

MECH FLOW SUPPLIES



Malleable Iron
Pipe Fittings



Ductile Iron
Grooved Fittings
and Couplings



Valves



Cast Bronze
Fittings



Electrical
Power Fittings



Malleable Iron
Pipe Clamps



Ductile Iron Pipe Fittings
Cast Iron Pipe Fittings



Pipe Nipples



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Ductile Iron Grooved Fittings and Couplings



To Provide **Safe & Reliable** Products and **Smart & Complete**
Solutions for Clients in Fluid Conveying Industry Across the Globe.

More than 60 years of Foundry Experience

Company Profile

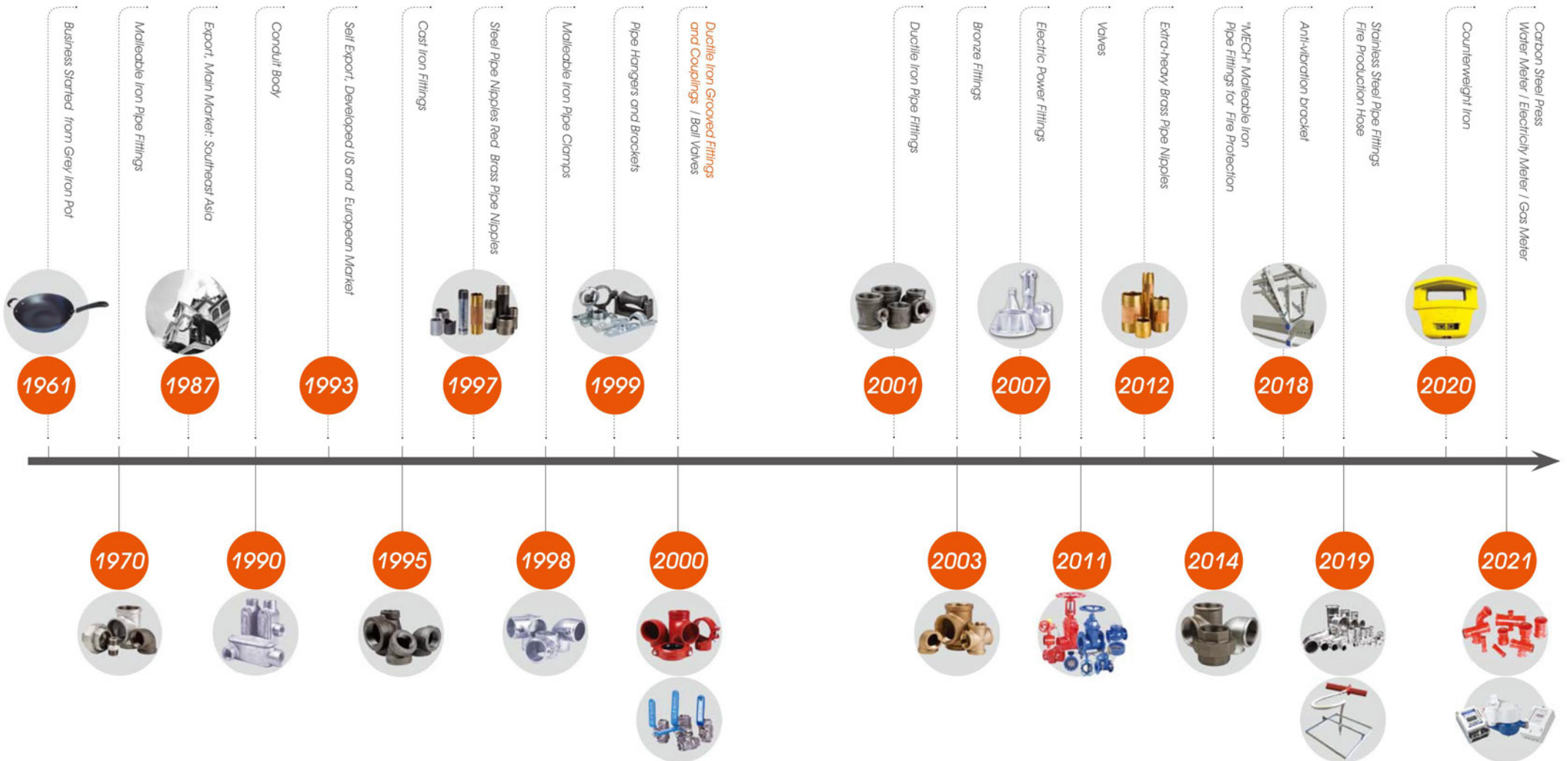
Meide Group is a high-tech enterprise specialized in supplying fittings and valves in fluid industry. The company has won more than 400 great honors, such as Single Champion Demonstration Enterprise, Green Manufacturing Enterprise, China's top 100 Light Industrial Enterprise, China's Leading Enterprise of Malleable Iron Pipe Fitting Production Base, National Enterprise with Good Creditworthiness and China's Famous Brand.

Inheriting the originality, and striving for excellence. "MECH" brand products are widely used in Burj Khalifa, Dubai, new WTC in New York, Shanghai Tower, UHV transmission lines and other landmark buildings and projects such as Beijing-Shanghai high-speed railway. Adhering to the customer-centered product development and innovation concept, to meet and guide the growing needs of users, to provide safe & reliable products and smart & complete solutions for clients in fluid industry across the globe, Meide Group has become the industry leader.

Using development innovation platform such as National Enterprise Technical Center and Post-Doctoral Research Center, Meide Group is promoting the transformation of technology innovation achievements into productive forces, has completed the transformation of production process from mechanization to automation and intelligence, management from experience to institutionalization and process, marketing is from selling products to offering solutions, steadily improve Meide Group's role in the global value chain.

Through the construction of three production bases, including Jinan, Linyi and Bangkok, Meide Group has formed a cross-regional, multi-base international development pattern. Meide Group never forgets the original intention, operates in compliance, keeps growing, insists on sharing development results with customers, employees, shareholders and the community, and strive to be a happy and respectable company.

Company History



State of the Art Equipment

High precision equipment is quality assurance. Jinan Meide's factories are all equipped with the most advanced facilities and equipment in the industry. The main production facilities include Sinto automatic molding line, Tokyu automatic molding line, Chinese 416 automatic vertical molding line, automatic molding sand mixers, cupola furnaces, electric furnaces, water-cooled longevous cupola furnaces, CNC vertical machining centers, CNC machines, NC vertical lathes, radial drills, Jinan Meide proprietary automatic machines, hot-dipped galvanization line, automatic box sealing line, stereoscopic warehouse and so on.



Pattern



Core Making



Sand Mulling



Melting



Sinto FCMX



DISA



Tokyu AMF-111055



Pouring



End Grinding Line



Electrophoretic Coating



Threading, Air Pressure Test, and Anti-rust Treatment



Assembling



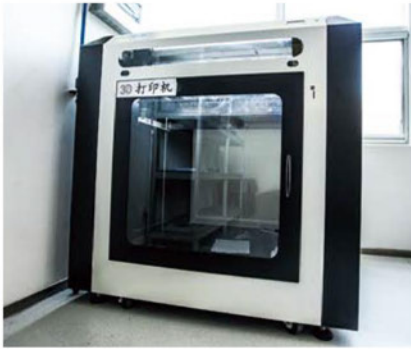
Warehouse

Reliable Quality Assurance

Jinan Meide is honored as the National enterprise technical center and is capable and qualified to conduct full series of tests and inspections including chemical checking, etc.

Inspection facilities include: spectrometer, carbon sulfur analyzer, metallurgical microscope, tensile strength testing equipment, pressure testing equipment, adhesive force testing equipment, CMM, hardness tester, etc.

From incoming inspection to finished product, quality is checked and monitored in the whole process. Each step of the manufacturing process is carefully documented, regularly reviewed for revision control and updating standard. Quality procedures are constantly monitored and updated to assure that only the highest and most consistent quality products are supplied to our valued customers.



3D Printer



3D Scanner



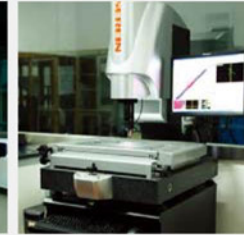
Metallurgical Microscope



Spectrometer



CMM



Projector



The Length of The Test Instrument



Roughness Tester



Carbon Sulfur Analyzer



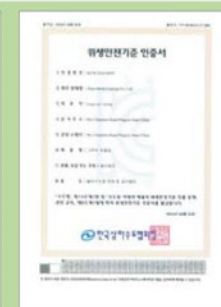
Tensile Strength Testing Equipment



Sand Testing Instrument



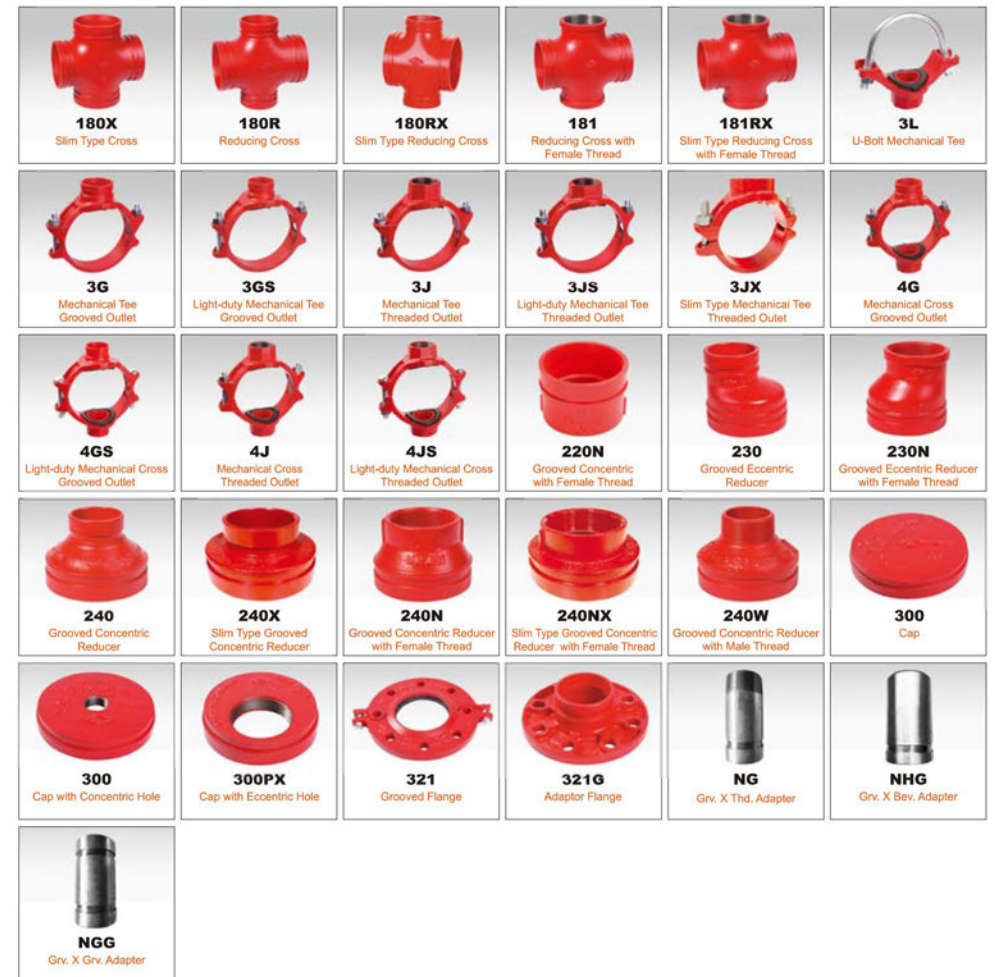
Certificates



Ductile Iron Grooved Fittings and Couplings

Material: ASTM A536, GRADE 65-45-12, QT450-10
Threads: ASME B1.20.1, ISO 7-1, GB 7306
Size Available: 1"-24"

Surface Treatment:
P: Painted E: Electroplated
B: Black S: Epoxy G: Hot-dip Galvanized



PRODUCT OVERVIEW

1. Design Standard

MECH brand grooved fittings are designed and manufactured in accordance with ASTM F1548, AWWA C606 and ISO 6182-12.2. Grooved couplings are in accordance with ASTM F1476 and EN 10311. For technical or quality requirements which are not specified in these standards, please contact our Business Engineers for details.

2. Product Features

Flexible couplings are mainly used for grooved pipe connections where adjacent pipe ends allow a certain amount of relative axial displacement, angular displacement and corresponding axial rotation.

Rigid couplings are for grooved pipeline connection. At the joint part, the adjacent pipe ends are not allowed to have relative axial displacement and angular displacement.

Mechanical tee is a saddle-shaped joint for connecting one side of a pipe in the middle of a straight pipe, the branch pipe is a threaded or grooved connection.

The grooved flange is used for the conversion of the grooved pipe connection to the flange connection.

Grooved fittings are used in conjunction with couplings to connect pipes and provide for pipe changes in direction, shunt, outside diameter changes, connection mode changes, or terminal plug & cap.

3. Material of The Housing

Ductile iron according to ASTM A536 Grade 65-45-12. International ductile iron specifications equivalent to SAE J434: D4512 or EN1563: EN-GJS-450-10 or JIS G5502: FCD450-10 or SABS 936/937: SG42. If the project needs other grades of ductile iron material, please communicate with our business engineer in advance to confirm.

4. Surface Treatment

- Standard: Electrophoretic coating
- Optional: Epoxy coating
- Optional: Hot-dip galvanizing
- Optional: Others would be available upon clients' detailed request

Note: please be sure to choose the proper surface treatment according to the corrosive environment and medium.

5. Gasket

Grade "E" EPDM with a green strip is for fire sprinkler systems. Grade "S" the silicone, is suitable for drinking water system. For other media and environment, please refer to guide for selection of rubber gaskets. Do not use in an incompatible media.

6. Bolts/Nuts

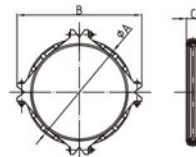
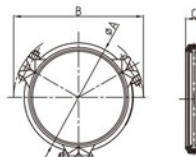
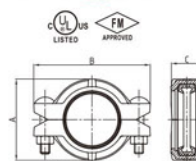
Oval neck track bolts and heavy hex nuts are available in American standard and metric systems on request. When applied to highly corrosive environment, please consult meide r&d or technical department.

7. Pipe Material

Welded and seamless steel pipes are in accordance with ASME B36.10, ASTM A53-A53M, ISO 4200 and GB/T 21835.

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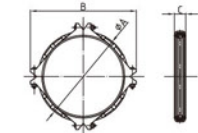
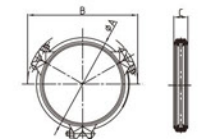
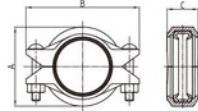
Heavy-duty Flexible Coupling



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size No.-Size mm/in	Certificate
					A mm/in	B mm/in	C mm/in		
50 2	60.3 2.375	750 5.17	14.8/3320	0-3.2 0-0.13	90 3.54	134 5.28	45 1.77	2-1/2X75 2-M12X76	UL FM
65 2½	73.0 2.875	750 5.17	21.6/4860	0-3.2 0-0.13	100 3.94	150 5.91	45 1.77	2-1/2X75 2-M12X76	UL FM
80 3	88.9 3.500	750 5.17	23.5/5280	0-3.2 0-0.13	102 4.02	154 6.06	45 1.77	2-1/2X75 2-M12X76	UL FM
100 4	114.3 4.500	750 5.17	32.1/7210	0-3.2 0-0.13	121 4.76	172 6.78	45 1.77	2-1/2X75 2-M12X76	UL FM
125 5	139.7 5.500	750 5.17	53.0/11900	0-3.2 0-0.13	151 5.95	214 8.43	50 1.97	2-5/8X85 2-M16X85	UL FM
150 6	168.3 6.625	750 5.17	79.2/17810	0-3.2 0-0.13	178 7.01	247 9.61	52 2.05	2-3/4X115 2-M20X115	UL
200 8	219.1 8.625	750 5.17	81.0/18200	0-3.2 0-0.13	180 7.09	248 9.76	51 2.00	2-3/4X115 2-M20X115	UL FM
250 10	273.0 10.75	500 3.45	110.6/24800	0-3.2 0-0.13	205 8.07	278 10.95	51 2.00	2-3/4X115 2-M20X115	UL FM
300 12	323.9 12.750	500 3.45	115.0/25800	0-3.2 0-0.13	208 8.20	284 11.18	51 2.00	2-3/4X115 2-M20X115	UL FM
400 16	406.4 16.000	500 3.45	194.8/43800	0-3.2 0-0.13	268 10.56	354 13.94	61 2.40	2-7/8X140 2-M22X140	UL FM
450 18	457.2 18.000	500 3.45	201.8/45415	0-7.4 0-0.29	326.7 12.86	420.7 16.56	66 2.60	2-7/8X125	—
500 20	508.0 20.000	500 3.45	284.1/63868	0-3.2 0-0.13	385.2 15.165	477 18.780	66 2.598	2-7/8X140 2-M22X140	UL
600 24	609.6 24.000	500 3.45	566.1/127375	0-8.2 0-0.32	606.0 23.86	460 18.11	82 3.23	3-7/8X140	—

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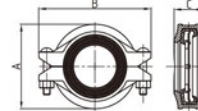
Standard Flexible Coupling



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size No.-Size mm/in	Certificate
					A mm/in	B mm/in	C mm/in		
25	33.7	500	3.0/680	0-1.6	55	92	42	2-3/8 x 55	UL FM
1	1.327	3.45		0-0.06	2.16	3.62	1.65	2-M10 x 57	VdS LPCB
32	42.4	500	4.8/1080	0-1.6	65	104	44	2-3/8 x 55	UL FM
1 1/4	1.669	3.45		0-0.06	2.56	4.14	1.74	2-M10 x 57	VdS LPCB
40	48.3	500	6.3/1420	0-3.2	70	110	44	2-3/8 x 55	UL FM
1 1/2	1.900	3.45		0-0.13	2.75	4.33	1.74	2-M10 x 57	VdS LPCB
50	60.3	500	9.8/2210	0-3.2	83	125	44	2-3/8 x 55	UL FM
2	2.375	3.45		0-0.13	3.27	4.92	1.74	2-M10 x 57	VdS LPCB
65	73.0	500	14.4/3240	0-3.2	96	143	45	2-3/8 x 55	UL FM
2 1/2	2.875	3.45		0-0.13	3.78	5.63	1.78	2-M10 x 57	VdS LPCB
80	76.1	500	15.7/3520	0-3.2	100	145	45	2-3/8 x 55	UL FM
3	3.000	3.45		0-0.13	3.94	5.71	1.78	2-M10 x 57	VdS LPCB
100	114.3	500	21.4/4810	0-3.2	115	160	45	2-1/2 x 70	UL FM
4	4.500	3.45		0-0.13	4.53	6.30	1.78	2-M12 x 70	VdS LPCB
125	125.0	500	31.5/7100	0-3.2	138	190	50	2-1/2 x 70	UL FM
5	5.000	3.45		0-0.13	5.43	7.48	1.97	2-M12 x 70	VdS LPCB
150	151.3	500	35.4/7960	0-3.2	145	198	50	2-1/2 x 70	UL FM
6	6.000	3.45		0-0.13	5.71	7.80	1.97	2-M12 x 70	VdS LPCB
175	177.8	500	41.0/9240	0-3.2	162	225	51.0	2-5/8 x 80	UL FM
7	7.000	3.45		0-0.13	6.38	8.86	2.01	2-M16 x 85	VdS LPCB
200	203.2	500	52.9/11800	0-3.2	169	230	52	2-5/8 x 80	UL FM
8	8.000	3.45		0-0.13	6.65	9.06	2.05	2-M16 x 85	VdS LPCB
225	228.6	500	54.1/12100	0-3.2	170	232	51	2-5/8 x 80	UL FM
9	9.000	3.45		0-0.13	6.69	9.13	2.01	2-M16 x 85	VdS LPCB
250	254.0	500	61.0/13700	0-3.2	190	256	52	2-5/8 x 85	UL FM
10	10.000	3.45		0-0.13	7.48	10.08	2.05	2-M16 x 85	VdS LPCB
300	304.8	500	73.8/16610	0-3.2	196	260	52	2-5/8 x 85	UL FM
12	12.000	3.45		0-0.13	7.72	10.24	2.05	2-M16 x 85	VdS LPCB
350	354.3	500	76.7/17260	0-3.2	200	265	52	2-5/8 x 85	UL FM
14	14.000	3.45		0-0.13	7.87	10.43	2.05	2-M16 x 85	VdS LPCB
400	406.4	500	85.5/19100	0-3.2	254	320	59	2-5/8 x 85	UL FM
16	16.000	3.45		0-0.13	10.00	12.60	2.32	2-M16 x 85	VdS LPCB
450	457.2	500	88.0/19600	0-3.2	258	342	60	2-3/4 x 115	UL FM
18	18.000	3.45		0-0.13	10.24	13.45	2.37	2-M20 x 115	VdS LPCB
500	508.0	500	116.2/26100	0-3.2	308.5	403	64	2-3/4 x 115	UL FM
20	20.000	3.45		0-0.13	12.15	15.87	2.52	2-M20 x 115	VdS LPCB
550	558.8	500	121.0/27210	0-3.2	337	406	65	2-7/8 x 140	UL FM
22	22.000	3.45		0-0.13	13.27	16.00	2.56	2-M22 x 140	VdS LPCB
600	609.6	500	164.8/37090	0-3.2	363	460	63	2-7/8 x 140	UL FM
24	24.000	3.45		0-0.13	14.29	18.11	2.48	2-M22 x 140	VdS LPCB
650	660.4	500	170.3/38280	0-3.2	378	465	65	2-7/8 x 140	UL FM
26	26.000	3.45		0-0.13	14.96	18.31	2.56	2-M22 x 140	VdS LPCB
700	711.2	500	205.5/46220	0-3.2	402	493	72	2-7/8 x 140	UL FM
28	28.000	3.45		0-0.13	15.83	19.41	2.83	3-M22 x 140	VdS LPCB
750	762.0	500	178.5/40160	0-3.2	428	520	72	2-7/8 x 140	UL FM
30	30.000	3.45		0-0.13	16.85	20.45	2.85	3-M22 x 140	VdS LPCB
800	812.7	500	268.4/60370	0-3.2	458	547	72	2-7/8 x 140	UL FM
32	32.000	3.45		0-0.13	18.03	21.54	2.85	3-M22 x 140	VdS LPCB
850	863.3	500	227.9/51270	0-3.2	476	566	73	2-7/8 x 140	UL FM
34	34.000	3.45		0-0.13	18.74	22.28	2.87	3-M22 x 140	VdS LPCB
900	914.4	500	282.5/63060	0-3.2	505	598	78	2-7/8 x 140	UL FM
36	36.000	3.45		0-0.13	19.88	23.54	3.07	3-M22 x 140	VdS LPCB
950	965.1	500	373.8/84110	0-3.2	533	628	78	2-7/8 x 140	UL FM
38	38.000	3.45		0-0.13	20.98	24.72	3.07	3-M22 x 140	VdS LPCB
1000	1016.0	500	324.1/72910	0-3.2	550	648	78	4-7/8 x 140	UL FM
40	40.000	3.45		0-0.13	21.65	25.51	3.07	4-M22 x 140	VdS LPCB
1050	1066.8	500	613/137880	0-3.2	624	724	80	4-7/8 x 140	UL FM
42	42.000	3.45		0-0.13	24.57	28.50	3.15	4-7/8 x 140	VdS LPCB
1100	1117.6	500	466.7/104990	0-3.2	662	774	78	4-1X140	UL FM
44	44.000	3.45		0-0.13	26.06	30.47	3.07	4-1X140	VdS LPCB
1150	1168.3	500	635/142900	0-3.2	736	876	135	4-11/2 x 53/4	UL FM
46	46.000	3.45		0-0.13	28.98	34.49	5.31	4-11/2 x 53/4	VdS LPCB

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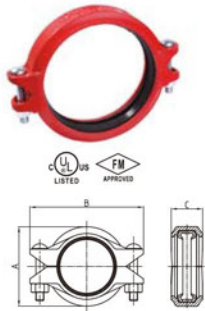
Standard Reducing Flexible Coupling



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size	Certificate
					A mm/in	B mm/in	C mm/in	No.-Size mm/in	
50×25 2×1	60.3×33.7 2.375×1.315	360 2.48	5.9/1330	0-3.2 0-0.13	89 3.00	125.2 4.929	44 1.73	2-3/8×55 2-M10×57	UL
50×40 2×1½	60.3×48.3 2.375×1.900	360 2.48	5.9/1330	0-3.2 0-0.13	86 3.39	125 4.93	44 1.74	2-3/8×55 2-M10×57	UL FM LPCB
65×25 2½×1	73.0×33.7 2.875×1.327	300 2.07	8.7/1950	0-3.2 0-0.13	100 3.94	138 5.44	45 1.78	2-3/8×55 2-M10×57	UL FM
65×50 2½×2	73.0×60.3 2.875×2.375	360 2.48	8.7/1950	0-3.2 0-0.13	100 3.94	138 5.43	45 1.78	2-3/8×55 2-M10×57	UL FM LPCB
65×25 2½×1	76.1×33.7 3.000×1.327	300 2.07	9.4/2120	0-3.2 0-0.13	102 4.02	140 5.51	45 1.78	2-3/8×55 2-M10×57	UL FM
65×40 2½×1½	76.1×48.3 3.000×1.900	300 2.07	9.4/2120	0-3.2 0-0.13	102 4.02	140 5.51	45 1.78	2-3/8×55 2-M10×57	UL FM LPCB
65×50 2½×2	76.1×60.3 3.000×2.375	300 2.07	9.4/2120	0-3.2 0-0.13	102 4.02	144 5.67	45 1.78	2-3/8×55 2-M10×57	UL FM V&S LPCB
65x65 2½x2½	76.1x73.0 3.000x2.875	300 2.07	9.4/2120	0-3.2 0-0.13	102.5 4.04	145 5.71	45 1.78	2-3/8x55 2-M10x57	—
80×25 3×1	88.9×33.7 3.500×1.327	300 2.07	12.8/2885	0-3.2 0-0.13	115 4.53	168 6.61	46 1.81	2-1/2×70 2-M12×70	UL FM
80×50 3×2	88.9×60.3 3.500×2.375	360 2.48	12.8/2885	0-3.2 0-0.13	115 4.53	168 6.61	46 1.81	2-1/2×70 2-M12×70	UL FM V&S LPCB
80×65 3×2½	88.9×73.0 3.500×2.875	360 2.48	12.8/2885	0-3.2 0-0.13	115 4.53	168 6.61	46 1.81	2-1/2×70 2-M12×70	UL FM LPCB
80×85 3×2¾	88.9×76.1 3.500×3.000	300 2.07	12.8/2885	0-3.2 0-0.13	115 4.53	172 6.77	46 1.81	2-1/2×70 2-M12×70	UL FM V&S LPCB
100×25 4×1	114.3×33.7 4.500×1.327	300 2.07	21.2/4770	0-3.2 0-0.13	144 5.67	198 7.80	50 1.97	2-1/2×70 2-M12×70	UL FM
100×50 4×2	114.3×60.3 4.500×2.375	360 2.48	21.2/4770	0-3.2 0-0.13	144 5.67	198 7.80	50 1.97	2-1/2×70 2-M12×70	UL FM V&S LPCB
100×65 4×2½	114.3×73.0 4.500×2.875	360 2.48	21.2/4770	0-3.2 0-0.13	144 5.67	198 7.80	50 1.97	2-1/2×70 2-M12×70	UL FM LPCB
100×85 4×3	114.3×88.9 4.500×3.000	360 2.48	21.2/4770	0-3.2 0-0.13	144 5.67	202 7.95	50 1.97	2-1/2×70 2-M12×70	UL FM V&S LPCB
150×80 6×3	165.1×88.9 6.500×3.500	300 2.07	44.3/9960	0-3.2 0-0.13	200 7.87	260 10.24	51 2.01	2-3/4×115 2-M20×115	UL FM
150×100 6×4	165.1×114.3 6.500×4.500	360 2.48	44.3/9960	0-3.2 0-0.13	197 7.75	260 10.24	51 2.01	2-5/8×85 2-M16×85	UL FM LPCB
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	46.0/10340	0-3.2 0-0.13	200 7.87	268 10.55	51 2.01	2-5/8×85 2-M16×85	UL FM
150×100 6×4	168.3×114.3 6.625×4.500	360 2.48	46.0/10340	0-3.2 0-0.13	202.5 7.97	268 10.55	52.5 2.07	2-5/8×85 2-M16×85	UL FM V&S LPCB
150×125 6×5	168.3×141.3 6.625×5.563	360 2.48	46.0/10340	0-3.2 0-0.13	210.25 8.278	274.83 10.820	51.9 2.043	2-3/4×115 2-M20×115	UL
150×150 6×6	168.3×165.1 6.625×6.500	300 2.07	46.0/10340	0-3.2 0-0.13	204 8.031	268 10.551	52.5 2.066	2-5/8×85 2-M16×85	UL FM
200×150 8×6	219.1×165.1 8.625×6.500	300 2.07	77.8/17500	0-3.2 0-0.13	257 10.12	335 13.19	60 2.36	2-3/4×115 2-M20×115	UL FM LPCB
200×150 8×6	219.1×168.3 8.625×6.625	360 2.48	77.8/17500	0-3.2 0-0.13	260 10.24	338 13.31	60 2.36	2-3/4×115 2-M20×115	UL FM LPCB

1NS

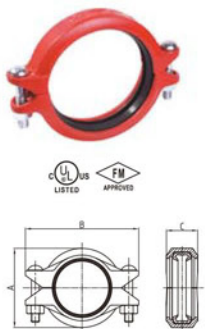
Light-duty
Flexible Coupling



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size No.-Size mm/in	Certificate
					A mm/in	B mm/in	C mm/in		
50 2	60.3 2.37	300 2.07	5.9/1329	0-3.2 0-0.13	81.2 3.20	125 4.92	44.5 1.75	2-3/8X55 2-M10X57	UL
65 2 1/2	76.1 3.00	300 2.07	9.4/2117	0-3.2 0-0.13	96.5 3.79	138 5.43	44.5 1.75	2-3/8X55 2-M10X57	UL
80 3	88.9 3.500	300 2.07	12.8/2877	0-3.2 0-0.13	112.2 4.417	159 6.260	45.5 1.791	2-3/8X55 2-M10X57	UL
100 4	114.3 4.500	300 2.07	21.2/4770	0-3.2 0-0.13	139 5.47	182 7.16	50 1.97	2-3/8X55 2-M10X57	UL
125 5	139.7 5.500	450 3.10	47.5/10680	0-3.2 0-0.13	168 6.61	228 8.98	51 2.01	2-5/8X80 2-M16X85	UL
150 6	165.1 6.500	300 2.07	44.3/9960	0-3.2 0-0.13	192 7.56	244 9.61	51 2.01	2-1/2X75 2-M12X76	UL
150 6	168.3 6.625	300 2.07	46.0/10340	0-3.2 0-0.13	200 7.87	266 10.47	52 2.05	2-5/8X85 2-M16X85	UL
250 10	273.0 10.750	300 2.07	121.0/27210	0-3.2 0-0.13	320 12.60	398.0 15.67	64 2.52	2-3/4X120 2-M20X115	UL

1NX

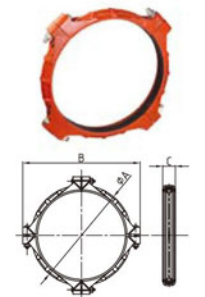
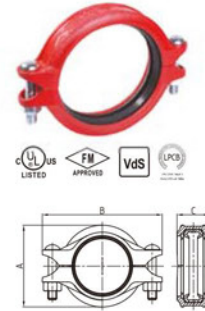
Slim Type Flexible
Coupling



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions			Bolt Size No.-Size mm/in	Certificate
			A mm/in	B mm/in	C mm/in		
50 2	60.3 2.37	300 2.07	82.2 3.24	125 4.92	44.5 1.75	2-3/8X55 2-M10X57	UL FM
65 2 1/2	73.0 2 1/2	363 2.5	94.5 3.720	136 5.354	44.5 1.752	2-3/8X55 2-M10X57	UL FM
65 2 1/2	76.1 3.000	363 2.5	97.5 3.839	138 5.433	44.5 1.752	2-3/8X55 2-M10X57	—
80 3	88.9 3.500	363 2.5	110.4 4.346	152 5.984	45.5 1.791	2-3/8X55 2-M10X57	—
100 4	114.3 4.500	363 2.5	139 5.472	183 7.205	48 1.890	2-3/8X55 2-M10X57	—
125 5	139.7 5.5	363 2.5	165.4 6.50	220 8.66	49.5 1.95	2-1/2X70 2-M12X70	UL
150 6	165.1 6.500	363 2.5	194.1 7.642	249 9.803	50 1.969	2-1/2X70 2-M12X70	—
150 6	168.3 6.625	300 2.07	197 7.76	255 10.04	49.5 1.95	2-1/2X70 2-M12X70	UL
200 8	219.1 8.625	300 2.07	250 9.84	323 12.72	58.5 2.30	2-5/8X85 2-M16X85	UL FM
250 10	273.0 10.750	300 2.07	310 12.20	390 15.35	60 2.36	2-3/4X115 2-M20X115	UL FM

1G

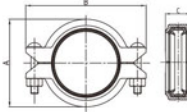
Standard
Rigid Coupling



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size No.-Size mm/in	Certificate
					A mm/in	B mm/in	C mm/in		
25 1	33.7 1.327	500 3.45	3.0/680	0-1.6 0-0.06	59 2.33	100 3.94	44 1.74	2-3/8X55 2-M10X57	UL FM V&S LPCB
32 1 1/4	42.4 1.669	500 3.45	4.8/1080	0-1.6 0-0.06	66 2.60	109.5 4.31	45 1.78	2-3/8X55 2-M10X57	UL FM V&S LPCB
40 1 1/2	48.3 1.900	500 3.45	6.3/1420	0-3.2 0-0.13	72 2.84	115 4.53	45 1.78	2-3/8X55 2-M10X57	UL FM V&S LPCB
50 2	60.3 2.375	500 3.45	9.8/2210	0-3.2 0-0.13	85 3.35	131 5.16	45 1.78	2-3/8X55 2-M10X57	UL FM V&S LPCB
65 2 1/2	73.0 2.875	500 3.45	14.4/3240	0-3.2 0-0.13	98 3.86	145 5.71	45 1.78	2-3/8X55 2-M10X57	UL FM LPCB
65 2 1/2	76.1 3.000	500 3.45	15.7/3520	0-3.2 0-0.13	101 3.98	147 5.78	45 1.77	2-3/8X55 2-M10X57	UL FM V&S LPCB
80 3	88.9 3.500	500 3.45	21.4/4810	0-3.2 0-0.13	115.0 4.53	170 6.69	46 1.82	2-1/2X70 2-M12X70	UL FM V&S LPCB
100 4	108.0 4.250	500 3.45	31.5/7100	0-3.2 0-0.13	140 5.51	197 7.76	52 2.05	2-1/2X70 2-M12X70	UL FM LPCB
100 4	114.3 4.500	500 3.45	35.4/7960	0-3.2 0-0.13	146 5.75	200 7.88	52 2.05	2-1/2X70 2-M12X70	UL FM V&S LPCB
125 5	133 5.250	300 2.07	28.7/6460	0-3.2 0-0.13	165 6.50	232 9.13	52 2.05	2-5/8X85 2-M16X85	UL FM LPCB
125 5	139.7 5.500	500 3.45	52.9/11800	0-3.2 0-0.13	170 6.69	238 9.37	52 2.05	2-5/8X85 2-M16X85	UL FM V&S LPCB
125 5	141.3 5.563	500 3.45	54.1/12100	0-3.2 0-0.13	172 6.77	236.5 9.31	52 2.05	2-5/8X85 2-M16X85	UL FM LPCB
150 6	159.0 6.250	300 2.07	41.0/9240	0-3.2 0-0.13	190 7.48	258 10.16	52 2.05	2-5/8X85 2-M16X85	UL FM LPCB
150 6	165.1 6.500	500 3.45	73.8/16610	0-3.2 0-0.13	198 7.80	266 10.47	52 2.05	2-5/8X85 2-M16X85	UL FM LPCB
150 6	168.3 6.625	500 3.45	76.7/17260	0-3.2 0-0.13	202.0 7.95	270 10.63	52 2.05	2-5/8X85 2-M16X85	UL FM V&S LPCB
200 8	219.1 8.625	500 3.45	116.9/26280	0-3.2 0-0.13	260.0 10.24	346 13.625	62 2.44	2-3/4X115 2-M20X115	UL FM V&S LPCB
250A 10	267.4 10.528	300 2.07	116/26130	0-3.2 0-0.13	318 12.52	396 15.60	63 2.48	2-3/4X115 2-M20X115	UL FM
250 10	273.0 10.750	500 3.45	163.8/36800	0-3.2 0-0.13	327 12.88	420 16.54	63 2.48	2-7/8X125 2-M22X125	UL FM V&S
300A 12	318.5 12.539	300 2.07	164.8/37080	0-3.2 0-0.13	364 14.33	456 17.95	63 2.48	2-7/8X140 2-M22X140	UL FM
300 12	323.9 12.750	500 3.45	230.6/51880	0-3.2 0-0.13	378 14.88	466 18.35	63 2.48	2-7/8X140 2-M22X140	UL FM
350 14	355.6 14.000	300 2.07	205.5/46220	0-3.2 0-0.13	415 16.34	510 20.08	72 2.84	3-7/8X140 3-M22X140	UL FM
350 14	377.0 14.842	225 1.6	178.5/40160	0-3.2 0-0.13	435 17.13	535 21.05	72 2.84	3-7/8X140 3-M22X140	UL FM
400 16	406.4 16.000	300 2.07	268.4/60370	0-3.2 0-0.13	468 18.43	575 22.64	72 2.84	3-7/8X140 3-M22X140	UL FM
450 18	457.2 18.000	225 1.6	262.5/59060	0-3.2 0-0.13	508 20	608 23.94	78 3.07	3-7/8X140 3-M22X140	UL
500 20	508.0 20.0	225 1.6	324.1/72910	0-3.2 0-0.13	563 22.17	660 25.98	78 3.07	4-7/8X140 4-M22X140	UL
550 22	558.8 22	362 2.5	612.8/137881	0-6.2 0-0.24	623.8 24.56	724 28.5	77 3.03	4-7/8X140 4-M22X140	—
600 24	609.6 24.000	225 1.6	466.7/104990	0-3.2 0-0.13	668 26.30	772 30.40	78 3.07	4-1X140 4-M22X140	UL
600 24	630 24.80	225 1.6	498.5/112140	0-3.2 0-0.13	692 27.24	796 31.33	78 3.07	4-1X140 4-M22X140	UL
600 26	660.4 26	225 1.6	635/142900	8-12 0.31-0.47	733.4 28.87	880 34.65	133 5.24	4-11/2X53/4	—
700 28	711.2 28	225 1.6	635/142900	8-12 0.31-0.47	798 31.42	960 37.80	133 5.24	6-11/2X53/4	—
800 32	812.8 32	225 1.6	830/186700	8-12 0.31-0.47	900 35.43	1058 41.65	133 5.24	6-11/2X53/4	—

1GS

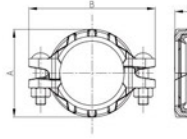
Light-duty
Rigid Coupling



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size No.-Size mm/in	Certificate
					A mm/in	B mm/in	C mm/in		
80 3	88.9 3.500	350 2.41	15.0/3360	0-3.2 0-0.13	114 4.50	160 6.30	45 1.78	2-3/8X55 2-M10X57	UL FM Vds LPCB
100 4	108.0 4.250	300 2.07	18.9/4260	0-3.2 0-0.13	135 5.30	185 7.28	50 1.97	2-1/2X70 2-M12X70	UL FM LPCB
100 4	114.3 4.500	350 2.41	24.7/5560	0-3.2 0-0.13	140 5.51	192 7.56	46.5 1.83	2-1/2X70 2-M12X70	UL FM Vds LPCB
125 5	139.7 5.500	350 2.41	36.9/8300	0-3.2 0-0.13	168 6.62	225 8.86	50 1.97	2-1/2X75 2-M12X76	UL FM LPCB
125 5	141.3 5.563	350 2.41	37.8/8490	0-3.2 0-0.13	170 6.69	225 8.86	50 1.97	2-1/2X75 2-M12X76	UL FM LPCB
150 6	159.0 6.250	300 2.07	41.0/9240	0-3.2 0-0.13	190 7.48	252 9.92	50 1.97	2-5/8X80 2-M16X85	UL FM LPCB
150 6	165.1 6.500	350 2.41	51.6/11600	0-3.2 0-0.13	195 7.68	250 9.84	50 1.97	2-1/2X75 2-M12X76	UL FM LPCB
150 6	168.3 6.625	350 2.41	53.6/12000	0-3.2 0-0.13	200 7.87	255 10.04	50 1.97	2-1/2X75 2-M12X76	UL FM LPCB
200A 8	216.3 8.516	300 2.07	76.0/17100	0-3.2 0-0.13	255 10.04	320 12.60	58 2.28	2-5/8X85 2-M16X85	UL FM
200 8	219.1 8.625	350 2.41	90.8/20430	0-3.2 0-0.13	255 10.05	324 12.76	58 2.28	2-5/8X85 2-M16X85	UL FM LPCB
250 10	273.0 10.750	300 2.07	121.0/27210	0-3.2 0-0.13	318 12.52	410 16.14	63 2.48	2-3/4X120 2-M20X115	UL FM

1GH

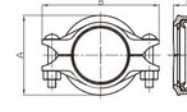
Heavy duty Rigid
Coupling



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions			Bolt Size No.-Size mm/in	Certificate
			A mm/in	B mm/in	C mm/in		
50 2	60.3 2.375	750 5.17	88 3.46	136 5.35	45.5 1.79	2-1/2X75	UL
65 2 1/2	73.0 2.875	750 5.17	101 3.98	150 5.91	45.5 1.79	2-1/2X75	UL
65 2 1/2	76.1 3.000	750 5.17	104 4.09	155 6.10	45.5 1.79	2-1/2X75	UL
80 3	88.9 4.500	750 5.17	120.5 4.74	174 6.85	46.5 1.83	2-1/2X75	UL
100 4	114.3 4.500	750 5.17	150.5 5.93	217 8.54	50.5 1.99	2-5/8X80	UL
125 5	139.7 5.500	750 5.17	179 7.05	249 9.80	52 2.05	2-3/4X115	UL
125 5	141.3 5.563	750 5.17	180.5 7.11	250 9.84	51.5 2.03	2-3/4X115	UL
150 6	165.1 6.500	750 5.17	208 8.19	281 11.06	51.5 2.03	2-3/4X115	UL
150 6	168.3 6.625	750 5.17	211.5 8.33	285 11.22	52 2.05	2-3/4X115	UL
200 8	219.1 8.625	750 5.17	269 10.59	358 14.09	61 2.40	2-7/8X125	UL
250 10	273.0 10.750	750 5.17	326.5 12.85	420.7 16.56	63.5 2.50	2-7/8X125	UL
300 12	323.9 12.750	750 5.17	385 15.16	481 18.94	66 2.60	2-7/8X140	UL

1GX

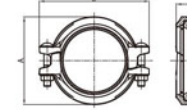
Slim Type Rigid
Coupling



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions			Bolt Size No.-Size mm/in	Certificate
			A mm/in	B mm/in	C mm/in		
32 1 1/4	42.4 1.669	300 2.07	65 2.56	103.5 4.07	44.5 1.75	2-3/8X55 2-M10X57	UL FM
40 1 1/2	48.3 1.900	300 2.07	70.8 2.79	108 4.25	44.5 1.75	2-3/8X55 2-M10X57	UL FM
50 2	60.3 2.375	300 2.07	82.5 3.25	129 5.08	44.5 1.75	2-3/8X55 2-M10X57	UL
65 2 1/4	73.0 2.875	363 2.5	94.5 3.720	136 5.354	44 1.732	2-3/8X55 2-M10X57	UL
65 2 1/4	76.1 3.000	300 2.07	98 3.86	138 5.43	44 1.73	2-3/8X55 2-M10X57	UL FM
80 3	88.9 3.500	300 2.07	110 4.33	152 5.98	45 1.77	2-3/8X55 2-M10X57	UL FM
100 4	108.0 4.250	300 2.07	130 5.12	174 6.85	47 1.85	2-3/8X55 2-M10X57	UL FM
100 4	114.3 4.500	300 2.07	140 5.51	183 7.20	47 1.85	2-3/8X55 2-M10X57	UL FM
125 5	133 5.250	300 2.07	160 6.30	212 8.35	49 1.93	2-1/2X70 2-M12X70	UL FM
125 5	139.7 5.500	300 2.07	165 6.50	217 8.54	49 1.93	2-1/2X70 2-M12X70	UL FM
150 6	159.0 6.250	300 2.07	186 7.32	238 9.37	50 1.97	2-1/2X70 2-M12X70	UL FM
150 6	165.1 6.500	300 2.07	195 7.68	247 9.72	50 1.97	2-1/2X70 2-M12X70	UL FM
200 8	219.1 8.625	300 2.07	251 9.88	316 12.44	58 2.28	2-5/8X80 2-M16X85	UL FM
250 10	273.0 10.750	300 2.07	311 12.24	384 15.12	57.5 2.26	2-3/4X115 2-M20X115	UL FM

