



MSME
सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES
UDYAM-MH-19-0126657



An ISO 9001 : 2015 Certified Co.

SPECIALISED MANUFACTURER STAINLESS STEEL

- **FLANGES**
- **BUTTWELD FITTINGS**
- **FORGED FITTINGS**

PRECISION FORGED FLANGES



www.gopalforge.com

COMPANY PROFILE

Gopal Forge Industries Founded in 2006 is a distinguished ISO 9001:2015 certified firm specializing in the manufacturing and export of flanges and pipeline fittings. With a commitment to excellence and innovation, Gopal Forge Industries has emerged as a leading player in the Global market, serving diverse sectors including Oil & Gas, Food Processing, Dairy, Breweries, Pharmaceuticals, Power Generation, Petrochemical & Nuclear Industries. We are the artisans of metal refinement, dedicated to crafting precision-engineered solutions that exceed expectations. Specializing in the manufacturing of Flanges, Butt weld & Seamless Pipe Fittings, Dairy Fittings, and Forged Fittings, we are the cornerstone of reliability in the industry.

Our Distinctive Offerings :-

- **Versatile Materials:** From Stainless Steel to Duplex & Super Duplex Steel, Carbon Steel to Alloy Steel and beyond, we harness an extensive array of materials to meet every need.
- **Unrivalled Expertise:** With a mastery of High Performance Nickel Alloys, Super Alloys, Non-Ferrous Metals & Alloys, and Copper Alloys, we ensure unparalleled performance in every component.
- **Bespoke Solutions:** Beyond standard offerings, we excel in crafting Non-Standard Items tailored precisely to our customers' specifications, setting new standards of customization and flexibility.
- **Comprehensive Supply:** In addition to manufacturing, we pride ourselves on being a trusted source for Bars, Rods, Wires, Sheets, Plates, Coils, Valves, Fasteners, and more, providing a one-stop solution for all metal requirements.

At **Gopal Forge Industries**, excellence is not just a goal; it's our culture. Every component that bears our name is a testament to our unwavering commitment to quality, durability, and precision. Our state-of-the-art facilities, coupled with a team of skilled artisans and engineers, ensure that every product meets the highest standards of craftsmanship and performance. Our strength lies in our keen understanding of market trends and our ability to select products and materials that meet the evolving needs of our customers. With our integrated, fast and efficient global supply chain, we offer alternative, cost-competitive and reliable solutions to support our customers' businesses. This commitment has enabled us to establish long-standing partnerships with both national and international clients.



QUALITY ASSURANCE

We take pride in ensuring the quality of all materials we supply. Each product is accompanied by test certificates, and all testing is conducted in government-approved laboratories. Moreover, we offer the option for third-party inspections through reputable agencies such as DNV, PDIL, TUV, SGS, UDHE, EIL, I.B.R., BUREAU VERITAS, JH&G, LLOYD'S REGISTER, Tata, IR Class. We look forward to the possibility of working together.



PARTNERSHIP OPPORTUNITIES

We welcome the opportunity to collaborate with your esteemed organization. Please forward us your regular inquiries and requirements, allowing us the chance to serve you effectively.



FEEDBACK & INQUIRIES

Your satisfaction is our priority. Should you have any suggestions or queries on how we can better serve you, please don't hesitate to reach out to us. We are committed to continually improving our services to meet your needs. Welcome to a new era of metal mastery. Welcome to Gopal Forge Industries. We look forward to the possibility of working together.

CERTIFICATES :-





FLANGES

Stainless Steel : ASTM A182F 304/304L/304H/316/316L/316H/317/317L/ 321/321H/ 310 /347/347H/904L etc.

Carbon Steel : ASTM A105/A350 LF2, etc.

Alloy Steel : ASTM A182 F1/F5/F9/F11/F22/F91/AISI 4130/ AISI 4140

Others : Duplex, Super Duplex, Monel, Nickel, Inconel, Hastelloy, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead, etc.

Types : Weldneck, Slipon, Blind, Socket Weld, Lap Joint, Spectacles, Ring Joint, Oriface, Long Weldneck, Deck Flange, etc.

Size : 1/2" NB TO 24" NB.

Class : 150#, 300#, 400#, 600#, 900#, 1500# & 2500#,



FORGED FITTINGS

Stainless Steel : ASTM A182F 304/304L/304H/316/316L/316H/317/317L/321/321H/310/ 347/ 347H/904L etc.

Carbon Steel : ASTM A105/A 350 LF2, etc.

Alloy Steel : ASTM A182 F1/F5/F9/F11/F22/F91/AISI 4130/AISI 4140

Others : Duplex, Super Duplex, Inconel, Monel Hastelloy, Nickel, Alloy 20, 254 SMO, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead, etc.

Types : Elbow, Tee, Union, Cross, Coupling, Cap, Bushing, Plug, Swage Nipple, Welding Boss, Hexagon Nipple, Barrel Nipple, Welding Nipple, Parraler Nipple, Street Elbow, Hexagon Nut, Hose Nipple, Bend, Adapter, Insert, Weldolet, Elbolet, Sockolet, Thredolet, Nipolet, Latrolet.

Size : 1/4" NB TO 4" NB. (Socketweld & Threaded)

Class : 3000#, 6000#, 9000#.



BUTTWELD FITTINGS

Stainless Steel : ASTM A403 WP 304/304L/304H/316/316L/316H/ 317/317L/321/ 321H /310/347/347H/904L etc.

Carbon Steel : ASTM A234 WPB/A420 WPL3/A420 WPL6/MSS-SP-75 WPHY 42/46/52/56/60/65/70

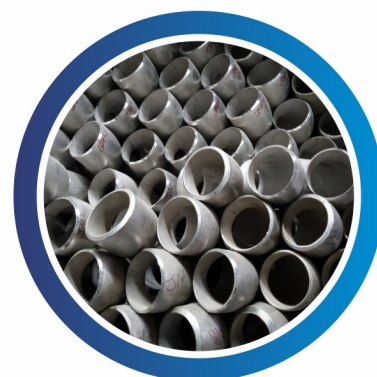
Alloy Steel : ASTM A234 WP1/WP5/WP9/WP11/WP22/WP91/AISI 4130/AISI4140

Others : Duplex, Super Duplex, Inconel, Monel Hastelloy, Nickel, Alloy 20, 254 SMO, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead, etc.

Types : Elbow, Tee, Reducer, Return Bends, Stub-Ends, Cap, Collar, Cross, Insert etc.

Size : 1/4" NB TO 32" NB. (Seamless & Welded)

Wall Thickness : Sch. 5S To Sch. XXS.



PIPES & TUBES

Stainless Steel : ASTM A312 GR TP 304/304L/304H/316/316L/316H/ 317/317L/321/ 321H/ 310/347/347H/904L etc.

Carbon Steel : ASTM A53 GR. B/A106 GR. B/API 5L GR. B/API 5L GR. X42/46/52/56/ 60/65/ 70/ A333 GR. 3/GR. 6 etc.

Alloy Steel : ASTM A335 GR. P1/P5/P9/P11/P22/P91 etc.

Others : Duplex, Super Duplex, Inconel, Monel, Hastelloy, Nickel, Alloy 20, 254 SMO, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead, etc.

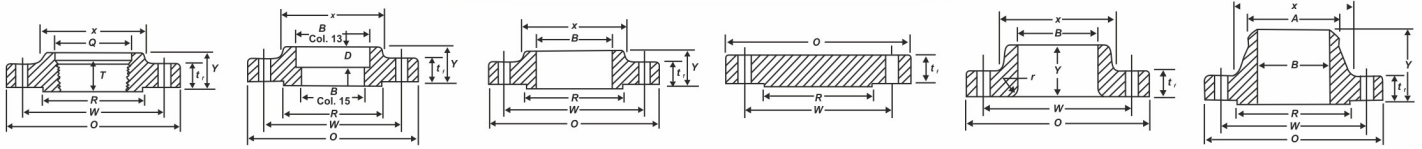
Types : Round, Square, Rectangular.

