MECHNOVA INDUSTRIES ISO 9001:2015

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MECHNOVA INDUSTRIES

Get High Grade Flow Controls…

INTRODUCTION...

- *We MECHNOVA Ind. are focused on accomplishing complete consumer loyalty through Design, Development, Manufacturing, and supply of reliable quality Industrial Valves with the point of zero rate dismissal while remaining financially savvy and serious. This will be accomplished by collaboration and ceaseless improvement in all the regions of activity.*

- *We MECHNOVA Ind. are leading exporter and domestic supplier of all kinds of industrial Valves (Ball Valve, Globe Valve, Gate Valve, check valve Butterfly Valve, Strainer, Steam Traps, Safety Valves, Pressure Reducing Valve, Speciality& Valve) Carbon Steel, Stainless Steel & Alloys. Most of our clients are Government & Public sector undertaking companies like Defense, Fertilizer, Chemical Power, Petroleum, Valve manufacturer and Thermal Power etc. We specialize in providing products and services of highest quality standards to our customer and compiling with customer specification, codes, standards, statutory and regulatory requirements.*

- *With a view of enhancing our customers' preference of having a ONE STOP SHOP,we has constantly worked on enhancing its product profile .Within each business, we have a dedicated team of professionals totally focused on supplying their position comprehensive market.*

- *We MECHNOVA Ind. believe in continuous improvements & product innovation to keep ourselves competent.*


MECHNOVA
Industries
L&T Valves
KSB
AIL
VALVES
Forbes
Marshall
Kirloskar
spirax
sarco
LEADER VALVES
UKL
UNI KLINGER LIMITED
WEIR
BDK

Our Products Range:-

BALL VALVE:

- 1/2/3 piece Design
- Floating Design
- Trunnium Mounted
- Full/Reduce Port

Size : ½"-24" (DN15-DN600)
Class : 150-2500
MOC : WCB,CF8,CF8M, A105, Lf2, F304, F316, etc.

BUTTERFLY VALVE:

- Wafer Type
- Lug Type
- Flanged Type
- Offset Disc Type

Size : 2"-24" (DN50-DN600)
Rating : PN 10, PN 16, 150, 300, 600.
MOC : CI, WCB, LCB, Cf8, CF8M, DI, etc.

Our Products Range:-

CHECK VALVE/NRV:

- **Swing Type**
- **Lift Type**
- **Dual Plate Type**
- **Disc Type**
- **Wafer Type**
- **Pressure Seal Type**

Size : *2"-24" (DN50-DN600)*
Class : *150-2500*
MOC : *WCB, LCB, WCC, WC6, WC9, CF8, CF8M, CI, CS, etc.*

FORGED VALVES:

- **Ball Type**
- **Gate Type**
- **GLOBE Type**
- **NRV Type**
- **Y-Pattern Typ**

Size : *½"-2" (DN15-DN50)*
Class : *800-4500.*
MOC : *A105, LF2, F11, F22, F304, F316, etc.*

Our Products Range:-

GATE VALVE:

- ***Flange end Type***
- ***Welded end Type***

Size : *½"-36" (DN15-DN900)*
Class : *150-2500*
MOC : *WCB, WCC, WC6, WC9, C5, C12, LCB, LCC, Cf8, CF8M etc.*

GLOBE VALVE:

- ***Flange end Type***
- ***Welded end Type***

Size : *2"-16" (DN50-DN400)*
Class : *150-2500.*
MOC : *WCB, WCC, WC6, WC9, C5, C12, LCB, LCC, Cf8, CF8M etc.*

Our Products Range:-

PISTON VALVE:

- **Piston Valve**

Size : ½"-8" (DN15-DN200)
Class : 150,300,800
MOC : ASTM A216 GR WCB.etc.

PLUG VALVE:

- **PTFE Sleeved Type**
- **Double block Type**
- **Bleed Plug Valves**

Size : ½"-16" (DN15-DN400)
Class : 150-600.
MOC : CI, WCB, Cf8, CF8M, etc.

STRAINERS:

- **Y-Type**
- **Bucket Type**

Size : ½"-2" (DN15-DN50)
Class : 800-4500.
MOC : A105, LF2, F11, F22, F304, F316, etc.

Our Products Range:-

SAFETY VALVE:

- **FIXED PRESSURE**
- **LEVER OPERATED**

Size : ½"-12" (DN15-DN300)
Class : 150-1500
MOC : WCB, WC9, WCC, LCB, LCC, CF8, CF8M, etc.


SLUICE VALVE:

- **Sluice Valve**

Size : 2"-24" (DN50-DN600)
Pressure Rating: PN1.0, PN1.6 PN 2.0.
MOC : CI,CS, etc.


STEAM TRAPS:

- **Thermodynamic**
- **FT10/14/20**

Size : ½"-2" (DN15-DN50)
MOC : CI, CS, SS, etc.




MECHNOVA INDUSTRIES

Get High Grade Flow Controls…

Products :-

- *We deals in the India's top leading brands like L&T, Audco, KSB, Forbes Marshall, Spirex Marshall , Kirloskar, Leader, Uniklinger, BDK, Etc... also in IBR & NON-IBR Valves In various Size , Class & Moc.*

About us :-

- **MECHNOVA Ind.** *is the Manufacturing Company. Which is having scope in Ball valve, gate valve globe valve and check valve.*
- **MECHNOVA Ind.** *also deals in Electrical panels, Control Valves & Automations.*

Services:-

- *Excellent quality*
- *100% customer satisfaction*
- *On time delivery*
- *After sales support*
- *Experienced and skilled staff*
- *Continues improvement*

MECHNOVA
Industries

Stainless Steel 304, 316, 310,202 Q. Alloy Steel, Carbon Steel, Copper, Brass, Aluminium, Sheet,
ERW & Seamless Pipes, Circles, Pipe Nipples, Rods, Flanges, Titanium, Hastelloy & Monel
All Types of Ferrous & Non-Ferrous Metals

Get High Grade Flow Controls…

MECHNOVA Industries

FORMULA OF CALCULATING WEIGHT

1) WEIGHT OF STAINLESS STEEL PIPES O.D. (mm) - W.T. (mm) x W.T. (mm) x 0.0248 = Kg. per Mtr. O.D. (mm) - W.T. (mm) x W.T. (mm) x 0.00756 = Wt. Per Feet.	**8) WEIGHT OF BRASS PIPE / COPPER PIPE** O.D. (mm) - Thick (mm) x Thick (mm) x 0.0260 = Wt. Per Mtr.
2) WEIGHT OF STAINLESS STEEL ROUND BAR DIA (mm) x DIA (mm) x 0.00623 = Wt. Per Mtr. DIA (mm) x DIA (mm) x 0.00623 = Wt. Per Feet.	**9) WEIGHT OF LEAD PIPE** O.D. (mm) - Wt. (mm) x Wt. (mm) x 0.0345 = Wt. Per Mtr.
3) WEIGHT OF STAINLESS STEEL SQUARE BAR DIA (mm) x DIA (mm) x 0.00788 = Wt. Per Mtr. DIA (mm) x DIA (mm) x 0.0024 = Wt. Per Feet.	**10) WEIGHT OF ALUMINUM PIPE** Length (Mtr.) x Width (Mtr.) x Thick (mm) x 0.0083 = Wt. Per Mtr.
4) WEIGHT OF STAINLESS STEEL SQUARE BAR A/F (mm) x A/F (mm) x 0.00680 = Wt. Per Mtr. A/F (mm) x A/F (mm) x 0.002072 = Wt. Per Feet.	**11) WEIGHT OF ALUMINUM SHEET** Length (Mtr.) x Width (Mtr.) x Thick (mm) x 2.69 = Wt. Per PC
5) WEIGHT OF STAINLESS STEEL FLAT BAR Width (mm) x Thick (mm) x 0.00798 = Wt. Per Mtr. Width (mm) x Thick (mm) x 0.00243 = Wt. Per Feet.	**12) WEIGHT OF CONVERSION OF MTR. TO FEET** Weight of 1 Mtr. ÷ 3.2808 = Feet
6) WEIGHT OF STAINLESS STEEL SHEETS & PLATES Length (Mtrs) X Width (Mtrs) X Thick (mm) X 8 = Kg. Per Sheet Length (Ft) X Width (Ft) X Thick (mm) X 3/4 = Kg. Per Sheet	**13) WEIGHT OF CALCULATING WIDTH OF SHEET FOR MAKING PIPE** Outer DIA - Wall Thickness x 22/7 Width of Sheet
7) WEIGHT OF STAINLESS STEEL CIRCLE DIA (mm) x DIA (mm) x Thick (mm) ÷ 160 = Gms. Per PC DIA (mm) x DIA (mm) x Thick (mm) x 0.0000063 = Kg. Per PC	**14) FORMULA FOR HEALTHY BUSINESS** Honesty + Quality of Goods + Quick Service + Reasonable Rate = **Good Health of Business**

APPLICATION INDUSTRIES

- OIL & GAS INDUSTRIES
- PHARMACEUTICALS
- PETROCHEMICAL
- SUGAR INDUSTRIES
- REFINERIES
- PAPER & PULP
- FOOD & BEVERAGES
- AUTOMOBILE
- ENGINEERING
- SHIP BUILDING
- FURNACE INDUSTRIES
- STEEL PLANT
- RAILWAY FORGING PLANT
- WATER PIPING SYSTEM
- CEMENT INDUSTRIES
- DAIRY INDUSTRIES
- NUCLEAR & POWER
- FABRICATIONS





ASTM A 193/A 193M ALLOY STEEL, CARBON STEEL & STAINLESS STEEL BOLTING FOR HIGH TEMPERATURE SERVICE

ASTM GRADE	C	Mn	Si	S	P	Cr	Ni	Mo	Other	Hardness	Tensile Psi(MPa)	Yield Psi(MPa)	Elongation in Area %	Redu
A193 B8-B8A AISI Type 304	0.08	2.00 Max	1.00 Max	0.030 Max	0.045 Max	18.00 20.00	8.00 10.50	- -	- -	223HB	75000(515)	30000(205)	30	50
A193 B8-B8MA AISI Type 316	0.08 Max	2.00 Max	1.00 Max	0.030 Max	0.045 Max	16.00 18.00	10.00 14.00	2.00 3.00		223HB 223HB	75000(515)	30000(205)	30	50
A193B8T-B8TA AISI Type 321	0.08 Max	2.00 Max	1.00 Max	0.030 Max	0.045 Max	17.00 19.00	9.00 12.00	-	Ti5xC 0.70Min	223HB	75000(515)	30000(205)	30	50
A193 B8C-B8CA AISI Type 347	0.08 Max	2.00 Max	1.00 Max	0.030 Max	0.045 Max	17.00 19.00	9.00 13.00	-	CbxPTA= 1.10c Min	192HB	75000(515)	30000(205)	30	50
A193B6-B6X AISI Type 410	0.15 Max	1.00 -	1.00 Max	0.03 Max	0.040 Max	11.50 13.50	-				110000(760)	85000(585)	15	50
A193 B7-B7M Alloy Steel (Cr. Mo)	0.37 0.49	0.65 1.10	0.15 0.35	0.040 Max	0.035 Max	0.75 1.20	- -	0.15 0.25	- -	- -	125000(860)	105000(720)	16	50
A193B5 AS -5% Cr.AISI50 1	0.10 min	1.00 Max	1.00 Max	0.030 Max	0.040 Max	4.00 6.00	-	0.40	-	-	100000(690)	80000(550)	16	50

