



AN ISO 9001:2015 Certified Co.



MAMATA PIPE FITTINGS PRIVATE LIMITED

Buttweld Pipe Fittings

Piggable Bends

Forged Fittings

Flanges

Fabricated Tanks

Vessels

Piping Systems

Spools

And more...



Company Profile

Monel Forge And Fittings Pvt. Ltd. was founded, it has been our mission to not only manufacture Buttweld fittings, long radius (3D, SD, Customized) bends and large diameter welded 2 Halves Pipe Fittings but also provide complete piping package solutions to our customers.

By flexibility, skill, experience and dedication to our work as well as long-standing relationships with leading manufacturers for all piping related products, we have become over the years a well-known and leading supplier to MFPL and End users across the globe.

We have also become a **ONE STOP SHOP** for reliable Indian origin Piping Supplies for various stockists and traders around the world. Hard-to-find items, short delivery times, rare material grades and similar tasks are just as much our daily business as standard items from mass production. We find solutions for your individual requirements.

We have our own in-house inspection and commissioning staff enabling us to satisfy each customer's individual logistical requirements.

Quality Policy

Quality is our mission, the quality policy is our main tool in achieving it. Utmost Satisfaction of client's expectation.

Innovative, Cost and time effective services Consistent and Continuous quality improvement Fulfillment of defined quality objective targets

Develop the organization as an international for excellence

Continuous evaluation of market to explore challenging areas of operation

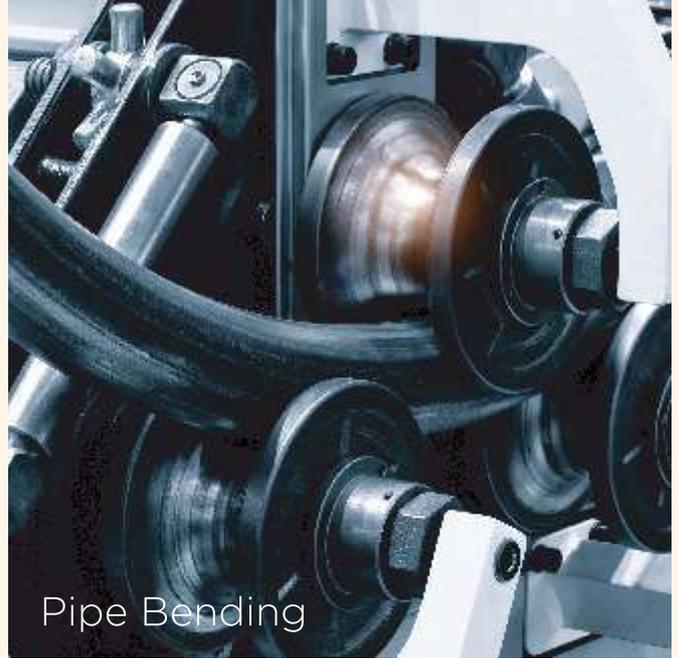
The group is determined to improve productivity and focus continuously on and people

Testing Facility Available

- Chemical Analysis
- Mechanical Tests
- Metallography Test
- Hydrostatic
- Corrosion Test
- Ultrasonic Test
- Radiography
- Miscellaneous Test



Heat Treatment



Pipe Bending

Our Facility

We have all in house facilities for manufacturing of L. R. Bend, Welded 2 Half Fittings, Flanges, Outlets such as Cutting, Hot & Cold Forming, Pressing, Rolling, Ball Passing, Welding, Grinding, Finishing, Gauging, Handling, Hydraulic Test, Heat Treatment, Solutions annealing, Temperature Controlling With Heat Treatment Chart for Client review, surface Treatment, Machining Drilling, Boring, ID Control Picking, Passivation anti rust Coating for excellent protection and durable packaging.

Each of our product comes with a manufacturer test certificate with a manufacturer test certificate with any reputed National & International Third Party Inspection can be done as per Customer requirement 3.1/3.2 Certification



Plate Pressing



Our Mission

To provide the best quality products & services by maintaining high standards of manufacturing low cost, on time delivery customized products & clients satisfaction.

Butt-weld Fitting

Stainless Steel & Duplex Steel Fittings

Size : 1/2"NB to 36"NB ANSI B 16.9 MSS-SP-43
 Schedule : 10S/40S/80S/160S/XXS
 Stainless Steel : ASTM A 403 WP-TP 304/304H/304L/316/
 316H/316L/316Ti/309/310/317L/321/347/904L
 Duplex Steel : ASTM A815-UNS S31803, S32750, S32760, S32205

Alloy Steel, Carbon Steel & LTCS Fittings

Size : 1/2"NB to 36"NB ANSI B 16.9
 Schedule : 10/40/80/160/XXS
 Alloy Steel : ASTM A 234 WPB WP5, WP9, WP11, WP12, Wp91
 Carbon Steel : ASTM A 234 WPB, IS 1239 PART II
 Low Temp. CS : ASTM A-420 WPL6
 Other Service : Hot Dip Galvanizing, Sand Blasting

Copper & Nickel Alloys Fittings

Size : 1/2"NB to 36"NB ANSI B 16.9
 Schedule : 10/40/80
 Copper Nickel : C70600(90:10), C71500 (70:30), C71640
 Nickel : UNS N02200, N02201
 Monel : UNS N04400, N05500, Alloy 20
 Inconel : UNS N06600, N06601, N06625, N08800, N08810, N08825
 Hastelloy : UNS N10276, N06022, N10665, N06455

Test Certificate

Manufacturer Test Certification
 En 3.1 & 3.2
 IBR Test Certification Form IIIC

Type

Stubend - (Long & Short)	Elbow (45 DEG, 90 DEG, 180 DEG)
U Bend	Tee - (Barred, Equal, Reducing)
End Cap	Reducer (Concentric & Eccentric)
Lateral	Nipple - (Swage & Barrel)



Long Radius Bend

Stainless Steel & Duplex Steel Bends

- Size : 1/2"NB to 34"NB
Schedule : Sch. 10 to Sch. 160 in 3D, 5D, 6D, 8D, 10D
Stainless Steel : ASTM A 403 WP-TP 304/304H/304L/316/316H/
316L/316Ti/309/310/317L/321/347/904L
Duplex Steel : ASTM A815—UNS S31803, S32750, S32760,S32205

Alloy Steel, Carbon Steel & LTCS Bends

- Size : 2" to 24"
Schedule : Sch. 2 to Sch XXS in 3D, SD, 6D, 8D, 10D
Alloy Steel : ASTM A 234 WPB WPS, WP9, WP11, WP12, Wp91
Carbon Steel : ASTM A 234 WPB
Low Temp. CS : ASTM A-420 WPL6

Copper & Nickel Alloys Bends

- Size : 1/2" to 12"
Schedule : Sch. 10 to Sch 80 in 3D, 5D, 6D, 8D, 10D
Copper Nickel : C70600(90:10), C71500 (70:30), C71640
Nickel : UNS N02200, N02201
Monel : UNS N04400, N05500, Alloy 20
Inconel : UNS N06600, N06601, N06625, N08800, N08810, N08825
Hastelloy : UNS N10276, N06022, N10665, N06455
Tolerance : Minimum wall Thickness Rate and Ovality, No Wrinkles,
with required Tangent length

