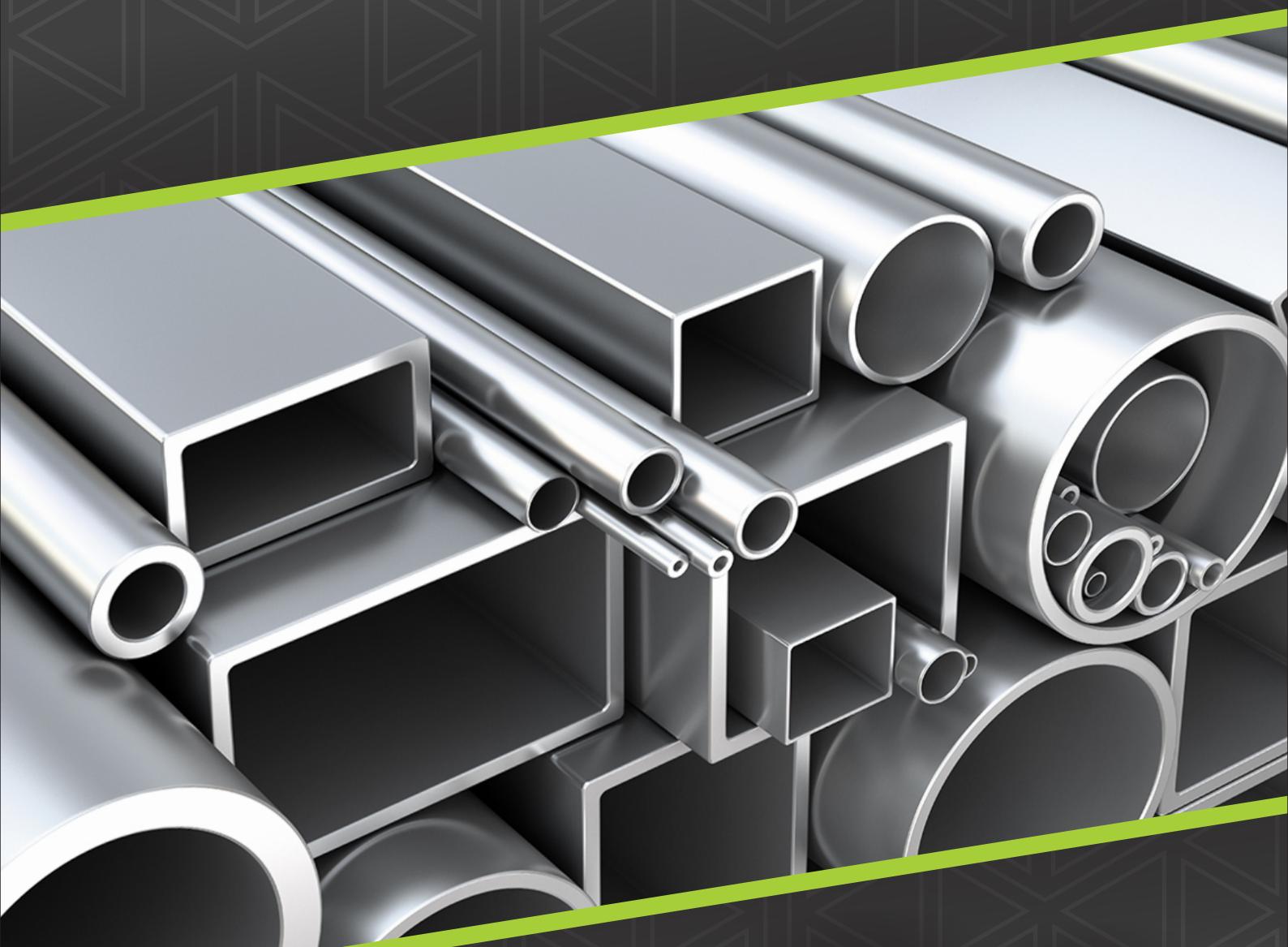




MAS[®]
GLOBAL STEEL
QUALITY | PRODUCT | SERVICE

Since 2011



We make
special sizes
according to our
client's needs



COMPANY PROFILE

MAS GLOBAL STEEL was incorporated in the year 2011 with an objective to serve various core industries. We are one of the leaders amongst manufacturers, exporters, Importers, Stockiest & supplier of high quality pipe fittings, butt weld and socket weld fittings in alloy steel, carbon steel, stainless steel, nickel alloys. We have a large amount of ready stock available in STAINLESS STEEL & C.S. & M.S. Pipes, Plates, Sheets, Rods, Bars, Strips, Angles, Channel, Beam, Wires, Coil, Nut Bolts etc. Our products have found various applications in different industrial requirements, including - Oil & Gas, Chemical, Petrochemical, Power Plant, Pulp & Paper, Environmental & Water Projects, Engineering Projects and more. Through regular and consistent supply of our products to various industries, we have established ourselves as a reliable player in the industry.

Our product range includes elbows, tees & cross, reducers, caps & stub ends, couplings , sockets, flanges, socket weld threaded fittings, steel pipe fittings, carbon steel pipe fittings, forged pipe fittings. We have the capability and expertise to design these products in different metal alloys and in a variety of specifications to fulfill the various requirements of our clients.

WHY US :

Some of our specialities that make us a profitable business partner for our clients are:

- Superior quality products
- Timely delivery
- Proven execution of small as well as large batch orders
- A design solution to design problem
- Customer focused approach

VISION :

We help customers develop their energy resources; bringing world class capability and delivering it locally.

We promote commercial arrangements that are aligned to our customers' needs, allowing us to deliver more value to the customer while increasing the returns from our most precious asset – our people.

OUR MISSION :

Provide technically sound solutions and create additional value in mutual interest with our customers resulting in being a preferred manufacturer and supplier.



