

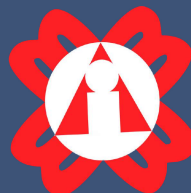
# M.A. International

House of Industrial Piping Solutions

(An ISO & PED Certified Company)

Stainless Steel | Duplex Steel

Carbon Steel | Nickel Alloys



**Metalloy**  
International

[www.metalloyinternational.com](http://www.metalloyinternational.com)

# About Us

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Metalloy International - House of Industrial Piping Solutions. With over 28 years of experience, we take immense pride in being a reputed Manufacturer, Stockholder, and Exporter of Pipes, Butt weld Fittings, Forged Fittings, and Flanges. Our success is a testament to our strong team of dedicated professionals, whose expertise ensures the finest products crafted to perfection. Complemented by state-of-the-art facilities, we offer top-notch quality and reliability. At Metalloy International, we firmly believe in prioritizing our customers, fostering lasting partnerships that transcend expectations.

# Why Choose Us?

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## Foremost Pricing

Metalloy International assures to quote best and foremost price to its customers in this hefty and healthy competition.

## Rapid & On-Time Delivery

With tons of inventory, we promise to offer you a rapid delivery and with good packing as to protect the material from any kind of transit damage.

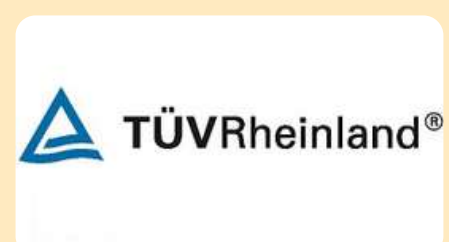
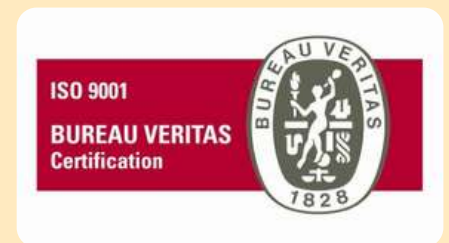
## Premium Grade Quality

Metalloy International is devoted towards quality. We perform every mandatory quality test before dispatching it to our clients.

## Time Savior

Metalloy International is a one stop for all materials. We can cater every material as per your requirements and provide you with every kind of steel material.

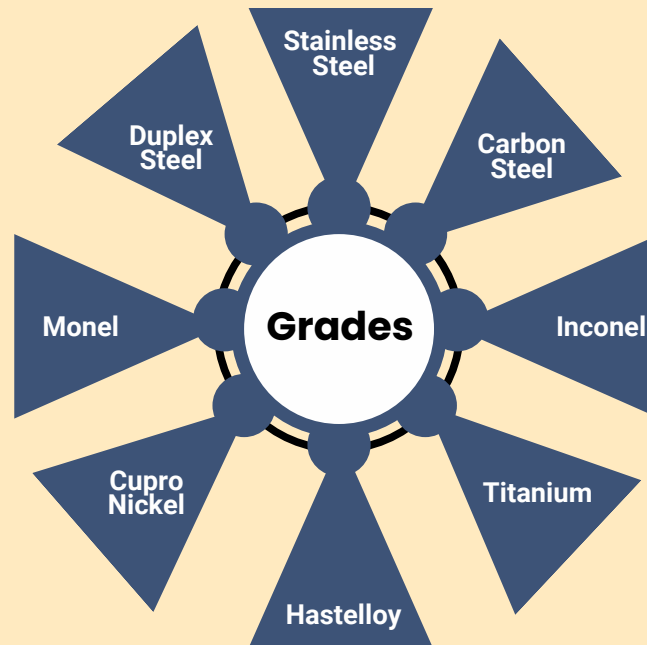
# Third Party Inspection—



and many more.....

# Grades

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**Stainless Steel:** 304/L/H, 316/L/Ti/H, 321/H, 310, 347/H, 904L, 409, 410/S, 430, etc.

**Duplex Steel:** UNS 31803, 32205, 32750, 32760, etc.

**Carbon Steel:** ASTM A 234, A 105, A36, A 333, A106 GR B, CLASS A, B & C, etc.

**Hastelloy:** Hastelloy B2, C22, C276, etc.

**Inconel:** Inconel 600, 601, 625, 718, 725, 800/H, 825, etc.

**Monel:** K500, 400, etc.

**Titanium:** Grade 1, 2 & 5, etc.

**Cupro Nickel:** 90/10 (UNS C706000), 70/30 (UNS C715000), etc.

# Applications

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- Oil and Gas Industry
- Petrochemical Industry
- Water Supply and Treatment
- Power Generation
- Chemical Industry
- Pharmaceutical Industry
- Food and Beverage Industry
- Automotive Industry
- Aerospace Industry
- Shipbuilding
- Construction
- Mining Industry
- Agriculture
- Construction
- Mining Industry
- Agriculture
- Construction
- Mining Industry
- Agriculture
- Offshore Platforms
- Fire Protection Systems
- Geothermal Power
- Brewery and Distillery
- Automotive Manufacturing
- Air Conditioning
- Electronics Industry
- Dairy Industry
- Natural Gas Distribution
- Wastewater Treatment
- Semiconductor Industry
- Railways
- Pressure Vessels



# Buttweld Fittings

Metalloy International excels in crafting exquisite, precision-engineered Buttweld Fittings. Our range features a variety of Elbows/Bends, Tees (Equal & Unequal), Piggable Bends, U Bends, Concentric & Eccentric Reducers, Stub Ends/Collars, End Caps/Dish Ends, Barrel Nipples, and Cross Tees that adhere to B16.9/B16.28/MSS SSP43 Standards.



90 Degree Elbow

45 Degree Elbow

**45 & 90 Degree Elbow**



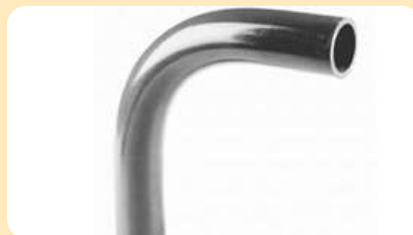
**Equal & Unequal Tee**



**Concentric & Eccentric Reducer**



**U Bends**



**Piggable Bends**



**Long & Short Stubends**



**End Caps**



**Barrel Nipple**



**Cross Tee**



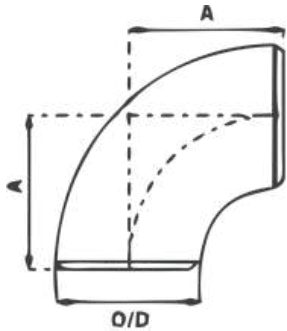
**Long Radius Elbow**



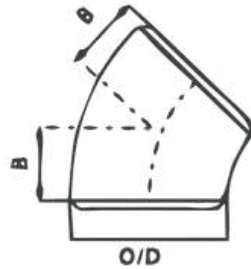
**Reducing Cross Tee**

# Fittings Dimensions

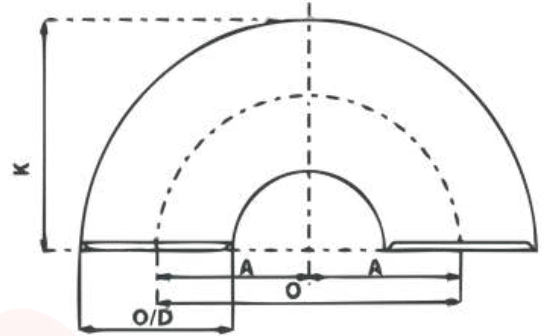
## LR 45° Elbow, LR 90° Elbow and LR U Bend



90° LR ELBOW



45° LR ELBOW



180° LR RETURN / U BEND

B16.9

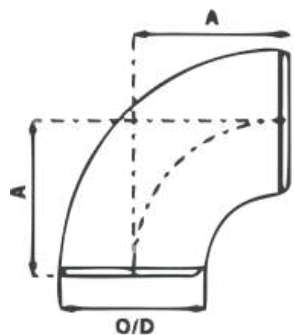
Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)	Dimension A	Dimension B	Center to Center (O)	Back to Face (K)
1/2"	21.30	38.00	16.00	76.00	48.00
3/4"	26.70	38.00	19.00	76.00	51.00
1"	33.40	38.00	22.00	76.00	56.00
1.1/4"	42.20	48.00	25.00	95.00	70.00
1.1/2"	48.30	57.00	29.00	114.00	83.00
2"	60.30	76.00	35.00	152.00	106.00
2.1/2"	73.00	95.00	44.00	190.00	132.00
3"	88.90	114.00	51.00	229.00	159.00
3.1/2"	101.60	133.00	57.00	267.00	184.00
4"	114.30	152.00	64.00	305.00	210.00
5"	141.30	190.00	79.00	381.00	262.00
6"	168.30	229.00	95.00	457.00	313.00
8"	219.10	305.00	127.00	610.00	414.00
10"	273.00	381.00	159.00	762.00	518.00
12"	323.80	457.00	190.00	914.00	619.00
14"	355.60	533.00	222.00	1067.00	711.00
16"	406.40	610.00	254.00	1219.00	813.00
18"	457.00	686.00	286.00	1372.00	914.00
20"	508.00	762.00	318.00	1524.00	1016.00
22"	559.00	838.00	343.00	1676.00	1118.00
24"	610.00	914.00	381.00	1829.00	1219.00

**Notes :**

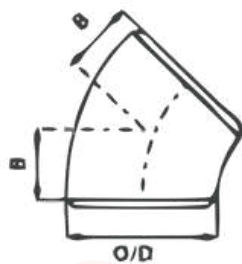
- All Dimensions are in Millimeters (MM)
- Sizes above 24 inches can be served on request.
- For Tolerance, please check Buttweild Fitting Tolerances Chart.

# Fittings Dimensions

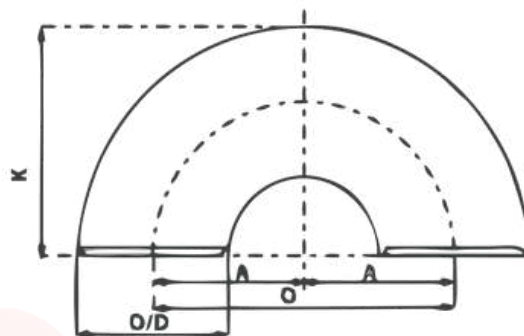
## SR 45° Elbow, SR 90° Elbow and SR U Bend



90° SR ELBOW



45°SR ELBOW



180° SR RETURN BEND

B16.9/B16.28

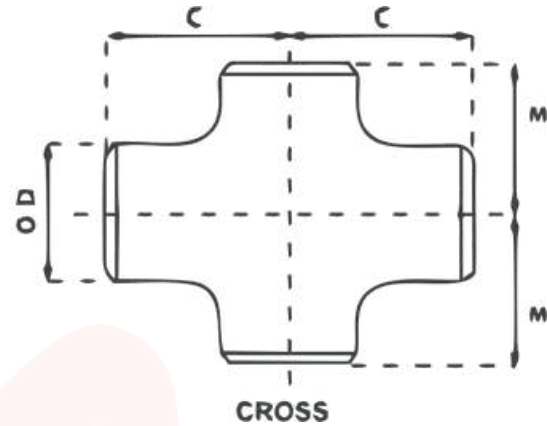
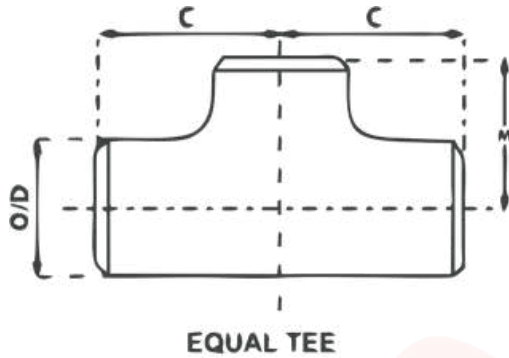
Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)	Dimension A	Dimension B	Center to Center (O)	Back to Face (K)
1/2"	21.3	25	-	51	41
3/4"	26.7	32	-	64	52
1"	33.4	25	-	51	41
1.1/4"	42.2	32	-	64	52
1.1/2"	48.3	38	-	76	62
2"	60.3	51	-	102	81
2.1/2"	73	64	-	127	100
3"	88.9	76	31.6	152	121
3.1/2"	101.6	89	36.8	178	140
4"	114.3	102	42.1	203	159
5"	141.3	127	52.6	254	197
6"	168.3	152	63.4	305	237
8"	219.1	203	84.2	406	313
10"	273	254	105.2	508	391
12"	323.8	305	126.3	610	467
14"	355.6	356	147.3	711	533
16"	406.4	406	168.3	813	610
18"	457	457	189.4	914	686
20"	508	508	210.4	1016	762
22"	559	559	231.5	1118	838
24"	610	610	252.5	1219	914

**Notes :**

- All Dimensions are in Millimeters (MM)

# Fittings Dimensions

## EQUAL TEE & CROSS



B16.9

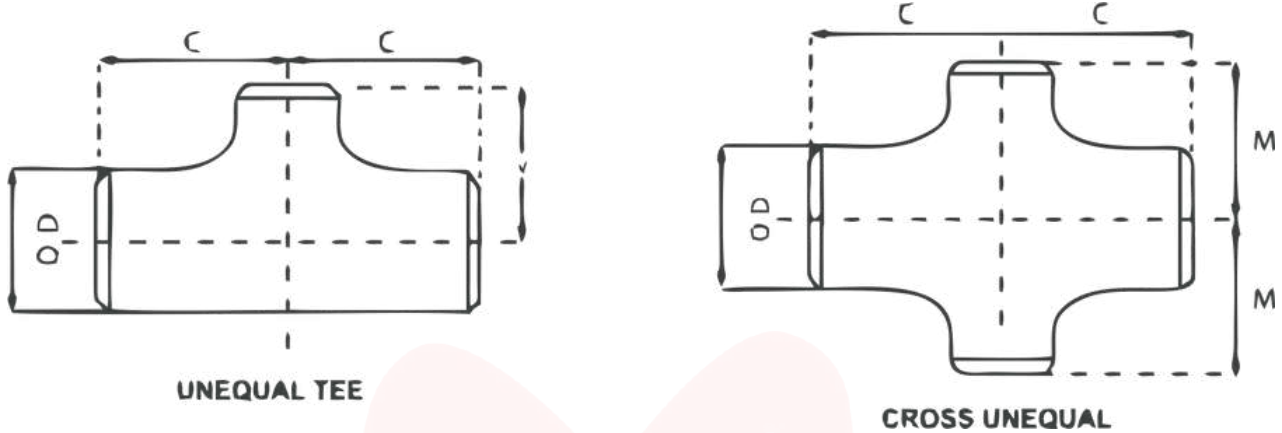
Nominal Pipe Size (NPS)	Outside Diameter	Run (C)	Outlet (M)
1/2"	21.30	25.00	25.00
3/4"	26.70	29.00	29.00
1"	33.40	38.00	38.00
1.1/4"	42.20	48.00	48.00
1.1/2"	48.30	57.00	57.00
2"	60.30	64.00	64.00
2.1/2"	73.00	76.00	76.00
3"	88.90	86.00	86.00
3.1/2"	101.60	95.00	95.00
4"	114.30	105.00	105.00
5"	141.30	124.00	124.00
6"	168.30	143.00	143.00
8"	219.10	178.00	178.00
10"	273.00	216.00	216.00
12"	323.80	254.00	254.00
14"	355.60	279.00	279.00
16"	406.40	305.00	305.00
18"	457.00	343.00	343.00
20"	508.00	381.00	381.00
22"	559.00	419.00	419.00
24"	610.00	432.00	432.00
26"	660.00	495.00	495.00
28"	711.00	521.00	521.00
30"	762.00	559.00	559.00
32"	813.00	597.00	597.00
34"	864.00	635.00	635.00
36"	914.00	673.00	673.00

**Notes :**

- All Dimensions are in Millimeters (MM)
- Sizes above 40 inches can be served on request.