1GK

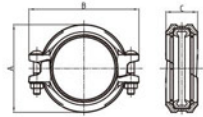
Angle Pad Coupling



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size No.-Size mm/in	Certificate
					A mm/in	B mm/in	C mm/in		
32 1 1/4	42.4 1.669	500 3.45	4.8/1080	0-1.6 0-0.06	64 2.52	99 3.90	46.5 1.83	2-M10X57	UL FM
40 1 1/2	48.3 1.900	500 3.45	6.3/1420	0-3.2 0-0.13	70 2.76	105 4.13	46.5 1.83	2-M10X57	UL FM
50 2	60.3 2.375	500 3.45	9.8/2210	0-3.2 0-0.13	85 3.35	121 4.76	46.5 1.83	2-M10X57	UL FM
65 2 1/2	73.0 2.875	500 3.45	14.5/3250	0-3.2 0-0.13	99 3.90	134 5.28	47.5 1.87	2-M10X63	UL FM
65 2 1/2	76.1 3.000	500 3.45	15.7/3520	0-3.2 0-0.13	102 4.02	137 5.39	47.5 1.87	2-M10X63	UL FM
80 3	88.9 3.500	500 3.45	21.4/4810	0-3.2 0-0.13	115 4.53	150 5.91	47.5 1.87	2-M10X63	UL FM
100 4	114.3 4.500	500 3.45	35.4/7950	0-3.2 0-0.13	142 5.59	180 7.09	50 1.97	2-M10X70	UL FM
125 5	139.7 5.500	300 2.07	31.7/7130	0-3.2 0-0.13	171 6.73	214 8.43	52.5 2.07	2-M12X76	UL FM
150 6	165.1 6.500	300 2.07	44.3/9950	0-3.2 0-0.13	198 7.80	242 9.53	52.5 2.07	2-M12X76	UL FM
150 6	168.3 6.625	500 3.45	76.7/17230	0-3.2 0-0.13	201 7.91	245 9.65	52.5 2.07	2-M12X76	UL FM
200 8	219.1 8.625	500 3.45	129.7/29160	0-3.2 0-0.13	258 10.16	331 13.03	63.5 2.50	2-M20X115	UL FM
250 10	273.0 10.750	500 3.45	201.7/45350	0-3.2 0-0.13	321 12.64	406 15.98	64.5 2.54	2-M22X140	UL FM
300 12	323.9 12.752	350 2.41	198.5/44657	0-3.2 0-0.13	376 14.8	450 17.72	65.5 2.58	2-M22X160	—

1GKX

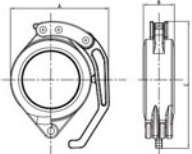
Slim Type Angle
Pad Coupling



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions			Bolt Size No.-Size mm/in	Certificate
			A mm/in	B mm/in	C mm/in		
100 4	114.3 4.500	300 2.07	140.5 5.53	177.5 6.99	46.5 1.83	2-3/8X60 2-M10X63	UL
150 6	165.1 6.500	300 2.07	195 7.68	240 9.45	49.5 1.95	2-1/2X70 2-M12X70	UL
200 8	219.1 8.625	300 2.07	252 9.92	319 12.56	58 2.28	2-5/8X85 2-M16X85	UL FM

3H

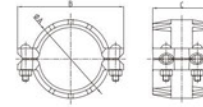
Standard
Wrench Coupling



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Max. End Load kN/Lbs	Pipe End Separation mm/in	Dimensions		
					A mm/in	B mm/in	C mm/in
25 1	33.7 1.33	300 2.07	1.8/415	0-1.6 0-006	76 2.99	44 1.73	101 3.98
32 1 1/4	42.4 1.67	300 2.07	2.9/657	0-1.6 0-006	87 3.43	48 1.89	133 5.24
40 1 1/2	48.3 1.90	300 2.07	3.8/854	0-1.6 0-006	92 3.62	48 1.89	108 4.25
50 2	60.3 2.37	300 2.07	5.9/1329	0-1.6 0-006	102 4.02	48 1.89	121 4.76
65 2 1/2	73 2.87	300 2.07	8.7/1948	0-1.6 0-006	121 4.76	48 1.89	149 5.87
80 3	88.9 3.50	300 2.07	12.8/2890	0-1.6 0-006	143 5.63	45.5 1.79	180 7.09
100 4	114.3 4.50	300 2.07	21.2/4777	0-3.2 0-0.13	175 6.89	54 2.13	197 7.76
125 5	141.3 5.56	300 2.07	32.4/7300	0-3.2 0-0.13	222 8.74	54 2.13	241 9.49
150 6	168.3 6.63	300 2.07	46/10356	0-3.2 0-0.13	251 9.88	54 2.13	276 10.87
200 8	219.1 8.63	300 2.07	78/17551	0-3.2 0-0.13	311 12.24	64 2.52	330 12.99

H305

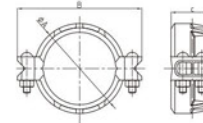
HDPE Coupling



Nominal Size mm/in	Pipe O.D mm/in	Dimensions			Bolt Size No.-Size mm/in
		A mm/in	B mm/in	C mm/in	
50 2	60.3 2.375	86.5 3.406	133 5.24	116 4.567	4-1/2X70
80 3	88.9 3.5	118 4.65	165 6.5	116 4.567	4-1/2X75
100 4	114.3 4.5	148 5.827	202 7.953	146 5.75	4-1/2X75
150 6	168.3 6.625	203 7.99	273 10.75	149 5.87	4-5/8X85
200 8	219.1 8.625	263 10.35	333 13.11	152 5.98	4-5/8X85
250 10	273.0 10.75	321 12.65	399 15.709	165 6.496	4-3/4X120
300 12	323.9 12.75	372 14.656	462 17.795	185 7.28	4-3/4X120

H307

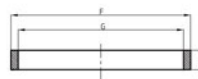
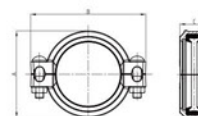
HDPE Transition Coupling



Nominal Size mm/in	Pipe O.D mm/in	Dimensions			Bolt Size No.-Size mm/in
		A mm/in	B mm/in	C mm/in	
50 2	60.3 2.375	86.5 3.406	147 5.787	79 3.11	4-1/2X70
80 3	88.9 3.5	116 4.567	176 6.929	79 3.11	4-1/2X75
100 4	114.3 4.5	148 5.827	209 8.228	95 3.75	4-1/2X75
150 6	168.3 6.625	202 7.95	280 11.02	95 3.74	4-5/8X85
200 8	219.1 8.625	264 10.39	342 13.46	107.5 4.23	4-5/8X85
250 10	273.0 10.75	321 12.65	424 16.693	127 5	4-3/4X120
300 12	323.9 12.75	372 14.656	483 19.016	127 5	4-3/4X120

N20TH

Shoulder Welded Ring
Pipe Clamp

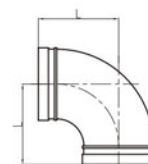


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Max. End Load KN/Lbs	Pipe End Separation mm/in	Dimensions			Bolt Size No.-Size mm/in
					A mm/in	B mm/in	C mm/in	
50 2	60.3 2.375	580 4.00	11.4/2569	0-3 0-0.118	94 3.70	139.5 5.49	44.5 1.75	2-M12X70
80 3	88.9 3.500	580 4.00	24.8/5584	0-3 0-0.118	124 4.88	169 6.65	47 1.85	2-M12X70
100 4	114.3 4.500	580 4.00	42.0/9230	0-3 0-0.118	154 6.06	205 8.07	50.5 1.99	2-M12X70
150 6	165.1 6.500	435 3.00	64.2/14443	0-3 0-0.118	207 8.15	274 10.79	51.5 2.03	2-M16X85
200 8	219.1 8.625	435 3.00	113.1/25437	0-3 0-0.118	273 10.75	340 13.39	61 2.40	2-M16X95

Weld Rings Nominal Size mm/in	Dimensions		
	E mm/in	F mm/in	G mm/in
50 2	16 0.63	67 2.64	60.3 2.37
80 3	16 0.63	97 3.82	88.9 3.50
100 4	17.5 0.69	122 4.80	114.3 4.50
150 6	17.5 0.69	175 6.89	165.1 6.50
200 8	20.5 0.81	232 9.13	219.1 8.63

90

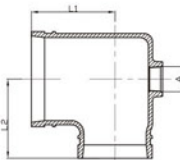
90° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
25 1	33.7 1.315	500 3.45	57 2.24	UL FM VdS LPCB
32 1¼	42.4 1.660	500 3.45	70 2.75	UL FM VdS LPCB
40 1½	48.3 1.900	500 3.45	70 2.75	UL FM VdS LPCB
50 2	60.3 2.375	500 3.45	82.5 3.25	UL FM VdS LPCB
65 2½	73.0 2.875	500 3.45	95 3.74	UL FM
65 2½	76.1 3.000	500 3.45	95 3.74	UL FM VdS LPCB
80 3	88.9 3.500	500 3.45	108 4.25	UL FM VdS LPCB
100 4	108.0 4.250	500 3.45	127 5.00	—
100 4	114.3 4.500	500 3.45	127 5.00	UL FM VdS LPCB
125 5	133.0 5.250	500 3.45	122 4.80	UL FM
125 5	139.7 5.500	500 3.45	140 5.50	UL FM VdS LPCB
125 5	141.3 5.563	500 3.45	140 5.50	UL FM
150 6	159.0 6.250	500 3.45	165 6.50	—
150 6	165.1 6.500	500 3.45	165 6.50	UL FM LPCB
150 6	168.3 6.625	500 3.45	165 6.50	UL FM VdS LPCB
200 8	219.1 8.625	500 3.45	197 7.75	UL FM VdS LPCB
250 10	267.4 10.528	300 2.07	229 9.00	UL FM
250 10	273.0 10.750	300 2.07	229 9.00	UL FM VdS
300 12	318.5 12.539	300 2.07	254 10.00	UL FM
300 12	323.9 12.750	300 2.07	254 10.00	UL FM VdS
350 14	355.6 14.000	300 2.07	280 11.02	—
350 14	377.0 14.84	300 2.07	279 10.98	—
400 16	406.4 16.000	300 2.07	305 12.00	—
400 16	426.0 16.77	300 2.07	305 12.00	—
450 18	457.2 18.000	300 2.07	394 15.50	—
450 18	480.0 18.90	300 2.07	335 13.19	—
500 20	508.0 20.000	300 2.07	438 17.25	—
600 24	609.6 24.000	300 2.07	508 20.00	—

90C

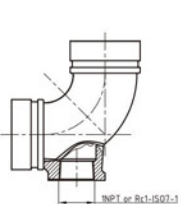
90° Hydrant Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions			Certificate
			A	L 1 mm/in	L 2 mm/in	
100X80/25 4X3X1	114.3X88.9X3.7 4.500X3.500X1.327	300 2.07	1-11.5NPT Rp1-ISO7/1	102 4.016	95 3.74	UL FM
150x80/25 6X3X1	165.1X88.9X3.7 6.500X3.500X1.327	300 2.07	1-11.5NPT Rp1-ISO7/1	130 5.118	130 5.118	UL FM

90C

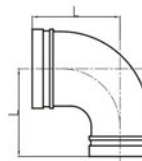
90° Drain Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions			Certificate
			L mm/in	D mm/in	E mm/in	
50 2	60.3 2.375	300 2.07	82.5 3.248	57 2.244	40 1.575	—
65 2 1/2	73 2.875	300 2.07	95 3.74	70 2.756	43 1.693	—
80 3	88.9 3.500	300 2.07	108 4.25	70 2.756	53 2.087	—
100 4	114.3 4.5	300 2.07	127 5	70 2.756	66 2.598	—
150 6	168.3 6.625	300 2.07	165 6.496	70 2.756	93 3.661	—
200 8	219.1 8.625	300 2.07	197 7.756	70 2.756	126 4.961	—

90R

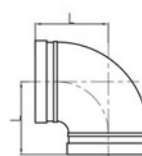
90° Reducing Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
80X65 3X2 1/2	88.9X76.1 3.500X3.000	500 3.45	108 4.25	UL FM
100X65 4X2 1/2	114.3X76.1 4.500X3.000	500 3.45	127 5.00	UL FM
100X80 4X3	114.3X88.9 4.500X3.500	500 3.45	127 5.00	UL FM
150X100 6X4	165.1X114.3 6.500X4.500	500 3.45	165 6.50	UL FM
150X100 6X4	168.3X114.3 6.625X4.500	500 3.45	165 6.50	UL FM

90S

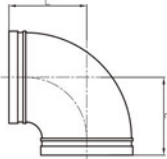
Light-duty 90° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
50 2	57.0 2.244	300 2.07	70 2.75	—
50 2	60.3 2.375	300 2.07	70 2.75	UL FM VdS LPCB
65 2 1/2	73.0 2.875	300 2.07	76 3.00	UL FM
65 2 1/2	76.1 3.000	300 2.07	76 3.00	UL FM VdS LPCB
80 3	88.9 3.500	300 2.07	85.5 3.37	UL FM VdS LPCB
100 4	108.0 4.500	500 3.45	101 3.98	UL FM
100 4	114.3 4.500	365 2.52	101 3.98	UL FM VdS LPCB
125 5	139.7 5.500	300 2.07	124 4.88	UL FM VdS LPCB
150 6	159.0 6.500	300 2.07	140 5.50	UL FM
150 6	165.1 6.500	365 2.52	140 5.50	UL FM LPCB
150 6	168.3 6.625	300 2.07	140 5.50	UL FM VdS LPCB
200 8	216.3 8.625	300 2.07	175 6.89	UL FM
200 8	219.1 8.625	300 2.07	165 6.50	UL FM VdS LPCB

90X

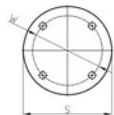
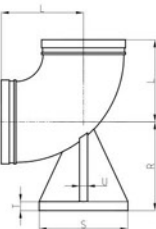
Slim Type 90° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
80 3	88.9 3.5	300 2.07	80.5 3.17	UL FM
100 4	108.0 4.250	300 2.07	92 3.62	UL FM
100 4	114.3 4.500	300 2.07	96 3.78	UL FM
125 5	133.0 5.250	300 2.07	109 4.29	UL FM
125 5	139.7 5.500	300 2.07	116 4.57	UL FM
125 5	141.3 5.563	300 2.07	116 4.57	—
150 6	159.0 6.250	300 2.07	121.5 4.78	UL FM
150 6	165.1 6.500	300 2.07	130 5.12	UL FM
150 6	168.3 6.625	300 2.07	130 5.12	UL FM
250 10	273.0 10.750	300 2.07	204 8.03	UL FM
300 12	323.9 12.750	300 2.07	220 8.66	UL FM

90CZ

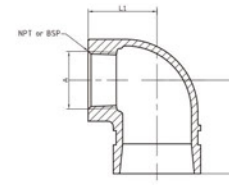
Base Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions					
			L mm/in	R mm/in	U mm/in	T mm/in	S mm/in	W mm/in
80 3	88.9 3.500	300 2.07	108 4.25	124 4.88	13 0.5	14 0.56	127 5	99 3.88
100 4	114.3 4.500	300 2.07	127 5.00	140 5.5	13 0.5	16 0.62	152 6	121 4.75
150 6	168.3 6.625	300 2.07	165 6.50	178 7	16 0.62	18 0.69	178 7	140 5.5
200 8	219.1 8.625	300 2.07	197 7.75	213 8.38	22 0.88	24 0.94	229 9	191 7.5
250 10	273.0 10.750	300 2.07	229 9.00	248 9.75	22 0.88	24 0.94	229 9	191 7.5
300 12	323.9 12.750	300 2.07	254 10.00	266 11.25	25 1	25 1	279 11	241 9.5

91R

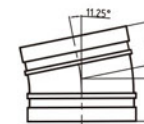
90° END-ALL Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions			Certificate
			A (NPT/BSP)	L1 mm/in	L2 mm/in	
32X15 1 1/4X1/2	42.4X21.3 1.660X0.825	500 3.45	1/2	35.1 1.382	44.5 1.752	UL FM
32X20 1 1/4X3/4	42.4X26.9 1.660X1.050	500 3.45	3/4	34.9 1.374	47.6 1.874	UL FM
32X25 1 1/4X1	42.4X33.7 1.660X1.315	500 3.45	1	38.1 1.5	51.6 2.031	UL FM
40X15 1 1/2X1/2	48.3X21.3 1.900X0.825	500 3.45	1/2	34.9 1.374	44.5 1.752	UL FM
40X20 1 1/2X3/4	48.3X26.9 1.900X1.050	500 3.45	3/4	34.9 1.374	47.6 1.874	UL FM
40X25 1 1/2X1	48.3X33.7 1.900X1.315	500 3.45	1	38.1 1.5	51.6 2.031	UL FM
50X15 2X1/2	60.3X21.3 2.375X0.825	500 3.45	1/2	41.4 1.63	44.5 1.752	UL FM
50X20 2X3/4	60.3X26.9 2.375X1.050	500 3.45	3/4	41.3 1.626	47.6 1.874	UL FM
50X25 2X1	60.3X33.7 2.375X1.315	500 3.45	1	44.5 1.752	51.6 2.031	UL FM
65X15 2 1/2X1/2	73.0X21.3 2.875X0.825	500 3.45	1/2	46 1.811	44.5 1.752	UL FM
65X20 2 1/2X3/4	73.0X26.9 2.875X1.050	500 3.45	3/4	46 1.811	47.6 1.874	UL FM
65X25 2 1/2X1	73.0X33.7 2.875X1.315	500 3.45	1	49.2 1.937	51.6 2.031	UL FM
65X25 2 1/2X1	76.1X33.7 2.996X1.327	500 3.45	1	49.2 1.94	51.6 2.03	—
80X20 3X3/4	88.9X26.9 3.500X1.050	500 3.45	3/4	60.3 2.374	52.4 2.063	UL FM
80X25 3X1	88.9X33.7 3.500X1.315	500 3.45	1	63.5 2.5	52.4 2.063	UL FM

105

11.25° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
32 1 1/4	42.4 1.660	500 3.45	35 1.38	UL FM VdS
40 1 1/2	48.3 1.900	500 3.45	35 1.38	UL FM VdS
50 2	60.3 2.375	500 3.45	35 1.38	UL FM VdS LPCB
65 2 1/2	73.0 2.875	500 3.45	38 1.506	UL FM
65 2 1/2	76.1 3.000	500 3.45	38 1.506	UL FM VdS LPCB
80 3	88.9 3.500	500 3.45	38 1.50	UL FM VdS LPCB
100 4	108.0 4.250	500 3.45	44 1.73	UL FM
100 4	114.3 4.500	500 3.45	44 1.73	UL FM VdS LPCB
125 5	139.7 5.500	500 3.45	51 2.00	UL FM VdS LPCB
150 6	159.0 6.250	500 3.45	51 2.00	UL FM
150 6	165.1 6.500	500 3.45	51 2.00	UL FM LPCB
150 6	168.3 6.625	500 3.45	51 2.00	UL FM VdS
200 8	219.1 8.625	500 3.45	51 2.00	UL FM VdS LPCB

110

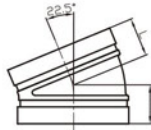
22.5° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
32 1 1/4	42.4 1.660	500 3.45	45 1.77	UL FM VdS
40 1 1/2	48.3 1.900	500 3.45	45 1.77	UL FM VdS
50 2	60.3 2.375	500 3.45	48 1.89	UL FM VdS
65 2 1/2	73.0 2.875	500 3.45	51 2.00	UL FM
65 2 1/2	76.1 3.000	500 3.45	51 2.00	UL FM VdS LPCB
80 3	88.9 3.500	500 3.45	57 2.24	UL FM VdS LPCB
100 4	108.0 4.250	500 3.45	73 2.87	UL FM
100 4	114.3 4.500	500 3.45	73 2.87	UL FM VdS LPCB
125 5	139.7 5.500	500 3.45	73 2.87	UL FM VdS LPCB
150 6	159.0 6.250	500 3.45	79 3.11	UL FM
150 6	165.1 6.500	500 3.45	79 3.11	UL FM LPCB
150 6	168.3 6.625	500 3.45	79 3.11	UL FM VdS
200 8	219.1 8.625	500 3.45	98 3.86	UL FM VdS LPCB

110X

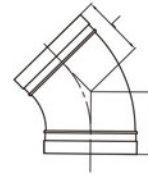
Slim Type 22.5° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
100 4	114.3 4.500	300 2.07	40 1.57	UL FM
150 6	159.0 6.250	300 2.07	45 1.77	UL FM
150 6	165.1 6.500	300 2.07	45 1.77	UL FM

120

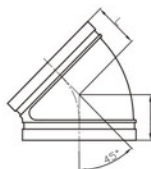
45° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
25 1	33.7 1.315	500 3.45	44.5 1.75	UL FM VdS LPCB
32 1 1/4	42.4 1.660	500 3.45	44.5 1.75	UL FM VdS LPCB
40 1 1/2	48.3 1.900	500 3.45	44.5 1.75	UL FM VdS LPCB
50 2	60.3 2.375	500 3.45	51 2.00	UL FM VdS LPCB
65 2 1/2	73.0 2.875	500 3.45	57 2.24	UL FM
65 2 1/2	76.1 3.000	500 3.45	57 2.24	UL FM VdS LPCB
80 3	88.9 3.500	500 3.45	63.5 2.50	UL FM VdS LPCB
100 4	108.0 4.250	500 3.45	76 3.00	UL FM
100 4	114.3 4.500	500 3.45	76 3.00	UL FM VdS LPCB
125 5	133.0 5.250	500 3.45	82.5 3.25	UL FM
125 5	139.7 5.500	500 3.45	82.5 3.25	UL FM VdS LPCB
125 5	141.3 5.563	500 3.45	82.5 3.25	UL FM
150 6	159.0 6.250	500 3.45	89 3.50	UL FM
150 6	165.1 6.500	500 3.45	89 3.50	UL FM LPCB
150 6	168.3 6.625	500 3.45	89 3.50	UL FM VdS LPCB
200 8	216.3 8.516	500 3.45	108 4.25	UL FM
200 8	219.1 8.625	500 3.45	108 4.25	UL FM VdS LPCB
250 10	267.4 10.528	300 2.07	120.5 4.75	UL FM
250 10	273.0 10.750	500 3.45	120.5 4.75	UL FM VdS
300 12	318.5 12.750	300 2.07	133 5.25	UL FM
300 12	323.9 12.750	500 3.45	133 5.25	UL FM VdS
350 14	377 14.843	300 2.07	122 4.80	—
350 14	355.6 14.000	300 2.07	152 6.00	—
400 16	406.4 16.000	300 2.07	184 7.25	—
450 18	457.2 18.000	300 2.07	203 8.00	—
500 20	508.0 20.000	300 2.07	229 9.00	—
600 24	609.6 24.000	300 2.07	280 11.00	—

120X

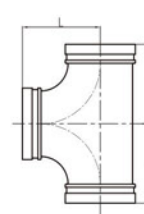
Slim Type 45° Elbow



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
80 3	88.9 3.500	300 2.07	51 2.01	UL FM
100 4	108.0 4.250	300 2.07	52 2.05	UL FM
100 4	114.3 4.500	300 2.07	54 2.13	UL FM
125 5	139.7 5.500	300 2.07	60 2.36	UL FM
125 5	141.3 5.563	300 2.07	60 2.36	—
150 6	159.0 6.250	300 2.07	63 2.48	UL FM
150 6	165.1 6.500	300 2.07	65 2.56	UL FM
150 6	168.3 6.625	300 2.07	65 2.56	UL FM
200 8	219.1 8.625	300 2.07	80 3.15	UL FM
250 10	273.0 10.750	300 2.07	95 3.74	UL FM

130

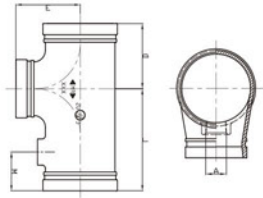
Tee



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
25 1	33.7 1.315	500 3.45	57 2.24	UL FM VdS LPCB
32 1¼	42.4 1.660	500 3.45	70 2.75	UL FM VdS LPCB
40 1½	48.3 1.900	500 3.45	70 2.75	UL FM VdS LPCB
50 2	60.3 2.375	500 3.45	82.5 3.25	UL FM VdS LPCB
65 2½	73.0 2.875	500 3.45	95 3.74	UL FM
65 2½	76.1 3.000	500 3.45	95 3.74	UL FM VdS LPCB
80 3	88.9 3.500	500 3.45	108 4.25	UL FM VdS LPCB
100 4	108.0 4.250	500 3.45	127 5.00	—
100 4	114.3 4.500	500 3.45	127 5.00	UL FM VdS LPCB
125 5	133.0 5.250	500 3.45	122 4.80	UL FM
125 5	139.7 5.500	500 3.45	140 5.50	UL FM VdS LPCB
125 5	141.3 5.563	500 3.45	140 5.50	UL FM
150 6	159.0 6.250	500 3.45	165 6.50	—
150 6	165.1 6.500	500 3.45	165 6.50	UL FM LPCB
150 6	168.3 6.625	500 3.45	165 6.50	UL FM VdS LPCB
200 8	219.1 8.625	500 3.45	197 7.75	UL FM VdS LPCB
250 10	267.4 10.528	500 3.45	229 9.00	UL FM
250 10	273.0 10.750	500 3.45	229 9.00	UL FM VdS
300 12	318.5 12.539	500 3.45	254 10.00	—
300 12	323.9 12.750	500 3.45	254 10.00	UL FM VdS
350 14	355.6 14.000	300 2.07	280 11.02	—
350 14	377.0 14.84	300 2.07	279 10.98	—
400 16	406.4 16.000	300 2.07	305 12.00	—
400 16	426.0 16.77	300 2.07	285 11.22	—
450 18	457.2 18.000	300 2.07	342 13.46	—
450 18	480.0 18.90	300 2.07	335 13.19	—
500 20	508.0 20.000	300 2.07	381 15.00	—
600 24	609.6 24.000	300 2.07	432 17.01	—

130C

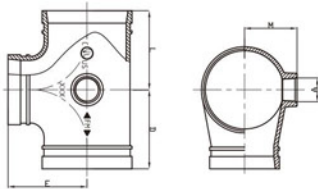
Reducing tee



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions					Certificate
			A	L mm/in	D mm/in	E mm/in	M mm/in	
100X80X25 4X3X1	114.3X88.9X33.7 4.5X3.5X1.327	300 2.07	1-11.5NPT Rp1-ISO7/11	160 6.3	102 4.02	102 4.02	60 2.36	UL FM
150X80X25 6X3X1	165.1X88.9X33.7 6.5X3.5X1.327	300 2.07	1-11.5NPT Rp1-ISO7/11	165 6.5	130 5.12	130 5.12	60 2.36	UL FM

130D

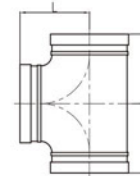
Reducing tee



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions					Certificate
			A	L mm/in	D mm/in	E mm/in	M mm/in	
100X80X25 4X3X1	114.3X88.9X33.7 4.5X3.5X1.327	300 2.07	1-11.5NPT Rp1-ISO7/11	102 4.02	102 4.02	102 4.02	67 2.638	UL FM
150X80X25 6X3X1	165.1X88.9X33.7 6.5X3.5X1.327	300 2.07	1-11.5NPT Rp1-ISO7/11	130 5.12	130 5.12	130 5.12	91 3.58	UL FM

130S

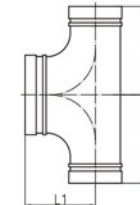
Light-duty Tee



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
50 2	57.0 2.244	300 2.07	70 2.75	—
50 2	60.3 2.375	300 2.07	70 2.75	UL FM VdS LPCB
65 2½	73.0 2.875	300 2.07	76 3.00	UL FM
65 2½	76.1 3.000	300 2.07	76 3.00	UL FM VdS LPCB
80 3	88.9 3.500	300 2.07	85.5 3.37	UL FM VdS LPCB
100 4	108.0 4.500	500 3.45	101 3.98	UL FM
100 4	114.3 4.500	300 2.07	101 3.98	UL FM VdS LPCB
125 5	139.7 5.500	300 2.07	124 4.88	UL FM VdS LPCB
150 6	159.0 6.500	300 2.07	140 5.50	UL FM
150 6	165.1 6.500	300 2.07	140 5.50	UL FM LPCB
150 6	168.3 6.625	300 2.07	140 5.50	UL FM VdS LPCB
200 8	216.3 8.625	300 2.07	175 6.89	UL FM
200 8	219.1 8.625	300 2.07	175 6.89	UL FM VdS LPCB

130R

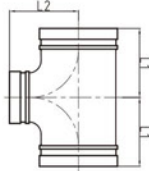
Reducing Tee



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Dimensions L 1 mm/in	Certificate
65 × 65 × 80 2½ × 2½ × 3	76.1 × 76.1 × 88.9 3.000 × 3.000 × 3.500	500 3.45	108 4.25	95 3.74	—
65 × 65 × 100 2½ × 2½ × 4	76.1 × 76.1 × 114.3 3.000 × 3.000 × 4.500	500 3.45	127 5.00	102 4.02	—
80 × 80 × 100 3 × 3 × 4	88.9 × 88.9 × 114.3 3.500 × 3.500 × 4.500	500 3.45	127 5.00	102 4.02	—

130R

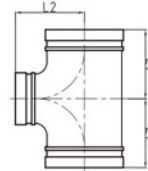
Reducing Tee



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
50×25 2×1	60.3×33.7 2.375×1.315	500 3.45	70 2.75	70 2.75	UL FM VdS LPCB
50×40 2×1½	60.3×48.3 2.375×1.900	500 3.45	70 2.75	70 2.75	UL FM VdS LPCB
65×40 2½×1½	73.0×48.3 2.875×1.900	500 3.45	76 3.00	76 3.00	UL FM
65×50 2½×2	73.0×60.3 2.875×2.375	500 3.45	69 2.72	76 3.00	UL FM
65×32 2½×1¼	76.1×42.4 3.000×1.660	500 3.45	76 3.00	76 3.00	UL FM
65×40 2½×1½	76.1×48.3 3.000×1.900	500 3.45	76 3.00	76 3.00	UL FM VdS LPCB
65×50 2½×2	76.1×60.3 3.000×2.375	500 3.45	69 2.72	76 3.00	UL FM VdS LPCB
80×32 3×1	88.9×33.7 3.500×1.315	500 3.45	108 4.25	108 4.25	UL FM VdS LPCB
80×32 3×1¼	88.9×42.4 3.500×1.660	500 3.45	85.5 3.37	85.5 3.37	UL FM
80×40 3×1½	88.9×48.3 3.500×1.900	500 3.45	85.5 3.37	85.5 3.37	UL FM VdS LPCB
80×50 3×2	88.9×60.3 3.500×2.375	500 3.45	85.5 3.37	85.5 3.37	UL FM VdS LPCB
80×65 3×2½	88.9×73.0 3.500×2.875	500 3.45	85.5 3.37	85.5 3.37	UL FM
80×65 3×2½	88.9×76.1 3.500×3.000	500 3.45	85.5 3.37	85.5 3.37	UL FM VdS LPCB
100×50 4×2	108.0×60.3 4.250×2.375	500 3.45	101 3.98	101 3.98	UL FM
100×80 4×3	108.0×88.9 4.250×3.500	500 3.45	101 3.98	101 3.98	UL FM
100×25 4×1	114.3×33.7 4.500×1.315	500 3.45	101 3.98	101 3.98	UL FM VdS LPCB
100×40 4×1½	114.3×48.3 4.500×1.900	500 3.45	101 3.98	101 3.98	UL FM VdS LPCB
100×50 4×2	114.3×60.3 4.500×2.375	500 3.45	101 3.98	101 3.98	UL FM VdS LPCB
100×65 4×2½	108.0×73.0 4.250×2.875	500 3.45	101 3.98	101 3.98	UL FM
100×65 4×2½	114.3×73.0 4.500×2.875	500 3.45	101 3.98	101 3.98	UL FM
100×65 4×2½	114.3×76.1 4.500×3.000	500 3.45	101 3.98	101 3.98	UL FM VdS LPCB
100×80 4×3	114.3×88.9 4.500×3.500	500 3.45	101 3.98	101 3.98	UL FM VdS LPCB
125×50 5×2	133.0×60.3 5.250×2.375	500 3.45	124 4.88	124 4.88	UL FM
125×65 5×2½	133.0×76.1 5.250×3.000	500 3.45	124 4.88	124 4.88	UL FM
125×100 5×4	133.0×108.0 5.250×4.250	500 3.45	124 4.88	124 4.88	UL FM
125×100 5×4	133.0×114.3 5.250×4.500	500 3.45	124 4.88	124 4.88	UL FM
125×40 5×1½	139.7×48.3 5.500×1.900	500 3.45	124 4.88	124 4.88	UL FM
125×50 5×2	139.7×60.3 5.500×2.375	500 3.45	124 4.88	124 4.88	UL FM
125×65 5×2½	139.7×76.1 5.500×3.000	500 3.45	124 4.88	124 4.88	UL FM
125×80 5×3	139.7×88.9 5.500×3.500	500 3.45	124 4.88	124 4.88	UL FM
125×100 5×4	139.7×114.3 5.500×4.500	500 3.45	124 4.88	124 4.88	UL FM VdS LPCB
125×50 5×2	141.3×60.3 5.563×2.375	500 3.45	124 4.88	124 4.88	UL FM
125×80 5×3	141.3×88.9 5.563×3.500	500 3.45	124 4.88	124 4.88	UL FM
125×100 5×4	141.3×114.3 5.563×4.500	500 3.45	124 4.88	124 4.88	UL FM
150×60 6×2	159.0×60.3 6.250×2.375	500 3.45	140 5.50	140 5.50	UL FM
150×65 6×2½	159.0×76.1 6.250×3.000	500 3.45	140 5.50	140 5.50	UL FM
150×80 6×3	159.0×88.9 6.250×3.500	500 3.45	140 5.50	140 5.50	UL FM
150×100 6×4	159.0×108.0 6.250×4.250	500 3.45	140 5.50	140 5.50	UL
150×100 6×4	159.0×114.3 6.250×4.500	500 3.45	140 5.50	140 5.50	UL FM
150×125 6×5	159.0×133.0 6.250×5.250	500 3.45	140 5.50	140 5.50	UL FM

130R

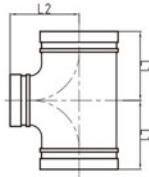
Reducing Tee



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
150×50 6×2	165.1×60.3 6.500×2.375	300 2.07	140 5.50	140 5.50	UL FM
150×65 6×2½	165.1×76.1 6.500×3.000	300 2.07	140 5.50	140 5.50	UL FM
150×80 6×3	165.1×88.9 6.500×3.500	300 2.07	140 5.50	140 5.50	UL FM LPCB
150×100 6×4	165.1×114.3 6.500×4.500	300 2.07	140 5.50	140 5.50	UL FM LPCB
150×125 6×5	165.1×139.7 6.500×5.500	300 2.07	140 5.50	140 5.50	UL FM LPCB
165×133 6×5½	165.1×133.0 6.500×5.250	300 2.07	140 5.50	140 5.50	FM
150×50 6×2	168.3×60.3 6.625×2.375	500 3.45	140 5.50	140 5.50	UL FM VdS LPCB
150×65 6×2½	168.3×73.0 6.625×2.875	500 3.45	140 5.50	140 5.50	UL FM
150×65 6×2½	168.3×76.1 6.625×3.000	500 3.45	140 5.50	140 5.50	UL FM VdS LPCB
150×80 6×3	168.3×88.9 6.625×3.500	500 3.45	140 5.50	140 5.50	UL FM VdS LPCB
150×100 6×4	168.3×114.3 6.625×4.500	500 3.45	140 5.50	140 5.50	UL FM VdS LPCB
150×125 6×5	168.3×139.7 6.625×5.500	300 2.07	140 5.50	140 5.50	UL FM VdS LPCB
150×125 6×5	168.3×141.3 6.625×5.563	300 2.07	140 5.50	140 5.50	UL FM
200×100 8×4	216.3×114.3 8.516×4.500	300 2.07	175 6.89	175 6.89	FM
200×150 8×6	216.3×165.1 8.516×6.500	300 2.07	175 6.89	175 6.89	UL FM
200×50 8×2	219.1×60.3 8.625×2.375	500 3.45	175 6.89	175 6.89	UL FM VdS LPCB
200×65 8×2½	219.1×76.1 8.625×3.000	300 2.07	175 6.89	175 6.89	UL FM
200×80 8×3	219.1×88.9 8.625×3.500	500 3.45	175 6.89	175 6.89	UL FM VdS LPCB
200×100 8×4	219.1×108.0 8.625×4.250	500 3.45	175 6.89	175 6.89	UL FM
200×100 8×4	219.1×114.3 8.625×4.500	500 3.45	175 6.89	175 6.89	UL FM VdS LPCB
200×125 8×5	219.1×133.0 8.625×5.250	300 2.07	175 6.89	175 6.89	UL FM
200×125 8×5	219.1×139.7 8.625×5.500	300 2.07	175 6.89	175 6.89	UL FM
200×150 8×6	219.1×159.0 8.625×6.250	300 2.07	175 6.89	175 6.89	UL FM
200×150 8×6	219.1×165.1 8.625×6.500	300 2.07	175 6.89	175 6.89	UL FM
200×150 8×6	219.1×168.3 8.625×6.625	500 3.45	175 6.89	175 6.89	UL FM VdS LPCB
219×65 8×2½	219.1×73.0 8.625×2.875	300 2.07	175 6.89	175 6.89	UL FM
250×100 10×4	273.0×114.3 10.750×4.500	500 3.45	228.6 9.00	228.6 9.00	UL FM
250×150 10×6	273.0×159.0 10.750×6.250	500 3.45	229 9.00	229 9.00	—
250×150 10×6	273.0×165.1 10.750×6.500	300 2.07	229 9.00	229 9.00	FM
250×150 10×6	273.0×168.3 10.750×6.625	300 2.07	229 9.00	229 9.00	FM VdS
250×200 10×8	273.0×219.1 10.750×8.625	300 2.07	229 9.00	229 9.00	FM VdS
300×65 12×2½	323.9×73.0 12.750×2.875	300 2.07	254 10	254 10	—
300×80 12×3	323.9×88.9 12.750×3.500	300 2.07	254 10	254 10	—
300×150 12×6	323.9×165.1 12.750×6.500	300 2.07	254 10	254 10	FM
300×150 12×6	323.9×168.3 12.750×6.625	300 2.07	254 10	254 10	FM
300×200 12×8	323.9×219.1 12.750×8.625	300 2.07	254 10	254 10	FM VdS
300×250 12×10	323.9×273.0 12.750×10.750	300 2.07	254 10	254 10	FM VdS
450×300 18×12	480.0×323.9 18.897×12.750	300 2.07	335 13.188	335 13.188	—
450×350 18×14	480.0×377.0 18.897×14.840	300 2.07	335 13.188	335 13.188	—
350×150 14×6	355.6×168.3 14.000×6.625	300 2.07	279 10.98	238 9.37	—

130R

Reducing Tee

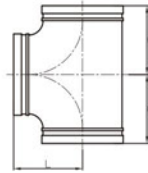


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
350 × 200	355.6 × 219.1	300	280	280	—
14 × 8	14.00 × 8.625	2.07	11.02	11.02	—
350 × 250	355.6 × 273.0	300	279	257	—
14 × 10	14.000 × 10.750	2.07	10.98	10.12	—
350 × 300	355.6 × 323.9	300	279	270	—
14 × 12	14.000 × 12.750	2.07	10.98	10.63	—
350 × 125	377.0 × 133.0	300	240	265	—
14 × 5	14.840 × 5.250	2.07	9.45	10.43	—
350 × 150	377.0 × 159.0	300	240	265	—
14 × 6	14.840 × 6.250	2.07	9.45	10.43	—
350 × 200	377.0 × 219.1	300	240	265	—
14 × 8	14.840 × 8.625	2.07	9.45	10.43	—
350 × 250	377.0 × 273.0	300	240	265	—
14 × 10	14.840 × 10.750	2.07	9.45	10.43	—
350 × 300	377.0 × 323.9	300	240	265	—
14 × 12	14.840 × 12.750	2.07	9.45	10.43	—
400 × 150	406.4 × 168.3	300	305	264	—
16 × 6	16.000 × 6.625	2.07	12.01	10.39	—
400 × 200	406.4 × 219.1	300	305	273	—
16 × 8	16.000 × 8.625	2.07	12.01	10.75	—
400 × 250	406.4 × 273.0	300	305	283	—
16 × 10	16.000 × 10.750	2.07	12.01	11.14	—
400 × 300	406.4 × 323.9	300	305	295	—
16 × 12	16.000 × 12.750	2.07	12.01	11.61	—
400 × 350	406.4 × 355.6	300	305	305	—
16 × 14	16.000 × 14.000	2.07	12.01	12.01	—
400 × 125	426.0 × 133.0	300	260	285	—
16 × 5	16.772 × 5.250	2.07	10.24	11.22	—
400 × 150	426.0 × 159.0	300	260	285	—
16 × 6	16.772 × 6.250	2.07	10.24	11.22	—
400 × 200	426.0 × 219.1	300	260	285	—
16 × 8	16.772 × 8.625	2.07	10.24	11.22	—
400 × 250	426.0 × 273.0	300	260	285	—
16 × 10	16.772 × 10.750	2.07	10.24	11.22	—
400 × 300	426.0 × 323.9	300	260	285	—
16 × 12	16.772 × 12.750	2.07	10.24	11.22	—
450 × 150	457.2 × 168.3	300	343	298	—
18 × 6	18.000 × 6.625	2.07	13.50	11.73	—
450 × 200	457.2 × 219.1	300	343	298	—
18 × 8	18.000 × 8.625	2.07	13.50	11.73	—
450 × 250	457.2 × 273.0	300	343	308	—
18 × 10	18.000 × 10.750	2.07	13.50	12.13	—
450 × 300	457.2 × 323.9	300	343	321	—
18 × 12	18.000 × 12.750	2.07	13.50	12.64	—
450 × 350	457.2 × 355.6	300	343	330	—
18 × 14	18.000 × 14.000	2.07	13.50	12.99	—
450 × 400	457.2 × 406.4	300	343	330	—
18 × 16	18.000 × 16.000	2.07	13.50	12.99	—
500 × 150	508.0 × 168.3	300	381	324	—
20 × 6	20.000 × 6.625	2.07	15.00	12.76	—
500 × 200	508.0 × 219.1	300	381	324	—
20 × 8	20.000 × 8.625	2.07	15.00	12.76	—
500 × 250	508.0 × 273.0	300	381	333	—
20 × 10	20.000 × 10.750	2.07	15.00	13.11	—
500 × 300	508.0 × 323.9	300	381	346	—
20 × 12	20.000 × 12.750	2.07	15.00	13.62	—
500 × 350	508.0 × 355.6	300	381	356	—
20 × 14	20.000 × 14.000	2.07	15.00	14.02	—
500 × 400	508.0 × 406.4	300	381	356	—
20 × 16	20.000 × 16.000	2.07	15.00	14.02	—
500 × 450	508.0 × 457.2	300	381	368	—
20 × 18	20.000 × 18.000	2.07	15.00	14.49	—
600 × 150	609.6 × 168.3	300	432	384	—
24 × 6	24.000 × 6.625	2.07	17.01	15.12	—
600 × 200	609.6 × 219.1	300	432	384	—
24 × 8	24.000 × 8.625	2.07	17.01	15.12	—
600 × 250	609.6 × 273.0	300	432	384	—
24 × 10	24.000 × 10.750	2.07	17.01	15.12	—
600 × 300	609.6 × 323.9	300	432	397	—
24 × 12	24.000 × 12.750	2.07	17.01	15.63	—
600 × 350	609.6 × 355.6	300	432	406	—
24 × 14	24.000 × 14.000	2.07	17.01	15.98	—
600 × 400	609.6 × 406.4	300	432	406	—
24 × 16	24.000 × 16.000	2.07	17.01	15.98	—
600 × 450	609.6 × 457.2	300	432	419	—
24 × 18	24.000 × 18.000	2.07	17.01	16.50	—
600 × 500	609.6 × 508.0	300	432	432	—
24 × 20	24.000 × 20.000	2.07	17.01	17.01	—

Segmental sizes are made of carbon steel pipe or fabricated from wrought carbon steel. Contact manufacturer for details.

