



Jaydeep Metals

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JM
Jaydeep Metals
since 1988

Stockist, Project Suppliers & Importers :

Stainless Steel-Sheets, Plates, Rods, Flats, Pipes & Pipe Fittings etc.
In 304, 304L, 316, 316L, 321, 310, 410, 420, 430 etc.
Also Deals In Copper, Brass, Aluminium, GI, MS, CS Pipe & Fittings.

We are pleased to introduce ourselves as one of the leading Importers, Manufacturers & Stockists of Stainless Steel Items, Ferrous and Non-Ferrous Metals which are required by your company in all aspects of Project Implementation, Maintenance, Modernisation and Shut Down Application etc. Our Product line is as under :

STAINLESS STEEL PIPES, TUBES (SEAMLESS/WELDED) in ASTM A-3/2, ASTM A-2/3, ASTM A 269 in 304, 304L, 316, 321, 310, 347 etc.....

STAINLESS STEEL : Sheet, Plate, Coils, Checkered in 304/304L, 321, 410S, 316L, 310 grade

STAINLESS STEEL : Shaft/Rods/Bars/Angels/Channels/Flats/Pipe Fitting etc. in all grade

STAINLESS STEEL FITTINGS & FLANGES : Elbows/Bends/Tees/Reducers/Flanges in B/w, S/w, Forged in A-403, A-240, A-182 F in 304, 304L, 316, 316L, 321, 310, 347 etc.

MILD STEEL PIPES : In Class A, B, C as per IS-1239 & IS - 3589

MILD STEEL : Channels/Angles/Beams/Rounds/Chequered etc.

ALLOY STEEL/CARBON STEEL PIPES (SEAMLESS WELDED) : ASTM A106 Gr.B/A53-Gr.B, API 5L Gr. B etc With IBR Certificate

ALLOY STEEL PLATES : SA 387-11, 12, 22, SA 387-Gr. 5, SA387-Gr. 80

MILD STEEL PLATES : IS 2062 Gr. A/B, A36, SS 400.

BOILER QUALITY PLATES : 516Gr.60 / Gr. 70 IS 2002 Gr. 2

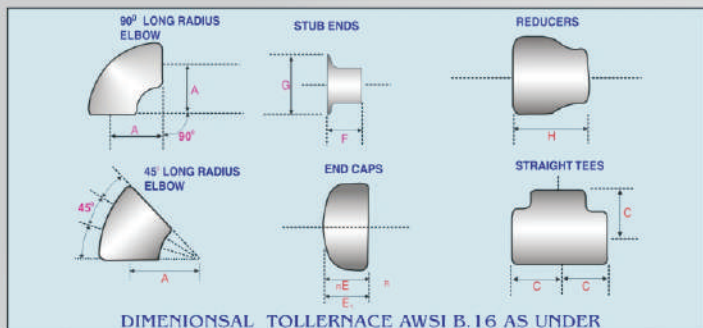
AS/CS FITTINGS & FLANGES : Elbows/Bends/Tees/Reducers/Flanges in B/w, S/w, Forged in A-234 WPB A-105 etc..... Slipon/Blind/Lapjoint/Weldneck etc. Flanges available in ready stock.

We also stock Monel, Nickel, Hastelloy, Inconel 600/800, Copper, Brass Aluminium, Lead, Tin, Zinc and other Minor Metals in your required size and shape.

It is needless to mention that we have gained sufficient experience in the field and achieved substantial business from reputed concern of Chemical Industries, Petrochemical Corporations, Pharmaceuticals Companies, Pulp & Paper Mills, Sugar, Fabricators Plants, Oil Refineries, Nuclear & Thermal Power Station, Dairies, Breweries and many other small, medium & large org. concerns and other project of National Importance and also ISO 9002 organisations on repeated order basis.

We can submit Test Certificates from Govt. Approved Laboratory or Manufacturers and provide THIRD PARTY INSPECTION of UHDE, EIL, LLOYDS, TATA, POIL, HGC, SIMON, CARVES, DAVY, POWER GAS, ICB, INTENG, BAXCOUNSEL, BUREAVERITAS...