# Fittings Dimensions

## UNEQUAL TEE & CROSS



B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		Center to Center		Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		Center to Center	
	Run	Outlet	Run 'C'	Run 'M'		Run	Outlet	Run 'C'	Run 'M'
1/2" x 3/8"	21.30	17.30	25.00	25.00	8" x 5"	219.10	141.30	178.00	162.00
1/2" x 1/4"	21.30	13.70	25.00	25.00	8" x 4"	219.10	114.30	178.00	156.00
3/4" x 1/2"	26.70	21.30	29.00	29.00	8" x 3.1/2"	219.10	101.60	178.00	152.00
3/4" x 3/8"	26.70	17.30	29.00	29.00	10" x 8"	273.00	219.10	216.00	203.00
1" x 3/4"	33.40	26.70	38.00	38.00	10" x 6"	273.00	168.30	216.00	194.00
1" x 1/2"	33.40	21.30	38.00	38.00	10" x 5"	273.00	141.30	216.00	191.00
1.1/4" x 1"	42.20	33.40	48.00	48.00	10" x 4"	273.00	114.30	216.00	184.00
1.1/4" x 3/4"	42.20	26.70	48.00	48.00	12" x 10"	323.80	273.00	254.00	241.00
1.1/4" x 1/2"	42.20	21.30	48.00	48.00	12" x 8"	323.80	219.10	254.00	229.00
1.1/2" x 1.1/4"	48.30	42.20	57.00	57.00	12" x 6"	323.80	168.30	254.00	219.00
1.1/2" x 1"	48.30	33.40	57.00	57.00	12" x 5"	323.80	141.30	254.00	216.00
1.1/2" x 3/4"	48.30	26.70	57.00	57.00	14" x 12"	355.60	323.80	279.00	270.00
1.1/2" x 1/2"	48.30	21.30	57.00	57.00	14" x 10"	355.60	273.00	279.00	257.00
2" x 1.1/2"	60.30	48.30	64.00	60.00	14" x 8"	355.60	219.10	279.00	248.00
2" x 1.1/4"	60.30	42.20	64.00	57.00	14" x 6"	355.60	168.30	279.00	238.00
2" x 1"	60.30	33.40	64.00	51.00	16" x 14"	406.40	355.60	305.00	305.00
2" x 3/4"	60.30	26.70	64.00	44.00	16" x 12"	406.40	323.80	305.00	295.00
2.1/2" x 2"	73.00	60.30	76.00	70.00	16" x 10"	406.40	273.00	305.00	283.00
2.1/2" x 1.1/2"	73.00	48.30	76.00	67.00	16" x 8"	406.40	219.10	305.00	273.00
2.1/2" x 1.1/4"	73.00	42.20	76.00	64.00	16" x 6"	406.40	168.30	305.00	264.00
2.1/2" x 1"	73.00	33.40	76.00	57.00	18" x 16"	457.00	406.40	343.00	330.00
3" x 2.1/2"	88.90	73.00	86.00	83.00	18" x 14"	457.00	355.60	343.00	330.00
3" x 2"	88.90	60.30	86.00	76.00	18" x 12"	457.00	323.80	343.00	321.00
3" x 1.1/2"	88.90	48.30	86.00	73.00	18" x 10"	457.00	273.00	343.00	308.00
3" x 1.1/4"	88.90	42.20	86.00	70.00	18" x 8"	457.00	219.10	343.00	298.00
3.1/2" x 3"	101.60	88.90	95.00	92.00	20" x 18"	508.00	457.00	381.00	368.00
3.1/2" x 2.1/2"	101.60	73.00	95.00	89.00	20" x 16"	508.00	406.40	381.00	356.00
3.1/2" x 2"	101.60	60.30	95.00	83.00	20" x 14"	508.00	355.60	381.00	356.00
3.1/2" x 1.1/2"	101.60	48.30	95.00	79.00	20" x 12"	508.00	323.80	381.00	346.00
4" x 3.1/2"	114.30	101.60	105.00	102.00	20" x 10"	508.00	273.00	381.00	333.00
4" x 3"	114.30	88.90	105.00	98.00	20" x 8"	508.00	219.10	381.00	324.00
4" x 2.1/2"	114.30	73.00	105.00	95.00	22" x 20"	559.00	508.00	419.00	406.00
4" x 2"	114.30	60.30	105.00	89.00	22" x 18"	559.00	457.00	419.00	394.00
4" x 1.1/2"	114.30	48.30	105.00	86.00	22" x 16"	559.00	406.40	419.00	381.00
5" x 4"	141.30	114.30	124.00	117.00	22" x 14"	559.00	355.60	419.00	381.00
5" x 3.1/2"	141.30	101.60	124.00	114.00	22" x 12"	559.00	323.80	419.00	371.00
5" x 3"	141.30	88.90	124.00	111.00	22" x 10"	559.00	273.00	419.00	359.00
5" x 2.1/2"	141.30	73.00	124.00	108.00	24" x 22"	610.00	559.00	432.00	432.00
5" x 2"	141.30	60.30	124.00	105.00	24" x 20"	610.00	508.00	432.00	432.00
6" x 5"	168.30	141.30	143.00	137.00	24" x 18"	610.00	457.00	432.00	419.00
6" x 4"	168.30	114.30	143.00	130.00	24" x 16"	610.00	406.40	432.00	406.00
6" x 3.1/2"	168.30	101.60	143.00	127.00	24" x 14"	610.00	355.60	432.00	406.00
6" x 3"	168.30	88.90	143.00	124.00	24" x 12"	610.00	323.80	432.00	397.00
6" x 2.1/2"	168.30	73.00	143.00	121.00	24" x 10"	610.00	273.00	432.00	384.00
8" x 6"	219.10	168.30	178.00	168.00	26" x 24"	660.00	610.00	495.00	483.00

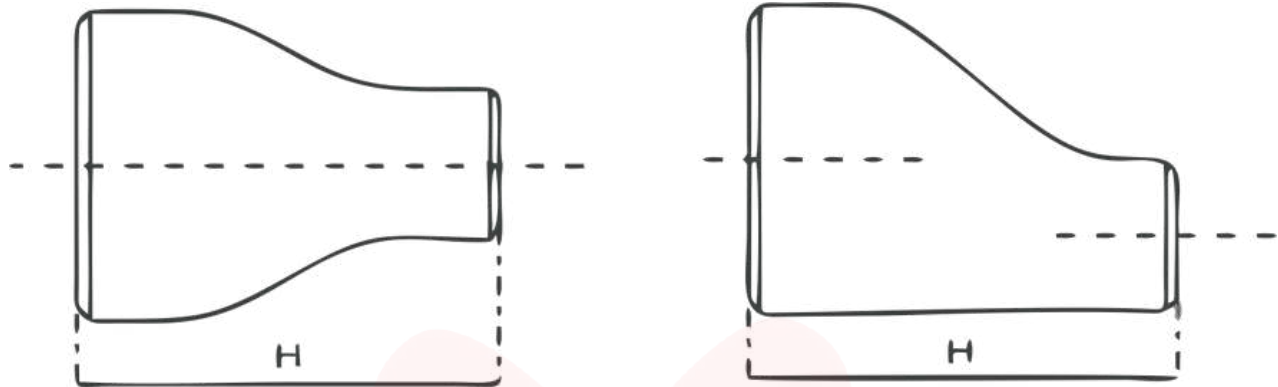
**Notes :**

- All Dimensions are in Millimeters (MM)
- Sizes above 24 inches can be served on request.



# Fittings Dimensions

## CONCENTRIC & ECCENTRIC REDUCER



CONCENTRIC REDUCER

ECCENTRIC REDUCER

B16.9

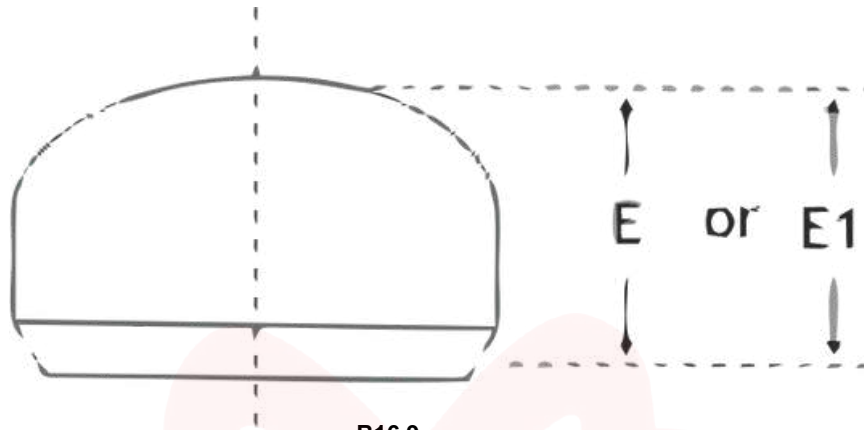
Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		End To End (H)	Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		End To End (H)
	Run	Outlet			Run 'C'	Run	
3/4" x 3/8"	26.70	17.30	38.00	6" x 3"	168.30	88.90	140.00
1" x 3/4"	33.40	26.70	51.00	6" x 2.1/2"	168.30	73.00	140.00
1" x 1/2"	33.40	21.30	51.00	8" x 6"	219.10	168.30	152.00
1.1/4" x 1"	42.20	33.40	51.00	8" x 5"	219.10	141.30	152.00
1.1/4" x 3/4"	42.20	26.70	51.00	8" x 4"	219.10	114.30	152.00
1.1/4" x 1/2"	42.20	21.30	51.00	8" x 3.1/2"	219.10	101.60	152.00
1.1/2" x 1.1/4"	48.30	42.20	64.00	10" x 8"	273.00	219.10	178.00
1.1/2" x 1"	48.30	33.40	64.00	10" x 6"	273.00	168.30	178.00
1.1/2" x 3/4"	48.30	26.70	64.00	10" x 5"	273.00	141.30	178.00
1.1/2" x 1/2"	46.30	21.30	64.00	10" x 4"	273.00	114.30	178.00
2" x 1.1/2"	60.30	48.30	76.00	12" x 10"	323.80	273.00	203.00
2" x 1.1/4"	60.30	42.20	76.00	12" x 8"	323.80	219.10	203.00
2" x 1"	60.30	33.40	76.00	12" x 6"	323.80	168.30	203.00
2" x 3/4"	60.30	26.70	76.00	12" x 5"	323.80	141.30	203.00
2.1/2" x 2"	73.00	60.30	89.00	14" x 12"	355.60	323.80	330.00
2.1/2" x 1.1/2"	73.00	48.30	89.00	14" x 10"	355.60	273.00	330.00
2.1/2" x 1.1/4"	73.00	42.20	89.00	14" x 8"	355.60	219.10	330.00
2.1/2" x 1"	73.00	33.40	89.00	14" x 6"	355.60	168.30	330.00
3" x 2.1/2"	88.90	73.00	89.00	16" x 14"	406.40	355.60	356.00
3" x 2"	88.90	60.30	89.00	16" x 12"	406.40	323.80	356.00
3" x 1.1/2"	88.90	48.30	89.00	16" x 10"	406.40	273.00	356.00
3" x 1.1/4"	88.90	42.20	89.00	16" x 8"	406.40	219.10	356.00
3.1/2" x 3"	101.60	88.90	102.00	18" x 16"	457.00	406.40	381.00
3.1/2" x 2.1/2"	101.60	73.00	102.00	18" x 14"	457.00	356.60	381.00
3.1/2" x 2"	101.60	60.30	102.00	18" x 12"	457.00	323.80	381.00
3.1/2" x 1.1/2"	101.60	48.30	102.00	18" x 10"	457.00	273.00	381.00
4" x 3.1/2"	114.30	101.60	102.00	20" x 18"	508.00	457.00	508.00
4" x 3"	114.30	88.90	102.00	20" x 16"	508.00	406.40	508.00
4" x 2.1/2"	114.30	73.00	102.00	20" x 14"	508.00	355.60	508.00
4" x 2"	114.30	60.30	102.00	20" x 12"	508.00	323.80	508.00
4" x 1.1/2"	114.30	48.30	102.00	22" x 20"	559.00	508.00	508.00
5" x 4"	141.30	114.30	127.00	22" x 18"	559.00	457.00	508.00
5" x 3.1/2"	141.30	101.60	127.00	22" x 16"	559.00	406.40	508.00
5" x 3"	141.30	88.90	127.00	22" x 14"	559.00	355.60	508.00
5" x 2.1/2"	141.30	73.00	127.00	24" x 22"	610.00	559.00	508.00
5" x 2"	141.30	60.30	127.00	24" x 20"	610.00	508.00	508.00
6" x 5"	168.30	141.30	140.00	24" x 18"	610.00	457.00	508.00
6" x 4"	168.30	114.30	140.00	24" x 16"	610.00	406.40	508.00
6" x 3.1/2"	168.30	101.60	140.00	26" x 24"	660.00	610.00	610.00

Notes :

- All Dimensions are in Millimeters (MM)
- Sizes above 24 inches can be served on request.

# Fittings Dimensions

## END CAP



B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel (D)	Length (1)	Limiting Wall Thickness for Length E	Length (2) E1
1/2	0.84	1.00	0.18	1.00
3/4	1.05	1.00	1.15	1.00
1.00	1.32	1.50	0.18	1.50
1 1/4	1.66	1.50	0.19	1.50
1 1/2	1.90	1.50	0.20	1.50
2.00	2.38	1.50	0.22	1.50
2 1/2	2.88	1.50	0.28	1.50
3.00	3.50	2.00	0.30	2.00
3 1/2	4.00	2.50	0.32	2.50
4.00	4.50	2.50	0.34	2.50
5.00	5.56	3.00	0.38	3.00
6.00	6.62	3.50	0.43	3.50
8.00	8.62	4.00	0.50	4.00
10.00	10.75	5.00	0.50	5.00
12.00	12.75	6.00	0.50	6.00
14.00	14.00	6.50	0.50	7.00
16.00	16.00	7.00	0.50	7.50
18.00	18.00	8.00	0.50	8.00
20.00	20.00	9.00	0.50	9.00
22.00	22.00	10.00	0.50	10.00
24.00	24.00	10.00	0.50	10.50
26.00	26.00	12.00	0.50	12.00
28.00	28.00	12.00	0.50	12.00
30.00	30.00	12.00	0.50	12.00
32.00	32.00	13.50	0.50	13.50
34.00	34.00	13.50	0.50	13.50
36.00	36.00	13.50	0.50	13.50
38.00	38.00	-	-	-
40.00	40.00	-	-	-
42.00	42.00	-	-	-
44.00	44.00	-	-	-
46.00	46.00	-	-	-
48.00	48.00	-	-	-

### GENERAL NOTE :

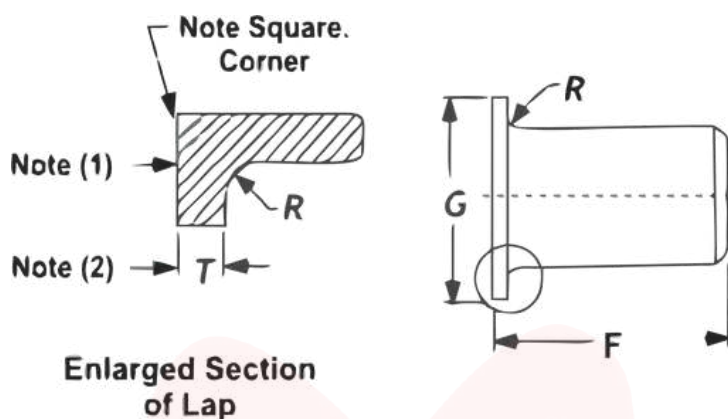
- (a) Dimensions are in inches.
- (b) The shape of these caps shall be ellipsoidal and shall conform to the shape requirements as given in the ASME Boiler and Pressure Vessel Code.

### NOTES :

- (1) Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness for Length E".
- (2) Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness" for NPS 24 and smaller. For NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser.