Test Certificate

- Manufacturer Test Certification
En 3.1 & 3.2
IBR Test Certification Form IIIC

Type

- Long Radius Bend
Piggable Bend
Hot Bend
Customized Bend

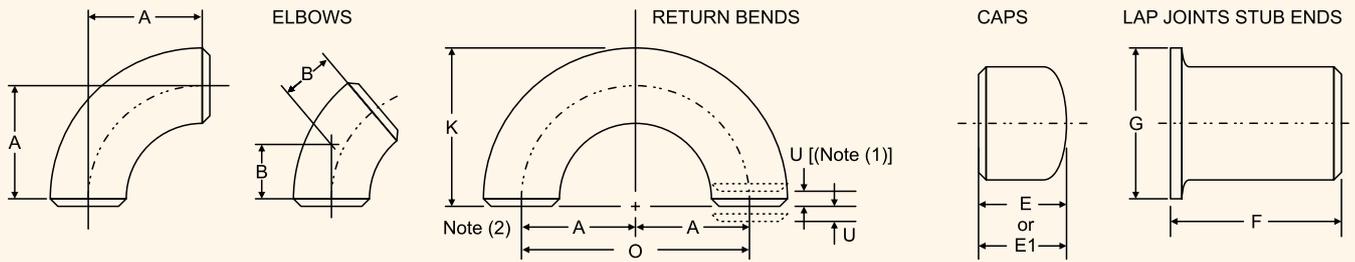


**ANSI PIPE SCHEDULE SI-UNIT (METRIC)
Dimension and weight of pipe to ANSI/ASME B 36.10 & B 36.19**

Nominal Pipe Size Inc./DN	Outside Diameter MM	WALL THICKNESS = MM																	
		WEIGHT= KG PER METRE																	
		5S	10 S	10	20	30	STD	40 S	40	60	XS	80 S	80	100	120	140	160	XXS	
1/8"	10.30		1.24				1.73	1.73	1.73		2.41	2.41	2.41						
DN-6			0.28				0.37	0.37	0.37		0.47	0.47	0.47						
1/4"	13.70		1.65				2.24	2.24	2.24		3.02	3.02	3.02						
DN-8			0.51				0.63	0.63	0.63		0.80	0.8	0.80						
3/8"	17.10		1.65				2.31	2.31	2.31		3.20	3.2	3.20						
DN-10			0.64				0.84	0.84	0.84		1.10	1.1	1.10						
1/2"	21.30	1.65	2.11				2.77	2.77	2.77		3.73	3.73	3.73				4.78	7.74	
DN-15		0.80	1.00				1.27	1.27	1.27		1.62	1.62	1.62				1.95	2.55	
3/4"	26.70	1.65	2.11				2.87	2.87	2.87		3.91	3.91	3.91				5.56	7.82	
DN-20		1.03	1.28				1.69	1.69	1.69		2.20	2.2	2.20				2.90	3.64	
1"	33.40	1.65	2.77				3.38	3.38	3.38		4.55	4.55	4.55				6.35	9.09	
DN-25		1.29	2.09				2.50	2.50	2.50		3.24	3.24	3.24				4.24	5.45	
1.1/4"	42.20	1.65	2.77				3.56	3.56	3.56		4.85	4.85	4.85				6.35	9.70	
DN-32		1.65	2.76				3.39	3.39	3.39		4.47	4.47	4.47				5.61	7.77	
1.1/2"	48.30	1.65	2.77				3.68	3.68	3.68		5.08	5.08	5.08				7.14	0.15	
DN-40		1.90	3.11				4.05	4.05	4.05		5.41	5.41	5.41				7.25	9.55	
2"	60.30	1.65	2.77				3.91	3.91	3.91		5.54	5.54	5.54				8.74	11.07	
DN-50		2.40	3.93				5.44	5.44	5.44		7.48	7.48	7.48				11.11	13.44	
2.1/2"	73.00	2.11	3.05				5.16	5.16	5.16		7.01	7.01	7.01				9.53	14.02	
DN-65		3.69	5.26				8.63	8.63	8.63		11.41	11.41	11.41				14.92	20.39	
3"	88.90	2.11	3.05				5.49	5.49	5.49		7.62	7.62	7.62				11.13	15.24	
DN-80		4.52	6.46				11.29	11.29	11.29		15.27	15.27	15.27				21.35	27.68	
3.1/2"	101.60	2.11	3.05				5.74	5.74	5.74		8.08	8.08	8.08						
DN-90		5.18	7.41				13.57	13.57	13.57		18.64	18.64	18.64						
4"	114.30	2.11	3.05				6.02	6.02	6.02		8.56	8.56	8.56		11.13		13.49	17.12	
DN-100		5.84	8.37				16.08	16.08	16.08		22.32	22.32	22.32		28.32		35.54	41.03	
5"	141.30	2.77	3.40				6.55	6.55	6.55		9.53	9.53	9.53		12.70		15.88	19.05	
DN-125		9.46	11.56				21.77	21.77	21.77		30.97	30.97	30.97		40.28		49.12	57.43	
6"	168.30	2.77	3.40				7.11	7.11	7.11		10.97	10.97	10.97		14.27		18.26	21.95	
DN-150		11.31	13.83				28.26	28.26	28.26		42.56	42.56	42.56		54.21		67.57	79.22	
8"	219.10	2.77	3.76		6.35	7.04	8.18	8.18	8.18	10.31	12.70	12.7	12.70	15.09	18.26	20.62	23.01	22.23	
DN-200		14.78	19.97		33.32	36.82	42.55	42.55	42.55	53.09	64.64	64.64	64.64	75.92	90.44	100.93	111.27	107.93	
10"	273.00	3.40	4.19		6.35	7.80	9.27	9.27	9.27	12.70	12.70	12.7	15.09	18.26	21.44	25.40	28.58	25.40	
DN-250		22.61	27.78		41.76	51.01	60.29	60.29	60.29	81.53	81.53	81.53	95.98	114.70	133.01	155.10	172.27	155.10	
12"	323.80	3.96	4.57		6.35	8.38	9.53	9.53	10.31	14.27	12.70	12.7	17.48	21.44	25.40	28.58	33.32	25.40	
DN-300		31.24	35.98		49.73	65.20	73.86	73.86	79.71	108.93	97.44	97.44	132.05	159.87	186.92	208.08	238.69	186.92	
14"	355.60	3.96	4.78	6.35	7.92	9.53	9.53		11.13	15.09	12.70		19.05	23.83	27.79	31.75	35.71		
DN-350		34.34	41.30	54.69	67.90	81.33	81.33		94.55	126.72	107.40		158.10	194.98	224.66	253.58	281.72		
16"	406.40	4.19	4.78	6.35	7.92	9.53	9.53		12.70	16.66	12.70		21.44	26.19	30.96	36.53	40.49		
DN-400		41.56	47.29	62.65	77.83	93.27	93.27		123.30	160.13	123.31		203.54	245.57	286.66	333.21	365.38		
18"	457.00	4.19	4.78	6.35	7.92	11.13	9.53		14.27	19.05	12.70		23.83	29.36	34.93	39.67	4	5.24	
DN-450		46.79	53.26	70.57	87.71	122.38	105.17		155.80	205.75	139.16		254.57	309.64	363.58	408.28	459.39		
20"	508.00	4.78	5.54	6.35	9.53	12.70	9.53		15.09	20.62	12.70		26.19	32.54	38.10	44.45	50.01		
DN-500		59.32	68.60	78.56	117.15	155.13	117.15		183.43	247.84	155.13		311.19	381.55	441.52	508.15	564.85		
22"	559.00	4.78	5.54	6.35	9.53	12.70	9.53		22.23	12.70			28.58	34.93	41.28	47.63	53.98		
DN-550		65.33	75.53	86.55	129.14	171.10	129.14		294.27	171.10			373.85	451.45	527.05	600.67	672.30		
24"	610.00	5.54	6.35	6.35	9.53	14.27	9.53		17.48	24.61	12.70		30.96	38.89	46.02	52.37	59.54		
DN-600		82.58	94.45	94.53	141.12	209.65	41.12		255.43	355.28	187.07		442.11	547.74	640.07	720.19	808.27		
26"	660.00			7.92	12.70		9.53				12.70								
DN-650				127.36	202.74		152.88				202.74								
28"	711.00			7.92	12.70	15.88	9.53				12.70								
DN-700				137.32	218.71	272.23	164.86				218.71								
30"	762.00			7.92	12.70	15.88	9.53				12.70								
DN-750				147.29	234.68	292.20	176.85				234.68								
32"	813.00			7.92	12.70	15.88	9.53		17.48		12.70								
DN-800				157.25	250.65	312.17	188.83		342.94		250.65								
34"	864.00			7.92	12.70	15.88	9.53		17.48		12.70								
DN-850				167.21	266.63	332.14	200.82		364.92		266.63								
36"	914.00			7.92	12.70	15.88	9.53		19.05		12.70								
DN-900				176.97	282.29	351.73	212.57		420.45		282.29								
38"	965.00						9.53				12.70								
DN-950							224.56				298.26								
40"	1016.00						9.53				12.70								
DN-1000							236.54				314.23								
42"	1067.00						9.53				12.70								
DN-1050							248.53				330.21								
44"	1118.00						9.53				12.70								
DN-1100							260.52				346.18								
46"	1168.00						9.53				12.70								
DN-1150							272.27				361.84								
48"	1219.00						9.53				12.70								
DN-1200							284.25				377.81								

Note: The different grades of stainless steel permit considerable variations in weight.
The ferritic stainless steels may be about 5% less, and the austenitic stainless steel about 2% greater than the values shown in this table, which are based on weights for carbon steel.

**DIMENSIONS OF BUTT WELDED FITTINGS TO
ANSI / ASME / B 16.9 / MSS - SP 43**



Normal size Inches	OD mm	A		B	K		O		E (Note 3)	Limit THK for E	E1 (Note 4)	G	F	
		LR	SR		LR	SR	LR	SR					Long Pattern	Short Pattern
1/2	21.3	38		16	48		76		25	4.57	25	35	76	51
3/4	26.7	38		19	51		76		25	3.81	25	43	76	51
1	33.4	38	25	22	56	41	76	51	38	4.57	38	51	102	51
1.1/4	42.2	48	32	25	70	52	95	64	38	4.83	38	64	102	51
1.1/2	48.3	57	38	29	83	62	114	76	38	5.08	38	73	102	51
2	60.3	76	51	35	106	81	152	102	38	5.59	44	92	152	64
2.1/2	73	95	64	44	132	100	190	127	38	7.11	51	105	152	64
3	88.9	114	76	51	159	121	229	152	51	7.62	64	127	152	64
3.1/2	101.6	133	89	57	184	140	267	178	64	8.13	76	140	152	76
4	114.3	152	102	64	210	159	305	203	64	8.64	76	157	152	76
5	141.3	190	127	79	262	197	381	254	76	9.65	89	186	203	76
6	168.3	229	152	95	313	237	457	305	89	10.92	102	216	203	89
8	219.1	305	203	127	414	313	610	406	102	12.7	127	270	203	102
10	273	381	254	159	518	391	762	508	127	12.7	152	324	254	127
12	323.8	457	305	190	619	467	914	610	152	12.7	178	381	254	152
14	355.6	533	356	222	711	533	1067	711	165	12.7	191	413	305	152
16	406.4	610	406	254	813	610	1219	813	178	12.7	203	470	305	152
18	457	686	457	286	914	686	1372	914	203	12.7	229	533	305	152
20	508	762	508	318	1016	762	1524	1016	229	12.7	254	584	305	152
22	559	838	559	343	1118	838	1676	1118	254	12.7	254	641	305	152
24	610	914	610	381	1219	914	1829	1219	267	12.7	305	692	305	152
26	660	991		406					267					
28	711	1067		438					267					
30	762	1143		470					267					
32	813	1219		502					267					
34	864	1295		533					267					
36	914	1372		565					267					
38	965	1448		600					305					
40	1016	1524		632					305					
42	1067	1600		660					305					
44	1118	1676		695					343					
46	1168	1753		727					343					
48	1219	1829		759					343					

General Note: All Dimensions are in millimeters

Note 1-A&B dim of 29 mm & 11 mm for Elbow, O & K dim of 57 mm & 43 mm for Return, respectively may be furnished for NPS 3/4 at the manufacturer's option.

