

TECHNICAL DATA SPECIFICATION



Product Range

BUTT WELD FITTINGS

QUALITY STANDARD FOR BUTTWELD FITTINGS

High quality butt weld fittings all made and controlled to relevant standards such as: ASME, ASTM, BS and DIN/WERKSTOFFE.

SIZES FOR BUTTWELD FITTINGS

Butt weld Fittings are available in sizes from 1/4" through to any size.

WALL THICKNESS FOR BUTTWELD FITTINGS

Schedule 5s through Schedule XXS and heavier.

DIMENSIONS FOR BUTTWELD FITTINGS:

-BS 1640/ANSI - ASME B16.9 - B16.28 - B16.25
-Seamless, EFW, ERW, DSAW and Forged

MATERIAL GRADES FOR BUTTWELD FITTINGS

All butt weld fittings are available in the following material grades:

CARBON STEEL

A234 WPB, WPC
IS1239 P - 1 | 2
IS3589 Heavy



SOCKET WELD / THREADED FITTINGS

QUALITY STANDARD FOR BUTTWELD FITTINGS

High quality fittings all made and controlled to relevant standards such as: ASME, ASTM, BS and DIN/WERKSTOFFE.

SIZES AVAILABLE FOR SOCKET WELD FITTINGS

Socket Weld Fittings are available in sizes from 1/8" through to 4"

DIMENSIONS & PRESSURE RATINGS FOR SOCKET WELD FITTINGS

Bs799 and ANSI B16.11
3000lb through to 9000lb
Sch 10s through to Sch XXS and heavier.

CARBON STEEL

A105



FLANGES

QUALITY STANDARD FOR FLANGES

High quality Flanges all made and controlled to the relevant standards such as: ASME, ASTM, BS and DIN/WERKSTOFFE.

SIZES FOR FLANGES

All flanges are available in sizes from 1/4" through to any size.

WALL THICKNESS FOR FLANGES

Thickness as per dimension standard

DIMENSIONS AND PRESSURE RATINGS FOR FLANGES:

- ANSI, MSS- SP-44, Bs3293, API 605 150lb through to 2500lb
- Flange Facings: Raised Face, Ring Type Joint, Large Tongue & Groove, Small Tongue & Groove
- BS4504 - PN6, 10, 16, 25, 64
- BS10 - Table D, E, F & H
- DIN Standards
Special items according to customer drawings.

MATERIAL GRADES FOR FLANGES

Flanges are available in the following material grades:

CARBON STEEL

A105, IS2062, GR- A | B | C



Company Profile

We are really pleased to approach you with this Profile of our earnest request cum introduction in brief. We are one of the Manufacturing units for various Engineering Products. & Entire Range of Pipe Line Fittings Flanges & Pipe Supporting System may please be considered .

Our company **Riddhi Steels** (Manufacturing unit) is located in the industrial area of Vasai, Mumbai Having the latest technology like the semi auto hydraulic press, newly upgraded furnace, Coupling, Nozzle, Flange manufacturing CNC machine with tool room.

According to us you must be the regular consumer besides actual users for the materials as described above. May we also strongly assure you that we are eligible to meet your requirement accompanying with the Test Certificate either through Govt. Recog. Test House, NABL Approved Laboratory or under Third Party Inspection.

Quality Management

The **Riddhi Steels** Ensures that Customer and user are supplied product that meet their requirements approved internal quality specification are reflect our effort to achieve highest customer satisfaction by the setting over leave the highest standard, we go beyond merely full fill standard and customer and specific requirements. The systematic quality planning and documentation of relevant processes are more than just written procedures.

Internal inspection Procedure

1. Incoming Inspection

- a) Dimensional Inspection
- b) Visual Inspection
- c) MTC verify and if required check test
- d) The following other inspections are performed if necessary. (Ultrasonic Examination, MPI, RT, LPT,UTM and other.) then allotting lot No

2. IN Process Inspection

- a) The following are the major in-process inspection items.
- b) Visual Inspection
- c) Shape Inspection
- d) Processing Conditions Check
- e) Heat Treatment and Provide Heat No
- f) Hardness, Test, Tensile, Elongation and others.

3. Final Inspection

- a) Visual Inpsection at Bhavya Steel are visually inspected to confirm that both internal and external surfaces are smooth and without harmful defects.



STAINLESS STEEL SEAMLESS & WELDED PIPES CHEMICAL & PHYSICAL PROPERTIES

Chemical Composition										Tensile Test				
Grade	C	Si	Mn	P Max	S Max	Cr	Mo	Ni	Other Elements	Tensile Strength kg/mm ² min	Yield Point Strength kg/mm ² min	Elongation in 2 or 50mm min% Curved strip and Tubular Specimens		
												Longitudinal		Transverse
												t ≤ 5/16in	t ≥ 5/16in	t ≤ 5/16in
TP304	0.08 max	0.75 max	2.0 max	0.040	0.030	18.0-20.0		8.00-11.0	-	52.52	20.90	35	-	25
TP304H	0.04-0.10	0.75 max	2.0 max	0.040	0.030	18.0-20.0		8.00-11.0	-	52.52	20.90	35	-	25
TP304L	0.035 max	0.75 max	2.0 max	0.040	0.030	18.0-20.0		8.00-13.0	-	49.46	17.34	35	-	25
TP304N	0.08 max	0.75 max	2.0 max	0.040	0.030	18.0-20.0		8.00-11.0	N 0.10-0.16	56.10	24.61	35	-	25
TP304LN	0.035 max	0.75 max	2.0 max	0.040	0.030	18.0-20.0		8.00-11.0	N 0.10-0.16	52.52	20.90	35	-	25
TP309S	0.08 max	0.75 max	2.0 max	0.045	0.030	22.0-24.0	0.75 Max	12.0-15.0	-	52.52	20.90	35	-	25
TP310S	0.08 max	0.75 max	2.0 max	0.045	0.030	24.0-26.0	0.75 Max	19.0-22.0	-	52.52	20.90	35	-	25
TP316	0.08 max	0.75 max	2.0 max	0.040	0.030	16.0-18.0	2.00-3.00	11.0-14.0	-	52.52	20.90	35	-	25
TP316H	0.04-0.10	0.75 max	2.0 max	0.040	0.030	16.0-18.0	2.00-3.00	11.0-14.0	-	52.52	20.90	35	-	25
TP316L	0.035 max	0.75 max	2.0 max	0.040	0.030	16.0-18.0	2.00-3.00	10.0-15.0	-	49.46	17.34	35	-	25
TP316N	0.08 max	0.75 max	2.0 max	0.040	0.030	16.0-18.0	2.00-3.00	11.0-14.0	N 0.10~0.16	56.10	24.61	35	-	25
TP316LN	0.035 max	0.75 max	2.0 max	0.040	0.030	16.0-18.0	2.00~3.00	11.0-14.0	N 0.10~0.16	52.52	20.90	35	-	25
TP317	0.08 max	0.75 max	2.0 max	0.040	0.030	18.0-20.0	3.00~4.00	11.0-14.0	-	52.52	20.90	35	-	25
TP317L	0.035 max	0.75 max	2.0 max	0.040	0.030	18.0-20.0	3.00~4.00	11.0-15.0	-	52.52	20.90	35	-	25
TP321	0.08 max	0.75 max	2.0 max	0.040	0.030	17.0-20.0		9.0-13.0	Ti5xC%-0.70	52.52	20.90	35	-	25
TP321H	0.04-0.10	0.75 max	2.0 max	0.040	0.030	17.0-20.0		9.0-13.0	Ti4xC%-0.60	52.52	20.90	35	-	25
TP347	0.08 max	0.75 max	2.0 max	0.040	0.030	17.0-20.0		9.0-13.0	Nb+TA10xC%-1.00	52.52	20.90	35	-	25
TP347H	0.04-0.10	0.75 max	2.0 max	0.040	0.030	17.0-20.0		9.0-13.0	Nb+TA8xc%~1	52.52	20.90	35	-	25
TP348	0.08 max	0.75 max	2.0 max	0.040	0.030	17.0-20.0		9.0-13.0	Nb+TA10xc%~1	52.52	20.90	35	-	25
TP348H	0.04-0.10	0.75 max	2.0 max	0.040	0.030	17.0-20.0		9.0-13.0	Nb+TA8xc%~1	52.52	20.90	35	-	25
TPXM-10	0.08 max	1.00 max	8.00-10.00	0.040	0.030	19.0-21.50		5.50-7.50	N0.15~0.40	63.22	35.18	35	-	25
TPXM-11	0.04 max	1.00 max	8.00-10.00	0.040	0.030	19.0-21.50		5.50-7.50	N0.15~0.40	63.22	35.18	35	-	25
A240 TP304	0.08 max	0.75 max	2.0 max	0.045	0.030	18.0-20.0	-	8.00-10.50	N0.10 Max			Class 1 : Double welded pipes & full Radiography Class 2 : Double welded no Radiography Class 3 : Single welded full Radiography Class 4 : Single welded full Radiography rootpass without addition of filler metal Class 5 : Double welded spot Radiography		
TP310S	0.08 max	0.75 max	2.0 max	0.045	0.030	24.0-26.0	-	19.0-22.0						
TP316	0.08 max	0.75 max	2.0 max	0.045	0.030	16.0-18.0	2.0-3.0	10.0-14.0	N0.10 Max					
TP316L	0.035 max	0.75 max	2.0 max	0.045	0.030	16.0-18.0	2.0-3.0	10.0-14.0	N0.10 Max					
TP317L	0.035 max	0.75 max	2.0 max	0.045	0.030	18.0-20.0	3.0-4.0	11.0-15.0	N0.10 Max					
TP321	0.08 max	0.75 max	2.0 max	0.045	0.030	17.0-19.0	-	9.0-12.0	N0.10 Max					
TP347	0.08 max	0.75 max	2.0 max	0.045	0.030	17.0-19.0	-	9.0-13.0	Cb+TA10xC/1.0					

