7/8					4 1/8
1 1/4	4 1/8	4	4 1/16	4 1/4		4		4 1/8	4 1/4
1 1/2	4 9/16	4 5/16	4 1/4	4 7/8	4 5/8	4 1/4	4 5/16	4 1/4	4 15/16
2	4 3/4	4 5/8	5 1/16	5 1/4	4 3/4	4 7/8	4 15/16	4 15/16	5 7/16
2 1/2	5 1/2	5 3/16	5 5/8	6 1/2	5 7/8	5 3/8	5 13/16	5 7/16	4 9/16
3 O.D.	5 3/4	5 3/8	5 13/16	6 9/16	5 7/8	5 1/2	5 7/8	5 9/16	6 3/16
3	6 3/16	5 7/8	6 5/8	6 3/4	6 7/16	5 15/16	6 11/16	6 3/16	
3 1/2			7 7/8						
4 1/4 O.D.			7 9/16			7	7 5/8		
4	7 13/16	7 3/16	7 3/4	8 3/8	8 1/16	7 1/4	7 3/4	7 1/2	7 1/2
5 1/4 O.D.			9 1/8			8 5/8	9 11/16		
5 1/2 O.D.	9 1/4	8 15/16	9 3/16	9 1/2	9 15/16	8 7/8	9 13/16	9 1/4	9 1/4
5	9 1/4	9 1/16	9 3/16	9 1/2	9 15/16	8 15/16	9 13/16	9 5/16	9 15/16
6 1/4 O.D.			9 15/16			9 11/16	10 11/16		
6 1/2 O.D.	10 3/16	9 11/16	10 1/4	11 1/4	10 15/16	9 15/16	11 1/16	9 5/16	9 15/16
6	10 3/8	9 13/16	10 9/16	11 3/8	11 1/16	10 1/16	11 1/16	9 3/4	10 3/32
216.3 mm			13 11/16	14			13 5/8	10 3/32	
8	13 7/16	13	13 3/4	14	14 1/16	13 15/16	13 5/8	14 1/8	
267.4 mm			16 9/16	16 1/2			15 3/16		
10	17		16 3/4	16 3/4	17 13/16		16 1/4	16 15/16	
318.5 mm			18 13/16	18 13/16			17 1/2		
12	18 7/8		18 3/8	18 3/8	19 7/16		18 7/16	18 15/16	
14	19 7/8			20			19 3/4		
16	21 7/8			22 3/8			22 1/4		
18	23 7/8			24 3/8			24 3/8		
20	27 1/2			27 1/2			26 7/8		
22				29 3/16			28 5/16		
24	31 5/8			31 3/8			30 7/8		

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

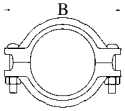
Model 7706 Reducing Coupling



#7706

Nominal Size Inches	#7706 B
1 1/2 x 1 1/4	4 1/4
2 x 1 1/2	4 13/16
2 1/2 x 2	5 11/16
3 O.D. x 2	5 7/16
3 x 2	6 5/8
3 x 2 1/2	6 5/8
3 x 3 O.D.	6 5/8
4 x 2	7 13/16
4 x 2 1/2	7 13/16
4 x 3 O.D.	7 13/16
4 x 3	7 13/16
5 1/2 O.D. x 4	9 7/8
6 1/2 O.D. x 3	10 9/16
6 x 3	10 13/16
6 1/2 O.D. x 4	10 9/16
6 x 4	10 13/16
6 x 6 1/2 O.D.	10 5/8
8 x 6	13 1/8
8 x 6 1/2 O.D.	13 1/8

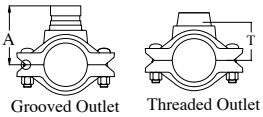
Model 7771-T Transition Coupling



#7771-T

Nominal Size Inches	#7771T B
6 x 6 1/2 O.D.	10 5/8
8 x 216.3mm	13 3/16
10 x 267.4mm	15 1/4
12 x 318.5mm	17 5/8

Model C-7 Outlet Coupling

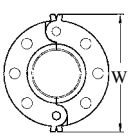


#C-7 Outlet Conpling

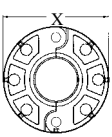
Nominal Size Inches			T*	A
Run Pipe	Outlet FPT	Outlet Gr/MPT		
1 1/2	1/2		2 1/16	
	3/4		2 1/16	
	1		1 15/16	
2	1/2		2 5/16	
	3/4		2 5/16	
	1	1	2 3/16	3 1/2
2 1/2	1/2		2 3/16	
	3/4		2 9/16	
	1		2 7/16	
	1 1/4	1 1/4	3 1/2	3 11/16
	1 1/2	1 1/2		3 11/16
3	3/4		2 13/16	
	1	1	2 3/4	4
		1 1/2		4
4	3/4		3 11/16	
	1		3 9/16	
	1 1/2	1 1/2	3 5/16	4 7/8
		2		4 7/8
6	1 1/2	1 1/2	4 3/4	6 1/16
		2		6 1/16

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

Grooved Flanges



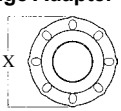
#7701-A, 7041-B



#7043

Nominal Size Inches	#7041-A W	#7043 X	#7041-B W(mm)
2	6 13/16	6 1/2	185
2 1/2	6 13/16	7 1/2	
3 O.D.			205
3	8 5/16	8 1/4	220
4	9 13/16	10	240
5	10 13/16	11	
6 1/2 O.D.			305
6	11 13/16	12 1/2	305
8	14 7/16	15	364
10	16 15/16	17 1/2	439
12	19 15/16	20 1/2	484
14	22 3/16		550
16	24 11/16		610
18	26 5/8		670
20	28 11/16		745
24	32 3/16		870

Model 7180 Universal Flange Adapter

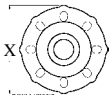


#7180

Nominal Size Inches	7180 X
2	6 1/2
2 1/2	7 1/4
3 O.D.	7 1/4
3	7 7/8
4	9
5 1/2 O.D.	9 7/8
5	9 7/8
6 1/2 O.D.	11 1/2
6	11 1/2
8	13 1/2
216.3mm	13 1/2

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Model 7181 Universal Reducing Flange Adapter

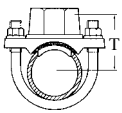


#7181

Nominal Size Inches	7181 X
3 x 2	8 3/16
4 x 2 1/2	8 7/8
4 x 3 O.D.	8 7/8
4 x 3 O.D.	8 7/8
6 x 4	11 1/2

Hole-Cut Piping System

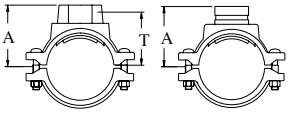
Model 723 Saddle-let (Small Mechanical Tee)



#723

Nominal Size Inches	T
1 1/4 x 1/2	1 3/8
1 1/4 x 3/4	1 3/8
1 1/4 x 1	1 1/2
1 1/2 x 1/2	1 3/8
1 1/2 x 3/4	1 3/8
1 1/2 x 1	1 1/2
2 x 1/2	1 5/8
2 x 3/4	1 5/8
2 x 1	1 3/4
2 1/2 x 1/2	2
2 1/2 x 3/4	2
2 1/2 x 1	2 1/8

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



#7721 #M21 #7722, #M22

Nominal Size Run x Branch	#7721		#7722
	T*	A	A
2 x 1/2	1 15/16	2 1/2	
2 x 3/4	1 15/16	2 1/2	
2 x 1	2	2 11/16	2 11/16
2 x 1 1/4	2 1/8	2 13/16	2 13/16
2 x 1 1/2	2 1/8	2 13/16	2 13/16
2 1/2 x 1/2	2 1/4	2 13/16	
2 1/2 x 3/4	2 5/16	2 7/8	
2 1/2 x 1	2 1/4	2 15/16	2 15/16
2 1/2 x 1 1/4	2 3/8	3 1/8	3 1/8
2 1/2 x 1 1/2	2 3/8	3 1/8	3 1/8
3 x 1/2	2 7/16	3 3/16	
3 x 3/4	2 7/16	3 3/16	
3 x 1	2 1/2	3 3/16	3 3/16
3 x 1 1/4	2 13/16	3 1/2	3 1/2
3 x 1 1/2	2 13/16	3 1/2	3 1/2
3 x 2	2 13/16	3 9/16	3 9/16
4 x 1/2	3	3 11/16	
4 x 3/4	2 15/16	3 11/16	
4 x 1	3	3 11/16	3 7/8
4 x 1 1/4	3 3/16	3 7/8	3 7/8
4 x 1 1/2	3 3/16	3 7/8	3 7/8
4 x 2	3 3/8	4 1/8	4 1/8
4 x 2 1/2	3 1/4	4 3/8	74 3/8
4 x 3 O.D.			4 3/8
4 x 3	3 1/4	4 3/8	4 3/8
5 x 2	4 1/8	4 7/8	4 7/8
5 x 2 1/2	3 7/8	5	5.00
5 x 3 O.D.			5.00
6 x 1 1/4	4 5/16	5	5.00
6 x 1 1/2	4 5/16	5	5.00
6 x 2	4 7/16	5 3/16	5 3/16
6 x 2 1/2	4 3/8	5 1/2	5 1/2
6 x 3 O.D.			5 1/2
6 x 3	4 5/16	5 1/2	5 1/2
6 x 4	4 3/16	5 1/2	5 1/2
8 x 2	5 5/16	6 1/2	6 1/2
8 x 2 1/2	5 3/8	6 1/2	6 1/2
8 x 3 O.D.			6 1/2
8 x 3	5 3/8	6 1/2	6 1/2
8 x 4	5 1/4	6 1/2	6 1/2