130X

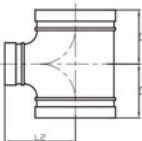
Slim Type Tee



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
80	88.9	300	80.5	UL FM
3	3.5	2.07	3.17	—
100	108.0	300	92	UL FM
4	4.25	2.07	3.62	—
100	114.3	300	96	UL FM
4	4.5	2.07	3.78	—
125	133.0	300	109	UL FM
5	5.250	2.07	4.29	—
125	139.7	300	116	UL FM
5	5.500	2.07	4.57	—
125	141.3	300	116	—
5	5.563	2.07	4.57	—
150	159.0	300	121.5	UL FM
6	6.500	2.07	4.78	—
150	165.1	300	130	UL FM
6	6.500	2.07	5.12	—
150	168.3	300	130	UL FM
6	6.625	2.07	5.12	—
200	219.1	300	164	UL FM
8	8.625	2.07	6.45	—
250	273.0	300	204	UL FM
10	10.750	2.07	8.03	—
300	323.9	300	230	UL FM
12	12.750	2.07	9.05	—

130RX

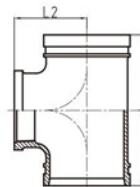
Slim Type Reducing Tee



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
80×65	88.9×73.0	300	75.5	84.5	UL FM
3×2½	3.500×2.875	2.07	2.97	3.33	
80×65	88.9×76.1	300	75.5	84.5	UL FM
3×2½	3.500×3.000	2.07	2.97	3.33	
100×60	114.3×60.3	300	71	98	UL FM
4×2	4.500×2.375	2.07	2.80	3.86	
100×65	114.3×73.0	300	77.5	98	UL FM
4×2½	4.500×2.875	2.07	3.05	3.86	
100×65	114.3×76.1	300	77.5	98	—
4×2½	4.500×3.000	2.07	3.05	3.86	
100×80	114.3×88.9	300	86.5	98	UL FM
4×3	4.500×3.500	2.07	3.41	3.86	
125×100	139.7×114.3	300	100	116	UL FM
5×4	5.500×4.500	2.07	3.94	4.57	
125×100	141.3×114.3	300	100	116	UL FM
5×4	5.563×4.500	2.07	3.94	4.57	
150×80	159.0×88.9	300	86.5	120	UL FM
6×3	6.250×3.500	2.07	3.41	4.72	
150×100	159.0×108.0	300	96	121.5	UL FM
6×4	6.250×4.250	2.07	3.78	4.78	
150×100	159.0×114.3	300	100	121.5	UL FM
6×4	6.250×4.500	2.07	3.94	4.78	
150×125	159.0×133.0	300	109	121.5	UL FM
6×5	6.250×4.250	2.07	4.29	4.78	
150×125	159.0×133.0	300	109	121.5	UL FM
6×5	6.250×5.000	2.07	4.29	4.78	
150×50	165.1×60.3	300	71	126	UL FM
6×2	6.500×2.375	2.07	2.80	4.96	
150×65	165.1×76.1	300	77.5	128	UL FM
6×2½	6.500×3.000	2.07	3.05	5.04	
150×80	165.1×88.9	300	86.5	128	UL FM
6×3	6.500×3.500	2.07	3.41	5.04	
150×100	165.1×114.3	300	100	120	UL FM
6×4	6.500×4.500	2.07	3.94	4.72	
150×125	165.1×139.7	300	116	130	UL FM
6×5	6.500×5.500	2.07	4.57	5.12	
150×50	168.3×60.3	300	71	126	UL FM
6×2	6.625×2.375	2.07	2.80	4.96	
150×65	168.3×73.0	300	77.5	128	UL FM
6×2½	6.625×2.875	2.07	3.05	5.04	
150×65	168.3×76.1	300	77.5	128	UL FM
6×2½	6.625×3.000	2.07	3.05	5.04	
150×80	168.3×88.9	300	86.5	128	UL FM
6×3	6.625×3.500	2.07	3.41	5.04	
150×100	168.3×114.3	300	100	130	UL FM
6×4	6.625×4.500	2.07	3.94	5.12	
150×125	168.3×139.7	300	116	130	UL FM
6×5	6.625×5.500	2.07	4.57	5.12	
150×125	168.3×141.3	300	116	130	UL FM
6×5	6.625×5.563	2.07	4.57	5.12	
200×65	219.1×76.1	300	82	154	UL FM
8×2½	8.625×3.000	2.07	3.23	6.06	
200×80	219.1×88.9	300	91	154	UL FM
8×3	8.625×3.500	2.07	3.58	6.06	
200×100	219.1×114.3	300	105	151	UL FM
8×4	8.625×4.500	2.07	4.13	5.94	
200×125	219.1×133.0	300	118	158	—
8×5	8.625×5.250	2.07	4.65	6.22	
200×125	219.1×139.7	300	120	158	UL FM
8×5	8.625×5.500	2.07	4.72	6.22	
200×150	219.1×159.0	300	125.5	160	UL FM
8×6	8.625×6.250	2.07	4.94	6.30	
200×150	219.1×165.1	300	134	160	UL FM
8×6	8.625×6.500	2.07	5.28	6.30	
200×150	219.1×168.3	300	134	160	UL FM
8×6	8.625×6.625	2.07	5.28	6.30	
250×150	273.0×159.0	300	136	187	UL FM
10×6	10.750×6.250	2.07	5.35	7.36	
250×150	273.0×165.1	300	136	187	UL FM
10×6	10.750×6.500	2.07	5.35	7.36	
250×150	273.0×168.3	300	136	187	UL FM
10×6	10.750×6.625	2.07	5.35	7.36	
250×200	273.0×219.1	300	166	191	UL FM
10×8	10.750×8.625	2.07	6.54	7.52	
300×100	323.9×114.3	300	136	214	UL FM
12×4	12.750×4.500	2.07	5.35	8.43	
300×150	323.9×159.0	300	136	214	UL FM
12×6	12.750×6.250	2.07	5.35	8.43	
300×150	323.9×165.1	300	136	213	UL FM
12×6	12.750×6.500	2.07	5.35	8.39	
300×200	323.9×219.1	300	166	217	UL FM
12×8	12.750×8.625	2.07	6.54	8.54	
300×250	323.9×273.0	300	194	218	UL FM
12×10	12.750×10.750	2.07	7.64	8.58	

131R

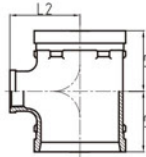
Reducing Tee with Female Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
50×25	60.3×33.7	500	70	70	UL FM
2×1	2.375×1.315	3.45	2.75	2.75	
50×32	60.3×42.4	500	70	70	UL FM
2×1½	2.375×1.660	3.45	2.75	2.75	
50×40	60.3×48.3	500	70	70	UL FM
2×1½	2.375×1.900	3.45	2.75	2.75	
50×50×65	60.3×60.3×76.1	300	66	76	—
2×2×2½	2.375×2.375×3.000	2.07	2.59	2.99	
50×50×80	60.3×60.3×88.9	300	70	80	—
2×2×3	2.375×2.375×3.500	2.07	2.755	3.149	
65×25	73.0×33.7	500	76	76	UL FM
2½×1	2.875×1.315	3.45	3.00	3.00	
65×40	73.0×48.3	300	76	76	UL FM
2½×1½	2.875×1.900	2.07	3.00	3.00	
65×32	73.0×42.4	500	76	76	UL FM
2½×1½	2.875×1.660	3.45	3.00	3.00	
65×25	76.1×33.7	500	76	76	UL FM
2½×1	3.000×1.315	3.45	3.00	3.00	
65×32	76.1×42.4	500	76	76	UL FM
2½×1½	3.000×1.660	3.45	3.00	3.00	
65×40	76.1×48.3	500	76	76	UL FM
2½×1½	3.000×1.900	3.45	3.00	3.00	
65×50	76.1×60.3	500	76	76	UL FM
2½×2	3.000×2.375	3.45	3.00	3.00	
80×25	88.9×33.7	500	85.5	85.5	UL FM
3×1	3.500×1.315	3.45	3.37	3.37	
80×32	88.9×42.4	500	85.5	85.5	UL FM
3×1½	3.500×1.660	3.45	3.37	3.37	
80×40	88.9×48.3	500	85.5	85.5	UL FM
3×1½	3.500×1.900	3.45	3.37	3.37	
80×50	88.9×60.3	500	85.5	85.5	UL FM
3×2	3.500×2.375	3.45	3.37	3.37	
80×65	88.9×76.1	500	85.5	85.5	UL FM
3×2½	3.500×3.000	3.45	3.37	3.37	
100×65	108.0×76.1	300	100	96	UL FM
4×2½	4.250×3.000	2.07	3.94	3.78	
100×80	108.0×88.9	300	100	96	UL FM
4×3	4.250×3.500	2.07	3.94	3.78	
100×65	114.3×76.1	300	100	96	UL FM
4×2½	4.500×3.000	2.07	3.94	3.78	
100×80	114.3×88.9	300	100	96	UL FM
4×3	4.500×3.500	2.07	3.94	3.78	
200×50	219.1×60.3	300	175	175	FM
8×2	8.625×2.375	2.07	6.89	6.89	
200×65	219.1×76.1	300	175	175	FM
8×2½	8.625×3.000	2.07	6.89	6.89	
200×80	219.1×88.9	300	175	175	FM
8×3	8.625×3.500	2.07	6.89	6.89	

131R

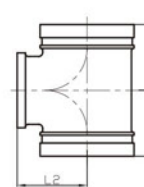
Reducing Tee
with Female Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
65×50 2½×2	73.0×60.3 2.875×2.375	500 3.45	76 3.00	76 3.00	UL FM
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	76 2.99	88 3.47	UL FM
100×32 4×1½	114.3×42.4 4.500×1.660	300 2.07	76 2.99	88 3.47	UL FM
100×40 4×1½	114.3×48.3 4.500×1.900	300 2.07	85 3.35	91 3.58	UL FM
100×50 4×2	108.0×60.3 4.250×2.375	300 2.07	85 3.35	91 3.58	UL FM
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	85 3.35	91 3.58	UL FM
125×50 5×2	133.0×60.3 5.250×2.375	300 2.07	86 3.39	106 4.17	UL FM
125×65 5×2½	133.0×76.1 5.250×3.000	300 2.07	102 4.02	111 4.37	UL FM
125×80 5×3	133.0×88.9 5.250×3.500	300 2.07	102 4.02	111 4.37	UL FM
125×25 5×1	139.7×33.7 5.500×1.315	300 2.07	78 3.07	103 4.06	UL FM
125×32 5×1½	139.7×42.4 5.500×1.660	300 2.07	78 3.07	103 4.06	UL FM
125×40 5×1½	139.7×48.3 5.500×1.900	300 2.07	86 3.39	106 4.17	UL FM
125×50 5×2	139.7×60.3 5.500×2.375	300 2.07	86 3.39	106 4.17	UL FM
125×65 5×2½	139.7×76.1 5.500×3.000	300 2.07	102 4.02	111 4.37	UL FM
125×80 5×3	139.7×88.9 5.500×3.500	300 2.07	102 4.02	111 4.37	UL FM
150×60 6×2	159.0×60.3 6.250×2.375	300 2.07	92 3.62	124 4.88	UL FM
150×65 6×2½	159.0×76.1 6.250×3.000	300 2.07	107 4.21	129 5.08	UL FM
150×80 6×3	159.0×88.9 6.250×3.500	300 2.07	107 4.21	129 5.08	UL FM
150×25 6×1	165.1×33.7 6.500×1.315	300 2.07	83 3.27	121 4.76	UL FM
150×32 6×1½	165.1×42.4 6.500×1.660	300 2.07	83 3.27	121 4.76	UL FM
150×40 6×1½	165.1×48.3 6.500×1.900	300 2.07	92 3.62	124 4.88	UL FM
150×50 6×2	165.1×60.3 6.500×2.375	300 2.07	92 3.62	124 4.88	UL FM
150×65 6×2½	165.1×76.1 6.500×3.000	300 2.07	107 4.21	129 5.08	UL FM
150×80 6×3	165.1×88.9 6.500×3.500	300 2.07	107 4.21	129 5.08	UL FM
150×50 6×2	168.3×60.3 6.625×2.375	300 2.07	92 3.62	124 4.88	UL FM
150×65 6×2½	168.3×76.1 6.625×3.000	300 2.07	107 4.21	129 5.08	UL FM
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	107 4.21	129 5.08	FM
200×100 8×4	219.1×114.3 8.625×4.500	300 2.07	175 6.89	175 6.89	UL FM

131RX

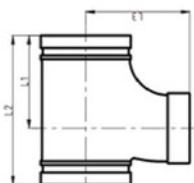
Slim Type Reducing Tee
with Female Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
50×25 2×1	60.3×33.7 2.375×1.315	300 2.07	58 2.28	55 2.17	UL FM
50×40 2×1½	60.3×48.3 2.375×1.900	300 2.07	63.5 2.50	53 2.09	UL FM
65×40 2½×1½	73.1×48.3 2.875×1.900	300 2.07	65.5 2.58	64.5 2.54	UL FM
65×50 2½×2	73.1×60.3 2.875×2.375	300 2.07	72.5 2.85	66 2.60	UL FM
65×40 2½×1½	73.0×48.3 2.875×1.900	300 2.07	65.5 2.58	64.5 2.54	UL FM
65×40 2½×1½	76.1×48.3 3.000×1.900	300 2.07	65.5 2.58	64.5 2.54	UL FM
65×50 2½×2	73.0×60.3 2.875×2.375	300 2.07	72.5 2.85	66 2.60	UL FM
65×50 2½×2	76.1×60.3 3.000×2.375	300 2.07	72.5 2.85	66 2.60	UL FM
80×25 3×1	88.9×33.7 3.500×1.315	300 2.07	58 2.28	68 2.68	UL FM
80×40 3×1½	88.9×48.3 3.500×1.900	300 2.07	65 2.56	72 2.83	UL FM
80×50 3×2	88.9×60.3 3.500×2.375	300 2.07	72.5 2.86	72.5 2.86	UL FM
100×65 4×2½	108.0×76.1 4.250×3.000	300 2.07	83 3.27	88 3.46	UL FM
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	76 2.99	85 3.35	UL FM
100×65 4×2½	114.3×76.1 4.500×3.000	300 2.07	80 3.15	85 3.35	UL FM
100×80 4×3	114.3×88.9 4.500×3.500	300 2.07	90.5 3.56	93 3.66	UL FM
150×50 6×2	165.1×60.3 6.500×2.375	300 2.07	75 2.95	105 4.13	UL FM
150×65 6×2½	165.1×76.1 6.500×3.000	300 2.07	86 3.39	121 4.76	UL FM
150×80 6×3	165.1×88.9 6.500×3.500	300 2.07	93 3.66	123 4.84	UL FM
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	93 3.66	123 4.84	UL FM
150×100 6×4	165.1×114.3 6.500×4.500	300 2.07	103.5 4.07	118 4.65	UL FM
150×50 6×2	168.3×60.3 6.625×2.375	300 2.07	75 2.95	105 4.13	UL FM
150×65 6×2½	168.3×76.1 6.625×3.000	300 2.07	86 3.39	121 4.76	UL FM
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	93 3.66	123 4.84	UL FM
150×100 6×4	168.3×114.3 6.625×4.500	300 2.07	103.5 4.07	118 4.65	UL FM
200×65 8×2½	219.1×76.1 8.625×3.000	300 2.07	88 3.46	137 5.39	UL FM
200×100 8×4	219.1×114.3 8.625×4.500	300 2.07	111 4.37	145 5.71	UL FM

131P

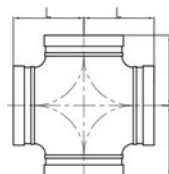
Eccentric Reducing Tee
with Female Thread



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Dimensions L3 mm/in	Certificate
100×65 4×2½	114.3×76.1 4.500×3.000	300 2.07	120.5 4.74	190.5 7.50	133 5.24	—

180

Cross

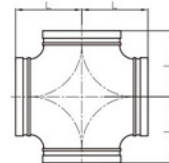


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
32	42.4	500	70	UL FM VdS LPCB
1½	1.660	3.45	2.75	
40	48.3	500	70	UL FM VdS LPCB
1½	1.900	3.45	2.75	
50	60.3	500	70	UL FM VdS LPCB
2	2.375	3.45	2.75	
65	73.0	500	76	UL FM
2½	2.875	3.45	3.00	
65	76.1	500	76	UL FM VdS LPCB
2½	3.000	3.45	3.00	
80	88.9	500	85.5	UL FM VdS LPCB
3	3.500	3.45	3.37	
100	108.0	500	101	UL FM
4	4.250	3.45	3.98	
100	114.3	500	101	UL FM VdS LPCB
4	4.500	3.45	3.98	
125	139.7	500	124	UL FM VdS LPCB
5	5.500	3.45	4.88	
125	141.3	500	124	UL FM
5	5.563	3.45	4.88	
150	159.0	500	140	UL FM
6	6.250	3.45	5.50	
150	165.1	500	140	UL FM LPCB
6	6.500	3.45	5.50	
150	168.3	500	140	UL FM VdS LPCB
6	6.625	3.45	5.50	
200	219.1	500	175	UL FM VdS LPCB
8	8.625	3.45	6.89	
250	273.0	500	229	UL FM VdS
10	10.750	3.45	9.00	
300	323.9	500	254	UL FM VdS
12	12.750	3.45	10.00	
350	355.6	300	279	—
14	14.000	2.07	10.98	
350	377.0	300	279	—
14	14.94	2.07	10.98	
400	406.4	300	305	—
16	16.000	2.07	12.01	
450	457.2	300	343	—
18	18.000	2.07	13.5	
500	508.0	300	381	—
20	20.000	2.07	15.00	
600	609.6	300	432	—
24	24.000	2.07	17.01	

Segmental sizes are made of carbon steel pipe or fabricated from wrought carbon steel. Contact manufacturer for details.

180X

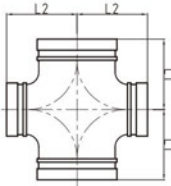
Slim Type Cross



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
150	159.0	300	121.5	UL FM
6	6.250	2.07	4.78	
150	165.1	300	130	UL FM
6	6.500	2.07	5.12	
150	168.3	300	130	UL FM
6	6.625	2.07	5.12	
200	219.1	300	164	UL FM
8	8.625	2.07	6.45	

180R

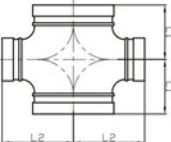
Reducing Cross



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
65×50 2½×2	76.1×60.3 3.000×2.375	500 3.45	76 3.00	76 3.00	UL FM
80×50 3×2	88.9×60.3 3.500×2.375	500 3.45	85.5 3.37	85.5 3.37	UL FM
100×50 4×2	114.3×60.3 4.500×2.375	500 3.45	101 3.98	101 3.98	UL FM
100×80 4×3	114.3×88.9 4.500×3.500	500 3.45	101 3.98	101 3.98	UL FM
125×100 5×4	139.7×114.3 5.500×4.500	500 3.45	124 4.88	124 4.88	UL FM
150×108	159.0×108.0 6.250×4.250	500 3.45	124 4.88	124 5.50	UL FM
150×50 6×2	165.1×60.3 6.500×2.375	500 3.45	140 5.50	140 5.50	UL FM
150×65	165.1×76.1 6.500×3.000	500 3.45	140 5.50	140 5.50	UL FM
150×80 6×3	165.1×88.9 6.500×3.500	500 3.45	140 5.50	140 5.50	UL FM
150×100 6×4	165.1×114.3 6.500×4.500	500 3.45	140 5.50	140 5.50	UL FM
150×50 6×2	168×60.3 6.625×2.375	500 3.45	140 5.50	140 5.50	UL FM
200×50 8×2	219.1×60.3 8.625×2.375	500 3.45	197 7.75	197 7.75	UL FM
200×100 8×4	219.1×108.0 8.625×4.250	500 3.45	175 6.89	175 6.89	—
200×100 8×4	219.1×114.3 8.625×4.500	500 3.45	175 6.89	175 6.89	UL FM
200×125 8×5	219.1×139.7 8.625×5.500	300 2.07	175 6.89	175 6.89	UL FM
200×150 8×6	219.1×159.0 8.625×6.250	300 2.07	175 6.89	175 6.89	UL FM
200×150 8×6	219.1×165.1 8.625×6.500	300 2.07	175 6.89	175 6.89	UL FM

180RX

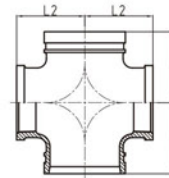
Slim Type Reducing Cross



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
150×100 6×4	165.1×114.3 6.500×4.500	300 2.07	100 3.94	130 5.12	UL FM
150×100 6×4	168.3×114.3 6.625×4.500	300 2.07	100 3.94	130 5.12	UL FM
200×150 8×6	219.1×159.0 8.625×6.250	300 2.07	125.5 4.94	160 6.30	—
200×150 8×6	219.1×165.1 8.625×6.500	300 2.07	134 5.27	160 6.30	UL FM
200×150 8×6	219.1×168.3 8.625×6.625	300 2.07	134 5.27	160 6.30	UL FM

181

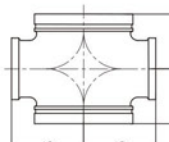
Reducing Cross with Female Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
65×50 2½×2	76.1×60.3 3.000×2.375	300 2.07	76 3.00	76 3.00	UL FM
80×32 3×1½	88.9×42.4 3.500×1.660	300 2.07	108 4.25	108 4.25	—
80×40 3×1½	88.9×48.3 3.500×1.900	300 2.07	85.5 3.37	85.5 3.37	UL FM
80×50 3×2	88.9×60.3 3.500×2.375	300 2.07	85.5 3.37	85.5 3.37	UL FM
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	76 2.99	88 3.47	UL FM
100×32 4×1½	114.3×42.4 4.500×1.660	300 2.07	76 2.99	88 3.47	UL FM
100×40 4×1½	114.3×48.3 4.500×1.900	300 2.07	85 3.35	91 3.58	UL FM
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	85 3.35	91 3.58	UL FM
100×65	114.3×76.1 4.500×3.000	300 2.07	101 3.98	96 3.78	UL FM
100×80 4×3	114.3×88.9 4.500×3.500	300 2.07	101 3.98	96 3.78	UL FM
150×32 6×1½	165.1×42.4 6.500×1.660	300 2.07	92 3.62	124 4.88	—
150×40 6×1½	165.1×48.3 6.500×1.900	300 2.07	92 3.62	124 4.88	UL FM
150×50 6×2	165.1×60.3 6.500×2.375	300 2.07	92 3.62	124 4.88	UL FM
150×65	165.1×76.1 6.500×3.000	300 2.07	140 5.50	140 5.50	—
150×80 6×3	165.1×88.9 6.500×3.500	300 2.07	140 5.50	140 5.50	—
200×80 8×3	219.1×88.9 8.625×3.500	300 2.07	175 6.89	175 6.89	—

181RX

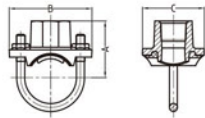
Slim Type Reducing Cross with Female Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L1 mm/in	Dimensions L2 mm/in	Certificate
150×80 6×3	165.1×88.9 6.500×3.500	300 2.07	93 3.66	123 4.84	UL FM
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	93 3.66	123 4.84	—

3L

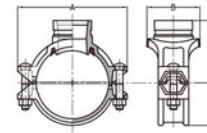
U-Bolt Mechanical Tee



Nominal Size mm/in	Pipe O.D. mm/in	Hole Dia mm/in +1.6,0/+0.063,0	Max Working Pressure PSI/MPa	Dimensions			U Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in		
32X15 1½X1/2	42.4X21.3 1.660X0.825	30 1.18	300 2.07	54.4 2.14	88.9 3.50	57.2 2.25	3/8X73 M10X73	UL FM Vds
32X20 1½X3/4	42.4X26.9 1.660X1.050	30 1.18	300 2.07	54.4 2.14	88.9 3.50	57.2 2.25	3/8X73 M10X73	UL FM Vds
32X25 1½X1	42.4X33.7 1.660X1.315	30 1.18	300 2.07	57.7 2.27	88.9 3.50	57.2 2.25	3/8X73 M10X73	UL FM Vds
40X15 1½X1/2	48.3X21.3 1.900X0.825	30 1.18	300 2.07	57.7 2.27	88.9 3.50	57.2 2.25	3/8X73 M10X73	UL FM Vds
40X20 1½X3/4	48.3X26.9 1.900X1.050	30 1.18	300 2.07	57.7 2.27	88.9 3.50	57.2 2.25	3/8X73 M10X73	UL FM Vds
40X25 1½X1	48.3X33.7 1.900X1.315	30 1.18	300 2.07	60.8 2.39	88.9 3.50	57.2 2.25	3/8X73 M10X73	UL FM Vds
50X15 2X1/2	60.3X21.3 2.375X0.825	30 1.18	300 2.07	63.3 2.49	95.3 3.75	57.2 2.25	3/8X90 M10X90	UL FM Vds
50X20 2X3/4	60.3X26.9 2.375X1.050	30 1.18	300 2.07	63.3 2.49	95.3 3.75	57.2 2.25	3/8X90 M10X90	UL FM Vds
50X25 2X1	60.3X33.7 2.375X1.315	30 1.18	300 2.07	66.6 2.62	96.3 3.75	57.2 2.25	3/8X90 M10X90	UL FM Vds
50X32 2X1¼	60.3X42.4 2.375X1.660	45 1.75	300 2.07	66.6 2.62	120 4.72	76 3.00	1/2X52	—
65X15 2½X1/2	73.0X21.3 2.875X0.825	30 1.18	300 2.07	66.9 2.75	106.0 4.25	57.2 2.25	3/8X105 M10X105	UL FM
65X20 2½X3/4	73.0X26.9 2.875X1.050	30 1.18	300 2.07	66.9 2.75	106.0 4.25	57.2 2.25	3/8X105 M10X105	UL FM
65X25 2½X1	73.0X33.7 2.875X1.315	30 1.18	300 2.07	73.2 2.88	106.0 4.25	57.2 2.25	3/8X105 M10X105	UL FM
65X15 2½X1/2	76.1X21.3 3.000X0.825	30 1.18	300 2.07	66.9 2.75	106.0 4.25	57.2 2.25	3/8X105 M10X105	UL FM Vds
65X20 2½X3/4	76.1X26.9 3.000X1.050	30 1.18	300 2.07	66.9 2.75	106.0 4.25	57.2 2.25	3/8X105 M10X105	UL FM Vds
65X25 2½X1	76.1X33.7 3.000X1.315	30 1.18	300 2.07	73.2 2.88	106.0 4.25	57.2 2.25	3/8X105 M10X105	UL FM Vds
80X25 88.9X1	88.9X33.7 3.500X1.315	38 1.5	300 2.07	79 3.11	145 5.70	73 2.87	1/2X58	UL FM Vds
100X25 4X1	114.3X33.7 4.500X1.315	30 1.18	300 2.07	89 3.50	185 7.28	72 2.83	1/2X70	FM
100X32 4X1¼	114.3X42.4 4.500X1.660	51 2	300 2.07	95 3.74	185 7.28	85 3.35	1/2X70	FM
100X40 4X1½	114.3X48.3 4.500X1.900	51 2	300 2.07	95 3.74	185 7.28	85 3.35	1/2X70	FM
150X25 6X1	168.3X33.7 6.500X1.315	38 1.5	300 2.07	124 4.88	254 10.0	75 2.95	5/8X102	FM
150X32 6X1	168.3X42.4 6.500X1.660	51 2	300 2.07	120 4.72	254 10.0	88 3.46	5/8X102	FM
150X40 6X1	168.3X48.3 6.500X1.900	57 2.24	300 2.07	120 4.72	254 10.0	88 3.46	5/8X102 M16X102	FM

3G

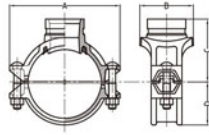
Mechanical Tee Grooved Outlet



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
50×32 2×1½	60.3×42.4 2.375×1.660	400 2.76	45 1.75	115 4.57	76 2.99	69.5 2.74	39 1.54	3/8×55 M10X57	UL FM Vds
50×40 2×1¾	60.3×48.3 2.375×1.900	400 2.76	45 1.75	115 4.57	76 2.99	69.5 2.74	39 1.54	3/8×55 M10X57	UL FM Vds
65×25 2½×1	73.0×33.7 2.875×1.315	300 2.07	38 1.50	137 5.39	71 2.80	78 3.07	49 1.93	1/2×70 M12X70	UL
65×32 2½×1¼	73.0×42.4 2.875×1.660	400 2.76	51 2.00	137 5.39	84.5 3.33	78 3.07	49 1.93	1/2×70 M12X70	UL FM
65×40 2½×1½	73.0×48.3 2.875×1.900	400 2.76	51 2.00	137 5.39	84.5 3.33	78 3.07	49 1.93	1/2×70 M12X70	UL FM
65×25 2½×1	76.1×33.7 3.000×1.315	300 2.07	38 1.50	137 5.39	71 2.80	78 3.07	49.5 1.95	1/2×70 M12X70	UL FM Vds
65×32 2½×1¼	76.1×42.4 3.000×1.660	300 2.07	51 2.00	137 5.39	84.5 3.33	78 3.07	49.5 1.95	1/2×70 M12X70	UL FM Vds
65×40 2½×1½	76.1×48.3 3.000×1.900	300 2.07	51 2.00	137 5.39	84.5 3.33	78 3.07	49.5 1.95	1/2×70 M12X70	UL FM Vds
80×25 3×1	88.9×33.7 3.500×1.315	300 2.07	38 1.50	152 5.98	72.5 2.85	84.5 3.33	56.5 2.22	1/2×75 M12X75	UL FM Vds
80×32 3×1¼	88.9×42.4 3.500×1.660	400 2.76	51 2.00	152 5.98	85.5 3.33	84.5 3.33	56.5 2.22	1/2×75 M12X75	UL FM Vds
80×40 3×1½	88.9×48.3 3.500×1.900	400 2.76	51 2.00	152 5.98	85.5 3.33	84.5 3.33	56.5 2.22	1/2×75 M12X75	UL FM Vds
80×50 3×2	88.9×60.3 3.500×2.375	300 2.07	64 2.50	152 5.98	98 3.86	84.5 3.33	56.5 2.22	1/2×75 M12X75	UL FM Vds
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	38 1.50	188 7.40	78.4 3.09	102 4.02	70 2.76	1/2×75 M12X75	UL FM Vds
100×32 4×1¼	114.3×42.4 4.500×1.660	400 2.76	51 2.00	188 7.40	89 3.50	102 4.02	70 2.76	1/2×75 M12X75	UL FM Vds
100×40 4×1½	114.3×48.3 4.500×1.900	400 2.76	51 2.00	188 7.40	89 3.50	102 4.02	70 2.76	1/2×75 M12X75	UL FM Vds
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	64 2.5	188 7.40	104.5 4.11	102 4.02	70 2.76	1/2×75 M12X75	UL FM Vds
100×65 4×2½	114.3×73.0 4.500×2.875	400 2.76	70 2.75	188 7.40	104.5 4.11	102 4.02	70 2.76	1/2×75 M12X75	UL FM
100×65 4×2¾	114.3×76.1 4.500×3.000	300 2.07	70 2.75	188 7.40	104.5 4.11	102 4.02	70 2.76	1/2×75 M12X75	UL FM Vds LPCB
100×80 4×3	114.3×88.9 4.500×3.500	400 2.76	89 3.50	188 7.40	128 5.03	102 4.02	70 2.76	1/2×75 M12X75	UL FM Vds LPCB
125×32 5×1¼	139.7×42.4 5.500×1.660	300 2.07	51 2.00	221.5 8.72	95 3.74	118 4.65	84 3.31	5/8×85 M16X85	UL FM
125×40 5×1½	139.7×48.3 5.500×1.900	300 2.07	51 2.00	221.5 8.72	95 3.74	118 4.65	84 3.31	5/8×85 M16X85	UL FM
125×50 5×1¾	139.7×60.3 5.500×2.375	300 2.07	64 2.5	221.5 8.72	112.5 4.43	118 4.65	84 3.31	5/8×85 M16X85	UL FM Vds
125×65 5×2¼	139.7×76.1 5.500×3.000	300 2.07	70 2.75	221.5 8.72	112.5 4.43	118 4.65	84 3.31	5/8×85 M16X85	Vds LPCB
125×80 5×3	139.7×88.9 5.500×3.500	300 2.07	89 3.50	221.5 8.72	132 5.20	118 4.65	84 3.31	5/8×85 M16X85	UL FM Vds LPCB
125×100 5×3½	139.7×114.3 5.500×4.500	300 2.07	114 4.50	221.5 8.72	160 6.30	125 4.92	84 3.31	5/8×85 M16X85	UL FM Vds LPCB
150×50 5×1½	168.3×48.3 6.250×2.375	300 2.07	64 2.5	244 9.60	112.5 4.43	125 4.92	94 3.70	5/8×105 M16X108	UL FM
150×100 5×3½	168.3×108.0 6.250×4.250	300 2.07	114 4.50	244 9.60	154 6.06	133 5.24	94 3.70	5/8×105 M16X108	UL FM
150×100 5×3¾	168.3×114.3 6.250×4.500	300 2.07	114 4.50	244 9.60	159 6.26	125 4.92	94 3.70	5/8×105 M16X108	UL FM
150×50 5×1½	165.1×60.3 6.500×2.375	300 2.07	64 2.5	244 9.60	112.5 4.43	127 5.00	97.5 3.84	5/8×105 M16X108	UL FM
150×65 5×1¾	165.1×76.1 6.500×3.000	300 2.07	70 2.75	244 9.60	112.5 4.43	130 5.12	97.5 3.84	5/8×105 M16X108	LPCB
150×80 5×2	165.1×88.9 6.500×3.500	300 2.07	89 3.50	244 9.60	132 5.20	130 5.12	97.5 3.84	5/8×105 M16X108	UL FM LPCB
150×100 5×3	165.1×114.3 6.500×4.500	300 2.07	114 4.50	244 9.60	154 6.06	135 5.32	97.5 3.84	5/8×105 M16X108	UL FM LPCB
150×40 5×1¼	168.3×48.3 6.500×1.900	400 2.76	51 2.00	247 9.72	95 3.74	128 5.04	98.5 3.88	5/8×105 M16X108	UL FM Vds
150×50 5×1½	168.3×60.3 6.625×2.375	300 2.07	64 2.5	247 9.72	114 4.49	134 5.28	98.5 3.88	5/8×105 M16X108	UL FM Vds

3G

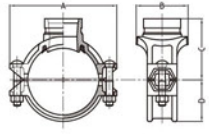
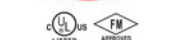
Mechanical Tee
Grooved Outlet



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
150×65 6×2½	168.3×73.0 6.625×2.875	400 2.76	70 2.75	247 9.72	112.5 4.43	135 5.32	98.5 3.88	5/8×105 M16X108	UL FM
150×65 6×2½	168.3×76.1 6.625×3.000	300 2.07	70 2.75	247 9.72	112.5 4.43	135 5.32	98.5 3.88	5/8×105 M16X108	UL FM VdS LPCB
150×80 6×3	168.3×88.9 6.625×3.500	400 2.76	89 3.50	247 9.72	132 5.20	136.5 5.37	98.5 3.88	5/8×105 M16X108	UL FM VdS LPCB
150×100 6×4	168.3×114.3 6.625×4.500	400 2.76	114 4.50	247 9.72	160 6.30	138 5.43	98.5 3.88	5/8×105 M16X108	UL FM VdS LPCB
200×50 8×2	219.1×60.3 8.625×2.375	400 2.76	64 2.5	320 12.60	118 4.65	158 6.22	125 4.92	3/4×115 M20X115	UL FM VdS
200×65 8×2½	216.3×76.1 8.516×3.000	300 2.07	70 2.75	315 12.40	117 4.61	157 6.18	122 4.80	3/4×115 M20X115	—
200×65 8×2½	219.1×73.0 8.625×3.000	400 2.76	70 2.75	320 12.60	118 4.65	158 6.22	125 4.92	3/4×115 M20X115	UL FM
200×65 8×2½	219.1×76.1 8.625×3.000	300 2.07	70 2.75	320 12.60	118 4.65	158 6.22	125 4.92	3/4×115 M20X115	UL FM VdS LPCB
200×80 8×3	219.1×88.9 8.625×3.500	400 2.76	89 3.50	320 12.60	136.5 5.37	161 6.34	125 4.92	3/4×115 M20X115	UL FM VdS LPCB
200×100 8×4	219.1×108.0 8.625×4.250	300 2.07	114 4.50	320 12.60	162 6.36	161 6.34	125 4.92	3/4×115 M20X115	UL FM
200×100 8×4	219.1×114.3 8.625×4.500	400 2.76	114 4.50	320 12.60	162 6.36	161 6.34	125 4.92	3/4×115 M20X115	UL FM VdS LPCB
250×65 10×2½	273.0×76.1 10.75×3.000	300 2.07	70 2.75	376 14.80	118 4.65	189 7.44	155 6.10	3/4×120 M20X115	UL FM
250×80 10×3	273.0×88.9 10.75×3.500	300 2.07	89 3.50	376 14.80	136.5 5.37	189 7.44	155 6.10	3/4×120 M20X115	UL FM
250×100 10×4	273.0×108.0 10.75×4.250	300 2.07	114 4.50	376 14.80	164 6.46	189 7.44	155 6.10	3/4×120 M20X115	UL FM
250×100 10×4	273.0×114.3 10.75×4.500	300 2.07	114 4.50	376 14.80	164 6.46	189 7.44	155 6.10	3/4×120 M20X115	UL FM VdS

3GS

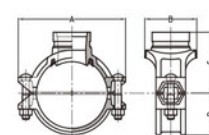
Light-duty
Mechanical Tee
Grooved Outlet



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
80×25 3×1	88.9×33.7 3.500×1.315	365 2.52	38 1.50	150 5.91	71.0 2.80	84 3.31	55.5 2.19	1/2×75 M12X76	UL FM
80×32 3×1¼	88.9×42.4 3.500×1.660	365 2.52	51 2.00	150 5.91	84.5 3.33	84 3.31	55.5 2.19	1/2×75 M12X76	UL FM
80×40 3×1½	88.9×48.3 3.500×1.900	365 2.52	51 2.00	150 5.91	84.5 3.33	84 3.31	55.5 2.19	1/2×75 M12X76	UL FM
80×50 3×2	88.9×60.3 3.500×2.375	365 2.52	64 2.50	150 5.91	86 3.36	84 3.31	55.5 2.19	1/2×75 M12X76	UL FM
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	38 1.50	178 7.01	77.5 3.05	98 3.86	67.5 2.66	1/2×75 M12X76	UL FM
100×40 4×1¼	114.3×48.3 4.500×1.900	300 2.07	51 2.00	178 7.01	88 3.46	98 3.86	67.5 2.66	1/2×75 M12X76	UL FM
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	64 2.50	178 7.01	103.5 4.07	98 3.86	67.5 2.66	1/2×75 M12X76	UL FM
100×65 4×2½	114.3×73.0 4.500×2.875	300 2.07	70 2.75	178 7.01	103.5 4.07	98 3.86	67.5 2.66	1/2×75 M12X76	UL FM
100×65 4×2½	114.3×76.1 4.500×3.000	300 2.07	70 2.75	178 7.01	103.5 4.07	98 3.86	67.5 2.66	1/2×75 M12X76	UL FM
100×80 4×3	114.3×88.9 4.500×3.500	300 2.07	89 3.50	178 7.01	124 4.88	98 3.86	67.5 2.66	1/2×75 M12X76	UL FM
125×50 5×2	141.3×60.3 5.563×2.375	300 2.07	64 2.50	210 8.27	110 4.33	113 4.45	82 3.23	5/8×85	—

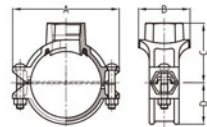
3GS

Light-duty
Mechanical Tee
Grooved Outlet



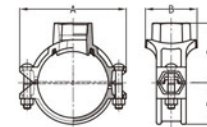
Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
125×80 5×3	133.0×88.9 5.250×3.500	300 2.07	89 3.50	203 7.99	132 5.12	110 4.33	77.5 3.05	5/8×85 M16X85	UL FM
125×32 139.7×1¼	139.7×42.4 5.500×1.660	300 2.07	51 2.00	210 8.27	91 3.58	113 4.45	82 3.23	5/8×85 M16X85	UL FM
125×40 139.7×1½	139.7×48.3 5.500×1.900	300 2.07	51 2.00	210 8.27	91 3.58	113 4.45	82 3.23	5/8×85 M16X85	UL FM
125×50 139.7×2	139.7×60.3 5.500×2.375	300 2.07	64 2.50	210 8.27	110 4.33	113 4.45	82 3.23	5/8×85 M16X85	UL FM
125×65 139.7×2½	139.7×76.1 5.500×3.000	300 2.07	70 2.75	210 8.27	110 4.33	113 4.45	82 3.23	5/8×85 M16X85	UL FM
125×80 139.7×3	139.7×88.9 5.500×3.500	300 2.07	89 3.50	210 8.27	130 5.12	113 4.45	82 3.23	5/8×85 M16X85	UL FM
125×6 139.7×¼	139.7×114.3 5.500×4.500	175 1.21	114 4.50	210 8.27	153 6.02	115 4.52	82 3.23	5/8×85 M16X85	UL FM
125×50 5×2	141.3×60.3 5.563×2.375	300 2.07	64 2.50	210 8.27	110 4.33	113 4.45	82 3.23	5/8X85	UL
125×65 5×2½	141.3×73.0 5.563×2.875	300 2.07	70 2.75	209 8.23	109.5 4.31	113 4.45	82 3.23	5/8X85	UL
125×80 5×3	141.3×88.9 5.563×3.500	300 2.07	89 3.50	209 8.23	129 5.08	113 4.45	82 3.23	5/8X85	UL
150×65 159.0×¾	159.1×76.1 6.250×3.000	300 2.07	70 2.75	227 8.94	110 4.33	122.5 4.83	91 3.58	5/8×105 M16X108	—
150×80 159.0×88.9	159.1×88.9 6.250×3.500	300 2.07	89 3.50	227 8.94	130 5.11	122.5 4.83	91 3.58	5/8×105 M16X108	UL FM
150×100 159.0×108.0	159.1×108.0 6.250×4.250	300 2.07	114 4.50	227 8.94	155 6.10	122.5 4.83	91 3.58	5/8×105 M16X108	UL FM
150×100 159.0×4	159.1×114.3 6.250×4.500	300 2.07	114 4.50	227 8.94	155 6.10	122.5 4.83	91 3.58	5/8×105 M16X108	UL FM
150×32 165.1×1¼	165.1×42.4 6.500×1.900	300 2.07	51 2.00	235 9.25	92.5 3.64	124.5 4.90	94.5 3.72	5/8×105 M16X108	UL FM
150×50 165.1×2	165.1×60.3 6.500×2.375	300 2.07	64 2.50	235 9.25	110 4.33	124.5 4.90	94.5 3.72	5/8×105 M16X108	UL FM
150×65 165.1×2½	165.1×76.1 6.500×3.000	300 2.07	70 2.75	235 9.25	110 4.33	124.5 4.90	94.5 3.72	5/8×105 M16X108	UL FM
150×80 165.1×3	165.1×88.9 6.500×3.500	300 2.07	89 3.50	235 9.25	130 5.12	124.5 4.90	94.5 3.72	5/8×105 M16X108	UL FM
150×100 165.1×4	165.1×108.0 6.500×4.250	300 2.07	114 4.50	235 9.25	155 6.10	126 4.96	94.5 3.72	5/8×105 M16X108	UL FM
150×100 165.1×4	165.1×114.3 6.500×4.500	300 2.07	114 4.50	235 9.25	155 6.10	126 4.96	94.5 3.72	5/8×105 M16X108	UL FM
150×32 6×1¼	168.3×42.4 6.500×1.660	300 2.07	51 2.00	240 9.45	92.5 3.64	126 4.96	96.5 3.80	5/8×105 M16X108	UL FM
150×40 6×1½	168.3×48.3 6.500×1.900	300 2.07	51 2.00	240 9.45	92.5 3.64	126 4.96	96.5 3.80	5/8×105 M16X108	UL FM
150×50 6×2	168.3×60.3 6.625×2.375	300 2.07	64 2.50	240 9.45	110 4.33	126 4.96	96.5 3.80	5/8×105 M16X108	UL FM
150×65 6×2½	168.3×73.0 6.625×2.875	300 2.07	70 2.75	240 9.45	110 4.33	126 4.96	96.5 3.80	5/8×105 M16X108	UL FM
150×65 6×2½	168.3×76.1 6.625×3	300 2.07	70 2.75	240 9.45	110 4.33	126 4.96	96.5 3.80	5/8×105 M16X108	UL FM
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	89 3.50	240 9.45	130 5.12	126 4.96	96.5 3.80	5/8×105 M16X108	UL FM
150×100 6×4	168.3×114.3 6.625×4.500	300 2.07	114 4.50	240 9.45	155 6.10	126 4.96	96.5 3.80	5/8×105 M16X108	UL FM
200×50 8×2	219.1×60.3 8.625×2.375	300 2.07	64 2.50	300 11.81	117 4.60	155 6.10	123 4.84	5/8×105 M16X108	UL FM
200×65 8×2½	219.1×73.0 8.625×2.875	300 2.07	70 2.75	300 11.81	117 4.60	155 6.10	123 4.84	5/8×105 M16X108	UL FM
200×80 8×3	219.1×88.9 8.625×3.500	300 2.07	89 3.50	300 11.81	135.5 5.33	155 6.10	123 4.84	5/8×105 M16X108	UL FM
200×100 8×4	219.1×114.3 8.625×4.500	300 2.07	114 4.50	300 11.81	164 6.46	160 6.30	123 4.84	5/8×105 M16X108	UL FM