# Fittings Dimensions

## LAP JOINT STUB ENDS B16.9



B16.9

Nominal Pipe Size (NPS)	Outside Diameter of Barrel (O/D)		long pattern length (F) notes(3)(4)	Short pattern length (F) notes(3)(4)	Radius of Fillet R Note(5)	Diameter of Lap (G) Note (6)
	Max	Min				
1/2"	0.896	0.809	3.000	2.000	0.120	1.380
3/4"	1.106	1.019	3.000	2.000	0.120	1.690
1"	1.376	1.284	4.000	2.000	0.120	2.000
1 1/4"	1.716	1.629	4.000	2.000	0.190	2.500
1 1/2"	1.965	1.869	4.000	2.000	0.250	2.880
2"	2.456	2.344	6.000	2.500	0.310	3.620
2 1/2"	2.966	2.844	6.000	2.500	0.310	4.120
3"	3.596	3.469	6.000	2.500	0.380	5.000
3 1/2"	4.096	3.969	6.000	3.000	0.380	5.500
4"	4.593	4.469	6.000	3.000	0.440	6.190
5"	5.683	5.532	6.000	3.000	0.440	7.300
6"	6.743	6.594	8.000	3.500	0.500	8.500
8"	8.743	8.594	8.000	4.000	0.500	10.620
10"	10.913	10.719	8.000	5.000	0.500	12.750
12"	12.913	12.719	10.000	6.000	0.500	15.000
14"	14.170	13.969	10.000	6.000	0.500	16.250
16"	16.180	15.969	12.000	6.000	0.500	18.500
18"	18.190	17.969	12.000	6.000	0.500	21.000
20"	20.240	19.969	12.000	6.000	0.500	23.000
22"	22.240	21.969	12.000	6.000	0.500	25.250
24"	24.240	23.969	12.000	6.000	0.500	27.250

### GENERAL NOTES:

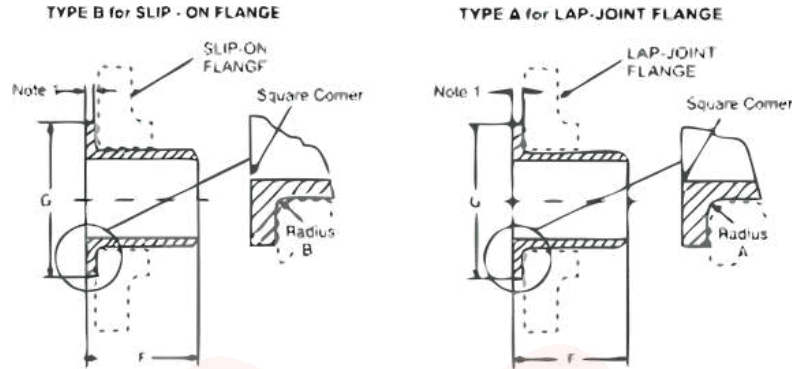
- All dimensions are in inches.
- For Tolerance see B/W Fitting tolerances chart
- Service conditions and joint construction often dictate stub end length requirements. Therefore, the purchaser must specify long or short pattern fitting when ordering.

### NOTES:

- Gasket face finish shall be in accordance with ASME B16.5 for raised face flanges.
- The lap thickness T shall not be less than nominal pipe wall thickness (see B/W Fitting tolerances chart)
- When short pattern stub ends are used with larger flanges in classes 300 and 600, with most sizes in classes 900 and higher, and when long pattern stub ends are used with larger flanges in classes 1500 and 2500, it may be necessary to increase the length of the stub ends in order to avoid covering the weld with the flange. Such increases in length shall be matter of agreement between the Manufacturer and purchaser.
- When special facings such as tongue and groove, male and female, etc., are employed, additional lap thickness must be provided and such additional thickness shall be in addition to (not included in) the basic length F.
- These dimensions conform to the radius established for lap joint flanges in ASME B16.5.
- This dimension conforms to standard machined facings shown in ASME B16.5. The back face of the lap shall be machined to conform to the surface on which it seats. Where ring joint facings are to be applied, use dimension K as given in ASME B16.5.

# Fittings Dimensions

## LAP JOINT STUB ENDS MSS SP43



MSS SSP43

Nominal Pipe Size	Outside Diameter at Bevel	Outside Diameter at Bevel	Stub Ends		
			Radius* of Fillet		
			Length F*	A - nominal and max	B (max)
1/2"	0.84	1.38	2	0.12	0.03
3/4"	1.05	1.69	2	0.12	0.03
1"	1.32	2	2	0.12	0.03
1 1/4"	1.66	2.5	2	0.19	0.03
1 1/2"	1.9	2.88	2	0.25	0.03
2"	2.38	3.63	2.5	0.31	0.03
2 1/2"	2.88	4.13	2.5	0.31	0.03
3"	3.5	5	2.5	0.38	0.03
3 1/2"	4	5.5	3	0.38	0.03
4"	4.5	6.19	3	0.44	0.03
5"	5.56	7.31	3	0.44	0.06
6"	6.63	8.5	3.5	0.5	0.06
8"	8.63	10.62	4	0.5	0.06
10"	10.75	12.75	4	0.5	0.06
12"	12.75	15	6	0.5	0.06
14"	14	16.25	6	0.5	0.06
16"	16	18.5	6	0.5	0.06
18"	18	21	6	0.5	0.06
20"	20	23	6	0.5	0.06
24"	24	27.25	6	0.5	0.06

All Dimensions are in inches

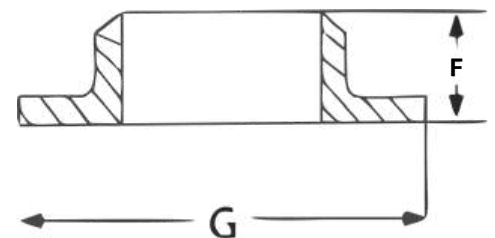
\* These lengths and radii for use with Schedule 40S or thinner pipe.

Note 1. The minimum lap thickness shall not be less than nominal pipe wall thickness.

Note 2. Contact faces of stub ends shall have a modified spiral or concentric serration.

## PRESSED STUBENDS / WELDING COLLARS

Nominal Pipe Size	Outside Diameter at Bevel	Outside Diameter of Lap (G)	Height (F)
1/2"	0.84	1.38	0.31
3/4"	1.05	1.69	0.31
1"	1.32	2.00	0.39
1 1/4"	1.66	2.50	0.47
1 1/2"	1.90	2.88	0.47
2"	2.38	3.63	0.62
2 1/2"	2.88	4.13	0.62
3"	3.50	5.00	0.70
3 1/2"	4.00	5.50	0.78
4"	4.50	6.19	0.78
5"	5.56	7.31	0.98
6"	6.63	8.50	0.98
8"	8.63	10.62	1.18
10"	10.75	12.75	1.37
12"	12.75	15.00	1.57



NOTE : 1) All Dimension are in Inches  
 2) Thk as per Sch10S/40S etc.  
 3) Also can be manufactured in DIN Standard or as per your drawings

# Forged Fittings

Precision-engineered Forged Fittings offered by M.A. International, meticulously crafted in both Socketweld and Threaded configurations, catering to a wide spectrum of industrial requirements.



**90 Degree Elbow**



**45 Degree Elbow**



**Tee**



**Weldolet**



**Cross Tee**



**Half, Full & Reducing Coupling**



**Street Elbow**



**Sockolet**



**End Caps**



**Hex and Square Plugs**



**Hex Nipple**



**Threadolet**



**Union**



**Hose Nipple**



**Bushings**



**Weldolet**



**Nipolet**



**Sweepolet**



**Swage Nipple**

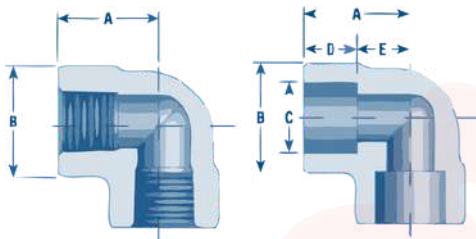


**Bull Plug**

# Fittings Dimensions

## 90 Degree Elbow

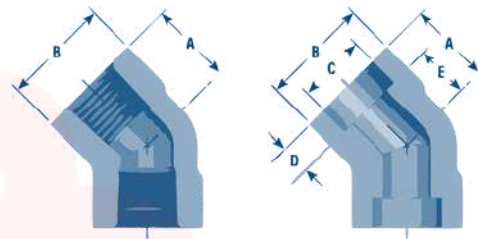
- Class 2000
- Class 3000
- Class 6000
- Class 9000



**SPECIFICATIONS:**  
ASME B16.11  
ASME B1.20.1 - (NPT)

## 45 Degree Elbow

- Class 2000
- Class 3000
- Class 6000
- Class 9000



**SPECIFICATIONS:**  
ASME B16.11  
ASME B1.20.1 - (NPT)

### Threaded/Screwed

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
2000	A	-	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3	3 3/8	4 3/16
	B	-	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 5/8	4 5/16	5 3/4
3000	A	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	6
6000	A	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 3/16	4 1/2
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	5 3/4	6

### Threaded/Screwed

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
2000	A		3/4	3/4	1	1/4	1 5/16	1 3/8	1 3/4	2 1/16	2 1/2	3 1/8	4 3/8
	B		29/32	1	1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	4	6
3000	A	3/4	3/4	1	1	1 1/4	1 5/16	1 3/8	1 11/16	1 3/4	2 1/16	2 1/2	3 1/8
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 5/16	4	4 3/4	6
6000	A	3/4	1	1	1 1/8	1 1/4	1 5/16	1 3/8	1 11/16	1 3/4	2 1/16	2 1/2	3 1/8
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 5/16	4	4 3/4	6	6

### Socket Weld

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	7/8	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3	3 3/8
	B	29/32	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4 3/8	5 3/4
	C	0.42	0.55	0.69	0.85	1.06	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	7/16	17/32	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 5/8
6000	A	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	6
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	17/32	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 1/2	2 3/4
9000	A				1 1/2	1 3/4	2	2 3/8	2 1/2	3			
	B				127/32	27/32	2 1/2	31/32	311/32	311/16			
	C				0.855	1.065	1.33	1.675	1.915	2.406			
	D MIN.				3/8	1/2	1/2	1/2	1/2	5/8			
	E				1	1 1/8	1 1/4	1 3/8	1 1/2	2 1/8			

### Socket Weld

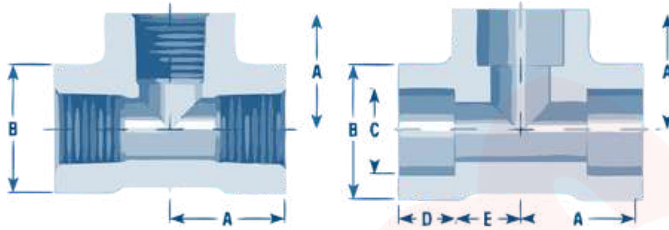
CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	3/4	3/4	3/4	1	1 1/8	1 1/4	1 5/16	1 3/8	1 3/4	2 1/16	2 1/2	3 1/8
	B	29/32	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	4	4 3/8	6
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	5/16	5/16	5/16	7/16	1/2	9/16	11/16	13/16	1	1 1/8	1 1/4	1 5/8
6000	A	3/4	3/4	1	1 1/8	1 1/4	1 5/16	1 3/8	1 3/4	1 27/32	2 1/16	2 1/2	3 1/8
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 3/8	4	4 3/8	6
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	5/16	5/16	7/16	1/2	9/16	11/16	13/16	1	1 1/8	1 1/4	1 3/8	1 5/8
9000	A				1 1/4	1 5/16	1 3/8	1 3/4	1 27/32	2 1/16			
	B				1 27/32	2 7/32	2 1/2	3 1/32	3 3/8	4			
	C				0.855	1.065	1.33	1.675	1.915	2.406			
	D MIN.				Min. 3/8	1/2	1/2	1/2	1/2	5/8			
	E				5/8	3/4	13/16	7/8	1	1 1/8			

Note: 1. All Dimensions are in inches .

# Fittings Dimensions

## Equal Tee

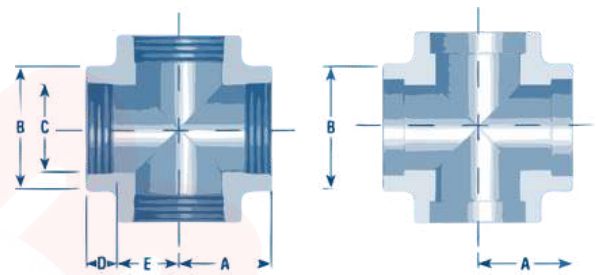
- Class 2000
- Class 3000
- Class 6000
- Class 9000



**SPECIFICATIONS:**  
ASME B16.11  
ASME B1.20.1 - (NPT)

## Cross

- Class 2000
- Class 3000
- Class 6000
- Class 9000



**SPECIFICATIONS:**  
ASME B16.11  
ASME B1.20.1 - (NPT)

## Threaded/Screwed

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	NA	7/8	31/32	1 1/8	1 1/2	1 3/4	2	2 3/8	3	3 3/8	4	3 3/16
	B	NA	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/16	4 5/16	5 3/4
6000	A	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	1 11/32	4	4 3/4	6
9000	A	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 3/16	4 1/2
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	5 3/4	6

## Threaded/Screwed

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
2000	A												
	B		31/32	31/32	1-1/8	1-5/16	1-1/2	1-3/4	2	2-3/8	3-1/4	3-3/4	4-1/2
3000	A		1-1/16	1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	4	4-3/4	6
	B	31/32	31/32	1-1/8	1-5/16	1-1/2	1-3/4	2	2-3/8	2-1/2	3-1/4	3-3/4	4-1/2
6000	A	1-1/16	1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	4	4-3/4	6
	B	31/32	1-1/8	1-5/16	1-1/2	1-3/4	2	2-3/8	2-1/2	3-1/4	3-3/4	4-1/2	4-1/2
9000	A	1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	4	4-3/4	6	6
	B	1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	4	4-3/4	6	6

## Socket Weld

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	7/8	7/8	31/32	1-1/8	1-5/16	1-1/2	1-3/4	2	2-3/8	3	3-3/8	4-3/16
	B	29/32	29/32	1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/16	4-3/8	5-3/4
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D	3/8	3/8	3/8	3/8	1/2	1/2	1/2	5/8	5/8	5/8	3/4	3/4
	E	7/16	7/16	17/32	5/8	3/4	7/8	1-1/16	1-1/4	1-1/2	1-5/8	2-1/4	2-5/8
6000	A	7/8	31/32	1-1/8	1-5/16	1-1/2	1-3/4	2	2-3/8	2-1/2	3-1/4	3-3/4	4-1/2
	B	29/32	1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	4	4-3/4	6
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D	3/8	3/8	3/8	3/8	1/2	1/2	1/2	5/8	5/8	5/8	3/4	3/4
	E	7/16	17/32	5/8	3/4	7/8	1-1/16	1-1/4	1-1/2	1-5/8	2-1/4	2-1/2	2-3/4
9000	A				1-1/2	1-3/4	2	2-3/8	2-1/2	3			
	B				1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	4			
	C				0.855	1.065	1.33	1.675	1.915	2.406			
	D				3/8	1/2	1/2	1/2	1/2	5/8			
	E				1	1-1/8	1-1/4	1-3/8	1-1/2	2-1/8			

## Socket Weld

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	15/16	15/16	31/32	1-1/8	1-5/16	1-1/2	1-3/4	2	2-3/8	3-1/4	3-3/4	4-1/2
	B	1-1/16	1-1/16	1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	4	4-3/4	6
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	7/16	17/32	5/8	3/4	7/8	1-1/16	1-1/4	1-1/2	1-5/8	2-1/4	2-5/8
6000	A				1-5/16	1-1/2	1-3/4	2	2-3/8	2-1/2	3-1/4	3-3/4	
	B				1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	4	4-3/4	
	C				0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	
	D				3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	
	E				3/4	7/8	1-1/16	1-1/4	1-1/2	1-5/8	2-1/4	2-1/2	
9000	A				1-1/2	1-3/4	2	2-3/8	2-1/2	3			
	B				1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	4			
	C				0.855	1.065	1.33	1.675	1.915	2.406			
	D				3/8	1/2	1/2	1/2	1/2	5/8			
	E				1	1-1/8	1-1/4	1-3/8	1-1/2	2-1/8			

Note: 1. All Dimensions are in inches .