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Grooved-End Fittings

Model 7110 90° Elbow
7111 45° Elbow
7112 22-1/2° Elbow
7113 11-1/4° Elbow

#7112G
22-1/2° Elbow
(Gooseneck)

#7113
11-1/4° Elbow

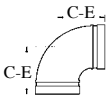
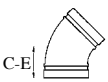
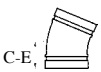


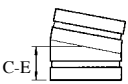
Fig. 7110
90° Elbow



#7111
45° Elbow



#7112
22-1/2° Elbow
(Standard)



#7113
11-1/4° Elbow (Welded)

Nominal Size Inches	#7110 90° Elbow C-E	#7111 45° Elbow C-E	#7112 / #7112G 22-1/2° Elbow C-E(S) / E-E(G)	#7113 11-1/4° Elbow C-E
1	2 1/4	1 3/4		
1 1/4	2 3/4	1 3/4	1 3/4	1 3/8 SW
1 1/2	2 3/4	1 3/4	1 3/4S / 3 3/4 G	1 3/8 SW
2	3 1/4	2	1 7/8 S / 3 3/4 G	1 3/8
2 1/2	3 3/4	2 1/4	2 S / 4 G	1 1/2
3 O.D.	3 3/4	2 1/4	2 S / 4 G	1 1/2
3	4 1/4	2 1/2	2 1/4 S / 4 1/2 G	1 1/2
4 1/4 O.D.	5	3		
4	5	3	2 7/8 S / 5 G	13/4
5 1/4 O.D.	5 1/2	3 1/4		
5 1/2 O.D.	5 1/2	3 1/4	5 G	2 SW
5	5 1/2	3 1/4	5 G	2 SW
6 1/4 O.D.	6 1/2	3 1/2		
6 1/2 O.D.	6 1/2	3 1/2	3 1/8 S / 6 1/4 G	2
6	6 1/2	3 1/2	3 1/8S / 6 1/4 G	2
216.3 mm	7 3/4	4 1/4	7 3/4 G	
8	7 3/4	4 1/4	7 3/4 G	2
267.4 mm	9	4 3/4	4 3/8	2 1/8
10	9	4 3/4	4 3/8	2 1/8
318.5 mm	10	5 1/4	4 7/8 SW	2 1/4
12	10	5 1/4	4 7/8 SW	2 1/4
14	11	6	5 SW	3 1/2 SW
16	12	7 1/4	5 SW	4 SW
18	15 1/2	8	5 1/2 SW	4 1/2 SW
20	17 1/4	9	6 SW	5 SW
22	20 SW	11 SW	7 SW	6 SW
24	20	11	7 SW	6 SW

SW: Segment-welded S: Standard design G: Gooseneck design

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

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Model 7120 Tee
7135 Cross
7130 45° Lateral

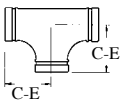


Fig. 7120 Tee

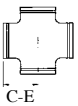


Fig. 7135 Cross

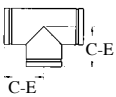


Fig. 7120 Tee (Welded)

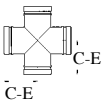


Fig. 7135 Cross (Welded)

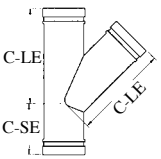


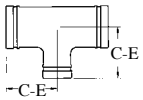
Fig. 7130 45° Lateral

Nominal Size Inches	#7120 Tee C-E	#7135 Cross C-E	#7130 45° Lateral	
			C-LE	C-SE
1	2 1/4	2 1/4 SW		
1 1/4	2 3/4	2 3/4 SW	5 3/4 SW	2 1/2
1 1/2	2 3/4	2 3/4 SW	6 1/4 SW	2 3/4
2	3 1/4	3 1/4	7	2 3/4
2 1/2	3 3/4	3 3/4	7 3/4	3
3 OD	3 3/4	3 3/4	7 3/4	3
3	4 1/4	4 1/4	8 1/2	3 1/4
4	5	5	10 1/2	3 3/4
4 1/4 O.D.	5			
5	5 1/2	5 1/2	12 1/2	4
5 1/4 O.D.	5 1/2			
5 1/2 O.D.	5 1/2	5 1/2	12 1/2	4
6	6 1/2	6 1/2	14	4 1/2
6 1/4 O.D.	6 1/2			
6 1/2 O.D.	6 1/2	6 1/2	14	4 1/2
8	7 3/4	7 3/4	18	6
216.3 mm	7 3/4	7 3/4	18	6
10	9	9 SW	20 1/2	6 1/2
267.4 mm	9	9 SW	20 1/2	6 1/2
12	10	10 SW	23	7
318.5 mm	10	10 SW	23	7
14	11	11 SW	26 1/2 SW	7 1/2
16	12	12 SW	29 SW	8
18	15 1/2 SW	15 1/2 SW	32 SW	8 1/2
20	17 1/4 SW	17 1/4 SW	35 SW	9
22	19 SW	19 SW	38 SW	9 1/2
24	20 SW	20 SW	40 SW	10

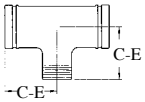
SW: Segment Welded

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Model 7121 Reducing Tee



#7121 Reducing Tee



#7121 Reducing Tee (Threaded)

Nominal Size Inches	#7121 Reducing Tee	
	Standard C-E	Threaded Br. C-E
2 x 2 x 3/4	3 1/4 SW	3 1/4 SW
2 x 2 x 1	3 1/4 SW	3 1/4 SW
2 x 2 x 1 1/2	3 1/4	3 1/4
2.5 x 2.5 x 1	3 3/4	3 3/4
3 O.D. x 3 O.D. x 1 1/2	3 3/4	3 3/4
2.5 x 2.5 x 2	3 3/4	3 3/4
3 O.D. x 3 O.D. x 2	3 3/4	3 3/4
3 x 3 x 1	4 1/4	4 1/4
3 x 3 x 1 1/2	4 1/4	4 1/4
3 x 3 x 2	4 1/4	4 1/4
3 x 3 x 2 1/2	4 1/4	4 1/4
3 x 3 x 3 O.D.	4 1/4	4 1/4
4 x 4 x 1	3 3/4	3 3/4
4 x 4 x 2	5	5
4 x 4 x 2 1/2	5	5
4 x 4 x 3 O.D.	5	5
4 x 4 x 3	5	5
5 x 5 x 2	5 1/2	5 1/2
5 x 5 x 4	5 1/2	5 1/2
6 x 6 x 2	6 1/2	6 1/2
6 x 6 x 2 1/2	6 1/2	6 1/2
6 x 6 x 3	6 1/2	6 1/2
6 x 6 x 4	6 1/2	6 1/2
6 1/2 O.D. x 6 1/2 O.D. x 2	6 1/2	6 1/2
6 1/2 O.D. x 6 1/2 O.D. x 3 O.D.	6 1/2	5 1/2
6 1/2 O.D. x 6 1/2 O.D. x 3	6 1/2	6 1/2
6 1/2 O.D. x 6 1/2 O.D. x 4	6 1/2	6 1/2
8 x 8 x 2	7 3/4	7 3/4
8 x 8 x 3	7 3/4	7 3/4
8 x 8 x 4	7 3/4	7 3/4
8 x 8 x 6	7 3/4	NA