3J

Mechanical Tee
Threaded Outlet

Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
25X10 1X3/8	33.7X17.2 1.315X0.677	300 2.07	23.5 0.92	86 3.38	46 1.81	26 1.02	24.5 0.96	M8X30	—
25X15 1X1/2	33.7X21.3 1.315X0.825	300 2.07	23.5 0.92	86 3.38	46 1.81	26 1.02	24.5 0.96	M8X30	UL FM VdS
25X20 1X3/4	33.7X26.9 1.315X1.050	300 2.07	23.5 0.92	86 3.38	52 2.05	41 1.61	24.5 0.96	M8X30	VdS
25X25 1X1	33.7X33.7 1.315X1.315	300 2.07	23.5 0.92	86 3.38	57 2.24	45 1.77	24.5 0.96	M8X30	VdS
32X10 1X3/8	42.4X17.2 1.660X0.677	300 2.07	30 1.18	95.5 3.76	53 2.09	32 1.26	29 1.14	M10X35	UL FM VdS
32X15 1X1/2	42.4X21.3 1.660X0.825	300 2.07	30 1.18	95.5 3.76	57 2.24	32 1.26	29 1.14	M10X35	UL FM VdS
32X20 1X3/4	42.4X26.9 1.660X1.050	300 2.07	30 1.18	95.5 3.76	57 2.24	44 1.73	29 1.14	M10X35	UL FM VdS
32X25 1X1	42.4X33.7 1.660X1.315	300 2.07	30 1.18	95.5 3.76	57 2.24	53 2.09	29 1.14	M10X35	UL VdS
40X10 1X3/8	48.3X17.2 1.900X0.677	300 2.07	30 1.18	101.5 3.99	53 2.09	34 1.34	32.5 1.28	M10X35	UL VdS
40X15 1X1/2	48.3X21.3 1.900X0.825	300 2.07	30 1.18	101.5 3.99	57 2.24	35.5 1.40	32.5 1.28	M10X35	UL FM VdS
40X20 1X3/4	48.3X26.9 1.900X1.050	300 2.07	30 1.18	101.5 3.99	57 2.24	47.5 1.87	32.5 1.28	M10X35	UL FM VdS
40X25 1X1	48.3X33.7 1.900X1.315	300 2.07	30 1.18	101.5 3.99	57 2.24	56 2.20	32.5 1.28	M10X35	VdS
50X10 2X3/8	60.3X17.2 2.375X0.677	300 2.07	38 1.50	116 4.57	68 2.68	44 1.73	39 1.54	3/8X55 M10X57	UL VdS
50X15 2X1/2	60.3X21.3 2.375X0.825	400 2.76	38 1.50	116 4.57	68 2.68	60 2.36	39 1.54	3/8X55 M10X57	UL FM VdS
50X20 2X1	60.3X26.9 2.375X1.050	400 2.76	38 1.50	116 4.57	68 2.68	60 2.36	39 1.54	3/8X55 M10X57	UL FM VdS
50X25 2X1	60.3X33.7 2.375X1.315	400 2.76	38 1.50	116 4.57	68 2.68	60 2.36	39 1.54	3/8X55 M10X57	UL FM VdS
50X32 2X1 1/4	60.3X42.4 2.375X1.660	400 2.76	45 1.75	116 4.57	76 2.99	65 2.56	39 1.54	3/8X55 M10X57	UL FM VdS
50X40 2X1 1/2	60.3X48.3 2.375X1.900	400 2.76	45 1.75	116 4.57	76 2.99	65 2.56	39 1.54	3/8X55 M10X57	UL FM VdS
65X15 2 1/2X3/8	73.0X21.3 2.875X0.825	400 1.50	38 1.50	137 5.39	71 2.76	68 2.67	49 1.93	1/2X70 M12X70	UL FM
65X20 2 1/2X1/2	73.0X26.9 2.875X1.050	400 2.76	38 1.50	137 5.39	71 2.76	68 2.67	49 1.93	1/2X70 M12X70	UL FM
65X25 2 1/2X1	73.0X33.7 2.875X1.315	400 2.76	38 1.50	137 5.39	71 2.76	70 2.75	49 1.93	1/2X70 M12X70	UL FM
65X32 2 1/2X1 1/4	73.0X42.4 2.875X1.660	400 2.76	51 2.00	137 5.39	84.5 3.33	73 2.87	49 1.93	1/2X70 M12X70	UL FM
65X40 2 1/2X1 1/2	73.0X48.3 2.875X1.900	400 2.76	51 2.00	137 5.39	84.5 3.33	73 2.87	49 1.93	1/2X70 M12X70	UL FM
65X15 76.1X1 1/2	76.1X21.3 3.000X0.825	300 2.07	38 1.50	137 5.39	71 2.80	61.5 2.42	49.5 1.95	1/2X70 M12X70	UL FM VdS
65X20 76.1X1 1/4	76.1X26.9 3.000X1.050	300 2.07	38 1.50	137 5.39	71 2.80	68 2.67	49.5 1.95	1/2X70 M12X70	UL FM VdS
65X25 76.1X1 1/2	76.1X33.7 3.000X1.315	300 2.07	38 1.50	137 5.39	71 2.80	75 3.05	49.5 1.95	1/2X70 M12X70	UL FM VdS
65X32 76.1X1 1/4	76.1X42.4 3.000X1.660	300 2.07	51 2.00	137 5.39	84.5 3.33	75 3.05	49.5 1.95	1/2X70 M12X70	UL FM VdS
65X40 76.1X1 1/2	76.1X48.3 3.000X1.900	300 2.07	51 2.00	137 5.39	84.5 3.33	75 3.05	49.5 1.95	1/2X70 M12X70	UL FM VdS
80X15 3X1/2	88.9X21.3 3.500X0.825	400 2.76	38 1.50	152 5.98	72.5 2.85	71.5 2.81	56.5 2.22	1/2X75 M12X76	UL FM VdS
80X20 3X1/4	88.9X26.9 3.500X1.050	400 2.76	38 1.50	152 5.98	72.5 2.85	71.5 2.81	56.5 2.22	1/2X75 M12X76	UL FM VdS
80X25 3X1	88.9X33.7 3.500X1.315	400 2.76	38 1.50	152 5.98	72.5 2.85	80 3.15	56.5 2.22	1/2X75 M12X76	UL FM VdS
80X32 3X1 1/4	88.9X42.4 3.500X1.660	400 2.76	51 2.00	152 5.98	85.5 3.37	80 3.15	56.5 2.22	1/2X75 M12X76	UL FM VdS
80X40 3X1 1/2	88.9X48.3 3.500X1.900	400 2.76	51 2.00	152 5.98	85.5 3.37	80 3.15	56.5 2.22	1/2X75 M12X76	UL FM VdS
80X50 3X2	88.9X60.3 3.500X2.375	300 2.07	64 2.50	152 5.98	98 3.86	80 3.15	56.5 2.22	1/2X75 M12X76	UL FM VdS

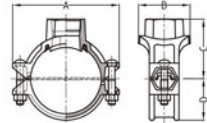
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Mechanical Tee
Threaded Outlet

Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
100X15 108.0X1/2	108.1X21.3 4.250X0.825	300 2.07	38 1.50	172 6.77	78.5 3.09	87 3.43	64.5 2.54	1/2X75 M12X76	UL FM
100X20 108.0X3/4	108.1X26.9 4.250X1.050	300 2.07	38 1.50	172 6.77	78.5 3.09	87 3.43	64.5 2.54	1/2X75 M12X76	UL FM
100X25 108.0X1	108.1X33.7 4.250X1.315	300 2.07	38 1.50	172 6.77	78.5 3.09	87 3.43	64.5 2.54	1/2X75 M12X76	UL FM
100X32 108.0X1 1/4	108.1X42.4 4.250X1.660	300 2.07	51 2.00	172 6.77	89 3.50	87 3.43	64.5 2.54	1/2X75 M12X76	UL FM
100X40 108.0X1 1/2	108.0X48.3 4.250X1.900	300 2.07	51 2.00	172 6.77	89 3.50	87 3.43	64.5 2.54	1/2X75 M12X76	UL FM
100X50 108.0X2	108.0X60.3 4.250X2.375	300 2.07	64 2.50	172 6.77	106.5 4.19	92 3.62	64.5 2.54	1/2X75 M12X76	UL FM
100X65 108.0X2 1/2	108.0X76.1 4.250X3.000	300 2.07	70 2.75	172 6.77	106.5 4.19	90 3.54	64.5 2.54	1/2X75 M12X76	UL FM
100X15 4X1/2	114.3X21.3 4.500X0.825	400 2.76	38 1.50	188 7.40	78.5 3.09	90 3.54	70 2.76	1/2X75 M12X76	UL FM VdS
100X20 4X1/4	114.3X26.9 4.500X1.050	400 2.76	38 1.50	188 7.40	78.5 3.09	90 3.54	70 2.76	1/2X75 M12X76	UL FM VdS
100X25 4X1	114.3X33.7 4.500X1.315	400 2.76	38 1.50	188 7.40	78.5 3.09	93 3.66	70 2.76	1/2X75 M12X76	UL FM VdS
100X32 4X1 1/4	114.3X42.4 4.500X1.660	400 2.76	51 2.00	188 7.40	89 3.50	95 3.74	70 2.76	1/2X75 M12X76	UL FM VdS
100X40 4X1 1/2	114.3X48.3 4.500X1.900	400 2.76	51 2.00	188 7.40	89 3.50	97 3.82	70 2.76	1/2X75 M12X76	UL FM VdS
100X50 4X2	114.3X60.3 4.500X2.375	300 2.07	64 2.50	188 7.40	104.5 4.11	100 3.94	70 2.76	1/2X75 M12X76	UL FM VdS
100X65 4X2 1/2	114.3X73.0 4.500X2.875	400 2.76	70 2.75	188 7.40	104.5 4.11	102 4.02	70 2.76	1/2X75 M12X76	UL FM
100X65 4X3	114.3X76.1 4.500X3.000	300 2.07	70 2.75	188 7.40	104.5 4.11	102 4.02	70 2.76	1/2X75 M12X76	VdS LPCB
100X80 4X3 1/2	114.3X88.9 4.500X3.500	400 2.76	89 3.50	188 7.40	128 5.039	102 4.02	70 2.76	1/2X75 M12X76	UL FM VdS LPCB
125X32 133.0X1 1/2	133.0X42.4 5.250X1.660	300 2.07	51 2.00	209 8.23	93 3.66	105 4.13	77 3.03	5/8X85 M16X85	UL FM
125X40 133.0X2	133.0X48.3 5.250X1.900	300 2.07	51 2.00	209 8.23	93 3.66	105 4.13	77 3.03	5/8X85 M16X85	UL FM
125X50 133.0X2 1/2	133.0X60.3 5.250X2.375	300 2.07	64 2.50	209 8.23	112.5 4.43	110 4.33	77 3.03	5/8X85 M16X85	UL FM
125X15 139.7X1/2	139.7X21.3 5.500X0.825	300 2.07	38 1.50	221.5 8.72	78 3.07	110 4.33	84 3.31	5/8X85 M16X85	UL FM VdS
125X20 139.7X3/4	139.7X26.9 5.500X1.050	300 2.07	38 1.50	221.5 8.72	78 3.07	110 4.33	84 3.31	5/8X85 M16X85	UL FM VdS
125X25 139.7X1	139.7X33.7 5.500X1.315	300 2.07	38 1.50	221.5 8.72	78 3.07	110 4.33	84 3.31	5/8X85 M16X85	UL FM VdS
125X32 139.7X1 1/4	139.7X42.4 5.500X1.660	300 2.07	51 2.00	221.5 8.72	95 3.74	112 4.41	84 3.31	5/8X85 M16X85	UL FM VdS
125X40 139.7X1 1/2	139.7X48.3 5.500X1.900	300 2.07	51 2.00	221.5 8.72	95 3.74	112 4.41	84 3.31	5/8X85 M16X85	UL FM VdS
125X50 139.7X2	139.7X60.3 5.500X2.375	300 2.07	64 2.50	221.5 8.72	112.5 4.43	115 4.53	84 3.31	5/8X85 M16X85	UL FM VdS
125X65 139.7X2 1/2	139.7X76.1 5.500X3.000	300 2.07	70 2.75	221.5 8.72	112.5 4.43	115 4.53	84 3.31	5/8X85 M16X85	VdS LPCB
125X80 139.7X3	139.7X88.9 5.500X3.500	300 2.07	89 3.50	221.5 8.72	132 5.20	120 4.72	84 3.31	5/8X85 M16X85	VdS LPCB
150X15 159.0X1/2	159.0X21.3 6.250X0.825	300 2.07	38 1.50	244 9.60	78 3.07	116 4.57	94 3.70	5/8X105 M16X108	UL FM
150X25 159.0X1	159.0X33.7 6.250X1.315	300 2.07	38 1.50	244 9.60	78 3.07	116 4.57	94 3.70	5/8X105 M16X108	UL FM
150X32 159.0X1 1/4	159.0X42.4 6.250X1.660	300 2.07	51 2.00	244 9.60	93 3.66	118 4.65	94 3.70	5/8X105 M16X108	UL FM
150X40 159.0X1 1/2	159.0X48.3 6.250X1.900	300 2.07	51 2.00	244 9.60	93 3.66	118 4.65	94 3.70	5/8X105 M16X108	UL FM

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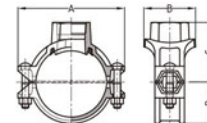
Mechanical Tee Threaded Outlet



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
150×50 150.0×2	150.0×60.3 6.250×2.375	300 2.07	64 2.50	244 9.60	112.5 4.43	125 4.92	94 3.70	5/8×105 M16X108	UL FM
150×65 150.0×76.1	150.0×76.1 6.250×3.000	300 2.07	70 2.75	244 9.60	112.5 4.43	125 4.92	94 3.70	5/8×105 M16X108	UL Vds LPCB
150×80 150.0×3	150.0×88.9 6.250×3.500	300 2.07	89 3.50	244 9.60	133 5.20	125 4.92	94 3.70	5/8×105 M16X108	UL
150×100 150.0×4	150.1×114.3 6.250×4.500	175 2.07	114 4.50	244 9.60	156.5 6.16	130 5.12	94 3.70	5/8×105 M16X108	UL
150×15 165.1×1	165.1×21.3 6.500×0.825	300 2.07	38 1.50	244 9.60	78 3.07	110 4.33	97.5 3.84	5/8×105 M16X108	UL
125×20 165.1×1	165.1×26.9 6.500×1.050	300 2.07	38 1.50	244 9.60	78 3.07	110 4.33	97.5 3.84	5/8×105 M16X108	UL
150×25 165.1×1	165.1×33.7 6.500×1.315	300 2.07	38 1.50	244 9.60	78 3.07	118 4.65	97.5 3.84	5/8×105 M16X108	UL FM
150×32 165.1×1 1/2	165.1×42.4 6.500×1.660	300 2.07	51 2.00	244 9.60	93 3.66	118 4.65	97.5 3.84	5/8×105 M16X108	UL FM
150×40 165.1×1 1/2	165.1×48.3 6.500×1.900	300 2.07	51 2.00	244 9.60	93 3.66	118 4.65	97.5 3.84	5/8×105 M16X108	UL FM
150×50 165.1×2	165.1×60.3 6.500×2.375	300 2.07	64 2.50	244 9.60	112.5 4.43	128.5 5.43	97.5 3.84	5/8×105 M16X108	UL FM
150×65 165.1×76.1	165.1×76.1 6.500×3.000	300 2.07	70 2.75	244 9.60	112.5 4.43	128.5 5.43	97.5 3.84	5/8×105 M16X108	UL
150×80 165.1×3	165.1×88.9 6.500×3.500	300 2.07	89 3.50	244 9.60	132 5.20	128.5 5.43	97.5 3.84	5/8×105 M16X108	UL FM LPCB
150×100 165.1×4	165.1×114.3 6.500×4.500	225 1.6	114 4.50	244 9.60	154 6.18	135 5.32	97.5 3.84	5/8×105 M16X108	LPCB
150×32 6×1 1/4	168.3×42.4 6.500×1.660	300 2.07	51 2.00	247 9.72	95 3.74	122 4.80	98.5 3.88	5/8×105 M16X108	UL FM Vds
150×40 6×1 1/2	168.3×48.3 6.500×1.900	400 2.76	51 2.00	247 9.72	95 3.74	122 4.80	98.5 3.88	5/8×105 M16X108	UL FM Vds
150×50 6×2	168.3×60.3 6.625×2.375	300 2.07	64 2.50	247 9.72	112.5 4.43	132 5.20	98.5 3.88	5/8×105 M16X108	UL FM Vds
150×65 6×2 1/2	168.3×73.0 6.625×2.875	400 2.76	70 2.75	247 9.72	112.5 4.43	132 5.20	98.5 3.88	5/8×105 M16X108	UL FM
150×65 6×76.1	168.3×76.1 6.625×3.000	300 2.07	70 2.75	247 9.72	112.5 4.43	132 5.20	98.5 3.88	5/8×105 M16X108	UL LPCB
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	89 3.50	247 9.72	132 5.20	140 5.51	98.5 3.88	5/8×105 M16X108	UL FM Vds LPCB
150×100 6×4	168.3×114.3 6.625×4.500	400 2.76	114 4.50	247 9.72	160 6.30	140 5.51	98.5 3.88	5/8×105 M16X108	UL FM Vds LPCB
200×25 8×1	219.1×33.7 8.625×1.315	300 2.07	38 1.50	320 12.60	79.5 3.13	150 5.91	125 4.92	3/4×115 M20X115	UL FM Vds
200×32 8×1 1/4	219.1×42.4 8.625×1.660	300 2.07	51 2.00	320 12.60	96.5 3.80	150 5.91	125 4.92	3/4×115 M20X115	UL FM Vds
200×40 8×1 1/2	219.1×48.3 8.625×1.900	300 2.07	51 2.00	320 12.60	96.5 3.80	150 5.91	125 4.92	3/4×115 M20X115	UL FM Vds
200×50 8×2	219.1×60.3 8.625×2.375	400 2.76	64 2.50	320 12.60	117 4.61	160 6.30	125 4.92	3/4×115 M20X115	UL FM Vds
200×65 8×2 1/2	219.1×73.0 8.625×2.875	300 2.07	70 2.75	320 12.60	118 4.65	160 6.30	125 4.92	3/4×115 M20X115	UL FM
200×65 8×76.1	219.1×76.1 8.625×3.000	300 2.07	70 2.75	320 12.60	118 4.65	160 6.30	125 4.92	3/4×115 M20X115	UL FM Vds LPCB
200×80 8×3	219.1×88.9 8.625×3.500	300 2.07	89 3.50	320 12.60	136.5 5.37	160 6.30	125 4.92	3/4×115 M20X115	UL FM Vds LPCB
200×100 8×4	219.1×114.3 8.625×4.500	300 2.07	114 4.50	320 12.60	164 6.46	160 6.30	125 4.92	3/4×115 M20X115	UL FM Vds LPCB
250×40 10×1 1/4	273.0×48.3 10.750×1.900	300 2.07	51 2.00	376 14.80	95.5 3.76	180 7.09	155 6.10	3/4×120 M20X115	UL FM
250×50 10×2	273.0×60.3 10.750×2.375	300 2.07	64 2.50	376 14.80	118 4.65	185 7.28	155 6.10	3/4×120 M20X115	UL FM Vds
250×65 10×76.1	273.0×76.1 10.750×3.000	300 2.07	70 2.75	376 14.80	118 4.65	190 7.48	155 6.10	3/4×120 M20X115	UL FM Vds
250×80 10×3	273.0×88.9 10.750×3.500	300 2.07	89 3.50	376 14.80	136.5 5.37	190 7.48	155 6.10	3/4×120 M20X115	UL FM Vds
250×100 10×4	273.0×114.3 10.750×4.500	300 2.07	114 4.50	376 14.80	164 6.46	190 7.48	155 6.10	3/4×120 M20X115	UL FM Vds

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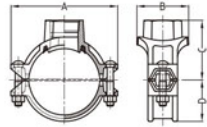
Light-duty Mechanical Tee Threaded Outlet



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
80×15 3×½	88.9×21.3 3.500×0.825	300 2.07	38 1.50	150 5.91	71.0 2.80	68 2.68	55.5 2.19	1/2×75 M12X76	UL FM
80×20 3×¾	88.9×26.9 3.500×1.050	300 2.07	38 1.50	150 5.91	71.0 2.80	68 2.68	55.5 2.19	1/2×75 M12X76	
80×25 3×1	88.9×33.7 3.500×1.315	300 2.07	38 1.50	150 5.91	71.0 2.80	71.0 2.80	55.5 2.19	1/2×75 M12X76	
80×32 3×1¼	88.9×42.4 3.500×1.660	300 2.07	51 2.00	150 5.91	84.5 3.33	74 2.91	55.5 2.19	1/2×75 M12X76	UL FM
80×40 3×1½	88.9×48.3 3.500×1.900	300 2.07	51 2.00	150 5.91	84.5 3.33	74 2.91	55.5 2.19	1/2×75 M12X76	
80×50 3×2	88.9×60.3 3.500×2.375	300 2.07	64 2.50	150 5.91	98 3.86	77 3.03	55.5 2.19	1/2×75 M12X76	
100×15 108.0×1½	108.1×21.3 4.250×0.825	300 2.07	38 1.50	172 6.77	77.5 3.05	85 3.35	64.5 2.54	1/2×75 M12X76	UL FM
100×25 108.0×1¾	108.1×33.7 4.250×1.315	300 2.07	38 1.50	172 6.77	77.5 3.05	85 3.35	64.5 2.54	1/2×75 M12X76	
100×32 108.0×1¾	108.1×42.4 4.250×1.660	300 2.07	51 2.00	172 6.77	88 3.46	85 3.35	64.5 2.54	1/2×75 M12X76	
100×40 108.0×1¾	108.0×48.3 4.250×1.900	300 2.07	51 2.00	172 6.77	88 3.46	85 3.35	64.5 2.54	1/2×75 M12X76	UL FM
100×50 108.0×2	108.0×60.3 4.250×2.375	300 2.07	64 2.50	172 6.77	103.5 4.19	90.5 3.56	64.5 2.54	1/2×75 M12X76	
100×65 108.0×2½	108.0×76.1 4.250×3.000	300 2.07	70 2.75	172 6.77	103.5 4.07	97.5 3.84	64.5 2.54	1/2×75 M12X76	
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	38 1.50	178 7.01	77.5 3.05	89.5 3.52	67.5 2.66	1/2×75 M12X76	UL FM
100×32 4×1¼	114.3×42.4 4.500×1.660	300 2.07	51 2.00	178 7.01	88 3.46	89.5 3.53	67.5 2.66	1/2×75 M12X76	
100×40 4×1½	114.3×48.3 4.500×1.900	300 2.07	51 2.00	178 7.01	88 3.46	89.5 3.53	67.5 2.66	1/2×75 M12X76	
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	64 2.50	178 7.01	103.5 4.07	92 3.62	67.5 2.66	1/2×75 M12X76	UL FM
100×65 4×2½	114.3×73.0 4.500×2.875	300 2.07	70 2.75	178 7.01	103.5 4.07	98 3.86	67.5 2.66	1/2×75 M12X76	
100×65 4×¾	114.3×76.1 4.500×3.000	300 2.07	70 2.75	178 7.01	103.5 4.07	98 3.86	67.5 2.66	1/2×75 M12X76	
100×80 4×3	114.3×88.9 4.500×3.500	300 2.07	89 3.50	178 7.01	124 4.88	98 3.86	67.5 2.66	1/2×75 M12X76	UL FM
125×25 133.0×1¼	133.0×33.7 5.250×1.315	300 2.07	38 1.50	203 7.99	77 3.03	98 3.86	77.5 3.05	5/8×85	
125×32 133.0×1½	133.0×42.4 5.250×1.660	300 2.07	51 2.00	203 7.99	91 3.58	102 4.01	77.5 3.05	5/8×85	
125×40 133.0×1½	133.0×48.3 5.250×1.900	300 2.07	51 2.00	203 7.99	91 3.58	102 4.01	77.5 3.05	5/8×85	UL FM
125×50 133.0×2	133.0×60.3 5.250×2.375	300 2.07	64 2.50	203 7.99	110 4.33	105 4.13	77.5 3.05	5/8×85	
125×65 133.0×2½	133.0×76.1 5.250×3.000	300 2.07	70 2.75	203 7.99	110 4.33	113 4.45	77.5 3.05	5/8×85	
125×80 133.0×3	133.0×88.9 5.250×3.500	300 2.07	89 3.50	203 7.99	132 5.12	110 4.33	77.5 3.05	5/8×85	UL FM
125×25 139.7×1¼	139.7×33.7 5.500×1.315	300 2.07	38 1.50	210 8.27	77 3.03	100 3.94	82 3.23	5/8×85 M16X85	
125×32 139.7×1½	139.7×42.4 5.500×1.660	300 2.07	51 2.00	210 8.27	91 3.58	105 4.13	82 3.23	5/8×85 M16X85	
125×40 139.7×1½	139.7×48.3 5.500×1.900	300 2.07	51 2.00	210 8.27	91 3.58	105 4.13	82 3.23	5/8×85 M16X85	UL FM
125×50 139.7×2	139.7×60.3 5.500×2.375	300 2.07	64 2.50	210 8.27	110 4.33	108 4.25	82 3.23	5/8×85 M16X85	
125×65 139.7×2½	139.7×76.1 5.500×3.000	300 2.07	70 2.75	210 8.27	110 4.33	115 4.53	82 3.23	5/8×85 M16X85	
125×80 139.7×3	139.7×88.9 5.500×3.500	300 2.07	89 3.50	210 8.27	130 5.12	115 4.53	82 3.23	5/8×85 M16X85	UL FM
125×100 139.7×4	139.7×114.3 5.500×4.500	300 2.07	114 4.50	210 8.27	153 6.02	118 4.65	82 3.23	5/8×85 M16X85	
125×32 5×1¼	141.3×42.4 5.563×1.660	300 2.07	51 2.00	210 8.27	91 3.58	105 4.13	82 3.23	5/8×85 M16X85	
125×40 5×1½	141.3×48.3 5.563×1.900	400 2.76	51 2.00	210 8.27	91 3.58	105 4.13	82 3.23	5/8×85 M16X85	
125×50 5×2	141.3×60.3 5.563×2.375	300 2.07	64 2.50	210 8.27	110 4.33	108 4.25	82 3.23	5/8×85 M16X85	

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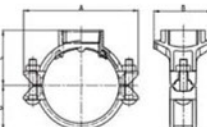
Light-duty
Mechanical Tee
Threaded Outlet



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
150×25 159.0×1	159.0×33.7 6.250×1.315	300 2.07	38 1.50	227 8.94	77 3.03	110 4.33	91 3.58	5/8×85 M16X85	UL FM
150×32 159.0×1¼	159.0×42.4 6.250×1.660	300 2.07	51 2.00	227 8.94	92.5 3.64	112 4.41	91 3.58	5/8×105 M16X105	UL FM
150×40 159.0×1½	159.0×48.3 6.250×1.900	300 2.07	51 2.00	227 8.94	92.5 3.64	112 4.41	91 3.58	5/8×105 M16X105	UL FM
150×50 159.0×2	159.0×60.3 6.250×2.375	300 2.07	64 2.50	227 8.94	110 4.33	116.5 4.59	91 3.58	5/8×105 M16X105	UL FM
150×65 159.0×76.1	159.0×76.1 6.250×3.000	300 2.07	70 2.75	227 8.94	110 4.33	121.5 4.78	91 3.58	5/8×105 M16X105	UL FM
150×80 159.0×3	159.0×88.9 6.250×3.500	300 2.07	89 3.50	227 8.94	130 5.12	123.5 4.86	91 3.58	5/8×105 M16X105	UL FM
150×100 159.0×4	159.1×114.3 6.250×4.500	300 2.07	114 4.50	227 8.94	155 6.10	127 5.00	91 3.58	5/8×105 M16X105	UL FM
150×15 165.1×1½	165.1×21.3 6.500×0.825	300 2.07	38 1.50	235 9.25	77 3.03	115 4.53	94.5 3.72	5/8×105 M16X105	UL FM
125×20 165.1×¾	165.1×26.9 6.500×1.050	300 2.07	38 1.50	235 9.25	77 3.03	115 4.53	94.5 3.72	5/8×105 M16X105	UL FM
150×25 165.1×1	165.1×33.7 6.500×1.315	300 2.07	38 1.50	235 9.25	77 3.03	115 4.53	94.5 3.72	5/8×105 M16X105	UL FM
150×32 165.1×1¼	165.1×42.4 6.500×1.660	300 2.07	51 2.00	235 9.25	92.5 3.64	115 4.53	94.5 3.72	5/8×105 M16X105	UL FM
150×40 165.1×1½	165.1×48.3 6.500×1.900	300 2.07	51 2.00	235 9.25	92.5 3.64	115 4.53	94.5 3.72	5/8×105 M16X105	UL FM
150×50 165.1×2	165.1×60.3 6.500×2.375	300 2.07	64 2.50	235 9.25	110 4.33	120 4.72	94.5 3.72	5/8×105 M16X105	UL FM
150×65 165.1×76.1	165.1×76.1 6.500×3.000	300 2.07	70 2.75	235 9.25	110 4.33	125 4.92	94.5 3.72	5/8×105 M16X105	UL FM
150×80 165.1×3	165.1×88.9 6.500×3.500	300 2.07	89 3.50	235 9.25	130 5.12	125 4.92	94.5 3.72	5/8×105 M16X105	UL FM
150×100 165.1×4	165.1×114.3 6.500×4.500	300 2.07	114 4.50	240 9.45	155 6.10	130 5.12	94.5 3.72	5/8×105 M16X105	UL FM
150×25 6×1	168.3×33.7 6.500×1.315	300 2.07	38 1.50	240 9.45	77 3.03	115 4.53	96.5 3.80	5/8×105 M16X105	UL FM
150×32 6×1¼	168.3×42.4 6.500×1.660	300 2.07	51 2.00	240 9.45	92.5 3.64	115 4.53	96.5 3.80	5/8×105 M16X105	UL FM
150×40 6×1½	168.3×48.3 6.500×1.900	300 2.07	51 2.00	240 9.45	92.5 3.64	115 4.53	96.5 3.80	5/8×105 M16X105	UL FM
150×50 6×2	168.3×60.3 6.625×2.375	300 2.07	64 2.50	240 9.45	110 4.33	121 4.76	96.5 3.80	5/8×105 M16X105	UL FM
150×65 6×2½	168.3×73.0 6.625×2.875	300 2.07	70 2.75	240 9.45	110 4.33	127 5.00	96.5 3.80	5/8×105 M16X105	UL FM
150×65 6×2½	168.3×76.0 6.625×3.000	300 2.07	70 2.75	240 9.45	110 4.33	127 5.00	96.5 3.80	5/8×105 M16X105	UL FM
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	89 3.50	240 9.45	130 5.12	127 5.00	96.5 3.80	5/8×105 M16X105	UL FM
150×100 6×4	168.3×114.3 6.625×4.500	300 2.07	114 4.50	240 9.45	155 6.10	130 5.12	96.5 3.80	5/8×105 M16X105	UL FM
200×25 8×1	219.0×33.7 8.625×1.315	300 2.07	38 1.50	300 11.81	78 3.07	140 5.51	123 4.84	5/8×105 M16X105	UL FM
200×32 8×1¼	219.1×42.4 8.625×1.660	300 2.07	51 2.00	300 11.81	96.5 3.80	140 5.51	123 4.84	5/8×105 M16X105	UL FM
200×40 8×1½	219.1×48.3 8.625×1.900	300 2.07	51 2.00	300 11.81	96.5 3.80	143 5.63	123 4.84	5/8×105 M16X105	UL FM
200×50 8×2	219.1×60.3 8.625×2.375	300 2.07	64 2.50	300 11.81	117 4.61	149 5.87	123 4.84	5/8×105 M16X105	UL FM
200×65 8×2½	219.1×73.0 8.625×2.875	300 2.07	70 2.75	300 11.81	117 4.61	155 6.10	123 4.84	5/8×105 M16X105	UL FM
200×65 8×76.1	219.1×76.1 8.625×3.000	300 2.07	70 2.75	300 11.81	117 4.61	155 6.10	123 4.84	5/8×105 M16X105	UL FM
200×80 8×3	219.1×88.9 8.625×3.500	300 2.07	89 3.50	300 11.81	133.5 5.25	155 6.10	123 4.84	5/8×105 M16X105	UL FM
200×100 8×4	219.1×114.3 8.625×4.500	300 2.07	114 4.50	300 11.81	164 6.45	160 6.30	123 4.84	5/8×105 M16X105	UL FM

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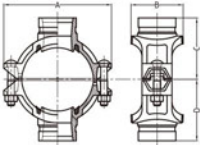
Slim Type
Mechanical Tee
Threaded Outlet



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
65×25 2½×1	73.0×33.7 2.875×1.315	300 2.07	38 1.50	130 5.12	68.5 2.70	60 2.36	44 1.73	3/8X80	UL
65×40 2½×1½	73.0×48.3 2.875×1.900	300 2.07	51 2.00	130 5.12	81 3.19	63 2.48	44 1.73	3/8X80	UL
65×25 76.1×1	76.1×33.7 3.000×1.315	300 2.07	38 1.50	132.5 5.22	68.5 2.70	60 2.36	46 1.81	3/8X80	UL
65×32 76.1×1¼	76.1×42.4 3.000×1.660	300 2.07	51 2.00	132.5 5.22	81 3.19	63 2.48	46 1.81	3/8X80	UL
80×25 3×1	88.9×33.7 3.500×1.315	300 2.07	38 1.50	144 5.67	69.5 2.74	66.5 2.62	52.5 2.07	3/8X80	UL
80×32 3×1½	88.9×42.4 3.500×1.660	300 2.07	51 2.00	144 5.67	82 3.23	66.5 2.62	52.5 2.07	3/8X80	UL
80×40 3×1½	88.9×48.3 3.500×1.900	300 2.07	51 2.00	144 5.67	82 3.23	70 2.76	52.5 2.07	3/8X80	UL
80×50 3×2	88.9×60.3 3.500×2.375	300 2.07	64 2.50	144 5.67	96 3.78	72 2.83	52.5 2.07	3/8X80	UL
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	38 1.50	175 6.89	72 2.83	82.5 3.25	67 2.64	1/2×75	UL
100×32 4×1¼	114.3×42.4 4.500×1.660	300 2.07	51 2.00	175 6.89	84 3.31	82.5 3.25	67 2.64	1/2×75	UL
100×40 4×1½	114.3×48.3 4.500×1.900	300 2.07	51 2.00	175 6.89	84 3.31	84.5 3.33	67 2.64	1/2×75	UL
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	64 2.50	175 6.89	97.5 3.84	84.5 3.33	67 2.64	1/2×75	UL
100×65 4×76.1	114.3×76.1 4.500×3.000	300 2.07	70 2.75	175 6.89	104.5 4.11	98 3.86	67 2.64	1/2×75	UL
150×25 6×1	165.1×33.7 6.500×1.32	300 2.07	38 1.5	233 9.17	73 2.87	106 4.17	96.3 3.79	M14×82	—
150×32 6×1¼	165.1×42.4 6.500×1.669	300 2.07	51 2	235 9.25	109 4.29	125 4.92	96.3 3.79	M14×82	—
150×40 6×1½	165.1×48.3 6.500×1.900	300 2.07	51 2	233 9.17	86 3.39	106 4.17	96.3 3.79	M14×82	—
150×50 6×2	165.1×60.3 6.500×2.375	300 2.07	64 2.5	235 9.25	102 4.02	108 4.25	96.3 3.79	M14×82	—
150×65 6×2½	165.1×76.1 6.500×3.000	300 2.07	70 2.75	233 9.17	86 3.39	106 4.17	96.3 3.79	M14×82	—

4G

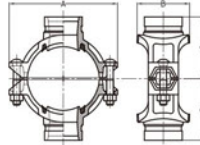
Mechanical Cross
Grooved Outlet



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
50X32	60.3X42.4	300	45	116	76	69.5	69.5	3/8×55	UL FM
2X11/4	2.375X1.660	2.07	1.75	4.57	2.99	2.74	2.74	M10X57	UL FM
50X40	60.3X48.3	300	45	116	76	69.5	69.5	3/8×55	UL FM
2X11/2	2.375X1.900	2.07	1.75	4.57	2.99	2.74	2.74	M10X57	UL FM
65X32	73.0X42.4	300	51	144	84.5	75	75	1/2×70	UL FM
2 1/2X1 1/4	2.875X1.669	2.07	2	5.67	3.33	2.95	2.95	M12X70	UL FM
65X25	76.1X33.7	300	38	137	71	78	78	1/2×70	UL FM
2 1/2X1	3.000X1.327	2.07	1.5	5.59	2.8	3.07	3.07	M12X70	UL FM
65X32	76.1X42.4	300	51	137	84.5	78	78	1/2×70	UL FM
2 1/2X1 1/4	3.000X1.669	2.07	2	5.39	3.33	3.07	3.07	M12X70	UL FM
80X25	88.9X33.7	300	38	152	72.5	84.5	84.5	1/2X75	—
3X1	3.500X1.327	2.07	1.5	5.98	2.85	3.33	3.33	M12X75	—
80X32	88.9X42.4	300	51	152	85.5	84.5	84.5	1/2×75	UL FM
3X1 1/4	3.500X1.669	2.07	2	5.98	3.37	3.33	3.33	M12X75	UL FM
80X40	88.9X48.3	300	51	152	85.5	84.5	84.5	1/2×75	UL FM
3X1 1/4	3.500X1.900	2.07	2	5.98	3.37	3.33	3.33	M12X75	UL FM
80X50	88.9X60.3	300	64	152	98	84.5	84.5	1/2×75	UL FM
3X2	3.500X2.375	2.07	2.50	5.98	3.86	3.33	3.33	M12X75	UL FM
100X25	114.3X33.7	300	38	188	78.4	102	102	1/2×75	—
4X1	4.500X1.327	2.07	1.5	7.4	3.09	4.02	4.02	M12X75	—
100X32	114.3X42.4	300	51	188	89	102	102	1/2×75	UL FM
4X1 1/4	4.500X1.669	2.07	2.00	7.40	3.50	4.02	4.02	M12X75	UL FM
100X40	114.3X48.3	300	51	188	89	102	102	1/2×75	UL FM
4X1 1/4	4.500X1.900	2.07	2.00	7.4	3.5	4.02	4.02	M12X75	UL FM
100X50	114.3X60.3	300	64	188	104.5	102	102	1/2×75	UL FM
4X2	4.500X2.375	2.07	2.5	7.4	4.11	4.02	4.02	M12X75	UL FM
100X65	114.3X76.1	300	70	188	104.5	102	102	1/2×75	UL FM
4X2 1/2	4.500X3.000	2.07	2.75	7.40	4.11	4.02	4.02	M12X75	UL FM
100X80	114.3X88.9	300	89	188	128	102	102	1/2X75	UL FM
4X3	4.500X3.500	2.07	3.50	7.40	5.03	4.02	4.02	M12X75	UL FM
125X50	139.7X60.3	300	64	221.5	112.5	118	118	5/8×85	UL FM
5X2	5.500X2.375	2.07	2.5	8.72	4.43	4.65	4.65	M16X85	UL FM
125X65	139.7X76.1	300	70	221.5	112.5	118	118	5/8×85	—
5X2 1/2	5.500X3.000	2.07	2.75	8.72	4.43	4.65	4.65	M16X85	—
125X80	139.7X88.9	300	89	221.5	132	118	118	5/8×85	UL FM
5X3	5.500X3.500	2.07	3.50	8.720	5.20	4.65	4.65	M16X85	UL FM
125X100	139.7X114.3	300	114	221.5	160	125	125	5/8×85	—
5X4	5.500X4.500	2.07	4.50	8.720	6.30	4.92	4.92	M16X85	—
150X50	165.1X60.3	300	64	244	112.5	127	127	5/8X105	UL FM
6X2	6.500X2.375	2.07	2.5	9.8	4.43	5	5	M18X105	UL FM
150X65	165.1X76.1	300	70	244	112.5	127	127	5/8X105	UL FM
6X2 1/2	6.500X3.000	2.07	2.75	9.8	4.43	5	5	M18X105	UL FM
150X80	165.1X88.9	300	89	244	132	141	141	5/8×105	UL FM
6X3	6.500X3.500	2.07	3.5	9.8	5.2	5.55	5.55	M18X105	UL FM
150X40	168.3X48.3	300	51	247	95	128	128	5/8×105	UL FM
6X1 1/4	6.625X1.900	2.07	2	9.72	3.74	5.04	5.04	M18X105	UL FM
150X50	168.3X60.3	300	64	247	114	134	134	5/8×105	UL FM
6X2	6.625X2.375	2.07	2.5	9.72	4.49	5.28	5.28	M18X105	UL FM
150X65	168.3X76.1	300	70	247	115	134	134	5/8×105	UL FM
6X2 1/2	6.625X2.875	2.07	2.75	9.72	4.53	5.28	5.28	M18X105	UL FM
150X80	168.3X88.9	300	89	247	132	141	141	5/8×105	UL FM
6X3	6.625X3.500	2.07	3.5	9.72	5.2	5.55	5.55	M18X105	UL FM
150X100	159.1X108.0	300	114	244	154	133	133	5/8×105	—
5 1/2X4	6.250X4.250	2.07	4.50	9.80	6.06	5.24	5.24	M18X105	—
150X100	159.1X114.3	300	114	244	159	125	125	5/8×105	—
5 1/2X4 1/2	6.250X4.500	2.07	4.50	9.80	6.26	4.92	4.92	M18X105	—
150X40	165.1X48.3	300	51	244	93	128.5	128.5	5/8×105	—
6 1/2X4 1/2	6.500X1.900	2.07	2.00	9.60	3.66	5.06	5.06	M18X105	—
150X100	165.1X114.3	300	114	244	154	135	135	5/8×105	—
6 1/2X4 1/2	6.500X4.500	2.07	4.50	9.60	6.06	5.32	5.32	M18X105	—
150X65	168.3X76.1	300	70	247	112.5	135	135	5/8×105	—
6X2 1/2	6.625X2.375	2.07	2.75	9.72	4.43	5.32	5.32	M18X105	—
150X100	168.3X114.3	300	114	247	168	138	138	5/8×105	UL FM
6X4	6.625X4.500	2.07	4.50	9.72	6.30	5.43	5.43	M18X105	UL FM
200X50	219.1X60.3	300	64	320	118	158	158	3/4×115	—
8X2	8.625X2.375	2.07	2.5	12.6	4.65	6.22	6.22	M20X115	—
200X65	219.1X76.1	300	70	320	118	158	158	3/4×115	—
8X2 1/2	8.625X3.000	2.07	2.75	12.6	4.65	6.22	6.22	M20X115	—
200X80	219.1X88.9	300	89	320	136.5	161	161	3/4×115	—
8X3	8.625X3.500	2.07	3.5	12.6	5.37	6.34	6.34	M20X115	—
200X100	219.1X108.0	300	114	320	162	161	161	3/4×115	—
8X4	8.625X4.250	2.07	4.50	12.60	6.38	6.34	6.34	M20X115	—
200X100	219.1X114.3	300	114	320	162	161	161	3/4×115	—
8X4	8.625X4.500	2.07	4.5	12.6	6.38	6.34	6.34	M20X115	—
250X65	273.0X76.1	300	70	376	118	189	189	3/4×120	—
10X2 1/2	10.750X3.000	2.07	2.75	14.8	4.65	7.44	7.44	M20X115	—
250X80	273.0X88.9	300	89	376	136.5	189	189	3/4×120	—
10X3	10.750X3.500	2.07	3.5	14.8	5.37	7.44	7.44	M20X115	—
250X100	273.0X108.0	300	114	376	164	189	189	3/4×115	—
10X4	10.750X4.250	2.07	4.50	14.80	6.46	7.44	7.44	M20X115	—
250X100	273.0X114.3	300	114	376	164	189	189	3/4×120	UL FM
10X4	10.750X4.500	2.07	4.5	14.8	6.46	7.44	7.44	M20X115	UL FM