Size : Upto 24" NB. (Seamless & Welded)

Wall Thickness : Sch. 5S to Sch. XXS



DIMENSIONS OF CLASS 150 FLANGES



1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20
Nominal Pipe Size NPS	Outside Diameter of Flange	Thickness of Flange, Min., t _f	Thick- ness Lap Joint Min., t _l	Drilling			Hub Diameter Begin- ning of Chamfer Welding Neck A	Length Thru Hub			Threaded/ Length Threaded Min., T	Bore			Welding Neck/ Socket Welding B [Note (2)]	Comer Radius of Bore of Lapped Flange and Pipe, R	Depth of Socket, D	Dia- meter of RF R
				Diameter of Bolt Circle W	Diameter of Bolt Holes	Number of Bolts		Threaded/ Slip-On/ Socket Welding, Y	Lapped, Y	Welding Neck, Y		Slip-On/ Socket Welding, Min. B	Lapped Min., B	Welding Neck/ Socket Welding B [Note (2)]				
1/2	89	9.7	11.2	60.3	15.9	4	30	21.3	14	16	46	16	22.2	22.9	15.8	3	10	34.9
3/4	99	11.2	12.7	69.8	15.9	4	38	26.7	14	16	51	16	27.7	28.2	20.9	3	11	42.9
1	108	12.7	14.3	79.4	15.9	4	49	33.4	16	17	54	17	34.5	34.9	26.6	3	13	50.8
1 1/4	117	14.3	15.9	88.9	15.9	4	59	42.2	19	21	56	21	43.2	43.7	35.1	5	14	63.5
1 1/2	127	15.9	17.5	98.4	15.9	4	65	48.3	21	22	60	22	49.5	50.0	40.9	6	16	73.0
2	152	17.5	19.1	120.7	19.1	4	78	60.3	24	25	62	25	61.9	62.5	52.5	8	17	92.1
2 1/2	178	20.7	22.3	139.7	19.1	4	90	73.0	27	29	68	29	74.6	75.4	62.7	8	19	104.8
3	190	22.3	23.9	152.4	19.1	4	108	88.9	29	30	68	30	90.7	91.4	77.9	10	21	127.0
3 1/2	216	22.3	23.9	177.8	19.1	8	122	101.6	30	32	70	32	103.4	104.1	90.1	10	....	139.7
4	229	22.3	23.9	190.5	19.1	8	135	114.3	32	33	75	33	116.8	116.8	102.3	11	....	157.2
5	254	22.3	23.9	215.9	22.3	8	164	141.3	35	36	87	36	143.8	144.4	128.2	11	....	185.7
6	279	23.9	25.4	241.3	22.3	8	192	168.3	38	40	87	40	170.7	171.4	154.1	13	....	215.9
8	343	27.0	28.6	298.2	22.3	8	246	219.1	43	44	100	44	221.5	222.2	202.7	13	....	269.9
10	406	28.6	30.2	362.0	25.4	12	3.5	273.0	48	49	100	49	276.2	277.4	254.6	13	....	323.8
12	483	30.2	31.8	431.8	25.4	12	365	323.8	54	56	113	56	327.0	328.2	304.8	13	....	381.0
14	533	33.4	35.0	476.3	28.6	12	400	355.6	56	79	125	57	359.2	360.2		13	....	412.8
16	597	35.0	36.6	539.8	28.6	16	457	406.4	62	87	125	64	410.5	411.2		13	....	469.9
18	635	38.1	39.7	577.9	31.8	16	505	457.0	67	97	138	68	461.8	462.3		13	....	533.4
20	698	41.1	42.9	635.0	31.8	20	559	508.0	71	103	143	73	513.1	514.4		13	....	584.2
24	813	46.1	47.7	749.3	35.0	20	663	610.0	81	111	151	83	616.0	616.0		13	....	692.2

DIMENSIONS OF CLASS 300 FLANGES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Nominal Pipe Size NPS	Outside Diameter of Flange o	Thickness of Flange, Min., t _f	Thick- ness Lap Joint Min., t _l	Drilling			Hub Diameter Begin- ning of Chamfer Welding Neck A	Length Thru Hub			Threaded/ Length Threaded Min., T	Bore			Welding Neck/ Socket Welding B [Note (2)]	Comer Radius of Bore of Lapped Flange and Pipe, R	Counter- bore Threaded FLANGE Min., Q	Depth of Socket, D	Dia- meter of RF R
				Diameter of Bolt Circle W	Diameter of Bolt Holes	Number of Bolts		Threaded/ Slip-On/ Socket Welding, Y	Lapped, Y	Welding Neck, Y		Slip-On/ Socket Welding, Min. B	Lapped Min., B	Welding Neck/ Socket Welding B [Note (2)]					
1/2	95	12.7	14.3	66.7	15.9	4	38	21.3	21	22	51	16	22.2	22.9	15.8	3	23.6	10	34.9
3/4	117	14.3	15.9	82.6	19.1	4	48	26.7	24	25	56	16	27.7	28.2	20.9	3	29.0	11	42.9
1	124	15.9	17.5	88.9	19.1	4	54	33.4	25	27	60	18	34.5	34.9	26.6	3	35.8	13	50.8
1 1/4	133	17.5	19.1	98.4	19.1	4	64	42.2	25	27	64	21	43.2	43.7	35.1	5	44.4	14	63.5
1 1/2	155	19.1	20.7	114.3	22.2	4	70	48.3	29	30	67	23	49.5	50.0	40.9	6	50.3	16	73.0
2	165	20.7	22.3	127.0	19.0	8	84	60.3	32	33	68	29	61.9	62.5	52.5	8	63.5	17	92.1
2 1/2	190	23.9	25.4	149.2	22.3	8	100	73.0	37	38	75	32	74.6	75.4	62.7	8	76.2	19	104.8
3	210	27.0	28.6	168.1	22.3	8	117	88.9	41	43	78	32	90.7	91.4	77.9	10	92.2	21	127.0
3 1/2	229	28.6	30.2	184.2	22.3	8	133	101.6	43	44	79	37	103.4	104.1	90.1	10	104.9	....	139.7
4	254	30.2	31.8	200.0	22.3	8	146	114.3	46	48	84	37	116.1	116.8	102.3	11	117.6	....	157.2
5	279	33.4	35.0	235.0	22.3	8	178	141.3	49	51	97	43	143.8	144.4	128.2	11	144.4	....	185.7
6	318	35.0	36.6	269.9	22.3	12	206	168.3	51	52	97	47	170.7	171.4	154.1	13	171.1	....	215.9
8	381	39.7	41.3	330.2	25.4	12	260	219.1	60	62	110	51	221.5	222.2	202.7	13	222.2	....	269.9
10	444	46.1	47.7	387.4	28.6	16	321	273.0	65	95	116	56	276.2	277.4	254.6	13	276.2	....	323.8
12	521	49.3	50.8	450.8	31.8	16	375	323.8	71	102	129	61	327.0	328.2	304.8	13	328.6	....	381.0
14	584	52.4	54.0	514.4	31.8	20	425	355.6	75	111	141	64	359.2	360.2		13	360.4	....	412.8
16	648	55.6	57.2	571.5	35.0	20	483	406.4	81	121	144	69	410.5	411.2		13	411.2	....	469.9
18	711	57.8	60.4	628.6	35.0	24	533	457.0	87	130	157	70	461.8	462.3		13	462.0	....	533.4
20	775	62.0	63.5	685.8	35.0	24	587	508.0	94	140	160	74	513.1	514.4		13	512	....	584.2
24	914	68.3	69.9	812.8	41.3	24	702	610.0	105	152	167	83	616.0	616.0		13	614.4	....	692.2

NOTE : (1) Height of RF 1.5 mm

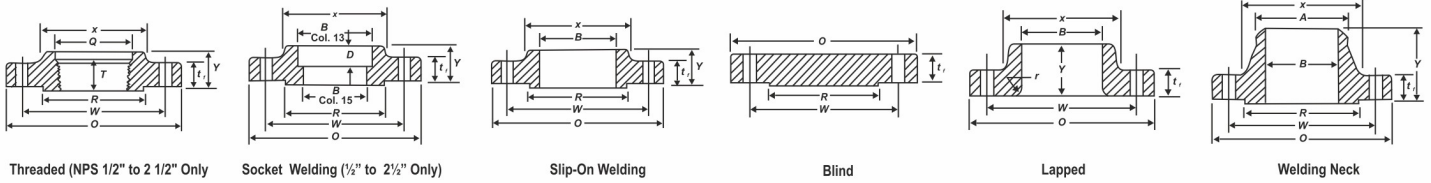
(2) Dimension in Column 16 Correspond to the inside diameters of pipe as given in ASME B36.10M for Standard Wall pipe,

Thickness of Standard Wall is the same as Schedule 40 in sizes NPS 10 and smaller. These bore sizes are furnished unless otherwise specified by the purchaser.

As Per ASME B.16.5 Standard 2020



DIMENSIONS OF CLASS 600 FLANGES



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Nominal Pipe Size NPS	Outside Diameter of Flange O	Thickness of Flange, Min., t	Diameter of Hub, X	Drilling			Hub Diameter Begin- ning of Chamfer Welding Neck, A	Length Thru Hub			Threaded/ Length Threaded Flange Min., T	Bore			Corner Radius of Bore of Lapped Flange and Pipe, r	Counter- bore Threaded Flange Min., Q	Socket Weld D	Diameter of RF R
				Diameter of Bolt Circle, W	Diameter of Bolt Holes, in.	Number of Bolts		Threaded/ Slip-On, Y	Lapped, Y	Welding Neck, Y		Slip-On Min., B	Lapped Min., B	Welding Neck, B				
1/2	95	14.3	38	66.5	15.9	4	21.3	22	22	52	16	22.2	22.9		3	23.6	10	34.9
3/4	117	15.9	48	82.6	19.1	4	26.7	25	25	57	16	27.7	28.2		3	29.0	11	42.9
1	124	17.5	54	88.9	19.1	4	33.4	27	27	62	18	34.5	34.9		3	35.8	13	50.8
1 1/4	133	20.7	64	98.6	19.1	4	42.2	29	29	67	21	43.2	43.7		5	44.4	14	63.5
1 1/2	155	22.3	70	114.3	22.3	4	48.3	32	32	70	23	49.5	50.0		6	50.6	16	73.0
2	165	25.4	84	127.0	19.1	8	60.3	37	37	73	29	61.9	62.5		8	63.5	17	92.1
2 1/2	190	28.6	100	149.2	22.3	8	73.0	41	41	79	32	74.6	75.4		8	76.2	19	104.8
3	210	31.8	117	168.3	22.3	8	88.9	46	46	83	35	90.7	91.4		10	92.2	21	127.0
4	273	38.1	152	215.9	25.4	8	114.3	54	54	102	42	116.8	116.8	To be Specified by Purchaser	11	117.6	---	157.2
5	330	44.5	189	266.7	28.6	8	141.3	60	60	114	48	143.8	144.4		11	144.4	---	185.7
6	356	47.7	222	292.1	28.6	12	168.3	67	67	117	51	170.7	171.4		13	171.4	---	215.9
8	419	55.6	273	349.2	31.8	12	219.1	76	76	133	58	221.5	222.2		13	222.2	---	269.9
10	508	63.5	343	431.8	35.0	16	273.0	86	111	152	66	276.2	277.4		13	276.2	---	323.8
12	559	66.7	400	489.0	35.0	20	323.8	92	117	156	70	327.0	328.2		13	328.6	---	381.0
14	603	69.9	432	527.0	38.1	20	355.6	94	127	165	74	359.2	360.2		13	360.4	---	412.8
16	686	76.2	495	603.2	41.3	20	406.4	106	140	178	78	410.5	411.2		13	411.2	---	469.9
18	743	82.6	546	654.0	44.5	20	457.0	117	152	184	80	461.8	462.3		13	462.0	---	533.4
20	813	88.9	610	723.9	44.5	24	508.0	127	165	190	83	513.1	514.4		13	512.8	---	584.2
24	940	101.6	718	838.2	50.8	24	610.0	140	184	203	93	616.0	616.0		13	614.4	---	692.2

