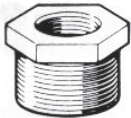
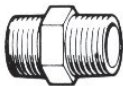
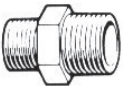














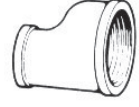





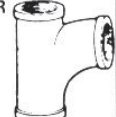





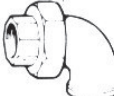






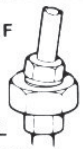









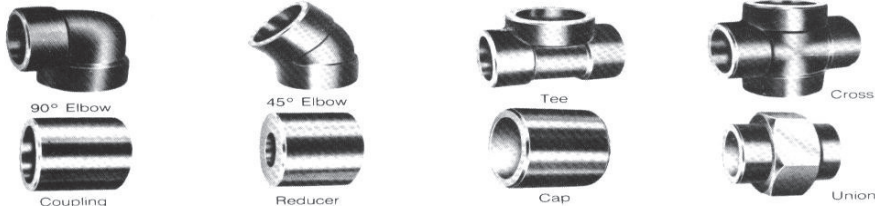


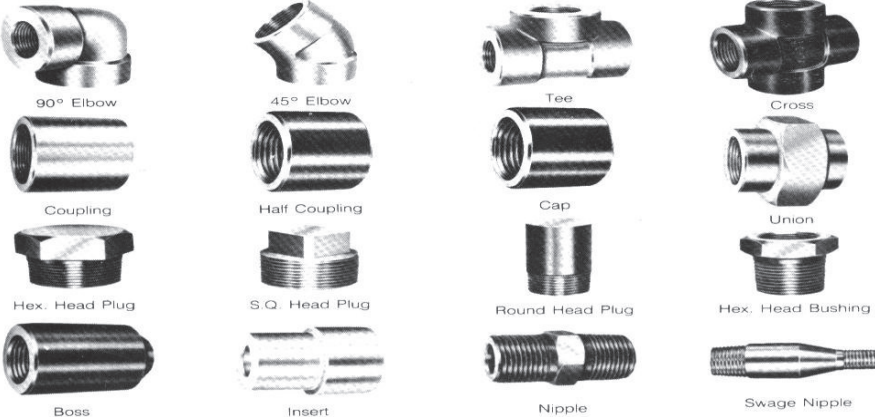
<p>CAT.140 BUSH HEXAGON</p> 	<p>CAT.144 NIPPLE HEXAGON</p> 	<p>CAT.145 NIPPLE HEXAGON</p> 	<p>CAT.146 PLUG BEADED SOLID</p> 	<p>CAT.147 PLUG HOLLOW</p> 	<p>CAT.148 PLUG SOLID</p> 
<p>CAT.149 PLUG COUNTERSUNK</p> 	<p>CAT.150 BACKNUT</p> <p>PARALLEL THREAD TO BS 2779</p> 	<p>CAT.151 ELBOW</p> 	<p>CAT.152 ELBOW M & F</p> 	<p>CAT.155 ELBOW 45°</p> 	<p>CAT.156 ELBOW 45° M&F</p> 
<p>CAT.161 TEE</p> 	<p>CAT.163 TEE M&F</p> 	<p>CAT.171 CROSS</p> 	<p>CAT.177 SOCKET TAPER THREAD</p> 	<p>CAT.179 SOCKET</p> 	<p>CAT.180 SOCKET ECCENTRIC</p> 
<p>CAT.185 CAP</p> 	<div style="border: 1px solid black; padding: 10px; display: inline-block;"> <p>CRANE</p> </div> <p>Banded Black or Galvanised Individually Tested</p>				<p>CAT.191 BEND M</p> 
<p>CAT.192 BEND M&F</p> 					<p>CAT.193 BEND F</p> 
<p>CAT.197 ELBOW TWIN</p> 	<p>CAT.199 TEE PITCHER</p> 	<p>CAT.213 BEND RETURN OPEN</p> 	<p>CAT.233 FLANGE ROUND</p> 	<p>CAT.241 UNION STRAIGHT F</p> <p>FLAT-FACED GASKET</p> 	<p>CAT.256 UNION STRAIGHT F</p> <p>SPHERICAL SEAT IRON-TO-IRON</p> 
<p>CAT.257 UNION STRAIGHT M&F</p> <p>SPHERICAL SEAT IRON-TO-IRON</p> 	<p>CAT.261 UNION ELBOW F</p> <p>SPHERICAL SEAT IRON-TO-IRON</p> 	<p>CAT.262 UNION ELBOW M&F</p> <p>SPHERICAL SEAT IRON-TO-IRON</p> 	<p>CAT.271 UNION STRAIGHT F</p> <p>SPHERICAL SEAT BRONZE-TO-IRON RAILROAD</p> 	<p>CAT.272 UNION STRAIGHT M&F</p> <p>SPHERICAL SEAT BRONZE-TO-IRON RAILROAD</p> 	<p>CAT.276</p> <p>SPHERICAL SEAT BRONZE-TO-IRON RAILROAD</p> 
<p>CAT.277 UNION ELBOW M&F</p> <p>SPHERICAL SEAT BRONZE-TO-IRON RAILROAD</p> 	<p>CAT.289 UNION STRAIGHT F</p> <p>SPHERICAL SEAT BRONZE-TO-BRONZE NAVY</p> 	<p>CAT.290 UNION SA F</p> <p>DOUBLE SPHERICAL SEATS IRON-TO-IRON</p> 	<p>CAT.501 BRACKET</p> <p>SCREW FIXING</p> 	<p>CAT.502 BRACKET SHORT SHANK</p> 	<p>CAT.515/M/W BACKPLATE</p> 
<p>CAT.524 GIRDER LUGS</p> 	<p>CAT.529/M/W RING</p> <p>SINGLE SOCKET</p> 	<p>CAT.530/M/W RING</p> <p>DOUBLE SOCKET</p> 	<p>CAT.571 HANGER ROLLER</p> 	<p>CAT.575 ROLLER BRACKET</p> 	<p>CAT.573 ROLLER & CHAIR</p> 

Forged Steel Socket-Welding & Threaded Fittings

• Socket Welding Fittings



• Threaded Fittings



• Outlets



<p>90° ELBOW</p>	<p>TEE</p>	<p>COUPLING</p>
<p>45° ELBOW</p>	<p>STREET ELBOW</p>	<p>UNION</p>

Stainless Steel SS316 Pipe Fittings

<p>SQUARE HEAD PLUG</p>	<p>HEXAGON HEAD PLUG</p>	<p>HEXAGON HEAD BUSHING</p>
<p>HEXAGON NIPPLE</p>	<p>CAP</p>	<p>REDUCING SOCKET</p>



Spectraglass Tubular High Pressure Gauge Glass Tube

Some Spectraglass tubular gauge are manufactured from highly chemical and corrosion resistant low expansion Borosilicate glass, especially noted for its clarity and mechanical strength properties.