CARBON STEEL, ALLOY STEEL, LOW TEMP, PIPE AND TUBES SPECIFICATION

CHEMICAL ANALYSIS									MECHANICAL PROPERTIES			SPECIFIC REQUIREMENT
									TENSILE STRENGTH	YIELD STRENGTH	ELONGATION	
SPECIFICATION	WT	C%	Mn %	P % MAX	S% MAX	Si%	Cr%	Mo%	Mpa	Mpa	50mm MIN Longitudinal	
ASTM A 53/A	AW	0.25MAX	0.95MAX	0.050	0.060	-	-	-	331MIN	207MIN	36	<u>Cr</u> <u>Mo</u> <u>Cu</u> <u>Ni</u> <u>Va</u> 0.40 0.15 0.40 0.40 0.08 Five elements not to exceed 1%
ASTM A 53/B	AW	0.30MAX	1.20MAX	0.050	0.060	-	-	-	413MIN	240MIN	29.5	
ASTM A 106/A	AW	0.25MAX	0.27-0.93	0.025	0.025	0.10MIN	0.40MAX	0.15MAX	330MIN	205MIN	35/28	
ASTM A 106/B	AW	0.30MAX	0.29-1.06	0.025	0.025	0.10MIN	0.40MAX	0.15MAX	415 MIN	240MIN	30/22	
ASTM A 106/C	AW	0.35MAX	0.29-1.06	0.025	0.025	0.10MIN	0.40MAX	0.15MAX	485MIN	275MIN	30/22	
ASTM A 179	MW	0.06-0.18	0.27-0.63	0.048	0.048	-	-	-	325MIN	180MIN	36.0	Hardness 72 HRB Max
ASTM A 214	MW	0.18MAX	0.27-0.63	0.050	0.050	-	-	-	385MIN	180MIN	35.0	Hardness 72 HRB Max
ASTM A 192	MW	0.06-0.18	0.27-0.63	0.048	0.048	0.25MAX	-	-	325MIN	180MIN	35.0	Hardness 72 HRB Max
ASTM A 209/T1	MW	0.10-0.20	0.30-0.80	0.045	0.045	0.10-0.50	-	0.44-0.65	380MIN	205MIN	30/22	Hardness 80 HRB Max
ASTM A 209/T1a	MW	0.15-0.25	0.30-0.80	0.045	0.045	0.10-0.50	-	0.44-0.65	365MIN	195MIN	30/22	Hardness 81 HRB Max
ASTM A 209/T1B	MW	0.14MAX	0.30-0.80	0.045	0.045	0.10-0.50	-	0.44-0.65	415MIN	220MIN	30/22	Hardness 77 HRB Max
ASTM A 210/A-1	MW	0.27max	0.93max	0.048	0.058	0.10MIN	-	-	415MIN	255MIN	30/22	Hardness 79 HRB Max
ASTM A 210/C	MW	0.35MAX	0.29-1.06	0.048	0.058	0.10MIN	-	-	485MIN	275MIN	30/22	Hardness 89 HRB Max
ASTM A 213/T2	MW	0.10/0.20	0.30-0.61	0.045	0.045	0.10-0.30	0.50-0.81	0.44-0.65	415MIN	205MIN	30/22	Hardness 85 HRB Max
ASTM A 213/T5	MW	0.15MAX	0.30-0.60	0.030	0.030	0.50MAX	4.00-6.00	0.44-0.65	415MIN	205MIN	30/22	Hardness 85 HRB Max
ASTM A 213/T11	MW	0.15MAX	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415MIN	205MIN	30/22	Hardness 85 HRB Max
ASTM A 213/T12	MW	0.15MAX	0.30-0.61	0.045	0.045	0.50MAX	0.80-1.25	0.44-0.65	415MIN	205MIN	30/22	Hardness 85 HRB Max
ASTM A 213/T22	MW	0.15MAX	0.30-0.60	0.030	0.030	0.50MAX	1.90-2.60	0.87-1.13	415MIN	205MIN	30/22	Hardness 85 HRB Max
ASTM A 333/1	AW	0.30MAX	0.40-1.06	0.025	0.025	-	-	-	380MIN	205MIN	25/20	IMPACT AS -50F FOR 40X10J/18/14 -50F40X10J/18/14 90 HRB MAX
ASTM A 333/6	AW	0.30MAX	0.29-1.06	0.025	0.025	0.10MIN	-	-	415MIN	240MIN	30/22	
ASTM A 334/1	AW	0.30MAX	0.40-1.06	0.025	0.025	-	-	-	380MIN	205MIN	35/28	
ASTM A 334/6	MW	0.30MAX	0.29-1.06	0.025	0.025	0.10MIN	-	-	415MIN	240MIN	30/22	
ASTM A 335/P1	AW	0.10-0.20	0.30-0.80	0.025	0.025	0.10-0.50	-	0.44-0.65	330MIN	205MIN	30/22	
ASTM A 335/P2	AW	0.10-0.20	0.30-0.61	0.025	0.025	0.10-0.30	0.50-0.81	0.44-0.65	380MIN	205MIN	30/22	
ASTM A 335/P5	AW	0.15MAX	0.30-0.60	0.025	0.025	0.50MAX	4.00-6.00	0.45-0.65	415MIN	205MIN	30/22	
ASTM A 335/P9	AW	0.15MAX	0.30-0.60	0.025	0.025	0.25-1.00	8.00-10.00	0.09-1.10	415MIN	172MIN	30/22	
ASTM A 335/P11	AW	0.15MAX	0.30-0.60	0.025	0.025	0.50-1.00	1.00-1.50	0.44-0.65	415MIN	205MIN	30/22	
ASTM A 335/P12	AW	0.15MAX	0.30-0.61	0.025	0.025	0.50MAX	0.80-1.25	0.44-0.65	415MIN	205MIN	50/22	
ASTM A 335/P22	AW	0.15MAX	0.30-0.60	0.025	0.025	0.50MAX	1.90-2.60	0.87-1.13	415MIN	205MIN	30/22	
BS/3059/1/33		0.15Max	0.30-0.70	0.050	0.050	-	-	-	324-441	186MIN	25	
BS/3059/2/33		0.15MAX	0.40-0.70	0.050	0.050	0.10-0.35	-	-	324-441	186MIN	21	
BS/3059/2/45		0.12-0.18	0.90-1.20	0.035	0.035	0.10-0.35	-	-	441-560	245MIN	22	
BS/3059/2/620		0.10-0.15	0.40-0.70	0.040	0.040	0.10-0.35	0.70-1.10	0.45-0.65	441-618	235MIN	22	
DIN/17175/ST35.8		0.17MAX	0.40MIN	0.040	0.040	0.35MAX	-	-	340-441	235MIN	25	
DIN/17175/ST45.8		0.22MAX	0.45MIN	0.040	0.040	0.10-0.35	-	-	441-540	255MIN	25	
DIN/17175/15MO3		0.12-0.20	0.50-0.80	0.040	0.040	0.10-0.35	-	0.25-0.35	441-540	284MIN	21	
DIN/17175/13CrMO44		0.10-0.18	0.40-0.70	0.040	0.040	0.10-0.35	0.70-1.60	0.40-0.50	441-570	294MIN	22	
DIN/17175/10CrM910		0.15MAX	0.40-0.60	0.040	0.040	0.15-0.50	2.0-2.5	0.9-1.10	441-570	294MIN	22	
ASTM A 199/T5	MW	0.50-0.15	0.30-0.60	0.030	0.030	0.50MAX	4.00-6.00	0.45-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 199/T11	MW	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 199/T22	MW	0.05-0.15	0.30-0.60	0.030	0.030	0.50MAX	1.90-2.60	0.87-1.13	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 199/T4	MW	0.15MAX	0.30-0.60	0.030	0.030	0.50-1.00	2.15-2.85	0.44-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 199/T7	MW	0.15MAX	0.30-0.60	0.030	0.030	0.50-1.00	6.00-8.00	0.45-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 200/T5	MW	0.15MAX	0.30-0.60	0.030	0.030	0.50-1.00	4.00-6.00	0.45-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 200/T11	MW	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 200/T22	MW	0.05-0.15	0.30-0.60	0.030	0.030	0.50MAX	1.90-2.60	0.87-1.13	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 200/T4	MW	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00	2.15-2.85	0.44-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 200/T7	MW	0.15MAX	0.30-0.60	0.030	0.030	0.50-1.00	6.00-8.00	0.45-0.65	415MIN	170MIN	30/22	HARDNESS 85 HRB MAX
ASTM A 199/T9	MW	0.15MAX	0.30-0.60	0.030	0.030	0.25-1.00	8.00-10.0	0.90-1.10	415MIN	170MIN	30/22	HARDNESS 89 HRB MAX