ASTM A 194/194M CARBON STEEL, ALLOY STEEL, ALLOY STEEL & STAINLESS STEEL NUTS, BOLTS FOR HIGH PRESSURE & HIGH TEMPERATURE SERVICE

A1948/8A AISI Type 304	0.08 Max	2.00 Max	1.00 Max	0.03 Max	0.045 Max	18.00 20.00	8.00 10.50	-	-	126 - 300 Grade 8 126 - 182 Grade 8 A
A 194 8M/MA AISI Type 316	0.08 Max	2.00 Max	1.00 Max	0.03 Max	0.045 Max	16.00 18.00	10.00 14.00	2.00 3.00	-	126 - 300 Grade 8m 126 - 192 Grade 8 MA
A194/ 8T/8TA AISI Type 321	0.08 19.00	2.00 12.00	1.00 -	0.03 0.78 Min	0.045	17.00	9.00	-	Ti 5 x C	126 - 300 Grade 8T 126-192 Grade 8 TA
A194/ 8C/8CA AISI Type 347	0.08 Max	2.00 Max	1.00 Max	0.03 Max	0.045 Max	17.00 19.00	9.00 13.00	-	CbxTa= 1.10CMin	126 - 300 Grade 8CA 126 - 192 Grade 8 CA
A194-6 AISI Type 410	0.15 Max	1.00 Max	1.00 Max	0.03 Max	0.040 Max	11.50 13.50	-	-	1.10 Cmin	228 271HRC-20-28
A194 2 2HM & 2H Carbon Steel	0.4 min	1 Max	0.4 Max	1.050. Max	0.040 Max	- -	- -	- -	- -	159-352GR.2 248 -352GR.2H 159-237GR.2HM
A194-7/7M Alloy Steel A194-30.10 A.S.-5%Cr. AISI501	0.37 0.49 0.10 Max	0.65 1.1 1.00 Max	0.15 0.35 1.00 Max	0.04 Max 0.030 Max	0.4 Max 0.040 Max	0.75 1.2 4.00 6.00	- - - -	0.15 0.25 0.4 0.65	- - - -	248-352GR.7 159-237GR.7M 248-352 (HRC-24-38)

ASTM SPECIFICATION FOR FASTENERS

NOMINAL CHEMICAL COMPOSITION % (not for specification purposes)

Nickel	Ni	C	Mn	Fe	S	Si	Cu	Cr	Co	Mo	Al	Ti	Other
Nickel 200	99.2	0.10	0.3	0.4	0.005	0.18	0.10	-	0.25	-	-	-	-
Nickel 201	99.0	0.02	0.35	0.4	0.005	0.18	0.25	-	0.25	-	-	-	-
Nickel 205	99.6	0.02	0.3	0.2	0.004	0.08	0.05	-	0.1	-	-	0.03 Mg	0.05
Nickel 212	97.7	0.010	2.0	0.05	0.005	0.05	0.03	-	-	-	-	-	-
Nickel 222	99.5	0.01	0.02	0.04	0.0025	0.01	0.01	0.01	0.06	0.01	0.01	Mg0.08	-
Nickel 270	99.98	0.01	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	Mg<0.001	-
K MONEL alloy 400	63.0 min	0.15	1.25 max	2.5 max	0.024 max	0.05 max	31.0	-	-	-	-	-	-
K MONEL alloy 500	63.0 min	0.25	1.5 max	2.0 max	0.010 max	0.5	30.0	-	-	-	2.9	0.6	-
Cast MONEL alloy	63.0 min	0.07	0.75	2.5 max	0.02 max	0.04 max	30.0	0.10 max	-	0.20 max	0.05 max	0.01 max	-
Cast MONEL alloy	63.0 min	0.03 max	0.020 max	2.5 max	0.02 max	0.04 max	30.0	0.10	-	0.20 max	0.05 max	0.01 max	-
INCONEL alloy 600	72.0 min	0.025 max	1.0 max	8.0	0.05 max	0.05 max	0.05 max	14 - 17	-	-	-	-	Nb +
INCONEL alloy 625	Bal	0.025 max	0.25	3.0 max	0.015 max	0.5 max	0.5 max	21 - 23	-	8 - 10	0.25	0.25	3.85
INCOLOY alloy 800	32 - 34	0.025 max	1.5 max	Bal.	0.015 max	-	0.75 max	20 - 22	0.5 max	-	0.15 - 0.40	0.35 - 0.60	Al+Ti max1.0
INCOLOY alloy 825	38 - 46	0.025 max	1.0 max	Bal.	0.03 max	0.5 max	2.25	19.5 - 23.5	1.5 - 3	2.5 - 3.5	0.20 max	0.9	Ti 0.6 - 1.2
INCOLOY alloy 904	32.5	0.025	0.025	Bal.	0.015	0.25	0.25	-	14.5	-	0.1	1.6	-
INCOLOY alloy DS	37.0	0.10 max	0.21 max	Bal.	-	2.3 max	2.3 max	18.0	-	-	-	-	-
Hastelloy C22	Bal	0.010 max	-	2 - 6	-	0.08 max	-	20 - 22.5	2.5 max	12.5 - 14.5	2.50	Co	W-2.50 3.50
Hastelloy C-276	Bal	0.010 max	1.00	5.50	-		-	15 - 16.5	15 - 16.5	15 - 17	-	-	W-3.75uV.1-0.3 Si-0.02 Co-2.50
Hastelloy C-4	Bal	0.009 max	1.00	3.00	0.7		-	14.5 17.5	5.575	14.00 17.00	-	0.70	Co-2.00 Si-0.05 P-0.04

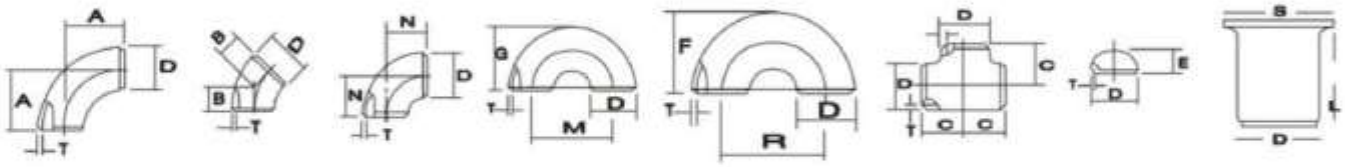
PHYSICAL AND MECHANICAL PROPERTIES

	Density Kg/dm3	Melting Range °C	Specific heat at 20°C J/KgC	Thermal Conductivity at 20°C W/mC	Thermal Expansion 10-6°C 20-95°C	Electrical resistivity at 20°C microohm cm	Tensile strength N/mm²	Hardness HV
Nickel 200	8.89	1435-1445	456	74.9	13.3	9.5	380-550	90-120
Nickel 201	8.89	1435-1445	456	79.2	13.3	7.6	340-410	75-100
Nickel 205	8.89	1435-1445	456	74.9	13.3	9.5	340	77
Nickel 212	8.86	1435-1445	430	44.1	-	10.9	476	144
Nickel 222	8.89	1435-1445	456	74.9	13.3	8.8	340	77
Nickel 270	8.89	1455	460	85.7	13.3	7.5	340	80
Monel alloy 400	8.83	1300-1350	419	21.7	14.1	51.0	480-620	111-151
Monel alloy k-500	8.46	1315-1350	419	17.4	13.7	61.4	620-760	141-189
Inconel alloy 600	8.42	1370-1425	461	14.8	13.3	103	550-690	121-173
Inconel alloy 625	8.44	1290-1350	410	9.8	12.8	129	830-1040	146-247
Inconel alloy 800	7.95	1355-1385	502	11.7	14.2	99	520-700	121-188
Inconel alloy 825	8.14	1370-1400	441	10.9	14.0	113	580-730	121-183
Inconel alloy 904	8.12	-	442	14.9	4.6	72	923	-
Inconel alloy DS	7.92	1330-1400	452	12.0	14.1	108	680	208

TITANIUM AND TITANIUM BASE ALLOYS CHEMICAL COMPOSITION

UNS Designation Number	Alloy	General Name	Al	Carbon C	Iron Fe	Titanium Ti	Hydrogen H	Nitrogen N	Oxygen O	Palladium Pd	Vanadium V	Chromium Cr	Molybdenum Mo	Zirconium Zr	Tin Sn	Silicon Si	Ruthenium Ru	Residuals	
																		Each Max	Total Max
R50250	1	Titanium Gr 1	-	0.1	0.20	Balance	0.0125	0.05	0.18	-	-	-	-	-	-	-	-	0.1	0.4
R50400	2	Titanium Gr 2	-	0.1	0.30	Balance	0.0125	0.05	0.25	-	-	-	-	-	-	-	-	0.1	0.4
R50700	4	Titanium Gr 4	-	0.1	0.50	Balance	0.0125	0.07	0.4	-	-	-	-	-	-	-	-	0.1	0.4
R56400	5	Titanium Gr 5 c	5.5-6.75	0.1	0.40	Balance	0.0125	0.05	0.2	-	3.5-4.5	-	-	-	-	-	-	0.1	0.4
R56401	23	Titanium Ti-6, Al-4V ELI	5.5-6.5	0.08	0.25	Balance	0.0125	0.05	0.13	-	3.5-4.5	-	-	-	-	-	-	0.1	0.4
R52400	7	Titanium Gr 7	-	0.1	0.30	Balance	0.0125	0.05	0.25	0.12-0.25	-	-	-	-	-	-	-	0.1	0.4
R58640	19	Titanium Ti-38-6-44	3.0-4.0	0.05	0.30	Balance	0.0200	0.03	0.12	0.10	7.5-8.5	5.5-6.5	3.5-4.5	3.5-4.5	-	-	0.10	0.15	0.4
R55111	32	Titanium Ti-5-1-1-1	4.5-5.5	0.08	0.50	Balance	0.125	0.03	0.11	-	0.6-1.4	-	0.6-1.4	0.6-1.4	0.6-1.4	0.06-1.4	-	0.1	0.4