Our stock includes the popular tubing diameter of: 3/8", 9/16", 5/8" and 3/4". We stock up to 72" or 2 meters long. In general, it is found that tubular type gauges are not suitable at pressures beyond 300 to 350 psi.

1/2" O.D. 5/64" Wall (Clear)			5/8" O.D. x 3/32" Wall (Clear)			3/4" O.D. x 7/64" Wall (Clear)		
Length in mm	Max. Press Temp up to 150°F No Corrosion	Steam Boiler Service up to 425°F	Length in mm	Max. Pressure Temperatures up to 150°F No Corrosion	Steam Boiler Service up to 425°F	Length in mm	Max. Pressure Temperatures up to 150°F No Corrosion	Steam Boiler Service up to 425°F
203	460	340	203	435	320	203	425	315
254	445	335	254	420	315	254	410	310
305	435	325	305	410	305	305	400	300
356	415	315	356	390	295	356	385	290
381	405	310	381	380	290	381	375	285
406	400	300	406	375	285	406	370	280
457	385	295	457	360	280	457	355	275
508	375	285	508	350	270	508	345	265
559	355	280	559	335	265	559	330	260
610	340	270	610	320	255	610	315	250
762	295	*	762	280	*	762	275	*
914	260	*	914	245	*	914	240	*
1219	205	*	1219	195	*	1219	190	*
1524	155	*	1524	150	*	1524	145	*
1829	110	*	1829	100	*	1829	100	*
2000	85	*	2000	75	*	2000	75	*
3/4" O.D. x 7/64" Wall (Red Line)			1/2" O.D. 5/64" Wall (Redline)			5/8" O.D. x 3/32" Wall (Redline)		
203	360	280	203	390	300	203	370	280
254	340	275	254	370	295	254	345	275
305	330	275	305	360	295	305	335	275
356	320	270	356	345	290	356	325	270
406	310	265	406	335	285	406	315	265
457	300	260	457	325	280	457	305	260
508	285	260	508	310	280	508	290	260
610	260	250	610	280	270	610	265	250
762	230	*	762	250	*	762	235	*
914	200	*	914	215	*	914	205	*
1219	160	*	1219	175	*	1219	165	*
1524	125	*	1524	135	*	1524	125	*
1829	100	*	1829	100	*	1829	90	*
2000	65	*	2000	75	*	2000	65	*

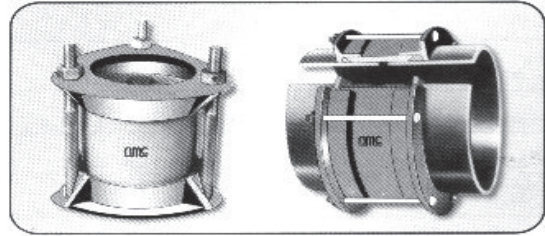
* Indicates Not Recommended for Steam Boiler Service

NMC 'PE' COUPLINGS

a) 'NMC' PE Coupling is mechanical pipe Coupling meant for plain end pipes. It comprises two flanges (MCI/DI) one central sleeve (M.S) two wedge section Rubber Rings one set of galvanised 'D' Bolt & Nut.

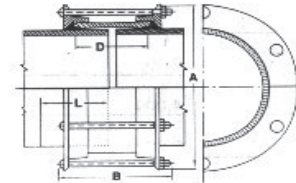
b) Tightening of the bolts draws the flanges together compressing the sealing rings in gap between the sleeve and end flanges on to the pipe thus effecting a leak tight joint.

c) Rubber Sealing Rings are available in Nitrile, EPDM, Viton, Silicon. They are available in quick fit (upto DN 300) and un-fit versions.



NMC 'PE' COUPLINGS

for *STEEL* and *IMPERIAL uPVC PIPE*
38mm to 2020mm O.D.

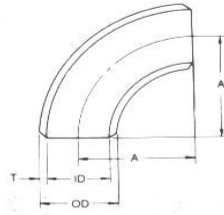


PIPE DIMENSIONS			COUPLING DIMENSIONS & DETAILS								
Nom Bore	Pipe O.D.	Tolerance on O.D. for Distance L	L	A	B	SLEEVE D x Average Thickness	PLUGS No. Off	BOLTS No. Off	Dia x Length	Max. Test Pressure	Approx Weight
mm	mm in	mm	mm	mm	mm	mm			In	bar	kg
32	38 1.500	+0.8 -0.4	100	111	152	80x5.5	1	2	0.5x5.50	70	1.50
32	44.5 1.750	+0.8 -0.4	100	120	152	80x5.5	1	2	0.5x5.50	70	1.80
40	48.3 1.906	+0.8 -0.4	100	122	152	80x5.5	1	2	0.5x5.50	70	1.90
50	60.3 2.375	±0.8	100	136	152	80x5.5	1	2	0.5x5.50	70	2.20
65	73 2.875	±0.8	100	152	170	100x6	1	2	0.5x5.75	70	2.80
65	76.1 3.000	±0.8	100	152	170	100x6	1	2	0.5x5.75	70	2.80
80	88.9 3.500	±0.8	100	163	170	100x6	1	3	0.5x6.25	70	4.0
90	101.6 4.000	±0.8	100	176	170	100x6	1	4	0.5x6.25	70	5.2
100	108 4.250	±0.8	100	187	170	100x6	1	4	0.5x6.25	70	5.30
100	114.3 4.500	±0.8	100	195	170	100x6.0	1	4	0.5x6.25	70	5.50
100	127 5.000	±0.8	100	204	170	100x6.0	1	4	0.5x6.25	70	5.90
125	139.7 5.500	+1.6 -0.8	100	226	170	100x6.6	1	4	0.5x6.25	65	6.50
125	141.3 5.563	+1.6 -0.8	100	226	170	100x6.6	1	4	0.5x6.25	65	6.50
150	152.4 6.000	+1.6 -0.8	100	237	170	100x6.6	1	4	0.5x6.25	60	7.80
150	165.1 6.500	+1.6 -0.8	100	251	170	100x6.6	1	4	0.5x6.25	55	8.00
150	168.3 6.625	+1.6 -0.8	100	255	170	100x6.6	1	4	0.5x6.25	55	8.00
200	219.1 8.625	+1.6 -0.8	100	310	170	100x6.6	1	5	0.5x6.25	50	12.6
225	244.5 9.625	+1.6 -0.8	100	332	170	100x6.6	2	6	0.5x6.25	50	14.0
250	273 10.750	+1.6 -0.8	100	362	170	100x6.6	2	6	0.5x6.25	50	16.10
300	323.9 12.750	+1.6 -0.8	100	414	170	100x7	2	6	0.5x6.25	45	19.0
350	355.6 14.000	±1.6	125	443	227	150x7.7	2	6	0.5x8.50	35	24.0
400	406.4 16.000	±1.6	125	494	227	150x8.5	2	6	0.5x8.50	35	30.0