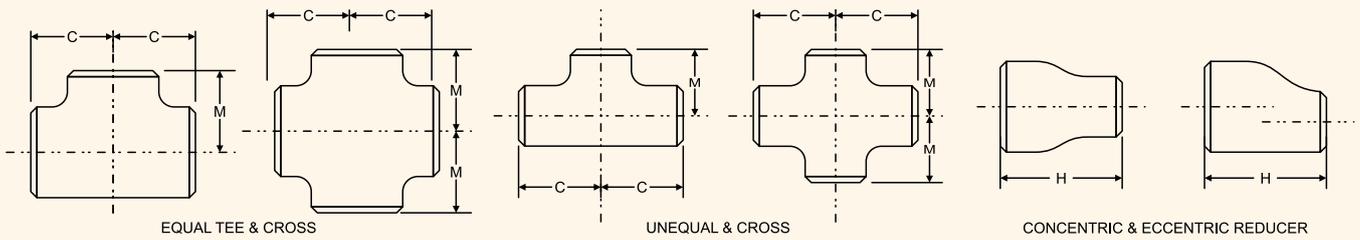
Alignment of end U see page 5 for tolerance

Note 2- Dimensions A is equal to one-half of dimension O

Note 3- Length E applies for thickness not exceeding that given in column limit THK for E

Note 4- Length E1 applies for thickness greater than that given in column limit THK for NPS 24 & smaller.

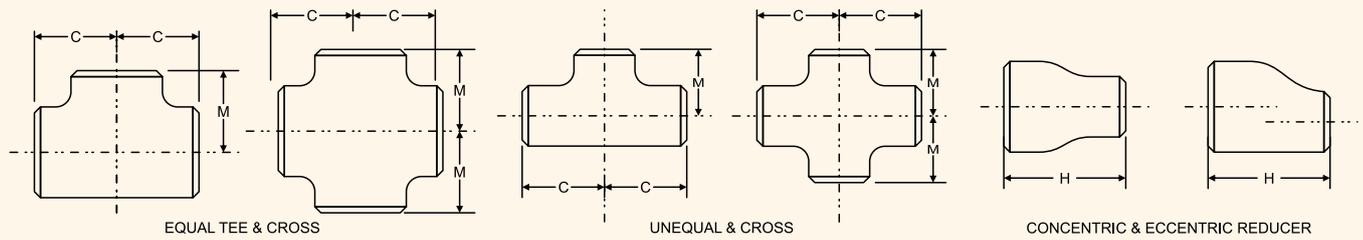
For NPS 26 & larger, length E1 shall be by agreement between manufacturer & purchaser



Nominal size Inch	OD mm	C	M	H	Nominal size Inch	OD mm	C	M	H	Nominal size Inch	OD mm	C	M	H
1/2	21.3	25	25	-	5 x 3	141.3 x 88.9	124	111	127	20 x 8	508 x 219.1	381	324	-
1/2 x 3/8	21.3 x 17.3	25	25	38**	5 x 2.1/2	141.3 x 73	124	108	127	22	559	419	419	-
1/2 x 1/4	21.3 x 13.7	25	25	38**	5 x 2	141.3 x 60.3	124	105	127	22 x 2 0	559 x 508	419	406	508
3/4	26.7	29	29	-	6	168.3	143	143	-	22 x 18	559 x 457	419	394	508
3/4 x 1/2	26.7	29	29	38	6 x 5	168.3 x 141.3	143	137	140	22 x 16	559 x 406.4	419	381	508
3/4 x 3/8	26.7 x 17.3	29	29	38	6 x 4	168.3 x 114.3	143	130	140	22 x 14	559 x 355.6	419	381	508
1	33.4	38	38	-	6 x 3.1/2	168.3 x 101.6	143	127	140	22 x 12	559 x 323.8	419	371	-
1 x 3/4	33.4 x 26.7	38	38	51	6 x 3	168.3 x 88.9	143	124	140	22 x 10	559 x 273	419	359	-
1 x 1/2	33.4 x 21.3	38	38	51	6 x 2.1/2	168.3 x 73	143	121	140	24	610	432	432	-
1.1/4	42.2	48	48	-	8	219.1	178	178	-	24 x 22	610 x 559	432	432	508
1.1/4 x 1	42.2 x 33.4	48	48	51	8 x 6	219.1 x 168.3	178	168	152	24 x 20	610 x 508	432	432	508
1.1/4 x 3/4	42.2 x 26.7	48	48	51	8 x 5	219.1 x 141.3	178	162	152	24 x 18	610 x 457	432	419	508
1.1/4 x 1/2	42.2 x 21.3	48	48	51	8 x 4	219.1 x 114.3	178	156	152	24 x 16	610 x 406.4	432	406	508
1.1/2	48.3	57	57	-	8 x 3.1/2	219.1 x 101.6	178	152	152	24 x 14	610 x 355.6	432	406	-
1.1/2 x 1.1/4	48.3 x 42.2	57	57	64	10	273	216	216	-	24 x 12	610 x 323.8	432	397	-
1.1/2 x 1	48.3 x 33.4	57	57	64	10 x 8	273 x 219.1	216	203	178	24 x 10	610 x 273	432	384	-
1.1/2 x 3/4	48.3 x 26.7	57	57	64	10 x 6	273 x 168.3	216	194	178	26	660	495	495	-
1.1/2 x 1/2	48.3 x 21.3	57	57	64	10 x 5	273 x 141.3	216	191	178	26 x 24	660 x 610	495	483	610
2	60.3	64	64	-	10 x 4	273 x 114.3	216	184	178	26 x 22	660 x 559	495	470	610
2 x 1.1/2	60.3 x 48.3	64	60	76	12	323.8	254	254	-	26 x 20	660 x 508	495	457	610
2 x 1.1/4	60.3 x 42.2	64	57	76	12 x 10	323.8 x 273	254	241	203	26 x 18	660 x 457	495	444	610
2 x 1	60.3 x 33.4	64	51	76	12 x 8	323.8 x 219.1	254	229	203	26 x 16	660 x 406.4	495	432	-
2 x 3/4	60.3 x 26.7	64	44	76	12 x 6	323.8 x 168.3	254	219	203	26 x 14	660 x 355.6	495	432	-
2.1/2	73	76	76	-	12 x 5	323.8 x 141.3	254	216	203	26 x 12	660 x 323.8	495	422	-
2.1/2 x 2	73 x 60.3	76	70	89	14	355.6	279	279	-	28	711	521	521	-
2.1/2 x 1.1/2	73 x 48.3	76	67	89	14 x 12	355.6 x 323.8	279	270	330	28 x 26	711 x 660	521	521	610
2.1/2 x 1.1/4	73 x 42	76	64	89	14 x 10	355.6 x 273	279	257	330	28 x 24	711 x 610	521	508	610
2.1/2 x 1	73 x 33.4	76	57	89	14 x 8	355.6 x 219.1	279	248	330	28 x 22	711 x 559	521	495	610
3	88.9	86	86	-	14 x 6	355.6 x 168.6	279	238	330	28 x 20	711 x 508	521	483	610
3 x 2.1/2	88.9 x 73	86	83	89	16	406.4	305	305	-	28 x 18	711 x 457	521	470	-
3 x 2	88.9 x 60.3	86	76	89	16 x 14	406.4 x 355.6	305	305	356	28 x 16	711 x 406.4	521	457	-
3 x 1.1/2	88.9 x 48.3	86	73	89	16 x 12	406.4 x 323.8	305	295	356	28 x 14	711 x 355.6	521	457	-
3 x 1.1/4	88.9 x 42.2	86	70	89	16 x 10	406.4 x 273	305	283	356	28 x 12	711 x 323.8	521	448	-
3.1/2	101.6	95	95	-	16 x 8	406.4 x 219.1	305	273	356	30	762	559	559	-
3.1/2 x 3	101.6 x 88.9	95	92	102	16 x 6	406.4 x 168.3	305	264	-	30 x 28	762 x 711	559	546	610
3.1/2 x 2.1/2	101.6 x 73	95	89	102	18	457	343	343	-	30 x 26	762 x 660	559	546	610
3.1/2 x 2	101.6 x 60.3	95	83	102	18 x 16	457 x 406.4	343	330	381	30 x 24	762 x 610	559	533	610
3.1/2 x 1.1/2	101.6 x 48.3	95	79	102	18 x 14	457 x 355.6	343	330	381	30 x 22	762 x 559	559	521	610
4	114.3	105	105	-	18 x 12	457 x 323.8	343	321	381	30 x 20	762 x 508	559	508	-
4 x 3.1/2	114.3 x 101.6	105	102	102	18 x 10	457 x 273	343	308	381	30 x 18	762 x 457	559	495	-
4 x 3	114.3 x 88.9	105	98	102	18 x 8	457 x 219.1	343	298	-	30 x 16	762 x 406.4	559	483	-
4 x 2.1/2	114.3 x 73	105	95	102	20	508	381	381	-	30 x 14	762 x 355.6	559	483	-
4 x 2	114.3 x 60.3	105	89	102	20 x 18	508 x 457	381	368	508	30 x 12	762 x 323.8	559	476	-
4 x 1.1/2	114.3 x 48.3	105	86	102	20 x 16	508 x 406.4	381	356	508	30 x 10	762 x 273	559	460	-
5	141.3	124	124	-	20 x 14	508 x 355.6	381	356	508	32	813	597	597	-
5 x 4	141.3 x 114.3	124	117	127	20 x 12	508 x 323.8	381	346	508	32 x 30	813 x 762	597	584	610
5 x 3.1/2	141.3 x 101.6	124	114	127	20 x 10	508 x 273	381	333	-	32 x 28	813 x 711	597	572	610