- (1) S.S. Square / Rectangle Pipe
Sum of All Four Sides Divide by 3.14 = OD of Pipes
- (2) Weight of S.S. Pipe:
OD (mm) - W Thick (mm) X W. Thick(mm) x 0.0248=kg (Wt.per mtr.)
OD (mm) - W Thick (mm) X W. Thick(mm) x 0.00756= kg (Wt.per feet)
For SQ. Pipe OD = Sum of all sides ÷ 3.14
- (3) Weight of S.S. Round Bar :
DIA (mm) x DIA (mm) x 0.00623= (Wt. per Mtr.)
DIA (mm) x DIA (mm) x 0.0019= (Wt. per Feet)
- (4) Weight of S.S. Square Bar :
DIA (mm) x DIA (mm) x 0.00788= (Wt. per Mtr.)
DIA (mm) x DIA (mm) x 0.0024= (Wt. per Feet)
- (5) Weight of S.S. Hexagonal Bar :
A/F (mm) X A/F (mm) X D.00680= (Wt. per Mtr.)
A/F (mm) X A/F (mm) X D.002072= (Wt. per Feet)
- (6) Weight of S.S. Flat Bar
Width (mm) X Thick mm x 0.00798=Wt. per Mtr.
Width (mm) X Thick mm x 0.00243=Wt. per Feet.
- (7) Weight of Stainless Steel Sheets :
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
- (8) Weight of S.S. Circle
DIA (mm) x DIA (mm) x Thick (mm) ÷ 160= Gms Per pc.
DIA (mm) x DIA (mm) x Thick (mm) x 0.000063= Kg. Per pc.
- (9) Weight Brass Pipe / Copper Pipe
O.D. (mm) -Thick (mm) x Thick (mm) 0.0263=Wt. per Mtr.
- (10) Weight of Lead Pipe
OD (MM) - Wt. (mm) x Wt. (mm) x 0.0345 = Wt. per Mtr.
- (11) Weight of Aluminium Pipe
O.D. (mm) -Thick (mm) x Thick (mm) X 0.0083=Wt. per Mtr.
- (12) Weight of Aluminium Sheet
Length (Mtrs) X Width (Mtrs) X Thick (mm) =2.69= Wt. per Pct.
- (13) Weight of Conversion of Mtr to Feet
Weight of 1 Mtr. → 3.2808 = Feet
- (14) Width of Sheet required for making Pipe
Outer DIA - Wall Thickness x 22/7 = Width of Sheet.
- (15) Weight of SS sheet, Plate, Pipe, Round, Hex, Circle, Square, Flat ÷ 3 =
Aluminium Weight Approx
- (16) Weight of SS sheet, Plate, Pipe, Round, Hex, Circle, Square, Flat x 9%=
Brass Weight Approx
- (17) Weight of SS sheet, Plate, Pipe, Round, Hex, Circle, Square, Flat x 15%=
Copper Weight Approx
- (18) Tensile Strength Conversion Table
1. Kg/mm² x 0.81 = N/mm² = Mpa
2. Psi x 0.0007 = kg/mm²
3. Ksi x 1000 = Psi
4. Kg/mm² x 1.422 = Ksi



DIMENSIONAL TOLERANCE AWSI B. 16 AS UNDER

Nominal Pipe Size	Outside Diameter (OD)	90° Elbows long radius Centre to face (A)	45° Elbows long radius Centre to face (B)	90° Elbows Short radius Radius (A)	90° Elbows Short radius Centre to face (A)	Straight TEES Centre to end (C)	CAPS Length (E)	STUB ENDS Diameter (G)	Short Length (F)	Long Length (F)	Reducers concentric eccentric Length (H) specified from large end
1/2	21.34	28.1	15.9	38.1	-	25.4	25.4	34.9	8	50.8	50.8
3/4	26.67	28.6	11.1	28.6	-	28.6	25.5	42.8	8	50.8	50.8
1	33.40	38.1	22.2	38.1	25.4	38.1	38.1	50.8	10	50.8	50.8
1 1/4	42.16	47.6	25.4	47.6	31.8	37.6	38.1	63.5	12	50.8	50.8
1 1/2	48.26	57.2	28.6	57.2	28.6	57.2	38.1	73.0	12	50.8	63.5
2	60.32	76.2	34.9	76.2	50.8	63.5	38.1	92.0	16	63.5	76.2
2 1/2	73.02	95.2	44.5	95.2	63.5	76.2	38.1	104.8	16	63.5	88.9
3	88.90	114.0	50.8	114.0	76.2	85.7	50.8	127.0	18	63.5	88.9
3 1/2	101.60	133.0	57.2	133.0	88.9	95.3	63.5	157.2	20	76.2	-
4	114.30	152.0	63.5	152.0	101.6	104.8	63.5	157.2	20	76.2	101.6
5	141.30	191.0	82.6	191.0	127.0	123.8	76.2	185.7	25	76.2	127.0
6	168.27	228.6	95.3	228.6	152.4	142.8	88.6	215.9	25	88.9	140.0
8	219.07	304.8	127.0	304.8	203.2	177.8	101.6	270.0	30	101.6	152.0
10	273.05	381.0	158.7	381.0	254.0	215.9	127.0	324.0	35	127.0	178.0
12	323.85	457.2	190.5	457.2	306.0	254.0	152.4	381.0	40	152.4	203.0
14	355.60	533.4	222.2	533.4	356.0	280.0	165.1	412.8	40	152.4	356.0
16	406.40	609.6	254.0	609.6	406.0	304.8	177.8	470.0	50	152.4	356.0
18	457.20	685.8	285.7	685.8	457.0	343.0	203.2	533.4	50	152.4	381.0
20	508.00	762.0	317.6	762.0	508.0	381.0	228.6	584.2	50	152.4	508.0
24	609.60	914.4	381.0	914.4	610.0	432.0	266.7	692.2	50	152.4	508.0

*Subject to sufficient manufacturing quantities, we produce these products in nearly every alloy mentioned in this catalogue, either in seamless, pressed or welded execution.

SS 304 It is most widely used austenitic stainless steel. It has excellent corrosion resistance and forming characteristics. Used in chemical, petro-chemical and fertilizer industries, and as equipments in dairy, food processing, pharmaceutical industries in hospitals, households as kitchen wares, sinks, Cutlery, cryogenic vessels and as heat exchangers in air-conditioning, refrigeration, for machinery in paper, pulp, textile beverage sectors etc.

SS 304L It is used in place of SS304 for improved resistance to inter-granular corrosion. It is used for parts and structures which can not be heat treated for stress relieving after welding. Has less tendency to work harden.