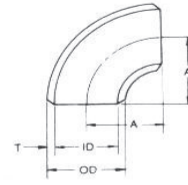
Steel Butt-Welding Pipe Fittings

90° Elbows

SPP (SGP), Sch 40, Sch 80,
Sch 120, Sch 160



Long



Short

(in millimeters)

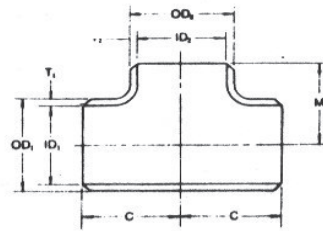
Nominal Pipe Size	Outside Dia-meter OD	SPP(SGP)		Sch 40		Sch 80		Sch 120		Sch 160		A	
		Inside Dia-meter ID	Wall Thick-ness T	Inside Dia-meter ID	Wall Thick-ness T	Inside Dia-meter ID	Wall Thick-ness T	Inside Dia-meter ID	Wall Thick-ness T	Inside Dia-meter ID	Wall Thick-ness T	Long	Short
1/2	21.7	16.1	2.8	16.1	2.8	14.3	3.7	—	—	—	—	38.1	—
3/4	27.2	21.6	2.8	21.4	2.9	19.4	3.9	—	—	—	—	38.1	—
1	34.0	27.6	3.2	27.2	3.4	25.0	4.5	—	—	—	—	38.1	25.4
1 1/4	42.7	35.7	3.5	35.5	3.6	32.9	4.9	—	—	29.9	6.4	47.6	31.8
1 1/2	48.6	41.6	3.5	41.2	3.7	38.4	5.1	—	—	34.4	7.1	57.2	38.1
2	60.5	52.9	3.8	52.7	3.9	49.5	5.5	—	—	43.1	8.7	76.2	50.8
2 1/2	76.3	67.9	4.2	65.9	5.2	62.3	7.0	—	—	57.3	9.5	95.3	63.5
3	89.1	80.7	4.2	78.1	5.5	73.9	7.6	—	—	66.9	11.1	114.3	76.2
3 1/2	101.6	93.2	4.2	90.2	5.7	85.4	8.1	—	—	76.2	12.7	133.4	88.9
4	114.3	105.3	4.5	102.3	6.0	97.1	8.6	92.1	11.1	87.3	13.5	152.4	101.6
5	139.8	130.8	4.5	126.6	6.6	120.8	9.5	114.4	12.7	108.0	15.9	190.5	127.0
6	165.2	155.2	5.0	151.0	7.1	143.2	11.0	136.6	14.3	128.8	18.2	228.6	152.4
8	216.3	204.7	5.8	199.9	8.2	190.9	12.7	179.9	18.2	170.3	23.0	304.8	203.2
10	267.4	254.2	6.6	248.8	9.3	237.2	15.1	224.6	21.4	210.2	28.6	381.0	254.0
12	318.5	304.7	6.9	297.9	10.3	283.7	17.4	267.7	25.4	251.9	33.3	457.2	304.8
14	355.6	339.8	7.9	333.4	11.1	317.6	19.0	300.0	27.8	284.2	35.7	533.4	355.6
16	406.4	390.6	7.9	381.0	12.7	363.6	21.4	344.6	30.9	325.4	40.5	609.6	406.4
18	457.2	441.4	7.9	428.6	14.3	409.6	23.8	—	—	—	—	685.8	457.2
20	508.0	492.2	7.9	477.8	15.1	455.6	26.2	—	—	—	—	762.0	508.0

Nominal Pipe Size	Approx. Weigth(kg)									
	Long					Short				
	SPP (SGP)	Sch 40	Sch 80	Sch 120	Sch 160	SPP (SGP)	Sch 40	Sch 80	Sch 120	Sch 160
1/2	0.078	0.078	0.099	—	—	—	—	—	—	—
3/4	0.100	0.103	0.134	—	—	—	—	—	—	—
1	0.146	0.154	0.196	—	—	0.097	0.012	0.131	—	—
1 1/4	0.252	0.260	0.341	—	0.427	0.169	0.174	0.228	—	—
1 1/2	0.350	0.368	0.492	—	0.653	0.233	0.245	0.328	—	—
2	0.634	0.652	0.891	—	1.33	0.423	0.434	0.594	—	0.887
2 1/2	1.12	1.37	1.79	—	2.34	0.745	0.909	1.19	—	1.56
3	1.58	2.04	2.74	—	3.83	1.05	1.36	1.83	—	2.55
3 1/2	2.11	2.82	3.91	—	5.83	1.41	1.88	2.61	—	3.89
4	2.91	3.84	5.36	6.76	8.03	1.94	2.56	3.58	4.51	5.35
5	4.49	6.48	9.13	11.9	14.5	2.99	4.32	6.09	7.94	9.68
6	7.09	9.94	15.0	19.1	23.7	4.73	6.63	10.0	12.7	15.8
8	14.4	20.1	30.5	42.5	52.5	9.61	13.4	20.3	28.4	35.0
10	25.4	35.4	56.2	77.6	101.0	16.9	23.6	37.5	51.8	67.2
12	38.1	56.2	92.7	132.0	168.0	25.4	37.5	61.8	87.9	112.0
14	56.7	79.0	132.0	188.0	236.0	37.8	52.6	88.0	—	157.0
16	74.3	118.0	194.0	274.0	350.0	49.5	78.3	129.0	—	233.0
18	94.2	168.0	274.0	391.0	494.0	62.8	112.0	183	—	—
20	117.0	220.0	372.0	528.0	676.0	77.7	146.0	248	—	—

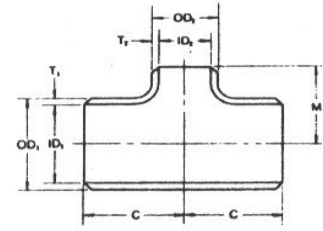
- For bevel details see page 119
- For dimensional tolerances see page 122
- Dimensions conform to KS B 1522 (JIS B 2304), KS B 1541 (JIS B 2305) specifications.