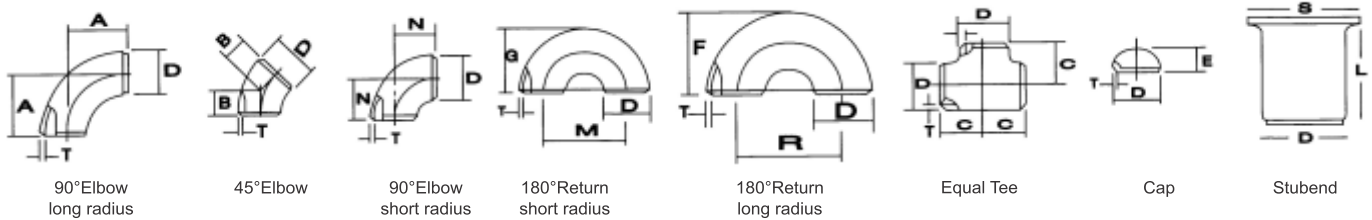
CARBON STEEL & ALLOY STEEL PIPE DIMENSIONS ANSI B 36.10

Nominal Pipe Size	O/D	Schedule 10		Schedule 20		Schedule 30		Schedule STD		Schedule 40		Schedule 60		Schedule XS		Schedule 80		Schedule 100		Schedule 120		Schedule 140		Schedule 160		Schedule XXS	
		MM	INCH	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M	W.T.	KG/M
3	1/8	10.3						1.73	0.37	1.73	0.37			2.41	0.47	2.41	0.47										
6	1/4	13.7						2.24	0.63	2.24	0.63			3.02	0.80	3.02	0.80										
10	3/8	17.1						2.31	0.84	2.31	0.84			3.20	1.10	3.20	1.10										
15	1/2	21.3						2.77	1.27	2.77	1.27			3.73	1.62	3.73	1.62							4.78	1.95	7.5	2.55
20	3/4	26.7						2.87	1.69	2.87	1.69			3.91	2.20	3.91	2.20							5.56	2.90	7.82	3.64
25	1	33.4						3.38	2.50	3.38	2.50			4.55	3.24	4.55	3.24							6.35	4.24	9.1	5.45
32	1 1/4	42.2						3.56	3.39	3.56	3.39			4.85	4.47	4.85	4.47							6.35	5.61	9.7	7.77
40	1 1/2	48.3						3.68	4.05	3.68	4.05			5.08	5.41	5.08	5.41							7.14	7.25	10.2	9.56
50	2	60.3						3.91	5.44	3.91	5.44			5.54	7.48	5.54	7.48							8.74	11.11	11.1	13.4
65	2 1/2	73.0						5.16	8.63	5.16	8.63			7.01	11.41	7.01	11.41							9.53	14.92	14.0	20.4
80	3	88.9						5.49	11.3	5.49	11.3			7.62	15.3	7.62	15.3							11.13	21.35	15.24	27.7
90	3 1/2	101.6						5.74	13.57	5.74	13.57			8.08	18.63	8.08	18.63										
100	4	114.3						6.02	16.07	6.02	16.07			8.56	22.3	8.56	22.3			11.13	28.32			13.5	33.5	17.12	41.03
125	5	141.3						6.55	21.77	6.55	21.77			9.53	30.9	9.53	30.9			12.7	40.2			15.9	49.11	19.0	57.4
150	6	168.3						7.11	28.26	7.11	28.26			10.97	42.5	10.97	42.5			14.3	54.2			18.3	67.5	21.95	79.22
200	8	219.1				6.35	33.3	8.18	42.5	8.18	42.5	10.31	53.1	12.7	64.6	12.7	64.5	15.1	75.92	18.3	90.4	20.6	100.9	23.0	111.27	22.23	108.0
250	10	273.0				6.35	41.7	9.27	60.3	9.27	60.3	12.7	81.5	12.7	81.5	15.1	96.0	18.3	114.7	21.44	133.0	25.4	155	28.6	172.3	25.4	155.0
300	12	323.8				6.35	49.7	9.53	73.8	10.31	79.7	14.27	109.0	12.7	97.4	17.5	132.0	21.4	160.0	25.4	187.0	28.6	208	33.3	238.7	25.4	187.0
350	14	355.6		6.35	54.7	7.92	68.1	9.53	81.3	11.13	94.6	15.09	126.0	12.7	107.0	19.0	158.0	23.8	195.0	27.8	224.0	31.8	253.5	35.7	281		
400	16	406.4		6.35	62.6	7.92	77.9	9.53	93.3	12.7	123.0	16.66	160.0	12.7	123.0	21.44	203.0	26.2	245.0	30.9	286.0	36.53	333	40.5	366.0		
450	18	457.2		6.35	70.6	7.92	87.7	9.53	105.0	14.20	156.0	19.05	206.0	12.7	139.0	23.8	254.6	29.36	310.0	34.0	363.0	39.7	408.3	45.2	459.0		
500	20	508.0		6.35	78.5	9.53	117.2	9.53	117.2	15.09	183.0	20.62	248.0	12.7	155.1	26.2	311.0	32.5	381.0	38.1	441.0	44.4	508	50.0	564.0		
550	22	558.8		6.35	86.6	9.53	129.0		129.0			22.2	294.0	12.7	171.0	28.6	373.0	34.9	451.0	41.3	527.0	47.6	600	54.0	672.0		
600	24	610.0		6.35	94.5	9.53	141.0	9.53	141.0	17.48	255.0	24.61	355.0	12.7	187.0	30.9	442.08	38.8	547.7	46.0	640.0	52.4	720.15	59.5	808.22		
650	26	660.0		7.92	127.3	12.7	203.0	9.53	153.0					12.7	202												
700	28	711.0		7.92	137.4	12.7	218.0	9.53	165.0					12.7	218												
750	30	762.0		7.92	147.9	12.7	234.6	9.53	176.0					12.7	235												
800	32	812.8		7.92	157.9	12.7	250.6	9.53	188.2	17.48	342.0			12.7	251												
850	34	863.6		7.92	167.9	12.7	266.5	9.53	200.0	17.48	364.9			12.7	266												
900	36	914.4		7.92	176.9	12.7	282.4	9.53	212.0	19.05	420.6			12.7	282												



All Dimensions in millimeters. W.T. = Wall Thickness. KG/M = Kilograms per Meter.

DIMENSION OF BUTT WELD FITTINGS ANSI B-16.9 / B-16.29



Nominal Pipe Size		Outside Diameter	Center to Face				Back to Face			Center to Center			Length 'L'	
INCH	MM	D	A R=1.5D	B	C	N R=1D	E	F	G	R	M	S	Short L	Long L
1/2	15	21.3	38.00	16.0	25.0	-	25.0	48.0	-	76.0		35.0	50.8	76.2
3/4	20	26.7	29.00	11.0	29.0	-	25.0	43.0	-	57.0		43.0	50.8	76.2
1	25	33.4	38.00	22.0	38.0	25.0	38.0	56.0	41.0	76.0	51.0	51.0	50.8	101.6
1.1/4	32	42.2	48.00	25.0	48.0	32.0	38.0	70.0	52.0	95.0	64.0	64.0	50.8	101.6
1.1/2	40	48.3	57.15	29.0	57.0	38.0	38.0	83.0	62.0	114.0	76.0	73.0	50.8	101.6
2	50	60.3	76.00	35.0	64.0	51.0	38.0	106.0	81.0	152.0	102.0	93.0	63.5	152.4
2.1/2	65	73.0	95.25	44.0	76.0	64.0	38.0	132.0	100.0	191.0	127.0	105.0	63.5	152.4
3	80	88.9	114.30	51.0	86.0	76.0	51.0	159.0	121.0	229.0	152.0	127.0	63.5	152.4
3.1/2	90	101.6	133.35	57.0	95.0	89.0	64.0	184.0	140.0	267.0	175.0	140.0	76.2	152.4
4	100	114.3	152.0	64.0	105.0	102.0	64.0	210.0	159.0	305.0	203.0	157.0	76.2	152.4
5	125	141.3	190.0	79.0	123.0	127.0	76.0	262.0	197.0	381.0	254.0	186.0	76.2	152.4
6	150	168.3	229.0	95.0	143.0	152.0	89.0	313.0	237.0	457.0	305.0	218.0	88.9	203.2
8	200	219.1	305.0	127.0	178.0	203.0	102.0	414.0	313.0	610.0	406.0	270.0	101.6	203.2
10	250	273.1	381.0	159.0	216.0	254.0	127.0	518.0	391.0	762.0	508.0	324.0	127.0	254.0
12	300	323.8	457.0	190.0	254.0	305.0	152.0	619.0	467.0	914.0	610.0	381.0	152.4	254.0
14	350	355.6	533.0	222.0	279.0	358.0	165.0	711.0	533.0	1067.0	711.0	413.0	152.4	305.0
16	400	406.4	610.0	254.0	305.0	406.0	178.0	813.0	610.0	1219.0	813.0	470.0	152.4	305.0
18	450	457.2	686.0	286.0	343.0	457.0	203.0	914.0	686.0	1372.0	914.0	533.0	152.4	305.0
20	500	508.0	762.0	318.0	381.0	508.0	229.0	1016.0	762.0	1524.0	1016.0	584.0	152.4	305.0
22	550	559.0	838.0	343.0	419.0	559.0	254.0	1118.0	838.0	1676.0	1118.0	614.4	152.4	305.0
24	600	610.0	914.0	381.0	432.0	610.0	267.0	1219.0	914.0	1629.0	1219.0	692.0	152.4	305.0
26	650	660.0	991.0	405.0	495.0	660.0	267.0							
28	700	711.0	1067.0	438.0	521.0	771.0	267.0							
30	750	762.0	1143.0	470.0	559.0	762.0	267.0							
32	800	813.0	1219.0	502.0	597.0	813.0	267.0							
34	850	864.0	1295.0	533.0	635.0	864.0	267.0							
36	900	914.4	1372.0	565.0	673.0	914.0	267.0							