Note : (1) Height of RF 6.4 mm

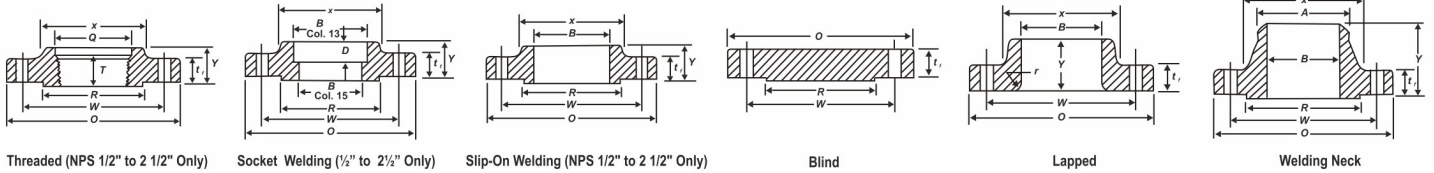
DIMENSIONS OF CLASS 900 FLANGES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Nominal Pipe Size NPS	Outside Diameter of Flange O	Thickness of Flange, Min., t	Diameter of Hub, X	Drilling			Hub Diameter Begin- ning of Chamfer Welding Neck, A	Length Thru Hub			Threaded/ Length Threaded Flange Min., T	Bore			Corner Radius of Bore of Lapped Flange and Pipe, r	Counter- bore Threaded Flange Min., Q	Socket Weld D	Diameter of RF R
				Diameter of Bolt Circle, W	Diameter of Bolt Holes, in.	Number of Bolts		Threaded/ Slip-On, Y	Lapped, Y	Welding Neck, Y		Slip-On Min., B	Lapped Min., B	Welding Neck, B				
1/2	121	22.3	38	82.6	22.3	4	21.3	32	32	60	23	22.2	22.9		3	23.6	10	34.9
3/4	130	25.4	44	88.9	22.3	4	26.7	35	35	70	26	27.7	28.2		3	29.0	11	42.9
1	149	28.6	52	101.6	25.4	4	33.4	41	41	73	29	34.5	34.9		3	35.8	13	50.8
1 1/4	159	28.6	64	111.1	25.4	4	42.2	41	41	73	31	43.2	43.7		5	44.4	14	63.5
1 1/2	178	31.8	70	124.0	28.6	4	48.3	44	44	83	32	49.5	50.0		6	50.6	16	73.0
2	216	38.1	105	165.1	25.4	8	60.3	57	57	102	39	61.9	62.5		8	63.5	17	92.1
2 1/2	244	41.3	124	190.5	28.6	8	73.0	64	64	105	48	74.6	75.4		8	76.2	19	104.8
3	241	38.1	127	190.5	25.4	8	88.9	54	54	102	42	90.7	91.4	To be Specified by Purchaser	10	92.2	---	127.0
4	292	44.5	159	235.0	31.8	8	114.3	70	70	114	48	116.8	116.8		11	117.6	---	159.0
5	349	50.8	190	279.4	35.0	8	141.3	79	79	127	54	143.8	144.4		11	144.4	---	185.7
6	381	55.6	235	317.5	31.8	12	168.3	86	86	140	58	170.7	171.4		13	171.4	---	215.9
8	470	63.5	298	393.7	38.1	12	219.1	102	114	162	64	221.5	222.2		13	222.2	---	269.9
10	546	69.9	368	469.9	38.1	16	273.0	108	127	184	72	276.2	277.4		13	276.2	---	323.8
12	610	79.2	419	533.4	38.1	20	323.8	117	143	200	77	327.0	328.2		13	328.6	---	381.0
14	641	85.8	451	558.8	41.3	20	355.6	130	156	213	83	359.2	360.2		13	360.4	---	415.8
16	705	88.9	508	616.0	44.5	20	406.4	133	165	216	86	410.5	411.2		13	411.2	---	469.9
18	787	101.6	565	685.8	50.8	20	457.0	152	190	229	89	461.8	462.3		13	462.0	---	533.4
20	857	108.0	622	749.3	54.0	20	508.0	159	210	248	93	513.1	514.4		13	512.8	---	584.2
24	1,041	139.7	749	901.7	66.7	20	610.0	203	267	292	102	616.0	616.0		13	614.4	---	692.2

Note : (1) Height of RF 6.4 mm

As Per ASME B.16.5 Standard 2020

DIMENSIONS OF CLASS 1500 FLANGES



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Nominal Pipe Size NPS	Outside Diameter of Flange O	Thickness of Flange, Min., t	Diameter of Hub, X	Drilling			Hub Diameter Beginning of Chamfer Welding Neck, A	Length Thru Hub			Threaded/Length Threaded Flange Min., T	Bore			Corner Radius of Bore of Lapped Flange and Pipe, r	Counter-bore Threaded Flange Min., Q	Socket Weld D	Diameter of RF R
				Diameter of Bolt Circle, W	Diameter of Bolt Holes, in.	Number of Bolts		Threaded/ Slip-On, Y	Lapped, Y	Welding Neck, Y		Slip-On Min., B	Lapped Min., B	Welding Neck/ Socket Welding, B				
1/2	121	22.3	38	82.6	22.3	4	21.3	32	32	60	23	22.2	22.9	To be Specified by Purchaser	3	23.8	10	34.9
3/4	130	25.4	44	88.9	22.3	4	26.7	35	35	70	26	27.7	28.2		3	29.0	11	42.9
1	149	28.6	52	101.6	25.4	4	33.4	41	41	73	29	34.5	34.9		3	35.8	13	50.8
1 1/4	159	28.6	64	111.1	25.4	4	42.2	41	41	73	31	43.2	43.7		5	44.4	14	63.5
1 1/2	178	31.8	70	123.8	28.6	4	48.3	44	44	83	32	49.5	50.0		6	50.6	16	73.0
2	216	38.1	105	165.1	25.4	8	60.3	57	57	102	39	61.9	62.5		8	63.5	17	92.1
2 1/2	244	41.1	124	190.5	28.6	8	73.0	64	64	105	48	74.6	75.4		8	76.2	19	104.8
3	267	47.8	133	203.2	31.8	8	88.9	....	73	117	....	....	91.4		10	....	....	127.0
4	311	53.8	162	241.3	35.0	8	114.3	....	90	124	....	....	116.8		11	....	....	157.2
5	375	73.1	197	292.1	41.3	8	141.3	....	105	156	....	....	144.4		11	....	....	185.7
6	394	82.6	229	317.5	38.1	12	168.3	....	119	171	....	....	171.4		13	....	....	215.9
8	483	92.1	292	393.7	44.5	12	219.1	....	143	213	....	....	222.2		13	....	....	269.9
10	584	108.0	368	482.6	50.8	12	273.0	....	178	254	....	....	277.4		13	....	....	323.8
12	673	124.0	451	571.5	54.0	16	323.8	....	219	283	....	....	328.2		13	....	....	381.0
14	749	133.4	495	635.0	60.4	16	355.6	....	241	298	....	....	360.2		13	....	....	412.8
16	826	146.0	552	704.8	66.7	16	406.4	....	260	311	....	....	411.2		13	....	....	469.9
18	914	162.0	597	774.7	73.0	16	457.0	....	276	327	....	....	462.3		13	....	....	533.4
20	984	177.8	641	831.8	79.4	16	508.0	....	292	356	....	....	514.4		13	....	....	584.2
24	1168	203.2	762	990.6	92.1	16	610.0	....	330	406	....	....	616.0		13	....	....	692.2