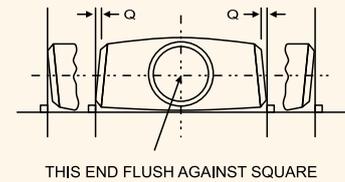
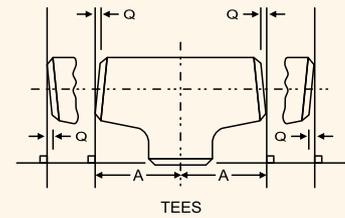
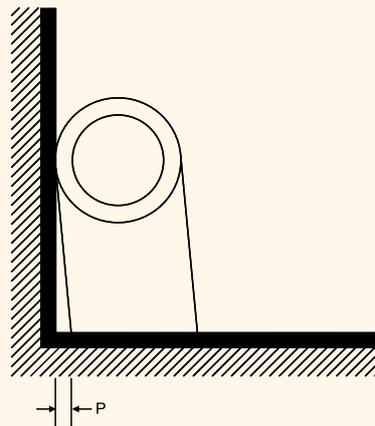
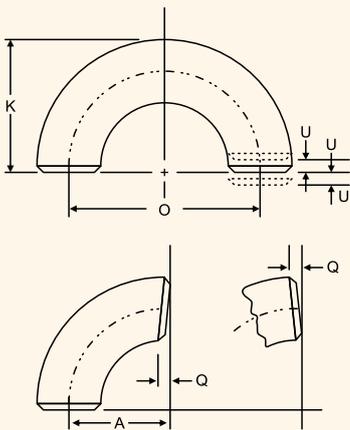
General Note: All Dimensions are in millimeters

DIMENSIONS OF BUTT WELDED FITTINGS TO ANSI / ASME / B 16.9 / MSS - SP 43



Nominal size Inch	OD mm	C	M	H	Nominal size Inch	OD mm	C	M	H	Nominal size Inch	OD mm	C	M	H
32 x 26	813 x 660	597	572	610	40 x 24	1016 x 610	749	660	-	48 x 42	1219 x 1067	889	813	711
32 x 24	813 x 610	597	559	610	40 x 22	1016 x 559	749	648	-	48 x 40	1219 x 1016	889	813	711
32 x 22	813 x 559	597	546	-	40 x 20	1016 x 508	749	635	-	48 x 38	1219 x 965	889	813	-
32 x 20	813 x 508	597	533	-	40 x 18	1016 x 457	749	622	-	48 x 36	1219 x 914	889	787	-
32 x 18	813 x 457	597	521	-	42	1067	762	711	-	48 x 34	1219 x 864	889	787	-
32 x 16	813 x 406.4	597	508	-	42 x 40	1067 x 1016	762	711	610	48 x 32	1219 x 813	889	787	-
32 x 14	813 x 355.6	597	508	-	42 x 38	1067 x 965	762	711	610	48 x 30	1219 x 762	889	762	-
34	864	635	635	-	42 x 36	1067 x 914	762	711	610	48 x 28	1219 x 711	889	762	-
34 x 32	864 x 813	635	622	610	42 x 34	1067 x 864	762	711	610	48 x 26	1219 x 660	889	762	-
34 x 30	864 x 762	635	610	610	42 x 32	1067 x 813	762	711	610	48 x 24	1219 x 610	889	737	-
34 x 28	864 x 711	635	597	610	42 x 30	1067 x 762	762	711	610	48 x 22	1219 x 559	889	737	-
34 x 26	864 x 660	635	597	610	42 x 28	1067 x 711	762	698						
34 x 24	864 x 610	635	584	-	42 x 26	1067 x 660	762	698						
34 x 22	864 x 559	635	572	-	42 x 24	1067 x 610	762	660						
34 x 20	864 x 508	635	559	-	42 x 22	1067 x 559	762	660						
34 x 18	864 x 457	635	546	-	42 x 20	1067 x 508	762	660						
34 x 16	864 x 409.4	635	533	-	42 x 18	1067 x 457	762	648						
36	914	673	673	-	42 x 16	1067 x 406.4	762	635						
36 x 34	914 x 864	673	660	610	44	1118	813	762						
36 x 32	914 x 813	673	648	610	44 x 42	1118 x 1067	813	762						
36 x 30	914 x 762	673	635	610	44 x 40	1118 x 1016	813	749	610					
36 x 28	914 x 711	673	622	610	44 x 38	1118 x 965	813	737	610					
36 x 26	914 x 660	673	622	610	44 x 36	1118 x 914	813	724	610					
36 x 24	914 x 610	673	610	-	44 x 34	1118 x 864	813	724	610					
36 x 22	914 x 559	673	597	-	44 x 32	1118 x 813	813	711						
36 x 20	914 x 508	673	584	-	44 x 30	1118 x 762	813	711						
36 x 18	914 x 457	673	572	-	44 x 28	1118 x 711	813	698						
36 x 16	914 x 406.4	673	559	-	44 x 26	1118 x 660	813	698						
38	965	711	711	-	44 x 24	1118 x 610	813	698						
36 x 36	965 x 914	711	711	610	44 x 22	1118 x 559	813	686						
38 x 34	965 x 864	711	698	610	44 x 20	1118 x 508	813	686						
38 x 32	965 x 813	711	686	610	46	1168	851	800						
38 x 30	965 x 762	711	673	610	46 x 44	1168 x 1118	851	800	711					
38 x 28	965 x 711	711	648	610	46 x 42	1168 x 1067	851	787	711					
38 x 26	965 x 660	711	648	610	46 x 40	1168 x 1016	851	775	711					
38 x 24	965 x 610	711	635	-	46 x 38	1168 x 965	851	762	711					
38 x 22	965 x 559	711	622	-	46 x 36	1168 x 914	851	762						
38 x 20	965 x 508	711	610	-	46 x 34	1168 x 864	851	749						
38 x 18	965 x 457	711	597	-	46 x 32	1168 x 813	851	749						
40	1016	749	749	-	46 x 30	1168 x 762	851	737						
40 x 38	1016 x 965	749	749	610	46 x 28	1168 x 711	851	737						
40 x 36	1016 x 914	749	737	610	46 x 26	1168 x 660	851	737						
40 x 34	1016 x 864	749	724	610	46 x 24	1168 x 610	851	724						
40 x 32	1016 x 813	749	711	610	46 x 22	1168 x 559	851	724						
40 x 30	1016 x 762	749	698	610	48	1219	889	838						
40 x 28	1016 x 711	749	673	-	48 x 46	1219 x 1168	889	838	711					
40 x 26	1016 x 660	749	673	-	48 x 44	1219 x 1118	889	838	711					

General Note: All Dimensions are in millimeters

**TOLERANCES OF BUTT WELDED FITTINGS DIMENSION
TO ANSI / ASME B 16.9**

TOLERANCES

All Fittings					Center-to-End Dimensions of 90° & 45° Elbows and Tees, A, B, C, M	Overall Length of Reducers and Lap Joint Stub Ends, F, H	Overall Length of Caps, E	180° Returns		
Nominal Pipe Size (NPS)	(DN)	Outside Diameter at Bevel, D [Notes (1), and (2)]	Inside Diameter at End [Notes (1), (3) and (4)]	Wall Thickness t				Center-to-Center Dimension, O	Back-to-Face Dimension, K	Alignment of Ends, U
1/2 to 2.1/2	15 - 65	+ 1.6 - 0.8	0.8	Not Less Than 87.5% of Nominal Thickness	2	2	3	6	6	1
3 to 3.1/2	80 - 90	1.6	1.6		2	2	3	6	6	1
4	100	1.6	1.6		2	2	3	6	6	1
5 to 8	125 - 200	+ 2.4 - 1.6	1.6		2	2	6	6	6	1
10 to 18	250 - 450	+ 4.0 - 3.2	3.2		2	2	6	10	6	2
20 to 24	500 - 600	+ 6.4 - 4.8	4.8		2	2	6	10	6	2
26 to 30	650 - 750	+ 6.4 - 4.8	4.8		3	5	10	-	-	-
32 to 48	800 - 1200	+ 6.4 - 4.8	4.8		5	5	10	-	-	-
Nominal Pipe Size (NPS)	(DN)	Lap Joint Stub Ends				Nominal Pipe Size (NPS)	(DN)	Angularity Tolerances		
		Outside Diameter of Lap, G	Fillet Radius of Lap, R	Outside Diameter of Barrel	Lap Thickness			Off Angle, Q	Off Plane, P	
1/2 to 2.1/2	15 - 65	+ 0 - 1	+ 0 - 1		+ 1.6 - 0	1/2 to 4	15 - 100	1	2	
3 to 3.1/2	80 - 90	+ 0 - 1	+ 0 - 1		+ 1.6 - 0	5 to 8	125 - 200	2	4	
4	100	+ 0 - 1	+ 0 - 2		+ 1.6 - 0	10 to 12	250 - 300	3	5	
5 to 8	125 - 200	+ 0 - 1	+ 0 - 2		+ 1.6 - 0	14 to 16	350 - 400	3	6	
10 - 18	250 - 450	+ 0 - 2	+ 0 - 2		+ 3.2 - 0	18 to 24	450 - 600	4	10	
20 to 24	500 - 600	+ 0 - 2	+ 0 - 2		+ 3.2 - 0	26 to 30	650 - 750	5	10	
26 to 30	650 - 750	-	-		-	32 to 42	800 - 1050	5	13	
37 to 48	800 - 1200	-	-		-	44 - 48	1100 - 1200	5	19	