All Dimension in Millimeters

BUTT WELD PIPE FITTINGS AS PER ANSI B-16.9

UNEQUAL TEE

Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		Center - to - Center	
	Run	Outlet	Run 'C'	Outlet 'M'
1/2" x 3/8"	21.3	17.3	25	25
1/2" x 1/4"	21.3	13.7	25	25
3/4" x 1/2"	26.7	21.3	29	29
3/4" x 3/8"	26.7	17.3	29	29
1" x 3/4"	33.4	26.7	38	38
1" x 1/2"	33.4	21.3	38	38
1 1/4" x 1"	42.2	33.4	48	48
1 1/4" x 3/4"	42.2	26.7	48	48
1 1/4" x 1/2"	42.2	21.3	48	48
1 1/2" x 1 1/4"	48.3	42.2	57	57
1 1/2" x 1"	48.3	33.4	57	57
1 1/2" x 3/4"	48.3	26.7	57	57
1 1/2" x 1/2"	48.3	21.3	57	57
2" x 1 1/2"	60.3	48.3	64	60
2" x 1 1/4"	60.3	42.2	64	57
2" x 1"	60.3	33.4	64	51
2" x 3/4"	60.3	26.7	64	44
2 1/2" x 2"	73.0	60.3	76	70
2 1/2" x 1 1/2"	73.0	48.3	76	67
2 1/2" x 1 1/4"	73.0	42.2	76	64
2 1/2" x 1"	73.0	33.4	76	57
3" x 2 1/2"	88.9	73.0	86	83
3" x 2"	88.9	60.3	86	76
3" x 1 1/2"	88.9	48.3	86	73
3" x 1 1/4"	88.9	42.2	86	70
3 1/2" x 3"	101.6	88.9	95	92
3 1/2" x 2 1/2"	101.6	73.0	95	89
3 1/2" x 2"	101.6	60.3	95	83
3 1/2" x 1 1/2"	101.6	48.3	95	79
4" x 3 1/2"	114.3	101.6	105	102
4" x 3"	114.3	88.9	105	98
4" x 2 1/2"	114.3	73.0	105	95
4" x 2"	114.3	60.3	105	89
4" x 1 1/2"	114.3	48.3	105	86
5" x 4"	141.3	114.3	124	117
5" x 3 1/2"	141.3	101.6	124	114
5" x 3"	141.3	88.9	124	111
5" x 2 1/2"	141.3	73.0	124	108
5" x 2"	141.3	60.3	124	105
6" x 5"	168.3	141.3	143	137
6" x 4"	168.3	114.3	143	130
6" x 3 1/2"	168.3	101.6	143	127
6" x 3"	168.3	88.9	143	124
6" x 2 1/2"	168.3	73.0	143	121
8" x 6"	219.1	168.3	178	168
8" x 5"	218.1	141.3	178	162
8" x 4"	219.1	114.3	178	156
8" x 3 1/2"	219.1	101.6	178	152

UNEQUAL CROSS

Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		Center - to - Center	
	Run	Outlet	Run 'C'	Outlet 'M'
10" x 8"	273.0	219.1	216	203
10" x 6"	273.0	168.3	216	194
10" x 5"	273.0	141.3	216	191
10" x 4"	273.0	114.3	216	184
12" x 10"	323.8	273.0	254	241
12" x 8"	323.8	219.1	254	229
12" x 6"	323.8	168.3	254	219
12" x 5"	323.8	141.3	254	216
14" x 12"	355.6	323.8	279	270
12" x 10"	355.6	273.0	279	257
14" x 8"	355.6	219.1	279	248
14" x 6"	355.6	168.3	279	238
16" x 14"	406.4	355.6	305	305
16" x 12"	406.4	323.8	305	295
16" x 10"	406.4	273.0	305	283
16" x 8"	406.4	219.1	305	273
16" x 6"	406.4	168.3	305	264
18" x 16"	457.0	406.4	343	330
18" x 14"	457.0	355.6	343	330
18" x 12"	457.0	323.8	343	321
18" x 10"	457.0	273.0	343	308
18" x 8"	457.0	219.1	343	298
20" x 18"	508.0	457.0	381	368
20" x 16"	508.0	406.4	381	356
20" x 14"	508.0	355.6	381	356
20" x 12"	508.0	323.8	381	346
20" x 10"	508.0	273.0	381	333
20" x 8"	508.0	219.1	381	324
22" x 20"	559.0	508.0	419	406
22" x 18"	559.0	457.0	419	394
22" x 16"	559.0	406.4	419	381
22" x 14"	559.0	355.6	419	381
22" x 12"	559.0	323.8	419	371
22" x 10"	559.0	273.0	419	359
24" x 22"	610.0	559.0	432	432
24" x 20"	610.0	508.0	432	432
24" x 18"	610.0	457.0	432	419
24" x 16"	610.0	406.4	432	406
24" x 14"	610.0	355.6	432	406
24" x 12"	610.0	323.8	432	397
24" x 10"	610.0	273.0	432	384
26" x 24"	660.0	610.0	495	483
26" x 22"	660.0	559.0	495	470
26" x 20"	660.0	508.0	495	457
26" x 18"	660.0	457.0	495	444
26" x 16"	660.0	406.4	495	432
26" x 14"	660.0	355.6	495	432
26" x 12"	660.0	323.8	495	422
28" x 26"	711.0	660.0	521	521
28" x 24"	711.0	610.0	521	508
28" x 22"	711.0	559.0	521	495

BUTT WELD PIPE FITTINGS AS PER ANSI B-16.9

EQUAL TEE

EQUAL CROSS

Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)	Run 'C'	Outlet 'M'
1/2"	21.3	25	25
3/4"	26.7	29	29
1"	33.4	38	38
1.1/4"	42.2	48	48
1.1/2"	48.3	57	57
2"	60.3	64	64
2.1/2"	73.0	76	76
3"	88.9	86	86
3.1/2"	101.6	95	95
4"	114.3	105	105
5"	141.3	124	124
6"	168.3	143	143
8"	219.1	178	178
10"	273.0	216	216
12"	323.8	254	254
14"	355.6	279	279
16"	406.4	305	305
18"	457.0	343	343
20"	508.0	381	381
22"	559.0	419	419
24"	610.0	432	432
26"	660.0	495	495
28"	711.0	521	521
30"	762.0	559	559
32"	813.0	597	597
34"	864.0	635	635
36"	914.0	673	673

NOTE : ALL DIMENSIONS ARE IN MM.

BUTT WELD PIPE FITTINGS AS PER ANSI B-16.9

CONC. REDUCER

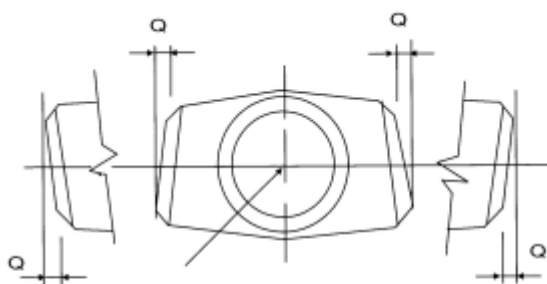
ECC. REDUCER

Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		End-to-End H
	Run	Outlet	
3/4" x 1/2"	26.7	21.3	38
3/4" x 3/8"	26.7	17.3	38
1" x 3/4"	33.4	26.7	51
1" x 1/2"	33.4	21.3	51
1 1/4" x 1"	42.2	33.4	51
1 1/4" x 3/4"	42.2	26.7	51
1 1/4" x 1/2"	42.2	21.3	51
1 1/2" x 1 1/4"	48.3	42.2	64
1 1/2" x 1"	48.3	33.4	64
1 1/2" x 3/4"	48.3	26.7	64
1 1/2" x 1/2"	46.3	21.3	64
2" x 1 1/2"	60.3	48.3	76
2" x 1 1/4"	60.3	42.2	76
2" x 1"	60.3	33.4	76
2" x 3/4"	60.3	26.7	76
2 1/2" x 2"	73.0	60.3	89
2 1/2" x 1 1/2"	73.0	48.3	89
2 1/2" x 1 1/4"	73.0	42.2	89
2 1/2" x 1"	73.0	33.4	89
3" x 2 1/2"	88.9	73.0	89
3" x 2"	88.9	60.3	89
3" x 1 1/2"	88.9	48.3	89
3" x 1 1/4"	88.9	42.2	89
3 1/2" x 3"	101.6	88.9	102
3 1/2" x 2 1/2"	101.6	73.0	102
3 1/2" x 2"	101.6	60.3	102
3 1/2" x 1 1/2"	101.6	48.3	102
4" x 3 1/2"	114.3	101.6	102
4" x 3"	114.3	88.9	102
4" x 2 1/2"	114.3	73.0	102
4" x 2"	114.3	60.3	102
4" x 1 1/2"	114.3	48.3	102
5" x 4"	141.3	114.3	127
5" x 3 1/2"	141.3	101.6	127
5" x 3"	141.3	88.9	127
5" x 2 1/2"	141.3	73.0	127
5" x 2"	141.3	60.3	127
6" x 5"	168.3	141.3	140
6" x 4"	168.3	114.3	140
6" x 3 1/2"	168.3	101.6	140
6" x 3"	168.3	88.9	140
6" x 2 1/2"	168.3	73.0	140
8" x 6"	219.1	168.3	152
8" x 5"	219.1	141.3	152
8" x 4"	219.1	114.3	152
8" x 3 1/2"	219.1	101.6	152
10" x 8"	273.0	219.1	178
10" x 6"	273.0	168.3	178
10" x 5"	273.0	141.3	178
10" x 4"	273.0	114.3	178