Note : (1) Height of RF 6.4 mm

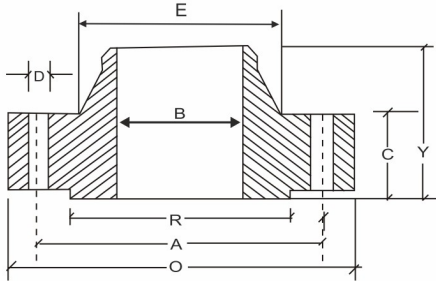
DIMENSIONS OF CLASS 2500 FLANGES

1	2	3	4	5		7	8	9			10	11	12		13	14	15	16	17
Nominal Pipe Size NPS	Outside Diameter of Flange O	Thickness of Flange, Min., t	Diameter of Hub, X	Drilling			Hub Diameter Begin- ning of Chamfer Welding Neck, A	Length Thru Hub			Bore			Corner Radius of Bore of Lapped Flange and Pipe, r	Counter- bore Threaded Flange Min., Q	Diameter of RF R			
				Diameter of Bolt Circle, W	Diameter of Bolt Holes, in.	Number of Bolts		Threaded/ Slip-On, Y	Lapped, Y	Welding Neck, Y	Threaded/ Length Threaded Flange Min., T	Lapped Min., B	Welding Neck/ Socket Welding, B						
½	133	30.2	43	88.9	22.3	4	21.3	40	40	73	29	22.9	To be Specified by Purchaser	3	23.6	34.9			
¾	140	31.8	51	95.2	22.3	4	26.7	43	43	79	32	28.2		3	29.0	42.9			
1	159	35.1	57	108.0	25.4	4	33.4	48	48	89	35	34.9		3	35.8	50.8			
1 ¼	184	38.1	73	130.2	28.6	4	42.2	52	52	95	39	43.7		5	44.4	63.5			
1 ½	203	44.4	79	146.0	31.8	4	48.3	60	60	111	45	50		6	50.6	73.0			
2	235	50.99	95	171.4	28.6	8	60.3	70	70	127	51	62.5		8	63.5	92.1			
2 ½	267	57.2	114	196.8	31.8	8	73.0	79	79	127	58	75.4		8	76.2	104.8			
3	305	66.5	133	228.6	35.0	8	88.9	....	92	168	....	91.4		10	....	127.0			
4	356	76.2	165	273.0	41.3	8	114.3	....	106	190	....	116.8		11	....	157.2			
5	419	92.1	203	323.8	47.7	8	141.3	....	130	229	....	144.4		11	....	185.7			
6	483	108.0	235	368.3	54.0	8	168.3	....	152	273	....	171.4		13	....	215.9			
8	552	127.0	305	438.2	54.0	12	219.1	....	178	318	....	222.2		13	....	269.9			
10	673	165.1	375	539.8	66.7	12	273.0	....	229	419	....	277.4		13	....	323.8			
12	762	184.2	441	619.3	73.0	12	323.8	....	254	464	....	328.2		13	....	381.0			

Note : (1) Height of RF 6.4 mm

As Per ASME B.16.5 Standard 2020

WELDING NECK FLANGE BORES (B)



WELDING NECK FLANGE

Nominal Pipe Size	Outside Dia	Sch 20	Sch 30	Std Wall/ Sch 40S	Sch 40	XS	Sch 80	Sch 120	Sch 160	XXS
15	21.33	-	-	15.7	15.7	13.8	13.8	-	11.7	6.4
20	26.67	-	-	20.9	20.9	18.8	18.8	-	15.5	11.0
25	33.40	-	-	26.6	26.6	24.3	24.3	-	20.7	15.2
32	42.2	-	-	35.0	35.0	32.5	32.5	-	29.4	22.8
40	48.3	-	-	40.9	40.9	38.1	38.1	-	34.0	28.0
50	60.3	-	-	52.5	52.5	49.2	49.2	-	42.8	38.1
65	73.0	-	-	62.7	62.7	59.0	59.0	-	53.9	44.9
80	88.9	-	-	77.9	77.9	73.6	73.6	-	66.6	58.4
100	114.3	-	-	102.2	102.2	97.1	97.1	92.0	87.3	80.0
125	141.3	-	-	128.2	128.1	122.2	122.2	115.9	109.5	103.2
150	168.3	-	-	154.0	154.0	146.3	146.3	139.7	131.7	124.3
200	219.1	206.2	204.9	202.7	202.7	193.7	193.7	182.5	173.0	174.6
250	273.0	260.3	257.4	254.0	254.5	247.6	242.8	230.1	251.8	222.2
300	323.85	311.1	307.0	304.8	303.2	298.4	288.8	273.0	257.2	273.0
350	355.6	337.8	336.5	336.5	333.3	330.2	371.5	300.0	284.1	-
400	406.4	390.3	387.3	387.3	381.0	381.0	363.5	344.5	325.4	-
450	457.2	441.1	434.9	438.0	428.4	431.6	409.3	387.1	366.7	-
500	508.0	488.9	482.6	488.9	477.8	482.6	455.6	431.8	407.9	-
600	610.0	590.5	581.0	590.9	575.0	584.2	548.1	518.0	490.9	-

All Fig. for Class 150#

ANSI FLANGE WEIGHTS (Kgs.)

All dimensions are in Millimeters.

Nominal Pipe size		150 Lb		300 Lb		600 Lb		900 Lb	
N.B.	INCH	WN	SO	WN	SO	WN	SO	WN	SO
15	1/2"	0.49	0.8	0.77	1.2	0.84	1.3	1.88	1.8
20	3/4"	0.73	0.9	1.31	1.4	1.41	1.4	2.51	2.3
25	1"	1.05	0.9	1.64	1.4	1.78	1.8	3.66	3.6
32	1 1/4"	1.36	1.4	2.11	1.8	2.39	2.3	4.25	4.1
40	1 1/2"	1.75	1.4	2.96	2.7	3.38	3.2	5.85	5.5
50	2"	2.62	2.3	3.49	3.2	4.14	4.1	10.9	11.5
65	2 1/2"	4.15	3.2	5.33	4.6	6.1	5.9	14.96	16.5
80	3"	4.99	3.7	7.14	5.9	8.17	7.3	13.34	12
100	4"	7.08	5.9	11.56	10	16.83	16.8	22.03	24
125	5"	8.88	6.8	15.48	12.7	28.4	29	35.38	38
150	6"	10.83	8.6	19.9	17.7	33.88	36	46.84	50
200	8"	17.96	13.7	30.75	26	51.54	52	80.11	78
250	10"	24.56	19.5	44.19	36	85.1	77	118.7	112
300	12"	38.04	29	64.02	52	101.82	91	157.35	148
350	14"	49.98	41	88.93	75	120.58	105	179.97	182
400	16"	62.29	54	110.9	86	169.07	150	216.67	193
450	18"	70.62	59	136.02	113	201.81	182	292.1	258
500	20"	86.76	75	164.55	143	252.51	232	362.87	317
600	24"	118.1	100	238.05	216	354.91	332	665.87	608

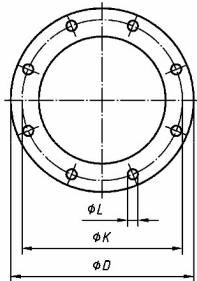
NOTE : 1. ALL Weights in Kgs For Standard Weld Neck Flange with RF

2. Different grades of stainless steel have different specific densities and hence their weight may be less than or greater than the weights listed in this table.

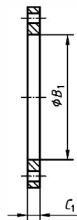
As per Standard ASME B16.5-2020



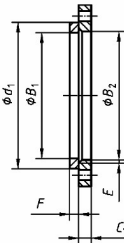
DIMENSIONS OF PN 10 FLANGES



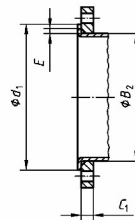
This diagram illustrates the arrangement but not necessarily the correct number of bolt holes. Refer to the column "Bolting Number" for the actual number.