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

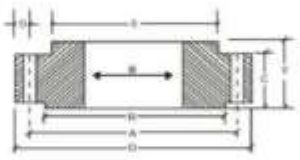


90°Elbow long radius | 45°Elbow | 90°Elbow short radius | 180°Return short radius | 180°Return long radius | Tee equal Tee | Cap | Stubend

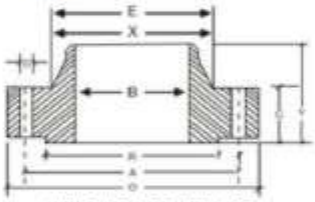
Nominal Pipe Size		Outside Diameter	Center to Face				Back to Face			Center to Center			Length 'L' MSSSP43 B16.9	
INCH	MM	D	A R=1.5D	B	C	N R=1D	E	F	G	R	M	S	Short L	Long L
1/2	15	21.3	38.00	16.0	25.0	-	25.0	48.0	-	76.0		35.0	50.8	76.2
3/4	20	26.7	29.00	11.0	29.0	-	25.0	43.0	-	57.0		43.0	50.8	76.2
1	25	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	54.0	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	102.0	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	89.0	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	102.0	515.0	391.0	762.0	508.0	324.0	127.0	254.0
12	300	323.8	457.0	190.0	254.0	305.0	127.0	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	152.0	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	165.0	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	178.0	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	203.0	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	229.0	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	254.0	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

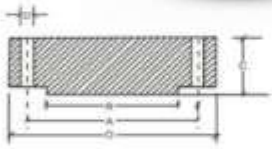
FLANGES



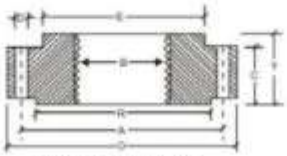
SLIP-ON FLANGE



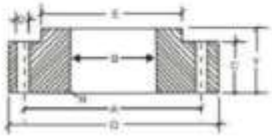
WELDING NECK FLANGE



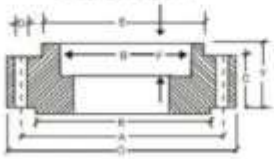
BLIND FLANGE



THREADED FLANGE



LAP JOINT FLANGE



SOCKET WELD FLANGE

DIMENSIONS OF CLASS 900/1500/2500 FLANGES AS PER B 16.5

DIMENSIONS OF CLASS 900 FLANGES AS PER B 16.5

Nominal Pipe Size	Flange Dia O	Dia of Bolt Circle A	No. of Bolt Holes D	No. of Holes	Thk. of Flange C	Dia of Hub E	Length through Hub S/O & S/W Y	Length through Hub W/N Y	Length through Hub L/J Y	Dia Bore S/O & S/W B	Dia Bore L/J B	Dia of R/F R	Depth of Socket F	Pipe Dia X
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	104.9	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	74.7	75.4	104.8	19.0	73.02
80	2241.3	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	157.1	-	114.30
125	349.2	279.4	35.0	8	50.8	190.5	79.3	127.0	79.2	143.7	114.5	185.7	-	141.30
150	381.0	317.5	31.7	12	55.6	234.9	85.5	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	269.8	-	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

DIMENSIONS OF CLASS 1500 FLANGES AS PER B 16.5

Nominal Pipe Size	Flange Dia O	Dia of Bolt Circle A	No. of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Hub E	Length through Hub S/O & S/W Y	Length through Hub W/N Y	Length through Hub L/J Y	Dia Bore S/O & S/W B	Dia Bore L/J B	Dia of R/F R	Depth of Socket F	Pipe Dia X
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	34.9	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	41.3	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	41.3	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	62.0	92.1	17.4	60.31
65	244.5	190.5	28.6	8	41.3	123.8	63.5	104.8	63.5	74.7	75.4	104.8	19.0	73.02
80	266.7	203.2	31.7	8	47.6	133.3	73.0	117.5	73.0	90.7	91.7	127.0	-	88.90
100	311.1	241.3	34.9	8	54.0	161.9	90.5	123.0	90.4	116.1	116.8	157.2	-	114.30
125	374.6	292.1	41.3	8	73.0	196.8	104.8	155.6	104.8	143.8	144.5	185.7	-	141.30
150	393.7	317.5	38.1	12	82.6	228.6	119.1	171.4	119.1	170.7	171.4	215.9	-	168.27
200	482.6	393.7	44.4	12	92.1	292.1	142.9	212.7	142.8	221.5	222.2	269.9	-	219.07
250	584.2	482.6	50.8	12	107.9	368.3	158.7	254.0	177.8	276.3	277.3	323.8	-	273.05
300	673.1	571.5	54.0	16	123.8	450.8	181.0	282.6	218.9	327.1	328.1	381.0	-	323.85

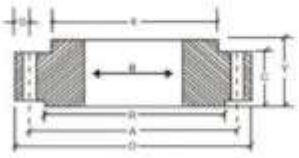
DIMENSIONS OF CLASS 2500 FLANGES PER B 16.5

Nominal Pipe Size	Flange Dia O	Dia of Bolt Circle A	No. of Bolt Holes D	No. of Holes	Thk. of Flange C	Dia of Hub E	Length through Hub S/O & S/W Y	Length through Hub W/N Y	Length through Hub L/J Y	Dia Bore S/O & S/W B	Dia Bore L/J B	Dia of R/F R	Depth of Socket F	Pipe Dia X
15	133.3	88.9	22.2	4	30.2	42.9	39.7	73.0	39.7	22.3	22.3	34.9	-	21.33
20	139.7	95.2	22.2	4	31.7	50.8	42.9	79.4	42.9	27.7	27.7	42.9	-	26.67
25	158.7	107.9	25.4	4	34.9	57.1	47.7	88.9	47.7	34.5	34.5	50.8	-	33.40
32	184.1	130.2	28.6	4	38.1	73.0	52.4	95.2	52.4	43.2	43.2	63.5	-	42.16
40	203.2	146.0	31.7	4	44.4	79.4	60.3	111.1	60.3	49.5	49.5	73.0	-	48.26
50	234.9	171.4	28.6	8	50.8	95.2	69.8	127.0	69.8	62.4	62.0	92.1	-	60.31
65	266.7	196.8	31.7	8	57.1	114.3	79.4	142.9	79.4	74.7	74.7	104.8	-	73.02
80	304.8	228.6	34.9	8	66.7	133.3	92.1	168.3	92.1	90.7	90.7	127.0	-	88.90
100	355.6	273.0	41.3	8	76.2	165.1	107.9	190.5	107.9	116.1	116.1	157.2	-	114.30
125	416.1	323.8	47.6	8	92.1	203.2	130.0	228.6	130.0	143.8	143.8	185.7	-	141.30
150	482.6	368.3	54.0	8	107.9	234.9	152.4	273.0	152.4	170.7	170.7	215.1	-	168.27
200	552.4	438.1	54.0	12	127.0	304.8	177.8	317.5	177.8	221.5	221.5	269.9	-	219.07
250	673.1	539.7	66.7	12	165.1	374.6	228.6	419.1	228.6	276.3	276.3	323.8	-	273.05
300	762.0	619.1	73.0	12	184.1	441.3	254.9	463.5	254.0	327.1	327.1	381.0	-	323.85

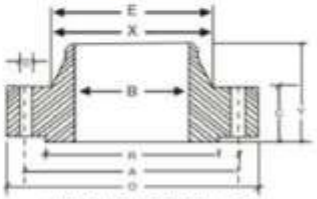
All Dimensions are in Millimeters.

Flanges except Lap Joint Will be furnished with 6.35 mm raised face, Which is included in " Thickness" (C) and Length Through Hub (Y).

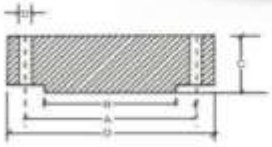
FLANGES



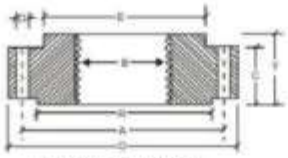
SLIP-ON FLANGE



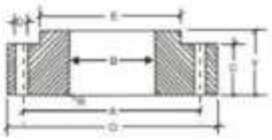
WELDING NECK FLANGE



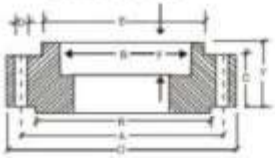
BLIND FLANGE



THREADED FLANGE



LAP JOINT FLANGE



SOCKET WELD FLANGE

DIMENSIONS OF CLASS 150/300/600 FLANGES AS PER B 16.5

DIMENSIONS OF CLASS 150 FLANGES AS PER B 16.5

Nominal Pipe Size	Flange Dia O	Dia of Bolt Circle A	No. of Bolt Holes D	No. of Holes	Thk. of Holes C	Dia of Hub E	Length through Hub S/O & S/W Y	Length through Hub W/N Y	Length through Hub L/J Y	Dia Bore S/O & S/W B	Dia Bore L/J B	Dia of R/F R	Depth of Socket F	Pipe Dia X
15	88.9	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	98.4	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	107.9	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	117.5	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	127.0	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	152.4	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	177.8	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	190.5	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	228.6	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	254.0	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	279.4	241.3	22.2	8	25.4	192.1	39.7	88.9	39.7	170.1	171.4	215.9	27.0	168.27
200	342.9	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	406.4	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	482.6	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	533.4	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	596.9	539.7	28.6	16	36.5	457.2	63.5	127.0	87.3	41.5	411.2	469.9	44.4	406.40
450	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	457.00
500	698.5	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	812.8	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