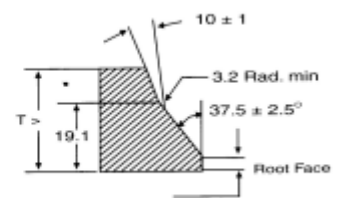
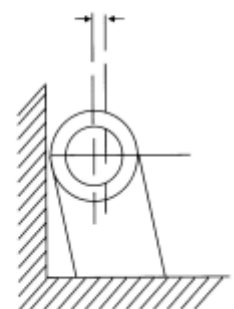
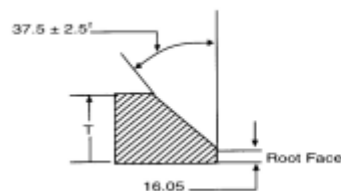
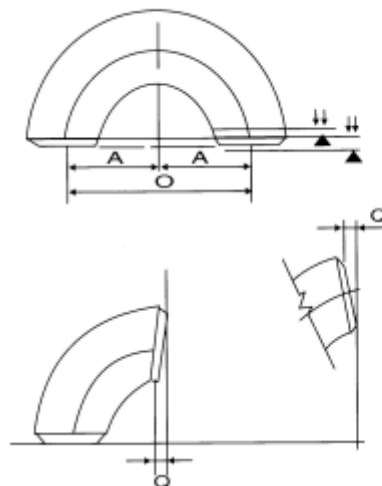
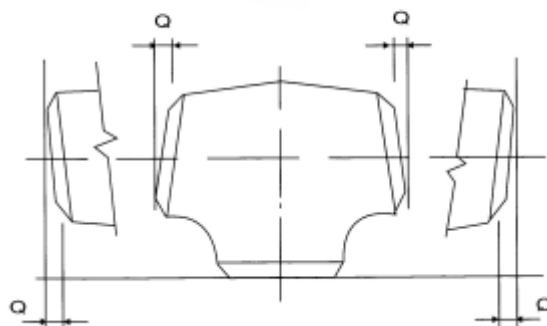
Nominal Pipe Size (NPS)	Outside Diameter at Bevel (O/D)		End-to-End H
	Run	Outlet	
12" x 10"	323.8	273.0	203
12" x 8"	323.8	219.1	203
12" x 6"	323.8	168.3	203
12" x 5"	323.8	141.3	203
14" x 12"	355.6	323.8	330
14" x 10"	355.6	273.0	330
14" x 8"	355.6	219.1	330
14" x 6"	355.6	168.3	330
16" x 14"	406.4	355.6	356
16" x 12"	406.4	323.8	356
16" x 10"	406.4	273.0	356
16" x 8"	406.4	219.1	356
18" x 16"	457.0	406.4	381
18" x 14"	457.0	356.6	381
18" x 12"	457.0	323.8	381
18" x 10"	457.0	273.0	381
20" x 18"	508.0	457.0	508
20" x 16"	508.0	406.4	508
20" x 14"	508.0	355.6	508
20" x 12"	508.0	323.8	508
22" x 20"	559.0	508.0	508
22" x 18"	559.0	457.0	508
22" x 16"	559.0	406.4	508
22" x 14"	559.0	355.6	508
24" x 22"	610.0	559.0	508
24" x 20"	610.0	508.0	508
24" x 18"	610.0	457.0	508
24" x 16"	610.0	406.4	508
26" x 24"	660.0	610.0	610
26" x 22"	660.0	559.0	610
26" x 20"	660.0	508.0	610
26" x 18"	660.0	457.0	610
28" x 26"	711.0	660.0	610
28" x 24"	711.0	610.0	610
28" x 20"	711.0	508.0	610
28" x 18"	711.0	457.0	610
30" x 28"	762.0	711.0	610
30" x 26"	762.0	660.0	610
30" x 24"	762.0	610.0	610
30" x 20"	762.0	508.0	610
32" x 30"	813.0	762.0	610
32" x 28"	813.0	711.0	610
32" x 26"	813.0	660.0	610
32" x 24"	813.0	610.0	610
34" x 32"	864.0	813.0	610
34" x 30"	864.0	762.0	610
34" x 26"	864.0	660.0	610
34" x 24"	864.0	610.0	610

DIMENSION TOLERANCE ANSI B 16.9 / B16.28 / MSS SP - 43

ALL FITTINGS				90°/60°/45° /30° ELBOWS & TEES		REDUCERS		180° RETURNS						CAPS		ANGULARITY TOLERANCE				
Nominal Pipe Size Inch/mm	Outside Diameter at Level	Inside Dia meter	Wall Thickness at End	Centre to End		Overall Length Dimensions		Centre to End		Back to Face Dimensions		Alignment of End Dimensions		Overall length		Nominal Pipe Size	Off Angle Inch/mm		Off Plane	
	D		T	A,B,C,M		H		O		K		U		E			Q		P	
	(1) B16.9	MSS SP43	(2) B16.9	B16.9	MSS SP43	B16.9	MSS SP43	B16.9	MSS SP43	B16.9	MSS SP43	B16.9	MSS SP43	B16.9	MSS SP43		B16.9	MSS SP43	B16.9	
1/2" - 2 1/2" 15 - 65	±1.6 - 0.8	±0.80	±0.8	Not Less Than 87.5% Nominal Thk.	FROM 1/2" TO 18" 15 TO 600	FROM 3/4"	FROM 1/2"-24" 15 - 600	FROM 1/2"-28" 15 - 200							±3	±3.17	1/2" - 4" 15 - 100	±1	16" - 24" 400 - 600 1.6	±2
3" - 3 1/2" 80 - 90	±1.6						5" - 8" 125 - 200	±2									±4			
4" 100			±1.6				10" - 12" 250 - 300	±3									±5			
5" - 6" 125 - 150	±2.4 -1.6		+1.60				14" - 16" 350 - 400	±3									±7			
8" 200		-0.80	18" - 24" 450 - 600			±3	±10													
10" - 18" 250 - 450	+4 -3.2	+2.38 -0.80	±3.2			±2.40	10" - 24" +2.38 250 - 600	±10"	±10"	±2.0"	±1.60	26" - 30" 650 - 750	±4	26" - 36" 650- 900 2.4	±10					
20" - 24" 500 - 600	+6.4 -4.8	3.17 0.79										32" - 42" 800 - 1050	±5		±13					
26" - 30" 650 - 750	+6.4 -4.8	±4.8	±4.8			±3	FROM 26"- 48" 650NB - 701200 NB ±5								±10		44" - 48" 1100 - 1200	±5	38" - 48" 950- 1200 3.2	±20
32" - 48" 800 - 1200	+6.4 -4.8			±5										42" - 48" 1050 - 1200	±5		±20			