SS 310S These are austenitic types with higher Chromium and Nickel content. Because of their relatively high creep strength and mechanical properties at high temperatures these steel find application for higher temperatures and severe service conditions. Used for air heaters, annealing boxes, ovens, carburising boxes fire box sheets furnace linings, furnace stacks and dampers, gas turbine parts, heat exchangers king lining, nozzle diaphragm, mill equipment oil refinery equipment, recuperators etc.

SS 316 An austenitic stainless steel with 2.0 to 3% Mo. Which improves corrosion resistance against halogens and imparts hot strength characteristics. Used for applications requiring resistance to pitting corrosion and in halogen atmospheres. Typical applications, architectural trims, marine exteriors, chemical processing equipment, food processing equipment, petroleum refining equipment, pharmaceutical equipment, photographic equipment, pulp and paper processing equipment, textile finishing equipment, pollution control etc.

SS 316L Recommended in place of 316 when weldability has to be improved.

SS 321 An austenitic stainless steel similar to SS 304 but stabilizer with titanium to avoid inter-granular corrosion. Types SS 321 resist scaling and vibration fatigue. It is used for aircraft exhaust stacks and manifolds pressure vessels, large mufflers for stationary diesel engines, carburetors, expansion bellows, stacks liners, fire wallism super heaters etc.

SS 409 / 409M It is the lowest alloy straight Chromium ferritic stainless steel. It replaces carbon steels and low alloy steel where some amount of heat or corrosion resistance and higher strength is required and where appearance in secondary. It is used for fins in heater tubes, automotive exhaust systems including mufflers, resonators, silencers, pipes and emission control units, high pressure agricultural spray tanks, culverts, shipping containers, farms equipment etc.

SS 410S SS410S is the most commonly used 12% Chromium Stainless Steel. Excellent combination of toughness and strength can be developed. It is a good choice when good formability and high strength are required and the end use demands resistance to mildly corrosive environment. It is used for furnace parts and burners operating below 650 O.C, micrometer parts, tray supports, caps & vaporisers in petroleum fractionating towers, lining for reaction chambers, coal screens fishing tacklets, keys, a brackets, rules and tapes, wall screens, steam turbine buckets blades, bucket covers, pump parts, petro-chemical equipment, press plates, etc.

SS 420 This steel contains min. 0.15% C and 12% Cr. It can be thermally hardened to develop very high strength. Extremely useful for cutlery. Other applications include vegetable shoppers, scissors, shears, tweezers, hand tools, dental & surgical instruments etc.

SS 430 SS 430 with 17% Cr. is inferior to SS304 as regards deep durability. Though it does not have good corrosion resistance properties as the CR-Ni steels, it is used under less severe corrosive atmospheres for chemical processing equipment, furnace parts heat exchangers, oil burner parts, petroleum rolling equipment, pyrometers, protection tubes, recuperators, rubber plant machinery, scientific apparatus, storage vessels, tubing television cones, electrical appliances, solar water heaters, air conditioners, kitchenware, household appliances, decorative trims, parts for washing machines etc.

WELDING

Selection of Welding Processes

General guidelines for selection of appropriate method of welding for different types of stainless steels in different thickness, keeping in view the advantages and limitations of the welding processes are given below.

STAINLESS STEEL

Stainless Steel is in fact an umbrella term which covers a huge range of alloys, the varying properties of which make them suitable for use across a very broad spectrum and in a vast number of different industries. Stainless steel is not a single specific material. It is the name given to a group of corrosion resistant steel alloys which contain a minimum of 12% chromium.

The chromium in stainless steel reacts with oxygen in the air to produce a very thin, inert, chromium rich oxide film on the surface of the steel, it is the presence of this film which provides the corrosion resistance of stainless steel. This passive film is unlike coatings such as paint or galvanising in one very important way. If it is damaged by abrasion or mechanical means such as cutting. It re-forms and continues to protect the steel.

We mainly deal in Sheets, Plates, Tubes, Pipes, Rods, Wires, Strips and Pipe fitting like Ball Valves, Elbow, Bends, Stubend, Tees, Flanges, Reducer, Bolt and Nuts, Screws in the grade of AISI 304, 304L, 316L, 310, 312, 410 and 420 etc.

NON FERROUS

Non-ferrous metals are metals that do not contain iron. Put in the simplest terms, ferrous metals are those which contain iron, whilst non ferrous metals don't have any iron content. There are, however, other differences between the two types of metal which have a strong bearing upon the tasks which they are usually called upon to perform.

There are two groups of metals; ferrous and non-ferrous. Ferrous metals contain iron, for example carbon steel, stainless steel (both alloys; mixtures of metals) and wrought iron. Non-ferrous metals don't contain iron, for example aluminium, brass, copper (which can be remembered as ABC) and titanium. You can also get non-ferrous metals as alloys eg. brass is an alloy of copper and zinc.

Non-ferrous metals are specified for structural applications requiring reduced weight, higher strength, nonmagnetic properties, higher melting points, or resistance to chemical and atmospheric corrosion. They are also specified for electrical and electronic applications.

We mainly deal in Copper, Brass, Aluminium, Phosphorus, Bronze, Gun Metal, Lead, Zinc, Tin Metal, Nickel, Monel, Inconel, Hastelloy in all shapes and sizes. We are also specialists in Copper Tubes Refrigeration quality of 50' and 100' coils in various sizes and thickness.