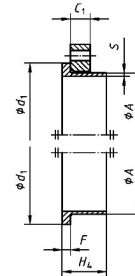
Type 01



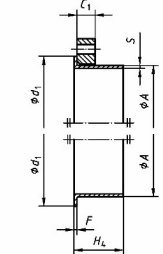
Type 02 and 32



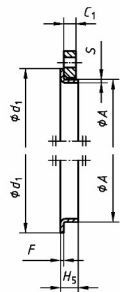
Type 02 and 33



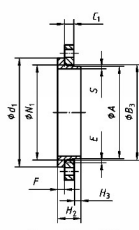
Type 02 and 35



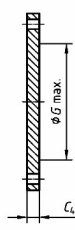
Type 02 and 36



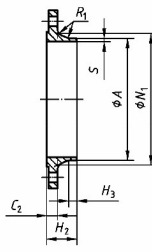
Type 02 and 37



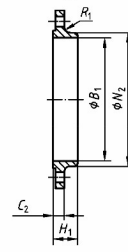
Type 04 and 34



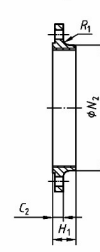
Type 05



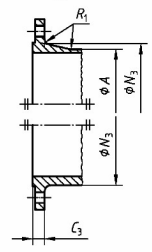
Type 11



Type 12



Type 13



Type 21

DN	Mating dimensions					Outside diameter of neck <i>A</i>	Bore diameters			Flange thick-ness				Cham-fer <i>E</i>	Collar thickness <i>F</i>			Diameter of shoulder <i>G</i> _{max}	Length <i>H</i> ₁ <i>H</i> ₂ <i>H</i> ₃ <i>H</i> ₄ <i>H</i> ₅					Neck diameters <i>N</i> ₁ <i>N</i> ₂ <i>N</i> ₃			Corner radii <i>R</i> ₁			
	Outside diameter <i>D</i>	Diameter of bolt circle <i>K</i>	Diameter of bolt hole <i>L</i>	Bolting Number Size																										
	Flange type																													
	01, 02, 04, 05, 11, 12, 13, 21						11 21 ^a 34 ^c 35-37	01 12 32	02	04	01 02 04	11 12 13	21	05	02 04	32 34	35	36	37	05	12 13	11 34 ^c	11 34 ^c	35	36	37	11 34 ^c	12 13	21	11 12 13 21, 34	34
10	90	60	14	4	M12	17,2	18,0	21	31	14	16	16	16	3	12	5	2	2,5	—	22	35	6	35	35	7	28	30	28	4	1,8
15	95	65	14	4	M12	21,3	22,0	25	35	14	16	16	16	3	12	5	2	2,5	—	22	38	6	38	38	7	32	35	32	4	2,0
20	105	75	14	4	M12	26,9	27,5	31	42	16	18	18	18	4	14	6	2,5	3	—	26	40	6	40	40	8	40	45	40	4	2,3
25	115	85	14	4	M12	33,7	34,5	38	49	16	18	18	18	4	14	7	2,5	3	—	28	40	6	40	40	10	46	52	50	4	2,6
32	140	100	18	4	M16	42,4	43,5	47	59	18	18	18	18	5	14	8	3	3	—	30	42	6	42	42	12	56	60	60	6	2,6
40	150	110	18	4	M16	48,3	49,5	53	67	18	18	18	18	5	14	8	3	3	—	32	45	7	45	45	15	64	70	70	6	2,6
50	165	125	18	4	M16	60,3	61,5	65	77	20	18	18	18	5	16	8	3	4	—	28	45	8	45	45	20	74	84	84	6	2,9
65	185	145	18	8	M16	76,1	77,5	81	96	20	18	18	18	6	16	8	3	4	55	32	45	10	45	45	20	92	104	104	6	2,9
80	200	160	18	8	M16	88,9	90,5	94	108	20	20	20	20	6	16	10	3	4	70	34	50	10	50	50	25	105	118	120	6	3,2
100	220	180	18	8	M16	114,3	116,0	120	134	22	20	20	20	6	18	10	4	4	90	40	52	12	52	52	25	131	140	140	8	3,6
125	250	210	18	8	M16	139,7	141,5	145	162	22	22	22	22	6	18	10	4	4	115	44	55	12	55	55	25	156	168	170	8	4,0
150	285	240	22	8	M20	168,3	170,5	174	188	24	22	22	22	6	20	10	4	4	140	44	55	12	55	55	25	184	195	190	10	4,5
200	340	295	22	8	M20	219,1	221,5	226	240	24	24	24	24	6	20	11	5	4	190	44	62	16	62	62	30	234	246	246	10	6,3
250	395	350	22	12	M20	273,0	276,5	281	294	26	26	26	26	8	22	12	8	—	235	46	68	16	68	68	—	292	298	298	12	6,3
300	445	400	22	12	M20	323,9	327,5	333	348	26	26	26	26	8	22	12	8	—	285	46	68	16	68	68	—	342	350	348	12	7,1
350	505	460	22	16	M20	355,6	359,5	365	400	30	26	26	26	8	22	13	8	—	330	53	68	16	68	68	—	385	400	408	12	7,1
400	565	515	26	16	M24	406,4	411,0	416	450	32	26	26	26	8	24	14	8	—	380	57	72	16	72	72	—	440	456	456	12	7,1
450	615	565	26	20	M24	457,0	462,0	467	498	36	28	28	28	8	24	15	—	—	425	63	72	16	72	—	—	488	502	502	12	7,1
500	670	620	26	20	M24	508,0	513,5	519	550	38	28	28	28	8	26	16	—	—	475	67	75	16	75	—	—	542	559	559	12	7,1
600	780	725	30	20	M27	610,0	616,5	622	650	42	30	34	34	8	26	18	—	—	575	75	82	18	80	—	—	642	658	658	12	—
700	895	840	30	24	M27	711,0	b	721	—	50	35	—	38	8	—	20	—	—	670	—	85	18	80	—	—	746	—	772	12	—
800	1 015	950	33	24	M30	813,0		824	—	56	38	—	48	8	—	20	—	—	770	—	96	18	90	—	—	850	—	876	12	—

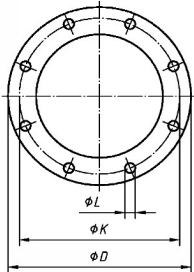
NOTE 1 Dimensions N_1 , N_2 and N_3 are measured at the intersection of the hub draft angle and the back face of the flange.

NOTE 2 Type 33; lapped pipe end without determination of thickness and height.

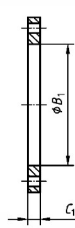




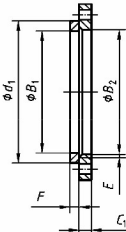
DIMENSIONS OF PN 16 FLANGES



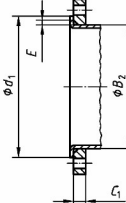
This diagram illustrates the arrangement but not necessarily the correct number of bolt holes. Refer to the column "Bolting Number" for the actual number.



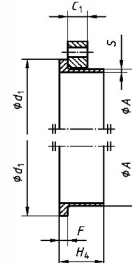
Type 01



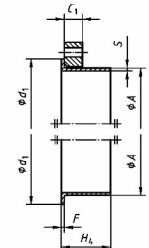
Type 02 and 32



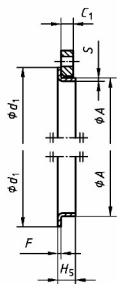
Type 02 and 33



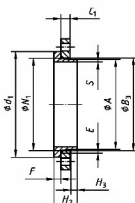
Type 02 and 35



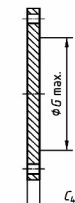
Type 02 and 36



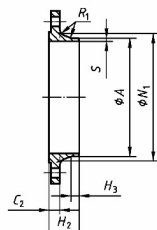
Type 02 and 37



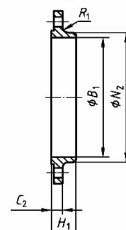
Type 04 and 34



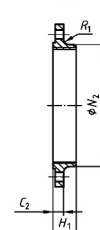
Type 05



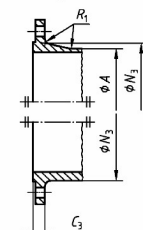
Type 11



Type 12



Type 13



Type 21

DN	Mating dimensions					Outside diameter of neck	Bore diameters			Flange thickness				Chamfer	Collar thickness			Diameter of shoulder	Length					Neck diameters				Corner radii		
	Outside di- ameter	Diameter of bolt circle	Diamete- r of bolt hole	Bolting			B ₁	B ₂	B ₃	C ₁	C ₂	C ₃	C ₄		E	F	G _{max}		H ₁	H ₂	H ₃	H ₄	H ₅	N ₁	N ₂	N ₃	R ₁			
				Number	Size																									
D	K	L			A																									
01, 02, 04, 05, 11, 12, 13, 21					11 21 ^a 34 ^d 35 - 37	01 12 32	02	04	01 02 04	11 12 13	21	05	02 04	32 34	35	36	37	05	12 13	11 34 ^c	11 34 ^c	35	36	37	11 34 ^e	12 13	21	11 12 13 21, 34	34	
10	90	60	14	4	M12	17,2	18,0	21	31	14	16	16	16	3	12	5	2	2,5	—	22	35	6	35	35	7	28	30	28	4	1,8
15	95	65	14	4	M12	21,3	22,0	25	35	14	16	16	16	3	12	5	2	2,5	—	22	38	6	38	38	7	32	35	32	4	2,0
20	105	75	14	4	M12	26,9	27,5	31	42	16	18	18	18	4	14	6	2,5	3	—	26	40	6	40	40	8	40	45	40	4	2,3
25	115	85	14	4	M12	33,7	34,5	38	49	16	18	18	18	4	14	7	2,5	3	—	28	40	6	40	40	10	46	52	50	4	2,6
32	140	100	18	4	M16	42,4	43,5	47	59	18	18	18	18	5	14	8	3	3	—	30	42	6	42	42	12	56	60	60	6	2,6
40	150	110	18	4	M16	48,3	49,5	53	67	18	18	18	18	5	14	8	3	3	—	32	45	7	45	45	15	64	70	70	6	2,6
50	165	125	18	4	M16	60,3	61,5	65	77	20	18	18	18	5	16	8	3	4	—	28	45	8	45	45	20	74	84	84	6	2,9
65	185	145	18	8 ^b	M16	76,1	77,5	81	96	20	18	18	18	6	16	8	3	4	55	32	45	10	45	45	20	92	104	104	6	2,9
80	200	160	18	8	M16	88,9	90,5	94	108	20	20	20	20	6	16	10	3	4	70	34	50	10	50	50	25	105	118	120	6	3,2
100	220	180	18	8	M16	114,3	116,0	120	134	22	20	20	20	6	18	10	4	4	90	40	52	12	52	52	25	131	140	140	8	3,6
125	250	210	18	8	M16	139,7	141,5	145	162	22	22	22	22	6	18	10	4	4	115	44	55	12	55	55	25	156	168	170	8	4,0
150	285	240	22	8	M20	168,3	170,5	174	188	24	22	22	22	6	20	10	5	5	140	44	55	12	55	55	25	184	195	190	10	4,5
200	340	295	22	12	M20	219,1	221,5	226	240	26	24	24	24	6	20	11	6	6	190	44	62	16	62	62	30	235	246	246	10	6,3
250	405	355	26	12	M24	273,0	276,5	281	294	29	26	26	26	8	22	12	10	—	235	46	70	16	70	68	—	292	298	296	12	6,3
300	460	410	26	12	M24	323,9	327,5	333	348	32	28	28	28	8	24	14	10	—	285	46	78	16	78	68	—	344	350	350	12	7,1
350	520	470	26	16	M24	355,6	359,0	365	400	35	30	30	30	8	26	18	10	—	330	57	82	16	82	68	—	390	400	410	12	8,0
400	580	525	30	16	M27	406,4	411,0	416	454	38	32	32	32	8	28	20	10	—	380	63	85	16	85	72	—	445	456	458	12	8,0
450	640	585	30	20	M27	457,0	462,0	467	500	42	34	40	40	8	30	22	—	—	425	68	83	16	87	—	—	490	502	516	12	8,0
500	715	650	33	20	M30	508,0	513,5	519	556	46	36	44	44	8	32	22	—	—	475	73	84	16	90	—	—	548	559	576	12	8,0
600	840	770	36	20	M33	610,0	616,5	622	660	55	40	54	54	8	32	24	—	—	575	83	88	18	95	—	—	670	658	690	12	8,8
700	910	840	36	24	M33	711,0		721	—	63	40		58	8	—	26	—	—	670	83	104	18	100	—		755	760	760	12	—
800	1 025	950	39	24	M36	813,0	c	824	—	74	41		62	8	—	28	—	—	770	90	108	20	105	—	—	855	864	862	12	—