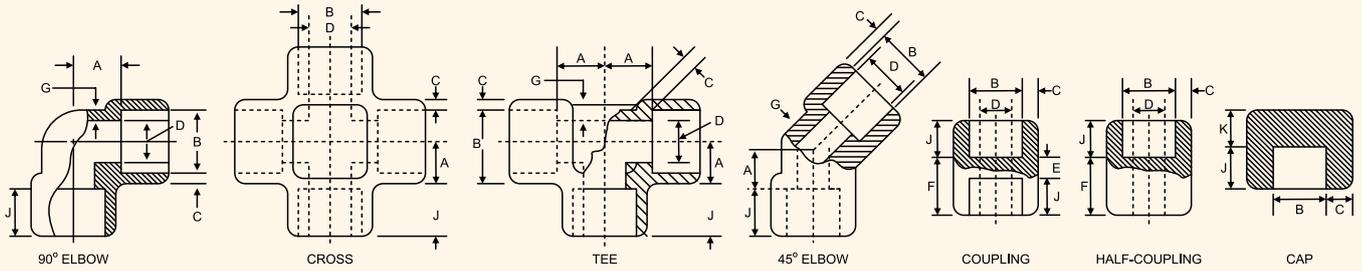
General Note:

1. All Dimensions are in millimeters
2. Tolerances are equal plus and minus except as noted

Notes:

1. Out-of-round is the sum of absolute of plus and minus tolerances
2. This tolerance may not apply in localized areas of formed fittings where increased wall thickness is required to meet design requirements of para 2.2 of ASME B 16.9
3. The inside diameter and the nominal wall thicknesses at ends are to be specified by the purchaser
4. Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness

DIMENSIONS OF SW FITTINGS TO ANSI / ASME / B 16.11

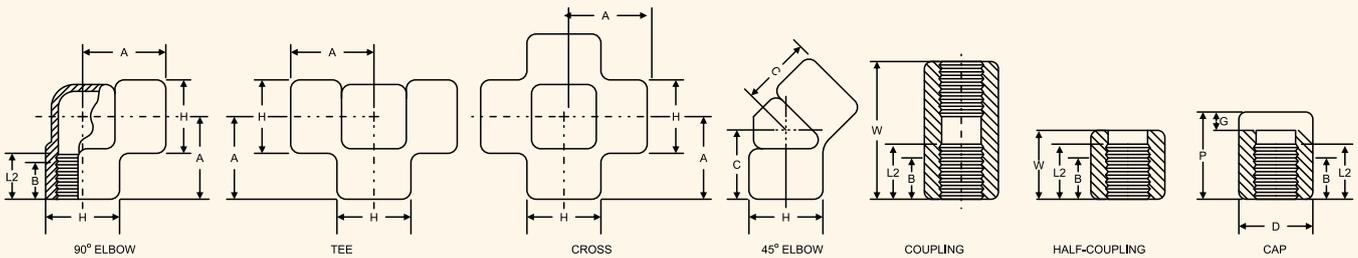


Nom size Inch	Soc Bore Diam (Note 1)	Bore Diameter of Fittings (Note 1)			Socket Wall Thickness (Note 2)			Body Wall Thickness			Min SW Dep.	Centre to Bottom of Socket						Laying Length		End Wall Thickness Min		
												90° Elbow Tee & Cross			45° Elbow			Coupling	Half Coupling			
												B	D		C							
	3000	6000	9000	3000	6000	9000	3000	6000	9000		3000	6000	9000	3000	6000	9000			3000	6000	9000	
1/8	10.8	6.1	3.2		3.18	3.43		2.41	3.15		9.5	11	11		8	8		6.5	16	4.8	6.4	
	11.2	7.6	4.8		3.18	3.96																
1/4	14.2	8.5	5.6		3.3	4.01		3.02	3.68		9.5	11	13.5		8	8		6.5	16	4.8	6.4	
	14.6	10	7.1		3.78	4.6																
3/8	17.6	11.8	8.4		3.5	4.37		3.2	4.01		9.5	13.5	15.5		8	11		6.5	17.5	4.8	6.4	
	18	13.3	9.9		4.01	5.03																
1/2	21.8	15	11	5.6	4.09	5.18	8.18	3.73	4.78	7.47	9.5	15.5	19	25.5	11	12.5	15.5	9.5	22.5	6.4	7.9	11.2
	22.2	16.6	12.5	7.2	4.67	5.97	9.35															
3/4	27.2	20.2	14.8	10.3	4.27	6.04	8.56	3.91	5.56	7.82	12.5	19	22.5	28.5	13	14	19	9.5	24	6.4	7.9	12.7
	27.6	21.7	16.3	11.8	4.9	6.96	9.78															
1	33.9	25.9	19.9	14.4	4.98	6.93	9.96	4.55	6.35	9.09	12.5	22.5	27	32	14	17.5	20.5	12.5	28.5	9.6	11.2	14.2
	34.3	27.4	21.5	16	5.69	7.92	11.38															
1.1/4	42.7	34.3	28.7	22	5.28	6.93	10.62	4.85	6.35	9.7	12.5	27	32	35	17.5	20.5	22.5	12.5	30	9.6	11.2	14.2
	43.1	35.8	30.2	23.5	6.07	7.92	12.14															
1.1/2	48.8	40.1	33.2	27.2	5.54	7.8	11.12	5.08	7.14	10.15	12.5	32	38	38	20.5	25.5	25.5	12.5	32	11.2	12.7	15.7
	49.2	41.6	34.7	28.7	6.35	8.92	12.7															
2	61.2	51.7	42.1	37.4	6.04	9.5	12.12	5.54	8.74	11.07	16	38	41	54	25.5	28.5	28.5	19	41	12.7	15.7	19
	61.7	53.3	43.6	38.9	6.93	10.92	13.84															
2.1/2	73.9	61.2			7.67			7.01			16	41		28.5				19	43	15.7	19	
	74.4	64.2			8.76																	
3	89.8	76.4			8.3			7.62			16	57		32				19	44.5	19	22.4	
	90.3	79.4			9.52																	
4	115.2	100.7			9.35			8.56			19	66.5		41				19	48	22.4	28.4	
	115.7	103.8			10.69																	

General Note: All Dimensions are in millimeters

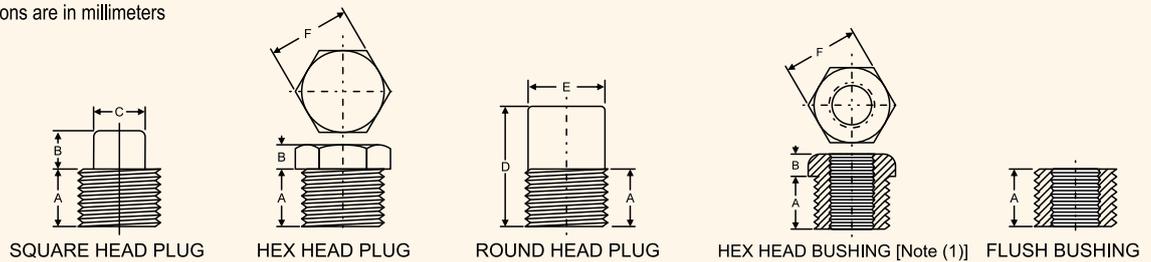
Note:

- Upper & Lower Values for each size are the respective maximum & minimum dimensions
- Average of socket wall thickness around periphery shall be no less that listed values. The minimum values are permitted in localized areas