# Fittings Dimensions

## Couplings, Half Couplings, Reducers and Caps

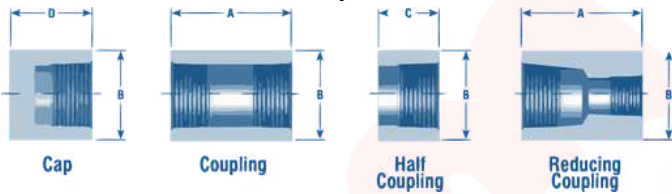


Class 3000

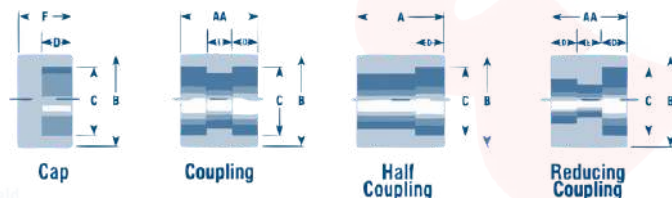
Class 6000

Class 9000

### Threaded/Screwed



CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	1-1/4	1-3/8	1-1/2	1-7/8	2	2-3/8	2-5/8	3-1/8	3-3/8	3-5/8	4-1/4	4-3/4
	B	3/4	3/4	7/8	1-1/8	1-3/8	1-3/4	2-1/4	2-1/2	3	3-5/8	4-1/4	5-1/2
	C	5/8	11/16	3/4	15/16	1	1-3/16	1-5/16	1-9/16	1-11/16	1-13/16	2-1/8	2-3/8
	D	15/16	1	1	1-1/4	1-7/16	1-5/8	1-3/4	1-3/4	1-7/8	2-3/8	2-9/16	2-11/16
6000	A	1-1/4	1-3/8	1-1/2	1-7/8	2	2-3/8	2-5/8	3-1/8	3-3/8	3-5/8	4-1/4	4-3/4
	B	7/8	1	1-1/4	1-1/2	1-3/4	2-1/4	2-1/2	3	3-5/8	4-1/4	5	6-1/4
	C	5/8	11/16	3/4	15/16	1-1	3/16	1-5/16	1-9/16	1-11/16	1-13/16	2-1/8	2-3/8
	D	1	1-1/16	1-1/16	1-5/16	1-1/2	1-11/16	1-13/16	1-7/8	2	2-1/2	2-11/16	2-15/16



### Socket Weld

CLASS	DIMENSIONS	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	1-1/16	1-1/16	1-1/8	1-3/8	1-1/2	1-3/4	1-7/8	2	2-1/2	2-9/16	2-3/4	3
	AA	1-1/32	1-1/32	1-1/32	1-3/16	1-13/32	1-33/64	1-33/64	1-33/64	2-1/64	2-1/64	2-1/64	2-17/64
	B	3/4	7/8	1-1/16	1-1/4	1-1/2	1-13/16	2-1/4	2-1/2	3	3-5/8	4-5/16	5-1/2
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D Min.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	1/4	1/4	1/4	3/8	3/8	1/2	1/2	1/2	3/4	3/4	3/4	3/4
	F	1-1/16	3/4	3/4	7/8	1	1-1/16	1-3/16	1-1/4	1-1/2	1-9/16	1-13/16	2-1/16
6000	A	1-1/16	1-1/16	1-1/8	1-3/8	1-1/2	1-3/4	1-7/8	2	2-1/2	2-9/16	2-3/4	3
	AA	1-1/16	1-1/8	1-1/8	1-5/32	1-13/32	1-33/64	1-33/64	1-33/64	2-1/64	2-1/64	2-1/64	2-17/64
	B	7/8	1-1/16	1-5/16	1-1/2	1-3/4	2-1/4	2-1/2	3	3-5/8	4-1/4	5	6-1/4
	C	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535	4.545
	D	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	1/4	1/4	1/4	3/8	3/8	1/2	1/2	1/2	3/4	3/4	3/4	3/4
	F	NA	15/16	15/16	1	1-1/16	1-1/4	1-5/16	1-3/8	1-5/8	1-11/16	1-15/16	2-5/16
9000	A				1-3/8	1-1/2	1-3/4	1-51/64	2	2-1/2			
	AA				1-3/8	1-1/2	1-3/4	1-51/64	2	2-1/2			
	B				1-13/16	2	2-3/8	2-3/4	3-1/16	3-5/8			
	C				0.855	1.065	1.33	1.675	1.915	2.406			
	D				3/8	1/2	1/2	1/2	1/2	5/8			

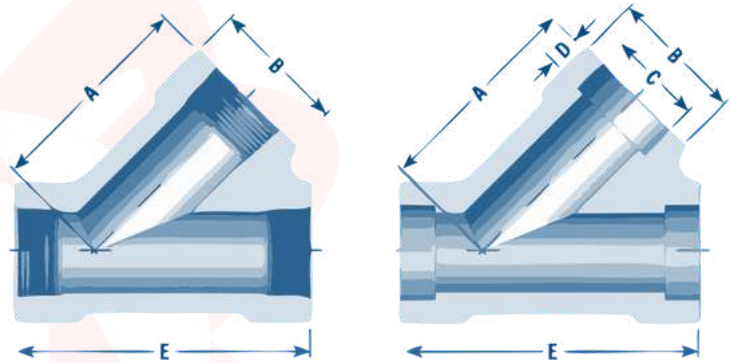
## Lateral Tee



Class 3000

Class 6000

Class 9000



### Threaded/Screwed

CLASS	DIMENSIONS	SIZES								
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
3000	A		1-7/8	2-1/8	2-9/16	3	3-1/2	3-15/16	4-3/4	5
	B		1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/32
	E		2-11/16	3	3-9/16	4-1/8	4-13/16	5-3/8	6-7/16	6-5/8
6000	A				3	3-1/2	3-15/16	4-3/4	5	
	B				1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	
	E				4-1/8	4-13/16	5-3/8	6-7/16	6-5/8	

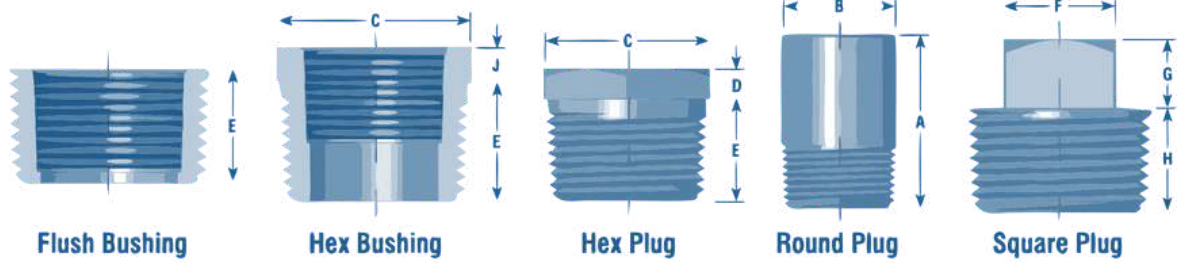
### Socket Weld

CLASS	DIMENSIONS	SIZES								
		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
3000	A		1-7/8	2-1/8	2-9/16	3	3-1/2	3-15/16	4-3/4	
	B		1-1/16	1-5/16	1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	
	C		0.69	0.855	1.065	1.33	1.675	1.915	2.406	
	D		3/8	3/8	1/2	1/2	1/2	1/2	5/8	
	E		2-11/16	3	3-9/16	4-1/8	4-13/16	5-3/8	6-7/16	
6000	A				2-9/16	3	3-1/2	3-15/16	4-3/4	5
	B				1-9/16	1-27/32	2-7/32	2-1/2	3-1/32	3-11/32
	C				0.855	1.065	1.33	1.675	1.915	2.406
	D				3/8	1/2	1/2	1/2	1/2	5/8
	E				3-9/16	4-1/8	4-13/16	5-3/8	6-7/16	6-5/8
9000	A				3	3-1/2	3-15/16	4-3/4	5	
	B				1-27/32	2-7/32	2-1/2	3-1/32	3-11/32	
	C				0.855	1.065	1.33	1.675	1.915	
	D				9/16	5/8	11/16	7/8	1/2	
	E				4-1/8	4-13/16	5-3/8	6-7/16	6-5/8	



# Fittings Dimensions

## Plugs & Bushings



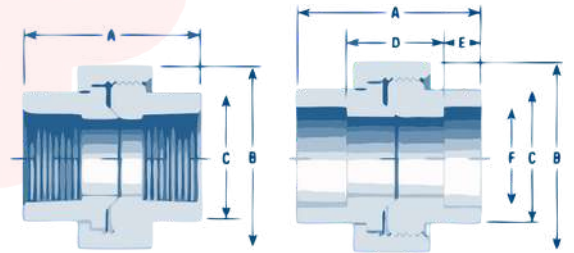
Class 3000      Class 6000

**SPECIFICATIONS:**  
ASME B16.11  
ASME B1.20.1 - (NPT)

CLASS	DIMENSION S	SIZES											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000/6000	A	1-3/8	1-5/8	1-5/8	1-3/4	1-3/4	2	2	2	2-1/2	2-3/4	2-3/4	3
	B	13/32	9/16	11/16	13/16	1-1/16	1-5/16	1-11/16	1-29/32	2-3/8	2-7/8	3-1/2	4-1/2
	C	7/16	5/8	11/16	7/8	1-1/16	1-3/8	1-3/4	2	2-1/2	3	3-3/4	4-7/8
	D	1/4	1/4	5/16	5/16	3/8	3/8	9/16	5/8	11/16	3/4	13/16	1
	E	7/16	1/2	9/16	11/16	3/4	27/32	7/8	15/16	1	1-1/4	1-11/16	1-25/32
	F	9/32	3/8	7/16	9/16	5/8	13/16	15/16	1-1/8	1-5/16	1-1/2	1-11/16	2-1/2
	G	1/4	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	1-1/4
	H	3/8	7/16	1/2	9/16	5/8	3/4	13/16	13/16	7/8	1-1/16	1-1/8	1-1/4
	J	3/16	3/16	3/16	1/4	1/4	3/8	3/8	3/8	1/2	7/16	1/2	1



## Unions



Class 3000  
Class 6000

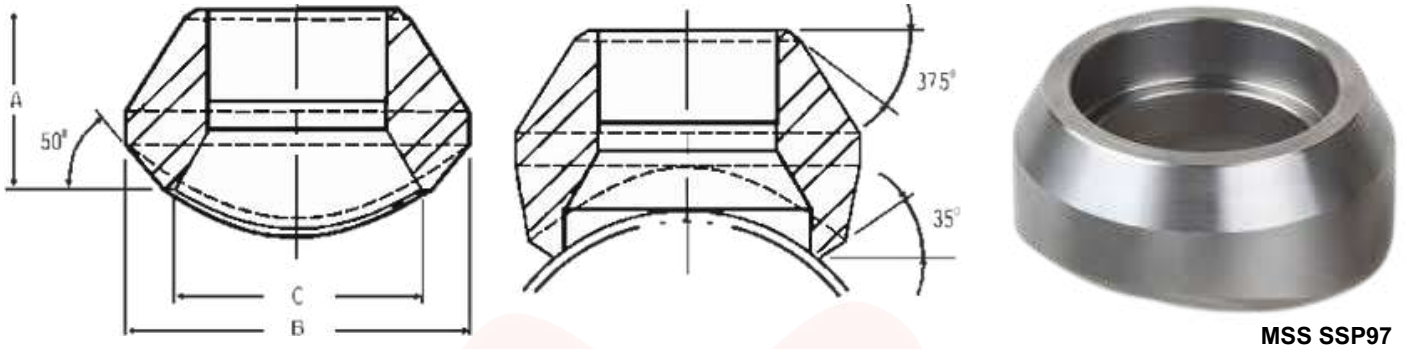
**SPECIFICATIONS:**  
ASME B16.11  
ASME B1.20.1 - (NPT)

CLASS	DIMENSIONS	SIZES										
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
3000	A	1-45/64	1-23/32	1-7/8	2	2-9/32	2-1/2	2-7/8	3-1/32	3-1/2	4-3/64	4-19/64
	B	1-3/8	1-3/8	1-9/16	1-13/16	2-11/64	2-9/16	3-1/8	3-1/2	4-1/4	4-7/8	5-3/4
	C	7/8	7/8	1-1/32	1-15/64	1-31/64	1-13/16	2-15/64	2-31/64	3-1/32	3-21/32	4-13/32
	D	61/64	31/32	1-1/8	1-1/4	1-9/32	1-1/2	1-7/8	2-1/32	2-1/4	2-51/64	3-3/64
	E	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8
	F	0.42	0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406	2.906	3.535
6000	A		1-7/8	1-63/64	2-19/64	2-1/2	2-7/8	3-1/64	3	3-17/32		
	B		1-37/64	1-13/16	2-13/64	2-37/64	3-7/64	3-27/64	4-3/32	4-7/8		
	C		1-1/32	1-15/64	1-15/32	1-51/64	2-11/64	2-15/32	3-1/32	3-21/32		
	D		1-1/8	1-15/64	1-35/64	1-1/2	1-7/8	2-1/64	2-17/32	3-1/64		
	E		3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8		
	F		0.555	0.69	0.855	1.065	1.33	1.675	1.915	2.406		

Note:  
1. All Dimensions are in inches .  
2. The "B" Dimensions is measured across the flats of the union nut.

# Fittings Dimensions

## Weldolet

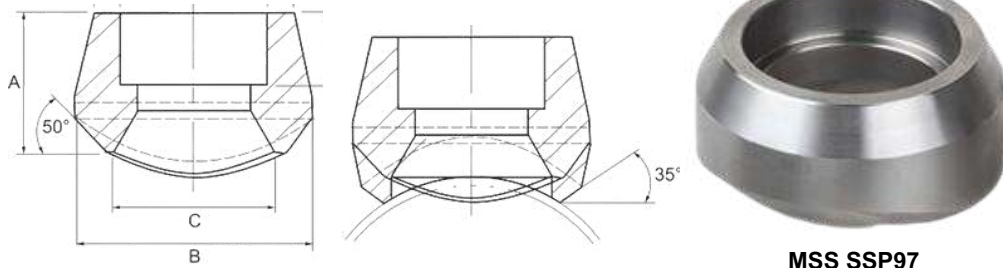


MSS SSP97

Outlet Size	A		B		C	
	STD	XS	STD	XS	STD	XS
1/2	19.1	19.1	34.9	34.9	23.8	23.8
3/4	22.20	22.20	44.50	44.5	30.2	30.2
1	27	27	54	54	36.5	36.5
1 1/4	31.8	31.8	65.1	65.1	44.5	44.5
1 1/2	33.3	33.3	73	73	50.8	50.8
2	38.1	38.1	88.9	88.9	65.1	65.1
2 1/2	41.3	41.3	103.2	103.2	76.2	76.2
3	44.5	44.5	122.2	122.2	93.7	93.7
4	50.8	50.8	152.4	152.4	120.7	120.7
5	57.2	57.2	179.4	179.4	141.3	141.3
6	60.3	77.8	215.9	225.4	169.9	169.9
8	69.9	98.5	263.5	292.1	220.7	220.7
10	77.8	93.7	322.3	323.9	274.7	265.1
12	85.7	103.2	377.8	379.4	325.4	317.5
14	88.9	100	409.6	431.8	357.2	350.8
16	93.7	106.4	463.6	466.7	408	403.2
18	96.8	111.1	520.7	523.9	458.8	455.6
20	101.6	119.1	571.5	582.6	508	509.6
24	115.9	139.7	689	708	614.4	638.2
26	119.1	146.1	738.2	765.2	666.8	692.2

# Fittings Dimensions

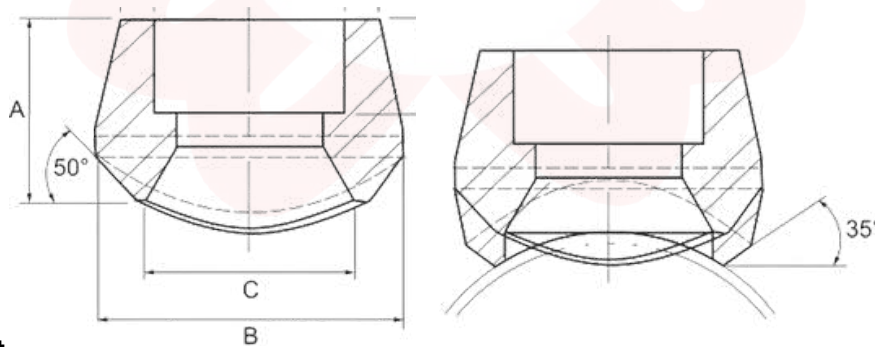
## Socketlet



Socketweld Outlet

MSS SSP97

Outlet Size	A		B		C	
	3000	6000	3000	6000	3000	6000
1/2	25.4	31.8	34.9	44.5	23.8	19.1
3/4	27	36.5	44.5	50.8	30.2	25.4
1	33.3	39.7	54	61.9	36.5	33.3
1 1/4	33.3	41.3	65.1	69.9	44.5	38.1
1 1/2	34.9	42.9	73	82.6	50.8	49.2
2	38.1	58.7	88.9	103.2	65.1	58.7
2 1/2	46	-	103.2	-	76.2	-
3	50.8	-	122.2	-	93.7	-
4	57.2	-	152.4	-	120.7	-



Threaded Outlet

MSS SSP97

Outlet Size	A		B		C	
	3000	6000	3000	6000	3000	6000
1/2	25.4	31.8	34.9	44.5	23.8	19.1
3/4	27	36.5	44.5	50.8	30.2	25.4
1	33.3	39.7	54	61.9	36.5	33.3
1 1/4	33.3	41.3	65.1	69.9	44.5	38.1
1 1/2	34.9	42.9	73	82.6	50.8	49.2
2	38.1	52.4	88.9	103.2	65.1	69.9
2 1/2	46	-	103.2	-	76.2	-
3	50.8	-	122.2	-	93.7	-
4	57.2	-	152.4	-	120.7	-



# Flanges

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Metalloy International is a Manufacturer & Exporter for Stainless Steel, Nickel Alloys & Carbon Steel flanges. We have open die forging machines to meet your requirements from Class 150 to Class 2500, Table D,E,F & H Flange and DN Flanges from PN16 to PN40 are different types of flanges offered.