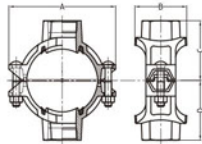
4GS

Light-duty
Mechanical Cross
Grooved Outlet



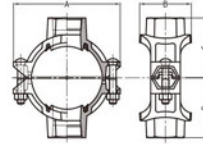
Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in
				A mm/in	B mm/in	C mm/in	D mm/in	
80×25 3×1	88.9×33.7 3.500×1.315	300 2.07	38 1.50	150 5.91	71.0 2.80	84 3.31	84 3.31	1/2×70 M12X76
80×32 3×1¼	88.9×42.4 3.500×1.660	300 2.07	51 2.00	150 5.91	84.5 3.33	84 3.31	84 3.31	1/2×70 M12X76
80×40 3×1½	88.9×48.3 3.500×1.900	300 2.07	51 2.00	150 5.91	84.5 3.33	84 3.31	84 3.31	1/2×70 M12X76
80×50 3×2	88.9×60.3 3.500×2.375	300 2.07	64 2.50	150 5.91	98 3.86	84 2.19	84 2.19	1/2×75 M12X76
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	38 1.50	178 7.01	77.5 3.05	98 3.86	98 3.86	1/2×70 M12X76
100×40 4×1½	114.3×48.3 4.500×1.900	300 2.07	51 2.00	178 7.01	88 3.46	98 3.86	98 3.86	1/2×70 M12X76
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	64 2.50	178 7.01	103.5 4.07	98 3.86	98 3.86	1/2×70 M12X76
100×65 4×2½	114.3×73.0 4.500×2.875	300 2.07	70 2.75	178 7.01	103.5 4.07	98 3.86	98 3.86	1/2×75 M12X76
100×65 4×76.1	114.3×76.1 4.500×3.000	300 2.07	70 2.75	178 7.01	103.5 4.07	98 3.86	98 3.86	1/2×75 M12X76
100×80 4×3	114.3×88.9 4.500×3.500	300 2.07	89 3.50	178 7.01	124 4.88	98 3.86	98 3.86	1/2×75 M12X76
125×50 139.7×2	139.7×60.3 5.500×2.375	300 2.07	64 2.50	210 8.27	110 4.33	113 4.45	113 4.45	5/8×85 M16X85
125×65 139.7×2½	139.7×76.1 5.500×3.000	300 2.07	70 2.75	210 8.27	110 4.33	113 4.45	113 4.45	5/8×85 M16X85
125×80 139.7×3	139.7×88.9 5.500×3.500	300 2.07	89 3.50	210 8.27	130 5.12	113 4.45	113 4.45	5/8×85 M16X85
125×100 139.7×4	139.7×114.3 5.500×4.500	300 2.07	114 4.50	210 8.27	153 6.02	115 4.52	115 4.52	5/8×85 M16X85
150×50 165.1×2	165.1×60.3 6.500×2.375	300 2.07	64 2.50	235 9.25	110 4.33	124.5 4.90	124.5 4.90	5/8×105 M18X108
150×65 165.1×2½	165.1×76.1 6.500×3.000	300 2.07	70 2.75	235 9.25	110 4.33	124.5 4.90	124.5 4.90	5/8×105 M18X108
150×80 165.1×3	165.1×88.9 6.500×3.500	300 2.07	89 3.50	235 9.25	130 5.12	124.5 4.90	124.5 4.90	5/8×105 M18X108
150×32 6×1¼	168.3×42.4 6.500×1.660	300 2.07	51 2.00	240 9.45	92.5 3.64	126 4.96	126 4.96	5/8×105 M18X108
150×40 6×1½	168.3×48.3 6.500×1.900	300 2.07	51 2.00	240 9.45	92.5 3.64	126 4.96	126 4.96	5/8×105 M18X108
150×50 6×2	168.3×60.3 6.625×2.375	300 2.07	64 2.50	240 9.45	110 4.33	126 4.96	126 4.96	5/8×105 M18X108
150×65 159.0×76.1	159.1×76.1 6.250×3.000	300 2.07	70 2.75	227 8.94	110 4.33	122.5 4.83	122.5 4.83	5/8×85 M16X108
150×65 6×2½	168.3×73.0 6.625×2.875	300 2.07	70 2.75	240 9.45	110 4.33	126 4.96	126 4.96	5/8×105 M18X108
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	89 3.50	240 9.45	130 5.12	126 4.96	126 4.96	5/8×105 M18X108
150×80 159.0×88.9	159.1×88.9 6.250×3.500	300 2.07	89 3.50	227 8.94	130 5.11	122.5 4.83	122.5 4.83	5/8×85 M16X108
150×100 159.0×108.0	159.1×108.0 6.250×4.250	300 2.07	114 4.50	227 8.94	155 6.10	122.5 4.83	122.5 4.83	5/8×85 M16X108
150×100 159.0×104	159.1×114.3 6.250×4.500	300 2.07	114 4.50	227 8.94	155 6.10	122.5 4.83	122.5 4.83	5/8×85 M16X108
150×32 165.1×1¼	165.1×42.4 6.500×1.315	300 2.07	51 2.00	235 9.25	92.5 3.64	124.5 4.90	124.5 4.90	5/8×105 M18X108
150×100 165.1×4	165.1×114.3 6.500×4.500	300 2.07	114 4.50	235 9.25	155 6.10	126 4.96	126 4.96	5/8×105 M18X108
150×100 6×4	168.3×114.3 6.625×4.500	300 2.07	114 4.50	240 9.45	155 6.10	128 5.04	128 5.04	5/8×105 M18X108
200×50 8×2	219.1×60.3 8.625×2.375	300 2.07	64 2.50	300 11.81	115 4.53	155 6.10	155 6.10	5/8×105 M18X108
200×65 8×76.1	219.1×76.1 8.625×3.000	300 2.07	70 2.75	300 11.81	115 4.53	155 6.10	155 6.10	5/8×105 M18X108
200×65 8×2½	219.1×73.0 8.625×2.875	300 2.07	70 2.75	300 11.81	117 4.60	155 6.10	155 6.10	5/8×105 M18X108
200×80 8×3	219.1×88.9 8.625×3.500	300 2.07	89 3.50	300 11.81	133.5 5.25	155 6.10	155 6.10	5/8×105 M18X108
200×100 8×4	219.1×114.3 8.625×4.500	300 2.07	114 4.50	300 11.81	159.5 6.29	160 6.30	160 6.30	5/8×105 M18X108

4J

Mechanical Cross
Threaded Outlet

Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
50×25	60.3×33.7	300	38	116	68	60	60	3/8×55	UL FM
2×1	2.375×1.315	2.07	1.50	4.57	2.68	2.36	2.36	M10X57	
50×32	60.3×42.4	300	45	116	76	65	65	3/8×55	UL FM
2×1 1/4	2.375×1.660	2.07	1.75	4.57	2.99	2.56	2.56	M10X57	
50×40	60.3×48.3	300	45	116	76	65	65	3/8×55	UL FM
2×1 1/2	2.375×1.900	2.07	1.75	4.57	2.99	2.56	2.56	M10X57	
65×20	73.0×26.9	300	38	137	71	68	68	1/2×70	—
2 1/2×3/4	2.875×1.050	2.07	1.50	5.39	2.80	2.68	2.68	M12X70	
65×25	73.0×33.7	300	38	137	71	70	70	1/2×70	UL FM
2 1/2×1	2.875×1.315	2.07	1.50	5.39	2.80	2.76	2.76	M12X70	
65×32	73.0×42.4	300	51	137	84.5	73	73	1/2×70	UL FM
2 1/2×1 1/4	2.875×1.660	2.07	2.00	5.39	3.33	2.87	2.87	M12X70	
65×15	76.1×21.3	300	38	137	71	61.5	61.5	1/2×70	UL FM
2 1/2×3/8	3.000×0.825	2.07	1.5	5.39	2.8	2.42	2.42	M12X70	
65×20	76.1×26.9	300	38	137	71	75	75	1/2×70	—
2 1/2×3/4	3.000×1.050	2.07	1.5	5.39	2.8	3.05	3.05	M12X70	
65×25	76.1×33.7	300	38	137	71	75	75	1/2×70	UL FM
2 1/2×1	3.000×1.327	2.07	1.5	5.39	2.8	3.05	3.05	M12X70	
65×32	76.1×42.4	300	51	137	84.5	75	75	1/2×70	UL FM
2 1/2×1 1/4	3.000×1.669	2.07	2.00	5.39	3.33	3.05	3.05	M12X70	
65×40	73.0×48.3	300	51	137	84.5	73	73	1/2×70	UL FM
2 1/2×1 1/2	2.875×1.900	2.07	2.00	5.39	3.33	2.87	2.87	M12X70	
65×40	76.1×48.3	300	51	137	84.5	75	75	1/2×70	UL FM
2 1/2×1 1/2	3.000×1.900	2.07	2.00	5.39	3.33	2.95	2.95	M12X70	
80×15	88.9×21.3	300	38	152	72.5	71.5	71.5	1/2×75	UL FM
3×3/8	3.500×0.825	2.07	1.5	5.98	2.85	2.81	2.81	M12X75	
80×20	88.9×26.9	300	38	152	72.5	71.5	71.5	1/2×75	—
3×3/4	3.500×1.059	2.07	1.5	5.98	2.85	2.81	2.81	M12X75	
80×25	88.9×33.7	300	38	152	72.5	80	80	1/2×75	UL FM
3×1	3.500×1.327	2.07	1.5	5.98	2.85	3.15	3.15	M12X75	
80×32	88.9×42.4	300	51	152	85.5	80	80	1/2×75	UL FM
3×1 1/4	3.500×1.669	2.07	2.00	5.98	3.37	3.15	3.15	M12X75	
80×40	88.9×48.3	300	51	152	85.5	80	80	1/2×75	UL FM
3×1 1/2	3.500×1.900	2.07	2.00	5.98	3.37	3.15	3.15	M12X75	
80×50	88.9×60.3	300	64	152	98	80	80	1/2×75	UL FM
3×2	3.500×2.375	2.07	2.50	5.98	3.86	3.15	3.15	M12X75	
100×25	108.0×33.7	300	38	172	78.5	87	87	1/2×75	—
108.0×1	4.250×1.315	2.07	1.50	6.77	3.09	3.43	3.43	M12X75	
100×32	108.1×42.4	300	51	172	89	87	87	1/2×75	UL FM
108.0×1 1/4	4.250×1.660	2.07	2.00	6.77	3.50	3.43	3.43	M12X75	
100×40	108.0×48.3	300	51	172	89	87	87	1/2×75	—
108.0×1 1/2	4.250×1.900	2.07	2.00	6.77	3.50	3.43	3.43	M12X75	
100×50	108.0×60.3	300	64	172	106.5	92	92	1/2×75	—
108.0×2	4.250×2.375	2.07	2.50	6.77	4.19	3.62	3.62	M12X75	
100×15	114.3×21.3	300	38	188	78.5	90	90	1/2×75	—
4×3/8	4.500×0.825	2.07	1.5	7.4	3.09	3.54	3.54	M12X75	
100×20	114.3×26.9	300	38	188	78.5	90	90	1/2×75	—
4×3/4	4.500×1.059	2.07	1.5	7.4	3.09	3.54	3.54	M12X75	
100×25	114.3×33.7	300	38	188	78.5	93	93	1/2×75	UL FM
4×1	4.500×1.327	2.07	1.5	7.4	3.09	3.66	3.66	M12X75	
100×32	114.3×42.4	300	51	188	89	95	95	1/2×75	UL FM
4×1 1/4	4.500×1.669	2.07	2.00	7.4	3.5	3.74	3.74	M12X75	
100×40	114.3×48.3	300	51	188	89	97	97	1/2×75	UL FM
4×1 1/2	4.500×1.900	2.07	2.00	7.4	3.5	3.82	3.82	M12X75	
100×50	114.3×60.3	300	64	188	104.5	100	100	1/2×75	UL FM
4×2	4.500×2.375	2.07	2.5	7.4	4.11	3.94	3.94	M12X75	
100×65	108.0×76.1	300	70	172	106.5	100	100	1/2×75	—
108.0×2 1/2	4.250×3.000	2.07	2.75	6.77	4.19	3.94	3.94	M12X75	
100×65	114.3×76.1	300	70	188	104.5	102	102	1/2×75	—
4×2 1/2	4.500×3.000	2.07	2.75	7.40	4.11	4.02	4.02	M12X75	
100×80	114.3×88.9	300	89	188	128	102	102	1/2×75	UL FM
4×3	4.500×3.500	2.07	3.50	7.40	5.039	4.02	4.02	M12X75	
125×32	133.0×42.4	300	51	209	93	105	105	5/8×85	—
133.0×1 1/4	5.250×1.660	2.07	2.00	8.23	3.66	4.13	4.13	M16X85	
125×40	133.0×48.3	300	51	209	93	105	105	5/8×85	—
133.0×1 1/2	5.250×1.900	2.07	2.00	8.23	3.66	4.13	4.13	M16X85	
125×50	133.0×60.3	300	64	209	112.5	110	110	5/8×85	—
133.0×2	5.250×2.375	2.07	2.50	8.23	4.43	4.33	4.33	M16X85	
125×25	139.7×33.7	300	38	221.5	78	110	110	5/8×85	UL FM
5×1	5.500×1.327	2.07	1.5	8.72	3.07	4.33	4.33	M16X85	

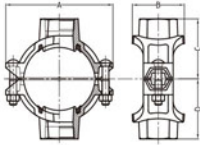
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Mechanical Cross
Threaded Outlet

Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6,0/+0.063,0	Dimensions				Bolt Size mm/in	Certificate
				A mm/in	B mm/in	C mm/in	D mm/in		
125×32	139.7×42.4	300	51	221.5	95	112	112	5/8×85	UL FM
5×1¼	5.500×1.669	2.07	2.00	8.72	3.74	4.41	4.41	M16X85	
125×40	139.7×48.3	300	51	221.5	95	112	112	5/8×85	UL FM
5×1½	5.500×1.900	2.07	2.00	8.72	3.74	4.41	4.41	M16X85	
125×50	139.7×60.3	300	64	221.5	112.5	115	115	5/8×85	UL FM
5×2	5.500×2.375	2.07	2.50	8.72	4.43	4.53	4.53	M16X85	
125×65	139.7×76.1	300	70	221.5	112.5	115	115	5/8×85	—
5×2½	5.500×3.000	2.07	2.75	8.72	4.43	4.53	4.53	M16X85	
125×80	139.7×88.9	300	89	221.5	132	120	120	5/8×85	UL FM
5×3	5.500×3.500	2.07	3.50	8.72	5.20	4.72	4.72	M16X85	
150×32	159.0×42.4	300	51	244	93	118	118	5/8×105	—
159.0×1¼	6.250×1.660	2.07	2.00	9.60	3.66	4.65	4.65	M16X105	
150×40	159.0×48.3	300	51	244	93	118	118	5/8×105	—
159.0×1½	6.250×1.900	2.07	2.00	9.60	3.66	4.65	4.65	M16X105	
150×50	159.0×60.3	300	64	244	112.5	125	125	5/8×105	—
159.0×2	6.250×2.375	2.07	2.50	9.60	4.43	4.92	4.92	M16X105	
150×65	159.0×76.1	300	70	244	112.5	125	125	5/8×105	—
159.0×2½	6.250×3.000	2.07	2.75	9.60	4.43	4.92	4.92	M16X105	
150×15	165.1×21.3	300	38	244	78	110	110	5/8×105	UL FM
6×¾	6.500×0.825	2.07	1.50	9.6	3.07	4.33	4.33	M16X105	
150×20	165.1×26.9	300	38	244	78	110	110	5/8×105	—
6×½	6.500×1.059	2.07	1.50	9.6	3.07	4.33	4.33	M16X105	
150×25	165.1×33.7	300	38	244	78	118	118	5/8×105	UL FM
6×1	6.500×1.327	2.07	1.50	9.6	3.07	4.65	4.65	M16X105	
150×32	165.1×42.4	300	51	244	93	118	118	5/8×105	UL FM
6×1¼	6.500×1.669	2.07	2.00	9.6	3.66	4.65	4.65	M16X105	
150×40	165.1×48.3	300	51	244	93	118	118	5/8×105	UL FM
6×1½	6.500×1.900	2.07	2.00	9.6	3.66	4.65	4.65	M16X105	
150×50	165.1×60.3	300	64	244	112.5	128.5	128.5	5/8×105	UL FM
6×2	6.500×2.375	2.07	2.50	9.6	4.43	5.43	5.43	M16X105	
150×65	165.1×76.1	300	70	244	112.5	128.5	128.5	5/8×105	—
6×2½	6.500×3.000	2.07	2.75	9.6	4.43	5.43	5.43	M16X105	
150×80	165.1×88.9	300	89	244	132	128.5	128.5	5/8×105	UL FM
6×3	6.500×3.500	2.07	3.5	9.6	5.2	5.06	5.06	M16X105	
150×32	168.3×42.4	300	51	247	95	130	130	5/8×105	UL FM
6×1¼	6.500×1.669	2.07	2.00	9.72	3.74	5.12	5.12	M16X105	
150×40	168.3×48.3	300	51	247	95	122	122	5/8×105	UL FM
6×1½	6.500×1.900	2.07	2.00	9.72	3.74	4.8	4.8	M16X105	
150×50	168.3×60.3	300	64	247	112.5	132	132	5/8×105	UL FM
6×2	6.625×2.375	2.07	2.5	9.72	4.43	5.2	5.2	M16X105	
150×65	168.3×73.0	300	70	247	112.5	132	132	5/8×105	UL FM
6×2½	6.625×2.875	2.07	2.75	9.72	4.43	5.2	5.2	M16X105	
150×80	168.3×88.9	300	89	247	132	140	140	5/8×105	UL FM
6×3	6.625×3.500	2.07	3.5	9.72	5.2	5.51	5.51	M16X105	
200×25	219.0×33.7	300	38	320	79.5	150	150	3/4×115	UL FM
8×1	8.625×1.327	2.07	1.5	12.60	3.13	5.91	5.91	M20X115	
200×32	219.1×42.4	300	51	320	96.5	150	150	3/4×115	—
8×1¼	8.625×1.669	2.07	2.00	12.60	3.8	5.91	5.91	M20X115	
200×40	219.1×48.3	300	51	320	96.5	150	150	3/4×115	—
8×1½	8.625×1.900	2.07	2.00	12.60	3.8	5.91	5.91	M20X115	
200×50	219.1×60.3	300	64	320	117	160	160	3/4×115	—
8×2	8.625×2.375	2.07	2.5	12.60	4.61	6.3	6.3	M20X115	
200×65	219.1×76.1	300	70	320	118	158.5	158.5	3/4×115	—
8×2½	8.625×3.000	2.07	2.75	12.60	4.65	6.24	6.24	M20X115	
200×80	219.1×88.9	300	89	320	136.5	160	160	3/4×115	—
8×3	8.625×3.500	2.07	3.5	12.60	5.37	6.3	6.3	M20X115	
200×100	219.1×114.3	300	114	320	164	160	160	3/4×115	—
8×4	8.625×4.500	2.07	4.5	12.60	6.46	6.3	6.3	M20X115	
250×40	273.0×48.3	300	51	376	95.5	180	180	3/4×120	—
10×1¼	10.750×1.900	2.07	2.00	14.8	3.76	7.09	7.09	M20X115	
250×50	273.0×60.3	300	64	376	118	185	185	3/4×120	—
10×2	10.750×2.375	2.07	2.5	14.8	4.65	7.28	7.28	M20X115	
250×65	273.0×76.1	300	70	376	118	190	190	3/4×120	—
10×2½	10.750×3.000	2.07	2.75	14.8	4.65	7.48	7.48	M20X115	
250×80	273.0×88.9	300	89	376	136.5	190	190	3/4×120	—
10×3	10.750×3.500	2.07	3.5	14.8	5.37	7.48	7.48	M20X115	
250×100	273.0×114.3	300	114	376	164	190	190	3/4×120	—
10×4	10.750×4.500	2.07	4.5	14.8	6.46	7.48	7.48	M20X115	

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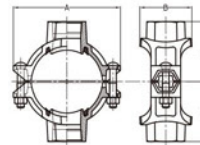
Light-duty
Mechanical Cross
Threaded Outlet



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6, 0/+0.063, 0	Dimensions				Bolt Size mm/in
				A mm/in	B mm/in	C mm/in	D mm/in	
80×15 3×1/2	88.9×21.3 3.500×0.825	300 2.07	38 1.50	150 5.91	71.0 2.80	68 2.68	68 2.68	1/2×75 M12X76
80×20 3×3/4	88.9×26.9 3.500×1.050	300 2.07	38 1.50	150 5.91	71.0 2.80	68 2.68	68 2.68	1/2×75 M12X76
80×25 3×1	88.9×33.7 3.500×1.315	300 2.07	38 1.50	150 5.91	71.0 2.80	71.0 2.80	71.0 2.80	1/2×75 M12X76
80×32 3×1 1/4	88.9×42.4 3.500×1.660	300 2.07	51 2.00	150 5.91	84.5 3.33	74 2.91	74 2.91	1/2×75 M12X76
80×40 3×1 1/2	88.9×48.3 3.500×1.900	300 2.07	51 2.00	150 5.91	84.5 3.33	74 2.91	74 2.91	1/2×75 M12X76
100×25 108.0×1	108.1×33.7 4.250×1.315	300 2.07	38 1.50	172 6.77	77.5 3.05	85 3.35	85 3.35	1/2×75 M12X76
100×32 108.0×1 1/4	108.1×42.4 4.250×1.660	300 2.07	51 2.00	172 6.77	88 3.46	85 3.35	85 3.35	1/2×75 M12X76
100×40 108.0×1 1/2	108.0×48.3 4.250×1.900	300 2.07	51 2.00	172 6.77	88 3.46	85 3.35	85 3.35	1/2×75 M12X76
100×50 108.0×2	108.0×60.3 4.250×2.375	300 2.07	64 2.50	172 6.77	103.5 4.19	89 3.50	89 3.50	1/2×75 M12X76
100×15 4×1/2	114.3×21.3 4.500×0.825	300 2.07	38 1.50	178 7.01	77.5 3.05	82 3.23	82 3.23	1/2×75 M12X76
100×20 4×3/4	114.3×26.9 4.500×1.050	300 2.07	38 1.50	178 7.01	77.5 3.05	82 3.23	82 3.23	1/2×75 M12X76
100×25 4×1	114.3×33.7 4.500×1.315	300 2.07	38 1.50	178 7.01	77.5 3.05	82 3.23	82 3.23	1/2×75 M12X76
100×32 4×1 1/4	114.3×42.4 4.500×1.660	300 2.07	51 2.00	178 7.01	88 3.46	89.5 3.53	89.5 3.53	1/2×75 M12X76
100×40 4×1 1/2	114.3×48.3 4.500×1.900	300 2.07	51 2.00	178 7.01	88 3.46	89.5 3.53	89.5 3.53	1/2×75 M12X76
100×50 4×2	114.3×60.3 4.500×2.375	300 2.07	64 2.50	178 7.01	103.5 4.07	92 3.62	92 3.62	1/2×75 M12X76
100×65 4×2 1/2	108.0×76.1 4.500×3.000	300 2.07	70 2.75	172 6.77	103.5 4.07	97.5 3.84	97.5 3.84	1/2×75 M12X76
100×32 4×1 1/4	114.3×42.4 4.500×1.660	300 2.07	51 2.00	178 7.01	88 3.46	89.5 3.53	89.5 3.53	1/2×75 M12X76
100×65 4X2 1/2	114.3×76.1 4.500×3.000	300 2.07	70 2.75	178 7.01	103.5 4.07	98 3.86	98 3.86	1/2×75 M12X76
100×80 4×3	114.3×88.9 4.500×3.500	300 2.07	89 3.50	178 7.01	124 4.88	98 3.86	98 3.86	1/2×75 M12X76
125×25 133.0×1	133.0×33.7 5.250×1.315	300 2.07	38 1.50	203 7.99	77 3.03	98 3.86	98 3.86	5/8×85 M16X85
125×32 133.0×1.25	133.0×42.4 5.250×1.660	300 2.07	51 2.00	203 7.99	91 3.58	102 4.01	102 4.01	5/8×85 M16X85
125×40 133.0×1 1/4	133.0×48.3 5.250×1.900	300 2.07	51 2.00	203 7.99	91 3.58	102 4.01	102 4.01	5/8×85 M16X85
125×50 133.0×2	133.0×60.3 5.250×2.375	300 2.07	64 2.50	203 7.99	110 4.33	105 4.13	105 4.13	5/8×85 M16X85
125×65 133.0×2 1/2	133.0×76.1 5.250×3.000	300 2.07	70 2.75	203 7.99	110 4.33	110 4.33	110 4.33	5/8×85 M16X85
125×25 139.7×1	139.7×33.7 5.500×1.315	300 2.07	38 1.50	210 8.27	77 3.03	100 3.94	100 3.94	5/8×85 M16X85
125×32 139.7×1 1/4	139.7×42.4 5.500×1.660	300 2.07	51 2.00	210 8.27	91 3.58	105 4.13	105 4.13	5/8×85 M16X85
125×40 139.7×1 1/2	139.7×48.3 5.500×1.900	300 2.07	51 2.00	210 8.27	91 3.58	105 4.13	105 4.13	5/8×85 M16X85
125×50 139.7×2	139.7×60.3 5.500×2.375	300 2.07	64 2.50	210 8.27	110 4.33	108 4.25	108 4.25	5/8×85 M16X85
125×65 139.7×2 1/2	139.7×76.1 5.500×3.000	300 2.07	70 2.75	210 8.27	110 4.33	115 4.53	115 4.53	5/8×85 M16X85
125×80 139.7×3	133.0×88.9 5.500×3.500	300 2.07	89 3.50	203 7.99	132 5.20	110 4.33	110 4.33	5/8X85 M16X85
125×80 139.7×3	139.7×88.9 5.500×3.500	300 2.07	89 3.50	210 8.27	130 5.12	115 4.53	115 4.53	5/8X85 M16X85
125×100 139.7×4	139.7×114.3 5.500×4.500	300 2.07	114 4.50	210 8.27	153 6.02	118 4.65	118 4.65	5/8X85 M16X85

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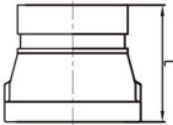
Light-duty
Mechanical Cross
Threaded Outlet



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Hole Dia mm/in +1.6, 0/+0.063, 0	Dimensions				Bolt Size mm/in
				A mm/in	B mm/in	C mm/in	D mm/in	
150×25 159.0×1	159.0×33.7 6.250×1.315	300 2.07	38 1.50	227 8.94	77 3.03	110 4.33	110 4.33	5/8×85 M16X85
150×32 159.0×1 1/4	159.0×42.4 6.250×1.660	300 2.07	51 2.00	227 8.94	92.5 3.64	112 4.41	112 4.41	5/8×85 M16X85
150×40 159.0×1 1/2	159.0×48.3 6.250×1.900	300 2.07	51 2.00	227 8.94	92.5 3.64	112 4.41	112 4.41	5/8×105 M16X108
150×50 159.0×2	159.0×60.3 6.250×2.375	300 2.07	64 2.50	227 8.94	110 4.33	116.5 4.59	116.5 4.59	5/8×105 M16X108
150×65 159.0×2 1/2	159.0×76.1 6.250×3.000	300 2.07	70 2.75	227 8.94	110 4.33	121.5 4.78	121.5 4.78	5/8×105 M16X108
150×80 159.0×3	159.0×88.9 6.250×3.500	300 2.07	89 3.50	227 8.94	130 5.12	123.5 4.86	123.5 4.86	5/8×105 M16X108
150×15 165.1×1/2	165.1×21.3 6.500×0.825	300 2.07	38 1.50	235 9.25	77 3.03	115 4.53	115 4.53	5/8×105 M16X108
150×20 165.1×1/4	165.1×26.9 6.500×1.050	300 2.07	38 1.50	235 9.25	77 3.03	115 4.53	115 4.53	5/8×105 M16X108
150×25 165.1×1/2	165.1×33.7 6.500×1.315	300 2.07	38 1.50	235 9.25	77 3.03	115 4.53	115 4.53	5/8×105 M16X108
150×32 165.1×1 1/4	165.1×42.4 6.500×1.660	300 2.07	51 2.00	235 9.25	92.5 3.64	115 4.53	115 4.53	5/8×105 M16X108
150×40 165.1×1 1/2	165.1×48.3 6.500×1.900	300 2.07	51 2.00	235 9.25	92.5 3.64	115 4.53	115 4.53	5/8×105 M16X108
150×50 165.1×2	165.1×60.3 6.500×2.375	300 2.07	64 2.50	235 9.25	110 4.33	120 4.72	120 4.72	5/8×105 M16X108
150×65 165.1×2 1/2	165.1×76.1 6.500×3.000	300 2.07	70 2.75	235 9.25	110 4.33	125 4.92	125 4.92	5/8×105 M16X108
150×80 165.1×3	165.1×88.9 6.500×3.500	300 2.07	89 3.50	235 9.25	130 5.12	125 4.92	125 4.92	5/8×105 M16X108
150×25 6×1	168.3×33.7 6.500×1.315	300 2.07	38 1.50	240 9.45	77 3.03	115 4.53	115 4.53	5/8×105 M16X108
150×32 6×1 1/4	168.3×42.4 6.500×1.660	300 2.07	51 2.00	240 9.45	92.5 3.64	115 4.53	115 4.53	5/8×105 M16X108
150×40 6×1 1/2	168.3×48.3 6.500×1.900	300 2.07	51 2.00	240 9.45	92.5 3.64	115 4.53	115 4.53	5/8×105 M16X108
150×50 6×2	168.3×60.3 6.625×2.375	300 2.07	64 2.50	240 9.45	110 4.33	121 4.76	121 4.76	5/8×105 M16X108
150×65 6×2 1/2	168.3×73.0 6.625×2.875	300 2.07	70 2.75	240 9.45	110 4.33	127 5.00	127 5.00	5/8×105 M16X108
150×80 6×3	168.3×88.9 6.625×3.500	300 2.07	89 3.50	240 9.45	130 5.12	127 5.00	127 5.00	5/8×105 M16X108
150×100 159.0×4	159.0×114.3 6.250×4.500	300 2.07	114 4.50	227 8.94	155 6.10	127 5.00	127 5.00	5/8×105 M16X108
150×100 165.1×4	165.1×114.3 6.500×4.500	300 2.07	114 4.50	235 9.25	155 6.10	130 5.12	130 5.12	5/8×105 M16X108
150×65 6×7/8	168.3×76.1 6.625×3.000	300 2.07	70 2.75	240 9.45	110.5 4.35	127 5.00	127 5.00	5/8×105 M16X108
150×100 6×4	168.3×114.3 6.625×4.500	300 2.07	114 4.50	240 9.45	155 6.10	130 5.12	130 5.12	5/8×105 M16X108
200×25 8×1	219.0×33.7 8.625×1.315	300 2.07	38 1.50	300 11.81	78 3.07	140 5.51	140 5.51	5/8×105 M16X108
200×32 8×1 1/4	219.1×42.4 8.625×1.660	300 2.07	51 2.00	300 11.81	93 3.66	140 5.51	140 5.51	5/8×105 M16X108
200×40 8×1 1/2	219.1×48.3 8.625×1.900	300 2.07	51 2.00	300 11.81	93 3.66	143 5.63	143 5.63	5/8×105 M16X108
200×50 8×2	219.1×60.3 8.625×2.375	300 2.07	64 2.50	300 11.81	115 4.53	149 5.87	149 5.87	5/8×105 M16X108
200×65 8×2 1/2	219.1×76.1 8.625×3.000	300 2.07	70 2.75	300 11.81	115 4.53	155 6.10	155 6.10	5/8×105 M16X108
200×80 8×3	219.1×88.9 8.625×3.500	300 2.07	89 3.50	300 11.81	133.5 5.25	155 6.10	155 6.10	5/8×105 M16X108
200×100 8×4	219.1×114.3 8.625×4.500	300 2.07	114 4.50	300 11.81	159.5 6.29	160 6.30	160 6.30	5/8×105 M16X108

220N

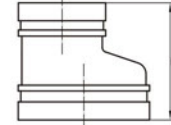
Grooved Concentric
with Female Thread



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
50 2	60.3 2.375	500 3.45	64 2.50	UL FM
65 2½	73.0 2.875	500 3.45	70 2.75	UL FM
80 3	88.9 3.500	500 3.45	70 2.75	UL FM
100 4	114.3 4.500	500 3.45	83 3.27	UL FM

230

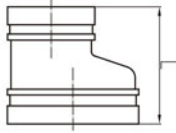
Grooved Eccentric
Reducer



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
40X32 1½X1¼	48.3X42.4 1.900X1.660	500 3.45	89 3.50	—
50X40 2X1½	60.3X48.3 2.375X1.900	500 3.45	89 3.50	—
80X50 3X2	88.9X60.3 3.500X2.375	500 3.45	89 3.50	UL FM
100X65 4X2½	108.0X76.1 4.250X3.000	500 3.45	102 4.00	UL FM
100X80 4X3	108.0X88.9 4.250X3.500	500 3.45	102 4.00	UL FM
100X50 4X2	114.3X60.3 4.500X2.000	500 3.45	102 4.00	UL FM
100X65 4X2½	114.3X76.1 4.500X3.000	300 2.07	102 4.00	UL FM
100X80 4X3	114.3X88.9 4.500X3.500	500 3.45	102 4.00	UL FM
125X100 5X4	139.7X114.3 5.500X4.500	300 2.07	127 5.00	UL FM
150X100 6X4	159.0X108.0 6.250X4.250	300 2.07	140 5.50	UL FM
150X100 6X4	159.0X114.3 6.250X4.500	300 2.07	140 5.50	UL FM
150X80 6X3	165.1X88.9 6.500X3.500	300 2.07	140 5.50	UL FM
150X100 6X4	165.1X114.3 6.500X4.500	300 2.07	140 5.50	UL FM
150X125 6X5	165.1X139.7 6.500X5.500	300 2.07	140 5.50	UL FM
150X80 6X3	168.3X88.9 6.625X3.500	300 2.07	140 5.50	UL FM
150X100 6X4	168.3X114.3 6.625X4.500	300 2.07	140 5.50	UL FM
150X125 6X5	168.3X139.7 6.625X5.500	300 2.07	140 5.50	UL FM
200X100 8X4	219.1X114.3 8.625X4.500	300 2.07	215 8.50	UL FM
200X150 8X6	219.1X159.0 8.625X6.250	300 2.07	215 8.50	UL FM
200X150 8X6	219.1X165.1 8.625X6.500	300 2.07	215 8.50	UL FM
200X150 8X6	219.1X168.3 8.625X6.625	300 2.07	215 8.50	UL FM
250X200 10X8	273.0X219.1 10.750X8.625	300 2.07	215 8.50	UL FM
350X150 14X6	355.6X168.3 14.000X6.625	300 2.07	330 12.99	—
350X200 14X8	355.6X219.1 14.000X8.625	300 2.07	330 12.99	—
350X250 14X10	355.6X273.0 14.000X10.750	300 2.07	330 12.99	—
350X300 14X12	355.6X323.9 14.000X12.750	300 2.07	330 12.99	—
400X200 16X8	406.4X219.1 16.000X8.625	300 2.07	356 14.02	—
400X250 16X10	406.4X273.0 16.000X10.750	300 2.07	356 14.02	—
400X300 16X12	406.4X323.9 16.000X12.750	300 2.07	356 14.02	—
400X350 16X14	406.4X355.6 16.000X14.000	300 2.07	356 14.02	—
450X150 18X6	457.2X168.3 18.000X6.625	300 2.07	381 15.00	—
450X250 18X10	457.2X273.0 18.000X10.750	300 2.07	381 15.00	—
450X300 18X12	457.2X323.9 18.000X12.750	300 2.07	381 15.00	—
450X350 18X14	457.2X355.6 18.000X14.000	300 2.07	381 15.00	—
450X400 18X16	457.2X406.4 18.000X16.000	300 2.07	381 15.00	—

230

Grooved Eccentric Reducer

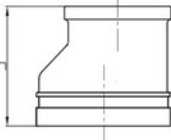
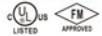


Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
500X300 20X12	508.0X323.9 20.000X12.750	300 2.07	508 20.00	—
500X350 20X14	508.0X355.6 20.000X14.000	300 2.07	508 20.00	—
500X400 20X16	508.0X406.4 20.000X16.000	300 2.07	508 20.00	—
500X450 20X18	508.0X457.2 20.000X18.000	300 2.07	508 20.00	—
600X400 24X16	609.6X406.4 24.000X16.000	300 2.07	508 20.00	—
600X450 24X18	609.6X457.2 24.000X18.000	300 2.07	508 20.00	—
600X500 24X20	609.6X508.0 24.000X20.000	300 2.07	508 20.00	—

Segmental sizes are made of carbon steel pipe or fabricated from wrought carbon steel. Contact manufacturer for details.

230N

Grooved Eccentric Reducer with Female Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
100X85 4X2 1/2	114.3X76.1 4.500X3.000	300 2.07	102 4.00	UL FM
125X80 5X3	139.7X88.9 5.500X3.500	300 2.07	127 5.00	UL FM
150X80 6X3	165.1X88.9 6.500X3.500	300 2.07	140 5.50	UL FM

240

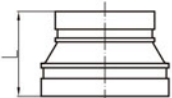
Grooved Concentric Reducer



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
32X25 1 1/4 X1	42.4X33.7 1.660X1.315	500 3.45	64 2.50	UL FM VdS LPCB
40X25 1 1/2 X1	48.3X33.7 1.900X1.315	500 3.45	64 2.50	UL FM VdS LPCB
40X32 1 1/2 X1 1/4	48.3X42.4 1.900X1.660	500 3.45	64 2.50	UL FM VdS LPCB
50X25 2 X1	60.3X33.7 2.375X1.315	500 3.45	64 2.50	UL FM VdS LPCB
50X32 2 X1 1/4	60.3X42.4 2.375X1.660	500 3.45	64 2.50	UL FM VdS LPCB
50X40 2 X1 1/2	60.3X48.3 2.375X1.900	500 3.45	64 2.50	UL FM VdS LPCB
65X25 2 1/2 X1	73.0X33.7 2.875X1.315	500 3.45	64 2.50	UL FM
65X32 2 1/2 X1 1/4	73.0X42.4 2.875X1.660	500 3.45	64 2.50	UL FM
65X40 2 1/2 X1 1/2	73.0X48.3 2.875X1.900	500 3.45	64 2.50	UL FM
65X50 2 1/2 X2	73.0X60.3 2.875X2.375	500 3.45	64 2.50	UL FM
65X25 2 1/2 X1	76.1 X33.7 3.000X1.315	500 3.45	64 2.50	UL FM VdS
65X32 2 1/2 X1 1/4	76.1X42.4 3.000X1.660	500 3.45	64 2.50	UL FM VdS LPCB
65X40 2 1/2 X1 1/2	76.1X48.3 3.000X1.900	500 3.45	64 2.50	UL FM VdS LPCB
65X50 2 1/2 X2	76.1X60.3 3.000X2.375	500 3.45	64 2.50	UL FM VdS LPCB
80X25 3 X1	88.9X33.7 3.500X1.315	500 3.45	64 2.50	UL FM VdS
80X32 3 X1 1/4	88.9X42.4 3.500X1.660	500 3.45	64 2.50	UL FM VdS
80X40 3 X1 1/2	88.9X48.3 3.500X1.900	500 3.45	64 2.50	UL FM VdS
80X50 3 X2	88.9X60.3 3.500X2.375	500 3.45	64 2.50	UL FM VdS LPCB
80X65 3 X2 1/2	88.9X73.0 3.500X2.875	500 3.45	64 2.50	UL FM
80X85 3 X2 1/2	88.9X76.1 3.500X3.000	500 3.45	64 2.50	UL FM VdS LPCB
100X50 4 X2	108.0X60.3 4.250X2.375	500 3.45	76 3.00	UL FM
100X65 4 X2 1/2	108.0X73.0 4.250X2.875	500 3.45	76 3.00	UL FM
100X85 4 X2 1/2	108.0X76.1 4.250X3.000	500 3.45	76 3.00	UL FM VdS
100X80 4 X3	108.0X88.9 4.250X3.500	500 3.45	76 3.00	UL FM
100X32 4 X1 1/4	114.3X42.4 4.500X1.660	500 3.45	76 3.00	UL FM
100X40 4 X1 1/2	114.3X48.3 4.500X1.900	500 3.45	76 3.00	UL FM VdS LPCB
100X50 4 X2	114.3X60.3 4.500X2.375	500 3.45	76 3.00	UL FM VdS LPCB
100X65 4 X2 1/2	114.3X73.0 4.500X2.875	500 3.45	76 3.00	UL FM
100X85 4 X2 1/2	114.3X76.1 4.500X3.000	500 3.45	76 3.00	UL FM VdS
100X80 4 X3	114.3X88.9 4.500X3.500	500 3.45	76 3.00	UL FM VdS LPCB
125X100 5 X4	133.0X108.0 5.250X4.250	500 3.45	89 3.50	UL FM
125X100 15 X4	133.0X114.3 5.250X4.500	500 3.45	89 3.50	UL FM
125X50 5 X2	139.7X60.3 5.500X2.375	500 3.45	89 3.50	UL FM
125X65 5 X2 1/2	139.7X76.1 5.500X3.000	500 3.45	89 3.50	UL FM VdS LPCB
125X80 5 X3	139.7X88.9 5.500X3.500	500 3.45	89 3.50	UL FM VdS

240

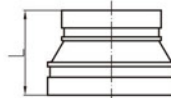
Grooved Concentric Reducer



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
125X100 5X4	139.7X114.3 5.500X4.500	500 3.45	89 3.50	UL FM VdS
125X85 5X2½	141.3X73.0 5.563X2.875	500 3.45	89 3.50	UL FM VdS LPCB
125X80 5X3	141.3X68.9 5.563X3.500	500 3.45	89 3.50	UL FM
125X100 5X4	141.3X114.3 5.563X4.500	500 3.45	89 3.50	UL FM
150X50 6X2	159.0X60.3 6.250X2.375	500 3.45	102 4.00	UL FM
150X85 6X2½	159.0X76.1 6.250X3.000	500 3.45	102 4.00	UL FM
150X80 6X3	159.0X68.9 6.250X3.500	500 3.45	102 4.00	UL FM
150X100 6X4	159.0X108 6.250X4.250	500 3.45	102 4.00	UL FM
150X100 6X4	159.0X114.3 6.250X4.500	500 3.45	102 4.00	UL FM
150X125 6X5	159.0X133.0 6.250X5.250	500 3.45	102 4.00	UL FM
150X50 6X2	165.1X60.3 6.500X2.375	500 3.45	102 4.00	FM
150X85 6X2½	165.1X76.1 6.500X3.000	500 3.45	102 4.00	FM
150X80 6X3	165.1X68.9 6.500X3.500	500 3.45	102 4.00	FM LPCB
150X100 6X4	165.1X108.0 6.500X4.250	500 3.45	102 4.00	UL FM
150X100 6X4	165.1X114.3 6.500X4.500	500 3.45	102 4.00	FM LPCB
150X125 6X5	165.1X139.7 6.500X5.500	500 3.45	102 4.00	FM LPCB
150X125 6X5	165.1X141.3 6.500X5.563	500 3.45	102 4.00	—
150X50 6X2	168.3X60.3 6.625X2.375	500 3.45	102 4.00	UL FM VdS
150X85 6X2½	168.3X73.0 6.625X2.875	500 3.45	102 4.00	UL FM
150X85 6X2½	168.3X76.1 6.625X3.000	500 3.45	102 4.00	FM VdS
150X80 6X3	168.3X68.9 6.625X3.500	500 3.45	102 4.00	UL FM VdS
150X100 6X4	168.3X114.3 6.625X4.500	500 3.45	102 4.00	UL FM VdS LPCB
150X125 6X5	168.3X139.7 6.625X5.500	500 3.45	102 4.00	FM VdS LPCB
150X125 6X5	168.3X141.3 6.625X5.563	500 3.45	102 4.00	UL FM
200X100 8X4	216.3X114.3 8.516X4.500	500 3.45	127 5.00	FM
200X150 8X6	216.3X165.1 8.516X6.500	500 3.45	127 5.00	FM
200X85 8X2½	219.1X73.0 8.625X2.875	500 3.45	127 5.00	UL FM
200X80 8X3	219.1X68.9 8.625X3.500	500 3.45	127 5.00	UL FM VdS LPCB
200X100 8X4	219.1X108.0 8.625X4.250	500 3.45	127 5.00	UL FM
200X100 8X4	219.1X114.3 8.625X4.500	500 3.45	127 5.00	UL FM VdS LPCB
200X125 8X5	219.1X139.7 8.625X5.500	500 3.45	127 5.00	FM VdS LPCB
200X125 8X5	219.1X141.3 8.625X5.563	500 3.45	127 5.00	UL FM
200X150 8X6	219.1X159.0 8.625X6.250	500 3.45	127 5.00	FM
200X150 8X6	219.1X165.1 8.625X6.500	500 3.45	127 5.00	FM
200X150 8X6	219.1X168.3 8.625X6.625	500 3.45	127 5.00	UL FM VdS LPCB

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Grooved Concentric Reducer

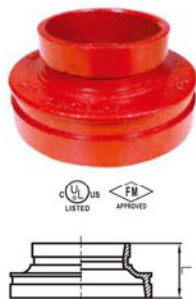


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
250X150 10X6	273.0X159.0 10.750X6.250	500 3.45	152 6.00	FM
250X150 10X6	273.0X165.1 10.750X6.500	500 3.45	152 6.00	FM
250X150 10X6	273.0X168.3 10.750X6.625	500 3.45	152 6.00	FM VdS
250X200 10X8	273.0X219.1 10.750X8.625	500 3.45	152 6.00	FM VdS
300X150 12X6	323.9X168.3 12.750X6.625	500 3.45	178 7.01	UL FM
300X200 12X8	323.9X219.1 12.750X8.625	500 3.45	178 7.00	FM VdS
300X250 12X10	323.9X273.0 12.750X10.750	500 3.45	178 7.00	FM VdS
350X125 14X5	377.0X133.0 14.850X5.250	300 2.07	127 5.00	—
350X150 14X6	377.0X159.0 14.850X6.250	300 2.07	127 5.00	—
350X150 14X6	355.6X168.3 14.000X6.625	300 2.07	330 12.99	—
350X200 14X8	355.6X219.1 14.000X8.625	300 2.07	203 7.99	—
350X250 14X10	355.6X273.0 14.000X10.750	300 2.07	203 7.99	—
350X300 14X12	355.6X323.9 14.000X12.750	300 2.07	203 7.99	—
400X200 16X8	436.4X219.1 16.000X8.625	300 2.07	229 9.00	—
400X250 16X10	436.4X273.0 16.000X10.750	300 2.07	229 9.00	—
400X300 16X12	436.4X323.9 16.000X12.750	300 2.07	229 9.00	—
400X350 16X14	436.4X355.6 16.000X14.000	300 2.07	229 9.00	—
450X150 18X6	457.2X168.3 18.000X6.625	300 2.07	381 15.00	—
450X250 18X10	457.2X273.0 18.000X10.750	300 2.07	381 15.00	—
450X300 18X12	457.2X323.9 18.000X12.750	300 2.07	241 9.50	—
450X350 18X14	457.2X355.6 18.000X14.000	300 2.07	241 9.50	—
450X400 18X16	457.2X406.4 18.000X16.000	300 2.07	241 9.50	—
500X200 20X8	530.0X219.1 20.866X8.625	300 2.07	135 5.31	—
500X300 20X12	508.0X323.9 20.000X12.750	300 2.07	254 10.00	—
500X350 20X14	508.0X355.6 20.000X14.000	300 2.07	254 10.00	—
500X400 20X16	508.0X406.4 20.000X16.000	300 2.07	254 10.00	—
500X450 20X18	508.0X457.2 20.000X18.000	300 2.07	254 10.00	—
600X400 24X16	609.6X406.4 24.000X16.000	300 2.07	305 12.00	—
600X450 24X18	609.6X457.2 24.000X18.000	300 2.07	305 12.00	—
600X500 24X20	609.6X508.0 24.000X20.000	300 2.07	305 12.00	—

Segmental sizes are made of carbon steel pipe or fabricated from wrought carbon steel. Contact manufacturer for details.