ALLOY STEELS

Alloy steels are made by combining carbon steel with one or several alloying elements, such as manganese, silicon, nickel, titanium, copper, chromium and aluminum. These metals are added to produce specific properties that are not found in regular carbon steel. The elements are added in varying proportions (or combination) making the material take on different aspects such as increased hardness, increases corrosion resistance, increased strength, improved formability (ductility); the weldability can also change.

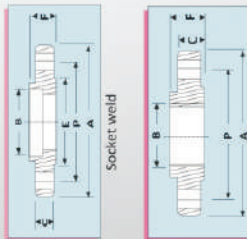
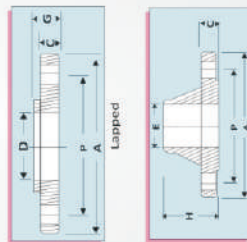
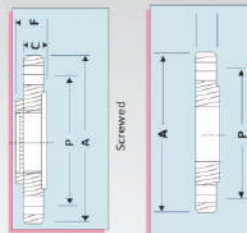
Elements are added to improve strength and toughness, to decrease or increase the response to heat treatment, and to retard rusting and corrosion. Low alloy steel is generally defined as having a 1.5% to 5% total alloy content. Common alloying elements are manganese, silicon, chromium, nickel, molybdenum and vanadium. Low alloy steels may contain as many as four or five of these elements in varying amounts.

We mainly deal in EN-8, 9, 19, 24, 31, 36, 45, 47, 20, MN-CR5, SAE 8620, OHNS, HCHCR, HSS Manganese Strips in all shapes and Sizes.

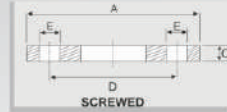
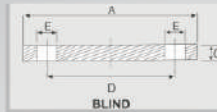
ITEMS	RANGE	FINISH	ITEMS	CONDITION	SIZE RANGE
S. S. Flats	20mm to 150mm (Width) 5mm to 25mm (thick)	HR	Rounds	As Rolled/Soin, Annealed	25 mm to 300 mm
S. S. Angles	20mm to 150mm (Width) 3mm to 10mm (thick)	HR	Bright Bars	Cold Drawn/Peeled	3 mm to 150 mm
S. S. Circles	0.5mm to 50mm (thick) (Any Diameter)	HR, CR	Hexagons / Squares	Cold Drawn/Soin Annealed	4 mm to 60 mm
S. S. Designer Sheets	1mm to 4mm (thick)	Various Design	Cold Heading Wires (CHG)	Cold Drawn/Soin Annealed & Pickled	5 mm to 17 mm
S. S. Channel	50mm x 25mm x 3mm to 150mm x 50mm x 8mm	HR	Wires Rods	As Rolled / Soin, Annealed	5.5 mm to 25 mm
			Blooms / Billets	Concast	100 mm to 250 mm
			RCS	As Rolled	50 mm to 140 mm

STAINLESS STEEL FASTENERS

Bolt & Screw	Specifications ANSI, ASTM, JIS, DIN, ISO & IFI	Threaded Bars & Nuts
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Nominal Pipe Size inch	Length Through Hub mm	CLASS 150 lbs.			CLASS 300 lbs.			Blind Drilling No. & Code Ball Joint Du
		Outside Flange Thk.	Flange	Welding Neck	Outside Flange Thk.	Flange	Welding Neck	
1/2	15	22.2	22.9	15.8	15	15	4.6	4.67
3/4	20	27.8	28.2	19.8	18	18	5.2	5.24
1	25	34.5	34.9	24.8	22	22	5.7	5.72
1 1/4	35	43.3	43.7	30.6	27	27	6.1	6.10
1 1/2	40	49.5	50.0	35.1	32	32	6.5	6.50
2	50	61.9	62.5	40.6	38	38	6.8	6.80
2 1/2	65	76.7	77.4	49.8	45	45	7.1	7.10
3	80	92.1	92.8	59.8	53	53	7.4	7.40
3 1/2	95	108.4	109.1	70.8	63	63	7.7	7.70
4	110	126.3	127.0	82.9	75	75	8.0	8.00
5	135	148.7	149.5	102.3	93	93	8.3	8.30
6	150	170.7	171.4	120.2	109	109	8.6	8.60
8	200	221.5	222.2	154.1	143	143	9.1	9.10
10	250	276.7	277.4	202.7	188	188	9.5	9.50
12	300	327.0	328.2	254.5	238	238	10.0	10.00
14	350	398.2	399.0	304.8	286	286	10.5	10.50
16	400	470.4	471.2	358.5	338	338	11.0	11.00
18	450	542.6	543.5	414.7	393	393	11.5	11.50
20	500	614.8	615.8	473.4	450	450	12.0	12.00
24	600	736.9	737.9	574.5	540	540	13.0	13.00
30	750	914.1	915.1	714.7	675	675	14.0	14.00
36	900	1091.3	1092.3	865.0	810	810	15.0	15.00