This End Flush Against Square



DIMENSIONS OF SOCKET-WELD FITTINGS ANSI B 16.11

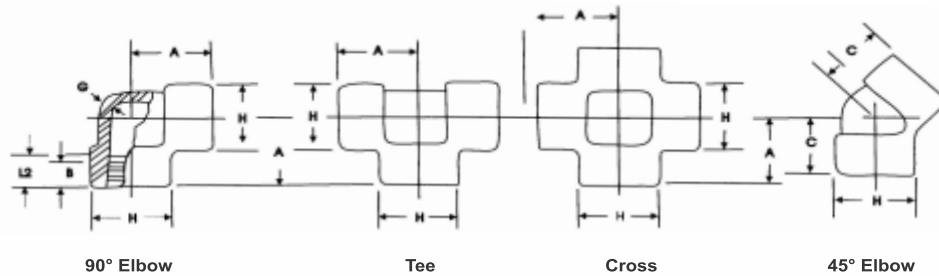
Nominal Pipe Size	Socket Bore Diameter B Note 1	90°Elbow			Cross			Tee			45° Elbow			Coupling			Half Coupling			Cap									
		Bore Diameter of Fitting D [Note (1)]			Socket Wall Thickness, C [Note (2)]			Body wall G			Min. Depth of Socket J	Center to Bottom of Socket, A Tees & Crosses			Laying Lengths			Tolerances			End Wall Thickness K Min Class Designation								
		Class Designation			Class Designation			Class Designation				Class Designation			Couplings			Half Couplings			Class Designation								
		3000	6000	9000	3000	6000	9000	3000	6000	9000		3000	6000	9000	3000	6000	9000	3000	6000	9000	3000	6000	9000						
6	1/8	11.2	7.6	4.8	...	3.18	3.18	3.96	3.43	...	2.41	3.15	...	9.5	11.0	11.0	...	8.0	8.0	...	6.5	16.0	1.0	1.5	1.0	4.8	6.4	...	
8	1/4	14.6	10.0	7.1	...	3.78	3.30	4.60	4.01	...	3.02	3.68	...	9.5	11.0	13.5	...	8.0	8.0	...	6.5	16.0	1.0	1.5	1.0	4.8	6.4	...	
10	3/8	14.2	8.5	5.6	...	...	...	...	...	...	3.20	4.01	...	9.5	13.5	15.5	...	8.0	11.0	...	6.5	17.5	1.5	3.0	1.5	4.8	6.4	...	
15	1/2	22.2	16.6	12.5	7.2	4.67	4.09	5.97	5.18	9.35	8.18	3.73	4.78	7.47	9.5	15.5	19.5	25.5	11.0	12.5	15.5	9.5	22.5	1.5	3.0	1.5	6.4	7.9	11.2
20	3/4	27.6	21.7	16.3	11.8	4.90	4.27	6.96	6.04	9.78	8.56	3.91	5.56	7.82	12.5	19.0	22.5	28.5	13.0	14.0	19.0	9.5	24.0	1.5	3.0	1.5	6.4	7.9	12.7
25	1	27.2	20.2	14.8	10.3	5.69	4.98	7.92	6.93	11.38	9.96	4.55	6.35	9.09	12.5	22.5	27.0	32.0	14.0	17.5	20.5	12.5	28.5	2.0	4.0	2.0	9.6	11.2	14.2
32	1 1/4	34.3	27.4	21.5	16.0	6.07	5.28	7.92	6.93	12.14	10.62	4.85	6.35	9.70	12.5	27.0	32.0	35.0	17.5	20.5	22.5	12.5	30.0	2.0	4.0	2.0	9.6	11.2	14.2
40	1 1/2	42.7	34.3	28.7	22.0	6.35	5.54	8.92	7.80	12.70	11.12	5.08	7.14	10.15	12.5	32.0	38.0	38.0	20.5	25.5	25.5	12.5	32.0	2.0	4.0	2.0	11.2	12.7	15.7
50	2	49.2	41.6	34.7	28.7	6.35	5.54	8.92	7.80	13.84	12.12	5.54	8.74	11.07	16.0	38.0	41.0	54.0	25.5	28.5	28.5	19.0	41.0	2.0	4.0	2.0	12.7	15.7	19.0
65	2 1/2	48.8	40.1	33.2	27.2	6.93	6.04	10.92	9.50	...	...	...	...	...	16.0	61.2	51.7	42.1	37.4	...	...	19.0	43.0	2.5	5.0	2.5	15.7	19.0	...
80	3	61.2	51.7	42.1	37.4	...	...	...	...	...	...	7.01	...	...	16.0	74.4	64.2	...	...	...	...	19.0	43.0	2.5	5.0	2.5	15.7	19.0	...
100	4	73.9	61.2	...	...	8.76	7.67	...	...	...	...	...	...	...	16.0	73.9	61.2	...	...	...	...	19.0	43.0	2.5	5.0	2.5	15.7	19.0	...
		90.3	79.4	...	...	9.52	8.30	...	...	...	...	7.62	...	...	16.0	90.3	79.4	...	...	...	...	19.0	44.5	2.5	5.0	2.5	19.0	22.4	...
		89.8	76.4	...	...	...	...	...	...	...	...	...	...	...	16.0	89.8	76.4	...	...	...	...	19.0	44.5	2.5	5.0	2.5	19.0	22.4	...
		115.7	103.8	...	...	10.69	9.35	...	...	...	...	8.56	...	...	19.0	115.7	103.8	...	...	...	...	19.0	48.0	2.5	5.0	2.5	22.4	28.4	...
		115.2	100.7	...	...	...	...	...	...	...	...	...	...	...	19.0	115.2	100.7	...	...	...	...	19.0	48.0	2.5	5.0	2.5	22.4	28.4	...

(1) All Dimensions Are In Millimeters

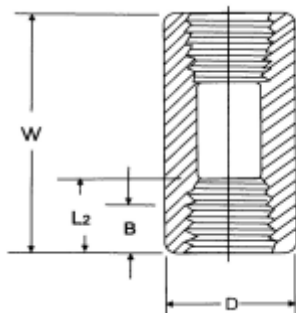
(2) Upper and lower values for each size are the respective maximum and minimum dimensions.

(3) Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

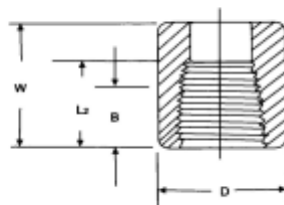
DIMENSIONS OF THREADED FITTINGS ANSI B 16.11



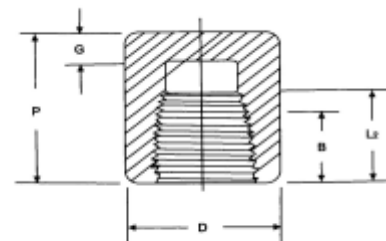
Nominal Pipe Size		Center to End Elbows Tees, Crosses A			Center to End 45 Elbows C			Outside Diameter of Bend H			Minimum Wall Thickness G			Min. Length of Thread Note - 1	
NB	INCH	2000	3000	6000	2000	3000	6000	2000	3000	6000	2000	3000	6000	B	L2
6	1/8	21	21	25	17	17	19	22	22	25	3.18	3.18	6.35	6.4	6.7
8	1/4	21	25	28	17	19	22	22	25	33	3.18	3.30	6.60	8.1	10.2
10	3/8	25	28	33	19	22	25	25	33	38	3.18	3.51	6.98	9.1	10.4
15	1/2	28	33	38	22	25	28	33	38	46	3.18	4.09	8.15	10.9	13.6
20	3/4	33	38	44	25	28	33	38	46	56	3.18	4.32	8.53	12.7	13.9
25	1	38	44	51	28	33	35	46	56	62	3.68	4.98	9.93	14.7	17.3
32	1 1/4	44	51	60	33	35	43	56	62	75	3.89	5.28	10.59	17.0	18.0
40	1 1/2	51	60	64	35	43	44	62	75	84	4.01	5.56	11.07	17.8	18.4
50	2	60	64	83	43	44	52	75	84	102	4.27	7.14	12.09	19.0	19.2
65	2 1/2	76	83	95	52	52	64	92	102	121	5.61	7.65	15.29	23.6	28.9
80	3	86	95	106	64	64	79	109	121	146	5.99	8.84	16.64	25.9	30.5
100	4	106	114	114	79	79	79	146	152	152	6.55	11.18	18.67	27.7	33.0



Coupling



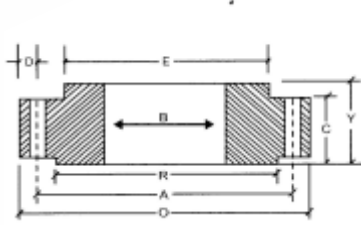
Half-Coupling



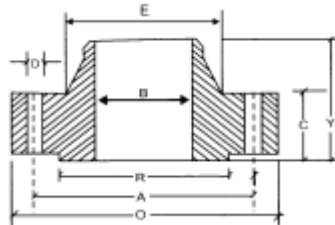
Cap

Nominal Pipe Size		End to End Couplings W	End to End Caps P		Outside Diameter D		End Wall Thickness min. G		Min. Length of Thread Note - 1	
NB	INCH	3000 and 6000	3000	6000	3000	6000	3000	6000	B	L2
6	1/8	32	19	-	16	22	4.8	-	6.4	6.7
8	1/4	35	25	27	19	25	4.8	6.4	8.1	10.2
10	3/8	38	25	27	22	32	4.8	6.4	9.1	10.4
15	1/2	48	32	33	28	38	6.4	7.9	10.9	13.6
20	3/4	51	37	38	35	44	6.4	7.9	12.7	13.9
25	1	60	41	43	44	57	9.7	11.2	14.7	17.3
32	1 1/4	67	44	46	57	64	9.7	11.2	17.0	18.0
40	1 1/2	79	44	48	64	76	11.2	12.7	17.8	18.4
50	2	86	48	51	76	92	12.7	15.7	19.0	19.2
65	2 1/2	92	60	64	92	108	15.7	19.0	23.6	28.9
80	3	108	65	68	108	127	19.0	22.4	25.9	30.5
100	4	121	68	75	140	159	22.4	28.4	27.7	33.0