Steel Butt-Welding Pipe Fittings

Tees Sch 40, 80



Straight



Reducing

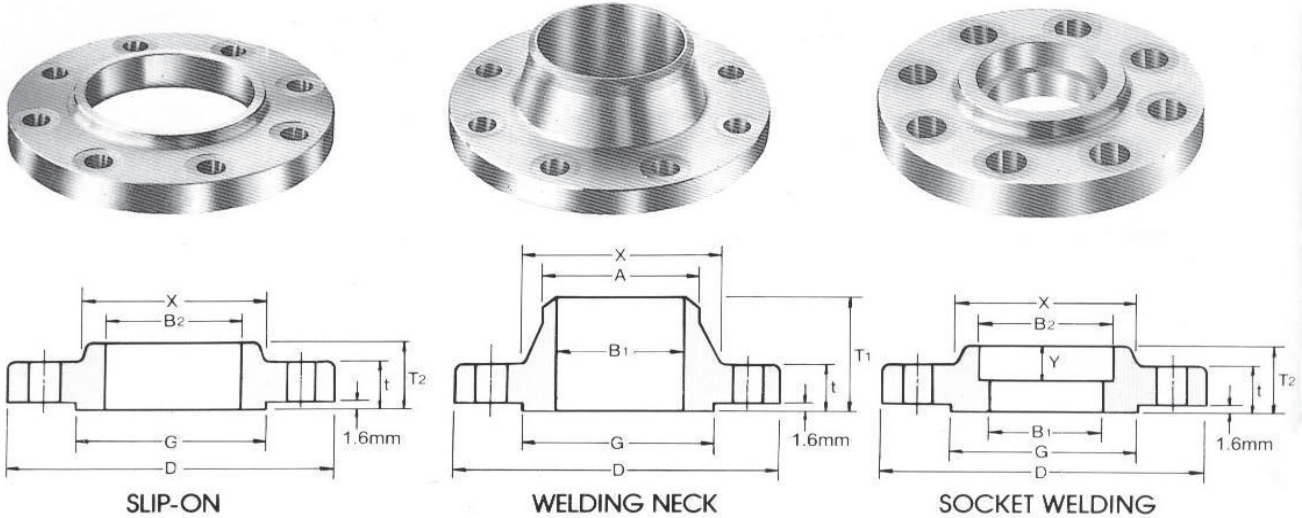
(in millimeters)

Nominal Pipe Size	Outside Diameter		Wall Thickness T				C	M	Approx. Weight(kg)	
			Sch 40		Sch 80				Sch 40	Sch 80
	OD ₁	OD ₂	T ₁	T ₂	T ₁	T ₂				
1/2	21.7	21.7	2.8	2.8	3.7	3.7	25.4	25.4	0.085	0.107
3/4	27.2	27.2	2.9	2.9	3.9	3.9	28.6	28.6	0.120	0.162
3/4 x 3/4 x 1/2	27.2	21.7	2.9	2.8	3.9	3.7	28.6	28.6	0.119	0.153
1	34.0	34.0	3.4	3.4	4.5	4.5	38.1	38.1	0.250	0.319
1 x 1 x 3/4	34.0	27.2	3.4	2.9	4.5	3.9	38.1	38.1	0.232	0.297
1 x 1 x 1/2	34.0	21.7	3.4	2.8	4.5	3.7	38.1	38.1	0.223	0.284
1 1/4	42.7	42.7	3.6	3.6	4.9	4.9	47.6	47.6	0.422	0.555
1 1/4 x 1 1/4 x 1	42.7	34.0	3.6	3.4	4.9	4.5	47.6	47.6	0.398	0.521
1 1/4 x 1 1/4 x 3/4	42.7	27.2	3.6	2.9	4.9	3.9	47.6	47.6	0.376	0.494
1 1/2	48.6	48.6	3.7	3.7	5.1	5.1	57.2	57.2	0.604	0.806
1 1/2 x 1 1/2 x 1 1/4	48.6	42.7	3.7	3.6	5.1	4.9	57.2	57.2	0.583	0.776
1 1/2 x 1 1/2 x 1	48.6	34.0	3.7	3.4	5.1	4.5	57.2	57.2	0.553	0.734
1 1/2 x 1 1/2 x 3/4	48.6	27.2	3.7	2.9	5.1	3.9	57.2	57.2	0.526	0.700
2	60.5	60.5	3.9	3.9	5.5	5.5	63.5	63.5	0.872	1.20
2 x 2 x 1 1/2	60.5	48.6	3.9	3.7	5.5	5.1	63.5	60.3	0.814	1.11
2 x 2 x 1 1/4	60.5	42.7	3.9	3.6	5.5	4.9	63.5	57.2	0.785	1.07
2 x 2 x 1	60.5	34.0	3.9	3.4	5.5	4.5	63.5	50.8	0.744	1.01
2 1/2	76.3	76.3	5.2	5.2	7.0	7.0	76.2	76.2	1.74	2.28
2 1/2 x 2 1/2 x 2	76.3	60.5	5.2	3.9	7.0	5.5	76.2	69.9	1.56	2.06
2 1/2 x 2 1/2 x 1 1/2	76.3	48.6	5.2	3.7	7.0	5.1	76.2	66.7	1.51	1.98
2 1/2 x 2 1/2 x 1 1/4	76.3	42.7	5.2	3.6	7.0	4.9	76.2	63.5	1.48	1.94
3	89.1	89.1	5.5	5.5	7.6	7.6	85.7	85.7	2.41	3.25
3 x 3 x 2 1/2	89.1	76.3	5.5	5.2	7.6	7.0	85.7	82.6	2.29	3.07
3 x 3 x 2	89.1	60.5	5.5	3.9	7.6	5.5	85.7	76.2	2.12	2.85
3 x 3 x 1 1/2	89.1	48.6	5.5	3.7	7.6	5.1	85.7	73.0	2.06	2.77
3 1/2	101.6	101.6	5.7	5.7	8.1	8.1	95.3	95.3	3.17	4.39
3 1/2 x 3 1/2 x 3	101.6	89.1	5.7	5.5	8.1	7.6	95.3	92.1	3.04	4.19
3 1/2 x 3 1/2 x 2 1/2	101.6	76.3	5.7	5.2	8.1	7.0	95.3	88.9	2.92	4.02
3 1/2 x 3 1/2 x 2	101.6	60.5	5.7	3.9	8.1	5.5	95.3	82.6	2.74	3.80
3 1/2 x 3 1/2 x 1 1/2	101.6	48.6	5.7	3.7	8.1	5.1	95.3	79.4	2.69	3.72
4	114.3	114.3	6.0	6.0	8.6	8.6	104.8	104.8	4.12	5.77
4 x 4 x 3 1/2	114.3	101.6	6.0	5.7	8.6	8.1	104.8	101.6	3.96	5.53
4 x 4 x 3	114.3	89.1	6.0	5.5	8.6	7.6	104.8	98.4	3.83	5.33
4 x 4 x 2 1/2	114.3	76.3	6.0	5.2	8.6	7.0	104.8	95.3	3.71	5.15
4 x 4 x 2	114.3	60.5	6.0	3.9	8.6	5.5	104.8	88.9	3.53	4.94