**Slip On Flange**



**Weldneck Flange**



**Blind Flange**



**BS10 Flange**



**Socketweld Flange**



**Lap Joint Flange**



**Screwed Flange**



**Ring Type Joint Flange**



**Long Weldneck Flange**



**Orifice Flange**



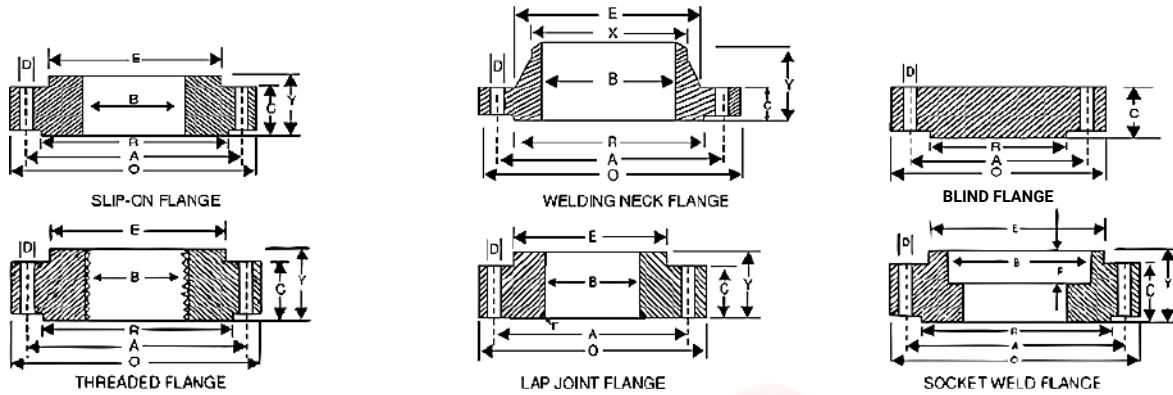
**Spectacle Blind Flange**



**Square Flange**

# Flange Dimensions

## Stainless Steel Flange Dimensions as per ANSI B16.5



DIMENSIONS OF CLASS 150 FLANGES AS PER B16.5

Nominal Pipe Size	Flange Dia	Dia of Bolt Circle	No. Of Bolt Holes	No. Of Holes	Thk of Flange	Dia of Hub	Length through Hub			Dia Bore		Dia of R/F	Depth of Socket	Pipe Dia
							S/O & S/W	W/N	L/J	S/O & S/W	L/J			
	O	A	D		C	E	Y	Y	Y	B	B	R	F	X
15.00	88.90	60.30	15.90	4.00	11.10	30.20	15.90	47.60	15.90	22.30	22.90	34.90	9.50	21.34
20.00	98.40	69.80	15.90	4.00	12.70	38.10	15.90	52.40	15.90	27.70	28.20	42.90	11.10	26.67
25.00	107.90	79.40	15.90	4.00	14.30	49.20	17.50	55.60	17.50	34.50	35.00	50.80	12.70	33.40
32.00	117.50	88.90	15.90	4.00	15.90	58.70	20.60	57.10	20.60	43.20	43.70	63.50	14.30	42.16
40.00	127.00	98.40	15.90	4.00	17.50	65.10	22.20	61.90	22.20	49.50	50.00	73.00	15.90	48.26
50.00	152.40	120.60	19.00	4.00	19.00	77.80	25.40	63.50	25.40	62.00	62.50	92.10	17.50	60.33
65.00	177.80	139.70	19.00	4.00	22.20	90.50	28.60	69.80	28.60	74.70	75.40	104.80	19.00	73.02
80.00	190.50	152.40	19.00	4.00	23.80	107.90	30.20	69.80	30.20	90.70	91.40	127.00	20.60	88.90
100.00	228.60	190.50	19.00	8.00	23.80	134.90	33.30	76.20	33.30	116.10	116.80	157.20	23.80	114.30
125.00	254.00	215.90	22.20	8.00	23.80	163.50	36.50	88.90	36.50	143.80	144.50	185.70	23.80	141.30
150.00	279.40	241.30	22.20	8.00	25.40	192.10	39.70	88.90	39.70	170.70	171.40	215.90	27.00	168.28
200.00	342.90	298.40	22.20	8.00	28.60	246.10	44.40	101.60	44.40	221.50	222.20	269.90	31.70	219.08
250.00	406.40	361.90	25.40	12.00	30.20	304.80	49.20	101.60	49.20	276.30	277.40	323.80	33.30	273.05
300.00	482.60	431.80	25.40	12.00	31.80	365.10	55.60	114.30	55.60	327.10	328.20	381.00	39.70	323.85
350.00	533.60	476.20	28.60	12.00	34.90	400.00	57.10	127.00	79.40	359.10	360.20	412.70	41.30	355.60
400.00	596.90	539.70	28.60	16.00	36.50	457.20	63.50	127.00	87.30	410.50	411.20	469.90	44.40	406.40
450.00	635.00	577.80	31.70	16.00	39.70	504.80	68.30	139.70	96.80	461.80	462.30	533.40	49.20	457.20
500.00	698.50	635.00	31.70	20.00	42.90	558.80	73.00	144.50	103.20	513.10	514.30	584.20	54.00	508.00
600.00	812.80	749.30	34.90	20.00	47.60	663.60	82.50	152.40	111.10	615.90	615.90	692.10	63.50	609.60

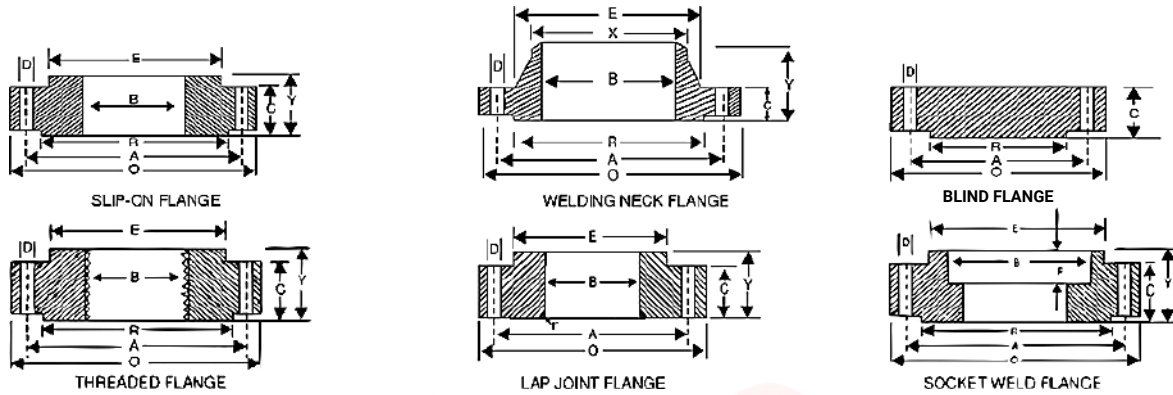
DIMENSIONS OF CLASS 300 FLANGES AS PER B16.5

Nominal Pipe Size	Flange Dia	Dia of Bolt Circle	No. Of Bolt Holes	No. Of Holes	Thk of Flange	Dia of Hub	Length through Hub			Dia Bore		Dia of R/F	Depth of Socket	Pipe Dia
							S/O & S/W	W/N	L/J	S/O & S/W	L/J			
	O	A	D		C	E	Y	Y	Y	B	B	R	F	X
15.00	95.20	66.70	15.90	4.00	14.30	38.10	22.20	52.40	22.20	22.30	22.90	34.90	9.50	21.34
20.00	117.50	82.50	19.00	4.00	15.90	47.60	25.40	57.10	25.40	27.70	28.20	42.90	11.10	26.67
25.00	123.80	88.90	19.00	4.00	17.50	54.00	27.00	61.90	27.00	34.50	35.00	50.80	12.70	33.40
32.00	133.30	98.40	19.00	4.00	19.00	63.50	27.00	65.10	27.00	43.20	43.70	63.50	14.30	42.16
40.00	155.60	114.30	22.20	4.00	20.60	69.80	30.20	68.30	30.20	49.50	50.00	73.00	15.90	48.26
50.00	165.10	127.00	19.00	8.00	22.20	84.10	33.30	69.80	33.30	62.00	62.50	92.10	17.50	60.33
65.00	190.50	149.20	22.20	8.00	25.40	100.00	38.10	76.20	38.10	74.70	75.40	104.80	19.00	73.02
80.00	209.50	168.28	22.20	8.00	28.60	117.50	42.90	79.40	42.90	90.70	91.40	127.00	20.60	88.90
100.00	254.00	200.00	22.20	8.00	31.80	146.00	47.60	85.70	47.60	116.10	116.80	157.20	23.80	114.30
125.00	279.40	234.90	22.20	8.00	34.90	177.80	50.80	98.40	50.80	143.80	144.50	185.70	-	141.30
150.00	317.50	269.90	22.20	12.00	36.50	206.40	52.40	98.40	52.40	170.70	171.40	215.90	-	168.28
200.00	381.00	330.20	25.40	12.00	41.30	260.30	61.90	111.10	61.90	221.50	222.20	269.90	-	219.08
250.00	444.50	387.30	28.60	16.00	47.60	320.70	66.70	117.50	95.20	276.30	277.40	323.80	-	273.05
300.00	520.70	450.80	31.70	16.00	50.80	374.60	73.00	130.20	101.60	327.10	328.20	381.00	-	323.85
350.00	584.20	514.30	31.70	20.00	54.00	425.40	76.20	142.90	111.10	359.10	360.20	412.70	-	355.60
400.00	647.70	571.50	34.90	20.00	57.20	482.60	82.50	146.00	120.60	410.50	411.20	469.90	-	406.40
450.00	711.20	628.50	34.90	24.00	60.30	533.40	88.90	158.70	130.20	461.80	462.30	533.40	-	457.20
500.00	774.70	685.80	34.90	24.00	63.50	587.40	95.20	161.90	139.70	513.10	514.30	584.20	-	508.00
600.00	914.40	812.80	41.30	24.00	69.80	701.70	106.40	168.30	152.70	615.90	615.90	692.10	-	609.60

• Dimensions in Millimeter  
 • Metric values are direct conversion from Inches table of B16.5  
 • Flanges except Lap Joint will be furnished with (1.6 mm) raised face, Which is included in "Thickness" ( C ) and Length Through Hub ( Y ).

# Flange Dimensions

## Stainless Steel Flange Dimensions as per ANSI B16.5



DIMENSIONS OF CLASS 600 FLANGES AS PER B16.5

Nominal Pipe Size	Flange Dia	Dia of Bolt Circle	No. Of Bolt Holes	No. Of Holes	Thk of Flange	Dia of Hub	Length through Hub	S/O & S/W	W/N	L/J	Dia Bore		Dia of R/F	Depth of Socket	Pipe Dia
											S/O & S/W	L/J			
											B	B			
	O	A	D		C	E	Y	Y	Y	B	B	R	F	X	
15.00	95.20	66.70	15.90	4.00	14.30	38.10	22.20	52.40	22.30	22.30	22.80	34.90	9.50	21.34	
20.00	117.50	82.50	19.00	4.00	15.90	47.60	25.40	57.10	25.40	27.70	28.10	42.90	11.10	26.67	
25.00	123.80	88.90	19.00	4.00	17.50	54.00	27.00	61.90	26.90	34.50	35.00	50.80	12.70	33.40	
32.00	133.30	98.40	19.00	4.00	20.60	63.50	28.60	66.70	28.40	43.20	43.60	63.50	14.20	42.16	
40.00	155.60	114.30	22.20	4.00	22.20	69.80	31.70	69.80	31.70	49.50	50.00	73.00	15.80	48.26	
50.00	165.10	127.00	19.00	8.00	25.40	84.10	36.50	73.00	36.50	62.00	62.40	92.10	17.40	60.33	
65.00	190.50	149.20	22.20	8.00	28.60	100.00	41.30	79.40	41.10	74.70	75.40	104.80	19.00	73.02	
80.00	209.50	168.28	22.20	8.00	31.80	117.50	46.00	82.50	45.90	90.70	91.40	127.00	-	88.90	
100.00	273.00	215.90	25.40	8.00	38.10	152.20	54.00	101.60	53.80	116.10	116.80	157.20	-	114.30	
125.00	330.20	266.70	28.60	8.00	44.40	188.90	60.30	114.30	60.40	143.80	141.50	185.70	-	141.30	
150.00	355.60	292.10	28.60	12.00	47.60	222.20	66.70	117.50	66.40	170.70	171.40	215.90	-	168.28	
200.00	419.10	349.20	31.70	12.00	55.60	273.00	76.20	133.30	76.20	221.50	222.20	269.90	-	219.08	
250.00	508.00	431.80	34.90	16.00	63.50	342.90	85.70	152.40	111.20	276.30	277.30	323.80	-	273.05	
300.00	558.50	488.90	34.90	20.00	66.70	400.00	92.10	155.60	117.30	327.10	328.10	381.00	-	323.85	
350.00	603.20	527.00	38.10	20.00	69.90	431.80	93.70	165.10	127.00	359.10	360.10	412.70	-	355.60	
400.00	685.80	603.20	41.30	20.00	76.20	495.30	106.40	177.80	139.70	410.50	411.20	469.90	-	406.40	
450.00	742.90	654.00	44.40	20.00	82.60	546.10	117.50	184.10	152.40	461.80	462.20	533.40	-	457.20	
500.00	813.80	723.90	44.40	24.00	88.90	609.60	127.00	190.50	165.10	513.10	514.30	584.20	-	508.00	
600.00	939.80	838.20	50.80	24.00	101.60	717.50	139.70	203.20	184.10	615.90	615.90	692.10	-	609.60	

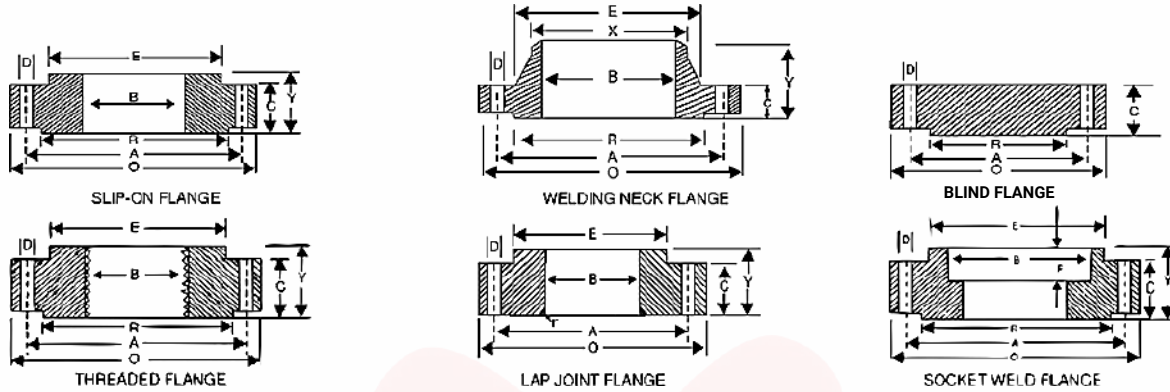
DIMENSIONS OF CLASS 900 FLANGES AS PER B16.5

Nominal Pipe Size	Flange Dia	Dia of Bolt Circle	No. Of Bolt Holes	No. Of Holes	Thk of Flange	Dia of Hub	Length through Hub	S/O & S/W	W/N	L/J	Dia Bore		Dia of R/F	Depth of Socket	Pipe Dia
											S/O & S/W	L/J			
											B	B			
	O	A	D		C	E	Y	Y	Y	B	B	R	F	X	
15.00	120.60	82.50	22.20	4.00	22.20	38.10	31.70	60.30	31.70	22.30	22.80	34.90	9.50	21.34	
20.00	130.20	88.90	22.20	4.00	25.40	44.40	34.90	69.80	35.00	27.70	28.10	42.90	11.10	26.67	
25.00	149.20	101.60	25.40	4.00	28.60	52.40	41.30	73.00	41.10	34.50	35.00	50.80	12.70	33.40	
32.00	158.70	111.10	28.60	4.00	28.60	63.50	41.30	73.00	41.10	43.20	43.60	63.50	14.20	42.16	
40.00	177.80	123.80	25.40	4.00	31.80	69.80	44.40	82.50	44.40	49.50	50.00	73.00	15.80	48.26	
50.00	215.90	165.10	28.60	8.00	38.10	104.80	57.10	101.60	57.10	62.00	62.40	92.10	17.40	60.33	
65.00	244.50	190.50	25.40	8.00	41.30	123.80	63.50	104.80	63.50	74.70	75.40	104.80	19.00	73.02	
80.00	241.30	190.50	31.70	8.00	38.10	127.00	53.90	101.60	53.90	90.70	91.40	127.00	-	88.90	
100.00	292.10	234.90	35.00	8.00	44.40	158.70	69.80	114.30	69.80	116.10	116.80	157.20	-	114.30	
125.00	349.20	279.40	31.70	8.00	50.80	190.50	79.30	127.00	79.30	143.80	141.50	185.70	-	141.30	
150.00	381.00	317.50	31.70	12.00	55.60	234.90	85.80	139.70	85.80	170.70	171.40	215.90	-	168.28	
200.00	469.90	393.70	38.10	12.00	63.50	298.40	101.60	162.00	114.30	221.50	222.20	269.90	-	219.08	
250.00	546.10	469.90	38.10	16.00	69.80	368.30	107.90	184.10	127.00	276.30	277.30	323.80	-	273.05	
300.00	609.60	533.40	38.10	20.00	79.30	419.10	117.40	200.00	142.70	327.10	328.10	381.00	-	323.85	

- Dimensions in Millimeter
- Metric values are direct conversion from Inches table of B16.5
- RF Thickness 6.3 mm Extra to be provided (Except Lap Joint Flange & FF Flanges).