N.B. Size	Table	Dia of flange		Bore of Slip on	Thickness of flange	Pitch circle holes		Dia of bolt holes	No. of bolts
		A	B			C	D		
1/2	D	3 3/4	0.88	3/16	2 5/8	9/16	4		
	E	3 3/4	0.88	1/4	2 5/8	9/16	4		
	F	3 3/4	0.88	3/4	2 5/8	9/16	4		
	H	4 1/2	0.88	1/2	3 1/4	11/16	4		
3/4	D	4	1.09	3/16	2 7/8	9/16	4		
	E	4	1.09	1/4	2 7/8	9/16	4		
	F	4	1.09	3/4	2 7/8	9/16	4		
	H	4 1/2	1.09	1/2	3 1/4	11/16	4		
1	D	4 1/2	1.36	3/16	3 1/4	9/16	4		
	E	4 1/2	1.36	9/32	3 1/4	9/16	4		
	F	4 3/4	1.36	3/8	3 7/16	11/16	4		
	H	4 3/4	1.36	9/16	3 7/16	11/16	4		
1 1/4	D	4 3/4	1.70	1/4	3 7/16	9/16	4		
	E	4 3/4	1.70	5/16	3 7/16	9/16	4		
	F	5 1/4	1.70	1/2	3 7/8	11/16	4		
	H	5 1/4	1.70	11/16	3 7/8	11/16	4		
1 1/2	D	5 1/4	1.98	1/4	3 7/8	9/16	4		
	E	5 1/4	1.98	11/32	3 7/8	9/16	4		
	F	5 1/2	1.98	1/2	4 1/8	11/16	4		
	H	5 1/2	1.98	11/16	4 1/8	11/16	4		
2	D	6	2.44	5/16	4 1/2	11/16	4		
	E	6	2.44	3/8	4 1/2	11/16	4		
	F	6 1/2	2.44	5/8	5	11/16	4		
	H	6 1/2	2.44	3/4	5	11/16	4		
2 1/2	D	6 1/2	2.44	5/16	5	11/16	4		
	E	6 1/2	2.44	13/32	5	11/16	4		
	F	7 1/4	2.44	5/8	5 3/4	11/16	8		
	H	7 1/4	2.44	3/4	5 3/4	11/16	8		
3	D	7 1/4	3.57	3/8	5 3/4	11/16	4		
	E	7 1/4	3.57	7/16	5 3/4	11/16	4		
	F	8	3.57	5/8	6 1/2	11/16	8		
	H	8	3.57	7/8	6 1/2	11/16	8		
3 1/2	D	8	4.07	3/8	1/2	11/16	4		
	E	8	4.07	15/32	1/2	11/16	8		
	F	8 1/2	4.07	3/4	7	11/16	8		
	H	8 1/2	4.07	7/8	7	11/16	8		
4	D	8 1/2	4.57	3/8	7	11/16	4		
	E	8 1/2	4.57	1/2	7	11/16	8		
	F	9	4.57	3/4	7 1/2	11/16	8		
	H	9	4.57	1	7 1/2	11/16	8		
5	D	10	5.66	1/2	8 1/4	11/16	8		
	E	10	5.66	9/16	8 1/4	11/16	8		
	F	11	5.66	7/8	9 1/4	7/8	8		
	H	11	5.66	1 1/8	9 1/4	7/8	8		

N.B. Size	Table	Dia of flange		Bore of Slip on	Thickness of flange	Pitch circle holes		Dia of bolt holes	No. of bolts
		A	B			C	D		
5	D	11	6.72	1/2	9 1/4	11/16	8		
	E	11	6.72	11/16	9 1/4	7/8	8		
	F	12	6.72	7/8	10 1/4	7/8	12		
	H	12	6.72	1 1/8	10 1/4	7/8	12		
8	D	13 1/4	8.72	1/2	11 1/2	11/16	8		
	E	13 1/4	8.72	3/4	11 1/2	7/8	8		
	F	14 1/4	8.72	1	12 3/4	7/8	12		
	H	14 1/4	8.72	1 1/4	12 3/4	7/8	12		
10	D	16	10.88	5/8	14	7/8	8		
	E	16	10.88	7/8	14	7/8	12		
	F	17	10.88	1 1/8	15	1	12		
	H	17	10.88	1 3/8	15	1	12		
12	D	18	12.88	3/4	16	7/8	12		
	E	18	12.88	1	16	1	12		
	F	19 1/4	12.88	1 1/4	17 1/4	1	16		
	H	19 1/4	12.88	1 5/8	17 1/4	1	16		
14	D	20 3/4	14 1/4	7/8	18 1/2	1	12		
	E	20 3/4	14 1/4	1 1/8	18 1/2	1	12		
	F	20 3/4	14 1/4	1 3/4	19 1/2	1 1/8	16		
	H	20 3/4	14 1/4	1 7/8	19 1/2	1 1/8	16		
16	D	22 3/4	16 1/2	7/8	20 1/2	1	12		
	E	22 3/4	16 1/2	1 1/4	20 1/2	1	12		
	F	24	16 1/2	1 5/8	21 3/4	1 1/8	20		
	H	26 1/2	16 1/2	2 3/4	24	1 1/4	20		
18	D	25 1/4	18 1/8	7/8	23	1	12		
	E	25 1/4	18 1/8	1	23	1	16		
	F	26 1/2	18 1/8	1 5/8	24	1 1/4	20		
	H	26 1/2	18 1/8	2 3/4	24	1 1/4	20		
20	D	27 3/4	20 1/8	1 1/8	25 1/4	1	12		
	E	27 3/4	20 1/8	1 1/2	25 1/4	1	16		
	F	29	20 1/8	2	26 1/2	1 1/4	24		
	H	29	20 1/8	2 5/8	26 1/2	1 1/4	24		
22	D	30	22	1 1/8	27 1/2	1 1/8	16		
	E	30	22	1 3/4	27 1/2	1 1/8	16		
	F	31	22	2 1/8	27 1/2	1 3/4	24		
	H	31	22	2 3/8	27 1/2	1 3/4	24		
24	D	32 1/2	24 25	1 1/4	27 1/2	1 1/8	16		
	E	32 1/2	24 25	1 7/8	27 1/2	1 1/8	16		
	F	33 1/2	24 25	2 1/4	27 1/2	1 3/8	24		
	H	33 1/2	24 25	3	27 1/2	1 3/8	24		