**DIMENSIONS OF THREADED FITTINGS TO
TO ANSI / ASME B 16.11 THREAD TO ANSI / B 1.20.1**


Nom. size Inch	Center to End Elbow, Tee, Cross			Center to End 45O Elbow			Out Side Diameter			End to End	End to End Cap		Out Side Diameter		Min. End Wall THK		Min. Thread Length	
	A			C			H			W	P		D		G		B	L2
	2000	300	6000	2000	3000	6000	2000	3000	6000	3000 & 6000	3000	6000	3000	6000	3000	6000		
1/8	21	21	25	17	17	19	22	22	25	32	19		16	22	4.8		6.4	6.7
1/4	21	25	28	17	19	22	22	25	33	35	25	27	19	25	4.8	6.4	8.1	10.2
3/8	25	28	33	19	22	25	25	33	38	38	25	27	22	32	4.8	6.4	9.1	10.4
1/2	28	33	38	22	25	28	33	38	46	48	32	33	28	38	6.4	7.9	10.9	13.6
3/4	33	38	44	25	28	33	38	46	56	51	37	38	35	44	6.4	7.9	12.7	13.9
1	38	44	51	28	33	35	46	56	62	60	41	43	44	57	9.7	11.2	14.7	17.3
1.1/4	44	51	60	33	35	43	56	62	75	67	44	46	57	64	9.7	11.2	17	18
1.1/2	51	60	64	35	43	44	62	75	84	79	44	48	64	76	11.2	12.7	17.8	18.4
2	60	64	83	43	44	52	75	84	102	86	48	51	76	92	12.7	15.7	19	19.2
2.1/2	76	83	95	52	52	64	92	102	121	92	60	64	92	108	15.7	19	23.6	28.9
3	86	95	106	64	64	79	109	121	146	108	65	68	108	127	19	22.4	25.9	30.5
4	106	114	114	79	79	79	146	152	152	121	68	75	140	159	22.4	28.4	27.7	33

General Note: All Dimensions are in millimeters

PLUGS AND BUSHINGS


DN	Nominal Pipe Size	Min. Length, A	Square Head Plug		Round Head Plugs		Hex Plugs and Bushings					
			Min. Square Height, B	Min. Width Flats, C	Nominal Head Diameter, E	Min. Length, D	Nominal Width Flats, F	Min. Hex Bushing, G	Height Plug, H			
			6	1/8	10	6	7	10	35	11	-	6
			8	1/4	11	6	10	14	41	16	3	6
10	3/8	13	8	11	18	41	18	4	8			
15	1/2	14	10	14	21	44	22	5	8			
20	3/4	16	11	16	27	44	27	6	10			
25	1	19	13	21	33	51	36	6	10			
32	1.1/4	21	14	24	43	51	46	7	14			
40	1.1/2	21	16	28	48	51	50	8	16			
50	2	22	18	32	60	64	65	9	18			
65	2.1/2	27	19	36	73	70	75	10	19			
80	3	28	21	41	89	70	90	10	21			
100	4	32	25	65	114	76	115	13	25			

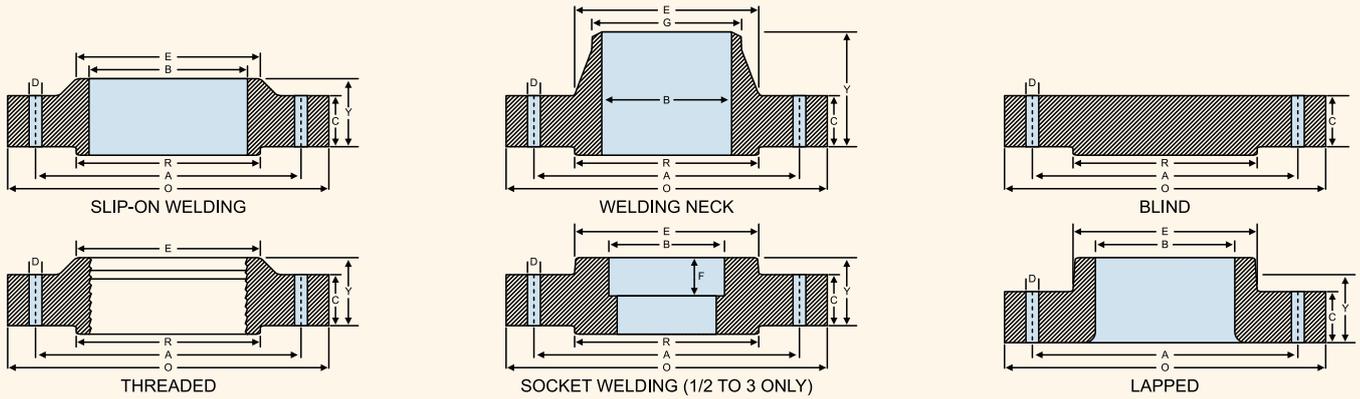
General Note:

1. All Dimensions are in millimeters

Notes:

1. Cautionary Note Regarding Hex Bushings: Hex head bushings of one-size reduction should not be used in services where they might be subject to harmful loads and forces other than internal pressure.

DIMENSIONS OF FLANGES TO ASME / ANSI B 16.5



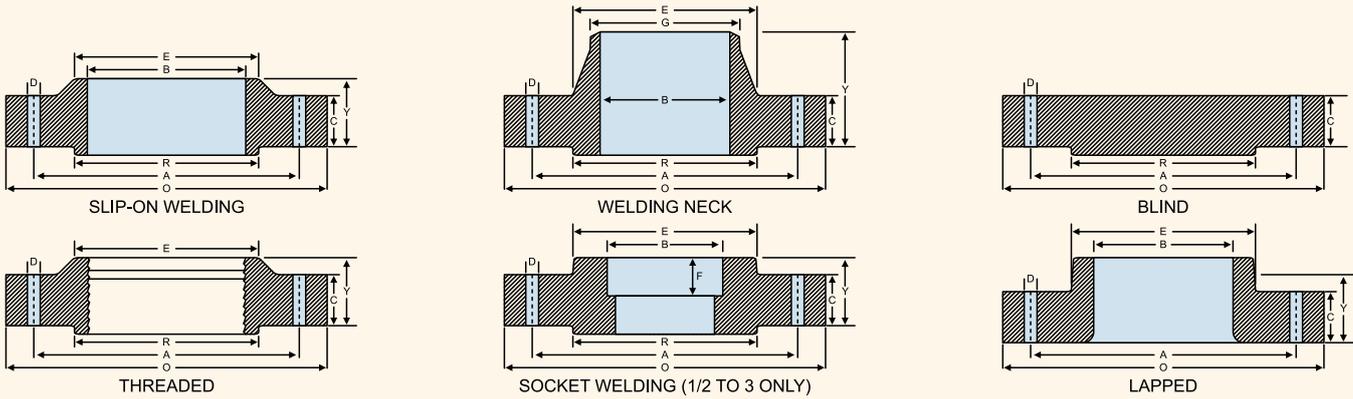
DIMENSIONS OF CLASS 150 FLANGES (ASME/ANSI B 16.5)

Nominal Size Inch	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C		Dia of Hub E	Length through Hub			Hub Diameter Beginning of Welding Neck G	Dia of Bore		Dia of R / F R	Depth of Socket F
					Other Flange	LAP Joint		S/O & S/W Y	W / N Y	L / J Y		S/O & S/W B	L / J B		
1/2	88.9	60.4	15.9	4	9.7	11.2	30.2	14.2	45.9	15.7	21.3	22.3	22.8	35.0	9.6
3/4	98.5	69.8	15.9	4	11.2	12.7	38.1	14.2	50.8	15.7	26.7	27.6	28.2	42.9	11.1
1	107.9	79.2	15.9	4	12.7	14.2	49.2	15.7	53.8	17.5	33.4	34.5	35.0	50.8	12.7
1.1/4	117.3	88.9	15.9	4	14.2	15.7	58.6	19.0	55.6	20.5	42.2	43.1	43.6	63.5	14.2
1.1/2	127.0	98.5	15.9	4	15.7	17.5	65.0	20.5	60.4	22.3	48.3	49.5	50.0	73.1	15.7
2	152.4	120.6	19.0	4	17.5	19.0	77.7	23.9	61.9	25.4	60.3	61.9	62.4	91.9	17.5
2.1/2	177.8	139.7	19.0	4	20.6	22.3	90.4	26.9	69.3	28.4	73.0	74.6	75.4	104.6	19.0
3	190.5	152.4	19.0	4	22.4	23.9	107.9	28.4	68.3	30.2	88.9	90.6	91.4	127.0	20.5
4	228.6	190.5	19.0	8	22.4	23.9	134.8	31.7	74.06	33.2	114.3	116.0	116.8	157.2	
5	254.0	215.9	22.2	8	22.4	23.9	163.6	35.0	87.3	36.5	141.3	143.7	144.5	185.6	
6	279.4	241.3	22.2	8	23.9	25.4	192.0	38.1	87.3	39.6	168.3	170.6	171.4	215.9	
8	342.9	298.4	22.2	8	26.9	28.4	246.1	42.9	100.0	44.4	219.1	221.4	222.2	269.7	
10	406.4	361.9	25.4	12	28.4	30.2	304.8	47.7	100.0	49.3	273.0	276.3	277.3	323.8	
12	482.6	431.8	25.4	12	30.2	31.8	365.2	53.8	112.7	55.6	323.8	327.1	328.1	381.0	
14	533.4	476.2	28.6	12	33.3	35.0	400.0	55.6	125.4	79.2	355.6	359.1	360.1	412.7	
16	596.9	539.7	28.6	16	35.1	36.6	457.2	61.9	125.4	87.3	406.4	410.4	411.2	469.9	
18	635.0	577.8	31.7	16	38.1	39.6	504.9	66.5	138.2	96.7	457.0	461.7	462.2	533.4	
20	698.5	635.0	31.7	20	41.1	42.9	558.8	71.3	142.7	103.1	508.0	513.0	514.3	584.2	
24	812.8	749.3	34.9	20	46.0	47.8	663.4	81.0	150.8	111.2	610.0	615.9	615.9	692.1	

DIMENSIONS OF CLASS 300 FLANGES (ASME/ANSI B 16.5)