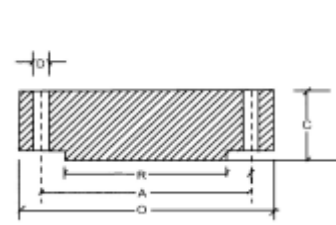
DIMENSIONS OF FORGED FLANGES ANSI B 16.5



SLIP-ON FLANGE



WELDING NECK FLANGE



BLIND FLANGE

ASA 150 CLASS

Nominal Pipe Size (MM) (INCH.)		Flange Dia	Dia of Bolt Circle	Dia of Bolt Holes	No. of Holes	Thk of Flange	Dia of Hub	Length through Hub			Dia of 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	1/2	90.0	60.3	15.9	4	11.1	30.2	15.9	47.6	15.9	22.3	22.9	34.9	9.5	21.33
20	3/4	100.0	69.8	15.9	4	12.7	38.1	15.9	52.4	15.9	27.7	28.2	42.9	11.1	26.67
25	1	110.0	79.4	15.9	4	14.3	49.2	17.5	55.6	17.5	34.5	35.0	50.8	12.7	33.40
32	1 1/4	115.0	88.9	15.9	4	15.9	58.7	20.6	57.1	20.6	43.2	43.7	63.5	14.3	42.16
40	1 1/2	125.0	98.4	15.9	4	17.5	65.1	22.2	61.9	22.2	49.5	50.0	73.0	15.9	48.26
50	2	150.0	120.6	19.0	4	19.0	77.8	25.4	63.5	25.4	62.0	62.5	92.1	17.5	60.31
65	2 1/2	180.0	139.7	19.0	4	22.2	90.5	28.6	69.8	28.6	74.7	75.4	104.8	19.0	73.02
80	3	190.0	152.4	19.0	4	23.8	107.9	30.2	69.8	30.2	90.7	91.4	127.0	20.6	88.90
100	4	230.0	190.5	19.0	8	23.8	134.9	33.3	76.2	33.3	116.1	116.8	157.2	23.8	114.30
125	5	255.0	215.9	22.2	8	23.8	163.5	36.5	88.9	36.5	143.8	144.5	185.7	23.8	141.30
150	6	280.0	241.3	22.2	8	25.4	192.1	39.7	88.9	39.7	170.7	171.4	215.9	27.0	168.27
200	8	345.0	298.4	22.2	8	28.6	246.1	44.4	101.6	44.4	221.5	222.2	269.9	31.7	219.07
250	10	405.0	361.9	25.4	12	30.2	304.8	49.2	101.6	49.2	276.3	277.4	323.8	33.3	273.05
300	12	485.0	431.8	25.4	12	31.8	365.1	55.6	114.3	55.6	327.1	328.2	381.0	39.7	323.85
350	14	535.0	476.2	28.6	12	34.9	400.0	57.1	127.0	79.4	359.1	360.2	412.7	41.3	355.60
400	16	595.0	539.7	28.6	16	36.5	457.2	63.5	127.0	87.3	410.5	411.2	469.9	44.4	406.40
450	18	635.0	577.8	31.7	16	39.7	504.8	68.3	139.7	96.8	461.8	462.3	533.4	49.2	457.20
500	20	700.0	635.0	31.7	20	42.9	558.8	73.0	144.5	103.2	513.1	514.3	584.2	54.0	508.00
600	24	815.0	749.3	34.9	20	47.6	663.6	82.5	152.4	111.1	615.9	615.9	692.1	63.5	609.60

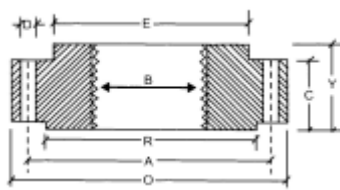
All Dimensions are in Millimeters ● Flanges except Lap Joint will be furnished with (1.6mm) Raised Face, which is included in Thickness(C) and Length through Hub(Y).

ASA 300 CLASS

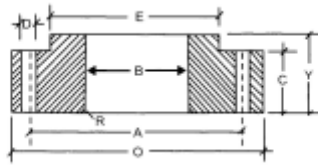
Nominal Pipe Size		Flange Dia	Dia of Bolt Circle	Dia of Bolt Holes	No. of Holes	Thk of Flange	Dia of Hub	Length through Hub			Dia of Bore		Dia of R/F	Depth of Socket	Pipe Dia
								S/O & S/W	W/N	L/J	S/O & S/W	L/J			
(MM)	(INCH.)	O	A	D		C	E	Y	Y	Y	B	B	R	F	X
15	1/2	95.0	66.7	15.9	4	14.3	38.1	22.2	52.4	22.2	22.3	22.9	34.9	9.5	21.33
20	3/4	115.0	82.5	19.0	4	15.9	47.6	25.4	57.1	25.4	27.7	28.2	42.9	11.1	26.67
25	1	125.0	88.9	19.0	4	17.5	54.0	27.0	61.9	27.0	34.5	35.0	50.8	12.7	33.40
32	1 1/4	135.0	98.4	19.0	4	19.0	63.5	27.0	65.1	27.0	43.2	43.7	63.5	14.3	42.16
40	1 1/2	155.0	114.3	22.2	4	20.6	69.8	30.2	68.3	30.2	49.5	50.0	73.0	15.9	48.26
50	2	165.0	127.0	19.0	8	22.2	84.1	33.3	69.8	33.3	62.0	62.5	92.1	17.5	60.31
65	2 1/2	190.0	149.2	22.2	8	25.4	100.0	38.1	76.2	38.1	74.7	75.4	104.8	19.0	73.02
80	3	210.0	168.3	22.2	8	28.6	117.5	42.9	79.4	42.9	90.7	91.4	127.0	20.6	88.90
100	4	255.0	200.0	22.2	8	31.8	146.0	47.6	85.7	47.6	116.1	116.8	157.2	23.8	114.30
125	5	280.0	234.9	22.2	8	34.9	177.8	50.8	98.4	50.8	143.8	144.5	185.7	-	141.30
150	6	320.0	269.9	22.2	12	36.5	206.4	52.4	98.4	52.4	170.7	171.4	215.9	-	168.27
200	8	380.0	330.2	25.4	12	41.3	260.3	61.9	111.1	61.9	221.5	222.2	269.9	-	219.07
250	10	445.0	387.3	28.6	16	47.6	320.7	66.7	117.5	95.2	276.3	277.4	323.8	-	273.05
300	12	520.0	450.8	31.7	16	50.8	374.6	73.0	130.2	101.6	327.1	328.2	381.0	-	323.85
350	14	585.0	514.3	31.7	20	54.0	425.4	76.2	142.9	111.1	359.1	360.2	412.7	-	355.60
400	16	650.0	571.5	34.9	20	57.2	482.6	82.5	146.0	120.6	410.5	411.2	469.9	-	406.40
450	18	710.0	628.5	34.9	24	60.3	533.4	88.9	158.7	130.2	461.8	462.3	533.4	-	457.20
500	20	775.0	685.8	34.9	24	63.5	587.4	95.2	161.9	139.7	513.1	514.3	584.2	-	508.00
600	24	915.0	812.8	41.3	24	69.8	701.7	106.4	168.3	152.4	615.9	615.9	692.1	-	609.60

All Dimensions are in Millimeters ● Flanges except Lap Joint will be furnished with (1.6mm) Raised Face, which is included in Thickness(C) and Length through Hub(Y).

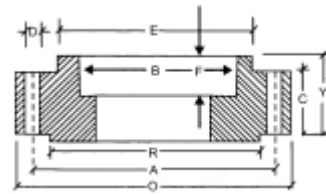
DIMENSIONS OF FORGED FLANGES ANSI B 16.5



THREADED FLANGES



LAP JOINT FLANGES



SOCKET WELD FLANGES

ASA 600 CLASS

Nominal Pipe Size (MM)	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Hub E	Length through Hub			Dia of Bore		Dia of R/F R	Depth of Socket F	Pipe Dia X
							S/O & S/W Y	W/N Y	L/J Y	S/O & S/W B	L/J B			
15	95.2	66.7	15.9	4	14.3	38.1	22.2	52.4	22.3	22.3	22.8	34.9	9.5	21.33
20	117.5	82.5	19.0	4	15.9	47.6	25.4	57.1	25.4	27.7	28.1	42.9	11.1	26.67
25	123.8	88.9	19.0	4	17.5	54.0	27.0	61.9	26.9	34.5	35.0	50.8	12.7	33.40
32	133.3	98.4	19.0	4	20.6	63.5	28.6	66.7	28.4	43.2	43.6	63.5	14.2	42.16
40	155.6	114.3	22.2	4	22.2	69.8	31.7	69.8	31.7	49.5	50.0	73.0	15.8	48.26
50	165.1	127.0	19.0	8	25.4	84.1	36.5	73.0	36.5	62.0	62.4	92.1	17.4	60.31
65	190.5	149.2	22.2	8	28.6	100.0	41.3	79.4	41.1	74.7	75.4	104.8	19.0	73.02
80	209.5	168.3	22.2	8	31.8	117.5	46.0	82.5	45.9	90.7	91.4	127.0	-	88.90
100	273.0	215.9	25.4	8	38.1	152.4	54.0	101.6	53.8	116.1	116.8	157.2	-	114.30
125	330.2	266.7	28.6	8	44.4	188.9	60.3	114.3	60.4	143.8	144.5	185.7	-	141.30
150	355.6	292.1	28.6	12	47.6	222.2	66.7	117.5	66.5	170.7	171.4	215.9	-	168.27
200	419.1	349.2	31.7	12	55.6	273.0	76.2	133.3	76.2	221.5	222.2	269.9	-	219.07
250	508.0	431.8	34.9	16	63.5	342.9	85.7	152.4	111.2	276.3	277.4	323.8	-	273.05
300	558.8	488.9	34.9	20	66.7	400.0	92.1	155.6	117.3	327.1	328.2	381.0	-	323.85
350	603.2	527.0	38.1	20	69.9	431.8	93.7	165.1	127.0	359.1	360.1	412.7	-	355.60
400	685.8	603.2	41.3	20	76.2	495.3	106.4	177.8	139.7	410.5	411.2	469.9	-	406.40
450	742.9	654.0	44.4	20	82.6	546.1	117.5	184.1	152.4	461.8	462.3	533.4	-	457.20
500	812.8	723.9	44.4	24	88.9	609.9	127.0	190.5	165.1	513.1	514.3	584.2	-	508.00
600	939.8	838.2	50.8	24	101.6	717.5	139.7	203.2	184.1	615.9	615.9	692.1	-	609.60

All Dimensions are in Millimeters • Flanges except Lap Joint will be furnished with (6.35mm) Raised Face, which is not included in Thickness(C) and Length through Hub(Y).