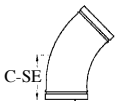
Nominal Size Inches	#7121 Reducing Tee	
	Standard C-E	Threaded Br. C-E
10 x 10 x 2	9 SW	9 SW
10 x 10 x 3	9 SW	9 SW
10 x 10 x 4	9	9
10 x 10 x 6	9	NA
10 x 10 x 8	9	NA
12 x 12 x 3	10	10
12 x 12 x 4	10	10
12 x 12 x 6	10	NA
12 x 12 x 8	10	NA
12 x 12 x 10	10	NA
14 x 14 x 8	11 SW	NA
14 x 14 x 10	11 SW	NA
14 x 14 x 12	11 SW	NA
16 x 16 x 8	12 SW	NA
16 x 16 x 10	12 SW	NA
16 x 16 x 12	12 SW	NA
18 x 18 x 10	15 1/2 SW	NA
18 x 18 x 12	15 1/2 SW	NA
18 x 18 x 14	15 1/2 SW	NA
18 x 18 x 16	15 1/2 SW	NA
20 x 20 x 14	17 1/4 SW	NA
20 x 20 x 16	17 1/4 SW	NA
20 x 20 x 18	17 1/4 SW	NA
24 x 24 x 8	20 SW	NA
24 x 24 x 10	20 SW	NA
24 x 24 x 12	20 SW	NA
24 x 24 x 14	20 SW	NA
24 x 24 x 16	20 SW	NA
24 x 24 x 18	20 SW	NA
24 x 24 x 20	20 SW	NA

SW: Segment Welded NA: Not applicable

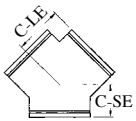
☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

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

7110LR
LR 90˚ Elbow, 1.5D



7111LR
LR 45˚ Elbow, 1.5D



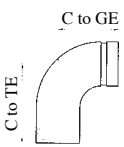
7137
True-Y

Nominal Size Inches	#7110LR 1.5D 90° Elbow C-E	#7111LR 1.5D 45° Elbow C-E	#7137 True-Y C-LE	#7137 True-Y C-SE
2	4.4	2 3/4	3 1/4	2 3/4
2 1/2	5	3	3 3/4	3
3 O.D.	5	3	3 3/4	3
3	5.9	3.4	4 1/4	3 1/4
4	7 1/2	4	5	3 3/4
5	9 1/2	5	5 1/2	4
5 1/2 O.D.	9 1/2	5	5 1/2	4
6	10 3/4	5 1/2	6 1/2	4 1/2
6 1/2 O.D.	10 3/4	5 1/2	6 1/2	4 1/2
8	14 1/4	7 1/4	7 3/4	6
10	17 1/4	8 1/2	9	6 1/2
12	20 1/2	10	10	7

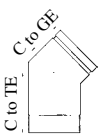
Model 7118 90° Elbow
7119 45° Elbow

Nominal Size	#7118 90° Elbow C - GE	#7118 90° Elbow C - TE	#7119* 45° Elbow C - GE	#7119* 45° Elbow C - TE
3/4	2 1/4	2 1/4	1 1/2	1 1/2
1	2 1/4	2 1/4	1 3/4	1 3/4
1 1/4	2 3/4	2 3/4	1 3/4	1 3/4
1 1/2	2 3/4	2 3/4	1 3/4	1 3/4
2	3 1/4	4 1/4	2	3
2 1/2	3 3/4	4 3/4	2 1/4	3 1/4
3	4 1/4	6	2 1/2	4 1/4
4	5	7 1/4	3	5 1/4
6	6 1/2	6 1/2	3 1/2	5 1/2

* 7119: Segment welded



#7118 90°
Adapter
Elbow



#7119 45°
Adapter
Elbow

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Model 7150 Concentric. Reducer
7151 Eccentric. Reducer

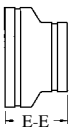


Fig. 7150 Conc. Reducer

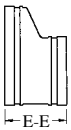


Fig. 7151 Ecc. Reducer

Nominal Size Inches	#7150 Concentric Reducer E-E	#7151 Eccentric Reducer E-E
2 1/2 x 2	2 1/2	3 1/2
3 O.D. x 2	2 1/2	3 1/2
3 x 2	2 1/2	3 1/2
3 x 2 1/2	2 1/2	3 1/2
3 x 3 O.D.	2 1/2	3 1/2
4 x 2	3	4
4 x 2 1/2	3	4
4 x 3O.D.	3	4
4 x 3	3	4
5 x 4	3 1/2	4
6 x 2	4	4
6 x 3	4	4
6 x 4	4	4
6 x 5	4	4
6 1/2 O.D. x 2	4	4
6 1/2 O.D. x 3	4	4
6 1/2 O.D. x 4	4	4
8 x 4	5	5
8 x 6	5	5
10 x 4	6	6
10 x 6	6	6
10 x 8	6	7
12 x 6	7	7
12 x 8	7	11

Nominal Size Inches	#7150 Concentric Reducer E-E	#7151 Eccentric Reducer E-E
12 x 10	7	7
14 x 6	12.5 SW	12.5 SW
14 x 8	8	12.5 SW
14 x 10	8	12.5 SW
14 x 12	8	12.5 SW
16 x 6	12.5 SW	12.5 SW
16 x 8	9	12.5 SW
16 x 10	12.5 SW	12.5 SW
16 x 12	9	9
16 x 14	9	9
18 x 10	13 SW	13 SW
18 x 12	9 1/2	13 SW
18 x 14	13 SW	13 SW
18 x 16	13 SW	13 SW
20 x 12	10	14 SW
20 x 14	14 SW	14 SW
20 x 16	10	14 SW
20 x 18	14 SW	14 SW
24 x 12	12	15 SW
24 x 14	15 SW	15 SW
24 x 16	12	15 SW
24 x 18	15 SW	15 SW
24 x 20	12	15 SW

SW: Segment Welded

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Model 7160 End Cap
7160P End Cap With Plug

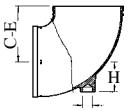
1-1/4" ~ 12"

#7160 End Cap

#7160P

Nominal Size Inches	#7160 End Cap E-E	#7160P Plug Size
1 1/4	1	
1 1/2	1	
2	1	1/2
2 1/2	1	1/2
3 O.D.	1	1/2
3	1	1/2
4	1	1
4 1/4 O.D.	1	
5	1	1
5 1/4 O.D.	1	
5 1/2 O.D.	1	1
6	1	1
6 1/4 O.D.	1	
6 1/2 O.D.	1	1
8	1 3/16	1 1/2
216.3 mm	1 3/16	
10	1 1/4	1 1/2
267.4 mm	1 1/4	
12	1 1/4	1 1/2
318.5 mm	1 1/4	

Model 7110-B 90° Elbow, With Base Support
7160H Domed End Cap



#7110-B

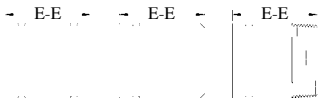
10" ~ 24"

#7160H

Nominal Size Inches	C-E	H	S
3	4 1/4	4 7/8	5
4	5	5 1/2	6
6	6 1/2	7	7
8	7 3/4	8 3/8	9
10	9	9 3/4	9
12	10	11 1/4	11

Nominal Size Inches	#7160H Domed End Cap E-E
10	3
12	3
14	4
16	4
18	5
20	6
22	6
24	6

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

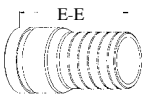


Gr. x Gr. #57 | Gr. x Bev. #58 | Gr. x Th. #59

Nominal Size Inches	#57 Nipple (Gr x Gr) E-E	#58 Nipple (Gr x Bev) E-E	#59 Nipple (Gr x Th) E-E
3/4	3	3	3
1	3	3	3
1 1/4	4	4	4
1 1/2	4	4	4
2	4	4	4
2 1/2	4	4	4
3 O.D.	4	4	4
3	4	4	4
4	6	6	6
5	6	6	6
5 1/2 O.D.	6	6	6
6	6	6	6
6 1/2 O.D.	6	6	6
8	6	6	NA
216.3 mm	6	6	NA
10	8	8	NA
267.4 mm	8	8	NA
12	8	8	NA
318.5 mm	8	8	NA