Nominal Size Inch	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C		Dia of Hub E	Length through Hub			Hub Diameter Beginning of Welding Neck G	Dia of Bore		Dia of R / F R	Depth of Socket F
					Other Flange	LAP Joint		S/O & S/W Y	W / N Y	L / J Y		S/O & S/W B	L / J B		
1/2	95.2	66.5	15.9	4	12.7	14.2	38.1	20.6	50.8	22.3	21.3	22.3	22.8	35.0	9.6
3/4	117.3	82.5	19.0	4	14.2	15.7	47.7	23.9	55.6	25.4	26.7	27.6	28.2	42.9	11.1
1	123.9	88.9	19.0	4	15.7	17.5	53.8	25.4	60.4	26.9	33.4	34.5	35.0	50.8	12.7
1.1/4	133.3	98.5	19.0	4	17.5	19.0	63.5	25.4	63.5	26.9	42.2	43.1	43.6	63.5	14.2
1.1/2	155.4	114.3	22.2	4	19.1	20.6	69.8	28.7	66.8	30.2	48.3	49.5	50.0	73.1	15.7
2	165.1	127.0	19.0	8	20.6	22.4	84.0	31.8	68.3	33.2	60.3	61.9	62.4	91.9	17.5
2.1/2	190.5	149.3	22.2	8	23.9	25.4	100.0	36.6	74.7	38.1	73.0	74.6	75.4	104.6	19.0
3	209.5	168.1	22.2	8	26.9	28.4	117.3	41.4	77.7	42.9	88.9	90.6	91.4	127.0	20.5
4	254.0	200.1	22.2	8	30.2	31.8	146.0	46.2	84.3	47.7	114.3	116.0	116.8	157.2	
5	279.4	234.9	22.2	8	33.3	35.0	117.8	49.3	97.0	50.8	141.3	143.7	144.5	185.6	
6	317.5	269.7	22.2	12	35.1	36.6	206.2	50.8	97.0	52.3	168.3	170.6	171.4	215.9	
8	381.0	330.2	25.4	12	39.6	41.1	260.3	60.4	109.7	62.0	219.1	221.4	222.2	269.7	
10	444.5	387.3	28.6	16	46.0	47.8	320.5	65.0	115.8	95.2	273.0	276.3	277.3	323.8	
12	520.7	450.8	31.7	16	49.3	50.8	374.6	71.6	128.5	101.6	323.8	327.1	328.1	381.0	
14	584.2	514.3	31.7	20	52.3	53.8	425.4	74.7	141.2	111.2	355.6	359.1	360.1	412.7	
16	647.7	571.5	34.9	20	55.6	57.2	482.6	81.0	144.5	120.6	406.4	410.4	411.2	469.9	
18	711.2	628.6	34.9	24	58.7	60.5	533.4	87.4	157.2	130.0	457.0	461.7	462.2	533.4	
20	774.7	685.8	34.9	24	62.0	63.5	587.2	93.7	160.5	139.7	508.0	513.0	514.3	584.2	
24	914.4	812.8	41.3	24	68.3	69.9	701.5	104.9	166.6	152.4	610.0	615.9	615.9	692.1	

1. All Dimensions are in millimeters, 2. Thickness 'C' is exclusive of Raised Face Thickness of 1.6 MM. For Class 150 and Class 300.

**DIMENSIONS OF FLANGES TO
ASME / ANSI B 16.5**

DIMENSIONS OF CLASS 600 FLANGES (ASME/ANSI B 16.5)

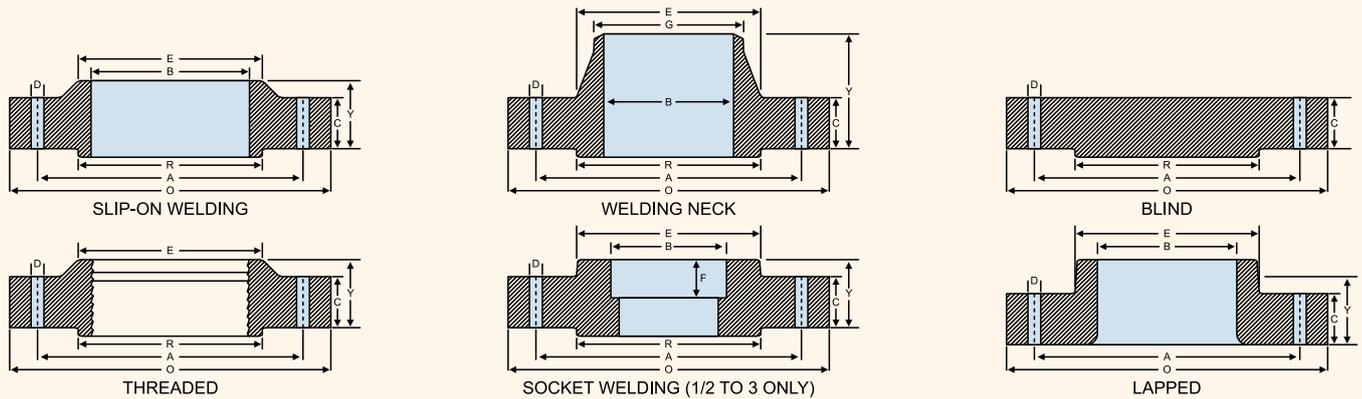
Nominal Size Inch	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Hub E	Length through Hub			Hub Diameter Beginning of Welding Neck G	Dia of Bore		Dia of R / F R	Depth of Socket F
							S/O & S/W Y	W / N Y	L / J Y		S/O & S/W B	L / J B		
1/2	95.2	66.5	15.9	4	14.2	38.1	22.3	52.3	22.2	21.3	22.3	22.8	35.0	9.6
3/4	117.3	82.5	19.0	4	17.5	47.7	25.4	57.1	25.4	26.7	27.7	28.2	42.9	11.1
1	123.9	88.9	19.0	4	17.5	53.8	26.9	62.0	26.9	33.4	34.5	35.0	50.8	12.7
1.1/4	133.3	98.5	19.0	4	20.6	63.5	28.4	66.5	28.4	42.2	43.1	43.6	63.5	14.2
1.1/2	155.4	114.3	22.2	4	22.3	69.8	31.7	69.8	31.7	48.3	49.5	50.0	73.1	15.7
2	165.1	127.0	19.0	8	25.4	84.0	36.5	73.1	36.5	60.3	61.9	62.5	91.9	17.5
2.1/2	190.5	149.3	22.2	8	28.4	100.0	41.1	79.2	41.1	73.0	74.6	75.4	104.6	19.0
3	209.5	168.1	22.2	8	31.8	117.3	45.9	82.5	45.9	88.9	90.7	91.4	127.0	20.5
4	273.0	215.9	25.4	8	38.1	152.4	53.8	101.6	53.8	114.3	116.0	116.8	157.2	-
5	330.2	266.7	28.6	8	44.4	189.0	60.4	114.3	60.4	141.3	143.8	144.5	185.6	-
6	355.6	292.1	28.6	12	47.7	222.2	66.5	117.3	66.5	168.3	170.7	171.4	215.9	-
8	419.1	349.2	31.7	12	55.6	273.0	76.2	133.3	76.2	219.1	221.5	222.2	269.7	-
10	508.0	431.8	34.9	16	63.5	342.9	85.8	152.4	111.2	273.0	276.3	277.4	323.8	-
12	558.8	488.9	34.9	20	66.5	400.0	91.9	155.4	117.3	232.8	327.1	328.2	381.0	-
14	603.2	527.0	38.1	20	69.9	431.8	93.7	165.1	127.0	355.6	359.2	360.2	412.7	-
16	685.8	603.2	41.3	20	76.2	495.3	106.4	177.8	139.7	406.4	410.5	411.2	469.9	-
18	742.9	654.0	44.4	20	82.6	546.1	117.3	184.1	152.4	457.0	461.8	462.2	533.4	-
20	812.8	723.9	44.4	24	88.9	609.6	127.0	190.5	165.1	508.0	513.1	514.3	584.2	-
24	939.8	838.2	50.8	24	101.6	717.5	139.7	203.2	184.1	610.0	611.0	616.0	692.1	-

DIMENSIONS OF CLASS 900 FLANGES (ASME/ANSI B 16.5)

Nominal Size Inch	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Hub E	Length through Hub			Hub Diameter Beginning of Welding Neck G	Dia of Bore		Dia of R / F R	Depth of Socket F
							S/O & S/W Y	W / N Y	L / J Y		S/O & S/W B	L / J B		
1/2	120.6	82.5	22.2	4	22.4	38.1	31.7	60.4	31.7	21.3	22.3	22.8	35.0	-
3/4	130.0	88.9	22.2	4	25.4	44.4	35.0	69.8	35.0	26.7	27.6	28.2	42.9	-
1	149.3	101.6	25.4	4	28.4	52.3	41.1	73.1	41.1	33.4	34.5	35.0	50.8	-
1.1/4	158.7	111.2	25.4	4	28.4	63.5	41.1	73.1	41.1	42.2	43.1	43.6	63.5	-
1.1/2	177.8	123.9	28.6	4	31.8	69.8	44.4	82.5	44.4	48.3	49.5	50.0	73.1	-
2	215.9	165.1	25.4	8	38.1	104.6	57.1	101.6	57.1	60.3	61.9	62.4	91.9	-
2.1/2	244.3	190.5	28.6	8	41.1	123.9	63.5	104.6	63.5	73.0	74.6	75.4	104.6	-
3	241.3	190.5	25.4	8	38.1	127.0	53.8	101.6	53.8	88.9	90.7	91.4	127.0	-
4	292.1	234.9	31.7	8	44.5	158.7	59.8	114.3	69.8	114.3	116.0	116.8	157.2	-
5	349.2	279.4	34.9	8	50.8	190.5	79.2	127.0	79.2	141.3	143.7	144.5	185.6	-
6	381.0	317.5	31.7	12	55.6	243.9	85.9	139.7	85.9	168.3	170.6	171.4	215.9	-
8	469.9	393.7	38.1	12	63.5	298.4	101.6	162.0	114.3	219.1	221.5	222.2	269.7	-
10	546.1	469.9	38.1	16	69.8	368.3	107.9	184.1	127.0	273.0	276.3	277.3	323.8	-
12	609.6	533.4	38.1	20	79.2	419.1	117.3	200.1	142.7	323.8	327.1	328.2	381.0	-

1. All Dimensions are in millimeters. 2. Thickness 'C' is exclusive of Raised Face Thickness of 1.6 MM. For Class 600 and Class 900.