# Flange Dimensions

## Stainless Steel Flange Dimensions as per ANSI B16.5



DIMENSIONS OF CLASS 1500 FLANGES AS PER B16.5

Nominal Pipe Size	Flange Dia	Dia of Bolt Circle	No. Of Bolt Holes	No. Of Holes	Thk of Flange	Dia of Hub	Length through Hub	S/O & S/W	W/N	L/J	Dia Bore		Dia of R/F	Depth of Socket	Pipe Dia
											S/O & S/W	L/J			
											B	B			
	O	A	D		C	E	Y	Y	Y	B	B	R	F	X	
15.00	120.60	82.50	22.20	4.00	22.20	38.10	31.70	60.30	31.70	22.30	22.80	34.90	9.50	21.34	
20.00	130.20	88.90	22.20	4.00	25.40	44.40	34.90	69.80	35.00	27.70	28.10	42.90	11.10	26.67	
25.00	149.20	101.60	25.40	4.00	28.60	52.40	41.30	73.00	41.30	34.50	35.00	50.80	12.70	33.40	
32.00	158.70	111.10	25.40	4.00	28.60	63.50	41.30	73.00	41.30	43.20	43.60	63.50	14.20	42.16	
40.00	177.80	123.80	28.60	4.00	31.80	69.80	44.40	82.50	44.40	49.50	50.00	73.00	15.80	48.26	
50.00	215.90	165.10	25.40	8.00	38.10	104.80	57.10	101.60	57.10	62.00	62.00	92.10	17.40	60.33	
65.00	244.50	190.50	28.60	8.00	41.30	123.80	63.50	104.80	63.50	74.70	75.40	104.80	19.00	73.02	
80.00	266.70	203.20	31.70	8.00	38.10	133.30	73.00	117.50	73.00	90.70	91.40	127.00	-	88.90	
100.00	311.10	241.30	34.90	8.00	44.40	161.90	90.50	123.00	90.40	116.10	116.80	157.20	-	114.30	
125.00	374.60	292.10	41.30	8.00	50.80	196.80	104.80	155.60	104.80	143.80	144.50	185.70	-	141.30	
150.00	393.70	317.50	38.10	12.00	55.60	228.60	119.10	171.40	119.10	170.70	171.40	215.90	-	168.28	
200.00	482.60	393.70	44.40	12.00	63.50	292.10	142.90	212.70	142.80	221.50	222.20	269.90	-	219.08	
250.00	584.20	482.60	50.80	12.00	69.80	368.30	158.70	254.00	177.80	276.30	277.30	323.80	-	273.05	
300.00	673.10	571.50	54.00	16.00	79.30	450.80	181.00	285.50	218.90	327.10	328.10	381.00	-	323.85	

DIMENSIONS OF CLASS 2500 FLANGES AS PER B16.5

Nominal Pipe Size	Flange Dia	Dia of Bolt Circle	No. Of Bolt Holes	No. Of Holes	Thk of Flange	Dia of Hub	Length through Hub	S/O & S/W	W/N	L/J	Dia Bore		Dia of R/F	Depth of Socket	Pipe Dia
											S/O & S/W	L/J			
											B	B			
	O	A	D		C	E	Y	Y	Y	B	B	R	F	X	
15.00	133.30	88.90	22.20	4.00	30.20	42.90	39.70	73.00	31.70	22.30	22.30	34.90	-	21.34	
20.00	139.70	95.20	22.20	4.00	31.70	50.80	42.90	79.40	42.90	27.70	27.70	42.90	-	26.67	
25.00	158.10	107.90	25.40	4.00	34.90	57.10	47.70	88.90	47.70	34.50	34.50	50.80	-	33.40	
32.00	184.10	130.20	28.60	4.00	38.10	73.00	52.40	95.20	52.40	43.20	43.20	63.50	-	42.16	
40.00	103.20	146.00	31.70	4.00	44.40	79.40	60.30	111.10	60.30	49.50	49.50	73.00	-	48.26	
50.00	134.90	171.40	28.60	8.00	50.80	95.20	69.80	127.00	69.80	62.40	62.00	92.10	-	60.33	
65.00	266.70	196.80	31.70	8.00	57.10	114.30	79.40	142.90	79.40	74.70	74.70	104.80	-	73.02	
80.00	304.80	228.60	34.90	8.00	66.70	133.30	92.10	168.30	92.10	90.70	90.70	127.00	-	88.90	
100.00	355.60	273.00	41.30	8.00	76.20	165.10	107.90	190.50	107.90	116.10	116.10	157.20	-	114.30	
125.00	419.10	323.80	47.60	8.00	92.10	203.30	130.00	228.60	130.00	143.80	143.80	185.70	-	141.30	
150.00	482.60	368.30	54.00	8.00	107.90	234.90	152.40	273.00	152.40	170.70	170.70	215.90	-	168.28	
200.00	552.40	438.10	54.00	12.00	127.00	304.80	177.80	317.50	177.80	221.50	221.50	269.90	-	219.08	
250.00	673.10	539.70	66.70	12.00	165.10	374.60	228.60	419.10	228.60	276.30	276.30	323.80	-	273.05	
300.00	762.00	619.10	73.00	12.00	184.10	441.30	254.00	463.50	254.00	327.10	327.10	381.00	-	323.85	

- Dimensions in Millimeter
- Metric values are direct conversion from Inches table of B16.5
- RF Thickness 6.3 mm Extra to be provided (Except Lap Joint Flange & FF Flanges).

# Flange Dimensions

## Stainless Steel Flange Dimensions as per BS 10

**Table D: For Working Steam Pressure upto 50 lbs per sq. inch**

Nominal Pipe Size	O.D. of Pipe	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt Holes	Dia. of Bolt	Thickness of Flange
1/2"	21.3	95.3	66.7	4	12.7	4.8
3/4"	26.7	101.6	73.0	4	12.7	4.8
1"	33.4	114.3	82.6	4	12.7	4.8
1 1/4"	42.2	120.7	87.6	4	12.7	6.4
1 1/2"	48.3	133.4	98.4	4	12.7	6.4
2"	60.3	152.4	114.3	4	15.9	7.9
2 1/2"	73.0	165.1	127.0	4	15.9	7.9
3"	88.9	184.2	146.1	4	15.9	9.5
3 1/2"	101.6	203.2	165.1	4	15.9	9.5
4"	114.3	215.9	177.8	4	15.9	9.5
5"	141.3	254.0	209.6	8	15.9	12.7
6"	168.3	279.4	228.6	8	15.9	12.7
7"	190.5	304.8	260.4	8	15.9	12.7
8"	219.1	336.6	292.1	8	15.9	12.7
9"	244.5	368.3	323.9	8	15.9	15.9
10"	273.0	406.4	355.6	8	19.1	15.9
12"	323.9	457.2	406.4	12	19.1	15.9
14"	355.6	527.1	469.9	12	22.2	19.1
16"	406.4	577.9	520.7	12	22.2	19.1
18"	457.2	641.4	584.2	12	22.2	22.2
20"	508.0	704.9	641.4	16	22.5	25.4
24"	609.6	825.5	755.7	16	25.4	28.6

**Table E: For Working Steam Pressure 50 lbs upto 100 lbs per sq. inch**

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	95.3	66.7	4	12.7	6.4
3/4"	101.6	73.0	4	12.7	6.4
1"	114.3	82.6	4	12.7	7.1
1 1/4"	120.7	87.3	4	12.7	7.9
1 1/2"	133.4	98.4	4	12.7	8.7
2"	152.4	114.3	4	15.9	9.5
2 1/2"	165.1	127.0	4	15.9	10.3
3"	184.2	146.1	4	15.9	11.1
3 1/2"	203.2	165.1	8	15.9	11.9
4"	215.9	177.8	8	15.9	12.7
5"	254.0	209.6	8	15.9	14.3
6"	279.4	228.6	8	19.1	17.5
7"	304.8	260.4	8	19.1	19.1
8"	336.6	292.1	8	19.1	19.1
9"	368.3	323.9	12	19.1	20.6
10"	406.4	355.6	12	19.1	22.2
12"	457.2	406.4	12	22.2	25.4
14"	527.2	469.9	12	22.2	25.4
16"	577.9	520.7	12	22.2	25.4
18"	641.4	584.2	16	22.2	28.6
20"	704.9	647.4	16	22.2	31.8
24"	825.5	755.7	16	25.4	38.1

**Table F: For Working Steam Pressure above 100 lbs and upto 150 lbs per sq. inch**

Nominal Pipe Size	O.D. of Pipe	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt Holes	Dia. of Bolt	Thickness of Flange
1/2"	21.3	95.3	66.7	4	12.7	9.5
3/4"	26.7	101.6	73.0	4	12.7	9.5
1"	33.4	120.7	87.3	4	15.9	9.5
1 1/4"	42.2	133.4	98.4	4	15.9	12.7
1 1/2"	48.3	139.7	104.8	4	15.9	12.7
2"	60.3	165.1	127.0	4	15.9	15.9
2 1/2"	73.0	184.2	146.1	8	15.9	15.9
3"	88.9	203.2	165.1	8	15.9	15.9
3 1/2"	101.6	215.9	177.8	8	15.9	19.1
4"	114.3	228.6	190.5	8	15.9	19.1
5"	141.3	279.4	235.0	8	19.1	22.2
6"	168.3	304.8	260.4	12	19.1	22.2
7"	190.3	336.6	292.1	12	19.1	22.2
8"	219.1	368.3	323.9	12	19.1	25.4
9"	244.5	406.4	355.6	12	22.2	25.4
10"	273.0	431.8	381.0	12	22.2	25.4
12"	323.0	489.0	438.2	16	22.2	28.6
14"	355.6	552.5	495.3	16	25.4	31.8
16"	406.4	609.6	552.5	20	25.4	31.8
18"	457.2	673.1	609.6	20	28.6	34.9
20"	508.0	736.6	673.1	24	28.6	38.1
24"	609.6	850.9	781.1	24	31.8	41.3

**Table H: For Working Steam Pressure above 150 lbs and upto 250 lbs per sq. inch**

Nominal Pipe Size	Dia. of Pipe	Dia. of Flange	No. of Bolt Holes	Dia. of Bolt Circle	Dia. of Bolt
1/2"	114.3	82.6	4	15.9	12.7
3/4"	114.3	82.6	4	15.9	12.7
1"	120.78	87.3	4	15.9	14.3
1 1/4"	133.4	98.4	4	15.9	17.5
1 1/2"	139.7	104.8	4	15.9	17.5
2"	165.1	127.0	4	15.9	19.1
2 1/2"	184.2	146.1	8	15.9	19.1
3"	203.2	165.1	8	15.9	22.2
3 1/2"	215.9	177.8	8	15.9	22.2
4"	228.6	190.5	8	15.9	25.4
5"	279.4	235.0	8	19.1	28.6
6"	304.8	260.4	12	19.1	28.6
7"	336.6	292.1	12	19.1	31.8
8"	368.3	323.9	12	19.1	31.8
9"	406.4	355.6	12	22.2	34.9
10"	431.8	381.0	12	22.2	34.9
12"	489.0	438.2	16	22.2	38.1
14"	552.5	495.3	16	25.4	41.3
16"	609.6	552.5	20	25.4	44.5
18"	673.1	609.6	20	28.6	47.6
20"	736.6	673.1	24	28.6	50.8
24"	850.9	781.1	24	31.8	57.2



# Pipes & Tubes

Metalloy International is a Manufacturer of Seamless and Welded Pipes & Tubes. Pipes and Tubes are manufactured as per approved international standards like ASTM, ASME, DIN, EN, etc.



**ERW Pipes**



**EFW Pipes**



**Seamless Pipes**



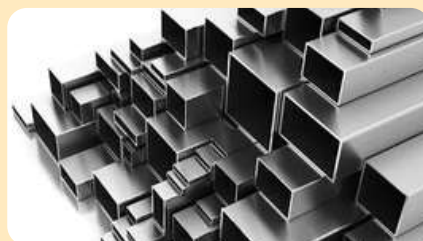
**Coil Tubing**



**Heat Exchanger ERW Tubes**



**Heat Exchanger SMLS Tubes**



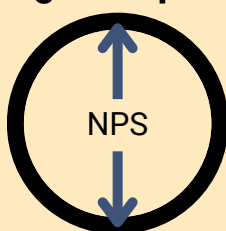
**Square / Rectangular Pipes**



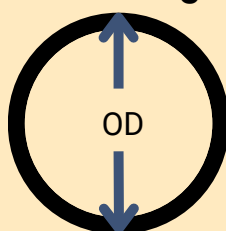
**Corrugated Tubes**



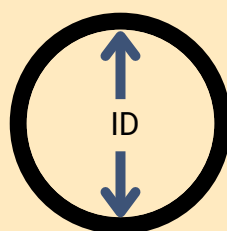
**Electropolish / Polished Pipes**



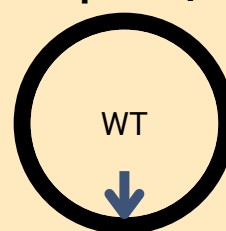
Nominal Pipe Size



Outside Diameter



Inside Diameter



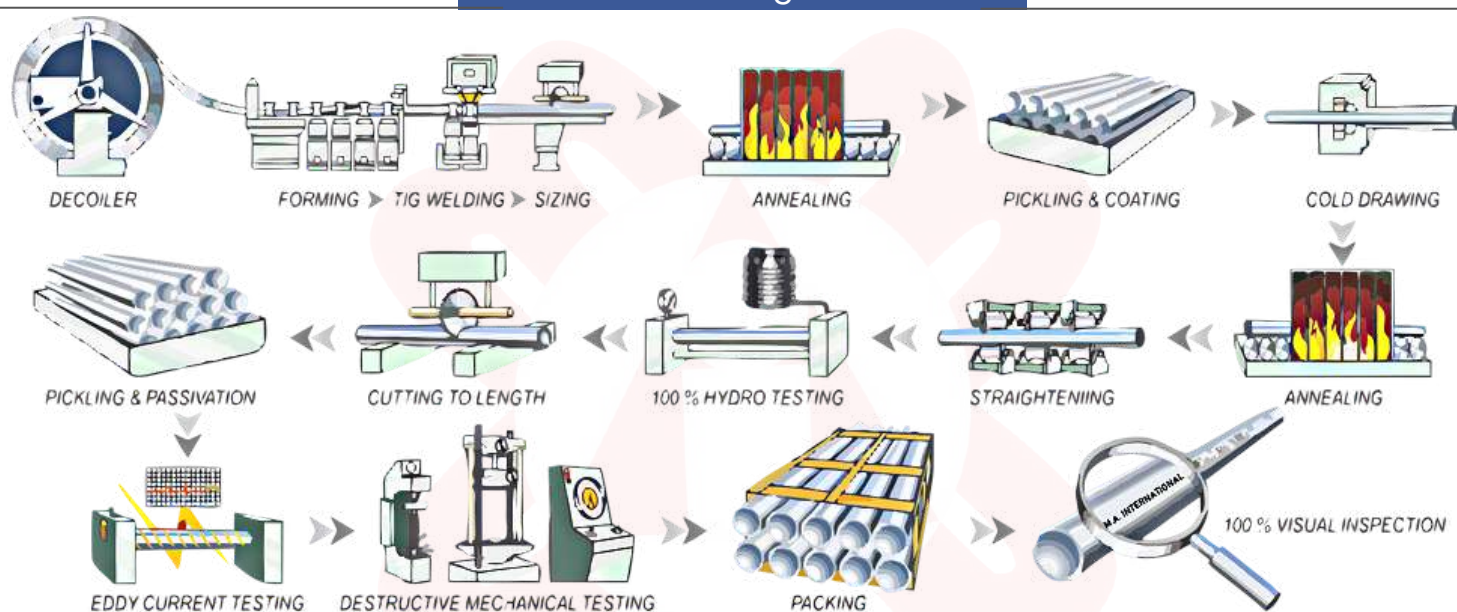
Wall Thickness

# Pipes & Tubes

## Electric Resistance Welded (ERW) Pipes & Tubes

M.A. International specializes in Stainless Steel Welded Pipes & Tubes. Our modern facilities include Tube Mills, Bead Removing machines, Cold Drawing Benches, and a Roller Hearth Heat Treatment Furnace. We stockhold Tonnes of material of Austenitic, Ferritic, and Duplex Steel pipes, adhering to International Standards for top-notch quality. Trust us for reliable and high-performance solutions for various industries.