NA: Not applicable

Model 56 Hose Nipple

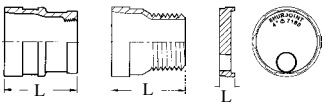


#56

Nominal Size Inches	#56 Hose Nipple E-E
1	3 1/4
1 1/4	3 5/8
1 1/2	4
2	4 5/8
2 1/2	5 1/2
3	6
4	7 1/4
5	9 3/4
6	11
8	12 1/2
10	14
12	16

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

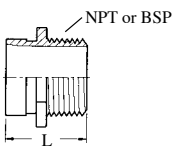
Model 7150F Reducing Socket (GR x FT)
7150M Reducing Nipple (GR x MT)
7160T Transition Fitting



#7150F #7150M #7160T

Nominal Size Inches	#7150F Red. Socket L	#7150M Red. Nipple L	#7160T Transition Fitting L
1 1/2 x 1	2 1/2	2 1/2	
2 x 1			1 15/16
2 x 1 1/4	2 1/2	2 1/2	1 15/16
2 x 1 1/2	2 1/2	2 1/2	
2 1/2 x 1			1 15/16
2 1/2 x 1 1/4	2 1/2	2 1/2	1 15/16
2 1/2 x 1 1/2	2 1/2	2 1/2	1 15/16
2 1/2 x 2	2 1/2	2 1/2	
3 x 1			1
3 x 1 1/4	2 1/2	2 1/2	1
3 x 1 1/2	2 1/2	2 1/2	1
3 x 2	2 1/2	2 1/2	1
4 x 1			1
4 x 1 1/4			1
4 x 1 1/2	3	3	1
4 x 2	3	3	1
4 x 2 1/2	3	3	
5 x 1 1/2	3 1/2	3 1/2	
6 x 1			1
6 x 1 1/4			1
6 x 1 1/2	4	4	1
6 x 2	4	4	1
6 x 2 1/2	4	4	
6 x 4	4	4	

Model 55 Nipple Adapter (GRxMT)



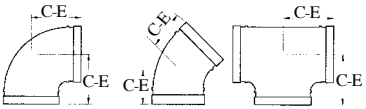
#55

Nominal Size Inches Grooved x Threaded	#55 Nipple L
1 1/2 G x 1 1/2M	2 1/2
2 G x 2 M	2 1/2

G: Grooved M:Threaded

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

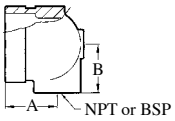
Model 901 SR 90° Elbow
7111 45° Elbow
903 Short Radius Tee



#901 #7111 #903

Nominal Size Inches	#901 SR 90° Elbow C-E	#7111 45° Elbow C-E	#903 SRS C-E
2	2 3/4	2	2 3/4
2 1/2	3	2 1/4	3
3 O.D.	3	2 1/4	3
3	3 3/8	2 1/2	3 3/8
4	4	3	4
5 1/2 O.D.	4 7/8	3 1/4	4 7/8
5	4 7/8	3 1/4	4 7/8
6 1/2 O.D.	5 1/2	3 1/2	5 1/2
6	5 1/2	3 1/2	5 1/2
8	6 15/16	4 1/4	6 15/16

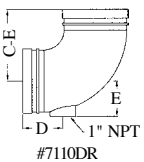
Model 899 End-All Fitting



#899

Nominal Size Inches	#899 End-All Fitting	
	A	B
1 1/4 x 1/2	1 3/4	1 3/16
1 1/4 x 3/4	1 3/4	1 3/16
1 1/4 x 1	1 7/8	1 1/4
1 1/2 x 1/2	1 3/4	1 5/16
1 1/2 x 3/4	1 3/4	1 5/16
1 1/2 x 1	1 7/8	1 3/8
2 x 1/2	1 3/4	1 9/16
2 x 3/4	1 3/4	1 9/16
2 x 1	1 7/8	1 5/8
2 1/2 x 1/2	1 3/4	1 3/4
2 1/2 x 3/4	1 3/4	1 3/4
2 1/2 x 1	1 7/8	1 13/16

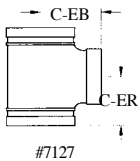
Model 7110DR Drain Elbow



#7110DR

Nominal Size Inches	#7110DR Drain Elbow		
	C-E	D	E
2 1/2	3 3/4	2 3/4	1 9/16
3 O.D.	3 3/4	2 3/4	1 9/16
3	4 1/4	2 3/4	1 15/16
4	5	2 3/4	2 1/2
6 1/2 O.D.	6 1/2	2 3/4	3 1/2
6	6 1/2	2 3/4	3 1/2

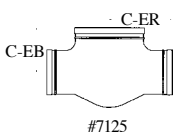
Model 7127 Standpipe Tee



#7127

Nominal Size Inches	7127 Standpipe Tee	
	C-ER	C-EB
4 x 4 x 2 1/2	3 1/4	4
6 x 6 x 2 1/2	3 1/4	5

Model 7125 Bullhead Tee

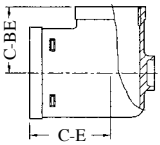


#7125

Nominal Size Inches	#7125 Bullhead Tee	
	C-ER	C-EB
2 x 2 x 2 1/2	3 3/4	3 1/4
2 x 2 x 3	4 1/4	3 3/4
2 x 2 x 4	5	4
2 1/2 x 2 1/2 x 3	4 1/4	3 3/4
2 1/2 x 2 1/2 x 4	5	4
3 x 3 x 4	5	4
4 x 4 x 6	61/2	5
5 x 5 x 8	7 3/4	5 1/2
6 x 6 x 8	7 3/4	6 1/2

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

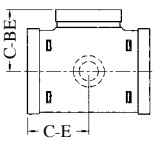
Model 7114 Hydrant Elbow



#7114

Nominal Size Inches	C - E	C - BE
4 x 3 x 1	4	3 3/4
6 x 3 x 1	5 1/8	5 1/8

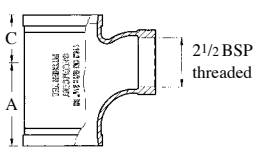
Model 7122 Hydrant Tee



#7122

Nominal Size Inches	C - E	C - BE
4 x 4 x 3	4	4
6 x 6 x 3	5 1/8	5 1/8

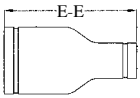
Model 7133 Pitcher Tee



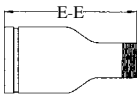
#7133

Nominal Size Inches	A	C
3 x 3 x 2 1/2	4 3/4	2 3/4
4 x 4 x 2 1/2	4 3/4	2 3/4
6 x 6 x 2 1/2	4 3/4	2 3/4

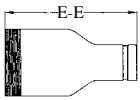
Model 7153 Swaged Adapter Nipple (GR x GR)
Model 7154 Swaged Adapter Nipple (GR x MT)
Model 7155 Swaged Adapter Nipple (MT x GR)
Model 7156 Swaged Adapter Nipple (GR x BEV)



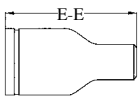
#7153 Gr x Gr



#7154 Gr x MT



#7155 MT x Gr

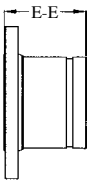


#7156 Gr x Bev

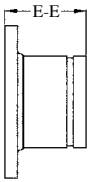
Nominal Size Inches	E-E	Nominal Size Inches	E-E
2 x 1	6 1/2	4 x 2	9
2 x 1 1/4	6 1/2	4 x 2 1/2	9
2 x 1 1/2	6 1/2	4 x 2 1/2	9
2 1/2 x 1	7	4 x 3	9
2 1/2 x 1 1/4	7	5 x 2	11
2 1/2 x 1 1/2	7	5 x 3	11
2 1/2 O.D. x 2	7	5 x 4	11
2 1/2 x 2	7	6 x 1	12
3 x 1	8	6 x 1 1/4	12
3 x 1 1/4	8	6 x 1 1/2	12
3 x 1 1/2	8	6 x 2	12
3 x 2	8	6 x 2 1/2	12
3 x 1 1/2 O.D.	8	6 x 3	12
3 x 2 1/2	8	6 x 4	12
4 x 1	9	6 x 5	12
4 x 1 1/4	9	6 x 6	12
4 x 1 1/2	9		

To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).