DIMENSIONS OF CLASS 300 FLANGES AS PER B 16.5

Nominal Pipe Size	Flange Dia O	Dia of Bolt Circle A	No. of Bolt Holes D	No. of Holes	Thk.of Holes C	Dia of Hub E	Length through Hub S/O & S/W Y	Length through Hub W/N Y	Length through Hub L/J Y	Dia Bore S/O & S/W B	Dia Bore L/J B	Dia of R/F R	Depth of Socket F	Pipe Dia X
15	95.2	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	117.5	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	123.8	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	133.3	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	155.6	114.3	22.2	4	20.3	69.8	30.2	68.3	30.2	49.5	50.0	73.0	15.9	48.26
50	165.1	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	190.5	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	209.5	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	254.0	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	279.4	234.9	22.2	8	34.9	177.8	50.8	98.4	50.8	143.8	144.5	185.7	-	141.30
150	317.5	269.9	22.2	12	38.5	206.4	52.4	98.4	62.4	170.7	171.4	215.9	-	168.27
200	381.0	330.2	25.4	12	41.3	260.3	61.9	111.1	61.9	221.5	222.2	269.9	-	219.07
250	444.5	387.3	28.6	16	47.6	320.7	66.7	117.5	95.2	276.3	277.4	323.8	-	273.05
300	520.7	450.8	31.7	16	50.8	374.6	73.0	130.2	101.6	327.1	328.2	381.0	-	323.85
350	584.2	514.3	31.7	20	54.0	425.4	76.2	142.9	111.1	359.1	360.2	412.7	-	355.60
400	647.7	571.5	34.9	20	57.2	482.6	82.5	146.0	120.6	410.5	411.2	469.9	-	406.40
450	711.2	628.5	34.9	24	60.3	533.4	88.9	158.7	130.2	461.8	462.3	533.4	-	457.20
500	774.7	685.8	34.9	24	63.5	587.4	95.2	161.9	139.7	513.1	514.3	584.2	-	508.00
600	914.4	812.8	41.3	24	69.8	701.7	106.4	168.3	152.4	615.9	615.9	692.1	-	609.60

DIMENSIONS OF CLASS 600 FLANGES AS PER B 16.5

Nominal Pipe Size	Flange Dia O	Dia of Bolt Circle A	No. of Bolt Holes D	Thk. of Holes	No. of Holes C	Dia of Hub E	Length through Hub S/O & S/W Y	Length through Hub W/N Y	Length through Hub L/J Y	Dia Bore S/O & S/W B	Dia Bore L/J B	Dia of R/F R	Depth of Socket F	Pipe Dia X
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	141.5	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	277.3	323.8	-	273.05
300	558.8	488.9	34.9	20	66.7	400.0	92.1	155.6	117.3	327.1	328.1	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	-	355.80
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	462.2	533.4	-	457.20
500	812.8	729.9	44.4	24	88.9	609.6	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 1.6 mm raised face Class 150/300 & 6.35 mm for Class 600.
Which is included in " Thickness" (T) and Length Through Hub (Y)

FLANGES

BRITISH STANDARD - 10

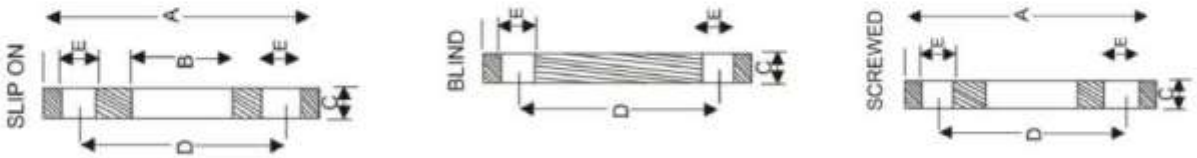


Table D : For Working steam pressure upto 50 lbs per sq. inch.

Nominal pipe size	O.D. of Pipe	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
½	27/32"	3.3/4"	2.5/8"	4	1/2"	3/16"
3/4"	1.1/16"	4"	2.7/8"	4	1/2"	3/16"
1"	1.11/32"	4.1/2"	3.1/4"	4	1/2"	3/16"
1.1/4"	1.11/16"	4.3/4"	3.7/16"	4	1/2"	1/4"
1.1/2"	1.28/32"	5.1/4"	3.7/8"	4	1/2"	1/4"
2"	2.3/8"	6"	4.1/2"	4	5/8"	5/16"
2.1/2"	3"	6.1/2"	5"	4	5/8"	5/16"
3"	3.1/2"	7.1/4"	5.3/4"	4	5/8"	3/8"
3.1/2"	4"	8"	6.1/2"	4	5/8"	3/8"
4"	4.1/2"	8.1/2"	7"	4	5/8"	3/8"
5"	5.1/2"	10"	8.1/4"	8	5/8"	1/2"
6"	6.12"	11"	9. 14"	8	5/8"	1/2"
7"	7.1/2"	12"	10.1/4"	8	5/8"	1/2"
8"	8.5/8"	13.1/4"	11.1/2"	8	5/8"	1.1/2"
9"	9.5/8"	14.1/2"	12.3/4"	8	5/8"	5/8"
10"	10.3/4"	16"	14"	8	3/4"	5/8"
12"	12.3/4"	18"	16"	12	3/4"	5/8"
14"	14"	20.3/4"	18.1/2"	12	7/8"	3/4"
16"	16"	22.3/4"	20.1/2"	12	7/8"	3/4"
18"	18"	25.1/4"	23"	12	7/8"	7/8"
20"	20"	27.3/4"	25.1/4"	16	7/8"	1"
24"	24"	32.½	29.3/4"	16	1"	1.1/8"

Table E : For Working steam pressure 50 lbs and upto 100 per sq. inch.

Nominal pipe size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	3.3/4"	2.5/8"	4	1/2"	1/4"
3/4"	4"	2.7/8"	4	1/2"	1/4"
1"	4.1/2"	3.1/4"	4	1/2"	9/32"
1.1/4"	4.3/4"	3.7/16"	4	1/2"	5/16"
1.1/2"	5.1/4"	3.7/8"	4	1/2"	11/32"
2"	6"	4.1/2"	4	5/8"	3/8"
2.1/2"	6.1/2"	5"	4	5/8"	13/32"
3"	7.1/4"	5.3/4"	4	5/8"	7/16"
3.1/2"	8"	6.1/2"	8	5/8"	15/32"
4"	8.1/2"	7"	8	5/8"	1/2"
5"	10"	8.1/4"	8	5/8"	9/16"
6"	11"	9.1/4"	8	3/4"	11/16"
7"	12"	10.1/4"	8	3/4"	3/4"
8"	13.14"	11.1/2"	8	3/4"	3/4"
9"	14.1/2"	12.3/4"	12	3/4"	13/16"
10"	16"	14"	12	3/4"	7/8"
12"	18"	16"	12	7/8"	1"
14"	20.3/4"	18.1/2"	12	7/8"	1"
16"	22.3/4"	20.1/2"	12	7/8"	1"
18"	25.1/4"	23"	16	7/8"	1.1/8"
20"	27.3/4"	25.1/4"	16	7/8"	1.1/4"
24"	32.1/2"	29.3/4"	16	1.1/8"	1.1/2"

Table F : For Working steam pressure 100 lbs and upto 150 per sq. inch.

Nominal pipe size	O.D. of Pipe	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2	3.3/4"	2.5/8"	4	1/2"	3/8"
3/4"	4"	2.7/8"	4	1/2"	3/8"
1"	4.3/4"	3.7/16"	4	5/8"	3/8"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	1/2"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	1/2"
2"	6.1/2"	5"	4	5/8"	5/8"
2.1/2"	7.1/4"	5.3/4"	8	5/8"	5/8"
3"	8"	6.1/2"	8	5/8"	5/8"
3.1/2"	8.1/2"	7"	8	5/8"	3/4"
4"	9"	7.1/2"	8	5/8"	3/4"
5"	11"	9.1/4"	8	3/4"	7/8"
6"	12"	10.1/4"	12	3/4"	7/8"
7"	13.1/4"	11.1/2"	12	3/4"	7/8"
8"	14.1/2"	12.3/4"	12	3/4"	1"
9"	16"	14"	12	7/8"	1"
10"	17"	15"	12	7/8"	1"
12"	19.1/4"	17.1/4"	16	7/8"	1.1/8"
14"	21.3/4"	19.1/2"	16	1"	1.1/4"
16"	24"	21.3/4"	20	1"	1.1/4"
18"	26.1/2"	24"	20	1.1/8"	1.3/8"
20"	29"	26.1/2"	24	1.1/8"	1.1/2"
24"	33.1/2"	30.3/4"	24	1.1/4"	1.5/8"

Table H : For Working steam pressure 150 lbs and upto 250 per sq. inch.

Nominal pipe size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	4.1/2"	3.1/4"	4	5/8"	1/2"
3/4"	4.1/2"	3.1/4"	4	5/8"	1/2"
1"	4.3/4"	3.7/16"	4	5/8"	9/16"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	11/16"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	11/16"
2"	6.1/2"	5"	4	5/8"	3/4"
2.1/2"	7.1/4"	5.3/4"	8	5/8"	3/4"
3"	8"	6.1/2"	8	5/8"	7/8"
3.1/2"	8.1/2"	7"	8	5/8"	7/8"
4"	9"	7.1/2"	8	5/8"	1"
5"	11"	9.1/4"	8	3/4"	1.1/8"
6"	12"	10.1/4"	12	3/4"	1.1/8"
7"	13.1/4"	11.1/2"	12	3/4"	1.1/4"
8"	14.1/2"	12.3/4"	12	3/4"	1.1/4"
9"	16"	14"	12	7/8"	1.3/8"
10"	17"	15"	12	7/8"	1.3/8"
12"	19.1/4"	17.1/4"	16	7/8"	1.1/2"
14"	21.3/4"	19.1/2"	16	1"	1.5/8"
16"	24"	21.3/4"	20	1"	1.3/4"
18"	26.1/2"	24"	20	1.1/8"	1.7/8"
20"	29"	26.1/2"	24	1.1/8"	2"
24"	33.1/2"	30.3/4"	24	1.1/4"	2.1/4"

CARBON STEEL SEAMLESS PIPE DIMENSION & WEIGHT - KG. PER MTR. (ANSI B 36.10)