ASA 900 CLASS

Nominal Pipe Size (MM)	Flange Dia O	Dia of Bolt Circle A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Hub E	Length through Hub			Dia of Bore		Dia of R/F R	Depth of Socket F	Pipe Dia X
							S/O & S/W Y	W/N Y	L/J Y	S/O & S/W B	L/J B			
15	120.6	82.5	22.2	4	22.2	38.1	31.7	60.3	31.7	22.3	22.8	34.9	9.5	21.33
20	130.2	88.9	22.2	4	25.4	44.4	34.9	69.8	35.0	27.7	28.1	42.9	11.1	26.67
25	149.2	101.6	25.4	4	28.6	52.4	41.3	73.0	41.1	34.5	35.0	50.8	12.7	33.40
32	158.7	111.1	25.4	4	28.6	63.5	41.3	73.0	41.1	43.2	43.6	63.5	14.2	42.16
40	177.8	123.8	28.6	4	31.8	69.8	44.4	82.5	44.4	49.5	50.0	73.0	15.8	48.26
50	215.9	165.1	25.4	8	38.1	104.8	57.1	101.6	57.1	62.0	62.4	92.1	17.4	60.31
65	244.5	190.5	28.6	8	41.3	123.8	63.5	104.8	63.5	74.1	75.4	104.8	19.0	73.02
80	241.3	190.5	25.4	8	38.1	127.0	53.9	101.6	53.8	90.7	91.4	127.0	-	88.90
100	292.1	234.9	31.7	8	44.4	158.7	69.8	114.3	69.8	116.0	116.8	157.2	-	114.30
125	349.2	279.4	35.0	8	50.8	190.5	79.3	127.0	79.2	143.7	144.5	185.7	-	141.30
150	381.0	317.5	31.7	12	55.6	234.9	85.8	139.7	85.8	170.6	171.4	215.9	-	168.27
200	469.9	393.7	38.1	12	63.5	298.4	101.6	162.0	114.3	221.4	222.2	269.9	-	219.07
250	546.1	469.9	38.1	16	69.8	368.3	107.9	184.1	127.0	276.3	277.3	323.8	-	273.05
300	609.6	533.4	38.1	20	79.3	419.1	117.4	200.0	142.7	327.1	328.1	381.0	-	323.85

All Dimensions are in Millimeters • Flanges except Lap Joint will be furnished with (6.35mm) Raised Face, which is included in Thickness(C) and Length through Hub(Y).

DIMENSION OF PIPE FLANGES AS PER TABLE BS - 10

Table D

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	Dia. of Bolt	Thickness
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	235.0	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

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	87.6	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	235.0	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"	527.1	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	641.4	16	22.2	31.8
24"	825.5	755.7	16	25.4	38.1

Table F

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	Dia. of Bolt	Thickness
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

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

Nominal Pipe Size	Dia of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
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

DIMENSION OF PIPE FLANGES AS PER DIN STANDARD

N D - 10

Nominal Pipe Size (in mm)	Flange Diameter mm	Flange thickness	Number of holes	Diameter of holes mm	P.C.D. mm
15	95	14	4	14	65
20	105	16	4	14	75
25	115	16	4	14	85
32	140	16	4	18	100
40	150	16	4	18	110
50	165	18	4	18	125
65	185	18	4	18	145
80	200	20	4	18	160
100	220	20	8	18	180
125	250	22	8	18	210
150	285	22	8	22	240
200	340	24	8	22	295
250	395	26	12	22	350
300	445	28	12	22	400
350	550	28	16	22	460
400	565	32	16	26	515
450	615	38	20	26	565
500	670	38	20	26	620
600	780	40	20	26	725

N D - 16

Nominal Pipe Size (in mm)	Flange Diameter mm	Flange thickness steel mm.	Number of holes	Diameter of holes mm	P.C.D. mm
15	95	14	4	14	65
20	105	16	4	14	75
25	115	16	4	14	85
32	140	16	4	18	100
40	150	16	4	18	110
50	165	18	4	18	125
65	185	18	4	18	145
80	200	20	8	18	160
100	220	20	8	18	180
125	250	22	8	18	210
150	285	22	8	23	240
200	340	24	12	23	295
250	405	26	12	27	355
300	460	28	12	27	410
350	520	30	16	27	470
400	580	32	16	30	525
450	640	34	20	30	585
500	715	34	20	33	650
600	840	36	20	36	770

N D - 40

Nominal Pipe Size (in mm)	Flange Diameter mm	Flange thickness steel mm.	Number of holes	Diameter of holes mm	P.C.D. mm
15	95	16	4	14	65
20	105	18	4	14	75
25	115	18	4	14	85
32	140	18	4	18	100
40	150	18	4	18	110
50	165	20	4	18	125
65	185	22	4	18	145
80	200	24	8	18	160
100	235	24	8	23	190
125	270	26	8	27	220
150	300	28	8	27	250
200	375	34	12	30	320
250	450	38	12	33	385
300	515	42	16	33	450
350	580	46	16	36	510
400	660	50	16	39	585
500	755	52	20	42	670

IS - 1538

Nominal Pipe Size (in mm) mm	Diameter of Flange mm	P.C.D. mm	Holes		Thickness mm
			Number mm	Diameter mm	
80	200	160	4	19	21
100	220	180	8	19	22
125	250	210	8	19	22.5
150	285	240	8	23	23
200	340	295	8	23	24.5
250	395	350	12	23	26
300	445	400	12	23	27.5
350	505	450	16	23	29
400	565	515	16	28	30
500	670	620	20	28	33

Important Tolerances B16.5 - 2009			
Outside Diameter	O	If O $\leq$ 610 mm	+1.6, -1.6
		If O > 610 mm	+3.1, -3.1
Inside Diameter	B	If NPS $\leq$ 10"	+0.8, -0.0
		If NPS $\geq$ 12"	+1.5, -0.0
Diameter of Hub	X	If NPS $\leq$ 12"	+2.4, -1.5
		If NPS $\geq$ 14"	+3.1, -3.1
Hub Dia at Weld Point	Ah	If NPS $\leq$ 5"	+2, -1
		If NPS $\geq$ 6"	+4, -1
Raised Face Dia	R	If 150#, 300#	+0.8, -0.8
		If 400#	+0.4, -0.4
Drilling	W	PCD	+0.8, -0.8
		Hole Spacing	+0.4, -0.5
Flange Thickness	Tf	If NPS $\leq$ 18"	+3, -0
		If NPS $\geq$ 20"	+5, -0
Length Through Hub	Y	If NPS $\leq$ 4"	+1.5, -1.5
		If 5" $\leq$ NPS $\leq$ 10"	+1.5, -3
		If NPS $\geq$ 12"	+3, -5
Bore	B	WNRF 150#	+1, -1
		WNRF 300#	+0, -1
		SOLJ	+1, 0
		SW	+0.25, -0.25



WELDNECK FLANGE



SLIP ON FLANGE

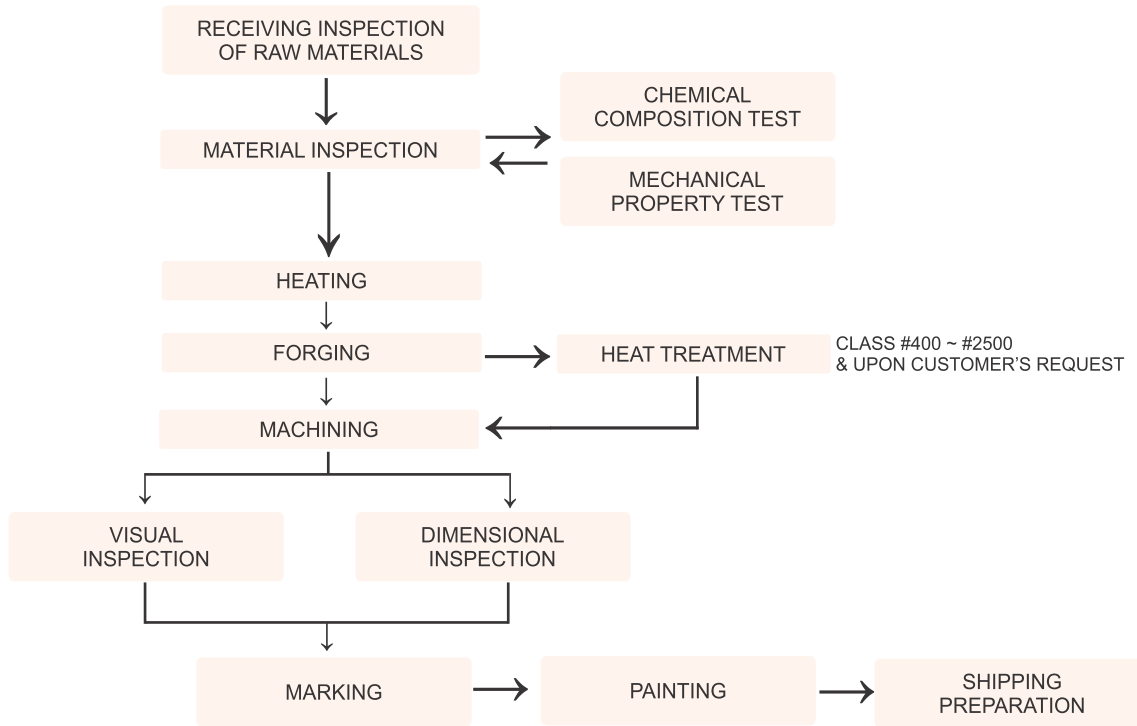


BLIND FLANGE



Our Quality Process:-

Though we are engaged in sourcing the products, we have in-house QC&A (Quality Control & Assurance) Department to test the quality of the products. Here, all the products are strictly tested



Under the supervision of our quality control experts. Each product passes through rigorous quality checks prior to the dispatch of the consignment.

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- ★ OIL & GAS
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- ★ PULP & PAPER PLANT
- ★ ACID INDUSTRIES
- ★ CEMENT PLANTS
- ★ WATER TREATMENTS
- ★ TEXTILE & RUBBER
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