^a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipe diameter.

^b According to EN 1092-2 (Cast iron flanges) and EN 1092-3 (Copper alloy flanges), the flanges in this DN and PN may be supplied with 4 holes. Where steel flanges are required with 4 holes, these may be supplied by agreement between flange manufacturer and purchaser.

^c To be specified by the purchaser.

^d Use is limited up to DN 600.

NOTE 1 Dimensions N_1 , N_2 and N_3 are measured at the intersection of the hub draft angle and the back face of the flange.

NOTE 2 Type 33; lapped pipe end without determination of thickness and height.

DIMENSIONS OF PLATE FLANGES AS PER TABLE BS-10

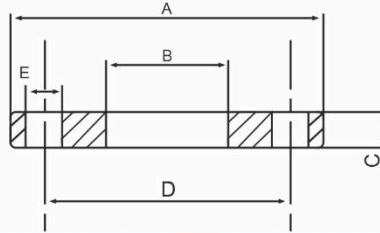


TABLE - D

For Working Stream Pressure above 250 lbs and upto 350 lbs per sq. inch

Nominal Pipe Size (in mm)	Dia of Flange	Dia of Bolt Circle (PCD)	No of Bolt	Dia of Bolt	Thickness of Flange
mm	mm	mm	mm	mm	mm
15	95	67	4	13	5
20	102	73	4	13	5
25	114	83	4	13	5
32	121	87	4	13	6
40	133	98	4	13	6
50	152	114	4	16	8
65	165	127	4	16	8
80	184	145	4	16	10
100	216	178	4	16	10
125	254	210	8	16	13
150	279	235	8	16	13
200	337	292	8	16	13
250	406	356	8	19	16
300	457	406	12	19	16
350	527	470	12	22	19
400	578	521	12	22	19
450	641	584	12	22	22
500	705	641	16	22	25
600	826	756	16	25	29

TABLE - E

For Working Stream Pressure above 350 lbs and upto 450 lbs per sq. inch

Nominal Pipe Size (in mm)	Dia of Flange	Dia of Bolt Circle (PCD)	No of Bolt	Dia of Bolt	Thickness of Flange
mm	mm	mm	mm	mm	mm
16	95	67	4	13	6
20	102	73	4	13	6
25	114	83	4	13	7
32	121	87	4	13	8
40	133	98	4	13	9
50	152	114	4	16	10
65	165	127	4	16	10
80	184	145	4	16	11
100	216	178	8	16	13
125	254	210	8	16	14
150	279	235	8	19	17
200	337	292	8	19	19
250	406	356	12	19	22
300	457	406	12	22	25
350	527	470	12	22	25
400	578	521	12	22	25
450	641	584	16	22	29
500	705	641	16	22	32
600	826	756	16	25	38

TABLE - F

For Working Stream Pressure above 250 lbs and upto 350lbs per sq. inch

Nominal Pipe Size (in mm)	Dia of Flange	Dia of Bolt Circle (PCD)	No of Bolt	Dia of Bolt	Thickness of Flange
mm	mm	mm	mm	mm	mm
15	95	67	4	13	10
20	102	73	4	13	10
25	121	87	4	16	10
32	133	98	4	16	13
40	140	105	4	16	13
50	165	127	4	16	16
65	184	145	8	16	16
80	203	165	8	16	16
100	229	191	8	16	19
125	279	235	8	19	22
150	305	260	12	19	22
200	368	324	12	14	25
250	432	381	12	22	25
300	489	438	16	25	29
350	552	495	16	25	32
400	610	552	20	25	32
450	673	610	20	29	35
500	737	673	24	29	38
600	851	781	24	32	41

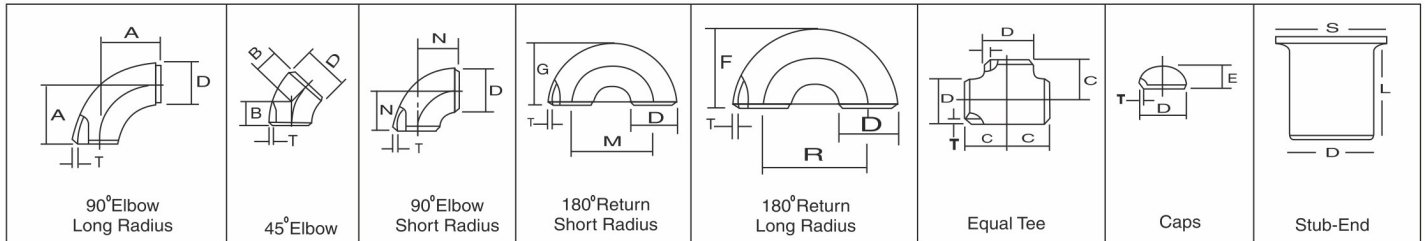
TABLE - H

For Working Stream Pressure above 350 lbs and upto 450 lbs per sq. inch

Nominal Pipe Size (in mm)	Dia of Flange	Dia of Bolt Circle (PCD)	No of Bolt	Dia of Bolt	Thickness of Flange
mm	mm	mm	mm	mm	mm
15	114	83	4	16	13
20	114	83	4	16	13
25	121	87	4	16	14
32	133	98	4	16	17
40	140	105	4	16	17
50	165	127	4	16	19
65	184	145	8	16	19
80	203	165	8	16	22
100	229	191	8	16	25
125	279	235	8	19	29
150	305	260	12	19	29
200	368	324	12	19	32
250	432	381	12	22	35
300	489	438	16	22	38
350	552	495	16	25	41
400	610	552	20	25	44
450	673	610	20	29	48
500	737	673	24	29	51
600	851	781	24	32	57



DIMENSIONS OF BUTT-WELDING FITTING ANSI B 16.9 - 2018

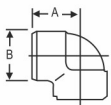


Nominal Pipe Size		Outside Diameter	Center to Face				Back to Face			Center to Center			Length 'L' MSS SP 43 B16.9	
INCH	NB	D	A R=1.5D	B	C	N R=1D	E	F	G	R	M	S	Short L	Long L
1/2	15	21.3	38.00	16.0	25.0	-	25.0	48.0	-	76.0	-	35.0	51	76.0
3/4	20	26.7	38.00	19.0	29.0	-	25.0	51.0	-	76.0	-	49.0	51	76.0
1	25	33.4	38.00	22.0	38.0	25.0	38.0	56.0	41.0	76.0	51.0	51.0	51	102.0
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	51	102.0
1 1/2	40	48.3	57.00	29.0	57.0	38.0	38.0	83.0	62.0	114.0	76.0	73.0	51	102.0
2	50	60.3	76.00	35.0	64.0	51.0	38.0	106.0	81.0	152.0	102.0	92.0	64	152.0
2 1/2	65	73.0	95.00	44.0	76.0	64.0	38.0	132.0	100.0	190.0	127.0	105.0	64	152.0
3	80	88.9	114.00	51.0	86.0	76.0	51.0	159.0	121.0	229.0	152.0	127.0	64	152.0
3 1/2	90	101.6	133.00	57.0	95.0	89.0	64.0	184.0	140.0	267.0	178.0	140.0	76	152.0
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	152.0
5	125	141.3	190.0	79.0	124.0	127.0	76.0	262.0	197.0	391.0	254.0	186.0	76	203.0
6	150	168.3	229.0	95.0	143.0	152.0	89.0	313.0	237.0	457.0	305.0	216.0	89	203.0
8	200	219.1	305.0	127.0	178.0	203.0	102.0	414.0	313.0	610.0	406.0	270.0	102	203.0
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	254.0
12	300	323.9	457.0	190.0	254.0	305.0	152.0	619.0	467.0	914.0	610.0	381.0	152	254.0
14	350	355.6	533.0	222.0	279.0	356.0	165.0	711.0	533.0	1067.0	711.0	413.0	152	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	305.0
18	450	457.0	686.0	286.0	343.0	457.0	203.0	914.0	686.0	1372.0	914.0	533.0	152	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	305.0
22	550	559.0	838.0	343.0	419.0	559.0	254.0	1118.0	838.0	1676.0	1118.0	641.0	152	305.0
24	600	610.0	914.0	381.0	432.0	610.0	267.0	1219.0	914.0	1829.0	1219.0	692.0	152	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	914.0	1372.0	565.0	673.0	914.0	267.0							