• Dimensions conform to KS B1541(JIS B2312) specifications.

ANSI

CLASS 150 FLANGES



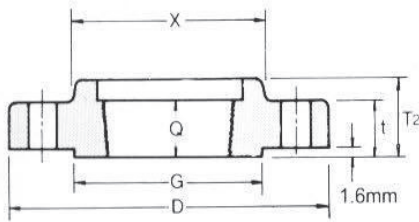
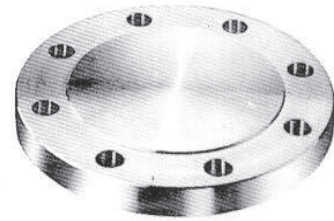
ANSI B16.5 FORGED FLANGES

Unit : mm

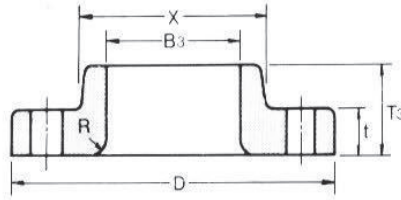
Nominal Pipe Size	Outside Diam.	O. D. of Raised Face	Diam. of Base of Hub	Thickness	BORE			LENGTH THRU HUB			Diam. of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
					B ₁	B ₂	B ₃	T ₁	T ₂	T ₃			
1/2	89	35.1	30.2	11.2	15.7	22.4	22.9	47.8	15.7	15.7	21.3	3.0	15.7
3/4	99	42.9	38.1	12.7	20.8	27.7	28.2	52.3	15.7	15.7	26.7	3.0	15.7
1	108	50.8	49.3	14.2	26.7	34.5	35.1	55.6	17.5	17.5	33.5	3.0	17.5
1 1/4	117	63.5	58.7	15.7	35.1	43.2	43.7	57.2	20.6	20.6	42.2	4.8	20.6
1 1/2	127	73.2	65.0	17.5	40.9	49.5	50.0	62.0	22.4	22.4	48.3	6.4	22.4
2	152	91.9	77.7	19.1	52.6	62.0	62.5	63.5	25.4	25.4	60.5	7.9	25.4
2 1/2	178	104.6	90.4	22.4	62.7	74.7	75.4	69.9	28.4	28.4	73.2	7.9	28.4
3	191	127.0	108.0	23.9	78.0	90.7	91.4	69.9	30.2	30.2	88.9	9.7	30.2
3 1/2	216	139.7	122.2	23.9	90.2	103.4	104.1	71.4	31.8	31.8	101.6	9.7	31.8
4	229	157.2	134.9	23.9	102.4	116.1	116.8	76.2	33.3	33.3	114.3	11.2	33.3
5	254	185.7	163.6	23.9	128.3	143.8	144.5	88.9	36.6	36.6	141.2	11.2	36.6
6	279	215.9	192.0	25.4	154.2	170.7	171.5	88.9	39.6	39.6	168.4	12.7	39.6
8	343	269.7	246.1	28.4	202.7	221.5	222.3	101.6	44.5	44.5	219.2	12.7	44.5
10	406	323.9	304.8	30.2	254.5	276.4	277.4	101.6	49.3	49.3	273.1	12.7	49.3
12	483	381.0	365.3	31.8	304.8	327.2	328.2	114.3	55.6	55.6	323.9	12.7	55.6
14	533	412.8	400.1	35.1	336.6	359.2	360.2	127.0	57.2	79.2	355.6	12.7	57.2
16	597	469.9	457.2	36.6	387.4	410.5	411.2	127.0	63.5	87.4	406.4	12.7	63.5
18	635	533.4	505.0	39.6	438.2	461.8	462.3	139.7	68.3	96.8	457.2	12.7	68.3
20	699	584.2	558.8	42.9	489.0	513.1	514.4	144.5	73.2	103.1	508.0	12.7	73.2
24	813	692.2	663.4	47.8	590.6	616.0	616.0	152.4	82.6	111.3	609.6	12.7	82.6

Notes:

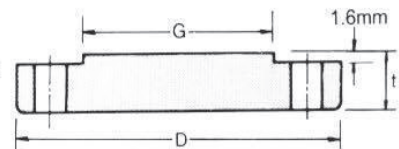
- (1) Class 150 flanges except Lap Joint will be furnished with 0.06" (1.6mm) raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T₁), (T₂).
- (2) For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