Model 7145F ANSI Class 150
Flat Face
Model 7145R ANSI Class 150
Raised Face
Model 7146F ANSI Class 300
Flat Face
Model 7146R ANSI Class 300
Raised Face



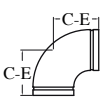
Raised Face



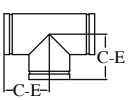
Flat Face

Nominal Size Inches	E - E
3/4	3
1	3
1 1/4	4
1 1/2	4
2	4
2 1/2	4
3	4
3 1/2	4
4	6
5	6
6	6
8	6
10	8
12	8
14	8
16	8
18	8
20	8
24	8

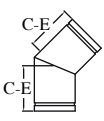
Model 10EP 90° Elbow
11EP 45° Elbow
20EP Tee
35EP Cross
22EP Header Tee



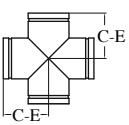
#10EP



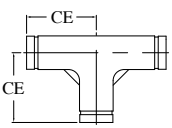
#20EP



#11EP



#35EP



#22EP

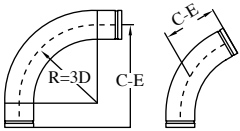
Nominal Size Inches	#10EP 90° Elbow C-E	#11EP 45° Elbow C-E	#20EP Tee C-E*	#35EP Cross C-E*
2	3 1/4	2	3 1/4	3 1/4
2 1/2	3 3/4	2 1/4	3 3/4	3 3/4
3	4 1/4	2 1/2	4 1/4	4 1/4
4	5	3	5	5
6	6 1/2	3 1/2	6 1/2	6 1/4

* Steel Fabricated

Fitting Size Mated C to E	#22EP Header Tee C-E
2 to 3	4½
2 to 4	5

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

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 Inches	L90-3D 90° Elbow C-E	L60-3D 60° Elbow C-E	L45-3D 45° Elbow C-E	L30-3D 30° Elbow C-E	L22 -3D 22½° Elbow C-E	L11 -3D 11¼° Elbow C-E
2	10	7 1/2	6 1/2	5 3/4	5 1/4	4 1/2
2 1/2	11 1/2	8 1/4	7 1/4	6	5 1/2	4 3/4
3	13	9 1/4	7 3/4	6 1/2	5 3/4	5
3 1/2	14 1/2	10	8 1/2	6 3/4	6	5
4	16	11	9	7 1/4	6 1/2	5 1/4
5	20	13 3/4	11 1/4	9	8	6.50
6	24	16 1/2	13 1/2	10 3/4	9 1/2	7 3/4
8	32	22	18	14 1/2	12 3/4	10 1/2
10	40	27 1/4	22 1/2	18	16	13
12	48	32 3/4	27	21 3/4	19 1/4	15 1/2
14	56	38 1/4	31 1/2	25 1/4	22 1/2	18 1/4
16	64	43 3/4	36	29	25 1/4	20 3/4
18	72	49 1/4	40 1/4	32 1/2	28 3/4	23 3/8
20	80	54 3/4	45	36	32	26
24	96	65 1/2	53 3/4	43 1/4	38 1/4	31

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Stainless Steel Series

#SS-7

#SS-8

#SS-8X

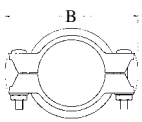
#SS-1200

#SS-41

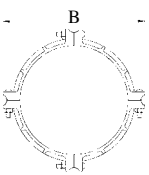
#SS-80

Nominal Size Inches	#SS-7 B	#SS-8 B	#SS-8X B	#SS-1200 B	#SS-41 W	#SS-80 W
3/4			3 3/4	3 3/4		
1		3 7/16	3 15/16	4		
1 1/4	4 1/8	3 13/16	4 3/8	4 3/4		
1 1/2	4 1/4	4 1/8	4 13/16	4 5/8		
2	4 15/16	4 7/8	5 1/4	5 7/16	6 13/16	6 1/2
2 1/2	5 7/16	5 1/2	4 1/16	6	7 13/16	7 1/4
3 O.D.	5 9/16	5 9/16				7 1/4
3	6 3/16	6 1/16	6 3/4	6 5/8	8 5/16	7 3/4
4	7 1/2	7 11/16	7 7/8	8 3/16	9 13/16	9
5 1/2 O.D.	9 3/16					9 7/8
5	9 5/16	8 7/8	9 13/16			9 7/8
6 1/2 O.D.	9 15/16	9 7/8				11 1/2
6	10 1/16	9 15/16	10 7/8		11 13/16	11 1/2
216.3 mm	13	13 3/16	13 5/16			13 1/2
8	13 1/8	13 1/4	13 7/16			13 1/2
10						
12						

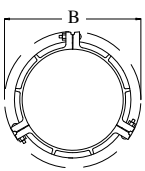
Model SS-7X Stainless Steel Heavy Duty Rigid Coupling



10" ~ 14"



20" ~ 24"

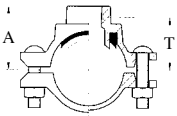


16" ~ 18"

Nominal Size Inches	B
267.4mm	15 1/2
10	16
318.5mm	17 1/2
12	17 3/4
14	19 1/8
16	21 1/8
18	23 1/8
20	26 3/8
22	28 3/8
24	30 3/8

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

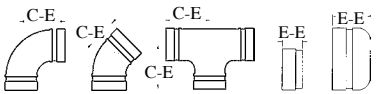
Model SS-723 Stainless Steel Mechanical Tee



#SS-723

Nominal Size Inches	A	T
1 1/4 x 1/2	1 5/8	1 1/16
1 1/4 x 3/4	1 11/16	1 1/8
1 1/4 x 1	2	1 3/8
1 1/2 x 1/2	1 3/4	1 3/16
1 1/2 x 3/4	1 13/16	1 1/4
1 1/2 x 1	2 1/8	1 7/16
2 x 1/2	2	1 1/2
2 x 3/4	2 1/8	1 1/8
2 x 1	2 3/8	1 11/16

Stainless Steel Grooved Fittings



Investment Casting 1"-2" 2½"-12"

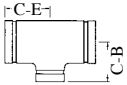
#SS-10 #SS-11 #SS-20 #SS-60

Nominal Size Inches	#SS-10 90° Elbow C-E	#SS-11 45° Elbow C-E	#SS-20 Tee C-E	#SS-60 Cap E-E
1	2 1/4	1 3/4	2 1/4	15/16
1 1/4	2 3/4	1 3/4	2 3/4	15/16
1 1/2	2 3/4	1 3/4	2 3/4	15/16
2	3 1/4	2	3 1/4	15/16
2 1/2	3 3/4	2 1/4	3 3/4	1 3/4
3 O.D.	3 3/4	2 1/4	3 3/4	1 3/4
3	4 1/4	2 1/2	4 1/4	2
4	5	3	5	2
5 1/2 O.D.	5 1/2	3 1/4	5 1/2	2 3/8
5	5 1/2	3 1/4	5 1/2	2 3/8
6 1/2 O.D.	6 1/2	3 1/2	6 1/2	3
6	6 1/2	3 1/2	6 1/2	3
216.3 mm	7 3/4	4 1/4	7 3/4	3 1/2
8	7 3/4	4 1/4	7 3/4	3 1/2
267.4 mm	9	4 3/4	9	5
10	9	4 3/4	9	5
318.5 mm	10	5 1/4	10	5 11/16
12	10	5 1/4	10	5 11/16
14	11	6	11	
16	12	7 1/4	12	
18	15 1/2	8	15 1/2	
20	17 1/4	9	17 1/4	
24	20	11	20	

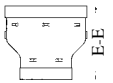
W: Wrought

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Model SS-21 Reducing Tee
SS-50 Concentric Reducer



#SS-21



#SS-50

Nominal Size Inches	#SS-21 Reducing Tee		#SS-50 Conc. Reducer
	C-E	C-B	E-E
1 1/2 x 1	3 1/4	3 1/4	2 1/2
1 1/2 x 1 1/4	3 1/4	3 1/4	2 1/2
2 x 1	3 1/4	3 1/4	2 1/2
2 x 1 1/4	3 1/4	3 1/4	2 1/2
2 x 1 1/2	3 1/4	3 1/4	2 1/2
2 1/2 x 1	3 3/4	3 3/4	2 1/2
2 1/2 x 1 1/4	3 3/4	3 3/4	2 1/2
2 1/2 x 1 1/2	3 3/4	3 3/4	2 1/2
2 1/2 x 2	3 3/4	3 3/4	2 1/2
3 x 1 1/4	4 1/4	4 1/4	2 1/2
3 x 1 1/2	4 1/4	4 1/4	2 1/2
3 x 2	4 1/4	4 1/4	2 1/2
3 x 2 1/2	4 1/4	4 1/4	2 1/2
4 x 2	5	5	3
4 x 2 1/2	5	5	3
4 x 3	5	5	3
5 x 4	5 1/2	5 1/2	3 1/2
6 x 3	6 1/2	6 1/2	4
6 x 4	6 1/2	6 1/2	4
6 x 5	6 1/2	6 1/2	4
8 x 4	7 3/4	7 3/4	5
8 x 5	7 3/4	7 3/4	5
8 x 6	7 3/4	7 3/4	5
10 x 6	9	9	6
10 x 8	9	9	6
12 x 8	10	10	7
12 x 10	10	10	7
14 x 10	11	8	8 SW
16 x 12	12	9	9 SW
18 x 14	15 1/2	9.5	9 1/2 SW
20 x 16	17 1/4	10	10 SW
24 x 20	20	12	12 SW