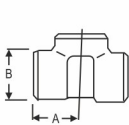
All Dimensions in Millimeters

DIMENSION IN MM OF FORGED SCREWED FITTINGS TO ANSI B-16.11 THREADED TO ASA B 2.1

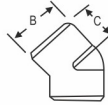
90° ELBOWS



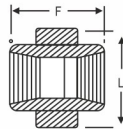
TEE



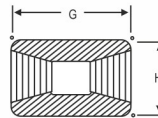
45° ELBOW



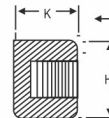
UNION



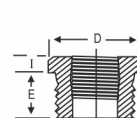
COUPLING



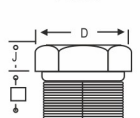
PIPE CAP



BUSHING



HEX HEAD
PLUG

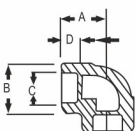


HALF COUPLING = G/2

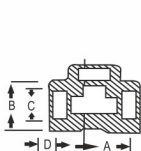
NOM BORE	PIPE O.D.	3000 L.B.S.						COMMON FACTORS						6000 L.B.S					
		A	B	C	G	H	K	D	E	F	I	J	L	A	B	C	G	H	K
1/8"	10.3	21	22	17	32	16	19	11	10	40	-	6	-	25	25	19	32	22	-
1/4"	13.7	25	25	19	35	19	25	16	11	43	3	6	32	29	33	22	35	25	27
3/8"	17.2	29	33	22	38	22	25	17.5	13	48	4	8	38	33	38	25	38	32	27
1/2"	21.3	33	38	25	48	29	32	22	15	51	5	8	46	38	46	29	48	38	33
3/4"	26.7	38	46	29	51	35	37	27	16	57	6	10	51	44	56	33	51	44	38
1"	33.4	44	56	33	60	44	41	35	19	64	6	10	60	51	62	35	60	57	43
1 1/4"	42.2	51	62	35	67	57	44	44.5	21	70	7	14	72	60	75	43	67	64	46
1 1/2"	48.3	60	75	43	79	64	44	51	21	79	8	16	80	64	84	44	79	76	48
2"	60.3	64	84	45	86	76	48	63.5	22	88	9	17	94	83	102	52	86	92	51
2 1/2"	73.02	83	102	52	92	92	60	76	27	118	10	21	122	95	121	64	92	108	64
3"	89.0	95	121	64	108	108	65	89	29	121	10	25	140	106	146	79	108	127	68
4"	114.5	114	152	79	121	140	68	117.5	32	150	13	25	180	114	152	79	121	159	75

SOCKET WELD FITTING TO ANSI B-16.11 - 2016

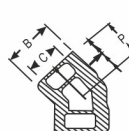
90° ELBOWS



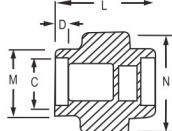
TEE



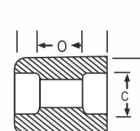
45° ELBOW



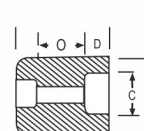
UNION



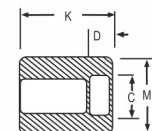
COUPLING



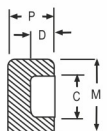
REDUCER



HALF COUPLING

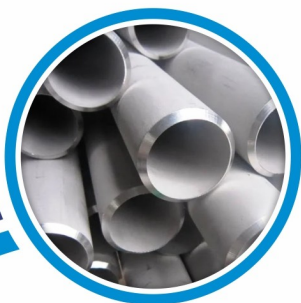


CAP



NOM BORE	PIPE O.D.	3000 L.B.S.									COMMON FACTORS				6000 L.B.S				
		A	B	K	J	L	M	N	P	Q	Cmin	Dmin	Omin	Omax	A	B	M	K	N
1/8"	10.3	22	18.5	26	16	40	17.3	32	17.5	10	10.7	10	5	8	22	22	20	25	46
1/4"	13.7	22	22	26	18	43	21.2	32	17.5	10	14.1	10	5	8	27	25	24	25	51
3/8"	17.2	25	25	26	19	48	25.4	36	19	10	17.6	10	3	9	27	28	28	26	60
1/2"	21.3	27	32	30	21	51	31	43	22	10	21.7	10	6	13	31	34	34	31	72
3/4"	26.7	34	38	36	24	57	37	50	25	13	27	13	6	13	37	42	41	35	80
1"	33.4	37	46	40	25	64	45.2	60	27	13	33.8	13	9	17	42	50	50	40	94
1 1/4"	42.2	42	56	40	29	70	55	70	30	13	42.6	13	9	17	47	59	58	41	100
1 1/2"	48.3	47	62	40	30	79	61.4	78	32	13	48.7	13	9	17	53	67	55	43	122
2"	60.3	56	75	52	37	89	75	95	38	13	61.2	16	15	23	59	84	83	55	-
2 1/2"	73.02	60	92	52	48	114	91.3	125	38	16	73.8	16	14	24	-	102	-	56	-
3"	89.00	76	110	52	51	127	108.8	140	44	16	89.8	16	14	24	-	121	-	58	-
4"	114.50	88	137	58	-	150	136.9	-	48	19	115.5	19	14	24	-	152	-	64	-

DIMENSIONS AND OTHERS SPECIFICATIONS AS PER CUSTOMERS REQUIREMENTS ARE AVAILABLE ON REQUEST



**ASME B 36.10 M / 19M AS PER SCHEDULES 2022
PIPE SCHEDULES - DIAMETERS - WALL THICKNESS - WEIGHTS**

mm	NPS	OD mm	5S / 5		10S		10		40S / STD		40		80 / XS		160		XXS	
			Wall	Kg/m	Wall	Kg/m	Wall	Kg/m	Wall	Kg/m	Wall	Kg/m	Wall	Kg/m	Wall	Kg/m	Wall	Kg/m
3	1/8"	10.3	-	-	1.24	0.28	-	-	1.73	0.37	1.73	0.37	2.41	0.47	0.56	0.56	4.83	0.65
6	1/4"	13.7	-	-	1.65	0.49	1.65	0.49	2.24	0.63	2.24	0.63	3.02	0.80	3.68	0.91	6.05	1.41
10	3/8"	17.1	-	-	1.65	0.63	1.65	0.63	2.31	0.84	2.31	0.84	3.20	1.10	4.01	1.29	6.40	1.69
15	1/2"	21.3	1.65	0.80	2.11	1.00	2.11	1.00	2.77	1.27	2.77	1.27	3.73	1.62	4.78	1.95	7.47	2.55
20	3/4"	26.7	1.65	1.03	2.11	1.28	2.11	1.28	2.87	1.69	2.87	1.69	3.91	2.20	5.56	2.90	7.82	3.64
25	1"	33.4	1.65	1.29	2.77	2.09	2.77	2.09	3.38	2.50	3.38	2.50	4.55	3.24	6.35	4.24	9.09	5.45
32	1 1/4"	42.2	1.65	1.65	2.77	2.69	2.77	2.69	3.56	3.39	3.56	3.39	4.85	4.47	6.35	5.61	9.70	7.77
40	1 1/2"	48.3	1.65	1.90	2.77	3.11	2.77	3.11	3.68	4.05	3.68	4.05	5.08	5.41	7.14	7.25	10.15	9.55
50	2"	60.3	1.65	2.39	2.77	3.93	2.77	3.93	3.91	5.44	3.91	5.44	5.54	7.48	8.74	11.11	11.07	13.44
65	2 1/2"	73.0	2.11	3.69	3.05	5.26	3.05	5.26	5.16	8.63	5.16	8.63	7.01	11.41	9.53	14.92	14.92	20.39
80	3"	88.9	2.11	4.52	3.05	6.46	3.05	6.46	5.49	11.29	5.49	11.29	7.62	15.27	11.13	21.35	15.24	27.68
100	4"	114.3	2.11	5.84	3.05	8.37	3.05	8.37	6.02	16.08	6.02	16.08	8.56	22.32	13.49	33.54	17.12	41.03
125	5"	141.3	2.77	9.46	3.40	11.56	3.40	11.56	6.55	21.77	6.55	21.77	9.53	30.97	15.88	49.12	19.05	57.43
150	6"	168.3	2.77	11.31	3.40	13.83	3.40	13.83	7.11	28.26	7.11	28.26	10.97	42.46	18.26	67.57	21.95	79.22
200	8"	219.1	2.77	14.78	3.76	19.97	3.76	19.97	8.18	42.55	8.18	42.55	12.70	64.64	23.01	111.27	22.23	107.93
250	10"	273.0	3.40	22.61	4.19	27.78	4.19	27.78	9.27	60.29	9.27	60.29	12.70	81.53	28.58	172.27	25.40	155.10
300	12"	323.9	3.96	31.24	4.57	35.98	4.57	35.98	9.53	79.86	10.31	79.71	12.70	97.44	33.32	238.69	25.40	186.92
350	14"	355.6	3.96	34.34	4.78	41.36	6.35	54.69	9.53	81.33	11.13	94.55	12.70	107.40	35.71	281.72	-	-
400	16"	406.4	4.19	41.56	4.78	47.34	6.35	62.65	9.53	93.27	12.70	123.31	12.70	123.31	40.49	365.38	-	-
450	18"	457.0	4.19	46.79	4.78	53.31	6.35	70.57	9.53	105.17	14.27	155.81	12.70	139.16	45.24	459.39	-	-
500	20"	508.0	4.78	59.32	5.54	65.65	6.35	78.56	9.53	117.15	15.09	183.43	12.70	155.13	50.01	564.85	-	-
550	22"	559.0	4.78	65.33	5.54	75.62	6.35	86.65	9.53	129.14	-	-	12.70	171.10	53.98	672.30	-	-
600	24"	610.0	5.54	82.58	6.35	94.53	6.35	94.53	9.53	141.12	17.48	255.43	12.70	187.07	59.54	808.27	-	-
650	26"	660.0	-	-	-	-	7.92	127.36	9.53	152.88	-	-	12.70	202.74	-	-	-	-
700	28"	711.0	-	-	-	-	7.92	137.32	9.53	165.86	-	-	12.70	218.71	-	-	-	-
750	30"	762.0	6.35	118.34	7.92	147.29	7.92	147.29	9.53	176.85	-	-	12.70	234.68	-	-	-	-
800	32"	813.0	-	-	-	-	7.92	157.25	9.53	188.83	17.48	342.94	12.70	250.65	-	-	-	-
850	34"	864.0	-	-	-	-	7.92	167.21	9.53	200.82	17.48	364.92	12.70	266.63	-	-	-	-
900	36"	914.0	-	-	-	-	7.92	176.97	9.53	212.57	19.05	420.45	12.70	282.29	-	-	-	-