240X

Slim Type Grooved
Concentric Reducer



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
100X85 4X2½	114.3X76.1 4.500X3.000	300 2.07	57 2.25	UL FM
100X80 4X3	114.3X68.9 4.500X3.500	300 2.07	57 2.25	UL FM
125X100 5X4	139.7X114.3 5.500X4.500	300 2.07	60 2.36	UL FM
125X100 5X4	141.3X114.3 5.563X4.500	300 2.07	60 2.36	—
150X100 6X4	159.0X108 6.250X4.250	300 2.07	61 2.40	UL FM
150X100 6X4	159.0X114.3 6.250X4.500	300 2.07	61 2.40	UL FM
150X80 6X3	165.1X88.9 6.500X3.500	300 2.07	61 2.40	UL FM
150X100 6X4	165.1X114.3 6.500X4.500	300 2.07	64 2.50	UL FM
150X125 6X5	165.1X139.7 6.500X5.500	300 2.07	58 2.25	UL FM
150X80 6X3	168.3X88.9 6.625X3.500	300 2.07	61 2.40	—
150X100 6X4	168.3X114.3 6.625X4.500	300 2.07	61 2.40	UL FM
150X125 6X5	168.3X139.7 6.625X5.500	300 2.07	58 2.25	UL FM
150X125 6X5	168.3X141.3 6.625X5.563	300 2.07	58 2.25	—
200X100 8X4	219.1X114.3 8.625X4.500	300 2.07	66 2.60	UL FM
200X125 8X5	219.1X133.0 8.625X5.250	300 2.07	80 3.15	UL FM
200X150 8X6	219.1X165.1 8.625X6.500	300 2.07	66 2.60	UL FM
250X100 10X4	273.0X114.3 10.750X4.500	300 2.07	93 3.66	UL FM
250X200 10X8	273.0X219.1 10.750X8.625	300 2.07	77 3.03	UL FM
300X100 12X4	323.9X114.3 12.750X4.500	300 2.07	98 3.86	UL FM
300X150 12X6	323.9X159.0 12.750X6.250	300 2.07	98 3.86	UL FM
300X150 12X6	323.9X165.1 12.750X6.500	300 2.07	98 3.86	UL FM

240N

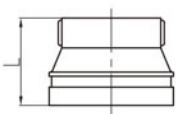
Grooved Concentric
Reducer with
Female Thread



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
42X25 1¼X1	42.4X33.7 1.660X1.315	500 3.45	64 2.50	—
48X25 1½X1	48.3X33.7 1.900X1.315	500 3.45	64 2.50	—
50X15 2X1½	60.3X21.3 2.375X0.825	500 3.45	64 2.50	UL FM VdS
50X20 2X3/4	60.3X26.9 2.375X1.05	500 3.45	64 2.50	UL FM VdS LPCB
50X25 2X1	60.3X33.7 2.375X1.315	500 3.45	64 2.50	UL FM VdS LPCB
50X32 2X1½	60.3X42.4 2.375X1.660	500 3.45	64 2.50	UL FM VdS LPCB
50X40 2X1½	60.3X48.3 2.375X1.900	500 3.45	64 2.50	UL FM VdS LPCB
65X25 2½X1	73.0X33.7 2.875X1.315	500 3.45	64 2.50	UL FM
65X25 2½X1½	73.0X42.4 2.875X1.660	500 3.45	64 2.50	UL FM
65X40 2½X1½	73.0X48.3 2.875X1.900	500 3.45	64 2.50	UL FM
65X50 2½X2	73.0X60.3 2.875X2.375	500 3.45	64 2.50	UL FM
65X15 2½X1½	76.1X21.3 3.000X0.825	500 3.45	64 2.50	UL FM VdS
65X20 2½X3/4	76.1X26.9 3.000X1.05	500 3.45	64 2.50	UL FM VdS
65X25 2½X1	76.1X33.7 3.000X1.315	500 3.45	64 2.50	UL FM VdS
65X32 2½X1½	76.1X42.4 3.000X1.660	500 3.45	64 2.50	UL FM VdS LPCB
65X40 2½X1½	76.1X48.3 3.000X1.900	500 3.45	64 2.50	UL FM VdS LPCB
65X50 2½X2	76.1X60.3 3.000X2.375	500 3.45	64 2.50	UL FM VdS LPCB
80X15 3X1½	88.9X21.3 3.500X0.825	500 3.45	64 2.50	UL FM VdS
80X20 3X3/4	88.9X26.9 3.500X1.05	500 3.45	64 2.50	UL FM VdS
80X25 3X1	88.9X33.7 3.500X1.315	500 3.45	64 2.50	UL FM VdS
80X32 3X1½	88.9X42.4 3.500X1.660	500 3.45	64 2.50	UL FM VdS
80X40 3X1½	88.9X48.3 3.500X1.900	500 3.45	64 2.50	UL FM VdS
80X50 3X2	88.9X60.3 3.500X2.375	500 3.45	64 2.50	UL FM VdS LPCB
80X65 3X2½	88.9X73.0 3.500X2.875	500 3.45	64 2.50	UL FM
80X85 3X2½	88.9X76.1 3.500X3.000	500 3.45	64 2.50	UL FM VdS LPCB
100X25 4X1	108.0X33.7 4.250X1.315	500 3.45	76 3.00	UL FM
100X32 4X1½	108.0X42.4 4.250X1.660	500 3.45	76 3.00	UL FM
100X40 4X1½	108.0X48.3 4.250X1.900	500 3.45	76 3.00	UL FM
100X50 4X2	108.0X60.3 4.250X2.375	500 3.45	76 3.00	UL FM
100X65 4X2½	108.0X76.1 4.250X3.000	500 3.45	76 3.00	UL FM
100X80 4X3	108.0X88.9 4.250X3.500	500 3.45	76 3.00	UL FM
100X15 4X1½	114.3X21.3 4.500X0.825	500 3.45	76 3.00	UL FM VdS
100X20 4X3/4	114.3X26.9 4.500X1.05	500 3.45	76 3.00	UL FM VdS
100X25 4X1	114.3X33.7 4.500X1.315	500 3.45	76 3.00	UL FM VdS
100X32 4X1½	114.3X42.4 4.500X1.660	500 3.45	76 3.00	UL FM VdS
100X40 4X1½	114.3X48.3 4.500X1.900	500 3.45	76 3.00	UL FM VdS LPCB
100X50 4X2	114.3X60.3 4.500X2.375	500 3.45	76 3.00	UL FM VdS LPCB
100X65 4X2½	114.3X73.0 4.500X2.875	500 3.45	76 3.00	UL FM
100X85 4X2½	114.3X76.1 4.500X3.000	500 3.45	76 3.00	UL FM VdS LPCB

240N

Grooved Concentric Reducer with Female Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
100X80 4X3	114.3X88.9 4.500X3.500	500 3.45	76 3.00	UL FM VdS LPCB
125X20 5X3/4	139.7X26.9 5.500X1.05	500 3.45	89	UL FM
125X40 5X1½	133.0X48.3 5.250X1.900	500 3.45	89 3.50	UL FM
125X40 5X2	133.0X60.3 5.250X2.375	500 3.45	89 3.50	FM
125X65 5X2½	133.0X76.1 5.250X3.000	500 3.45	89 3.50	UL FM
125X65 5X3	133.0X88.9 5.250X3.500	500 3.45	89 3.50	FM
125X25 5X1	139.7X33.7 5.500X1.315	500 3.45	89 3.50	UL FM VdS
125X32 5X1¼	139.7X42.4 5.500X1.660	500 3.45	89 3.50	UL FM VdS
125X40 5X1½	139.7X48.3 5.500X1.900	500 3.45	89 3.50	UL FM VdS
125X50 5X2	139.7X60.3 5.500X2.375	500 3.45	89 3.50	UL FM VdS
125X65 5X2½	139.7X76.1 5.500X3.000	500 3.45	89 3.50	UL FM VdS
125X80 5X3	139.7X88.9 5.500X3.500	500 3.45	89 3.50	UL FM VdS
125X100 5X4	139.7X114.3 5.500X4.500	500 3.45	89 3.50	UL FM VdS LPCB
125X100 5X4	141.3X114.3 5.563X4.500	500 3.45	89 3.50	UL FM
150X20 6X3/4	159.0X26.9 6.250X1.05	500 3.45	102 4.00	UL FM
150X25 6X1	159.0X33.7 6.250X1.315	500 3.45	102 4.00	UL FM
150X32 6X1¼	159.0X42.4 6.250X1.660	500 3.45	102 4.00	UL FM
150X40 6X1½	159.0X48.3 6.250X1.900	500 3.45	102 4.00	UL FM
150X50 6X2	159.0X60.3 6.250X2.375	500 3.45	102 4.00	UL FM
150X65 6X2½	159.0X76.1 6.250X3.000	500 3.45	102 4.00	UL FM
150X80 6X3	159.0X88.9 6.250X3.500	500 3.45	102 4.00	UL FM
150X100 6X4	159.0X114.3 6.250X4.500	500 3.45	102 4.00	UL FM
150X15 6X1/2	165.1X21.3 6.500X0.825	500 3.45	102 4.00	UL FM
150X20 6X3/4	165.1X26.9 6.500X1.05	500 3.45	102 4.00	UL FM
150X25 6X1	165.1X33.7 6.500X1.315	500 3.45	102 4.00	UL FM
150X32 6X1¼	165.1X42.4 6.500X1.660	500 3.45	102 4.00	UL FM
150X40 6X1½	165.1X48.3 6.500X1.900	500 3.45	102 4.00	UL FM
150X50 6X2	165.1X60.3 6.500X2.375	500 3.45	102 4.00	UL FM
150X65 6X2½	165.1X76.1 6.500X3.000	500 3.45	102 4.00	UL FM
150X80 6X3	165.1X88.9 6.500X3.500	500 3.45	102 4.00	UL FM LPCB
150X100 6X4	165.1X114.3 6.500X4.500	500 3.45	102 4.00	UL FM
150X25 6X1	168.3X33.7 6.625X1.315	500 3.45	102 4.00	UL
150X50 6X2	168.3X60.3 6.625X2.375	500 3.45	102 4.00	UL FM VdS
200X40 8X1½	219.1X48.3 8.625X1.900	500 3.45	127 5.00	UL FM
200X50 8X2	219.1X60.3 8.625X2.375	500 3.45	127 5.00	UL FM VdS
200X65 8X2½	219.1X76.1 8.625X3.000	500 3.45	127 5.00	UL FM VdS
200X80 8X3	219.1X88.9 8.625X3.500	500 3.45	127 5.00	UL FM VdS LPCB
200X100 8X4	219.1X114.3 8.625X4.500	500 3.45	127 5.00	UL FM

240NX

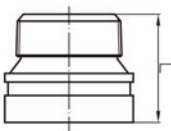
Slim Type Grooved Concentric Reducer with Female Thread



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimension L mm/in	Certificate
65X50 2½X2	76.1X60.3 3.000X2.375	300 2.07	47.5 1.87	UL FM
80X50 3X2	88.9X60.3 3.500X2.375	300 2.07	47.5 1.87	UL FM
80X65 3X2½	88.9X76.1 3.500X3.000	300 2.07	53 2.09	UL FM
100X65 4X2½	108.0X76.1 4.250X3.000	300 2.07	54 2.13	UL FM
100X80 4X3	108.0X88.9 4.250X3.500	300 2.07	56 2.20	UL FM
100X40 4X1½	114.3X48.3 4.500X1.900	300 2.07	48 1.89	UL FM
100X50 4X2	114.3X60.3 4.500X2.375	300 2.07	49 1.93	UL FM
100X65 4X2½	114.3X76.1 4.500X3.000	300 2.07	54 2.13	UL FM
100X80 4X3	114.3X88.9 4.500X3.500	300 2.07	56 2.20	UL FM
150X80 6X3	159.0X88.9 6.250X3.500	300 2.07	56 2.20	FM
150X100 6X4	159.0X114.3 6.250X4.500	300 2.07	57 2.24	FM
150X50 6X2	165.1X60.3 6.500X2.375	300 2.07	51 2.01	UL FM
150X65 6X2½	165.1X76.1 6.500X3.000	300 2.07	54 2.13	UL FM
150X80 6X3	165.1X88.9 6.500X3.500	300 2.07	56 2.20	UL FM
150X100 6X4	165.1X114.3 6.500X4.500	300 2.07	57 2.24	UL FM
200X25 8X1	219.1X33.7 8.625X1.315	300 2.07	80 3.15	UL FM

240W

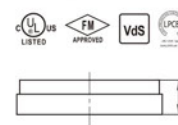
Grooved Concentric Reducer with Male Thread



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
50X25 2X1	60.3X33.7 2.375X1.315	500 3.45	64 2.50	UL
50X32 2X1½	60.3X42.4 2.375X1.660	500 3.45	64 2.50	UL
50X40 2X1½	60.3X48.3 2.375X1.900	500 3.45	64 2.50	UL
65X25 2½X1	73.0X33.7 2.875X1.315	500 3.45	64 2.50	UL
65X32 2½X1½	73.0X42.4 2.875X1.660	500 3.45	64 2.50	UL
65X40 2½X1½	73.0X48.3 2.875X1.900	500 3.45	64 2.50	UL
65X50 2½X2	73.0X60.3 2.875X2.375	500 3.45	64 2.50	UL FM
65X50 2½X2	76.1X60.3 3.000X2.375	500 3.45	64 2.50	UL FM
80X25 3X1	88.9X33.7 3.500X1.315	500 3.45	64 2.50	UL FM
80X40 3X1½	88.9X48.3 3.500X1.900	500 3.45	64 2.50	UL
80X50 3X2	88.9X60.3 3.500X2.375	500 3.45	64 2.50	UL
80X65 3X2½	88.9X73.0 3.500X2.875	500 3.45	64 2.50	UL
100X25 4X1	114.3X33.7 4.500X1.315	500 3.45	76.1 3.000	UL
100X40 4X1½	114.3X48.3 4.500X1.900	500 3.45	76.1 3.000	UL
100X50 4X2	114.3X60.3 4.500X2.375	500 3.45	76 3.00	UL FM
100X65 4X2½	114.3X73.0 4.500X2.875	500 3.45	76.1 3.000	UL
100X80 4X3	114.3X88.9 4.500X3.500	500 3.45	76.1 3.000	UL

300

Cap



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
25 1	33.7 1.315	500 3.45	22.1 0.87	UL VdS LPCB
32 1¼	42.4 1.660	500 3.45	23.5 0.93	UL FM VdS LPCB
40 1½	48.3 1.900	500 3.45	23.5 0.93	UL FM VdS LPCB
50 2	60.3 2.375	500 3.45	23.5 0.93	UL FM VdS LPCB
65 2½	73.0 2.875	500 3.45	23.5 0.93	UL FM
65 2½	76.1 3.000	500 3.45	24.5 0.96	UL FM VdS LPCB
80 3	88.9 3.500	500 3.45	24 0.94	UL FM VdS LPCB
100 4	108.0 4.250	500 3.45	27 1.06	UL
100 4	114.3 4.500	500 3.45	27 1.06	UL FM VdS LPCB
25 1	133.0 5.250	500 3.45	25.5 1.00	UL
125 5	139.7 5.500	500 3.45	25.5 1.00	UL FM VdS LPCB
125 5	141.3 5.563	500 3.45	25.5 1.00	UL FM
150 6	159.0 6.250	500 3.45	27 1.06	UL
150 6	165.1 6.500	500 3.45	27 1.06	UL FM LPCB
150 6	168.3 6.625	500 3.45	24.5 0.97	UL FM VdS LPCB
200 8	216.3 8.516	500 3.45	30 1.18	UL
200 8	219.1 8.625	500 3.45	30 1.18	UL FM VdS LPCB
250 10	273.0 10.750	500 3.45	32 1.26	UL FM VdS LPCB
300 12	318.5 12.539	500 3.45	32 1.26	—
300 12	323.9 12.750	500 3.45	32 1.26	UL FM VdS LPCB
350 14	355.6 14.000	300 2.07	165 6.50	—
400 16	406.4 16.000	300 2.07	178 7.00	—
450 18	457.2 18.000	300 2.07	203 8.00	—
500 20	508.0 20.000	300 2.07	229 9.00	—
600 24	609.6 24.000	300 2.07	267 10.50	—

Segmental sizes are made of carbon steel pipe or fabricated from wrought carbon steel. Contact manufacturer for details.

300

Cap with Concentric Hole



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
50X25 2X1	60.3X33.7 2.375X1.315	500 3.45	23.5 0.93	VdS
65X25 2½X1	76.1X33.7 3.000X1.315	500 3.45	24.5 0.96	—
65X40 2½X1½	76.1X48.3 3.000X1.900	500 3.45	23.5 0.925	UL
65X50 2½X2	76.1X60.3 3.000X2.375	500 3.45	24 0.94	VdS
80X15 3X1/2	88.9X21.3 3.500X0.825	500 3.45	25.4 1.00	UL FM
80X25 3X1	88.9X33.7 3.500X1.315	500 3.45	24 0.94	UL FM
80X40 3X1½	88.9X48.3 3.500X1.900	500 3.45	23.5 0.925	UL FM
80X50 3X2	88.9X60.3 3.500X2.375	500 3.45	23.5 0.925	UL VdS
100X15 4X1/2	114.3X21.3 4.500X0.825	500 3.45	27.0 1.06	UL
100X25 4X1	114.3X33.7 4.500X1.315	500 3.45	27.0 1.06	UL
100X40 4X1½	114.3X48.3 4.500X1.900	500 3.45	25.4 1.00	UL
100X50 4X2	114.3X60.3 4.500X2.375	500 3.45	25.4 1.00	UL
125X50 5X2	139.7X60.3 5.500X2.375	500 3.45	27 1.06	UL
150X15 6X1/2	165.1X21.3 6.500X0.825	500 3.45	27 1.06	UL
150X15 6X1/2	168.3X21.3 6.625X0.825	500 3.45	25.4 1.00	UL FM
150X25 6X1	159.0X33.7 6.250X1.315	500 3.45	27 1.06	—
150X25 6X1	165.1X33.7 6.500X1.315	500 3.45	27 1.06	UL
150X25 6X1	168.3X33.7 6.625X1.315	500 3.45	25.4 1.00	—
150X50 6X2	165.1X60.3 6.500X2.375	500 3.45	27 1.06	UL
150X40 6X1½	168.3X48.3 6.625X1.900	500 3.45	27 1.06	UL
150X50 6X2	168.3X60.3 6.625X2.375	500 3.45	27 1.06	UL FM
200X25 8X1	219.1X33.7 8.625X1.315	500 3.45	30 1.18	UL FM

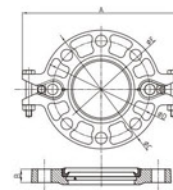
300PX

Cap with Eccentric Hole



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions L mm/in	Certificate
65X25 2½X1	76.1X33.7 3.000X1.315	500 3.45	23.5 0.925	UL FM VdS
65X40 2½X1½	76.1X48.3 3.000X1.900	500 3.45	23.5 0.925	VdS
80X25 3X1	88.9X33.7 3.500X1.315	500 3.45	23.5 0.925	VdS
80X40 3X1½	88.9X48.3 3.500X1.900	500 3.45	23.5 0.925	UL FM VdS
80X50 3X2	88.9X60.3 3.500X2.375	500 3.45	23.5 0.925	UL FM VdS
100X25 4X1	114.3X33.7 4.500X1.315	500 3.45	27 1.06	UL FM
100X40 4X1½	114.3X48.3 4.500X1.900	500 3.45	25.4 1.00	UL FM VdS
100X50 4X2	114.3X60.3 4.500X2.375	500 3.45	25.4 1.00	UL FM VdS
125X25 5X1	139.7X33.7 5.500X1.315	500 3.45	27.3	—
125X40 5X1½	139.7X48.3 5.500X1.900	500 3.45	25.4 1.00	UL FM VdS
125X50 5X2	139.7X60.3 5.500X2.375	500 3.45	25.4 1.00	UL FM VdS
150X40 6X1½	165.1X48.3 6.500X1.900	500 3.45	25.4 1.00	UL FM
150X40 6X1½	168.3X48.3 6.625X1.900	500 3.45	25.4 1.00	UL FM VdS
150X50 6X2	168.3X60.3 6.625X2.375	500 3.45	25.4 1.00	UL FM VdS
200X40 8X1½	219.1X48.3 8.625X1.900	500 3.45	30.2 1.19	UL FM VdS
200X50 8X2	219.1X60.3 8.625X2.375	500 3.45	30.2 1.19	UL FM VdS
250X40 10X1½	273.0X48.3 10.750X1.900	500 3.45	33.1	—
300X40 12X1½	323.0X48.3 12.750X1.900	500 3.45	31.2	—

321E BS.TABLE'E' Grooved Flange

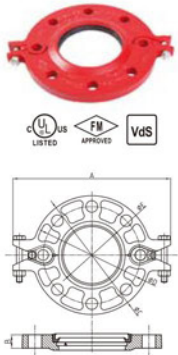


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions					Bolt/Nut		Certificate
			A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	No.-SIZE mm/in		
50 2	60.3 2.375	300 2.07	211 8.31	18.5 0.73	150 5.91	114 4.49	57.5 2.26	2-M10X50	4-M16	UL FM
80 3	88.9 3.500	300 2.07	241 9.49	18.5 0.73	185 7.28	146 5.75	85.5 3.37	2-M10X50	4-M16	UL FM
100 4	114.3 4.500	300 2.07	270 10.63	18.5 0.73	216 8.50	178 7.00	110.5 4.35	2-M10X50	8-M16	UL FM
150 6	165.1 6.500	300 2.07	346 13.62	21.5 0.85	280 11.02	235 9.25	160.8 6.33	2-M12X65	8-M20	UL FM
200 8	219.1 8.625	300 2.07	408 16.06	24 0.94	335 13.19	292 11.50	214.9 8.46	2-3/8X70	8-M20	UL FM
250 10	273.0 10.750	200 1.4	480 18.90	25.5 1.00	406 16.00	356 14.00	268.9 10.59	—	12-3/4	—
300 12	323.9 12.750	200 1.4	530.5 20.88	25.5 1.00	457 18.00	406 16.00	318.9 12.56	—	12-7/8	—
350 14	355.6 14.000	200 1.4	580 22.83	32 1.26	527 20.75	470 18.50	350.6 13.80	—	12-7/8	—
400 16	406.4 16.000	200 1.4	630 24.80	32 1.26	578 22.76	521 20.51	401.5 15.81	—	12-7/8	—
450 18	457.2 18.000	200 1.4	693 27.28	36 1.42	641 25.24	584 23.00	452.2 17.80	—	16-7/8	—
500 20	508.0 20.000	200 1.4	770 30.31	38 1.50	705 27.76	641 25.24	503 19.80	—	16-7/8	—
600 24	609.6 24.000	200 1.4	880 34.65	42 1.65	826 32.52	756 29.76	601.6 23.69	—	16-11/8	—

321

PN16

Grooved Flange

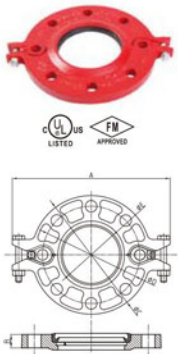


Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions					Bolt/Nut		Certificate
			A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	No.-SIZE mm/in		
40	48.3	300	195	18.5	150	110	45.4	2-M10X50	4-M16	UL FM VdS LPCB
1 1/2	1.900	2.07	7.69	0.73	5.90	4.33	1.78			
50	60.3	300	220	18.5	165	125	57.5	2-M10X50	4-M16	UL FM VdS LPCB
2	2.375	2.07	8.66	0.73	6.50	4.92	2.29			
65	76.1	300	235	18.5	185	145	72.7	2-M10X50	4-M16	UL FM VdS LPCB
2 1/2	3.000	2.07	9.25	0.73	7.29	5.71	2.86			
80	88.9	300	255	18.5	195	160	85.5	2-M10X50	8-M16	UL FM VdS LPCB
3	3.500	2.07	10.04	0.73	7.68	6.30	3.37			
100	108.0	300	279	18.5	220	180	104.5	2-M10X50	8-M16	UL FM
4	4.250	2.07	10.98	0.73	8.66	7.09	4.11			
100	114.3	300	279	18.5	224	180	110.5	2-M10X50	8-M16	UL FM VdS LPCB
4	4.500	2.07	10.98	0.73	8.82	7.09	4.35			
125	133.0	300	312	21.5	250	210	129.2	2-M12X85	8-M16	UL FM
5	5.250	2.07	12.28	0.85	9.84	8.27	5.08			
125	139.7	300	320	23	250	210	135.5	2-M12X85	8-M16	UL FM VdS LPCB
5	5.500	2.07	12.60	0.91	9.84	8.27	5.33			
150	159.0	300	346	21.5	280	240	154.8	2-M12X85	8-M20	UL FM
6	6.25	2.07	13.62	0.85	11.00	9.45	6.10			
150	165.1	300	346	21.5	280	240	160.8	2-M12X85	8-M20	UL FM LPCB
6	6.500	2.07	13.62	0.85	11.00	9.45	6.33			
150	168.3	300	346	24	280	240	164.3	2-M12X85	8-M20	UL FM VdS LPCB
6	6.625	2.07	13.62	0.94	11.00	9.45	6.47			
200	219.1	300	414.3	30	340	295	214.9	2-3/8X70	12-M20	UL FM VdS LPCB
8	8.625	2.07	16.31	1.18	13.39	11.61	8.46	2-M10X70		
250	273.0	300	480	25.5	405	355	268.9	2-3/8X70	12-M24	UL FM VdS
10	10.750	2.07	18.90	1.00	15.94	13.98	10.59	2-M10X70		
300	323.9	300	530.5	25.5	460	410	318.9	2-3/8X70	12-M24	UL FM
12	12.750	2.07	20.88	1.00	18.11	16.14	12.56	2-M10X70		
350	355.6	300	580	30	520	470	350.6	—	16-M24	UL
14	14.000	2.07	22.83	1.18	20.47	18.50	13.80			
400	406.4	300	630	32	580	525	401.5	—	16-M27	—
16	16.000	2.07	24.80	1.26	22.83	20.67	15.81			
450	457.2	300	693	36	640	585	452.2	—	20-M27	—
18	18.000	2.07	27.28	1.42	25.20	23.03	17.80			
500	508.0	300	770	36	715	650	503	—	20-M30	—
20	20.000	2.07	30.31	1.42	28.15	25.59	19.80			
600	609.6	300	895	40	840	770	601.6	—	20-M33	—
24	24.000	2.07	35.24	1.57	33.07	30.31	23.69			

321H

PN25

Grooved Flange

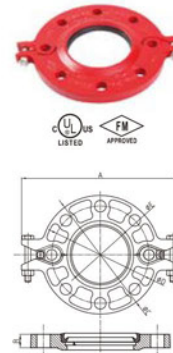


Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions					Bolt/Nut		Certificate
			A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	No.-SIZE mm/in		
100	108.0	362	290	21.5	230	190	104.5	2-M10X50	8-M20	—
108.0	4.250	2.5	11.41	0.85	9.06	7.48	4.11			
150	165.1	362	365	21.5	300	250	160.8	2-M12X85	8-M24	UL
165.1	6.500	2.5	14.37	0.85	11.80	9.84	6.33			

321A

ANSI 125/150

Grooved Flange

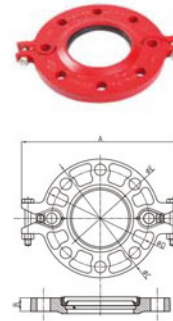


Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions					Bolt/Nut		Certificate
			A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	No.-SIZE mm/in		
50	60.3	300	206	19	152	121	57.5	2-M10X50	4-5/8	UL
2	2.375	2.07	8.11	0.75	5.98	4.76	2.26			
65	73.0	300	230	19	178	140	69.8	2-M10X50	4-5/8	UL
2 1/2	2.875	2.07	9.05	0.75	7.00	5.51	2.74			
65	76.1	300	230	19	178	140	72.7	2-M10X50	4-5/8	—
2 1/2	3.000	2.07	9.05	0.75	7.00	5.51	2.86			
80	88.9	300	246	19	191	152	85.5	2-M10X50	4-5/8	UL
3	3.500	2.07	9.68	0.75	7.52	5.98	3.37			
100	114.3	300	280	19	229	191	110.5	2-M12X55	8-5/8	UL
4	4.500	2.07	11.02	0.75	9.00	7.52	4.35			
125	141.3	250	320	22	254	216	137.4	2-M12X85	8-3/4	UL
5	5.563	1.71	12.60	0.87	10.00	8.50	5.41			
150	168.3	300	346	24	280	241.3	164.3	2-M12X85	8-3/4	—
6	6.625	2.07	13.62	0.94	11.00	9.50	6.47			
200	219.1	250	414.3	30	341.4	298.5	214.9	2-3/8X70	8-3/4	UL
8	8.625	1.71	16.31	1.18	13.44	11.75	8.46	2-M10X70		
250	273.0	250	481.2	30.3	405.6	361.95	268.9	2-3/8X70	12-7/8	UL
10	10.750	1.71	18.94	1.19	15.97	14.25	10.59	2-M10X70		
300	323.9	250	553.3	30.4	482.6	431.8	318.9	2-3/8X70	12-7/8	UL
12	12.750	1.71	21.78	1.20	19.00	17.00	12.56	2-M10X70		
350	355.6	300	590	37	535	476.3	350.6	—	12-1	UL
14	14.000	2.0	23.22	1.44	21.00	18.75	13.80			
400	406.4	300	650	37	595	539.8	401.5	—	16-1	—
16	16.000	2.0	25.59	1.44	23.50	21.25	15.81			
450	457.2	300	690	40	635	577.8	452.2	—	16-11/8	—
18	18.000	2.0	27.17	1.56	25.80	22.75	17.80			
500	508.0	300	765	43	700	635	503	—	20-11/8	—
20	20.000	2.0	30.12	1.69	27.50	25.00	19.80			
600	609.6	300	875	49	815	749.3	601.6	—	20-11/4	—
24	24.000	2.0	34.45	1.94	32.00	29.50	23.69			

321AH

ANSI 300

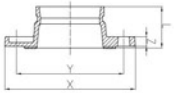
Grooved Flange



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions					Bolt/Nut		Certificate
			A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	No.-SIZE mm/in		
65	73.0	500	244	24.6	190	149.2	69.1	2-M12X85	8-3/4	—
2 1/2	2.875	3.45	9.61	0.97	7.48	5.87	2.72			
80	88.9	500	274	28	210	168.3	84.9	2-M12X85	8-3/4	UL
3	3.500	3.45	10.79	1.10	8.27	6.625	3.34			
100	114.3	500	310	31.5	255	200	110.1	2-M12X85	8-3/4	UL
4	4.500	3.45	12.2	1.24	10.04	7.87	4.33			
150	168.3	500	388	35.5	320	269.9	163.9	2-M12X85	12-3/4	UL
6	6.625	3.45	15.28	1.40	12.6	10.625	6.45			
200	219.1	500	470.4	41	380	330.2	214.9	2-1/2X75	12-7/8	UL
8	8.625	3.45	18.52	1.61	14.96	13	8.46			

321G PN16

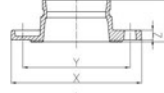
Adaptor Flange



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
25 1	33.7 1.327	300 2.0	60.5 2.382	115 4.53	85 3.35	16 0.63	4-M12	UL FM VdS LPCB
32 1¼	42.4 1.669	300 2.0	60.5 2.382	140 5.51	100 3.94	16 0.63	4-M16	UL FM VdS LPCB
40 1½	48.3 1.902	300 2.0	60.5 2.382	150 5.91	110 4.33	16 0.63	4-M16	UL FM VdS LPCB
50 2	57.0 2.244	300 2.07	65 2.559	165 6.50	125 4.92	16 0.63	4-M16	—
50 2	60.3 2.375	500 3.45	65 2.559	165 6.50	125 4.92	16 0.63	4-M16	UL FM VdS LPCB
65 2½	76.1 3.000	500 3.45	65 2.559	185 7.28	145 5.70	16 0.63	4-M16	UL FM VdS LPCB
80 3	88.9 3.500	500 3.45	65 2.559	200 7.87	160 6.30	16 0.63	8-M16	UL FM VdS LPCB
100 108.0	108.0 4.250	300 2.0	70 2.756	220 8.66	180 7.09	16 0.63	8-M16	UL FM
100 4	114.3 4.500	300 2.0	70 2.756	220 8.66	180 7.09	16 0.63	8-M16	UL FM VdS LPCB
125 133.0	133 5.250	300 2.0	70 2.756	250 9.84	210 8.27	18 0.71	8-M16	UL FM
125 139.7	139.7 5.500	300 2.0	70 2.756	250 9.84	210 8.27	18 0.71	8-M16	UL FM VdS LPCB
150 159.1	159.0 6.250	500 3.45	70 2.756	285 11.22	240 9.45	18 0.71	8-M20	UL FM
150 165.1	165.1 6.500	500 3.45	70 2.756	285 11.22	240 9.45	18 0.71	8-M20	UL FM LPCB
150 6	168.3 6.625	500 3.45	70 2.756	285 11.22	240 9.45	18 0.71	8-M20	UL FM VdS LPCB
200 8	219.1 8.625	300 2.0	80 3.150	340 13.39	295 11.61	19 0.75	12-M20	UL FM VdS LPCB
250 10	273.0 10.750	300 2.0	85 3.346	405 15.94	355 13.98	21 0.83	12-M24	UL FM VdS
300 12	323.9 12.750	225 1.6	90 3.543	460 18.11	410 16.14	24 0.94	12-M24	UL FM VdS
350 14	377.0 14.843	225 1.6	100 3.937	520 20.47	470 18.50	25 1.00	16-M24	—
400 16	426.0 16.772	225 1.6	110 4.331	580 22.83	525 20.67	27 1.06	16-M27	—
450 18	480 18.897	225 1.6	115 4.528	640 25.196	585 23.03	28 1.10	20-M27	—

321GH PN25

Adaptor Flange

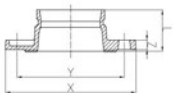


Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
65 76.1	76.1 3.000	362 2.5	65 2.559	185 7.28	145 5.71	16 0.63	8-M16	—
80 3	88.9 3.500	362 2.5	65 2.559	200 7.87	160 6.30	16 0.63	8-M16	—
100 108.0	108.0 4.250	362 2.5	70 2.756	230 9.05	190 7.48	18 0.71	8-M20	UL FM
100 4	114.3 4.500	362 2.5	70 2.756	235 9.25	190 7.48	16 0.63	8-M20	UL FM
125 139.7	139.7 5.500	362 2.5	70 2.756	270 10.63	220 8.66	16 0.63	8-M24	—
150 159.0	159.0 6.250	362 2.5	70 2.756	300 11.80	250 9.85	20 0.79	8-M24	UL FM
150 165.1	165.1 6.500	362 2.5	70 2.756	300 11.80	250 9.84	18 0.71	8-M24	UL FM
200 8	219.1 8.625	362 2.5	80 3.150	360 14.17	310 12.20	19 0.75	12-M24	UL FM
250 10	273.0 10.75	362 2.5	85 3.346	425 16.73	370 14.57	22 0.87	12-M27	—
300 12	323.9 12.750	362 2.5	88 3.46	485 19.09	430 16.93	23.5 0.93	16-M27	—
350 14	355.6 14.000	362 2.5	100 3.94	555 21.85	490 19.29	26 1.02	16-M30	—
400 16	406.4 16.000	362 2.5	110 4.33	620 24.41	550 21.65	28 1.10	16-M33	—

321GA

ANSI 125/150

Adaptor Flange
Class 125/150

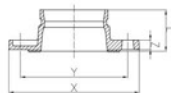


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
50 2	60.3 2.375	300 2.07	65 2.559	152 6.0	120.5 4.74	16 0.63	4-5/8	UL FM
65 2½	73.0 2.875	300 2.07	65 2.559	185 7.28	139.7 5.50	16 0.63	4-5/8	—
80 3	88.9 3.500	300 2.07	65 2.559	200 7.87	152.4 6.00	16 0.63	8-5/8	—
100 4	114.3 4.500	300 2.07	70 2.756	229 9.01	190.5 7.50	16 0.63	8-5/8	UL FM
150 6	168.3 6.625	300 2.07	70 2.756	282 11.10	241.3 9.50	18 0.71	8-3/4	—
200 8	219.1 8.625	300 2.07	75 2.953	340 13.39	298.5 11.75	19 0.75	8-3/4	UL FM
250 10	273.0 10.75	300 2.07	85 3.35	406 15.98	362 14.25	21 0.826	12-7/8	UL FM
350 14	355.6 12.750	300 2.0	127 5.00	535 21.00	476.3 18.75	37 1.44	12-1	—
400 16	406.4 16.000	300 2.0	127 5.00	595 23.50	539.8 21.25	37 1.44	16-1	—
450 18	457.2 18.000	300 2.0	140 5.50	642 25.28	577.8 22.75	40 1.56	16-11/8	—
500 20	508.0 20.000	300 2.0	152 6.00	700 27.50	635 25.00	43 1.69	20-11/8	—
600 24	609.6 24.000	300 2.0	152 6.00	815 32.00	749.3 29.50	49 1.94	20-11/4	—

321G

BS TABLE 'E'

Adaptor Flange

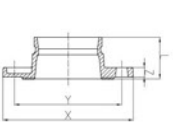


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
50 2	60.3 2.375	225 1.6	65 2.56	152 5.96	114 4.49	16 0.63	4-M16	—
65 2½	76.1 3.000	225 1.6	70 2.756	165 6.50	127 5.00	16 0.63	4-M16	—
80 3	88.9 3.500	225 1.6	70 2.756	184 7.24	146 5.75	16 0.63	4-M16	—
100 4	114.3 4.500	225 1.6	70 2.756	216 8.50	178 7.00	16 0.63	8-M16	—
150 6	165.1 6.500	225 1.6	70 2.756	280 11.02	235 9.25	21 0.81	8-M20	—
200 8	219.1 8.625	225 1.6	102 4.02	337 13.27	292 11.50	19 0.75	8-M20	—
250 10	273.0 10.75	225 1.6	85 3.35	405 15.94	356 14.02	25 0.98	12-M20	—
300 12	323.9 10.750	200 1.4	102 4.02	457 18.00	406 16.00	25.5 1.00	12-7/8	—
350 14	355.6 12.750	200 1.4	127 5.00	527 20.75	470 18.50	32 1.26	12-7/8	—
400 16	406.4 16.000	200 1.4	127 5.00	578 22.76	521 20.51	32 1.26	12-7/8	—
450 18	457.2 18.000	200 1.4	140 5.50	641 25.24	584 23.00	36 1.42	16-7/8	—

321GL

PN10

Adaptor Flange

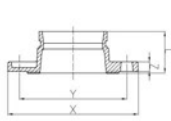


Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
200 8	219.1 8.625	145 1.0	75 2.95	340 13.39	295 11.61	19 0.75	8-M20	FM
250 10	273.0 10.750	145 1.0	85 3.346	405 15.94	350 13.78	21 0.83	12-M20	FM
300 12	323.9 12.750	145 1.0	90 3.543	460 18.11	400 15.75	24 0.94	12-M20	FM

321GJ

JIS 10K

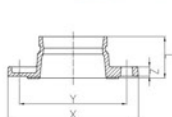
Adaptor Flange



Nominal Size mm/in	Pipe O.D. mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
65 2½	76.3 3.00	145 1.0	65 2.559	175 6.89	140 5.51	18 0.71	4-M16	—
80 3	89.1 3.50	145 1.0	65 2.559	185 7.28	150 5.91	18 0.71	8-M16	—
100 4	114.3 4.50	145 1.0	70 2.756	210 8.27	175 6.89	18 0.71	8-M16	—
125 5	139.8 5.50	145 1.0	70 2.756	250 9.84	210 8.27	20 0.79	8-M20	—
150 6	165.2 6.50	145 1.0	70 2.756	280 11.02	240 9.45	20 0.79	8-M20	—

321GJ JIS 16K

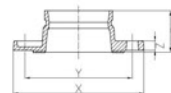
Adaptor Flange



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
80 3	88.9 3.500	225 1.6	65 2.559	200 7.87	160 6.30	17 0.67	8-M20	—
100 4	114.3 4.500	225 1.6	70 2.756	225 8.86	185 7.28	19 0.75	8-M20	—
150 6	165.1 6.500	225 1.6	70 2.756	305 12.00	260 10.236	21 0.827	12-M22	—

321GX PN16

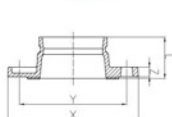
Adaptor Flange



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
50 2	60.3 2.4	225 1.6	53.00 2.09	157.00 6.18	125.00 4.92	14.00 0.55	4-M16	—
65 2.6	76.1 3	225 1.6	53.00 2.09	177.00 6.97	145.00 5.71	14.00 0.55	4-M16	—
80 3	88.9 3.5	225 1.6	56.00 2.20	192.00 7.56	160.00 6.30	14.00 0.55	8-M16	—
100 4	114.3 4.5	225 1.6	56.00 2.20	212.00 8.35	180.00 7.09	14.00 0.55	8-M16	—
125 5	139.7 5.5	225 1.6	60.00 2.36	242.00 9.53	210.00 8.27	14.50 0.57	8-M16	—
150 6	165.1 6.5	225 1.6	60.00 2.36	277.00 10.91	240.00 9.45	14.50 0.57	8-M20	—
200 8	219.1 8.625	225 1.6	70.00 2.76	332.00 13.07	295.00 11.61	18.00 0.71	12-M20	—

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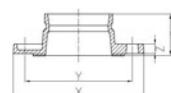
Adaptor Flange



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
100 4	114.3 4.500	300 2.0	70 2.756	225 8.86	185 7.28	19 0.75	8-M20	—
150 6	165.1 6.500	300 2.0	70 2.756	305 12.00	260 10.236	21 0.827	12-M22	—

321G40 PN40

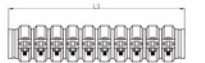
Adaptor Flange



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/MPa	Dimensions				Bolt/Nut No.-SIZE mm/in	Certificate
			L mm/in	X mm/in	Y mm/in	Z mm/in		
150 6	165.1 6.5	580 4.0	70 2.76	300 11.81	250 9.84	24 0.94	8-M24	—

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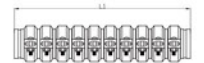
Expansion Joint



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/Mpa	Movement mm/in	L 1 mm/in	L 2 mm/in
25	33.4	300	2.6	170	172.6
1	1.315	2.07	0.1	6.69	6.79
25	33.4	300	5.2	226.50	231.7
1	1.315	2.07	0.2	8.92	9.12
25	33.4	300	7.8	284	291.8
1	1.315	2.07	0.31	11.49	11.67
25	33.4	300	10.4	340.5	350.9
1	1.315	2.07	0.41	13.41	13.82
25	33.4	300	13	397	410
1	1.315	2.07	0.51	15.63	16.14
25	33.4	300	15.6	453.5	469.1
1	1.315	2.07	0.61	17.85	18.46
25	33.4	300	18.2	510	528.2
1	1.315	2.07	0.72	20.08	20.8
25	33.4	300	20.8	567.5	588.3
1	1.315	2.07	0.82	22.34	23.16
25	33.4	300	23.4	624	647.4
1	1.315	2.07	0.92	24.57	25.49
25	33.4	300	26	680.5	705
1	1.315	2.07	1.02	26.79	27.81
25	33.4	300	28.6	737	765.6
1	1.315	2.07	1.13	29.01	30.14
25	33.4	300	31.2	793.5	824.7
1	1.315	2.07	1.23	31.24	32.47
32	42.4	300	3.5	170.75	174.25
1 1/4	1.669	2.07	0.14	6.72	6.86
32	42.4	300	7	227.5	234.5
1 1/4	1.669	2.07	0.28	8.96	9.24
32	42.4	300	10.5	285.25	295.75
1 1/4	1.669	2.07	0.41	11.2	11.61
32	42.4	300	14	342	356
1 1/4	1.669	2.07	0.55	13.47	14.02
32	42.4	300	17.5	398.75	416.25
1 1/4	1.669	2.07	0.69	15.7	16.39
32	42.4	300	21	455.5	476.5
1 1/4	1.669	2.07	0.83	17.93	18.76
32	42.4	300	24.5	512.25	536.75
1 1/4	1.669	2.07	0.96	20.17	21.13
32	42.4	300	28	570	598
1 1/4	1.669	2.07	1.1	22.44	23.54
32	42.4	300	31.5	625.75	657.25
1 1/4	1.669	2.07	1.24	24.64	25.88
32	42.4	300	35	683.5	718.5
1 1/4	1.669	2.07	1.38	26.91	28.29
32	42.4	300	38.5	740.25	778.75
1 1/4	1.669	2.07	1.52	29.15	30.67
32	42.4	300	42	797	839
1 1/4	1.669	2.07	1.65	31.38	33.03
40	48.3	300	3.8	170.5	174.3
1 1/2	1.902	2.07	0.15	6.71	6.86
40	48.3	300	7.6	227.00	234.6
1 1/2	1.902	2.07	0.3	8.94	9.24
40	48.3	300	11.4	283.5	294.9
1 1/2	1.902	2.07	0.45	11.61	11.81
40	48.3	300	15.2	340.00	355.2
1 1/2	1.902	2.07	0.6	13.39	13.99
40	48.3	300	19	396.50	415.5
1 1/2	1.902	2.07	0.75	15.61	16.36
40	48.3	300	22.8	453.00	475.8
1 1/2	1.902	2.07	0.9	17.84	18.74
40	48.3	300	26.6	509.50	536.1
1 1/2	1.902	2.07	1.05	20.06	21.11
40	48.3	300	30.4	566.00	596.4
1 1/2	1.902	2.07	1.2	22.28	23.48
40	48.3	300	34.2	623.50	657.7
1 1/2	1.902	2.07	1.35	24.55	25.9
40	48.3	300	38	679.00	717
1 1/2	1.902	2.07	1.5	26.73	28.23
40	48.3	300	41.8	735.50	777.3
1 1/2	1.902	2.07	1.65	28.96	30.61
40	48.3	300	45.6	792.00	837.6
1 1/2	1.902	2.07	1.8	31.18	32.98
50	60.3	300	3.5	170.5	174
2	2.374	2.07	0.14	6.85	6.71
50	60.3	300	7	227.00	234
2	2.374	2.07	0.28	8.94	9.22
50	60.3	300	10.5	283.5	294
2	2.374	2.07	0.41	11.16	11.57