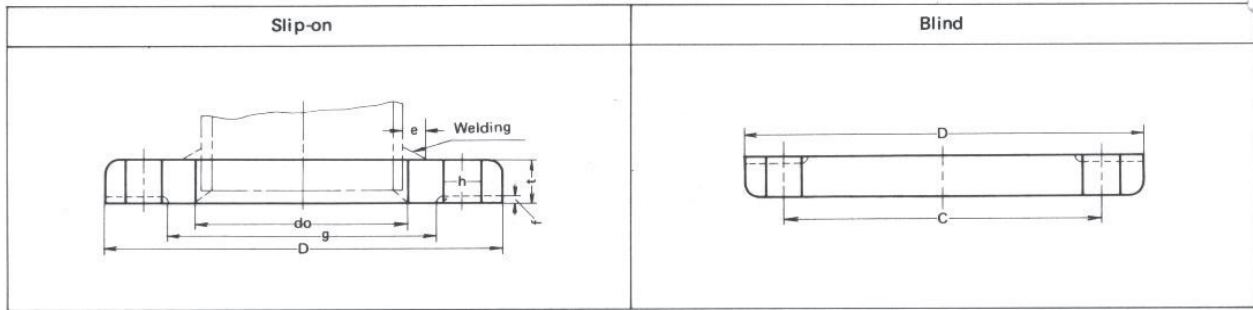
BLIND

Unit:mm

Nominal Pipe Size	Depth of Socket Y	DRILLING			BOLTING			APPROXIMATE WEIGHT										
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	Stud Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
						Raised Face	Raised Face	Ring Joint	Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb
1/2	9.7	60.5	4	15.7	1/2	50.8	57.2	—	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00
3/4	11.2	69.9	4	15.7	1/2	50.8	63.5	—	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30
1	12.7	79.2	4	15.7	1/2	57.2	63.5	76.2	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90
1 1/4	14.2	88.9	4	15.7	1/2	57.2	69.9	82.6	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40
1 1/2	15.7	98.6	4	15.7	1/2	63.5	69.9	82.6	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20
2	17.5	120.7	4	19.1	5/8	69.9	82.6	95.3	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00
2 1/2	19.1	139.7	4	19.1	5/8	76.2	88.9	101.6	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80
3	20.6	152.4	4	19.1	5/8	76.2	88.9	101.6	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90
3 1/2	22.4	177.8	8	19.1	5/8	76.2	88.9	101.6	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00
4	23.9	190.5	8	19.1	5/8	76.2	88.9	101.6	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20
5	23.9	215.9	8	22.4	3/4	82.6	95.3	108.0	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70
6	26.9	241.3	8	22.4	3/4	82.6	101.6	114.3	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60
8	31.8	298.5	8	22.4	3/4	88.9	108.0	120.7	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30
10	33.3	362.0	12	25.4	7/8	101.6	114.3	127.0	24.79	54.70	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00
12	39.6	431.8	12	25.4	7/8	101.6	120.7	133.4	38.98	85.90	27.68	61.00	28.30	62.40	43.70	96.30	29.03	64.00
14	41.4	476.3	12	28.4	1	114.3	133.4	146.1	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00
16	44.5	539.8	16	28.4	1	114.3	133.4	146.1	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00
18	49.3	577.9	16	31.8	1 1/8	127.0	146.1	158.8	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00
20	54.1	635.0	20	31.8	1 1/8	139.7	158.8	171.5	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00
24	63.5	749.3	20	35.1	1 1/4	152.4	171.5	184.2	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00

- (3) Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.
- (4) The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree. To accomplish parallelism, spot facing is carried out according to MSS SP-9, without reducing thickness (t).
- (5) Depth of Socket (Y) is covered by ANSI B16.5 only in sizes through 3 inch, over 3 inch is at the manufacturer's option.

JIS 5K / 10K Flange



5 kgf/cm²

mm

Nominal Diameter of Flange	Nominal Pipe Size	Socket Bore Diameter do	Outside Diameter of Flange D	Section Dimensions			Bolt Hole			Nominal Bolt Size
				t	g	f	Bolt Circle Diameter C	Number of Holes	Hole Diameter h	
10A	17.3	17.8	75	9	42	1	55	4	12	M10
15A	21.7	22.2	80	9	48	1	60	4	12	M10
20A	27.2	27.7	85	10	52	1	65	4	12	M10
25A	34.0	34.5	95	10	62	1	75	4	12	M10
32A	42.7	43.2	115	12	72	2	90	4	15	M12
40A	48.6	49.1	120	12	78	2	95	4	15	M12
50A	60.5	61.1	130	14	86	2	105	4	15	M12
65A	76.3	77.1	155	14	112	2	130	4	15	M12
80A	89.1	90.0	180	14	125	2	145	4	19	M16
90A	101.6	102.6	190	14	135	2	155	4	19	M16
100A	114.3	115.4	200	16	145	2	165	8	19	M16
125A	139.8	141.2	235	16	180	2	200	8	19	M16
150A	165.2	166.6	265	18	210	2	230	8	19	M16
(175A)	190.7	192.1	300	18	235	2	260	8	23	M20
200A	216.3	218.0	320	20	255	2	280	8	23	M20
(225A)	241.8	243.7	345	20	280	2	305	12	23	M20
250A	267.4	269.5	385	22	320	2	345	12	23	M20
300A	318.5	321.0	430	22	365	3	390	12	23	M20
350A	355.6	358.1	480	24	405	3	435	12	25	M22
400A	406.4	409.0	540	24	465	3	495	16	25	M22
450A	457.2	460.0	605	24	525	3	555	16	25	M22
500A	508.0	511.0	665	24	575	3	605	20	25	M22
550A	558.8	562.0	720	26	630	3	665	20	27	M24
600A	609.0	613.0	770	26	680	3	715	20	27	M24

10 kgf/cm²

mm

10A	17.3	17.8	90	12	48	1	65	4	15	M12
15A	21.7	22.2	95	12	52	1	70	4	15	M12
20A	27.2	27.7	100	14	58	1	75	4	15	M12
25A	34.0	34.5	125	14	70	1	90	4	19	M16
32A	42.7	43.2	135	16	80	2	100	4	19	M16
40A	48.6	49.1	140	16	85	2	105	4	19	M16
50A	60.5	61.1	155	16	100	2	120	4	19	M16
65A	76.3	77.1	175	18	120	2	140	4	19	M16
80A	89.1	90.0	185	18	130	2	150	8	19	M16
90A	101.6	102.6	195	18	140	2	160	8	19	M16
100A	114.3	115.4	210	18	155	2	175	8	19	M16
125A	139.8	141.2	250	20	185	2	210	8	23	M20
150A	165.2	166.6	280	22	215	2	240	8	23	M20
175A	190.7	192.1	305	22	240	2	265	12	23	M20
200A	216.3	218.0	330	22	265	2	290	12	23	M20
(225A)	241.8	243.7	350	22	285	2	310	12	23	M20
250A	267.4	269.5	400	24	325	2	355	12	25	M22
300A	318.5	321.0	445	24	370	3	400	16	25	M22
350A	355.6	358.1	490	26	415	3	445	16	25	M22
400A	406.4	409.0	560	28	475	3	510	16	27	M24
450A	457.2	460.0	620	30	530	3	565	20	27	M24
500A	508.0	511.0	675	30	585	3	620	20	27	M24
550A	558.8	562.0	745	32	640	3	680	20	33	M30
600A	609.6	613.0	795	32	690	3	730	24	33	M30