### Manufacturing Process



### Product Range

PRODUCT	SIZE	THICKNESS	SPECIFICATION
PIPES	1/8" NB TO 24" NB	Sch.5, 10/S, 40/S, Sch 80.	ASTM A-312, A-554, A-778, A-790, EN 10217-7 and It's equivalent ASME, DIN & EN Standard
TUBES	6.35 mm To 102 mm OD	0.50 mm TO 7.0 mm	ASTM A-249, A-268, A-269, A-270, A-554, A-688, A-778, A-789, IS 13316:92, EN 10217-7 & Its Equivalent ASME, DIN & EN Standard

**AUSTENITIC GRADES :** 304/L/H/LN, 316/L/H/LN/Ti, 317L, 321/H, 347/H, 309, 310/S, 904L.

**FERRITIC & MARTENSITIC GRADES :** 409/L/M, 410, 430/Ti, 436, 439, 441.

**DUPLEX STAINLESS STEEL :** UNS 31803, 32205, 32750, 32760.

**LENGTH :** As per Customer requirement, Maximum upto 12 Meter Long.

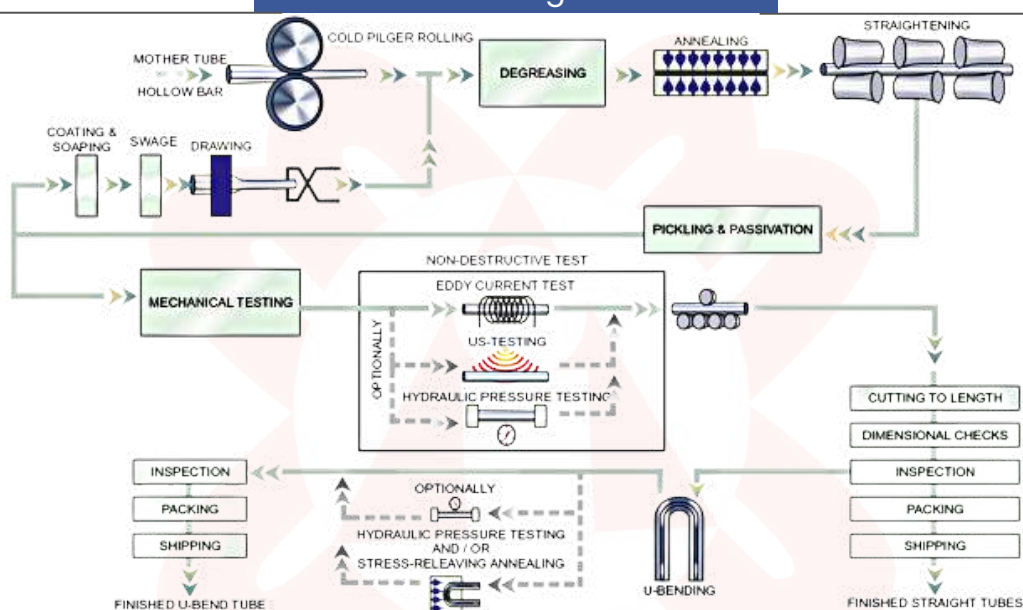
**FINISHING :** Tubes can be supplied in mechanical polished with various grits like at 80, 120, 240, 320, 400, 600 grit, Mirror Polished, Matt Polished and Electro-Polished.

# Pipes & Tubes

## Seamless Pipes & Tubes

M.A. International specializes in Stainless Steel Seamless Pipes & Tubes manufactured from Mother hollow pipes using advanced processing techniques. Our state-of-the-art manufacturing process involves cold pilgering machines and cold drawn benches to ensure precise dimensions and excellent surface finish. The Heat Treatment furnace further refines the pipes and tubes, enhancing their metallurgical properties.

### Manufacturing Process



### Product Range

PRODUCT	SIZE	THICKNESS	SPECIFICATION
PIPES	1/8" NB TO 12" NB	Sch.5, 10/S, 40/S, Sch 80, Sch 160.	ASTM A-312, ASTM A-790, EN 10216-5 & Its Equivalent ASME, DIN & EN Standard
TUBES	6.35 mm To 102 mm OD	0.50 mm TO 7.0 mm	ASTM A-213, A-268, A-269, A-270, A-789, EN 10216-5 & Its Equivalent ASME, DIN & EN Standard.

**AUSTENITIC GRADES :** 304/L/H/LN, 316/L/H/LN/Ti, 317L, 321/H, 347/H, 309, 310/S, 904L.

**FERRITIC & MARTENSITIC GRADES :** 409/L/M, 410, 430/Ti, 436, 439, 441.

**DUPLEX STAINLESS STEEL :** UNS 31803, 32205, 32750, 32760.

**LENGTH :** As per Customer requirement, Maximum upto 12 Meter Long.

**FINISHING :** Tubes can be supplied in mechanical polished with various grits like at 80, 120, 240, 320, 400, 600 grit, Mirror Polished, Matt Polished and Electro-Polished.

# Pipes & Tubes

## Electric Fusion Welded (EFW) Pipes

M.A. International specializes in Stainless Steel EFW Pipes & Tubes. EFW pipes are created through the electric fusion welding process, which involves applying heat to the edges of steel plates or coils to melt them partially. Subsequently, a powerful electric current is passed through the steel, causing it to fuse together, forming a continuous weld. The heated steel is then shaped into a cylindrical form to create the final EFW pipe.

### Product Range

PRODUCT	SIZE	THICKNESS	SPECIFICATION
PIPES	6" to 36" inches	Sch.5, 10/S, 40/S.	ASTM A 358 CLASS I, II, III, IV, V.

**AUSTENITIC GRADES :** 304/L/, 316/L/Ti, 317L, 321, 347, 309, 310/S, 904L.

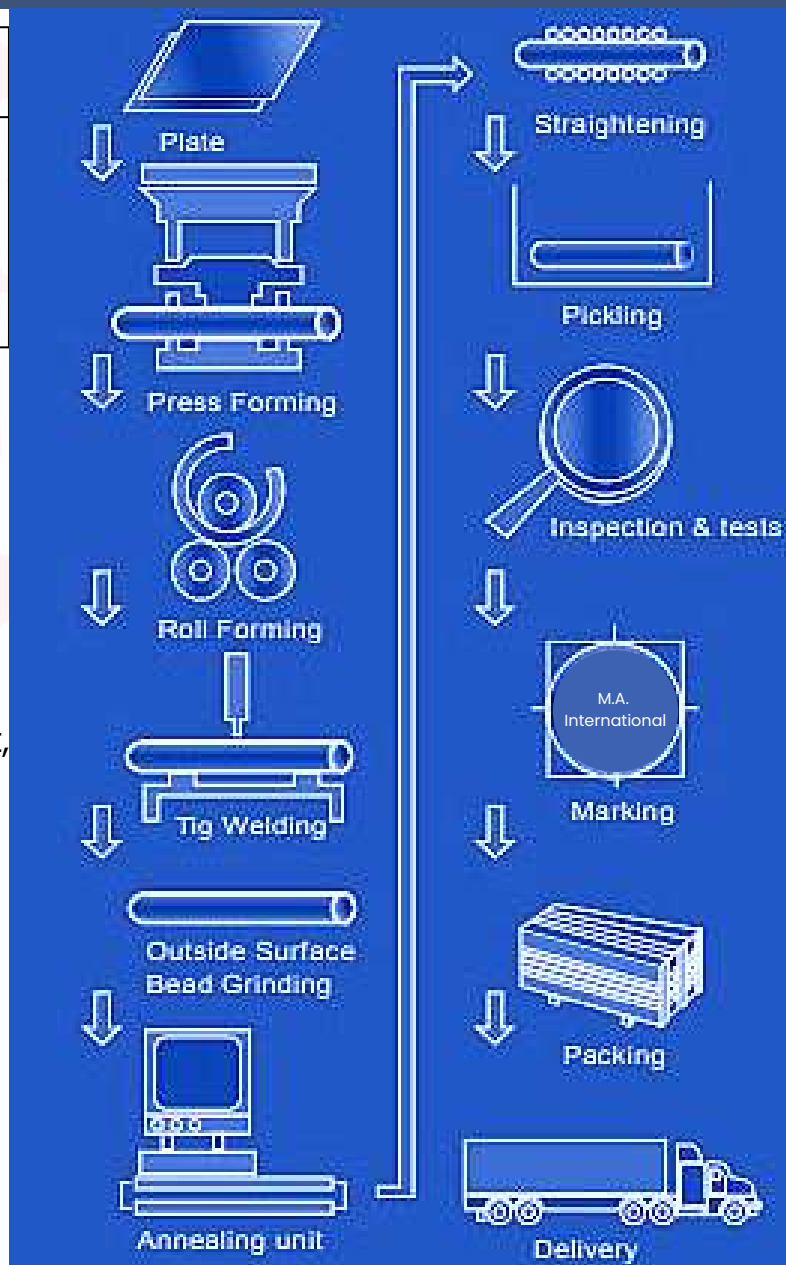
**FERRITIC & MARTENSITIC GRADES :** 409/L/M, 410, 430/Ti, 439, 441.

**DUPLEX STAINLESS STEEL :** UNS 31803, 32205, 32750, 32760.

**LENGTH :** As per Customer requirement, Maximum upto 6 Meters Long.

**FINISHING :** Pipes can be supplied in mechanical polished with various grits like at 80, 120, 240, 320, 400, 600 grit and mirror polished.

### Manufacturing Process



# Pipes & Tubes

## Square & Rectangular Pipes

M.A. International provides a comprehensive selection of Stainless Steel Square and Rectangular Pipes, featuring a wide range of sizes and thicknesses to suit diverse industrial requirements. Our pipes adhere to ASTM A-554 and equivalent standards, guaranteeing top-notch quality and performance. Rely on M.A. International for dependable and high-quality Stainless Steel Square and Rectangular Pipes.

### Product Range

PRODUCT	SIZE RANGE	THICKNESS	SPECIFICATION
SQUARE TUBES	10 mm X 10 mm to 250 mm X 250 mm	1.00 mm TO 6.0 mm	ASTM A-554 & Its Equivalent ASME, DIN & EN Standard
RECTANGULAR TUBES	10 mm X 20 mm to 200 mm X 250 mm	1.00 mm TO 6.0 mm	ASTM A-554 & Its Equivalent ASME, DIN & EN Standard



## Corrugated Tubes

M.A. International offers a great solution for Corrugated Heat Exchangers by producing Stainless Steel Corrugated Tubes. Corrugated tubes increase the turbulence in the flow that enables a more effective mixing and agitation that generates a higher heat transfer coefficient compared to smooth tubes under the same conditions.

### Product Range

SIZE RANGE	THICKNESS	LENGTH	SPECIFICATION
6.35 mm To 50.8 mm OD	0.50 mm TO 6.0 mm	As per Customer requirement, Maximum upto 6.1 Meter Long.	ASTM A-213, A-268, A-269, A-270, A-789, EN 10216-5 & Its Equivalent ASME, DIN & EN Standard.



# Pipes & Tubes

## Stainless Steel Pipe and Tubes Dimensions as per ANSI B36.19

Nominal Pipe Size		OD	Sch-5s		Sch-10s		Sch-40s		Sch-80s		Sch-160s		Sch-XXs	
mm	INCH	mm	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)
3	1/8	10.30	1.24	0.28	1.24	0.28	1.73	0.37	2.41	0.47	-	-	-	-
6	1/4	13.70	1.24	0.39	1.65	0.49	2.24	0.63	3.02	0.80	-	-	-	-
10	3/8	17.10	1.24	0.49	1.65	0.63	2.31	0.85	3.20	1.10	-	-	-	-
15	1/2	21.30	1.65	0.80	2.11	1.00	2.77	1.27	3.75	1.62	4.75	1.94	7.47	2.55
20	3/4	26.70	1.65	1.03	2.11	1.28	2.87	1.68	3.91	2.20	5.54	2.89	7.82	3.63
25	1	33.40	1.65	1.30	2.77	2.09	3.38	2.50	4.55	3.24	6.35	4.24	9.09	5.45
32	1.25	42.20	1.65	1.65	2.77	2.70	3.56	3.38	4.85	4.47	6.35	5.61	9.70	7.77
40	1.50	48.30	1.65	1.91	2.77	3.11	3.68	4.05	5.08	5.41	7.14	7.25	10.16	9.54
50	2	60.30	1.65	2.40	2.77	3.93	3.91	5.44	5.54	7.48	8.74	11.10	11.07	13.44
65	2.50	73.00	2.11	3.69	3.05	5.26	5.16	8.63	7.01	11.40	9.53	14.90	14.20	20.39
80	3	88.90	2.11	4.51	3.05	6.45	5.49	11.30	7.62	15.20	11.10	21.30	15.24	27.65
100	4	114.30	2.11	5.84	3.05	8.36	6.02	16.07	8.56	22.30	13.49	33.54	17.12	41.03
125	5	141.30	2.77	9.47	3.40	11.57	6.55	21.80	9.53	31.97	15.88	49.11	19.05	57.43
150	6	168.30	2.77	11.32	3.40	13.84	7.11	28.30	10.97	42.70	18.20	67.56	21.95	79.22
200	8	219.10	2.77	14.79	3.76	19.96	8.18	42.60	12.70	64.60	23.00	111.20	22.23	107.80
250	10	273.10	3.40	22.63	4.19	27.78	9.27	60.50	12.70	96.00	28.60	172.40	25.40	155.15
300	12	323.90	3.96	31.25	4.57	36.00	9.52	73.88	12.70	132.00	33.32	238.76	25.40	186.97
350	14	355.60	3.96	34.36	4.78	41.30	11.13	94.59	19.05	158.08	35.71	281.70	-	-
400	16	406.40	4.19	41.56	4.78	47.29	12.70	123.30	21.41	203.33	40.46	365.11	-	-
450	18	457.20	4.19	46.80	4.78	53.42	14.27	155.80	23.80	254.36	45.71	466.40	-	-
500	20	508.00	4.78	59.25	5.54	68.71	15.09	183.42	26.19	311.20	49.99	564.68	-	-
600	24	609.60	5.54	82.47	6.35	94.45	17.48	255.41	30.96	442.08	59.54	808.22	-	-

DIMENSION	Size (inch)	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
	OD (mm)	12.70	15.88	19.05	25.40	31.75	38.10	50.80	63.50	76.20	88.90	101.60
14 SWG (2.1 MM)	Weight/MTR	0.55	0.72	0.88	1.21	1.54	1.88	2.54	3.20	3.86	4.52	5.18
16 SWG (1.65 MM)	Weight/MTR	0.45	0.58	0.71	0.97	1.23	1.49	2.01	2.53	3.05	3.57	4.09
18 SWG (1.2 MM)	Weight/MTR	0.34	0.44	0.53	0.72	0.91	1.10	1.48	1.85	2.23	2.61	2.99
19 SWG (1.0 MM)	Weight/MTR	0.29	0.37	0.45	0.61	0.76	0.92	1.24	1.55	1.87	2.18	2.50



# Fasteners

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Metalloy International offers an expansive selection of premium Fasteners, meticulously engineered and produced to surpass rigorous industrial norms, guaranteeing unmatched dependability and efficiency.