Nominal Pipe size		OD	Schedule 10		Schedule 20		Schedule 30		Schedule STD		Schedule 40		Schedule 60		Schedule Extra Strong (XS)		Schedule 80		Schedule 100		Schedule 120		Schedule 140		Schedule 160		Schedule Double Extra Strong (XXS)	
mm	inch	mm	mm	kg/m	mm	kg/m	mm	kg/m	wall	wt.	wall	wt.	wall	wt.	wall	wt.	wall	wt.	wall	wt.	wall	wt.	wall	wt.	wall	wt.	wall	wt.
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							5.6	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	1¼	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	1½	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	11.07	13.4
65	2½	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	15.27	7.62	15.3							11.13	21.35	15.24	27.7
90	3½	101.6							5.74	13.57	5.74	13.57			8.08	18.63	8.08	18.63							-		16.2	34.1
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	7.0	36.8	8.18	42.5	8.18	42.55	10.31	53.10	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	7.8	51.3	9.27	60.3	9.27	60.31	12.70	81.50	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	323.9			6.35	49.7	8.4	65.2	9.53	73.8	10.31	79.73	14.30	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	54.6	7.92	67.9	9.53	81.3	9.53	81.3	11.13	94.55	15.10	126.4	12.7	107.4	19.0	158.0	23.8	195.0	27.8	224.0	31.8	253.5	35.7	281.7		
400	16	406.4	6.35	62.6	7.92	77.9	9.53	93.3	9.53	93.3	12.7	123.3	16.70	160.0	12.7	123.3	21.44	203.5	26.2	245.5	30.9	286.6	36.53	333	40.5	365.4		
450	18	457.0	6.35	70.5	7.92	87.7	11.13	122.4	9.53	105.0	14.27	156.0	19.05	206.0	12.7	139.0	23.8	254.6	29.36	309.6	34.9	363.6	39.7	408.3	45.2	459.4		
500	20	508.0	6.35	78.5	9.53	117.2	12.7	155.1	9.53	117.2	15.09	183.4	20.62	248.5	12.7	155.1	26.2	311.2	32.54	381.5	38.1	441.5	44.4	508	50.0	564.8		
550	22	559.0	6.35	86.5	9.53	129.0	12.7	171.0	9.53	129.0			22.20	294.0	12.7	171.0	28.6	373.8	34.9	451.4	41.3	527.0	47.6	600	54.0	672.0		
600	24	610.0	6.35	94.5	9.53	141.0	14.3	209.7	9.53	141.0	17.48	255.4	24.61	365.0	12.7	187.0	30.96	442.08	38.89	547.7	46.0	640.0	52.4	720.15	59.5	808.22		
650	26	660.0	7.92	127.0	12.7	203.0			9.53	153.0					12.7	202.7												
700	28	711.0	7.92	137.4	12.7	218.7	15.88	271.2	9.53	165.0					12.7	218.7												
750	30	762.0	7.92	147.3	12.7	234.6	15.88	292.18	9.53	176.8					12.7	234.7												
800	32	813.0	7.92	157.0	12.7	250.6	15.88	312.0	9.53	188.2	17.48	342.9			12.7	250.6												
850	34	864.0	7.92	167.0	12.7	266.6	15.88	332.1	9.53	200.3	17.48	364.9			12.7	266.6												
900	36	914.4	7.92	176.9	12.7	282.3	15.88	351.7	9.53	212.5	19.05	420.4			12.7	282.2												

A 106 Gr B
API - 5L - Gr B
A 333 Gr 6
A 335 P 5

MILD STEEL PIPES CONFIRMING TO IS : 1239 (PART 1) - 1979

Nominal Bore		Outside Diameter		Light		Medium		Heavy	
				Thickness	Weight	Thickness	Weight	Thickness	Weight
Inch	In mm	In	mm	mm	kg/mtr	mm	Kg/Mtr.	mm	Kg/Mtr.
1/8"	3 mm	0.406	10.32	1.80	0.361	2.00	0.407	2.65	0.493
1/4"	6 mm	0.532	13.49	1.80	0.517	2.35	0.650	2.90	0.769
3/8"	10 mm	0.872	17.10	1.80	0.674	2.35	0.852	2.90	1.02
1/2"	15 mm	0.844	21.43	2.00	0.952	2.65	1.122	3.25	1.45
3/4"	20 mm	1.094	27.20	2.35	1.410	2.65	1.580	3.25	1.90
1"	25 mm	1.312	33.80	2.65	2.010	3.25	2.440	4.05	2.97
1.1/4"	32 mm	1.656	42.90	2.65	2.580	3.25	3.140	4.05	3.84
1.1/2"	40 mm	1.906	48.40	2.90	3.250	3.25	3.610	4.05	4.43
2"	50 mm	2.375	60.30	2.90	4.110	3.65	5.100	4.47	6.17
2.1/2"	65 mm	3.004	76.20	3.25	5.840	3.65	6.610	4.47	7.90
3"	80 mm	3.500	88.90	3.25	6.810	4.05	8.470	4.85	10.1
4"	100 mm	4.500	114.30	3.65	9.890	4.50	12.10	5.40	14.4
5"	125 mm	5.500	139.70	-	-	4.85	16.20	5.40	17.8
6"	150 mm	6.500	165.10	-	-	4.85	19.20	5.40	21.2

STAINLESS STEEL PIPE DIMENSION & WEIGHT-KG. PER MTR. (ANSI B36.19)

Nominal Bore		Outside Diameter	Schedule 5S		Schedule 10S		Schedule 40S		Schedule 80S		Schedule 160S		Schedule XXS	
mm	INCH	mm	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)	Wt mm	Weight (Kg/mt)
3	1/8	10.3	1.24	0.276	1.24	0.28	1.73	0.37	2.41	0.47	-	-	-	-
6	1/4	13.7	1.24	0.390	1.65	0.49	2.24	0.631	3.02	0.80	-	-	-	-
10	3/8	17.1	1.24	0.490	1.65	0.63	2.31	0.845	3.20	1.10	-	-	-	-
15	1/2	21.3	1.65	0.800	2.11	1.00	2.77	1.27	3.75	1.62	4.75	1.94	7.47	2.55
20	3/4	26.7	1.65	1.03	2.11	1.28	2.87	1.68	3.91	2.20	5.54	2.89	7.82	3.63
25	1	33.4	1.65	1.30	2.77	2.09	3.38	2.50	4.55	3.24	6.35	4.24	9.09	5.45
32	1 1/4	42.2	1.65	1.65	2.77	2.70	3.56	3.38	4.85	4.47	6.35	5.61	9.70	7.77
40	1 1/2	48.3	1.65	1.91	2.77	3.11	3.68	4.05	5.08	5.41	7.14	7.25	10.16	9.54
50	2	60.3	1.65	2.40	2.77	3.93	3.91	5.44	5.54	7.48	8.74	11.1	11.07	13.44
65	2 1/2	73.0	2.11	3.69	3.05	5.26	5.16	8.63	7.01	11.4	9.53	14.9	14.2	20.39
80	3	88.9	2.11	4.51	3.05	6.45	5.49	11.30	7.62	15.2	11.1	21.3	15.24	27.65
100	4	114.3	2.11	5.84	3.05	8.36	6.02	16.07	8.56	22.3	13.49	33.54	17.12	41.03
125	5	141.3	2.77	9.47	3.40	11.57	6.55	21.8	9.53	31.97	15.88	49.11	19.05	57.43
150	6	168.3	2.77	11.32	3.40	13.84	7.11	28.3	10.97	42.7	18.2	67.56	21.95	79.22
200	8	219.1	2.77	14.79	3.76	19.96	8.18	42.6	12.07	64.6	23.0	111.2	22.23	107.8
250	10	273.1	3.40	22.63	4.19	27.78	9.27	60.5	15.08	96.0	28.6	172.4	25.40	155.15
300	12	323.9	3.96	31.25	4.57	36.00	9.52	73.88	17.45	132.0	33.32	238.76	25.40	186.97
350	14	355.6	3.96	34.36	4.78	41.3	11.13	94.59	19.05	158.08	35.71	281.70	-	-
400	16	406.4	4.19	41.56	4.78	47.29	12.7	123.30	21.41	203.33	40.46	365.11	-	-
450	18	457.2	4.19	46.80	4.78	53.42	14.27	155.80	23.8	254.36	45.71	466.40	-	-
500	20	508.0	4.78	59.25	5.54	68.71	15.09	183.42	26.19	311.2	49.99	564.68	-	-
600	24	609.6	5.54	82.47	6.35	94.45	17.48	255.41	30.96	442.08	59.54	808.22	-	-

WEIGHT & THICKNESS OF S.S. GAUGE PIPES

DIMENSION		10 SWG (3.2 MM)	12 SWG (2.6 MM)	14 SWG (2.1 MM)	16 SWG (1.65 MM)	18 SWG (1.2 MM)	19 SWG (1.0 MM)
Size	OD	Weight / MTR	Weight / MTR	Weight / MTR	Weight / MTR	Weight / MTR	Weight / MTR
1/2"	12.7	0.754	0.651	0.552	0.452	0.342	0.290
5/8"	15.875	1.006	0.856	0.718	0.582	0.437	0.369
3/4"	19.05	1.258	1.061	0.883	0.712	0.531	0.448
1"	25.4	1.762	1.470	1.214	0.972	0.720	0.605
1 1/4"	31.75	2.266	1.880	1.544	1.232	0.909	0.763
1 1/2"	38.1	2.770	2.289	1.875	1.492	1.098	0.920
2"	50.8	3.778	3.108	2.537	2.012	1.476	1.235
2 1/2"	63.5	4.786	3.928	3.198	2.531	1.854	1.550
3"	76.2	5.794	4.747	3.860	3.051	2.232	1.865
3 1/2"	88.9	6.802	5.566	4.521	3.571	2.610	2.180
4"	101.6	7.810	6.385	5.183	4.091	2.988	2.495

STAINLESS STEEL BARS

Product Range

Condition	Peeled, Centreless & Polished	Peeled & Polished	Peeled (Rough Turned)	Forged, Rough Turned
Grades	201, 202, 301,303, 304, 304L, 310, 316, 316L, 321, 410, 416, 416, 420, , 430, 431, 430F & others		304, 304L, 316L, 410, 416 420, 430	303, 304, 304L, 316, 316L, 410, 416, 420, 431
Diameter (Size)	20mm to 85mm (3/4" to 3-1/4")	85mm to 140mm (3-1/4" to 5 - ½")	25mm to 140mm (1" to 5-1/2")	150mm to 400mm (6" to 16")
Diameter /+3mmTolerance	h9 (Din 671) (ASTM A484)	h 11	K 12/K 13 (Din 1013)	-0mm to (-0"/+0.12")
Length	3/4/5, 6/6 meter (12/14ft/20 feet)	3/4/5, 6/6 meter (12/14ft/20 feet)	3/4/5,6/6 meter 10 feet, 16 feet	3 meter - 5 meter
Length Tolerance	-0/+200mm of + 100mm to + 50mm (-0"/1 feet or +4" or 2")	-0/+ 200mm or +100mm or +50mm (-0"/+1 feet or +4" or 2")	-0/+ 100mm or 500mm (-0"/+3 feet or+2 feet)	-0/+2 meter -(-0/+6 feet)