ASTM SPECIFICATIONS	ALLOWABLE OUTSIDE DIAMETER VARIATIONS IN MM		ALLOWABLE WALL THICKNESS VARIATIONS	TESTING	
ASTM A-213 Seamless Ferritic and austenitic tubes	Nominal Diameter	OVER	UNDER	%	Refer to ASTM A 450
	under 25.4 mm	.1016	.1016	+20%	
	25.4 - 38.1 inclu	.1524	.1524	-0	
	38.1 - 50.8 exclu	.2032	.2032	+20%	
	50.8 - 63.5 exclu	.254	.254	-0	
63.5 - 76.2 exclu	.3048	.3048	+22%	-0	
	.3048	.3048	-0	+22%	
	.381	.381	-0	-0	
ASTM A-249 Welded Heat exchanger and condenser tubes	under 25.4 mm	.1016	.1016	± 10%	Refer to ASTM A 450
	25.4 - 38.1 inclu	.1524	.1524	± 10%	
	38.1 - 50.8 inclu	.2032	.2032	± 10%	
	50.8 - 63.5 inclu	.254	.254	± 10%	
	63.5 - 76.2 inclu	.304	.304	± 10%	
76.2 - 101.6 inclu	.381	.381	± 10%	± 10%	
ASTM A-269 Seamless and welded austenitic S.S.tubes	Up to 12.7 mm	0.13	0.13	± 15%	Refer to ASTM A 450
	12.7 to 38.1 mm	0.13	0.13	± 10%	
	38.1 to 88.9 mm	0.25	0.25	± 10%	
	88.9 to 139.7 mm	0.38	0.38	± 10%	
	139.7 to 203.2 mm	0.76	0.76	± 10%	
ASTM A-312 Seamless and welded austenitic Pipe	13.72-48.26 mm	± 0.40-0.79		-12.5%	Refer to ASTM A 450
	60.33-114.3	± 0.79-0.79			
	141.3.-219.08	±1.59-0.79			
	168.28-219.08	± 1.59-0.79			
	273.05-373.85	± 2.38-0.79			



Mild steel pipes conforming to IS : 1239 (PART 1) - 1979									
Nominal Bore		Outside Diameter		Light Thickness Weight Thickness		Medium Weight		Heavy Weight	
Inch	In mm	Inch	In mm	mm	kg/mtr.	mm	kg/mtr.	mm	kg/mtr.
1/8"	3mm	0.406	10.32	1.90	0.361	2.00	0.407	2.65	0.493
1.4"	6mm	0.532	13.48	1.90	0.517	2.35	0.650	2.90	0.769
3.8"	10mm	0.872	17.10	1.90	0.674	2.35	0.852	2.90	1.02
1/2"	16mm	0.844	21.43	2.00	0.952	2.65	1.580	3.25	1.45
3/4"	20mm	1.054	27.20	2.35	1.410	2.65	1.580	3.25	1.90
1"	25mm	1.312	33.80	2.65	2.010	3.25	2.440	4.05	2.97
1.1/4"	32mm	1.656	42.90	2.65	2.580	3.25	3.140	4.05	3.84
1.1/2"	40mm	1.906	48.40	2.90	3.250	3.25	3.810	4.05	4.43
2"	50mm	2.375	60.30	2.90	4.110	3.65	5.100	4.47	6.17
2.1/2"	65mm	3.004	76.20	3.25	5.840	3.65	6.610	4.47	7.90
3"	80mm	3.500	88.90	3.25	6.810	4.05	8.470	4.85	10.1
4"	100mm	4.500	114.30	3.65	9.850	4.50	12.10	5.40	14.4
5"	125mm	5.500	139.70	-	-	-	16.20	5.40	17.8
6"	150mm	6.500	165.10	-	-	-	19.20	5.40	21.2

BIG DIAMETER ERW PIPES CONFIRMING TO IS : 3589								
Wall Thickness in mm	Nominal Bore 7" NB	Nominal Bore 8" NB	Nominal Bore 10" NB	Nominal Bore 12" NB	Nominal Bore 14" NB	Nominal Bore 16" NB	Nominal Bore 18" NB	Nominal Bore 20" NB
	193.7 mm OD	219.1 mm OD	273 mm OD	323.7 mm OD	355.6 mm OD	406.4 mm OD	457 mm OD	488 mm OD
	Kg/mtr.	Kg/mtr.	Kg/mtr.	Kg/mtr.	Kg/mtr.	Kg/mtr.	Kg/mtr.	Kg/mtr.
4.85	22.59	25.62	32.07	38.13	-	-	-	-
5.20	24.17	27.43	34.34	40.85	-	-	-	-
5.60	26.00	29.28	36.93	43.93	48.11	-	-	-
6.00	27.88	31.53	39.50	47.02	51.49	61.00	69.00	-
6.35	29.34	33.28	41.73	49.67	54.43	62.35	70.50	78.50
7.01	32.27	36.76	46.43	55.45	61.82	9.04	-	-
7.94	-	41.00	50.95	61.85	67.98	77.92	87.80	-
8.18	-	42.56	53.42	65.12	-	-	-	-
9.53	-	51.50	60.24	73.75	-	81.21	93.13	105.00
12.7	-	-	-	-	107.28	123.30	139.00	155.00