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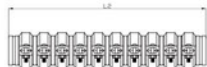
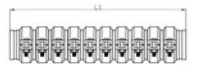
Expansion Joint



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/Mpa	Movement mm/in	L 1 mm/in	L 2 mm/in
50	60.3	300	14	340.00	354
2	2.374	2.07	0.55	13.39	13.94
50	60.3	300	17.5	396.50	414
2	2.374	2.07	0.69	15.61	16.3
50	60.3	300	21	453.00	474
2	2.374	2.07	0.83	17.84	18.67
50	60.3	300	24.5	509.50	534
2	2.374	2.07	0.96	20.06	21.02
50	60.3	300	28	566.00	594
2	2.374	2.07	1.1	22.28	23.38
50	60.3	300	31.5	623.50	655
2	2.374	2.07	1.24	24.55	25.79
50	60.3	300	35	679.00	714
2	2.374	2.07	1.38	26.73	28.11
50	60.3	300	38.5	735.50	774
2	2.374	2.07	1.52	28.96	30.48
50	60.3	300	42	792.00	834
2	2.374	2.07	1.65	31.18	32.83
65	76.1	300	4	171	175
2 1/2	2.996	2.07	0.16	6.73	6.89
65	76.1	300	8	227.5	235.5
2 1/2	2.996	2.07	0.31	8.96	9.27
65	76.1	300	12	284.5	296.5
2 1/2	2.996	2.07	0.47	11.20	11.67
65	76.1	300	16	341	357
2 1/2	2.996	2.07	0.63	13.43	14.06
65	76.1	300	20	398	418
2 1/2	2.996	2.07	0.79	15.67	16.46
65	76.1	300	24	454.5	478.5
2 1/2	2.996	2.07	0.94	17.89	18.83
65	76.1	300	28	511.5	539.5
2 1/2	2.996	2.07	1.1	20.14	21.24
65	76.1	300	32	568	600
2 1/2	2.996	2.07	1.26	22.36	23.62
65	76.1	300	36	626	662
2 1/2	2.996	2.07	1.42	24.65	26.07
65	76.1	300	40	681.5	721.5
2 1/2	2.996	2.07	1.57	26.83	28.4
65	76.1	300	44	738.5	782.5
2 1/2	2.996	2.07	1.73	29.08	30.81
65	76.1	300	48	795	843
2 1/2	2.996	2.07	1.89	31.3	33.19
80	88.9	300	3.7	170.5	174.2
3	3.5	2.07	0.15	6.71	6.86
80	88.9	300	7.4	227.00	234.4
3	3.5	2.07	0.29	8.94	9.23
80	88.9	300	11.1	283.5	294.6
3	3.5	2.07	0.44	11.16	11.6
80	88.9	300	14.8	340.00	354.8
3	3.5	2.07	0.58	13.39	13.97
80	88.9	300	18.5	396.50	415
3	3.5	2.07	0.73	15.61	16.34
80	88.9	300	22.2	453.00	475.2
3	3.5	2.07	0.87	17.84	18.71
80	88.9	300	25.9	509.50	535.4
3	3.5	2.07	1.02	20.06	21.08
80	88.9	300	29.6	566.00	595.6
3	3.5	2.07	1.17	22.28	23.45
80	88.9	300	33.3	623.50	656.8
3	3.5	2.07	1.31	24.55	25.86
80	88.9	300	37	679.00	716
3	3.5	2.07	1.46	26.73	28.19
80	88.9	300	40.7	735.50	776.2
3	3.5	2.07	1.6	28.96	30.56
80	88.9	300	44.4	792.00	836.4
3	3.5	2.07	1.75	31.18	32.93
100	114.3	300	6.4	193.75	200.15
4	4.5	2.07	0.25	7.63	7.88
100	114.3	300	12.8	258.00	270.8
4	4.5	2.07	0.5	10.16	10.66
100	114.3	300	19.2	322.25	341.45
4	4.5	2.07	0.76	12.69	13.45
100	114.3	300	25.6	386.50	412.1
4	4.5	2.07	1.01	15.22	16.23
100	114.3	300	32	450.75	482.75
4	4.5	2.07	1.26	17.75	19.01
100	114.3	300	38.4	515.00	553.4
4	4.5	2.07	1.51	20.28	21.79

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Expansion Joint



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/Mpa	Movement mm/in	L 1 mm/in	L 2 mm/in
100	114.3	300	44.8	579.25	624.05
4	4.5	2.07	1.76	22.81	24.57
100	114.3	300	51.2	643.50	694.7
4	4.5	2.07	2.02	25.34	27.36
100	114.3	300	57.6	707.75	765.35
4	4.5	2.07	2.27	27.86	30.13
100	114.3	300	64	772.00	836
4	4.5	2.07	2.52	30.39	32.91
100	114.3	300	70.4	836.25	906.65
4	4.5	2.07	2.77	32.92	35.69
100	114.3	300	76.8	900.50	977.3
4	4.5	2.07	3.02	35.45	38.47
125	139.7	300	5.7	193.75	199.45
5	5.5	2.07	0.22	7.63	7.85
125	139.7	300	11.4	258.00	269.4
5	5.5	2.07	0.45	10.16	10.61
125	139.7	300	17.1	322.25	339.35
5	5.5	2.07	0.67	12.69	13.35
125	139.7	300	22.8	386.50	409.3
5	5.5	2.07	0.9	15.22	16.12
125	139.7	300	28.5	450.75	479.25
5	5.5	2.07	1.12	17.75	18.87
125	139.7	300	34.2	514.00	548.2
5	5.5	2.07	1.35	20.24	21.59
125	139.7	300	39.9	579.25	619.15
5	5.5	2.07	1.57	22.81	24.38
125	139.7	300	45.6	643.50	689.1
5	5.5	2.07	1.8	25.34	27.14
125	139.7	300	51.3	707.75	759.05
5	5.5	2.07	2.02	27.86	29.68
125	139.7	300	57	772.00	829
5	5.5	2.07	2.24	30.39	32.63
125	139.7	300	62.7	836.25	898.95
5	5.5	2.07	2.47	32.92	35.39
125	139.7	300	68.4	900.50	968.9
5	5.5	2.07	2.69	35.45	38.14
150	165.1	300	6	193.75	199.75
6	4.5	2.07	0.24	7.63	7.87
150	165.1	300	12	258.00	270
6	4.5	2.07	0.47	10.16	10.63
150	165.1	300	18	322.25	340.25
6	4.5	2.07	0.71	12.69	13.4
150	165.1	300	24	386.50	410.5
6	4.5	2.07	0.94	15.22	16.16
150	165.1	300	30	450.75	480.75
6	4.5	2.07	1.18	17.75	18.93
150	165.1	300	36	514.00	550
6	4.5	2.07	1.42	20.24	21.66
150	165.1	300	42	579.25	621.25
6	4.5	2.07	1.65	22.81	24.46
150	165.1	300	48	643.50	691.5
6	4.5	2.07	1.89	25.34	27.23
150	165.1	300	54	707.75	761.75
6	4.5	2.07	2.13	27.86	29.99
150	165.1	300	60	772.00	832
6	4.5	2.07	2.36	30.39	32.75
150	165.1	300	66	836.25	902.25
6	4.5	2.07	2.6	32.92	35.42
150	165.1	300	72	900.50	972.5
6	4.5	2.07	2.83	35.45	38.28
150	168.3	300	6.2	226.75	232.95
6	6.626	2.07	0.24	8.93	9.17
150	168.3	300	12.4	302	314.4
6	6.626	2.07	0.49	11.89	12.38
150	168.3	300	18.6	377.25	395.85
6	6.626	2.07	0.73	14.85	15.58
150	168.3	300	24.8	452.5	477.3
6	6.626	2.07	0.98	17.82	18.8
150	168.3	300	31	527.75	558.75
6	6.626	2.07	1.22	20.78	22
150	168.3	300	37.2	602.5	639.7
6	6.626	2.07	1.46	23.72	25.18
150	168.3	300	43.4	678.25	721.65
6	6.626	2.07	1.71	26.7	28.41
150	168.3	300	49.6	753.5	803.1
6	6.626	2.07	1.95	29.67	31.62
150	168.3	300	55.8	828.75	884.55
6	6.626	2.07	2.2	32.63	34.83

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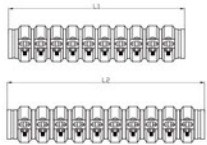
Expansion Joint



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/Mpa	Movement mm/in	L 1 mm/in	L 2 mm/in
150	168.3	300	62	904	966
6	6.626	2.07	2.44	35.59	38.03
150	168.3	300	68.2	979.25	1047.45
6	6.626	2.07	2.69	38.55	41.24
150	168.3	300	74.4	1054.5	1128.9
6	6.626	2.07	2.93	41.52	44.45
200	219.1	300	6.3	226.75	233.05
8	8.626	2.07	0.25	8.93	9.18
200	219.1	300	12.6	302	314.6
8	8.626	2.07	0.5	11.89	12.39
200	219.1	300	18.9	377.25	396.15
8	8.626	2.07	0.74	14.85	15.59
200	219.1	300	25.2	452.5	477.7
8	8.626	2.07	0.99	17.82	18.81
200	219.1	300	31.5	527.75	559.25
8	8.626	2.07	1.24	20.78	22.02
200	219.1	300	37.8	603	640.8
8	8.626	2.07	1.49	23.74	25.23
200	219.1	300	44.1	678.25	722.35
8	8.626	2.07	1.74	26.7	28.44
200	219.1	300	50.4	753.5	803.9
8	8.626	2.07	1.98	29.67	31.65
200	219.1	300	56.7	828.75	885.45
8	8.626	2.07	2.23	32.63	34.86
200	219.1	300	63	904	967
8	8.626	2.07	2.48	35.59	38.07
200	219.1	300	69.3	979.25	1048.55
8	8.626	2.07	2.73	38.55	41.28
200	219.1	300	75.6	1054.5	1130.1
8	8.626	2.07	2.98	41.52	44.5
250	273	300	6.3	226.75	232.8
10	10.748	2.07	0.25	8.92	9.17
250	273	300	12.6	301.5	314.1
10	10.748	2.07	0.5	11.87	12.37
250	273	300	18.9	376.5	395.4
10	10.748	2.07	0.74	14.82	15.56
250	273	300	25.2	451.5	476.7
10	10.748	2.07	0.99	17.78	18.77
250	273	300	31.5	526.5	558
10	10.748	2.07	1.24	20.73	21.97
250	273	300	37.8	601.5	639.3
10	10.748	2.07	1.49	23.68	25.17
250	273	300	44.1	676.5	720.6
10	10.748	2.07	1.74	26.63	28.37
250	273	300	50.4	751.5	801.9
10	10.748	2.07	1.98	29.59	31.57
250	273	300	56.7	826.5	883.2
10	10.748	2.07	2.23	32.54	34.77
250	273	300	63	901.5	964.5
10	10.748	2.07	2.48	35.49	37.97
250	273	300	69.3	976.5	1045.8
10	10.748	2.07	2.73	38.44	41.17
250	273	300	75.6	1051.5	1127.1
10	10.748	2.07	2.98	41.4	44.38
300	323.9	300	6.7	227.5	234.2
12	12.752	2.07	0.26	8.96	9.22
300	323.9	300	13.4	303	316.4
12	12.752	2.07	0.53	11.93	12.46
300	323.9	300	20.1	378.5	398.6
12	12.752	2.07	0.79	14.9	15.69
300	323.9	300	26.8	454	480.8
12	12.752	2.07	1.06	17.87	18.93
300	323.9	300	33.5	529.5	563
12	12.752	2.07	1.32	20.85	22.17
300	323.9	300	40.2	603.5	643.7
12	12.752	2.07	1.58	23.76	25.34
300	323.9	300	46.9	680.5	727.4
12	12.752	2.07	1.85	26.79	28.64
300	323.9	300	53.6	756	809.6
12	12.752	2.07	2.11	29.76	31.87
300	323.9	300	60.3	831.5	891.8
12	12.752	2.07	2.37	32.74	35.11
300	323.9	300	67	907	974
12	12.752	2.07	2.64	35.71	38.35
300	323.9	300	73.7	982.5	1056.2
12	12.752	2.07	2.9	38.68	41.58
300	323.9	300	80.4	1058	1138.4
12	12.752	2.07	3.17	41.65	44.82

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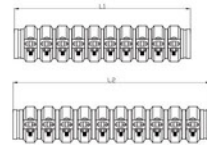
Expansion Joint



Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/Mpa	Movement mm/in	L 1 mm/in	L 2 mm/in
100	114.3	300	5.7	193.25	198.95
4	4.5	2.07	0.22	7.61	7.83
100	114.3	300	11.4	257.00	268.4
4	4.5	2.07	0.45	10.12	10.57
100	114.3	300	17.1	321.25	338.35
4	4.5	2.07	0.67	12.65	13.32
100	114.3	300	22.8	385.00	407.8
4	4.5	2.07	0.9	15.16	16.06
100	114.3	300	28.5	449.25	477.75
4	4.5	2.07	1.12	17.69	18.81
100	114.3	300	34.2	513.50	547.7
4	4.5	2.07	1.35	20.22	21.57
100	114.3	300	39.9	577.25	617.15
4	4.5	2.07	1.57	22.73	24.3
100	114.3	300	45.6	641.00	686.6
4	4.5	2.07	1.8	25.24	27.04
100	114.3	300	51.3	705.25	756.55
4	4.5	2.07	2.02	27.77	29.79
100	114.3	300	57	769.00	826
4	4.5	2.07	2.24	30.28	32.52
100	114.3	300	62.7	833.25	895.95
4	4.5	2.07	2.47	32.80	35.27
100	114.3	300	68.4	897.00	965.4
4	4.5	2.07	2.69	35.32	38.01
125	139.7	300	5.7	193.25	198.95
5	5.5	2.07	0.22	7.61	7.83
125	139.7	300	11.4	257.00	268.4
5	5.5	2.07	0.45	10.12	10.57
125	139.7	300	17.1	321.25	338.35
5	5.5	2.07	0.67	12.65	13.32
125	139.7	300	22.8	385.00	407.8
5	5.5	2.07	0.9	15.16	16.06
125	139.7	300	28.5	449.25	477.75
5	5.5	2.07	1.12	17.69	18.81
125	139.7	300	34.2	513.50	547.7
5	5.5	2.07	1.35	20.22	21.57
125	139.7	300	39.9	577.25	617.15
5	5.5	2.07	1.57	22.73	24.3
125	139.7	300	45.6	641.00	686.6
5	5.5	2.07	1.8	25.24	27.04
125	139.7	300	51.3	705.25	756.55
5	5.5	2.07	2.02	27.77	29.79
125	139.7	300	57	769.00	826
5	5.5	2.07	2.24	30.28	32.52
125	139.7	300	62.7	833.25	895.95
5	5.5	2.07	2.47	32.80	35.27
125	139.7	300	68.4	897.00	965.4
5	5.5	2.07	2.69	35.32	38.01
150	165.1	300	5.7	193.25	198.95
6	4.5	2.07	0.22	7.61	7.83
150	165.1	300	11.4	257.00	268.4
6	4.5	2.07	0.45	10.12	10.57
150	165.1	300	17.1	321.25	338.35
6	4.5	2.07	0.67	12.65	13.32
150	165.1	300	22.8	385.00	407.8
6	4.5	2.07	0.9	15.16	16.06
150	165.1	300	28.5	449.25	477.75
6	4.5	2.07	1.12	17.69	18.81
150	165.1	300	34.2	513.50	547.7
6	4.5	2.07	1.35	20.22	21.57

EJ-1NS

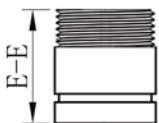
Expansion Joint



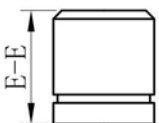
Nominal Size mm/in	Pipe O.D mm/in	Max Working Pressure PSI/Mpa	Movement mm/in	L 1 mm/in	L 2 mm/in
150	165.1	300	39.9	577.25	617.15
6	4.5	2.07	1.57	22.73	24.3
150	165.1	300	45.6	641.00	686.6
6	4.5	2.07	1.8	25.24	27.04
150	165.1	300	51.3	705.25	756.55
6	4.5	2.07	2.02	27.77	29.79
150	165.1	300	57	769.00	826
6	4.5	2.07	2.24	30.28	32.52
150	165.1	300	62.7	833.25	895.95
6	4.5	2.07	2.47	32.80	35.27
150	165.1	300	68.4	897.00	965.4
6	4.5	2.07	2.69	35.32	38.01
150	168.3	300	5.7	226.25	231.95
6	6.626	2.07	0.22	8.91	9.13
150	168.3	300	11.4	301.00	312.4
6	6.626	2.07	0.45	11.85	12.3
150	168.3	300	17.1	376.25	393.35
6	6.626	2.07	0.67	14.81	15.48
150	168.3	300	22.8	451.00	473.8
6	6.626	2.07	0.9	17.76	18.66
150	168.3	300	28.5	526.25	554.75
6	6.626	2.07	1.12	20.72	21.84
150	168.3	300	34.2	601.00	635.2
6	6.626	2.07	1.35	23.66	25.01
150	168.3	300	39.9	676.25	716.15
6	6.626	2.07	1.57	26.62	28.19
150	168.3	300	45.6	751.00	796.6
6	6.626	2.07	1.8	29.57	31.37
150	168.3	300	51.3	826.25	877.55
6	6.626	2.07	2.02	32.53	34.55
150	168.3	300	57	901.00	956
6	6.626	2.07	2.24	35.47	37.71
150	168.3	300	62.7	976.25	1038.95
6	6.626	2.07	2.47	38.44	40.91
150	168.3	300	68.4	1051.00	1119.4
6	6.626	2.07	2.69	41.39	44.07
250	273	300	6.7	227.00	233.7
10	10.748	2.07	0.26	8.94	9.2
250	273	300	13.4	302.00	315.4
10	10.748	2.07	0.53	11.89	12.42
250	273	300	20.1	377.50	397.6
10	10.748	2.07	0.79	14.86	15.65
250	273	300	26.8	452.50	479.3
10	10.748	2.07	1.06	17.81	18.87
250	273	300	33.5	528.00	561.5
10	10.748	2.07	1.32	20.79	22.11
250	273	300	40.2	603.00	643.2
10	10.748	2.07	1.58	23.74	25.32
250	273	300	46.9	678.50	725.4
10	10.748	2.07	1.85	26.71	28.56
250	273	300	53.6	753.5	807.1
10	10.748	2.07	2.11	29.67	31.78
250	273	300	60.3	829.00	889.3
10	10.748	2.07	2.37	32.64	35.01
250	273	300	67	904.00	971
10	10.748	2.07	2.64	35.59	38.23
250	273	300	73.7	979.5	1053.2
10	10.748	2.07	2.9	38.56	41.46
250	273	300	80.4	1054.5	1134.9
10	10.748	2.07	3.17	41.51	44.68

Carbon Steel Pipe Nipples

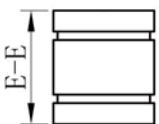
Grv. X Thd. Adapter

Product Picture	Drawings	Working Pressure PSI/MPa	Nominal Diameter (mm/in)	Diameter (mm/in)	(E-E) Structural length ±1.6mm	Remark
 BNG  NG	 BNG / GNG	300 2.0	25	33.4	76.2	E-E dimension can be oriented according to customer's special requirements.
			1	1.315	3	
			32	42.2	101.6	
			1 1/4	1.661	4	
			40	48.3	101.6	
			1 1/2	1.900	4	
			50	60.3	101.6	
			2	2.375	4	
			65	73	101.6	
			2 1/2	2.875	4	
			80	88.9	101.6	
			3	3.5	4	
			100	114.3	152.4	
			4	4.5	6	
			125	141.3	152.4	
			5	5.563	6	
			150	168.3	152.4	
			6	6.625	6	
			200	219.1	152.4	
			8	8.625	6	

Grv. X Bev. Adapter

Product Picture	Drawings	Working Pressure PSI/MPa	Nominal Diameter (mm/in)	Diameter (mm/in)	(E-E) Structural length ±1.6mm	Remark
 BNHG  NHG	 BNHG / GNHG	300 2.0	25	33.4	76.2	E-E dimension can be oriented according to customer's special requirements.
			1	1.315	3	
			32	42.2	101.6	
			1 1/4	1.661	4	
			40	48.3	101.6	
			1 1/2	1.900	4	
			50	60.3	101.6	
			2	2.375	4	
			65	73	101.6	
			2 1/2	2.875	4	
			80	88.9	101.6	
			3	3.5	4	
			100	114.3	152.4	
			4	4.5	6	
			125	141.3	152.4	
			5	5.563	6	
			150	168.3	152.4	
			6	6.625	6	
			200	219.1	152.4	
			8	8.625	6	

Grv. X Grv. Adapter

Product Picture	Drawings	Working Pressure PSI/MPa	Nominal Diameter (mm/in)	Diameter (mm/in)	(E-E) Structural length ±1.6mm	Remark
 BNGG  NGG	 BNGG / GNGG	300 2.0	25	33.4	76.2	E-E dimension can be oriented according to customer's special requirements.
			1	1.315	3	
			32	42.2	101.6	
			1 1/4	1.661	4	
			40	48.3	101.6	
			1 1/2	1.900	4	
			50	60.3	101.6	
			2	2.375	4	
			65	73	101.6	
			2 1/2	2.875	4	
			80	88.9	101.6	
			3	3.5	4	
			100	114.3	152.4	
			4	4.5	6	
			125	141.3	152.4	
			5	5.563	6	
			150	168.3	152.4	
			6	6.625	6	
			200	219.1	152.4	
			8	8.625	6	

Guide for Selection of Rubber Gaskets



Gasket	Name	Environment Temperature Range	General Service Recommendations	Color Mark
E	EPDM	-34 ~ +110°C (-30 ~ +230 °F)	Recommended for cold water service within the specified temperature range plus a variety of dilute acids (base), oil-free air and many chemical services (excluding hydrocarbons). UL classified in accordance with ANSI/NSF 61 or cold+86 °F (+30°C) and hot +180 °F (+82°C) potable water service. NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES, STEAM SERVICES OR CONTINUOUS HOT WATER SERVICES.	Black with Green Strip
S	Silicone	-40 ~ +177°C (-40 ~ +350 °F)	Recommended for high temperature dry air and some high temperature chemical products, drinking water etc.	White
D	NBR	-29 ~ +82°C (-20 ~ +180 °F)	Recommended for petroleum products, vegetable and mineral oils within the specified temperature range. NOT RECOMMENDED FOR HOT WATER SERVICES OR STEAM SERVICES.	Black with Orange Strip
F	Fluororubber	-7 ~ +149°C (+20 ~ +300 °F)	Recommended for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.	Black with Blue Strip
LD	Neoprene	-34 ~ +82°C (-30 ~ +180 °F)	Recommended for hot lubricants, sea water and certain chemicals. Good ozone resistance. Hard for combustion.	Black with Yellow Strip

- There are different rubber gaskets for your choice according to different working conditions and fluid medium; If the rubber gaskets are used in hot water system, please inform to the manufacturer Meide Group, we will supply the products which can be used in hot water system.

MECH Pipe Joint Lubricant

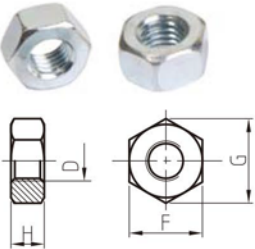


- MECH brand lubricant is used to lubricate the surface of the sealing gasket, making it easy to install, and preventing the sealing gasket from being damaged due to extrusion or other interference conditions, and at the same time, it can protect the sealing gasket surface and prolong its service life.
- The lubricant complies with RoHs certification, REACH certification, NSF H1 certification, green and environmental protection, and will not cause any adverse effects on water quality.

Size	Capacity / ml	Applicable Temperature	Applicable Material
1000	1000	-20 ~ +130℃ -4 ~ +266 °F	EPDM
5000	5000		NBR
15000	15000		Silicone Rubber Fluorine Rubber Neoprene

- For custom development or other packaging needs, please contact the supplier.
- For the chemical characteristics, detailed parameters and safety precautions of the product, please refer to the MSDS data document of this product.

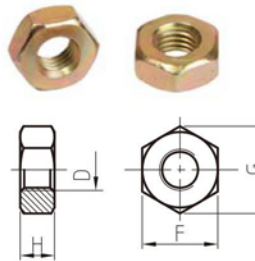
ANSI Heavy Hex Nut



1. Material: SAE J995 2.
- 2.Thread: ANSI B 1.1-1982, class 2B.
- 3.Surface Treatment: Zinc electroplated per ASTM B633
CLASS FE/ZN5 TYPE III, thickness $\geq 5 \mu\text{m}$ per class SC1.

d	F		G		H	
	Min	Max	Min	Max	Min	Max
3/8-16UNC	16.99	17.47	19.38	20.17	8.66	9.57
1/2-13UNC	21.59	22.22	24.61	25.65	11.78	12.80
5/8-11UNC	26.19	26.97	29.85	31.16	14.90	16.02
3/4-10UNC	30.78	31.75	35.10	36.65	18.03	19.25
7/8-9UNC	35.41	36.53	40.36	42.16	21.16	22.48

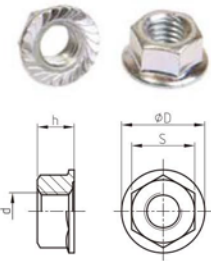
Metric Heavy Hex Nut



- 1.Material: ISO 898-2:1992 \ GB/T3098.2-2000 Class 8.
- 2.Thread: ISO 261, tolerance 6h for M10& M12, 7h for M16 and above.
- 3.Surface Treatment: Zinc Electroplated followed by a yellow chromate dip per ISO 2081 FE/ZN5, ISO4520 CLASS 1A.

d	F		G	H	
	Min	Max	Min	Min	Max
M10	15.73	16.0	17.7	8.0	8.4
M12	21.16	22.0	23.9	9.34	10.0
M16	23.16	24.0	26.17	14.1	15.9
M20	29.16	30.0	32.95	16.9	19.0
M22	33.0	34.0	37.29	18.1	20.2

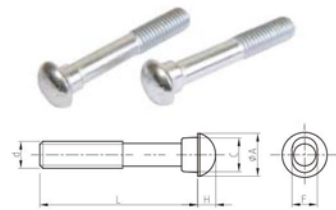
Hexagon Flange Nut



Dimension according to DIN6923.

d	S		D	h	
	Min	Max	Max	Min	Max
M8	12.3	13	17.9	7.6	8
M10	14.73	15.0	21.8	9.64	10
M12	17.73	18.0	26.0	11.57	12.0

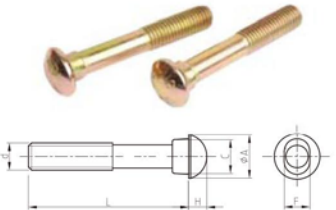
ANSI Oval Neck Track Bolt



- 1.Material: SAE J429 5.
- 2.Thread: UNC thread per ANSI B 1.1 Class 2A.
- 3.Surface Treatment: Silver chromate electroplated per ASTM B633 CLASS FE/ZN5 TYPE III , thickness ≥5 μ m per class SC1.

d	A	C	F	H	L
3/8-16UNC	19	13.9	9.50	6.0	55/70
1/2-13UNC	22.5	16	12.70	8.0	70/75
5/8-11UNC	27.4	19.8	15.90	10.0	80/85/105
3/4-10UNC	32.5	26.2	19.05	12.0	115/120
7/8-9UNC	37.7	28.8	22.20	14.0	125/140

Metric Oval Neck Track Bolt



- 1.Material: ISO 898-1:1992 \ GB/T3098.1-2000 Class 8.8.
- 2.Thread: ISO metric thread per ISO 261, tolerance 6h.
- 3.Surface Treatment: Yellow chromate electroplated per ISO 2081 FE/ZN5, ISO4520 CLASS 1A.

d	A	C	F	H	L
M10	18.5	13.5	9.5	5	50/57/63/70/89
M12	23.5	17.5	12.3	8	70/76/82/89/108
M16	29.5	20.5	15.7	10	85/89/95/108
M20	38	27	18.3	12.5	110/115
M22	42.2	31	21.4	14	125/140/150

Bolt Torque

As below is the recommended bolt torque for common sizes of bolts. Please use factory provided bolts and nuts for the installation.

ANSI Rated Bolt Torque		
Bolt size	Rated bolt torque*	
Inch	Lb-Ft	(N.m)
3/8	30-45	40-60
1/2	80-100	110-135
5/8	100-130	135-175
3/4	130-180	175-245
7/8	180-240	245-325

Metric Rated Bolt Torque		
Bolt size	Rated bolt torque*	
Inch	Lb-Ft	(N.m)
M10	30-45	40-60
M12	80-100	110-135
M16	100-130	135-175
M20	130-180	175-245
M22	180-240	245-325

MG Series Electric Hydraulic Roll Grooving Machine



Service & Advantages

- ▲ Best price performance ratio, compact size and low noise.
- ▲ Special designed roller set prevent flare on pipe ends eases the installation of grooved couplings(MG2).
- ▲ Common accessories can be available at any time.
- ▲ Full- automatic fabrication line.
- ▲ Roll groover up to 48" pipes according to requests.

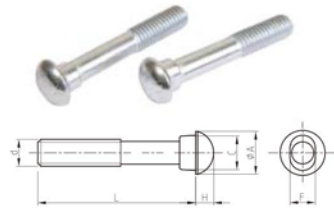
Specifications	MG1	MG2	MG3
Fabrication Capacity:	1" - 8" (DN25-DN200 , Ø34 - Ø219) SCH10/40 Steel Pipe	2" - 12" (DN50 - DN300 , Ø60 - Ø325) SCH10/40 Steel Pipe	8" - 24" (DN200 - DN600 , Ø219 - Ø630) SCH10/40 Steel Pipe
Max.Wall Thickness:	8 mm	10 mm	13mm
Output Speed:	23 R.P.M.	23 R.P.M.	23 R.P.M.
Packing Gross Weight:	75 kgs	135 kgs	230 kgs
Packing Size(L x W x H):	600 x 320 x 620 mm	800 x 450 x 750 mm	980 x 720 x 870 mm

Drive Unit

Item No.	Phase	Power	Voltage	Frequency
MG1	Single Phase	700W	110/120/220/230/240V	50Hz
	Three Phase	550W	380V	50Hz
MG2	Single Phase	1100W	110/120/220/230/240V	50Hz
	Three Phase	750W	380V	50Hz
MG3	Single Phase	2200W	110/120/220/230/240V	50Hz
	Three Phase	1100W	380V	50Hz



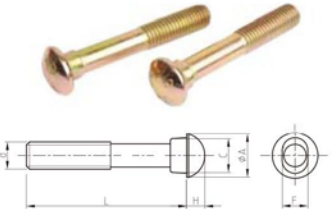
ANSI Oval Neck Track Bolt



- 1.Material: SAE J4
- 2.Thread: UNC thr
- 3.Surface Treatme CLASS FE/ZN5 1

d	A
3/8-16UNC	
1/2-13UNC	
5/8-11UNC	
3/4-10UNC	
7/8-9UNC	

Metric Oval Neck Track Bolt



- 1.Material: ISO 89
- 2.Thread: ISO met
- 3.Surface Treatme ISO4520 CLASS

d	A
M10	18.5
M12	23.5
M16	29.5
M20	38
M22	42.2

Bolt Torque

As below is the recor
factory provided bolts :

ANSI Rated Bolt Torque		
Bolt size	Rated bolt torque*	
Inch	Lb-Ft	(N.m)
3/8	30-45	40-60
1/2	80-100	110-135
5/8	100-130	135-175
3/4	130-180	175-245
7/8	180-240	245-325

M20	130-180	175-245
M22	180-240	245-325

Configuration

Item No.	Specification	Part No.	Description	Sketch
MG1	Standard Specification	MG1-1	Drive roller Ø 34 - Ø 48 (1" - 1 1/2")	
		MG1-2	Drive roller Ø 60 - Ø 168 (2" - 6")	
		MG1-3	Drive roller Ø 219 (8")	
		MG1-4	Groove roller Ø 34 - Ø 48 (1" - 1 1/2")	
		MG1-5	Groove roller Ø 60 - Ø 168 (2" - 6")	
		MG1-6	Groove roller Ø 219 (8")	
	Options	MG-82	Ball joint pipe stand	
		MG1-8	Pipe stabilizer	
MG2	Standard Specification	MG2-1	Drive roller Ø 60 - Ø 89 (2" - 3")	
		MG2-2	Drive roller Ø 101 - Ø 168 (3.5" - 6")	
		MG2-3	Drive roller Ø 219 - Ø 325 (8" - 12")	
		MG2-4	Groove roller Ø 60 - Ø 89 (2" - 3")	
		MG2-5	Groove roller Ø 101 - Ø 168 (3.5" - 6")	
		MG2-6	Groove roller Ø 219 - Ø 325 (8" - 12")	
	Options	MG-82	Ball joint pipe stand	
		MG2-8	Pipe stabilizer	
MG3	Standard Specification	MG3-1	Drive roller Ø 219 - Ø 325 (8" - 12")	
		MG3-2	Drive roller Ø 355 - Ø 426 (14" - 16")	
		MG3-3	Drive roller Ø 457 - Ø 630 (18" - 24")	
		MG3-4	Groove roller Ø 219 - Ø 325 (8" - 12")	
		MG3-5	Groove roller Ø 355 - Ø 426 (14" - 16")	
		MG3-6	Groove roller Ø 457 - Ø 630 (18" - 24")	
	Options	MG3-7	Pipe stand	
		MG3-8	Pipe stabilizer	
	Options	MG-26	Foot switch	
		MG-26	Foot switch	



Item No.	Phase
MK1	Single Phase

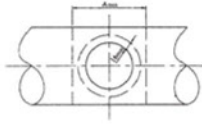


Item No.	Phase
MQ1	Single Phase
	Three Phase
MQ2	Single Phase
	Three Phase

Hole Diameter of pipe



Hole-cutting Machine



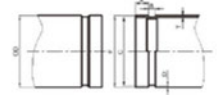
Run Nominal Size mm/in	Outlet Nominal Size mm/in	Hole Dia. +3.2,0+0.13,0 mm/in	Run Nominal Size mm/in	Outlet Nominal Size mm/in	Hole Dia. +3.2,0+0.13,0 mm/in	Run Nominal Size mm/in	Outlet Nominal Size mm/in	Hole Dia. +3.2,0+0.13,0 mm/in
25 1"33.7	10 3/8	23.5 0.925 A89	80 3"88.9	15 1/2	38 1.50 A89	150 59.0 6"168.3	15 1/2	38 1.50 A89
	15 1/2			20 3/4			20 3/4	
	20 3/4			25 1			25 1	
	25 1			32 1 1/4			32 1 1/4	
32 1 1/4"42.4	10 3/8	30 1.18 A89	100 108.0 4"114.3	15 1/2	38 1.50 A89	200 8"219.1	15 1/2	38 1.50 A89
	15 1/2			20 3/4			20 3/4	
	20 3/4			25 1			25 1	
	25 1			32 1 1/4			32 1 1/4	
40 1 1/2"48.3	10 3/8	30 1.18 A89	125 133.0 5"114.3	15 1/2	38 1.50 A89	250 10"273.0	15 1/2	38 1.50 A89
	15 1/2			20 3/4			20 3/4	
	20 3/4			25 1			25 1	
	25 1			32 1 1/4			32 1 1/4	
50 2"76.0	10 3/8	38 1.50 A89	150 159.0 6"168.3	15 1/2	38 1.50 A89	300 12"762.0	15 1/2	38 1.50 A89
	15 1/2			20 3/4			20 3/4	
	20 3/4			25 1			25 1	
	25 1			32 1 1/4			32 1 1/4	
65 2 1/2"73.0	10 3/8	45 1.75 A102	175 175.0 6"168.3	15 1/2	38 1.50 A89	350 14"76.0	15 1/2	38 1.50 A89
	15 1/2			20 3/4			20 3/4	
	20 3/4			25 1			25 1	
	25 1			32 1 1/4			32 1 1/4	

The outside surface of the pie within 16mm from the hole must be clean and smooth.

Roll Groove Dimensions

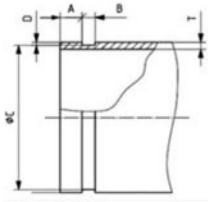


Roll Grooving Machine



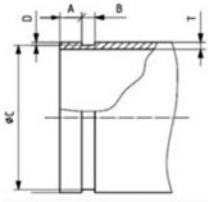
Nominal Size mm/in	Pipe OD		Gasket seat A ±0.76/±0.03 mm/in	Groove Width B ±0.76/±0.03 mm/in	Groove Dia C		Groove Depth D(ref) mm/in	Max.Allow Flare Dia F mm/in	Min.Allow wall thickness T mm/in	
	Basic mm/in	Tolerance mm/in			Basic mm/in	Tolerance mm/in				
25 1	33.7 1.327	+0.41 +0.016	-0.68 -0.026	15.88 0.625	7.14 0.281	30.23 1.190	-0.38 -0.015	1.60 0.063	34.5 1.358	1.8 0.071
32 1 1/4	42.4 1.669	+0.50 0.020	-0.60 -0.023	15.88 0.625	7.14 0.281	38.99 1.535	-0.38 -0.015	1.60 0.063	43.3 1.705	1.8 0.071
40 1 1/2	48.3 1.900	+0.44 0.017	-0.52 -0.020	15.88 0.625	7.14 0.281	45.09 1.775	-0.38 -0.015	1.60 0.063	49.4 1.945	1.8 0.071
50 2	60.3 2.375	+0.61 +0.024	-0.61 -0.024	15.88 0.625	8.74 0.344	57.15 2.250	-0.38 -0.015	1.60 0.063	62.2 2.449	1.8 0.071
65 2 1/2	73.0 2.875	+0.74 +0.029	-0.74 -0.029	15.88 0.625	8.74 0.344	69.09 2.720	-0.46 -0.018	1.98 0.078	75.2 2.961	2.3 0.091
80 3	88.9 3.500	+0.76 +0.030	-0.76 -0.030	15.88 0.625	8.74 0.344	72.26 2.845	-0.46 -0.018	1.98 0.078	77.7 3.059	2.3 0.091
100 4	108.0 4.250	+0.89 +0.035	-0.79 -0.031	15.88 0.625	8.74 0.344	84.94 3.344	-0.46 -0.019	1.98 0.078	90.6 3.567	2.3 0.091
125 5	125.0 5.000	+1.07 +0.042	-0.79 -0.031	15.88 0.625	8.74 0.344	103.73 4.084	-0.51 -0.020	2.11 0.083	109.7 4.319	2.3 0.091
150 6	150.0 6.000	+1.14 +0.045	-0.79 -0.031	15.88 0.625	8.74 0.344	110.08 4.334	-0.51 -0.020	2.11 0.083	116.2 4.575	2.3 0.091
175 7	175.0 7.000	+1.32 +0.052	-0.79 -0.031	15.88 0.625	8.74 0.344	129.13 5.084	-0.51 -0.020	2.11 0.083	134.9 5.311	2.9 0.114
200 8	200.0 8.000	+1.40 +0.055	-0.79 -0.031	15.88 0.625	8.74 0.344	135.48 5.334	-0.51 -0.020	2.11 0.083	141.7 5.579	2.9 0.114
250 10	250.0 10.000	+1.42 +0.056	-0.79 -0.031	15.88 0.625	8.74 0.344	137.03 5.395	-0.56 -0.022	2.13 0.084	143.5 5.650	2.9 0.114
300 12	300.0 12.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	154.50 6.083	-0.56 -0.022	2.16 0.085	161.0 6.339	2.9 0.114
350 14	350.0 14.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	160.8 6.330	-0.56 -0.022	2.16 0.085	167.1 6.579	2.9 0.114
400 16	400.0 16.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
450 18	450.0 18.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
500 20	500.0 20.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
550 22	550.0 22.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
600 24	600.0 24.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
650 26	650.0 26.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
700 28	700.0 28.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
750 30	750.0 30.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114
800 32	800.0 32.000	+1.60 +0.063	-0.79 -0.031	15.88 0.625	8.74 0.344	163.96 6.455	-0.56 -0.022	2.16 0.085	170.7 6.720	2.9 0.114

Cut Groove



Nominal Size mm/in	Pipe O.D.			Gasket seat A ±0.76/±0.03 mm/in	Groove Width B ±0.76/±0.03 mm/in	Groove Dia C		Groove Depth D(ref) mm/in	Min.Allow wall thicknessT mm/in
	Basic mm/in	Tolerance mm/in				Basic mm/in	Tolerance mm/in		
25 1	33.7 1.327	0.41 0.016	-0.68 -0.026	15.88 0.625	7.93 0.312	30.23 1.19	-0.38 -0.015	1.7 0.069	3.3 0.129
32 1 1/4	42.4 1.669	0.5 0.02	-0.6 -0.023	15.88 0.625	7.93 0.312	38.99 1.535	-0.38 -0.015	1.7 0.069	3.5 0.138
40 1 1/2	48.3 1.9	0.44 0.017	-0.52 -0.02	15.88 0.625	7.93 0.312	45.09 1.775	-0.38 -0.015	1.6 0.063	3.68 0.145
50 2	60.3 2.375	0.61 0.024	-0.61 -0.024	15.88 0.625	7.93 0.312	57.15 2.25	-0.38 -0.015	1.6 0.063	3.91 0.154
65 2 1/2	73 2.875	0.74 0.029	-0.74 -0.029	15.88 0.625	7.93 0.312	69.09 2.72	-0.46 -0.018	1.98 0.078	4.78 0.188
65 2 1/2	76.1 3	0.76 0.03	-0.76 -0.03	15.88 0.625	7.93 0.312	72.26 2.845	-0.46 -0.018	1.99 0.078	4.78 0.188
80 3	88.9 3.5	0.89 0.035	-0.79 -0.031	15.88 0.625	7.93 0.312	84.94 3.344	-0.46 -0.018	1.98 0.078	4.78 0.188
100 4	108 4.25	1.07 0.042	-0.79 -0.031	15.88 0.625	9.53 0.375	103.73 4.084	-0.51 -0.02	2.11 0.083	5.16 0.203
100 4	114.3 4.5	1.14 0.045	-0.79 -0.031	15.88 0.625	9.53 0.375	110.08 4.334	-0.51 -0.02	2.11 0.083	5.16 0.203
125 5	133 5.25	1.32 0.052	-0.79 -0.031	15.88 0.625	9.53 0.375	129.13 5.084	-0.51 -0.02	2.11 0.083	5.16 0.203
125 5	139.7 5.5	1.4 0.055	-0.79 -0.031	15.88 0.625	9.53 0.375	135.48 5.334	-0.51 -0.02	2.11 0.083	5.16 0.203
125 5	141.3 5.563	1.42 0.056	-0.79 -0.031	15.88 0.625	9.53 0.375	137.03 5.395	-0.56 -0.022	2.13 0.084	5.16 0.203
150 6	159 6.25	1.6 0.063	-0.79 -0.031	15.88 0.625	9.53 0.375	154.5 6.083	-0.56 -0.022	2.16 0.085	5.56 0.219
150 6	165.1 6.5	1.6 0.063	-0.79 -0.031	15.88 0.625	9.53 0.375	160.8 6.33	-0.56 -0.022	2.16 0.085	5.56 0.219
150 6	168.3 6.625	1.6 0.063	-0.79 -0.031	15.88 0.625	9.53 0.375	163.96 6.455	-0.56 -0.022	2.16 0.085	5.56 0.219
200A 8	216.3 8.516	1.6 0.063	-0.79 -0.031	19.05 0.75	11.11 0.438	211.6 8.331	-0.64 -0.025	2.35 0.093	6.05 0.238

Cut Groove

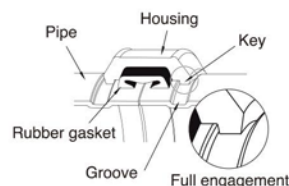


Nominal Size mm/in	Pipe O.D.			Gasket seat A ±0.76/±0.03 mm/in	Groove Width B ±0.76/±0.03 mm/in	Groove Dia C		Groove Depth D(ref) mm/in	Min.Allow wall thicknessT mm/in
	Basic mm/in	Tolerance mm/in				Basic mm/in	Tolerance mm/in		
200 8	219.1 8.625	1.6 0.063	-0.79 -0.031	19.05 0.75	11.11 0.438	214.4 8.441	-0.64 -0.025	2.34 0.092	6.05 0.238
250A 10	267.4 10.528	1.6 0.063	-0.79 -0.031	19.05 0.75	12.7 0.5	262.6 10.339	-0.69 -0.027	2.4 0.095	6.35 0.25
250 10	273 10.75	1.6 0.063	-0.79 -0.031	19.05 0.75	12.7 0.5	268.28 10.562	-0.69 -0.027	2.39 0.094	6.35 0.25
300A 12	318.5 12.539	1.6 0.063	-0.79 -0.031	19.05 0.75	12.7 0.5	312.9 12.319	-0.76 -0.03	2.77 0.109	7.09 0.279
300 12	323.9 12.75	1.6 0.063	-0.79 -0.031	19.05 0.75	12.7 0.5	318.29 12.531	-0.76 -0.03	2.77 0.109	7.09 0.279
350 14	355.6 14	1.6 0.063	-0.79 -0.031	23.83 0.938	12.7 0.5	350.04 13.781	-0.76 -0.03	2.77 0.109	7.14 0.281
350 14	377 14.842	1.6 0.063	-0.79 -0.031	23.83 0.938	12.7 0.5	371.44 14.623	-0.76 -0.03	2.77 0.109	7.14 0.281
400 16	406.4 16	1.6 0.063	-0.79 -0.031	23.83 0.938	12.7 0.5	400.84 15.781	-0.76 -0.03	2.77 0.109	7.92 0.312
400 16	426 16.772	1.6 0.063	-0.79 -0.031	23.83 0.938	12.7 0.5	420.46 16.553	-0.76 -0.03	2.77 0.109	7.92 0.312
450 18	457.2 18	1.6 0.063	-0.79 -0.031	25.4 1	12.7 0.5	451.64 17.781	-0.76 -0.03	2.77 0.109	7.92 0.312
450 18	480 18.897	1.6 0.063	-0.79 -0.031	25.4 1	12.7 0.5	469 18.465	-0.76 -0.03	5.5 0.216	7.92 0.312
500 20	508 20	1.6 0.063	-0.79 -0.031	25.4 1	12.7 0.5	502.44 19.781	-0.76 -0.03	2.77 0.109	7.92 0.312
500 20	530 20.866	1.6 0.063	-0.79 -0.031	25.4 1	12.7 0.5	522 20.55	-0.76 -0.03	4 0.157	7.92 0.312
600 24	609.6 24	1.6 0.063	-0.79 -0.031	25.4 1	14.3 0.563	600.9 23.656	-0.76 -0.03	4.35 0.172	9.5 0.375
600 24	630 24.803	1.6 0.063	-0.79 -0.031	25.4 1	14.3 0.563	620.9 24.445	-0.76 -0.03	4.55 0.179	9.5 0.375

Pipe End Preparation

How to process roll-grooves

Mech grooved piping systems require the processing of a roll or cut groove to the pipe ends being connected. The engagement of the housing keys in the grooves is integral in providing a secure and leak-tight joint. It is essential that the grooves are properly processed for optimum joint performance. And the sealing area with the rubber sealing ring shall not have burr, impurities, dirt, rust and lack of material and other defects.