API PIPES

Size						Weight			Hydrostatic Test Pressure										
Outside Diameter			Wall Thickness			lb/ft	Kg/m	Kg/ft	API 5L				API 5LX						
Nominal Size	in	mm	Sch. No.	in	mm				A		B		X42	X46	X52	X56	X60	X65	X70
									Std.	Alt.	Std.	Alt.							
1/8	0.405	10.3	40(std)	0.068	1.73	0.24	0.36	-	700	-	700	-	-	-	-	-	-		
			80(XS)	0.095	2.41	0.31	0.46	-	850	-	850	-	-	-	-	-	-	-	
1/4	0.540	13.7	40(Std)	0.088	2.24	0.42	0.63	-	700	-	700	-	-	-	-	-	-		
			80(XS)	0.119	3.02	0.54	0.80	-	850	-	850	-	-	-	-	-	-	-	
3/8	0.675	17.1	40(Std)	0.091	2.31	0.57	0.85	-	700	-	700	-	-	-	-	-	-		
			80(XS)	0.126	3.20	0.74	1.10	-	850	-	850	-	-	-	-	-	-	-	
1/2	0.840	21.3	40(Std)	0.109	2.77	0.85	1.27	-	700	-	700	-	-	-	-	-	-		
			80(Xs)	0.147	3.73	1.09	1.62	-	850	-	850	-	-	-	-	-	-	-	
			(XXS)	0.294	7.47	1.71	2.55	-	1000	-	1000	-	-	-	-	-	-	-	
3/4	1.050	26.7	40(Std)	0.113	2.87	1.13	1.68	-	700	-	700	-	-	-	-	-	-		
			80(XS)	0.154	3.91	1.47	2.19	-	850	-	850	-	-	-	-	-	-	-	
			(XXS)	0.308	7.82	2.44	3.63	-	1000	-	1000	-	-	-	-	-	-	-	
1	1.315	33.4	40(Std)	0.133	3.38	1.68	2.50	0.76	700	-	700	-	-	-	-	-	-		
			80(XS)	0.179	4.55	2.17	3.23	0.99	850	-	850	-	-	-	-	-	-	-	
			160 (XXS)	0.250	6.35	2.84	4.23	1.29	-	-	-	-	-	-	-	-	-	-	
1 1/2	1.660	42.2	40(Std)	0.140	3.56	2.27	3.38	1.03	1200	-	1300	-	-	-	-	-	-		
			80(XS)	0.191	4.85	3.00	4.47	1.36	1800	-	1900	-	-	-	-	-	-	-	
			160 (XXS)	0.250	6.35	3.76	5.60	1.71	-	-	-	-	-	-	-	-	-	-	
1 1/2	1.900	48.3	40(Std)	0.145	3.68	2.72	4.05	1.23	1200	-	1300	-	-	-	-	-	-		
			80(XS)	0.200	5.08	3.63	5.41	1.65	1800	-	1900	-	-	-	-	-	-	-	
			160 (XXS)	0.281	7.14	4.86	7.24	2.21	-	-	-	-	-	-	-	-	-	-	
2	2 3/8	60.3	40(Std)	0.083	2.11	2.03	3.02	0.92	1260	-	1470	-	1760	1930	2180	2350	2520	2730	2940
			80(XS)	0.109	2.77	2.64	3.93	1.20	-	-	-	2310	2530	2860	3000	3000	3000	3000	3000
			160 (XXS)	0.125	3.18	3.00	4.47	1.36	-	-	-	2650	2910	3000	3000	3000	3000	3000	3000
2 1/2	2 7/8	73.0	40(Std)	0.141	3.58	3.36	5.00	1.53	-	-	-	2990	3000	3000	3000	3000	3000	3000	3000
			80(XS)	0.154	3.91	3.65	5.44	1.66	2330	-	2500	-	3000	3000	3000	3000	3000	3000	3000
			160 (XXS)	0.172	4.37	4.05	6.03	1.84	2500	-	2500	-	3000	3000	3000	3000	3000	3000	3000
3	3 1/2	88.9	40(Std)	0.188	4.78	4.39	6.54	1.99	2500	-	2500	-	3000	3000	3000	3000	3000	3000	3000
			80(XS)	0.218	5.54	5.02	7.48	2.28	2500	-	2500	-	3000	3000	3000	3000	3000	3000	3000
			160 (XXS)	0.250	6.35	5.67	8.45	2.57	2500	-	2500	-	3000	3000	3000	3000	3000	3000	3000
3 1/2	4	101.6	40(Std)	0.281	7.14	6.28	9.35	2.85	2500	-	2500	-	3000	3000	3000	3000	3000	3000	3000
			80(XS)	0.344	8.74	7.46	11.11	3.39	-	-	-	-	-	-	-	-	-	-	-
			160 (XXS)	0.436	11.07	9.03	13.45	4.10	2500	-	2500	-	3000	3000	3000	3000	3000	3000	3000

NOTE : Pipe Specification :- API 5L (ASTM A 53 Grade A/Grade B.)

API PIPES (Continued)