Note: Different grades of stainless steel have different specific densities and hence their weight may be less than or greater than the weights listed in this table.

GENERAL TOLERANCE

1. Facings

Required tolerances for various flange and flanged fitting facing are as follows:

- 1.1 Inside and outside diameter of large and small tongue and Groove and female, $\pm 0.5\text{mm}$
- 1.2 Outside diameter, 2.0 mm Raised face, $\pm 1.0\text{ mm}$
- 1.3 Outside diameter, 7.0 mm Raised face, $\pm 0.5\text{ mm}$

2. Flange Thickness

Required tolerances for flanges thickness are as follows.

NPS ≤ 18	+3.0, -0.0 mm
NPS ≥ 20	+5.0, -0.0 mm

The plus tolerances is applicable to bolting bearing surfaces whether as-forged, as-cast, spot-faced or back-faced.

3. Welding End Flange Ends and Hubs

3.1 Outside Diameter : Required tolerances for the nominal outside diameter dimension A of figs, welding end of welding neck flanges are as follow:

NPS ≤ 5	+2.0, -1.0 mm
NPS ≥ 6	+ 4.0, -1.0 mm

3.2 Inside Diameter : Required tolerances for the nominal inside diameter of welding ends of welding neck flanges and smaller bore of socket welding neck flanges and smaller bore of socket welding langes (dimension B in the referenced figures) are as follows.

NPS ≤ 10	$\pm 1.0\text{ mm}$
$12 \leq \text{NPS} \leq 18$	$\pm 1.5\text{ mm}$
NPS ≥ 20 ,	+3.0, -1.5MM

3.3 Hub Thickness: Despite the tolerances specified for dimensions A and B, the thickness of the hub at the welding end shall not be less than 87 1/2% of the nominal thickness. of the pipe, having an under tolerance of 12,5% for the pipe wall thickness to which the flanges is to be attached, or the minimum wall thickness as specified by the purchaser.

4. Length Through Hub on Welding Neck Flanges

The required tolerances for the length through hubs on welding neck flanges are as follows.

NPS ≤ 4	$\pm 1.5\text{ mm}$
$5 < \text{NPS} \leq 10$	+ 1.5, -3.0 mm
NPS ≥ 12	+3.0mm-5.0 mm

5. Flange Bore

5.1 Lapped, Slip-on, and Socket Welding Flanges Bores. The required tolerances for lapped, slip-on, and socket welding flanges bores are as follows.

NPS ≤ 10	+ 1.0, 0.0 mm
NPS ≥ 12	+1.5, -0.0 mm

5.2 Counterbores, Threaded Flanges. The required tolerances for the threaded flanges counterbores are follows.

NPS ≤ 10	+1.0, -0.0 mm
NPS ≥ 12	+1.5, -0.0 mm

5.3 Counterbores, Socket Welding Flanges.

The required tolerances for socket end counterbores is as follows.

$1/2 < \text{NPS} < 3$	+ 0.25mm
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6. Drilling and Facing

6.1 Bolt Circle Diameter : The required tolerance for all bolt circle diameters is +1.5 mm

6.2 Bolt Hole to Bolt Hole

The required tolerance for the center-to-center of adjacent bolt holes +0.8 mm

6.3 Bolt Circle Concentricity

The required tolerances for concentricity between the flanges diameters are as follows.

NPS $\leq 2\ 1/2"$	0.8 mm
NPS $\geq 3"$	1.5 mm





TESTING

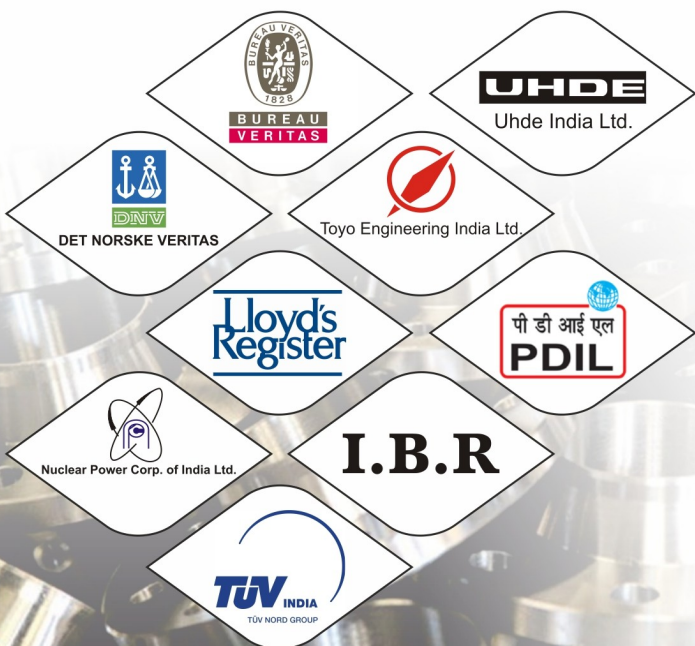
VISUAL & DIMENSION INSPECTION

Inspection is carried out to detect any Dents, Surface Defect or Scratch on the surface tube. The Dimensional Inspection is carried out with calibrated measuring instruments for product dimensions are within tolerance requirements.



THIRD PARTY INSPECTION

Gopal Forge Industries can offer you material with inspection of any third party. Third party Inspection offers quality and thorough Inspection for buyers. The Inspection Agency can be nominated by client or we can arrange the third party inspection by various world class reputed agency like below....



PMI TEST

Oxford Instruments make X-MET 5000 XRF analyser for PMI and Quality Control / Assurance

ULTRASONIC TEST

A high speed "Rotating Transducer" ultrasonic tube testing system operates in pulse-echo mode. Water immersion coupling is used for adequate and positive coupling of sound energy. A multi channel ultrasonic processing is used for detection and recording of volumetric defect in tubes in longitudinal and transverse direction.

QUALITY ASSURANCE

Our quality assurance process runs on the principles of self management, open communication with all experienced personalities with great creativity support from our team. These principles are:

- We strive to be the best in our industry.
- We care about our customers.
- We do our absolute best to honor our commitments.
- We strive to always act with integrity and fairness.

QUALITY CONTROL

We take utmost care in terms of dimensions and mechanical properties of our product to be supplied. Our each product checked by following quality procedures:

- Material Control System
- Machining & Dimensional Control
- Process Control System
- Certification & Supplementary Test

OUR EXCELLENCE

We can keep high quality standards through our dedicated personnel and infrastructure. We guarantee that best quality content is used for our goods. To be sure the quality of every substance, We're supplying Materials Test Certificate together with provide. Our team of experts maintain a vigil on the quality of the goods. Each and every piece is connected with test reports and certificates, we're always improving our quality to serve our customers better.

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- Oil & Gas
- Power Plant
- Refinery Plant
- Shipbuilding
- Pharmaceutical
- Beverage Industries
- Engineering
- Energy
- Petrochemical
- Nuclear & Thermal Power
- Sugar Industries
- Paper & Pulp
- Steel & Power
- Cement Plant
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