ASTM A182 Alloy Steel Round Bar Chemical & Physical Properties

ASTM Grade	C	Mn	Si	S	P	Cr	Ni	Mo	Other	Tensile Psi (MPa)	Yield Psi(Mpa)	Elongation Strip/Round	Hardn.	Redu. in Area.(%)
182 F11 Class 2	0.10 0.20	0.30 0.80	0.50 1.0	0.04 max	0.04 max	1.0 1.50	-	0.04 0.65	-	70000 (485)	40000 (275)	20	143-207	30
A 182 F22 Class	0.05 0.15	0.30 0.60	0.50 max	0.04 max	0.04 max	2.0 2.50	-	0.87 1.13	-	75000 (515)	45000 (310)	20	156-207	30
A 182 F5	0.15 max	0.30 0.06	0.50 max	0.03 max	0.03 max	4.0 6.0	0.5 max	0.44 0.65	-	70000 (485)	40000 (275)	20	143-217	35
A 182 F9	0.15 max	0.30 0.60	0.50 1.00	0.03 max	0.03 max	8.0 10.0	-	0.90 1.10	-	85 (585)	55 (380)	20	179-217 (BHN)	40

Stainless Steel Bright Bars (Cold Drawn)

Condition	Cold Drawn and Polished	Cold Drawn, Center less Ground & Polished	Cold Drawn, Center less Ground and Polished (Strain Hardened)
Grades	201, 202, 303, 304, 304L, 310, 316, 316L, 321, 410, 420, 416, 430, 431, 430F, & others		304, 304L, 316, 316L
Diameter (Size)	2mm to 5mm (1/8" to 3/16)	6mm to 22mm (1/4" to 7/8")	10mm to 40mm (3/8" to 1-1/2")
Diameter Tolerance	h9 (Din 671), h11 ASTM A 484	h9 (Din 671) ASTM A 484	h9 (Din 671), h11 ASTM A 484
Length	3/4/5, 6/6 meter (12/14ft/20 feet)	3/4/5, 6/6 meter (12/14ft/20 feet)	3/4/5, 6/6 meter (12/14/20 feet)
Length Tolerance	-0/+ 200mm of +100mm or+50mm (-0"/+1 feet or+ 4" or 2")	-0/+200mm or +100mm or +50mm (-0"/+1 feet or+4" or2")	-0/+200mm (-0"/+1 feet)

IS-1875 ASTM A105 CARBON STEEL ROUND BAR CHEMICAL & PHYSICAL PROPERTIES

ASTM GRADE	C	Mn	Si	S	P	Cr	Ni	Mo	Other	Tensile Psi (MPa)	Yield Psi (MPa)	Elongation Strip/Round	Hardn.	Redu.in Area.(%)
A 105	0.35 max	0.60 1.05	0.10/0.35 max	0.040 max	0.035 max	-	-	-	-	70000 (485)	36000 (250)	30 Strip 22 Round	187 max	30 Round
A LF2	0.30 max	1.35 max	0.15 0.30	0.040 max	0.035 max	0.30 max	0.40 max	0.12 max	Cu-0.4 max Cb-0.02 max Va-0.3 max	70-95 (485-655)	36 (250)	22/30	20/16 (-45.6")	36

Formula - Weight of stainless steel rounds = Dia. (mm) x Dia (mm) x 0.00623 = Kg Per Mtr. | Weight of Stainless Steel Square Bars = Dia. (mm) x Dia (mm) x 0.00787 = Kg. Per Mtr.
Weight of Stainless Steel Hexagonal Rods = Dia. (mm) x Dia. (mm) x 0.00679 = Kg Per Mtr. | Weight of Stainless Steel Circle & Blanks = O.D. (mm) x O.D.(mm) X Thk (mm)/160/1000 = Kg Per Pcs.

SUMMARY OF THE MAIN ASTM STANDARDS GENERALLY USED FOR PIPING

		Chemical requirement percent (%)										Mechanical requirements			
ASTM	Grade	C Max	MN max	P max	S max	Si max	Ni	Cr	Mo	Cu	Others	Tensile Strength mini-Mpa	Yeild Strength mini-Mpa	Elong. Mini %	Impact test a C F
A53	A	0.25	0.95	0.05	0.06		0.40 max	0.40 max	0.15 max	0.40 max	0.08 max	330	205	36	
	B	0.30	1.20	0.05	0.06		0.40 max	0.40 max	0.15 max	0.40 max	0.08 max	415	240	29.5	
A106	A	0.25	0.27-0.93	0.035	0.035	0.10 min	0.40 max	0.40 max	0.15 max	0.40 max	0.08 max	330	205	L35-T25	
	B	0.30	0.29-1.06	0.035	0.035	0.10 min	0.40 max	0.40 max	0.15 max	0.40 max	0.08 max	415	240	L30-T16.5	
	C	0.35	0.29-1.06	0.035	0.035	0.10 min	0.40 max	0.40 max	0.15 max	0.40 max	0.08 max	485	275	L30-T16.5	
A312	TP 304	0.08	2.00	0.040	0.030	0.75	8.00-11.0	18.0-20.0				515	205	L35-T25	
	TP 304L	0.035	2.00	0.040	0.030	0.75	8.00-13.0	18.0-20.0				485	170	L35-T25	
	TP 310S	0.08	2.00	0.045	0.030	0.75	19.0-22.0	24.0-26.0	0.75 max			515	205	L35-T25	
	TP 316	0.08	2.00	0.040	0.030	0.75	11.0-14.0	16.0-18.0	2.00-3.00			515	205	L35-T25	
	TP316L	0.035	2.00	0.040	0.030	0.75	10.0-15.0	16.0-18.0	2.00-3.00			485	170	L35-T35	
	TP317L	0.035	2.00	0.040	0.030	0.75	11.0-15.0	18.0-20.0	3.00-4.00			515	205	L35-T25	
	TP321	0.08	2.00	0.040	0.030	0.75	9.00-13.0	17.0-20.0			Ti>5xC<0.70	515	205	L35-T25	
	TP 347	0.08	2.00	0.040	0.030	0.75	9.00-13.0	17.0-20.0			Cb + Ta > 10xC < 1.10	515	205	L35-T25	
A333	3	0.19	0.31-0.64	0.025	0.025	0.18-0.37	3.18-3.82					450	240	L30-T20	-100 -150
	4	0.12	0.50-1.05	0.025	0.025	0.08-0.37	0.47-0.98	0.44-1.01		0.40-0.75	Ai 0.40-0.30	415	240	L30-T16.5	-100 -150
	6	0.30	0.29-1.06	0.025	0.025	0.10 min						415	240	L30-T16.5	- 45 - 50
	7	0.19	0.90	0.025	0.025	0.13-0.32	2.03-2.57					450	240	L30-T22	- 75 - 100
	8	0.13	0.90	0.025	0.025	0.13-0.32	8.40-9.60					690	515	L22	-195 - 320
	9	0.20	0.40 -1.06	0.025	0.025		1.60-2.24			0.75-1.25		435	315	L28	- 75 - 100
A335	P1	0.10-0.20	0.30-0.80	0.025	0.025	0.10-0.05			0.44-0.65			380	205	L30-T20	
	P2	0.10-0.20	0.30-0.61	0.25	0.025	0.10-0.30		0.50-0.81	0.440.65			380	205	L30-T20	
	P5	0.15	0.30-0.60	0.025	0.025	0.50		4.00-6.00	0.45-0.65			415	205	L30-T20	
	P9	0.15	0.30-0.60	0.025	0.025	0.25-1.00		8.00-10.0	0.90-1.10			415	205	L30-T20	
	P11	0.05-0.15	0.30-0.60	0.025	0.025	0.50-1.00		1.00-1.50	0.44-0.65			415	205	L30-T20	
	P12	0.05-0.15	0.30-0.61	0.025	0.025	0.50		0.80-1.25	0.44-0.65			415	220	L30-T20	
	P15	0.05-0.15	0.30-0.60	0.025	0.025	1.15-1.65		-	0.44-0.65			415	205	L30-T20	
	P21	0.05-0.15	0.30-0.60	0.025	0.025	0.50		2.65-3.35	0.80-1.06			415	205	L30-T20	
	P22	0.05-0.15	0.30-0.60	0.025	0.025	0.50		1.90-2.60	0.87-1.13		Cb-0.06-0.10, Vo 0.18-0.25,	415	205	L30-T20	
	P91	0.08-0.12	0.30-0.60	0.025	0.025	0.20-0.50	0.40max	8.00-9.50	0.85-1.05		N-0.030-0.070 Ai-0.40 max	585	415	L20	
A358	TP304	0.08	2.00	0.045	0.030	0.75	8.0-10.50	18.0-20.0	-			Class 1 : Double welded pipes & full Radiography			
	TP310	0.08	2.00	0.045	0.030	0.50	19.0-22.0	24.0-26.0	-			Class 2 : Double welded no Radiography			
	TP316	0.08	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.0-3.0			Class 3 : Single welded full Radiography			
	TP316L	0.08	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.0-3.0			Class 4 : Single welded full Radiography root pass without addition of filter			
	TP317L	0.030	2.00	0.045	0.030	0.75	11.0-15.0	18.0-20.0	3.0-4.0						
	TP321	0.08	2.00	0.045	0.030	0.75	9.0-12.0	17.0-19.0	-		Ti>5xC<0.70	Class 5 : Double Welded spot Radiography			
	TP347	0.08	2.00	0.045	0.030	0.75	9.0-13.0	17.0-19.0	-		Cb + Ta > 10xC < 1.10				

Formula - Sheet Width Required for Rolled & Welded Pipes - O. D. (mm) - Thickness (mm) x 3.14 = Sheet Width