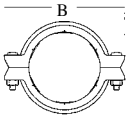
SW: Segment Welded

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Plain-End IPS Piping System

Model 79 "Wild Cat™" Coupling

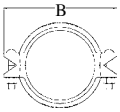
Nominal Size Inches	#79 B
2	6 3/4
21/2	7 1/8
3	8 1/2
4	8 3/4
5	10 5/16
6	11 1/2
8	14 1/4
10	16
12	18
14	20
16	22
18	24
20	26



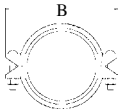
#79

Plain-End HDP Piping System

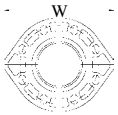
Model H79



#H305



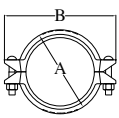
#H307



#H312

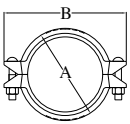
Nominal Size Inches	#H305 B	#H307 B	#H312 W
2	5 1/4	6	
3	6 1/2	7 1/8	
4	8	8 1/2	10 1/4
6	10 3/4	111/4	12 1/4
8	13 1/8	13 5/8	14 3/4
10	15 5/8	17	21
12	17 5/8	19 1/2	24
14	19 3/8		
16	21 3/8		
18	23 7/16		
20	25 5/8		

Model H305 ISO HDP Coupling



Nominal Size mm	B mm
50	115
63	128
75	140
90	169
110	181
160	232
180	253
200	305
250	351
315	438

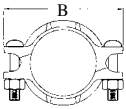
MODEL H307 ISO HDP Transition Coupling



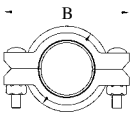
Nominal Size mm		B mm
IPS	HDP	
63.0	60.3	146
90.0	88.9	178
110.0	114.3	203

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Copper Series



#C305

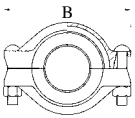


#C307

#C341

Nominal Size Inches	#C305 B	#C307 B	#C341 W
2	4 5/8	5 13/16	6 13/16
2 1/2	5 1/4	5 5/8	7 13/16
3	6 1/16	6 5/8	8 5/16
4	7 1/4	7 3/4	9 13/16
5	8 11/16		10 13/16
6	9 3/4		11 13/16
8	12		

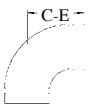
Model C306 Reducing Coupling



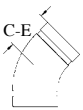
#C306

Nominal Size Inches	#C306 B
2 1/2 X 2	5 9/16
3 X 2	5 15/16
3 X 2 1/2	5 15/16
4 X 2 1/2	7 3/16
4 X 3	7 3/16
5 X 4	8 13/16
6 X 4	9 7/8

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



#C-10



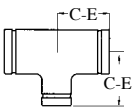
#C-11

#C-20

#C-60

Nominal Size Inches	#C-10 90° Elbow C-E	#C-11 45° Elbow C-E	#C-20 Tee C-E	#C-60 Cap E-E
2	2 7/8	2 3/16	2 11/16	15/16
2 1/2	3 5/16	2 5/16	3 3/16	15/16
3	3 13/16	2 9/16	3 1/2	15/16
4	4 3/4	3 3/16	4 1/4	15/16
5	5 15/16	3 1/4	5 15/16	15/16
6	6 15/16	3 5/8	6 15/16	15/16
8	7 3/4	4 1/4	7 3/4	15/16

Model C21 Reducing Tee
C50 Concentric Reducer

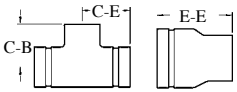


#C21 #C50

Nominal Size Inches	#C21 Reducing Tee C-E	#C50 Concentric Reducer E-E
2 1/2 x 2	3 3/16	2 1/2
3 x 2	3 1/2	2 1/2
3 x 2 1/2	3 1/2	2 1/2
4 x 2	4 1/4	3
4 x 2 1/2	4 1/4	3
4 x 3	4 1/4	3
5 x 3	5 15/16	3 1/2
5 x 4	5 15/16	3 1/2
6 x 2 1/2	6 15/16	4
6 x 3	6 15/16	4
6 x 4	6 15/16	4
6 x 5	6 15/16	4

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

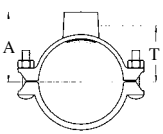
Model C26 Reducing Tee
C52 Concentric Reducer



#C26 #C52

Nominal Size Inches	#C26 Reducing Tee C-E	#C26 Reducing Tee C-B	#C52 Conc. Reducer E-E
2 x 2 x 3/4	2 3/16	2	
2 x 2 x 1	2 5/16	2 3/16	2 11/16
2 x 2 x 1 1/4	2 1/2	2 1/4	3
2 x 2 x 1 1/2	2 5/8	2 5/16	2 15/16
2 1/2 x 2 1/2 x 3/4	2 1/4	2 1/4	
2 1/2 x 2 1/2 x 1	2 3/8	2 3/8	3 1/4
2 1/2 x 2 1/2 x 1 1/4	2 1/2	2 1/2	3 1/2
2 1/2 x 2 1/2 x 1 1/2	2 11/16	2 9/16	3 7/16
2 1/2 x 2 1/2 x 2	2 15/16	2 13/16	3 5/16
3 x 3 x 3/4	2 7/16	2 1/2	
3 x 3 x 1	2 1/2	2 9/16	
3 x 3 x 1 1/4	2 5/8	2 3/4	
3 x 3 x 1 1/2	2 7/8	2 7/8	3 11/16
3 x 3 x 2	3 1/8	3 1/16	4 1/8
4 x 4 x 3/4	3	3	
4 x 4 x 1	3 1/8	3 3/16	
4 x 4 x 1 1/4	3 1/4	3 1/4	
4 x 4 x 1 1/2	3 3/8	3 5/16	
4 x 4 x 2	3 5/8	3 9/16	4 3/4

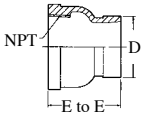
Model C723 Bronze Mechanical Tee



#C723

Nominal Size Inches	A	T
2 1/2 x 3/4	2 5/8	2 1/16
2 1/2 x 1	2 5/8	1 15/16
2 1/2 x 1 1/4	2 7/8	2 1/8
3 x 3/4	2 7/8	2 1/4
3 x 1	2 7/8	2 3/16
3 x 1 1/4	3 15/16	2 5/8
4 x 3/4	3 3/8	2 13/16
4 x 1	3 3/8	3 1/8
4 x1 3/4	3 13/16	3 1/8

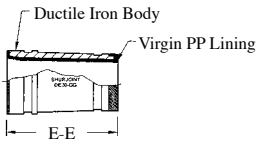
Model C55 Transition Adapter (FT x GR)



#C55

Nominal Size IPS(NPT) x CTS(GRV) Inches	#C55 Transition Adapter E-E
1 1/2 x 2	2 1/2
2 x 2	2 1/2
2 1/2 x 2 1/2	2 3/4
3 x 3	3

Model DE30-GG Dielectric Transition Fitting (IPS x CTS)

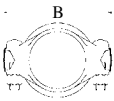


#DE30-GG

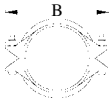
Nominal Size Inches	#DE30-GG E-E
2	4
2 1/2	4
3	4
4	4
5	4
6	4
8	4

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

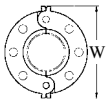
AWWA Ductile Iron Series



#A505



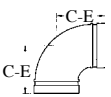
#A507



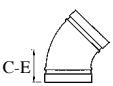
#A512

Nominal Size Inches	#A505 B	#A507 B	#A512 W
3	7 5/8	7 3/8	8 7/16
4	8 1/8	9	9 15/16
6	10 7/16	11 1/8	12
8	13 15/16	13 7/8	14 5/8
10	16	16 1/2	17 1/8
12	18 7/8	18 15/16	20 1/8
14	20 7/8		
16	22 3/4		
18	26		
20	28 3/8		
24	33 1/16		