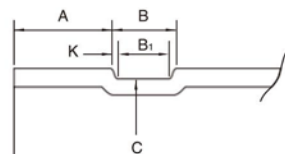


Nominal pipe size

MECH couplings and fittings are identified by the nominal IPS pipe size in inches or nominal diameter of pipe (DN) in millimeters. Always check the actual O.D. of the pipe and fittings to be connected, as in some markets it is customary to refer to different O.D. pipes with the same nominal size. It is necessary to ensure that the outer diameter of the pipe is the same as the nominal size of the grooved fittings and couplings.

Roll groove profile

Roll grooves should be as defined as possible. 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. In order to ensure that the size of the tube end is controlled within the standard tolerance, groove speed should not be excessive. General pipe rotation, groove rolling machine hydraulic cylinder handle down once.

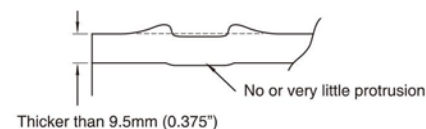


Applicable pipe wall thickness

Roll grooves are generally applicable to .375"/9.5 mm thick or thinner wall carbon steel pipe, stainless steel pipe, copper tube and aluminum pipe depending on the type of roll-grooving machine and roll set being used. Different wall thicknesses and sizes require the use of different roll sets. Contact the roll groove machine manufacturer for additional information.

Heavy wall pipe

When you attempt to roll-groove pipe thicker than .375"/9.5mm, the metal may deform and heap up on both sides of the groove rather than radially deforming and protruding on the inside of the pipe. The extra heaped metal could lead to joint failure. In such a case, you should grind off any such extra metal to achieve a flat and smooth sealing surface. A proper rust preventative coating must be applied on the ground surface. MECH strongly recommends the processing of cut-grooves on heavy or thick wall pipe.



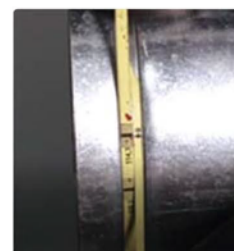
Plain end pipe and beveled end pipe

While plain-end pipe is preferred, the use of beveled end pipe is acceptable providing that the wall thickness is .375"/9.5 mm or thinner and the bevel is 37.5° or 30° as specified in ANSI B16.25 and ASTM A-53 respectively.



Key dimension inspection of pipe end

The diameter of the bottom of the groove, the width of the sealing surface and the width of the groove must be tested with a special tape measure or card board to ensure that the size is qualified before mass production or installation.

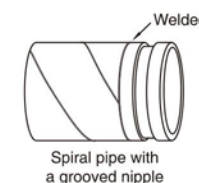


ERW pipe

ERW pipe is one of the most popular types of pipe used today. Depending on the individual pipe and manufacturer, welding beads may remain on the surface (inside and outside) of the pipe. Always remove harmful weld beads near the pipe ends as they can cause rattling of the roll grooving machine resulting in inaccurate grooves.

Spiral welded pipe

Spiral welded pipe may be used as long as the weld beads are removed from the gasket seating surface. It is also acceptable and recommended to weld a grooved end nipple to the pipe end as shown below. Whenever you remove weld beads or projections from the gasket seating surface, use caution so as to not over-grind the surface. After grinding, always apply a proper rust-prevention coating to this area.



Galvanized pipe

Galvanized pipe is acceptable as long as the gasket seating surface is smooth and free from scale and imperfections that could affect gasket sealing. Whenever you remove welding beads or projections from the sealing surface of galvanized pipe, use caution so as to not over-grind the surface. After grinding, always apply a proper rust-prevention coating to this area.

Pressure Ratings and End Loads for Mech Couplings on Steel Pipe



1G Rigid



1GS L/Duty Rigid



1N Reducing



1GK

Nom. Size	Pipe O.D.	Pipe Sched	Wall Thick.	1G		1GS		1N		1GK	
				Roll Grooved		Roll Grooved		Roll Grooved		Roll Grooved	
				Max.Work Press.	Max.End Load	Max.Work Press.	Max.End Load	Max.Work Press.	Max.End Load	Max.Work Press.	Max.End Load
DN/in	mm	(Sch)	mm	Bar/Psi	kN/Lbs	Bar/Psi	kN/Lbs	Bar/Psi	kN/Lbs	Bar/Psi	kN/Lbs
25	33.7	40	3.38	35/500	3.0/680	--	--	20/300	1.8/410	--	--
		10	2.77	35/500	3.0/680	--	--	20/300	1.8/410	--	--
32	42.4	40	3.56	35/500	4.8/1080	--	--	20/300	2.9/650	35/500	4.8/1080
		10	2.77	35/500	4.8/1080	--	--	20/300	2.9/650	35/500	4.8/1080
40	48.3	40	3.68	35/500	6.3/1420	--	--	20/300	3.8/850	35/500	6.3/1420
		10	2.77	35/500	6.3/1420	--	--	20/300	3.8/850	35/500	6.3/1420
50	60.3	40	3.91	35/500	9.8/2210	--	--	20/300	5.9/1330	35/500	9.8/2210
		10	2.77	35/500	9.8/2210	--	--	20/300	5.9/1330	35/500	9.8/2210
65	73	40	5.16	35/500	14.4/3240	--	--	20/300	8.7/1950	35/500	14.5/3250
		10	3.05	35/500	14.4/3240	--	--	20/300	8.7/1950	35/500	14.5/3250
65	76.1	--	6.35	--	--	--	--	--	--	--	--
		--	5.08	35/500	15.7/3520	--	--	20/300	9.4/2120	35/500	15.7/3520
80	88.9	--	3.81	35/500	15.7/3520	--	--	20/300	9.4/2120	35/500	15.7/3520
		40	5.49	35/500	21.4/4810	24/350	15.0/3360	20/300	12.8/2885	35/500	21.4/4810
100	114.3	10	3.05	35/500	21.4/4810	24/350	15.0/3360	20/300	12.8/2885	35/500	21.4/4810
		40	6.02	35/500	35.4/7960	24/350	24.7/5560	20/300	21.2/4770	35/500	35.4/7960
125	139.7	10	3.05	35/500	35.4/7960	24/350	24.7/5560	20/300	21.2/4770	35/500	35.4/7960
		--	3.6	--	--	--	--	--	--	20/300	31.7/7130
125	141.3	40	6.55	35/500	54.1/12100	24/350	37.8/8490	20/300	32.4/7290	--	--
		10	3.4	35/500	54.1/12100	24/350	37.8/8490	20/300	32.4/7290	--	--
150	165.1	--	6.35	35/500	73.8/16610	24/350	51.6/11600	20/300	44.3/9960	20/300	44.3/9960
		--	5.08	35/500	73.8/16610	24/350	51.6/11600	20/300	44.3/9960	20/300	44.3/9960
150	168.3	40	7.11	35/500	76.7/17260	24/350	53.6/12000	20/300	46.0/10340	35/500	76.7/17230
		10	3.4	35/500	76.7/17260	24/350	53.6/12000	20/300	46.0/10340	35/500	76.7/17230
200	219.1	40	8.18	31/450	116.9/26280	24/350	90.8/20430	--	--	35/500	129.7/29160
		30	7.04	31/450	116.9/26280	24/350	90.8/20430	--	--	--	--
250	273	10	4.77	20/300	77.8/17500	24/350	90.8/20430	--	--	20/300	77.8/17500
		40	9.27	28/400	163.8/36800	--	--	--	--	35/500	201.7/45350
300	323.9	30	7.8	20/300	121.0/27210	--	--	--	--	--	--
		10	4.77	20/300	121.0/27210	--	--	--	--	20/300	121.0/27210
300	323.9	40	10.31	28/400	230.6/51880	--	--	--	--	--	--
		STD	9.53	20/300	170.3/38280	--	--	--	--	--	--
300	323.9	30	6.35	20/300	170.3/38280	--	--	--	--	--	--
		10	4.77	20/300	170.3/38280	--	--	--	--	--	--

Pressure Ratings and End Loads for Mech Couplings on Steel Pipe



1N Flexible



1NH Heavy Duty Flexible



321 Flange

Nom. Size	Pipe O.D.	Pipe Sched	Wall Thick.	1N		1NH		321	
				Roll Grooved		Roll Grooved		Roll Grooved	
				Max.Work Press.	Max.End Load	Max.Work Press.	Max.End Load	Max.Work Press.	Max.End Load
DN/in	mm	(Sch)	mm	Bar/Psi	kN/Lbs	Bar/Psi	kN/Lbs	Bar/Psi	kN/Lbs
25	33.7	40	3.38	35/500	3.0/680	--	--	--	--
		10	2.77	35/500	3.0/680	--	--	--	--
32	42.4	40	3.56	35/500	4.8/1080	--	--	--	--
		10	2.77	35/500	4.8/1080	--	--	--	--
40	48.3	40	3.56	35/500	6.3/1420	--	--	16/225	3.2/710
		10	2.77	35/500	6.3/1420	--	--	16/225	3.2/710
50	60.3	40	3.91	35/500	9.8/2210	52/750	14.8/3320	16/225	4.4/1000
		10	2.77	35/500	9.8/2210	35/500	9.8/2210	16/225	4.4/1000
65	73	40	5.16	35/500	14.4/3240	52/750	21.6/4860	20/300	5.9/1330
		10	3.05	35/500	14.4/3240	35/500	14.4/3240	20/300	5.9/1330
65	76.1	--	6.35	--	--	--	--	--	--
		--	5.08	35/500	15.7/3520	52/750	23.5/5280	16/225	7.1/1590
80	88.9	--	3.81	35/500	15.7/3520	35/500	15.7/3530	16/225	7.1/1590
		40	5.49	35/500	21.4/4810	52/750	32.1/7210	16/225	9.6/2165
100	114.3	10	3.05	35/500	21.4/4810	35/500	21.4/4800	16/225	9.6/2165
		40	6.02	35/500	35.4/7960	52/750	53.0/11900	16/225	15.9/3580
125	141.3	10	3.05	35/500	35.4/7960	35/500	35.4/7950	16/225	15.9/3580
		40	6.55	35/500	54.1/12100	52/750	81.0/18200	20/300	31.3/7035
150	165.1	10	3.4	35/500	54.1/12100	31/450	48.6/10930	20/300	31.3/7035
		--	6.35	35/500	73.8/16610	52/750	110.6/24800	16/225	33.2/7460
150	168.3	--	5.08	35/500	73.8/16610	31/450	66.4/14930	16/225	33.2/7460
		40	7.11	35/500	76.7/17260	52/750	115.0/25800	16/225	34.5/7750
200	219.1	10	3.4	35/500	76.7/17260	31/450	68.9/15500	16/225	34.5/7750
		40	8.18	31/450	116.9/26280	52/750	194.8/43800	16/225	58.4/13140
250	273	30	7.04	31/450	116.9/26280	35/500	130.0/29250	16/225	58.4/13140
		10	4.77	20/300	77.8/17500	20/300	77.8/17500	16/225	58.4/13140
300	323.9	40	9.27	28/400	163.8/36800	--	--	16/225	90.8/20410
		30	6.35	20/300	121.0/27210	--	--	16/225	90.8/20410
300	323.9	10	4.19	20/300	121.0/27210	--	--	16/225	90.8/20410
		40	10.31	20/300	170.3/38280	--	--	16/225	127.7/28710
300	323.9	STD	9.53	20/300	170.3/38280	--	--	16/225	127.7/28710
		20	6.35	20/300	170.3/38280	--	--	16/225	127.7/28710
300	323.9	10	4.57	20/300	170.3/38280	--	--	16/225	127.7/28710

Installation Instruction For Rigid & Flexible Coupling



1. Pipe preparation

Check pipe end for proper groove dimensions and to assure that pipe end is free of indentations and projections that would prevent proper sealing.



2. Lubricate gasket

Check gasket to be sure it's compatible for the intended service. Apply thin MECH Pipe Joint Lubricant to the outside and sealing lips of the gasket.



3. Gasket installation

Slip the gasket over one pipe, making sure the gasket lip does not over-hang the pipe end.



4. Alignment

After aligning two pipe ends together, pull the gasket into position, centering between the grooves on each pipe. The gasket should not extend into the groove on either pipe.



5. Housing installation

Remove one bolt&nut and loosen the other nut. Place one housing over the gasket, making sure the housing keys fit into the pipe grooves. Swing the other housing over the gasket and into the grooves on both pipes. Re-insert the bolt and connect two housings.



6. Tighten nuts

Firstly hand tighten nuts and make sure oval neck bolt completely fits into bolt hole. Then securely tighten nuts alternatively and equally to the specified bolt torque by using spanner.



7 a. Assembly completed- Rigid Coupling

For Rigid Coupling, keep the gaps at bolt pads evenly spaced. Gaskets can't be seen visually.



7 b. Assembly completed- Flexible Coupling

For Flexible Coupling, two housings should be iron to iron connected. Gaskets can't be seen visually.



7 c. Assembly completed-Angle Pad Coupling

For Angle Pad Coupling, two housings should be iron to iron connected. Gaskets can't be seen visually.

Caution

Proper torquing of bolts is required to obtain specified performance.

- Over torquing the bolts may result in damage to the bolt and / or casting which could result in pipe joint separation.
- Under torquing the bolts may result in lower pressure retention capabilities, lower bend load capabilities, joint leakage and pipe joint separation. Pipe joint separation may result in significant property damage and serious injury.

Specified Bolt Torque

ANSI BOLTS		
Bolt Size	Specified Bolt Torque	
Inch	Lbs-Fl.	N.m
3/8	30-45	40-60
1/2	80-100	110-135
5/8	100-130	135-175
3/4	130-180	175-245
7/8	180-240	245-325

Installation Instruction For Threaded & Grooved Mechanical Tee



1. Pipe preparation

Clean the gasket sealing surface within 16mm of the hole and visually inspect the sealing surface for defects that may prevent proper sealing of the gasket. Don't drill the hole on weld line.



2. Remove burrs

If any burrs or slug exists at the pipe hole, please remove them before assembly, to protect the gasket and avoid leakage.



3. Gasket installation

Insert the gasket into outlet housing making sure the tab in the gasket line up with the tab recesses in the housing. Align outlet housing over the pipe hole making sure that the locating collar is in the pipe hole.



4. Alignment

Align the strap around the pipe, insert the bolts and tighten the nuts finger tight.



5. Tighten nuts

Alternatively and evenly tighten the nuts to the specified bolt torque.



6. Assembly completed

There should be even gaps on two sides between upper and lower housings.

Caution

Proper torquing of bolts is required to obtain specified performance.

- Over torquing the bolts may result in damage to the bolt and / or casting which could result in pipe joint separation.
- Under torquing the bolts may result in lower pressure retention capabilities, lower bend load capabilities, joint leakage and pipe joint separation. Pipe joint separation may result in significant property damage and serious injury.

Specified Bolt Torque

ANSI BOLTS		
Bolt Size	Specified Bolt Torque	
Inch	Lbs-Fl.	N.m
3/8	30-45	40-60
1/2	80-100	110-135
5/8	100-130	135-175
3/4	—	—
7/8	—	—

Installation Instruction For U-Bolt Mechanical Tee



1.Pipe preparation

Clean the gasket sealing surface within 16mm of the hole and visually inspect the sealing surface for defects that may prevent proper sealing of the gasket. Don't drill the hole on weld line.



2.Remove burrs

If any burrs or slug exists at the pipe hole, please remove them before assembly, to protect the gasket and avoid leakage.



3.Gasket installation

Insert the gasket into outlet housing properly. Align outlet housing over the pipe hole making sure that the locating collar is in the pipe hole.



4.Alignment

Attach the U-bolt from the other side and tighten the nuts finger tight.



5.Tighten nuts

Alternatively and evenly tighten the nuts to the specified bolt torque.



6.Assembly completed

Assembly completed.

Caution

Proper torquing of bolts is required to obtain specified performance.

- Over torquing the bolts may result in damage to the bolt and / or casting which could result in pipe joint separation.
- Under torquing the bolts may result in lower pressure retention capabilities, lower bend load capabilities, joint leakage and pipe joint separation. Pipe joint separation may result in significant property damage and serious injury.

Specified Bolt Torque

Specified Bolt Torque		
ANSI BOLTS		
Bolt Size	Specified Bolt Torque	
Inch	Lbs-Ft.	N.m
3/8	20-30	30-40
1/2	80-100	110-135
5/8	100-130	135-175
3/4	—	—
7/8	—	—

Installation Instruction For Grooved Flange



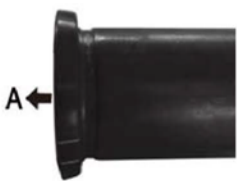
1.Pipe preparation

Check pipe end for proper groove dimensions and to assure that pipe end is free of indentations and projections that would prevent proper sealing.



2.Lubricate gasket

Check gasket to be sure it's compatible for the intended service. Apply thin MECH Pipe Joint Lubricant to the outside and sealing lips of the gasket.



3.Gasket installation

Slip the gasket over pipe end, with the gasket opening side towards "A". Make sure the gasket sealing lip is even with pipe end.



4.Housing installation

Remove bolts and nuts, place two housings over the gasket, making sure the housing keys fit into the pipe grooves. Re-insert the bolts and hand tighten the nuts.



5.Tighten nuts

Securely tighten nuts alternatively and equally to the specified bolt torque by using spanner.



6.Connect mating flange

Align flange bolt holes with mating flange (or valve) bolt holes. Insert a standard flange bolt through bolt hole and hand tighten a nut. Insert another bolt opposite the first and hand tighten a nut. Continue this until all bolt holes are fitted. Tighten nuts evenly to specified bolt torque, so flange faces remain parallel. Assembly completed.

Caution

Proper torquing of bolts is required to obtain specified performance.

- Over torquing the bolts may result in damage to the bolt and / or casting which could result in pipe joint separation.
- Under torquing the bolts may result in lower pressure retention capabilities, lower bend load capabilities, joint leakage and pipe joint separation. Pipe joint separation may result in significant property damage and serious injury.

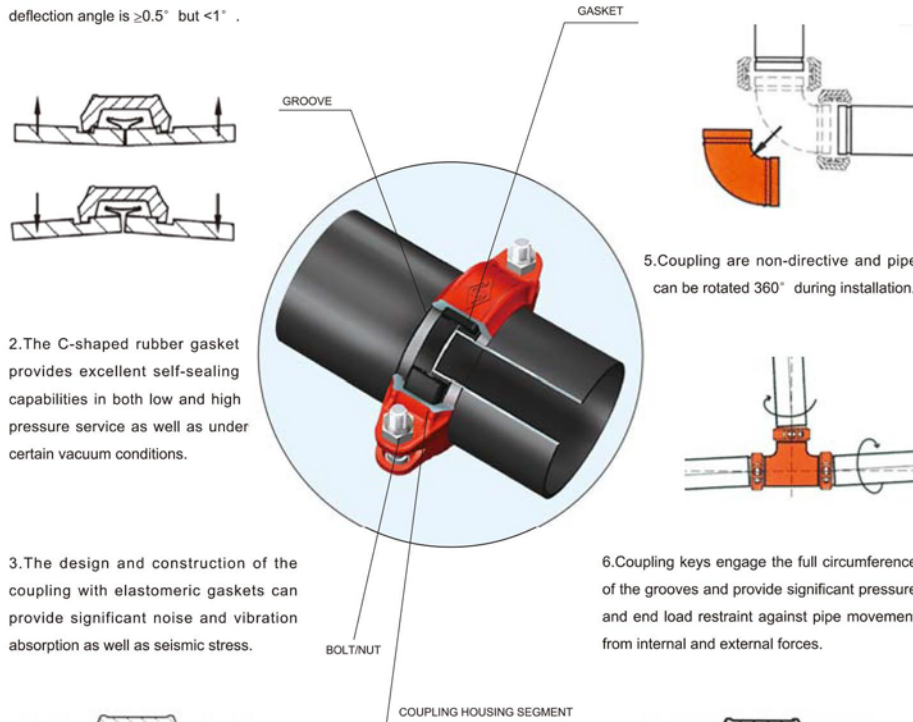
Specified Bolt Torque

Specified Bolt Torque		
ANSI BOLTS		
Bolt Size	Specified Bolt Torque	
Inch	Lbs-Ft.	N.m
M10	30-45	40-60
M12	80-100	110-135
M16	—	—
M20	—	—
M22	—	—
M24	—	—

※ Self-lubricating rubber rings do not need to be lubricated

Flexible Coupling

1. A flexible coupling accommodates pipe deflection and or non-alignment as below:
If nominal diameter < DN200, deflection angle is $\geq 1^\circ$; If nominal diameter $\geq$ DN200, deflection angle is $\geq 0.5^\circ$ but $< 1^\circ$.



2. The C-shaped rubber gasket provides excellent self-sealing capabilities in both low and high pressure service as well as under certain vacuum conditions.

3. The design and construction of the coupling with elastomeric gaskets can provide significant noise and vibration absorption as well as seismic stress.

4. With the removal of just a few bolts you can easily access the system for cleaning, maintenance, changes or system expansion.

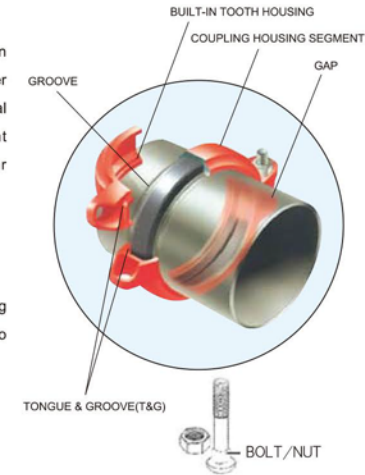
5. Coupling are non-directive and pipe can be rotated 360° during installation.

6. Coupling keys engage the full circumference of the grooves and provide significant pressure and end load restraint against pipe movement from internal and external forces.

Rigid Coupling

1. The T&G mechanism in combination with a slightly shortened key diameter provides a mechanical and frictional interlock resulting in a rigid joint which reduces undesired angular movement.

2. The built-in teeth on the coupling grip the groove shoulder and serve to reduce linear movement.

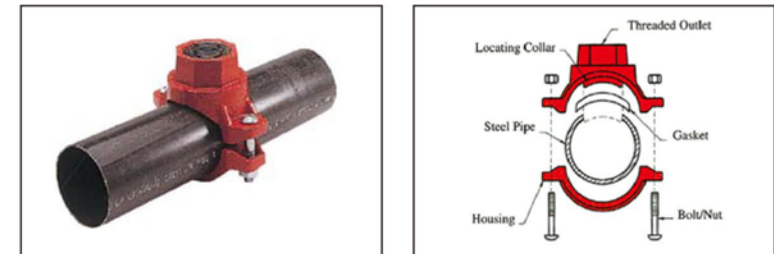


3. The T&G mechanism features a slight offset at the foot of the coupling halves which serve to protect the gasket from exposure.

4. With the T&G style coupling no metal-to-metal contact of the bolt pads is required. You will normally see a 1/16" - 1/8" (1.6mm to 3.2mm) gap between the bolt pads when installed.

Mechanical Tee Connection

The Mechanical Tee (3J, 3G, 3L) provide for a fast and easy grooved or threaded branch outlet and eliminate the need for welding or the use of a reducing tee and couplings. Simply cut a hole to the specified size at the expected location and fasten the mechanical tee to the pipe with the nuts and bolts provided. As the housing bolts are tightened, the pressure responsive gasket forms a leak-tight seal.



Movement

Each flexible design coupling can provide for pipe system movement up to the design maximum for the specific size and type coupling being utilized. Movement is possible in the coupling due to two factors: (1) designed-in clearance between the key of the coupling and the groove diameter and groove width, and (2) the gap between pipe ends joined by the coupling.

1.Linear Movement

Linear movement is accommodated within the coupling by allowing the pipe ends to move together or apart in response to pressure thrusts and temperature changes. The available linear movement provided by couplings is shown below:

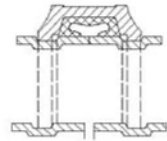
size	1-1¼ (25-32MM)	1½-12 (40-300MM)
movement (CUT)	0-4.0MM	0-6.4MM
movement (Roll)	0-3MM	0-5MM

2.Angular Movement

Designed-in clearances allow limited deflection of the pipe joint within the coupling, without introducing eccentric loads into the coupling joint.

The maximum available angular movement of coupling joints is shown in the performance data for each coupling type. The amount of angular flexibility varies for each coupling size and type. For design purposes the published figures should be reduced by the below listed factors to account for pipe, groove and coupling tolerances.

size	1-3(IN)	4-12(IN)
Design factor	Reduce to 50%	Reduce to 75%



Flexible Couplings:
Linear Movement and
Angular Movement

Size		Linear Movement	Angular Movement	
Inch	mm	mm	Degree	mm/m
1	33.7	2	2°-45'	48
1 1/4	42.4	2	2°-10'	38
1 1/2	48.3	3.2	1°-54'	33
2	60.3	3.2	1°-31'	26
2 1/2	73	3.2	1°-27'	25
2 1/2	76.1	3.2	1°-12'	21
3	88.9	3.2	1°-02'	18
4	108	3.2	1°-51'	32
4	114.3	3.2	1°-36'	28
5	133	3.2	1°-41'	30
5	139.7	3.2	1°-19'	23
5	141.3	3.2	1°-03'	18
6	159	3.2	1°-18'	23
6	165.1	3.2	1°-05'	20
6	168.3	3.2	1°-05'	19
8	219.1	3.2	0°-50'	15
10	273	3.2	0°-40'	12
12	323.9	3.2	0°-34'	10

Movement

-Application

• Thermal stress

Thermal stress is caused by changes in temperature, resulting in either expansion or contraction. When designing a system you must allow for this thermal movement. To determine the appropriate number of flexible couplings to allow for this thermal movement please refer to the following.



Example:

- 4" straight steel pipe, 30m long
- Anchored on both ends
- Minimum temperature (during installation) = 5°C
- Maximum working temperature = 55°C

From the thermal expansion table, we know the overall pipeline length will increase by 18mm (0.71"). You can also use Formula 1 or Table 3 to find the amount of thermal expansion. We want to know the number of couplings that are required to address this thermal movement problem.

The allowed movement of a 4" flexible coupling is :

Movement range x Adjustment = Allowed movement

4.3mm x 75% = 3.2mm

The appropriate number of coupling is:

Thermal expansion / Allowed movement = Number of couplings

18mm / 3.2mm = 5.6

Conclusion:

The appropriate number of coupling is 6.

• Thermal Expansion

Temperature difference (°C)	Pipe length (m)					
	1	5	10	20	30	40
	Thermal Expansion(mm)					
1	0.012	0.06	0.12	0.24	0.36	0.48
5	0.06	0.3	0.6	1.2	1.8	2.4
10	0.12	0.6	1.2	2.4	3.6	4.8
20	0.24	1.2	2.4	4.8	7.2	9.6
30	0.36	1.8	3.6	7.2	11	15
40	0.48	2.4	4.8	9.6	14	20
50	0.6	3	6	12	18	24
60	0.72	3.6	7.2	14	22	29
70	0.84	4.2	8.4	17	25	34
80	0.96	4.8	9.6	19	29	39

Thermal Expansion Formula 1

$\lambda = \alpha \times L \times T$

λ : Thermal Expansion

α : Linear Expansion

coefficient for steel

L : Pipe length

T : Temperature difference

Riser Design

Risers assembled with Flexible couplings are generally installed in either of two ways. In the most common method, the pipe ends are butted together within the coupling joint. Note that when installing risers, the gasket is first placed onto the lower pipe and rolled back away from the pipe end prior to positioning the upper pipe. Anchoring of the riser may be done prior to pressurization with the pipe ends butted or while pressurized, when, due to pressure thrust, the pipe ends will be fully separated.

An alternative method of riser installation is to place a metal spacer of a predetermined thickness, between the pipe ends when an additional length of pipe is added to the riser stack. The upper pipe length is anchored, the spacer removed and the coupling is then installed. This method creates a predetermined gap at each pipe joint which can be utilized in pipe systems where thermal movement is anticipated and in systems with rigid (threaded, welded, flanged) branch connections where shear forces due to pressure thrust could damage the rigid connections.

The following examples illustrate methods of installing commonly encountered riser designs.

• Risers without Branch Connections

Install the riser with the pipe ends butted.

Locate an anchor at the base of the riser (A) to support the total weight of the pipe, couplings and fluid. Provide pipe guides on every other pipe length, as a minimum, to prevent possible deflection of the pipe line at the coupling joints as the riser expands due to pressure thrust or thermal growth. Note that no intermediate anchors are required.

When the system is pressurized the pipe stack will "grow" due to pressure thrust which causes maximum separation of pipe ends within the couplings. The maximum amount of stack growth can be predetermined (see Linear Movement). In this example the pipe length "L" at the top of the riser must be long enough to permit sufficient deflection (see Angular Movement) to accommodate the total movement "M" from both pressure thrust and thermal gradients.

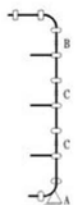


Picture 1

• Risers with Branch Connections

Install the riser with the predetermined gap method. Anchor the pipe at or near the base with a pressure thrust anchor "A" capable of supporting the full pressure thrust, weight of pipe and the fluid column. Anchor at "B" with an anchor capable of withstanding full pressure thrust at the top of the riser plus weight of pipe column. Place intermediate anchors "C" as shown, between anchors "A" and "B". Also place intermediate clamps at every other pipe length as a minimum.

When this system is pressurized, the pipe movement due to pressure thrust will be strained and there will be no shear forces acting at the branch connections.



Picture 2

• Misalignment & Deflections

The angular movement capability of the flexible coupling permits the assembly of pipe joints where the piping is not properly aligned. At least two couplings are required to provide for lateral pipe misalignment. Deflection (longitudinal misalignment) may be accommodated within a single coupling as long as the angle of deflection does not exceed the value shown in the coupling performance data for the particular size and coupling type.

A pipe joint that utilizes the angular deflection capability of the coupling will react to pressure and thermal forces dependent upon the manner in which it is restrained. An unrestrained joint will react to these forces by straightening, thus reducing, if not eliminating, the deflection at the joint. If joint deflection has been designed into the pipe layout and must be maintained, then sufficient anchors must be provided to resist the lateral forces and hold the joint in the deflected condition.

The amount of deflection from pipe run centerline can be calculated utilizing the following equations:

$$M = L \sin \theta$$

$$\theta = \sin^{-1} (G/D)$$

$$M = (G/D) \times L$$

Where:

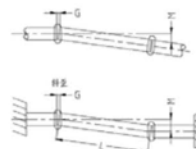
M = Misalignment (inches)

G = Maximum Allowable Pipe End Movement (Inches) as shown under "Performance Data" (Value to be reduced by Design Factor)

θ = Maximum Deflection (Degrees) from centerline as shown under "Performance Data" (Value to be reduced by Design Factor)

D = Pipe Outside Diameter (Inches)

L = Pipe Length (Inches)



• Curve Layout

Utilizing the angular deflection at each coupling joint curves may be laid out using straight pipe lengths and Couplings.

This example shows how to calculate the curve radius, required pipe lengths, and number of required couplings.

$$R = L / (2 \times \sin(\theta/2))$$

$$L = 2 \times R \times \sin(\theta/2)$$

$$N = T / \theta$$

WHERE:

N = Number of Couplings

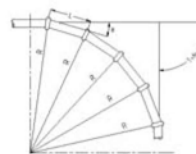
R = Radius of Curve (feet)

L = Pipe Length (feet)

θ = Deflection from centerline (Degrees) of each Coupling

(See coupling performance data, value to be reduced by Design Factor)

T = Total Angular Deflection of all Couplings.



Supporting and Protection of A Grooved-End Pipe System

Supporting and protection of a grooved-end pipe system refers to the general term for fixing, supporting, anti-vibration, anti-corrosion, and thermal insulation measures taken to ensure the quality, safety and service life of the pipe system.

• Design, construction and acceptance requirements for pipeline fixing and supporting

1. Design of pipe support and hanger

Pipe supports and hangers for grooved-connection pipeline engineering should be strengthened. Supports and hangers should be provided on both sides of joints and also on both sides of upstream and downstream connection joints of pipe fittings such as tees, crosses, elbows and reducers.

Fixed supports and hangers should be installed in following positions of grooved-connection pipeline engineering:

- 1.1 The bottom of the inlet vertical-pipe.
- 1.2 The bottom where the pipe turns and redirects to the elbow.
- 1.3 The tee or cross position of outgoing branch pipe of vertical pipe.
- 1.4 The position of the riser that needs to support the weight of the riser due to its long free length.
- 1.5 The part where the outgoing branch pipe of horizontal pipe is connected to pipe fittings such as branch pipe joints, tees, crosses, elbows, etc.
- 1.6 The part where the pipeline is equipped with a compensator to control the pipeline expansion and contraction.
- 1.7 Other parts of the pipeline that need special reinforcement.

2. Construction and acceptance of pipe support and hanger

- 2.1 Supports and hangers should be installed firmly according to design requirements, and their installation positions are correct.
- 2.2 The installation of supports and hangers should be controlled by following regulations:
 - 2.2.1 When the floor height is not greater than 5m, one vertical-pipe support and hanger shall be installed on each floor. When the floor height is greater than 5m, there should be no less than 2 on each floor. When there is no branch pipe on the vertical pipe, the installation height of the support and hanger should be 1.20~1.60m from the ground.
 - 2.2.2 One support and hanger shall be provided for each straight section of the horizontal pipe. The allowable spacing of the support and hanger shall not be greater than provisions in the following table.

Table 1- Allowable spacing of non-insulating horizontal-pipe support and hanger (m)

Nominal Size (mm)	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Max. Span Between Supports (m)	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6

Notes: for insulating pipes, the distance between support and hanger should be reduced correspondingly according to the influence of the weight of the insulating material installed on the pipe.

Supporting and Protection of A Grooved-End Pipe System

- 2.3 The horizontal-pipe supports and hangers shall be arranged on both sides of joints and also on both sides of upstream and downstream connection joints of pipe fittings. The net distance between the support and hanger and the joint should not be less than 150mm, and should not be greater than 300mm.
- 2.4 During pipeline installation, supports and hangers should be fixed and adjusted in time, and temporary supports and hangers should not be used. The support and hanger should be in close contact with the pipe. The sliding surface of the sliding bracket should be clean and flat, and there should be facilities to prevent falling off.
- 2.5 The installation of supports and hangers shall meet the elevation requirements of pipeline installation.
3. Other requirements of the support and hanger shall be implemented in accordance with the NFPA 13, Standard for the Installation of Sprinkler Systems, 2019 edition.

• The minimum requirements for pipeline design, installation, shockproof, anti-corrosion, and antifreeze shall be implemented in accordance with the following standards:

1. NFPA 13, Standard for the Installation of Sprinkler Systems, 2019 edition.
2. NFPA 13R, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies, 2019 edition.
3. NFPA 14, Standard for the Installation of Standpipe and Hose Systems, 2016 edition.
4. NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection, 2007 edition.
5. NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances, 2019 edition.
6. ASME B31.1, Power Piping, 2020 edition.
7. ASME B31.3, Process Piping, 2018 edition.
8. ASME B31.9, Building Services Piping, 2017 edition.

• The inspection, test and maintenance of the pipeline shall be carried out with reference to NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2020 edition.

Engineering Test

No.	Item	Standard Requirements
1	Vacuum Test	Grooved couplings, grooved reducing couplings, grooved split flanges, mechanical tees, and plain end couplings shall be able to withstand the effects of vacuum conditions encountered when sprinkler systems are drained. Samples of each nominal size and style of gasketed coupling and fitting shall be subjected to an internal vacuum of 25 inHg (85 kPa) for a duration of 5 minutes. Following the vacuum test, the test assembly shall be pneumatically pressurized from zero to 50 psi (345 kPa) while submerged in a water bath. There shall be no leakage or permanent deformation as a result of this test.
2	Hydrostatic Strength Test	All items shall be able to withstand an internal hydrostatic pressure equal to three-five times the rated working pressure without cracking, rupture, or permanent distortion. The test shall be conducted for a duration of 1 minute. (Test Size $\leq 6"$, Five time: $8" - 10"$, 4time: $\geq 12"$, 3times)
3	Air Leakage Test	The coupling assembly shall be pressurized with air to 3 bar ± 0.5 bar. The assembly shall be immersed in water to establish that there is no visible leakage
4	Moment Test	The moment resistance shall be demonstrated while the test assembly is internally pressurized to the rated working pressure. Then a force was applied to the test assembly. There shall be no leakage, cracking, or fitting or coupling pull-off as a result of this test.
5	Hot Gasket Test	Standard gaskets shall be assembled to short lengths of pipe, and subjected to 275°F (135°C) for a duration of 45 days. After exposure, the test assembly shall be submerged in a water bath and subjected to an air under water leakage test from zero to 50 psi (0 to 345 kPa) in order to evaluate for leakage. After the air under water testing is completed, the test assembly shall be disassembled and the gasket shall not crack when squeezed together from any two diametrically opposite points, or twisted into a figure-eight shape. The gasket shall then be visually inspected for signs of cracking, tearing, or excessive degradation as a result of this test.
6	Cold Gasket Test	The low temperature exposure shall consist of -40°F (-40°C) air exposure for 4 days. After exposure, the assembly while submerged in -40°F (-40°C) antifreeze, shall be pneumatically pressurized from 0 to 50 psi (0 - 345 kPa). No leakage shall occur. The assembly shall then be allowed to warm to ambient temperature and then be disassembled. The gasket, after removal from the assembly, shall not crack when squeezed together from any two diametrically opposite points, or twisted into a figure eight shape.
7	Flame test	The test shall be conducted in a room free from air draught. The test joint is mounted, U-bent on the test apparatus and filled with water. The angle corresponds to the angle documented as a result of the test. Subsequently the test joint is drained. The fuel pan is placed centrally below the pipe joint. Fuel is filled into the pan and the fuel is ignited. Burning time 5 min for nominal diameters $< \text{DN } 100$; 8 min for nominal diameters $\geq \text{DN } 100$. For reducer couplings the dimension of the smaller nominal diameter shall apply for the determination of the burning time. The flame shall be extinguished immediately once the burning time has expired (5 min or 8 min) and the test joint shall be cooled down. For cooling the test joint is immediately sprayed with water until steam formation is no longer visible, but at least for 3 min. The test joint is then filled completely with water and exposed to a test pressure which corresponds to the maximum permissible pressure and is checked visibly for leaks. Water may leak in form of drops, however, not in form of flowing water or a water spray. The test joint is then pressure relieved (force and internal pressure).
8	Cycling Pressure Resistance (Water Hammer Test)	Prior to the cycling, assemblies shall be subjected to a hydrostatic strength test to the rated working pressure, 175 psi (1205 kPa) minimum, for a duration of 5 minutes. Without leakage or cracking. Assemblies shall then be subjected to 20,000 cycles from zero pressure to the rated working pressure, 175 psi (1205 kPa) minimum. After cycling, the test assembly shall be tested Hydrostatic Strength and maintain 5 minutes without leakage and cracking.

Engineering Test

No.	Item	Standard Requirements
9	Friction Loss Determination	The construction and installation of the coupling or fitting shall be such that obstruction to the passage of water through the coupling or fitting body is minimal. The loss in pressure through the coupling or fitting shall not exceed 5.0 psi (35 kPa) at a flow producing a velocity of 20 ft/s (6.1 m/s) in Schedule 40 steel pipe of the same nominal diameter as the coupling or fitting.
10	Leakage Test - Assembly without Gasket	Leakage from a gasket-less coupling assembly or fitting shall not exceed that of an operating sprinkler head whose discharge coefficient (K-factor) is 5.3 to 5.8 gal/min(psi) ^{1/2} [76 - 84 L/min(bar) ^{1/2}]. This test is for nominal pipe sizes normally associated with over-head piping, less than or equal to 12 in. NPS (300 mm).
11	Torsion test	This test relates to pipe joints $\leq \text{DN } 40$ only. The test joint is filled with water and exposed once to the maximum permissible pressure and is then pressure relieved again. Subsequently the test joint is fixed on one pipe end and an increasing torque is applied to the other pipe end. At the pressure-less test joint the pipe joint shall be able to transmit a torque of up to 80 Nm from one pipe end to the other pipe end without any torsion of the pipe ends against each other.
12	Flexibility Test for Flexible Fittings	With the assembly pressurized to its rated pressure, a bending moment is to be applied to deflect the joint to the maximum angle specified by the manufacturer, while not less than 1 degree for nominal pipe diameters less than 8 inches (203.2 mm) or 0.5 degrees for 8 inches (203.2 mm) and larger. Observations are to be made for leakage or pipe damage.
13	Seismic Evaluation	In order to evaluate the use of grooved couplings in Earthquake zones 50 through 500 years, test assemblies utilizing flexible couplings and short lengths of steel pipe, in the same nominal size, will be subjected to cyclic testing. The test will deflect the assembly to the manufacturer's maximum recommended angle in the forward and reverse direction for a total 15 cycles with the internal pressure equal to the rated working pressure. There shall be no leakage, cracking, or rupture as a result of this test.
14	Lateral Displacement	The coupling shall not leak during any of the tests, within the manufacturer's stated limitations for angular deflection or lateral displacement of associated pipework.
15	Hydrostatic fluctuation pressure test	The coupling assembly shall be pressurized with water to a gauge pressure of 10 bar ± 1 bar for 2 min, $\pm 30\text{s}/0\text{s}$ to establish a datum. The assembly shall then be drained before being subjected to the greatest vacuum attainable to a maximum of 600mm a/mcury or -0.8bar ± 0.1 bar for 2 min $\pm 30\text{s}/0\text{s}$, and allowed to return to atmospheric pressure in not less than 5s. The assembly shall then be pressurized with water to 10 bar $\pm 1\text{bar}$ for 2 min $\pm 30\text{s}/0\text{s}$. The assembly shall be examined for leakage throughout the test. The relative movement of each pipe shall be recorded at the greatest vacuum and at each pressure. There shall be no leakage.
16	Fire Test	If a gasketed pipe coupling or fitting employs non-ferrous materials for its substantial structural components, or if in the judgment of FM Approvals, the design is otherwise suspect with respect to fire resistance, a fire test shall be conducted. A representative size assembled joint without a gasket shall be exposed to a 1000°F (538°C) fire environment for 5 minutes. The assembly shall be dry for the duration of this exposure. Immediately after the exposure, a water flow shall be introduced through the joint and sustained until the assembly is cool to the touch. No cracking or distortion of any component of the coupling or fitting shall occur. The coupling or fitting shall then be disassembled and the gasket installed. After reassembly, the joint shall be hydrostatically tested, as described in to the hydrostatic test.

● As for the maximum working pressure which listed above, please refer to the corresponding certificates.

Notifications

WARNING



- Read and understand all instructions before attempting to install, adjust, maintain or remove any piping products.
- Depressurize and drain the piping system before attempting to install, adjust, maintain or remove any piping products.
- Please wear protective glasses, safety helmet and foot protective equipment.
- Failure to follow these instructions could result in death or serious personal injury and property damage.

Reference Materials

- I-JM-Grooved fitting: Installation Instructions for grooved fittings and couplings