Size					Weight			Hydrostatic Test Pressure												
Outside Diameter			Wall Thickness		lb/ft	Kg/m	Kg/ft	API 5L				API 5LX								
Nominal Size	in	mm	Sch. No.	in				mm	A		B		X42	X46	X52	X56				
									Std.	Alt.	Std.	Alt.								
4	4 1/2	114.3	40(Std)	0.083	2.11	3.92	5.84	1.78	660	--	770	--	930	1020	1150	1240				
				0.109	2.77	5.11	7.61	2.32	870	--	1020	--	--	--	--	--	--	--		
				0.125	3.18	5.84	8.70	2.65	1000	--	1170	--	1400	1530	1730	1870				
				0.141	3.58	6.56	9.77	2.98	1130	--	1320	--	1580	1730	1960	2110				
				0.156	3.96	7.24	10.78	3.29	1250	--	1460	--	1750	1910	2160	2330				
				0.172	4.37	7.95	11.84	3.61	1380	--	1610	--	1930	2110	2390	2570				
				0.188	4.78	8.66	12.90	3.93	1500	--	1750	--	2110	2310	2610	2810				
				0.203	5.16	9.32	13.88	4.23	1620	--	1890	--	2270	2490	2810	3000				
				0.219	5.56	10.01	14.91	4.54	1750	--	2040	--	2450	2690	3000	3000				
				0.237	6.02	10.79	16.07	4.90	1900	--	2210	--	2650	2910	3000	3000				
				0.250	6.35	11.35	16.91	5.15	2000	--	2330	--	2800	3000	3000	3000				
				0.281	7.14	12.66	18.86	5.75	2250	--	2620	--	3000	3000	3000	3000				
				0.312	7.92	13.96	20.79	6.34	2500	--	2800	--	3000	3000	3000	3000				
				0.337	8.56	14.98	22.31	6.80	2700	--	2800	--	3000	3000	3000	3000				
				0.438	11.13	19.00	28.30	8.63	2800	--	2800	--	3000	3000	3000	3000				
				0.531	13.49	22.51	33.53	10.22	2800	--	2800	--	3000	3000	3000	3000				
0.674	17.12	27.54	41.02	12.50	2800	--	2800	--	3000	3000	3000	3000								
5	5 7/16	141.3	40(Std)	0.083	2.11	4.86	7.24	2.21	540	--	630	--	--	--	--	--				
				0.125	3.18	7.26	10.81	3.30	810	--	940	--	--	--	--	--	--			
				0.156	3.96	9.01	13.42	4.09	1010	--	1180	--	--	--	--	--	--			
				0.188	4.78	10.79	16.07	4.90	1220	--	1420	--	--	--	--	--	--			
				0.219	5.56	12.50	18.62	5.68	1420	--	1650	--	--	--	--	--	--			
				0.258	6.55	14.62	21.76	6.63	1670	--	1950	--	--	--	--	--	--			
				0.281	7.14	15.85	23.61	7.20	1820	--	2120	--	--	--	--	--	--			
				0.312	7.92	17.50	26.05	7.94	2020	--	2360	--	--	--	--	--	--			
				0.344	8.74	19.17	28.55	8.70	2230	--	2600	--	--	--	--	--	--			
				0.375	9.52	20.78	30.94	9.43	2430	--	2800	--	--	--	--	--	--			
				0.500	12.70	27.03	40.26	12.27	2800	--	2800	--	--	--	--	--	--			
				0.625	15.88	32.96	49.08	14.96	2800	--	2800	--	--	--	--	--	--			
				0.750	19.05	38.55	57.41	17.50	2800	--	2800	--	--	--	--	--	--			
				6	6 5/8	168.3	30	0.083	2.11	5.80	8.64	2.63	450	560	530	660	790	860	980	1050
								0.109	2.77	7.59	11.31	3.45	590	740	690	860	1040	1140	1280	1380
								0.125	3.18	8.68	12.93	3.94	680	850	790	990	1190	1300	1470	1580
0.141	3.58	9.76	14.54					4.43	770	960	890	1120	1340	1470	1660	1790				
0.156	3.96	10.78	16.06					4.89	850	1060	990	1240	1480	1620	1840	1980				
0.172	4.37	11.85	17.65					5.38	930	1170	1090	1360	1640	1790	2030	2180				
0.188	4.78	12.92	19.24					5.87	1020	1280	1190	1490	1790	1960	2210	2380				
0.203	5.16	13.92	20.73					6.32	1100	1380	1290	1610	1930	2110	2390	2570				
0.219	5.56	14.98	22.31					6.80	1190	1490	1390	1740	2080	2280	2580	2780				
0.250	6.35	17.02	25.35					7.73	1360	1700	1580	1980	2380	2600	2940	3000				
0.280	7.11	18.97	28.26					8.61	1520	1900	1780	2220	2660	2920	3000	3000				
0.312	7.92	21.04	31.34					9.55	1700	2120	1980	2470	2970	3000	3000	3000				
0.344	8.74	23.08	34.38					10.48	1870	2340	2180	2730	3000	3000	3000	3000				
0.375	9.52	25.03	37.28					11.36	2040	2550	2380	2800	3000	3000	3000	3000				
0.432	10.97	28.57	42.56					12.97	2350	2800	2740	2800	3000	3000	3000	3000				
0.500	12.70	32.71	48.72					14.85	2720	2800	2800	2800	3000	3000	3000	3000				
0.562	14.27	36.39	54.20	16.52	2800	2800	2800	2800	3000	3000	3000	3000								
0.625	15.88	40.05	59.65	18.18	2800	2800	2800	2800	3000	3000	3000	3000								
0.719	18.26	45.35	67.55	20.59	2800	2800	2800	2800	3000	3000	3000	3000								
0.864	21.95	53.16	79.18	24.13	2800	2800	2800	2800	--	--	--	--								
8	8 5/8	219.1	20	0.125	3.18	11.35	16.91	5.15	520	650	610	760	910	1000	1130	1220				
				0.156	3.96	14.11	21.02	6.41	650	810	760	950	1140	1250	1410	1520				
				0.188	4.78	16.94	25.23	7.69	780	980	920	1140	1370	1500	1700	1830				
				0.203	5.16	18.26	27.20	8.29	--	--	--	--	1480	1620	1840	2000				
				0.219	5.56	19.66	29.28	8.93	910	1140	1070	1330	1600	1750	1980	2130				
				0.250	6.35	22.36	33.31	10.15	1040	1300	1220	1520	1830	2000	2260	2430				
				0.277	7.04	24.70	36.79	11.21	1160	1450	1350	1690	2020	2220	2510	2700				
				0.312	7.92	27.70	41.26	12.58	1300	1630	1520	1900	2280	2500	2820	3000				
				0.322	8.18	28.55	42.53	12.96	1340	1680	1570	1960	2350	2580	2910	3000				
				0.344	8.74	30.42	45.31	13.81	1440	1790	1680	2090	2510	2750	3000	3000				
				0.375	9.52	33.04	49.21	15.00	1570	1960	1830	2280	2740	3000	3000	3000				
				0.406	10.31	35.64	53.09	16.18	--	--	--	--	--	--	--	--				
				0.438	11.13	38.30	57.05	17.39	1830	2290	2130	2670	3000	3000	3000	3000				
				0.500	12.70	43.39	64.63	19.70	2090	2610	2430	2800	3000	3000	3000	3000				
				0.562	14.27	48.40	72.09	21.97	2350	2800	2740	2800	3000	3000	3000	3000				
				0.594	15.09	50.95	75.89	23.13	--	--	--	--	--	--	--	--				
0.625	15.88	53.40	79.54	24.24	2610	2800	2800	2800	3000	3000	3000	3000								
0.719	18.26	60.71	90.43	27.56	2800	2800	2800	2800	3000	3000	3000	3000								
0.812	20.62	67.76	100.93	30.76	--	--	--	--	--	--	--	--								
0.875	22.22	72.42	107.87	32.88	2800	2800	2800	2800	--	--	--	--								
0.906	23.01	74.69	111.25	33.91	--	--	--	--	--	--	--	--								

NOTE : Pipe Specification :- API 5L (ASTM A 53 Grade A/Grade B)