L - Longitudinal
T - Transeverse

SUMMARY OF THE MAIN ASTM STANDARDS GENERALLY USED FOR SHEETS / PLATES

ASTM	Grade	Chemical requirements percent (%)										Mechanical requirements				
		C max	Mn max	P max	S max	Si max	Ni	Cr	Mo	Cu	Others	Tensile Strength mini-MPa	Yeild Strength mini-MPa	Elong mini %	Hardness Brinell	Hardness Rockwell
A240	304	0.08	2.00	0.045	0.030	0.75	8.00-10.5	18.00-20.0				515	205	40	201	92
	304L	0.03	2.00	0.045	0.030	0.75	8.00-12.0	18.00-20.0				485	170	40	201	92
	310	0.08	2.00	0.045	0.030	1.50	19.0-22.0	24.0-26.0				515	205	40	217	95
	316	0.08	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00			515	205	40	217	95
	316L	0.03	2.00	0.045	0.030	0.75	10.0-14.0	16.0-18.0	2.00-3.00			485	170	40	217	95
	317L	0.03	2.00	0.045	0.030	0.75	11.0-15.0	18.0-20.0	3.00-4.00			515	205	40	217	95
	321	0.08	2.00	0.045	0.030	0.75	9.00-12.0	17..0-19.0				515	205	40	217	95
	347	0.08	2.00	0.045	0.030	0.75	9.00-13.0	17.0-19.0				515	205	40	201	92
												Class 1 Class 2	Class 1 Class 2			
A387 Class 1 Class 2	2	0.05-0.21	0.55-0.80	0.035	0.040	0.15-0.40		0.50-0.80	0.45-0.60			380 485	230 310	22	max201HB	max92HRB
	5	0.15	0.30-0.60	0.04	0.030	0.050		4.00-6.00	0.45-0.65			415 515	205 310	18	max202HB	max92HRB
	7	0.15	0.03 0.60	0.030	0.030	1.00		6.00-8.00	0.45-.065			415 515	205 310	18	max217HB	max95HRB
	9	0.15	0.30-0.60	0.030	0.030	1.00		8.00-10.0	0.90-1.10			415 515	205 310	18	max217HB	max95HRB
	11	0.04-0.17	0.40-0.65	0.035	0.04	0.50-0.80		1.00-1.50	0.45-0.65			415 515	240 275	22	max217HB	max95HRB
	12	0.04-0.17	0.40-0.65	0.035	0.04	0.15-0.40		0.80-1.15	0.45-0.60			380 450	205 310	22	max217HB	max95HRB
	21	0.04-0.17	0.30-0.60	0.035	0.035	0.50		2.75-3.25	0.90-1.10			380 450	205 310	22	max201HB	max92HRB
	22	0.05-0.17	0.30-0.60	0.035	0.035	0.50		2.00-2.50	0.90-1.10			415 515	205 310	18	max201HB	max92HRB
A 515	55	0.22	0.90	0.035	0.04	0.15-0.40						380-515	205	27		
	60	0.27	0.90	0.035	0.04	0.15-0.40						415-550	220	25		
	65	0.31	0.90	0.035	0.04	0.15-0.40						450-585	240	23		
	70	0.33	1.20	0.035	0.04	0.15-0.40						485-620	260	21		
A 516	55	0.20	0.60-1.20	0.035	0.04	0.15-0.40						380-515	205	27		
	60	0.23	0.85-1.20	0.035	0.04	0.15-0.40						415-550	202	25		
	65	0.26	0.85-1.20	0.035	0.04	0.15-0.40						450-585	240	21		
	70	0.28	0.85-1.20	0.035	0.04	0.15-0.40						485-620	260	21		
A 537	Class 1	0.24	0.70-1.35	0.035	0.040	0.15-0.40	0.25 max	0.80 max	0.35 max			485-620	345	22		
	Class 2	0.24	0.70-1.35	0.035	0.040	0.15-0.40	0.25 max	0.80 max	0.35 max			550-690	415	22		

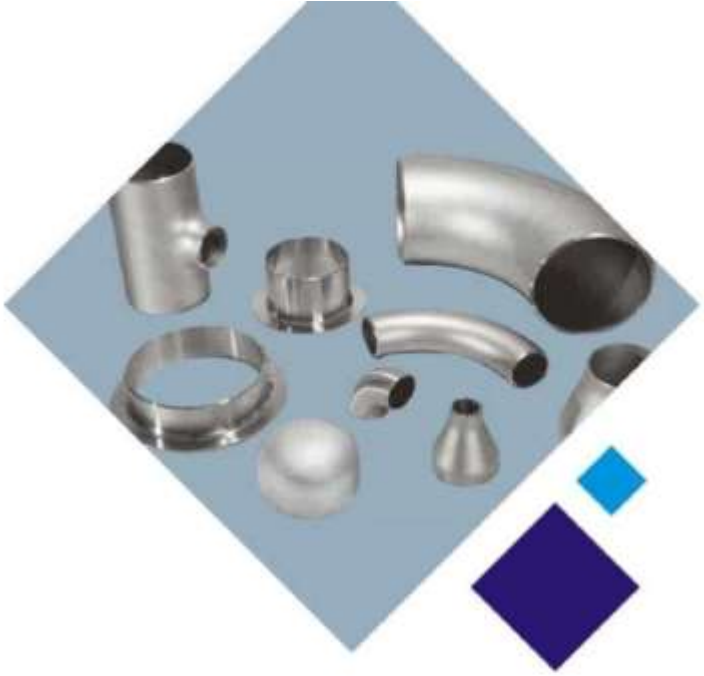
IS-2062-92 STEEL FOR GENERAL STRUCTURAL PURPOSES

Grade	Designation	% Chemical Composition						Tensile strength (Min) Kg/mm2	Yield Strength (Min) Mpa			% El in gauge length 5.56√So	Bend Test	Std.test Piece charpy V Notch Impact Energy Joule min
		C max	MN max	S max	P max	Si max	C.E. max		<20 min	<20-40 min	>40 min			
A	FE410 WA	0.23	1.5	0.050	0.050	-	0.42	41.8	250	240	230	23	3t	-
B	FE410 WB	0.22	1.5	0.045	0.045	0.40	0.41	41.8	250	250	230	23	t<25mm	2t for 27 3t for t>25mm
C	FE410 WC	0.20	1.5	0.040	0.040	0.40	0.36	41.8	250	250	230	23	2t	27

Formula - Weight of Stainless Steel Sheets/Plates = Length (mm) x Width (mm) x Thickness (mm) x 7.86 = kg. /Sheet.

IS-2002-62 STEEL PLATES FOR BOILERS

Designation	Chemical Composition				Tensile Test		Elongation	
	C max	Si max	P max	S max	Tensile Strength Mpa	Yield Strength Mpa	Test Piece	% min
IS 2002-1	0.18	0.10-035	0.040	0.040	362-442	540	5.65√So 4√So	26 30
IS 2002-2A	0.20	0.10-0.35	0.050	00.50	412-491	491	5.65√So 4√So	25 29
IS 2002-2B	0.22	0.10-0.35	0.050	0.050	510-608	491	5.65√So 4√So	20 24



BUTT WELD FITTINGS

Stainless Steel : ASTM A403 WP 304 / 304L / 304H / 316 / 316L / 317 / 317L / 321 / 310 / 347 / 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 etc.
Others : Monel, Nickel, Inconel, Hastalloy, Copper, Brass, Bronze, Titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead etc.
Size : 1/4" NB TO 32" NB (Seamless & Welded)
Wall Thickness : Sch. 5S To Sch. XXS.

Combining outstanding quality and value, **METAL INOX INDIA** is offering a comprehensive range of Butt weld fittings, Socket weld Fittings, and branch connection fittings. Our reputed engineering process precisely-engineer these fittings in complete compliance with the international quality standards. Further, to fulfill the ever changing demands of our clients, we are offering these fittings in various sizes, designs, grades and other specification. Offered fittings are highly known for their durability and dimensional accuracy.

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

FORGED FITTINGS

High Nickel	:	Monel, Nickel, Inconel, Hastelloy
Stainless Steel	:	ASTM A182, F304, 304L, 304H, 316, 316L, 317, 317L, 321, 310, 347, 904L
Carbon Steel	:	ASTM A105, A694, F42, A350 LF2
Alloy Steel	:	ASTM A182, F1, F5, F9, F11, F22, F91
Size	:	1/4: NB TO 4" NB
Class	:	2000#, 3000#, 6000#, 9000#

Types : Elbow, Tee, Union, Cross, Coup Bushing, Plug, Swage Nipple, Welding Boss, Hexagon Nipple, Barrel Nipple, Welding Nipple, Parraler Nipple, Street Elbow, Hexagon Nut, Hose Nipple, Bend, Adapter, Insert, Weldolet, Elbowlet, Sockolet, Thredolet, Nipolet, Letrolet etc.

Nickel Alloys	:	201/200
Monel Alloy	:	400/K-500
Inconel	:	600, 601, 625, 825, 800 / 800H / 800HT
Hastalloy	:	C22, C276, B-2000
Titanium	:	Gr. 1, 2, 5, 7
Duplex & Super Duplex	:	UNS-S 31803, UNS-S 32760, UNS-32750, Tantalum, SMO 254, Alloy - 904L, Alloy 20, Alloy 330, etc.
Types	:	Weldneck, Slipon, Blind, Socket Weld, Lap Joint, Spectacles, Ring Joint, Oriface, Long Weldneck, Deck Flange, etc.
Size	:	1/2" NB TO 40" NB.
Class	:	150#, 300#, 400#, 600#, 900#, 1500# & 2500#.

FASTENERS

Duplex & Super Duplex : 347, 310, 303, 304/304H, 316/316L, 317/317L, 17/4PH, 410, 431, Nitronic 50, Nitronic 60, Nitronic 80A

Carbon Steel : 4.6, 8.8, 10.9, 12.9.

Duplex & Super Duplex : UNS S31803, UNS S32750, UNS S32760, UNS S3250, 254 SMO

Hastelloy Alloy : Hastelloy C4, Hastelloy B2, Hastelloy G30, Hastelloy B3, Hastelloy C276, Hastelloy X, Hastelloy C22

Incoloy Alloys : Incoloy Alloy 20, Incoloy Alloy 800, Incoloy Alloy 800H/800HT, Incoloy Alloy 825, Incoloy Alloy 925, Incoloy Alloy A286

Monel Alloys : Monel 400, Monel R405, Monel K500.

FLANGES

FLANGES DETAILS

Materials Grades Available:

Stainless Steel: ASTM A182 F304/ 304L/ 304H/ 316/ 316L/ 317/ 317L/ 321/ 310/ 347/ 904Letc.

Carbon Steel: ASTM A105/A694F42/46/52/56/60/65/ 70/A350 LF3/A350 LF2, etc.

Alloy Steel : ASTM A182 F1/ F5/ F9/ F11/ F22/ F91 etc.

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

Types : Our range of include PN , Plate Blank Flanges, Screwed Bars , Spectacle, Blind, Lapped, Reducing , Welded, Socketweld , SORF, Threaded, Weldneck, Slipon, Blind, Socket Weld, Lap Joint, Spectacles, Ring Joint, Oriface, Long Weldneck, Deck Flange, RTJ Flange

Size: 1/2" NB TO 40" NB.