**Hexagon Head Bolts**



**Socket Head Allen Cap Screw**



**Flange Hex Bolt**



**U-Bolt**



**Dome Head Bolt**



**Wing Bolt**



**Hex Long Nut**



**Flange Nut**



**Wedge Anchor**



**Plain Washers**



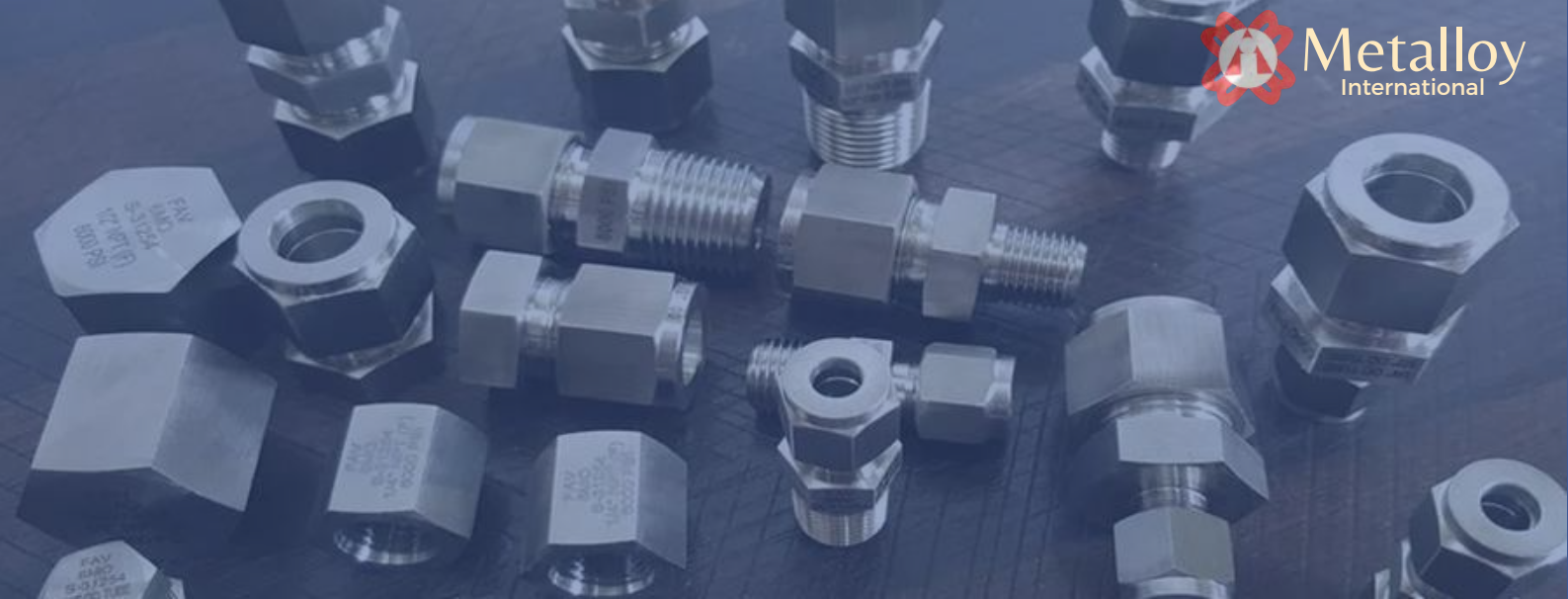
**Threaded Rod**



**Bushings**

**Notes :**

- Dimensions will be shared on request



# Tube Fittings

Metalloy International provides a diverse array of top-tier Tube Fittings/Ferrule Fittings, engineered to perfection and delivered with utmost precision to meet your industrial fluid and gas handling needs.



**Male Connector**



**Male Bore Through Connector**



**Bulk Head Male Connector**



**Bulk Head Reducer**



**Male Elbow**



**Male Run Tee**



**Male Branch Tee**



**Union**



**Female Connector**



**Bulk Head Female Connector**



**Female Elbow**



**Union Elbow**



**Female Run Tee**



**Female Branch Tee**



**Reducer**



**Union Run Tee**



**Male Pipe Weld Connector**



**Male Pipe Weld Elbow**



**Bulk Head Union**



**Union Cross**

**Notes :**

- Dimensions will be shared on request.

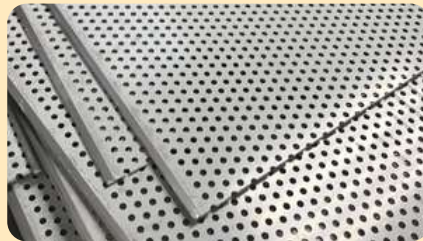


# Other Products

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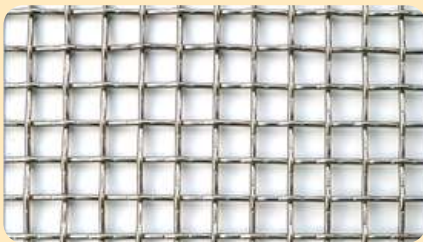
**Wires, Rods & Bars**



**Perforated Sheet**



**Condense Pot**



**Wiremesh**



**Syphon**



**Dairy Fittings**



**Coils, Shim & Foils**



**Coil Form Tubes**



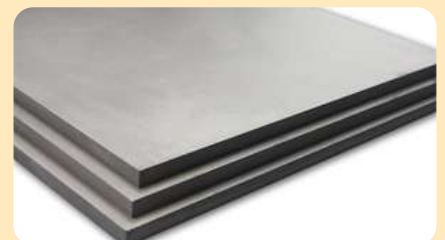
**Flat Bar/Patti**



**Angles/Channels/Structurals**



**Capillary Tubes**



**Custom Size Plates**



**Sheets/Plates**



**Forged Rings**



**Hose Pipe**

# Quality Policy

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Metalloy International is devoted towards offering best in class quality materials to its clients as we believe that the quality of product will showcase the quality of a business relationship. We strive to form a long relationship, mutually profitable and stable relationship with our precious clients. Through consistent and immense efforts, we endeavor to the standards amongst which our competition will be measured.

## Organization Of Raw Material

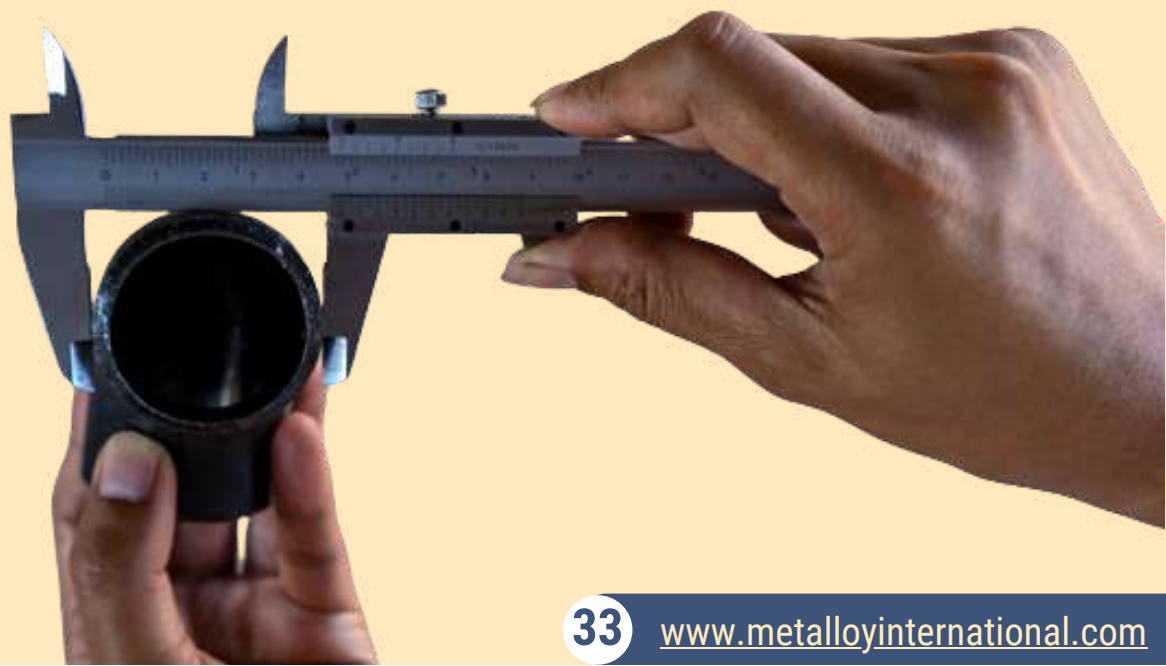
To attain products of the highest quality we follow an effective selection process for continuously building a network of raw material suppliers, whose products match our final quality standards. Following inspection is carried out on incoming raw materials :

- Material Correlation with its set of documents.
- Visual inspection of the raw materials.
- Chemical testing of incoming material.

## Quality Acceptance

All the finished products are subjected to quality check confirming the fulfilment of all the specifications upon as per the purchase order.

- Testing and dimension checks to be carried out.
- After positive confirmation, material test certificate is issued.
- In case of non-confirmity, the same are rejected.
- We can also offer any reputed third party inspection like DNV-GL, PDIL, LLOYDS, SGS, BUREAU VERITAS, etc....



# Gallery



**Square Pipe**



**Tube Fittings**



**Round Pipes**



**SORF Flanges**



**Condense Pot**



**310 Grade Square Pipe**



**Forged Tee**



**Concentric Reducer**



**Threaded Rods**



**Long Stub Ends**



**Unions**



**CS Plate Flanges**



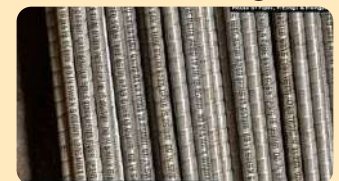
**Seamless Tees**



**Socketweld Flanges**



**Weldneck Flanges**



**Corrugated Tubes**

# Packaging

At Metalloy International, we prioritize secure, swift, and pristine product deliveries worldwide. Our customized packing methods ensure uncompromised quality and protection during transportation, upholding stringent quality assurance standards. We dispatch our materials in reputed transport companies and as per our clients request. Materials can be delivered on to-pay basis or paid basis.



**HDPE**



**Wooden Crate**



**Wooden Box**



**Flanges Packed**



**Fittings Packed**



**Pipes Packed**

# Chemical Analysis

## Stainless Steel Chemical Composition

Type	C	Mn	P	S	Si	Cr	Ni	Others
301	0.15	2.00	0.045	0.030	1.00	16.0 - 18.0	6.0 - 8.0	N 0.25
302	0.15	2.00	0.045	0.030	0.75	17.0 - 19.0	8.0 - 10.0	N-0.10
304	0.08	2.00	0.045	0.030	0.75	18.0 - 20.0	8.0 - 10.5	N 0.25
304L	0.03	2.00	0.045	0.030	0.75	18.0 - 20.0	8.0 - 12.0	N 0.25
305	0.12	2.00	0.045	0.030	0.75	-	-	-
309S	0.08	2.00	0.045	0.030	0.75	22.0 - 24.0	12.0 - 15.0	-
310S	0.08	2.00	0.045	0.030	1.50	24.0 - 26.0	19.0 - 22.0	-
316	0.08	2.00	0.045	0.030	0.75	16.0 - 18.0	10.0 - 14.0	Mo 2.0-3.0, N 0.10
316L	0.03	2.00	0.045	0.030	0.75	16.0 - 18.0	10.0 - 14.0	Mo 2.0-3.0,-0.10
316Ti	0.08	2.00	0.045	0.030	0.75	16.0 - 18.0	10.0 - 14.0	N 0.10 Ti 5 (C+N) Min, 0.70 Max
317	0.08	2.00	0.045	0.030	0.75	18.00 - 20.00	11.0 - 15.0	Mo 3.0-4.0, N 0.10
317L	0.03	2.00	0.045	0.030	0.75	18.00 - 20.00	11.0 - 15.0	Mo 3.0-4.0, N 0.10
321	0.08	2.00	0.045	0.030	0.75	17.00 - 19.00	9.0 - 12.0	Ti 5 (C+N) ( Min, 0.70 Max
347	0.08	2.00	0.045	0.030	0.75	17.00 - 19.00	9.0 - 13.0	Cb 10 x C Min, 1.0 Max
904L	0.02	2.00	0.045	0.030	1.00	19.00 - 23.00	23.0 - 28.0	Mo 4.0-5.0, Cu 1.0-2.0
405	0.08	1.00	0.040	0.030	1.00	11.45 - 14.50	0.50 max	-
409L	0.03	1.00	0.030	0.040	1.00	10.50 - 11.75	0.50	Ti 6 (c) Min - 0.75 Max, Cb 0.17 Max
410	0.15	1.00	0.040	0.030	1.00	11.50 - 13.50	0.75	-
410S	0.08	1.00	0.030	0.040	1.00	11.50 - 13.50	0.60	-
420	0.15 (Min)	1.00	0.045	0.030	1.00	10.50 - 15.50	1.0 - 2.5	Mo 0.20-1.20
430	0.12	1.00	0.030	0.040	1.00	16.00 - 18.00	0.75	-

## Grades & It's Equivalents

Grade	UNS	Old British		W. No	Name	Swedish SS	JIS
		BS	En				
301	S30100	301S21	-	1.4310	X10CrNi18-8	2331	SUS 301
302	S30200	302S25	58A	1.4319	-	-	SUS 302
304	S30400	304S31	58E	1.4301	X5CrNi18-10	2332	SUS 304
304L	S30403	304S11	-	1.4306	X2CrNi18-11	2352	SUS 304L
305	S30500	305S19	-	1.4312	-	-	SUS 305
309S	S30908	309S24	-	1.4833	X12CrNi23-13	-	SUS 309S
310S	S31008	310S16	-	1.4845	X8CrNi25-21	2361	SUS 310S
316	S31600	316S31	58H,58J	1.4401	X5CrMo17-12-2	2347	SUS 316
316L	S31603	316S11	-	1.4404	X2CrNiMo17-12-2	2348	SUS 316L
316Ti	S31635	320S31	-	1.4571	X10CrNiMoTi18-10	2350	SUS 316Ti
317		316S16					
317L	S31703	317S12	-	1.4438	X2CrNiMo18-16	2367	SUS 317L
321	S32100	321S31	58B,58C	1.4541	X6CrNiTi18-10	2337	SUS 321
347	S34700	347S31	58G	1.4550	X6CrNiNb18-10	2338	SUS 347
904L	N08904	904S13	-	1.4539	X1NiCrMoCuN25-20-5	2562	
405	S40500			1.4402	X04Cr12		SUS 405
409L				1.4512	X2CrTi12		
410	S41000	410S21	56A	1.4006	X12Cr13	2302	SUS 410
410S				1.4000	X6Cr13		
420	S42000	420S37	56C	1.4021	X20Cr13	2303	SUS 420J1
430	S43000	430S17	60	1.4016	X8Cr17	2320	SUS 430



# Metalloy

## International

House Of Industrial Piping Solutions



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**Pipes, Tubes, Butt Weld Fittings, Forged Fittings, Flanges, Tube Fittings, Fasteners, Condense Pot, Coils, Rings, Rods, etc...**

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**Stainless Steel, Carbon Steel, Duplex Steel, Hastelloy, Inconel, Monel, Titanium, Cupro Nickel.**

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