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www.masglobalsteel.com

INTRODUCTION :

MAS GLOBAL STEEL is a visionary entrepreneur and the man behind the establishment and phenomenal success of **MAS GLOBAL STEEL** in the field of Iron and Steel Business. **MAS GLOBAL STEEL** is a professionally managed group, which was established in the year 1993 in Bangalore to provide all items of Iron and Steel Products under one roof at Most Competitive Prices with best service.

MAS GLOBAL STEEL

Trading of All types of Iron and Steel Products which Includes HR Sheets / Plates and Coils, CR Sheets & Coils, Structural Steels like Angles, Channels, Beams, T-Angles TMT Bars etc.

- MGS is Authorised Distributors of
 - TATA Steels Limited for Hot Rolled Steel range of products under the Brand name "TATA – ASTRUM"
- SAIL - Steel Authority of India Limited
 - Hot Rolled Steel Coil / Sheets / Plates
 - Cold Rolled Steel Coils / Sheets,
 - Structural Steels like Beams, Joists Channels, Angles etc.,
 - TMT Bars
 - GP and GC Sheets
- RINL – Vishakhapatnam Steel Plant
 - Structural Steels like Beams, Joists Channels, Angles, Bars and Rods etc.
 - TMT Bars
- Products of All Major Re-Rollers in India like SKS Ispat, Monnet Ispat, Vandana Steels Mahamaya Ispat, Topworth Steels etc.

MAS GLOBAL STEEL

An ISO 9001:2008 Certified Company having Manufacturing facility at Malur, Near Bangalore Karnataka – Manufacturer of High Frequency Induction Welded (ERW) Steel Pipes and Tubes of following BIS Specifications (ISI Mark).

- IS 1239 : 2004 – Black Steel Tubes for use (Part I) in Water, Non – Hazardous Gas, Steam and Air Lines.
 - IS 3601: 2006 – Steel Tubes for Mechanical and General Engineering Purposes.
 - IS 9295: 1983 – Steel Tubes for Idlers for Belt Conveyors.
 - IS 3074: 2005 – Steel Tubes for Automotive Purposes
 - IS 1161: 2014 – Steel Tubes for Structural Purposes (CHS)
 - IS 4923: 1997 – Hollow Steel Sections for Structural Use (SHS and RHS)
- Apart above standards PMSPL Can Supply
- As Per International Standards.
 - As Per Drawing of Customers for special Shapes Closed Sections.