Tolerance on Thickness and Weight : as per IS 1239
The following manufacturing tolerance shall be permitted on the tubes and sockets:

Nominal Bore	Maximum Permissible	
	Pressure	Temperature
	Nmm ²	°C
1) Butted Welded Light Tubes	+ Not limited	-
	- 8 percent	1.20
	+ Not limited	12.24
	- 10 percent	260
Medium and Heavy Tubes	+ Not limited	1.03
	- 10 percent	10.50
	+ Not limited	8.77
	- 12.5 percent	260
2) Seamless tubes	+ Not limited	0.69
	- 10.5 percent	7.64
	+ Not limited	0.83
	- 12.5 percent	8.47
	+ Not limited	0.69
	- 10.5 percent	7.04
	+ Not limited	0.50
	- 10.5 percent	5.10

2) Single Tube (medium and heavy series)

For Tubes fitted with appropriate fittings of suitably butt welded together, the max. permissible pressure shall be 21.00 kg/cm² and max. permissible temp 260°C

Specification	Max.	Max.	Max.	Max.	Max.	Chemical Composition						
						Si	P	S	Ni	Cr	Mo	Cu
MS	MS	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N	Other
SUS303	0.03	0.15	0.50	1.90	0.040	0.030	(1)	11.50-13.00	-	-	-	-
SUS304	0.10	0.15	1.00	1.90	0.040	0.030	(1)	11.50-13.00	-	-	-	-
SUS310T1	-	0.08-0.18	0.60	1.90	0.040	0.030	(1)	11.50-14.00	0.30-0.60	-	-	-
SUS310F2	-	0.18	1.00	1.90	0.040	0.030	(1)	11.50-13.50	-	-	-	Ph 0.05-0.30
SUS316	0.10	0.15	1.00	1.25	0.060	Min 0.15	(1)	12.00-14.00	(2)	-	-	-
SUS316F1	0.20	0.10-0.20	1.00	1.00	0.040	0.030	(1)	12.00-14.00	-	-	-	-
SUS321	0.03	0.20-0.40	1.00	1.90	0.040	0.030	(1)	12.00-14.00	-	-	-	-
SUS321F2	0.07	0.20-0.40	1.00	1.25	0.060	Min 0.15	(1)	12.00-14.00	(2)	-	-	-
SUS321F4	-	0.20-0.40	1.00	1.90	0.040	0.030	(1)	12.00-14.00	-	-	-	Ph 0.05-0.30
SUS304L	0.03	0.10	1.00	1.90	0.040	0.030	(1)	18.00-18.00	(3)	-	-	-
SUS304H	0.08	0.75-0.95	1.00	1.90	0.040	0.030	(1)	18.00-18.00	(3)	-	-	-
SUS304S1	0.03	0.95-1.20	1.00	1.90	0.040	0.030	(1)	18.00-18.00	(3)	-	-	-
SUS304S2	0.03	0.95-1.20	1.00	1.25	0.060	Min 0.15	(1)	18.00-18.00	(3)	-	-	-
SUS305	0.08	0.08	1.00	1.90	0.040	0.030	-	11.50-14.50	-	-	-	AT 0.10-0.30
SUS316L	-	0.03	1.00	1.90	0.040	0.030	-	11.50-13.50	-	-	-	-
SUS316H	-	0.13	0.75	1.90	0.040	0.030	-	11.50-18.00	-	-	-	-
SUS316F3	-	0.12	1.00	1.25	0.060	Min 0.15	-	16.00-18.00	(2)	-	-	-
SUS316L3	0.03	0.12	1.00	1.90	0.040	0.030	-	16.00-18.00	0.75-1.25	-	-	-
SUS316F11	-	0.01	0.40	0.40	0.030	0.020	-	20.00-22.00	1.50-2.50	-	-	Max 0.015
SUS316F2	-	0.01	0.40	0.40	0.030	0.020	-	20.00-27.50	0.75-1.50	-	-	Max 0.015
SUS316F3	0.20	0.08	1.00	1.90	0.040	0.030	3.00-6.00	23.00-28.00	1.00-3.00	-	-	-
SUS316H3	0.30	0.03	1.00	2.00	0.040	0.030	4.50-6.50	21.00-24.00	2.50-3.50	-	-	0.08-0.20
SUS316H4	0.51	0.00	1.00	1.90	0.040	0.030	5.50-7.50	24.00-26.00	3.50-5.00	-	-	0.08-0.30
SUS316L1	0.01	0.15	1.00	0.50	0.030	0.020	0.020	16.00-18.00	-	-	-	0.0277
SUS316L2	0.02	0.15	1.00	1.50-1.60	0.030	0.020	0.020	16.00-18.00	-	-	-	Max 0.2%
SUS316L3	0.01	0.10	1.00	2.00	0.040	0.030	0.020	16.00-18.00	-	-	-	-
SUS316L4	0.02	0.15	1.00	2.00	0.040	0.030	0.020	17.00-19.00	-	-	-	-
SUS316L5	0.01	0.15	1.00	2.00	0.040	0.030	0.020	17.00-19.00	-	-	-	-
SUS316H5	0.35	0.15	1.00	2.00	0.040	0.030	0.020	17.00-19.00	-	-	-	Per Min. 0.15
SUS316H6	0.15	1.00	3.00	2.00	0.040	0.030	0.020	17.00-19.00	-	-	-	-
SUS316H7	0.08	1.00	2.00	0.945	0.030	0.020	0.020	18.00-20.00	(2)	1.50-3.50	-	-
SUS316H8	0.04	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H9	0.02	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H10	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H11	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H12	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H13	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H14	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H15	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H16	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H17	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H18	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H19	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H20	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H21	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H22	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H23	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H24	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H25	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H26	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H27	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H28	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H29	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H30	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H31	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H32	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H33	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H34	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H35	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-
SUS316H36	0.01	0.85	1.00	2.00	0.045	0.030	0.020	18.00-20.00	-	-	-	-