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

Types :

- ANCHOR FASTENERS
- HEX HEAD BOLTS
- SOCKET CAPS SCREW
- HEX NUTS
- EYE BOLTS
- WASHERS
- STUB BOLTS
- THREADED RODS
- COUNTERSUNK BOLTS
- FLAT / SPRING / LOCK WASHERS
- FOUNDATION BOLTS
- REFRACTORY ANCHOR

Pipes

Stainless Steel & Duplex Steel Pipe

Size	:	½" to 30"
Schedule	:	Sch. 5 to Sch. XXS
Stainless Steel	:	ASTM A312, A358 - TP 304/304H/304L/316/316H/316L/316Ti/309/310/317/317L/321/347/904L
Duplex Steel	:	ASTM A790 - UNS S31803, S32750, S32760, S32205

Alloy Steel, Carbon Steel & LTCS Pipe

Size	:	1/2" to 36"
Schedule	:	Sch. 5 to Sch. XXS
Alloy Steel Pipe	:	ASTM A335 Gr. P5, P9, P11, P12, P22 & P91
Carbon Steel	:	ASTM A 106 Gr. B ASTM A53
Low Temp. Pipe	:	ASTM A 333 Gr. 6
Line Pipe	:	API 5L, X 42, 46, 52, 56, 60, 70
Mild Steel & Galvanized Pipe	:	IS 1239, IS 3589

Copper & Nickel Alloys pipe

Size	:	½" NB to 10" NB
Standard	:	10S/40S/80S
Copper Nickel	:	C70600 (90:10), C71500 (70:30), C71640
Nickel	:	UNS N02200, N02201
Monel	:	UNS N04400, N05500, Alloy 20
Inconel	:	UNS N06600, N06601, N06625, N08800, N08810, N08825
Hastelloy	:	UNS N10276, N06022, N10665, N06455

ANGLE / CHANNEL / FLAT BAR

Size

Sizes of Angles :
- 20mm to 150mm, in Thk = 3mm to 12mm

Sizes of Channels :
- 20mm to 500mm, in Thk = 3mm to 50mm

Grades

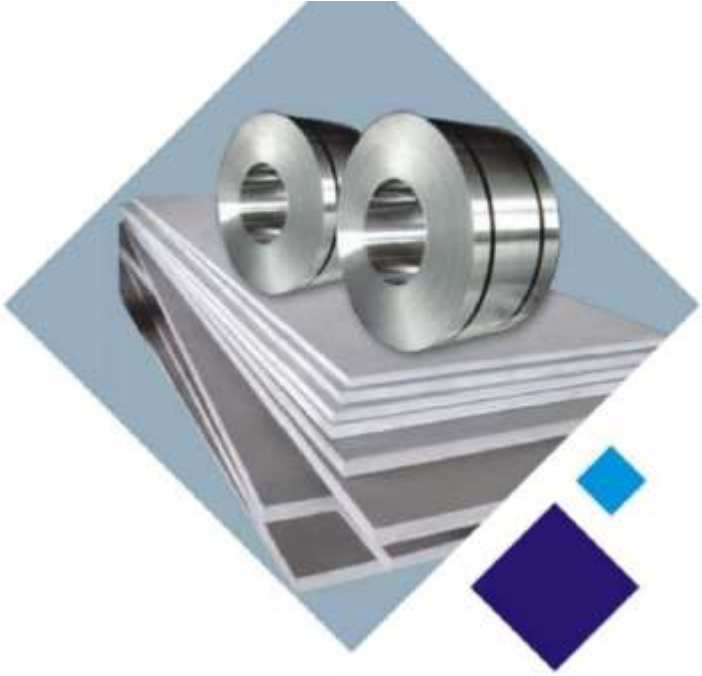
Stainless Steel : 304/304L, 316/316L/316Ti, 321, 310/310S, 317/317L, 347, 17-4Ph, 15-5Ph, 904L, 410, 420, 430, 431, 430F, 416, 440C etc.
Copper, Brass, Aluminium, Hast Alloy, Titanium, Monel, Inconel, Nickel, etc.
Duplex Steel : UNS 31803, UNS32205, UNS 32750, UNS 32760
Alloy Steel : F5, F9, F11, F22, F91. Carbon Steel, Mild Steel, (EN Series)
Specification : ASTM, AISI, ASME, DIN, UNS etc.

PIPES & TUBES

Tubes

Size	:	6 mm OD to 355.60 mm OD
Thickness	:	0.6mm-10mm-Gauge : 22 SWG/BWG to 10 SWG/BWG
Form	:	Round, Square, Rectangle, Coil, 'U' Shap
Length	:	Standard Length & Cut Length
Stainless Steel Tube	:	ASTM A-213, A-249, A269-TP 304/304H/304L, 316/316H/316L/316Ti, TP 309, 310, 317L, 321, 347, 904 L etc.
Low Alloy Steel Tube	:	ASTM A 213 - T-11, T-12, T-22, T-5, T-9 etc.
Titanium	:	Gr. 1, 2, 5, 7
Carbon Steel Tube	:	BS 3059 Gr. 360 / 440, SA 179, SA / ASTM A210 Gr. A1
Copper Nickel Tube	:	ASTM B111, C70600 (90.10), C71500 (70:30), C71640
Admiralty Brass Tube	:	ASTM B 111 C44300, C44400, C44500, C68700
Copper & Brass Tube	:	ASTM B 188 C11000, C12200, C26000, C27000, C28000
Nickel Alloy Tube	:	Nickel, Monel, Inconel, Alloy 20 etc.
Specialize	:	Capillary Tube, IBR Tubes, Copper Nickel Tube

Types Round | Rectangle | Square | Hydraulic



SHEETS / PLATE / COILS / SHIMS

SHEETS/PLATES & COILS DETAILS

S. S. Sheets & Plates as per ASTM A240, Gr. TP 304,304L, 304LN, 309, 309S, 309H, 310H, 316, 316L, 316H, 316LN, 316Ti, 317, 317L, 321, 321H, 347, 348, 3487H, 409, 410, 420, 430 etc.

Alloy Steel Plates : as per ASTM A387 Gr. 2, 5, 9, 11, 12 & 22 in class 1 & 2 ASTM A 204 Gr. A & B, DIN 17175 Gr. 15Mo3 & 16Mo3 with IBR Test Certificate.

Carbon Steel / Boiler Quality Plates : as per IS 2062/ASTM A36, Gr. A, B & C, IS 2002 Gr. 1 & 2 ASTM A 516 Gr. 60 & 70, ASTM A 515 Gr.70

Range: 0.5 mm To 200 mm thick in 1000 mm TO 2500 mm width & 2500 mm to 12500 mm length available with NACE MR 01-75

We are well known for quality supplier of Stainless steel and Carbon steel sheets and plates. We always aim to provide high quality sheets & Plates at most competitive price, high on quality and durability. These sheets and plates are available in different dimensions and material to ensure wider choice to our clients.

Product Range :

Nickel Alloys	:	201/200
Monel Alloy	:	400/K-500
Inconel	:	600, 601, 625, 825, 800 /800H /800HT
Hastalloy	:	C22, C276, B-2000
Duplex & Super Duplex	:	UNS-S 31803, UNS-S 32760, UNS-32750
Titanium	:	Gr. 1, 2, 5, 7
		Tantalum, SMO 254, Alloy - 904L, Alloy 20, Alloy 330, etc.
Types	:	Sheet, Plate, Coil
Thickness	:	1mm - 200mm

ROUND / HEX / SQUARE BAR / WIRE ROPE

Size

Bright Bars : From 5mm Dia upto 350mm Dia
Black Bars : From 16mm Dia upto 350mm Dia
Square Bars : From 5mm Dia upto 250mm Dia
Hex Bars : From 5mm Dia upto 150mm Dia
Wires : 0.1mm Dia to 5mm Dia
Welding Electrodes : 2.6mm to 4mm Dia

Specification

Condition : Rolled, Forged, Annealed, Picked, Hot Rolled, Cold Roll

Grades

Stainless Steel : 304/304L, 316/316L/316Ti, 321, 310/310S, 317/317L, 347, 17-4Ph, 15-5Ph, 904L, 410, 420, 430, 431, 430F, 416, 440C etc.
Copper, Brass, Aluminium, Hast Alloy, Titanium, Monel, Inconel, Nickel, etc.
Duplex Steel : UNS 31803, UNS32205, UNS 32750, UNS 32760
Alloy Steel : F5, F9, F11, F22, F91.
Carbon Steel, Mild Steel, (EN Series)
Specification : ASTM, AISI, ASME, DIN, UNS etc.

Wire Rope

We are prominent dealers in Stainless Steel Wire Ropes - SS 304 and higher grades too - with properties of high fatigue strength and corrosion resistant.

The ropes are tested on multiples parameters to suit the critical requirements of chemical resistance and dimensional accuracy of modern infrastructural needs.

Size : 1mm to 40mm Grade : SS 304, SS 316

MECHNOVA Industries

Mechnova Ind. is one of the leading Indian company that meets the exacting standards of successful international enterprise. We are serving the Indian industry for the last one decades and has always taken the guide as depending on technology, strict management, elaborate work creating the best.

We are one of the leading manufacturers, stockist & supplier of Ferrous & Non ferrous metals products such as STAINLESS STEELS, COPPER, BRASS, ALUMINIUM, CARBON STEEL, ALLOY STEEL, DUPLEX & SUPER DUPLEX, TITANIUM, NICKEL 200 (UNS 2200), INCONEL, HASTELLOY, 17-4PH & Aero Space Products in foam of Pipes, Round Bars, Sheets, Plates, Forged Fittings, Pipe Fittings, Flanges, Forged Blocked, Fasteners, Perforated Sheets & Tubes, Designer Sheets, Wire Mesh and Sheet Fabrication.

QUALITY POLICY

We always strive to meet the exacting standards of quality for our products, which are as per accepted International standards. We supply better quality and better value for money to our customers using best quality control trained manpower coupled with cost effectiveness that will sustain our future growth . Every manufacturing phase is carried out with modern technique and is under the surveillance of our quality team that ensures all our products meet the national / international standards.

"NO COMPROMISE IN QUALITY" IS OUR MOTTO

We have adopted quality analyst personnel to ensure complete satisfaction to our clients. As there is always a scope of betterment we are continually improving upon quality of products.

We have a stringent parameters set for the quality which are followed by all our employees. They see to it that the products are in accordance with the national / international standards.

From the time of procurement of raw material till the final delivery of the products, at every stage, our products are checked for various chemical and mechanical properties using the equipment certified by the Government and its agencies.

THIRD PARTY INSPECTION

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Nuclear Power Corp. of India Ltd.

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Electromech Engg.

TUV INDIA

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TATA TATA Project

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RITES

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