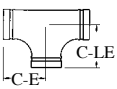
Model A10 90° Elbow
A11 45° Elbow
A20 Tee
A60 Cap



#A10
90˚ Elbow



#A11
45˚ Elbow



#A20 Tee

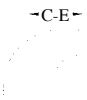
#A60 Cap

Nominal Size Inches	#A-10 90° Elbow C-E	#A-11 45° Elbow C-E	#A-20 Tee C-E	#A-60 Cap E-E
3	5 1/2	3	5 1/2	
4	6 1/2	4	6 1/2	1 3/16
6	8	5	8	1 3/16
8	9	5 1/2	9	1 3/8
10	11	6 1/2	11	1 1/2
12	12	7 1/2	12	1 1/2

Model A25 Reducing Tee
A50 Concentric Reducer
A10R 90° Reducing Elbow

#A25
Reducing
Tee

#A50
Conc.
Reducer

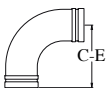


#A10R
Reducing
Elbow

Nominal Size Inches	#A25 Reducing Tee C-E	#A50 Conc. Reducer E-E	#A10R 90° Reducing Elbow C-E
4 x 3	6 1/2	7	6 1/2
6 x 4	8	9	8
8 x 4	9	11	9
8 x 6	9	11	9
10 x 4	11	12	
10 x 6	11	12	11
10 x 8	11	12	11
12 x 4	12	14	
12 x 6	12	14	12
12 x 8	12	14	12
12 x 10	12	14	12

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

Model A100 90° L.R. Elbow
A10 90° Elbow
A11 45° Elbow
A12 22-1/2° Elbow
A13 11-1/4° Elbow
A20 Tee
A60 Cap



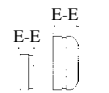
A100
90° Long Rad. Elbow

A10
90° Elbow

A11
45° Elbow

A12
22-1/2° Elbow

A13
11-1/4° Elbow

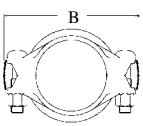


A60 Cap

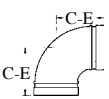
Nominal Size Inches	A100 90° L.R. Elbow C - E	A10 90° Elbow C - E	A11 45° Elbow C - E	A12 22-1/2° Elbow C - E	A13 11-14° Elbow C - E	A20 Tee C - E	A60 Cap E - E
3	7 3/4	5 1/2	3	3	3	5 1/2	1 3/16
4	9	6 1/2	4	4	4	6 1/2	1 3/16
6	11 1/2	8	5	5	5	8	1 3/8
8	14	9	5 1/2	5 1/2	5 1/2	9	1 1/2
10	16 1/2	11	6 1/2	6 1/2	6 1/2	11	1 1/2
12	19	12	7 1/2	7 1/2	7 1/2	12	1 3/16

BS Ductile Iron Series

British Standard Ductile Iron
Grooved End Fittings

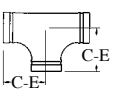


#A505-BS



#A10-BS
90° Elbow

#A11-BS
45° Elbow



#A20-BS
Tee

Nominal Size mm	#A505-BS B mm
80	184
100	207
150	265

Nominal Size mm	#A10-BS 90° Elbow C-E	#A11-BS 45° Elbow C-E	#A20-BS Tee C-E
80	165	130	165
100	180	140	180
150	220	160	220

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

APPENDIX

Decimal Equivalents of Fractions (inches)

1/64	0.015625
1/32	0.03125
3/64	0.046875
1/16	0.0625
5/64	0.078125
3/32	0.09375
7/64	0.109375
1/8	0.125
9/64	0.140625
5/32	0.15625
11/64	0.171875
3/16	0.1875
13/64	0.203125
7/32	0.21875
15/64	0.234375
1/4	0.25
17/64	0.265625
9/32	0.28125
19/64	0.296875
5/16	0.3125
21/64	0.328125
11/32	0.34375
23/64	0.359375
3/8	0.375
25/64	0.390625
13/32	0.40625
27/64	0.421875
7/16	0.4375
29/64	0.453125
15/32	0.46875
31/64	0.484375
1/2	0.5

33/64	0.515625
17/32	0.53125
35/64	0.546875
9/16	0.5625
37/64	0.578125
19/32	0.59375
39/64	0.609375
5/8	0.625
41/64	0.640625
21/32	0.65625
43/64	0.671875
11/16	0.6875
45/64	0.703125
23/32	0.71875
47/64	0.734375
3/4	0.75
49/64	0.765625
25/32	0.78125
51/64	0.796875
13/16	0.8125
53/64	0.828125
27/32	0.84375
55/64	0.859375
7/8	0.875
57/64	0.890625
29/32	0.90625
59/64	0.921875
15/16	0.9375
61/64	0.953125
31/32	0.96875
63/64	0.984375
1	1

☞ *To convert inches to millimeters, multiply by 25.4 (1" = 25.4mm).*

UNITS OF MEASUREMENT

LENGTH:	in. – “inches” (mm – “millimeters”)
	mm = in. x 25.4
	ft – “feet” (m – “meters”)
	m = ft x 0.3048
PRESSURE:	psi – “pounds per square inch” (kPa – “kilopascals”)
	kPa = psi x 6.8948
TEMPERATURE:	°F – “degrees Fahrenheit” (°C – “degrees Celsius”)
	°C = (°F – 32) x 5/9
FLOW:	gal / min – “gallons per minute” (dm^3 / min – “cubic decimeters per minute”)
	dm^3 / min = gal / min x 3.785
MASS WEIGHT:	lb – “pounds” (kg – “kilograms”)
	kg = lb x 0.4535
TORQUE:	lb · ft – “pound feet” (N-m – “Newton-meters”)
	N-m = lb·ft x 1.356

BOLT & SOCKET SIZE: INCH

FOR ***SHURJOINT*** GROOVED COUPLINGS AND MECHANCIAL TEES

Pipe Size		Z05 / K9		Z07 / 7771		7705		7707		XH-70		79		7706		7721/7722		723		Pipe
Inch	Actual OD	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socke Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Size Inch
3/4	1.050							3/8	11/16											3/4
1	1.315					3/8	11/16	3/8	11/16											1
1 1/4	1.660	3/8	11/16	3/8	11/16	3/8	11/16	3/8	11/16									3/8	11/16	1 1/4
1 1/2	1.900	3/8	11/16	3/8	11/16	3/8	11/16	1/2	7/8					3/8	11/16			3/8	11/16	1 1/2
2	2.375	3/8	11/16	3/8	11/16	3/8	11/16	1/2	7/8	5/8	1 1/16	5/8	1 1/16	3/8	11/16	3/8	11/16	3/8	11/16	2
2 1/2	2.875	3/8	11/16	3/8	11/16	3/8	11/16	1/2	7/8	5/8	1 1/16	5/8	1 1/16	3/8	11/16	1/2	7/8	3/8	11/16	2 1/2
2 1/2	3.000	3/8	11/16	3/8	11/16	3/8	11/16	1/2	7/8											2 1/2
3	3.500	3/8	11/16	1/2	7/8	1/2	7/8	1/2	7/8	5/8	1 1/16	3/4	1 1/4	1/2	7/8	1/2	7/8			3
3 1/2	4.000					1/2	7/8													3 1/2
4	4.500	3/8	11/16	1/2	7/8	1/2	7/8	5/8	1 1/16	3/4	1 1/4	3/4	1 1/4	1/2	7/8	1/2	7/8			4
																5/8	1 1/16			
5	5.500	1/2	7/8	5/8	1 1/16	5/8	1 1/16	5/8	1 1/16											5
5	5.563	1/2	7/8	5/8	1 1/16	5/8	1 1/16	5/8	1 1/16					5/8	1 1/16	5/8	1 1/16			5
6	6.500	1/2	7/8	5/8	1 1/16	5/8	1 1/16	3/4	1 1/4											6
6	6.625	1/2	7/8	5/8	1 1/16	5/8	1 1/16	3/4	1 1/4	7/8	1 7/16	7/8	1 7/16	5/8	1 1/16	5/8	1 1/16			6
8	8.625	5/8	11/16	5/8 (7771)	1 1/16	5/8	1 1/16	7/8	1 7/16	1	1 5/8	3/4	1 1/4	3/4	1 1/4	3/4	1 1/4			8
8	8.625			3/4 (Z07)	1 1/4															8
10	10.750			7/8	1 7/16	3/4	1 1/4	1	1 5/8	1	1 5/8	7/8	1 7/16							10
12	12.750			7/8	1 7/16	7/8	1 7/16	1	1 5/8	1	1 5/8	1	1 5/8							12
14	14.000			7/8	1 7/16			7/8	1 7/16			1	1 5/8							14
16	16.000			7/8	1 7/16			1	1 5/8			1	1 5/8							16
18	18.000			7/8	1 7/16			1	1 5/8			1	1 5/8							18
20	20.000			1	1 5/8			1	1 5/8			1	1 5/8							20
22	22.000			1	1 5/8			1	1 5/8											22
24	24.000			1	1 5/8			1	1 5/8											24

Note 1: 7721/7722 Mechanical tee 4" x 3" is supplied with 5/8" bolts."