Specification of S.S. Dairy Pipe & Tube



Specification of Slot Tubes



SIZE inch	O.D. (mm) Kg./Ft.	22G (0.71) Kg./Ft.	20G (0.91) Kg./Ft.	18G (1.12) Kg./Ft.	16G (1.62) Kg./Ft.	14G (2.03) Kg./Ft.	12G (2.64) Kg./Ft.	10G (3.25) Kg./Ft.
1/4"	6.35	0.030	0.037	0.046	0.058	0.065	0.070	0.075
5/16"	7.93	0.038	0.048	0.060	0.079	0.089	0.105	0.114
3/8"	9.52	0.046	0.058	0.080	0.097	0.113	0.135	0.152
1/2"	12.7	0.063	0.079	0.105	0.134	0.157	0.200	0.226
3/4"	19.05	0.097	0.124	0.161	0.215	0.256	0.326	0.386
1"	25.4	0.131	0.167	0.218	0.294	0.351	0.450	0.541
1 1/4"	31.82	-	0.200	0.275	0.375	0.448	0.580	0.696
1 1/2"	38.1	-	-	0.332	0.452	0.542	0.700	0.851
1 3/4"	44.45	-	-	0.390	0.530	0.646	0.832	1.020
2"	50.8	-	-	0.447	0.607	0.733	0.960	1.161
2 1/4"	57.15	-	-	0.504	0.687	0.828	1.085	1.315
2 1/2"	63.5	-	-	0.562	0.792	0.924	1.210	1.472
2 3/4"	69.85	-	-	0.619	0.847	1.022	1.338	1.630
3"	76.2	-	-	0.676	0.924	1.115	1.460	1.782
3 1/2"	88.9	-	-	0.791	1.082	1.306	1.718	2.092
4"	101.6	-	-	0.905	1.239	1.497	1.971	2.403
4 1/2"	114.3	-	-	1.020	1.397	1.608	2.224	2.713
5"	127.0	-	-	1.134	1.554	1.879	2.477	3.023
5 1/2"	139.7	-	-	1.250	1.713	2.070	2.730	3.336
6"	152.4	-	-	1.364	1.875	2.261	2.983	3.654
6 1/2"	165.1	-	-	1.478	2.028	2.452	3.256	3.975

Specification	GRADE 304 KG/MTR				GRADE 316L KG/MTR			
	OD	Groove	Weight	Weight	Weight	Weight	Weight	Weight
Type			1.2	1.5	2.0	1.2	1.5	2.0
Single Slotted 	25.4	14x14	0.933	1.166	1.554	0.938	1.173	1.564
	30	14x17	1.142	1.427	1.903	1.149	1.436	1.915
	38.1	15x15	1.332	1.665	2.220	1.341	1.676	2.234
	42.4	24x24	1.608	2.010	2.680	1.618	2.023	2.697
	48.3	27x30	1.903	2.379	3.172	1.915	2.394	3.192
	50.8	15x15	1.694	2.117	2.823	1.705	2.131	2.841
	50.8	20x20	1.779	2.224	2.965	1.779	2.224	2.965
	50.8	25x25	1.846	2.307	3.076	1.846	2.307	3.076
	60	20x20	2.094	2.617	3.489	2.107	2.633	3.511
	60	25x24	2.170	2.712	3.616	2.183	2.729	3.639
Oval Slotted 	60.3	34x34	2.350	2.938	3.917	2.366	2.967	3.942
	63.5	20x20	2.179	2.724	3.632	2.193	2.741	3.655
	101.6	26.7x30x26.7	3.464	4.330	5.773	3.486	4.357	5.809
	60x30	24x24	1.808	2.280	3.013	1.819	2.274	3.032
	80x40	24x24	2.246	2.807	3.743	2.260	2.825	3.767
	80x40	33x26	2.255	2.819	3.759	2.270	2.837	3.783
	40x110	33x26	2.769	3.461	4.615	2.787	3.483	4.644
	25x21	14x14	1.047	1.308	1.745	1.063	1.317	1.756
	40x30	24x24	1.684	2.105	2.807	1.695	2.119	2.825
	60x40	24x24	2.255	2.819	3.759	2.270	2.837	3.783
Rectangular Slotted 	60x40	24x24	2.255	2.819	3.759	2.270	2.837	3.783
	40x40	24x24	1.656	2.320	3.093	1.667	2.334	3.112