DIMENSIONS OF FLANGES TO ASME / ANSI B 16.5



DIMENSIONS OF CLASS 1500 FLANGES (ASME/ANSI B 16.5)

Nominal Size Inch	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Hub E	Length through Hub			Hub Diameter Beginning of Welding Neck G	Dia of Bore		Dia of R / F R	Depth of Socket F
							S/O & S/W Y	W / N Y	L / J Y		S/O & S/W B	L / J B		
							Y	Y	Y		B	B		
1/2	120.6	82.5	22.2	4	22.4	38.1	31.7	60.0	31.7	21.3	22.3	22.9	35.0	-
3/4	130.0	88.9	22.2	4	25.4	44.4	35.0	70.0	35.0	26.7	27.6	28.2	42.9	-
1	149.3	101.6	25.4	4	28.4	52.3	41.1	73.0	41.1	33.4	34.5	35.0	50.8	-
1.1/4	158.7	111.2	25.4	4	28.4	63.5	41.1	73.0	41.1	42.2	43.1	43.7	63.5	-
1.1/2	177.8	123.9	28.6	4	31.8	69.8	44.4	83.0	44.4	48.3	49.5	50.0	73.1	-
2	215.9	165.1	25.4	8	38.1	104.6	57.1	102.0	57.1	60.3	61.9	62.4	91.9	-
2.1/2	244.3	190.5	28.6	8	41.1	123.9	63.5	105.0	63.5	73.0	74.6	75.4	104.6	-
3	266.7	203.2	31.7	8	47.8	133.3	-	117.3	73.1	88.9	90.6	91.4	127.0	-
4	311.1	214.3	34.9	8	53.8	162.0	-	123.9	90.4	114.3	116.0	116.8	157.2	-
5	374.6	292.1	41.4	8	73.2	196.8	-	155.4	104.6	141.3	143.7	144.5	185.6	-
6	393.7	317.5	38.1	12	82.6	228.6	-	171.4	119.1	168.3	170.6	171.4	215.9	-
8	482.6	393.7	44.4	12	91.9	292.1	-	212.8	142.7	219.1	221.4	222.2	269.7	-
10	584.2	482.6	50.8	12	108.0	368.3	-	254.0	177.8	273.0	276.3	277.4	323.8	-
12	673.1	571.5	54.0	16	124.0	450.8	-	282.4	218.9	323.8	327.1	328.2	381.0	-

DIMENSIONS OF CLASS 2500 FLANGES (ASME/ANSI B 16.5)

Nominal Size Inch	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Hub E	Length through Hub			Hub Diameter Beginning of Welding Neck G	Dia of Bore		Dia of R / F R	Depth of Socket F
							S/O & S/W Y	W / N Y	L / J Y		S/O & S/W B	L / J B		
							Y	Y	Y		B	B		
1/2	133.3	88.9	22.2	4	30.2	42.9	39.6	73.1	39.6	21.3	22.3	22.8	35.0	-
3/4	139.7	95.2	22.2	4	31.7	50.8	42.9	79.2	42.9	26.7	27.6	28.2	42.9	-
1	158.7	107.9	25.4	4	35.0	57.1	47.7	88.9	47.7	33.4	34.5	35.0	50.8	-
1.1/4	184.1	130.0	28.6	4	38.1	73.2	52.3	95.2	52.3	42.2	43.1	43.6	63.5	-
1.1/2	203.2	146.0	31.7	4	44.5	79.4	60.4	111.2	60.4	48.3	49.5	50.0	73.1	-
2	234.9	171.4	28.6	8	50.8	95.2	69.8	127.0	69.8	60.3	61.9	62.4	91.9	-
2.1/2	266.7	196.8	31.7	8	57.1	114.3	79.2	142.7	79.2	73.0	74.6	75.4	104.6	-
3	304.8	228.6	34.9	8	66.5	133.3	92.0	168.1	92.1	88.9	90.6	91.4	127.0	-
4	355.6	273.0	41.3	8	76.2	165.1	107.9	190.5	107.9	114.3	116.0	116.8	157.2	-
5	419.1	323.8	47.6	8	92.0	203.2	130.0	228.6	130.0	141.3	143.7	144.5	185.6	-
6	482.6	268.3	54.0	8	107.9	234.9	152.4	273.0	152.4	168.3	170.6	171.4	215.9	-
8	552.4	438.1	54.0	12	127.0	304.8	177.8	317.5	177.8	219.1	221.4	222.2	269.7	-
10	673.1	539.7	66.7	12	165.1	374.6	228.6	419.1	228.6	273.0	276.3	277.3	323.8	-
12	762.0	619.2	73.0	12	184.1	441.3	254.0	463.5	254.0	323.8	327.1	328.1	381.0	-

1. All Dimensions are in millimeters, 2. Thickness 'C' is exclusive of Raised Face Thickness of 1.6 MM. For Class 1500 and Class 2500.

DIMENSIONAL TOLERANCES ANSI / ASME B 16.5



Thread, Socket-welding, Slip-on, Lap joint and Blind

Outside Diameter	When O.D. is 24" or less	+1/16" (1.6 mm)	
	When O.D. is Over 24"	+1/8" (3.2 mm)	
Inside Diameter	Threaded	within limits on boring gauge	
	Socket-welding slip-on and lap joint	+1/32" (0.8 mm), -0" 12" & larger +1/16" (1.6 mm), -0"	
Outside Dia of Hub	12" and smaller	+3/32" (2.4 mm) -1/16" (1.6 mm)	
	14" and larger	± 1/8" (3.2 mm)	
Diameter of Contact face	1/16" raised face	± 1/32" (0.8 mm)	
	1/4" raised face tongue & groove male, female	± 1/64" (0.4 mm)	
Diameter of Counterbore	Same as for inside diameter		
Drilling	Bolt circle	± 1/16" (1.6 mm)	
	Bolt hole spacing	± 1/30" (0.8 mm)	
	Eccentricity of bolt circle with respect to facing	2-1/2" & smaller	1/32" (0.8 mm) max
		3" & large	1/16" (1.6 mm) max
Thickness	18" and smaller	+1/8" (3.2 mm), -0"	
	20" and smaller	+3/16" (4.8 mm), -0"	
Length thru hub	18" and smaller	+1/8" (3.2 mm), -1/32" (0.8 mm)	
	20" and larger	+3/16" (4.8 mm), -1/16" (1.6 mm)	

Welding Neck

Outside Diameter	When O.D. is 24" or less	+1/16" (1.6 mm)
	When O.D. is Over 24"	+1/8" (3.2 mm)
Inside Diameter	10" and smaller	± 1/32" (0.8 mm)
	12" thru 18"	± 1/16" (1.6 mm)
	20" and large	+1/8" (3.2 mm) -1/16" (1.6 mm)
Diameter of Contact face	1/16" raised face	± 1/32" (0.8 mm)
	1/4" raised face	
	Tongue & groove male, female	± 1/64" (0.4 mm)
Outside Diameter of Hub at base	When Hub base is 24" or smaller	± 1/16" (1.6 mm)
	When Hub base is over 24"	± 1/8" (3.2 mm)
Diameter of Hub at Point of Welding	5" and smaller	+3/32" (2.4 mm) - 1/32" (0.8 mm)
	6" and larger	+ 5/32" (4.0 mm) - 1/32" (0.8 mm)
Drilling	Bolt circle	± 1/16" (1.6 mm)
	Bolt hole spacing	± 1/32" (0.8 mm)
	Eccentricity of bolt circle with respect to facing	2-1/2" & smaller 1/32" (0.8 mm) max 3" & large 1/16" (1.6mm) max
Thickness	18" and smaller	+1/8" (3.2 mm), -0"
	20" and larger	+3/16" (4.8 mm), -0"
Length thru Hub	10" and smaller	± 1/16" (1.6 mm)
	12" and larger	± 1/8" (3.2 mm)

APPLICATION INDUSTRIES

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- Material Handling Stores
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- Refineries
- Analyzer-lab & Testing Equipments
- Car Care Systems
- Life Sciences
- Super Market Storage & Rack Systems
- Automation Machinery
- Multi Parking Systems
- Military
- Power Generations Systems
- Cement Industry Machinery
- Motion & Control Tech. Equipment
- Hydrostatic Drive Systems
- Cooling & Heating Systems
- Packaging Equipments
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Third Party Inspection



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