Note 2: 7771 Rigid coupling 8" is supplied with 5/8" bolts and Z07 8" with 3/4" bolts.

COPPER TUBING SERIES (INCH)

Pipe Size		C305		C307		C306	
inch	Actual OD (U.S. Standard Copper Tubing)	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size
2	2.125	3/8	11/16	3/8	11/16		
2 1/2	2.625	3/8	11/16	3/8	11/16	1/2	7/8
3	3.125	1/2	7/8	1/2	7/8	1/2	7/8
4	4.125	1/2	7/8	1/2	7/8	1/2	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 OD	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size
3/4	1.050							3/8	11/16
1	1.315			5/16				3/8	11/16
1 1/4	1.660	3/8	11/16	5/16				3/8	11/16
1 1/2	1.900	3/8	11/16	5/16				3/8	11/16
2	2.375	3/8	11/16	3/8	11/16			3/8	11/16
2 1/2	2.875	3/8	11/16	3/8	11/16			3/8	11/16
2 1/2	3.000	3/8	11/16	3/8	11/16				
3	3.500	3/8	11/16	3/8	11/16			1/2	7/8
4	4.500	1/2	11/16	1/2	7/8			1/2	7/8
5	5.500	1/2	7/8						
5	5.563	1/2	7/8	1/2	7/8			5/8	1 1/16
6	6.500	1/2	7/8	1/2	7/8				
6	6.625	1/2	7/8	1/2	7/8			5/8	1 1/16
8	8.625	5/8	1 1/16	5/8	1 1/16			3/4	1 1/4
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					3/4	1 1/4		
22	22.000					3/4	1 1/4		
24	24.000					3/4	1 1/4		

AWWA SERIES (INCH)

Pipe Size		A505		A507	
inch	Actual OD	Bolt Size	Socket Size	Bolt Size	Socket Size
3	3.96	1/2	7/8	1/2	7/8
4	4.80	5/8	1 1/16	5/8	1 1/16
6	6.90	5/8	1 1/16	5/8	1 1/16
8	9.05	3/4	1 1/4	3/4	1 1/4
10	11.10	3/4	1 1/4	7/8	1 7/16
12	13.20	7/8	1 7/16	7/8	1 7/16
14	15.30	1	1 5/8		
16	17.40	1	1 5/8		
18	19.50	1	1 5/8		
20	21.60	1 1/8			
24	25.80	1 1/8			

HDP SERIES (INCH)

Pipe Size		H305		H307	
inch	Actual OD	Bolt Size	Socket Size	Bolt Size	Socket Size
2	2.375	1/2	7/8	1/2	7/8
3	3.500	1/2	7/8	1/2	7/8
4	4.500	1/2	7/8	1/2	7/8
6	6.625	5/8	1 1/16	5/8	1 1/16
8	8.625	5/8	1 1/16	5/8	1 1/16
10	10.750	3/4	1 1/4	3/4	1 1/4
12	12.750	3/4	1 1/4	3/4	1 1/4
14	14.000	1	1 5/8		
16	16.000	1	1 5/8		
18	18.000	1	1 5/8		
20	20.000	1	1 5/8		

BOLT & SOCKET SIZE: METRIC (MM)

FOR ***SHURJOINT*** GROOVED COUPLINGS AND MECHANCIAL TEES

Pipe Size		Z05 / K9		Z07 / 7771		7705		7707		XH-70		79		7706		7721/7722		723		Pipe
mm	Actual OD	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socke Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Bolt Size	Socket Size	Size mm
20	26.7							M10	17											20
25	33.4					M10	17	M10	17											25
32	42.2	M10	17	M10	17	M10	17	M10	17									M10	17	32
40	48.3	M10	17	M10	17	M10	17	M12	19					M10	17			M10	17	40
50	60.3	M10	17	M10	17	M10	17	M12	19	M16	24	M16	24	M10	17	M10	17	M10	17	50
65	73.0	M10	17	M10	17	M10	17	M12	19	M16	24	M16	24	M10	17	M12	19			65
65	76.1	M10	17	M10	17	M10	17	M12	19					M10	17	M12	19	M10	17	65
80	88.9	M10	17	M12	19	M12	19	M12	19	M16	24	M20	30	M12	19	M12	19			80
90	101.6					M12	19													90
100	114.3	M10	17	M12	19	M12	19	M16	24	M20	30	M20	30	M12	19	M12	19			100
																M16	24			100
125	139.7	M12	19	M16	24	M16	24	M16	24					M16	24	M16	24			125
125	141.3	M12	19	M16	24	M16	24	M16	24					M16	24	M16	24			125
150	165.1	M12	19	M16	24	M16	24	M20	30					M16	24	M16	24			150
150	168.3	M12	19	M16	24	M16	24	M20	30	7/8	1 7/16	7/8	1 7/16	M16	24	M16	24			150
200	219.1	M16	24	M16(7771)	24	M16	24	7/8	1 7/16	1	1 5/8	M20	1 1/4	M20	30	M20	30			200
				M20(Z07)	30															
250	273.0			7/8	1 7/16	M20	30	1	1 5/8	1	1 5/8	7/8	1 7/16							250
300	323.9			7/8	1 7/16	7/8	1 7/16	1	1 5/8	1	1 5/8	1	1 5/8							300
350	355.6			7/8	1 7/16			7/8	1 7/16			1	1 5/8							350
400	406.4			7/8	1 7/16			1	1 5/8			1	1 5/8							400
450	457.2			7/8	1 7/16			1	1 5/8			1	1 5/8							450
500	508.0			1	1 5/8			1	1 5/8			1	1 5/8							500
550	558.8			1	1 5/8			1	1 5/8											550
600	609.6			1	1 5/8			1	1 5/8											600

Note 1: 7721/7722 Mechanical tee 4" x 3" is supplied with 5/8" bolts.

Note 2: 7771 Rigid coupling 8" is supplied with 5/8" bolts and Z07 8" with 3/4" bolts.

COPPER SERIES (METRIC)

Pipe Size		C305	
mm	Actual OD (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
150	159.0	M16	24

BS DUCTILE IRON PIPE SERIES (METRIC)

Pipe Size		A505-BS	
mm	Actual OD	Bolt Size	Socket Size
80	98	M12	19
100	118	M16	24
150	170	M16	24

HDP 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
315	317.9	M20	30

Pipe Hanger Spacing

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	Water Service (meters)				Gas or Air Service (meters)	
in/mm	1)	2)	3)	4)	1)	2)
1 / 25	2.1	2.7	3.7	2.0	2.7	2.7
1.25 / 32	2.1	3.4	3.7	2.0	2.7	3.4
1.5 / 40	2.1	3.7	4.6	2.0	2.7	4.0
2 / 50	3.1	4.0	4.6	2.0	4.0	4.6
3 / 80	3.7	4.6	4.6	2.0	4.6	5.2
4 / 100	4.3	5.2	4.6	2.0	5.2	6.4
6 / 150	5.2	6.1	4.6	3.0	6.4	7.6
8 / 200	5.8	6.4	4.6	3.0	7.3	8.5
10 / 250	5.8	6.4		3.0	7.3	9.5
12 / 300	7.0	6.4		3.0	9.1	10.1
14 / 350	7.0	6.4			9.1	10.1
16 / 400	8.2	6.4			10.7	10.1
18 / 450	8.2	6.4			10.7	10.1
20 / 500	9.1	6.4			11.9	10.1
24 / 600	9.8	6.4			12.8	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

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