Raw Materials Sourcing :

Shape	Minimum Size in mm	Maximum Size in mm	Thickness Range In mm
Round (CHS)	8.00	220 mm	0.50 to 8.00
Square (SHS)	10 x 10	180 x 180	0.50 to 8.00
Rectangle (RHS)	12 x 6	240 x 120	0.50 to 8.00



MANUFACTURING PROCESS

In **MAS GLOBAL, STEEL** is Manufacturing by High frequency induction welding process from Hot Rolled / Cold Rolled Steel Coils produced at the Steel Plants. The Raw materials to Manufacture ERW Steel Pipes & Tubes are procured in Wide Coils form, which are tested for chemical and mechanical properties. After testing of coils, subject to quality acceptance, these wide coils are slit in slitting line to the desired narrow width roughly equal to the perimeter of the Steel Pipes and Tubes Sizes.

The Narrow Coils passes through a sequence of pre aligned forming and fin rolls of high profile hardened and tempered top and bottom rolls. The Strip Gradually attains the circular shape in various stages, which will be getting welded by High frequency Induction Welding. There is no extra filler material used for welding.

The outside bead is trimmed off with a tungsten carbide tool in all cases. The welded pipe passed through a coolant chamber and sized by the sequence of rolls through sizing Stands. The pipes will be cut off automatically in flying Cold Saw machine as per the set length. This Pipes & Tubes are transferred for quality inspections and testing like, Hydro Testing machines Universal testing machine for testing quality of welding, Mechanical Testing of Pipes etc, and finally these products are bundled for dispatch / storage.

Testing and Quality Control Facilities

Steel Pipes and Tubes products are tested in accordance with the Indian Standard Specification No. IS:1239, IS:3074, IS:1161, IS:3601, IS:4923, IS:9295. The tests are comprised of chemical analysis of the product, determination of tensile strength etc.

During production, online Eddy current testing and visual inspection is carried out for surface defects, Dimensional accuracy, Straightness & Twists, Lengths. At regular intervals, Sample pieces are taken as per Specifications to carry out following tests

Thickness

Dimensions

Weight (Mass)

Tensile Test

Bend Test

Flattening Test

Crushing Test

Drift Expansion Test

Individual pipes are finally taken for hydro testing, visually inspected for the parameters specified in the specification before dispatch / storing.

GENERAL APPLICATION OF STEEL PIPES AND TUBES

IS 1161 and IS 4923

- General Construction like,
 - Industrial Buildings
 - Residential Buildings
 - Warehouse Complex
 - Airports Terminal, Railway Platforms, Malls, convention halls, Stadiums.
 - Canopies, Glass curtain wall frames, Partition frames, space frames, Guard Rails and staircases.
 - Bridges, Foot Bridges, Signage Structures, Hoardings.
 - Green houses, Poultry Sheds, etc.
- Construction equipments, Truck Bodies, Bus Bodies, defence equipments
- Agricultural Equipments, Implements
- Ships, Boats, Vessels etc
- Industrial Furnitures, Storage Racks, Mezzanine storage solutions.
- Falsework, Frame work or Formwork (Scaffolding, etc)
- Material Handling equipments
- Shipping Containers
- Structures for all kinds of Plants like, Steel Plants, Power Plants, Solar Power Plants etc.



IS 3601

- General Engineering
- Arms and ammunition, Agricultural Implements, Tractors, Tillers, Intercultivation equipments,
- Electrical and Hand tools like Dibble Iron, various levers
- Home appliances
- Agriculture equipments



IS 3704

- Two wheelers, Three wheelers.
- Cars, Jeeps, Pickups,
- Trucks, Buses, Tractors, Tillers, Tipper
- Automobile Seats



IS 9295

- Idlers for Conveyors



IS 1239

- Sanitary Pipes work, Plumbing and drainage systems
- Fire hydrants and Fire fighting systems
- Oil and Gas Furnace
- LPG Pipe line works
- Fire safety in petroleum refineries, fertiliser plants, sugar plants etc.

IS 9537

- Conduits for Electrical installations

PIPES / TUBES SHAPES

Round

Triangle

Diamond

Door Frame

Glass Railing Pipe

Curtain Pipe

Elliptical

4 Side Diamond

Door Frame

D Section Pipe

Tata Sp Section

Rectangle

Flat Oval

Scissor Handle

T Pipe

Radius Oval

Hexagon

Center Milinium

Decorative pipe

Radius Oval

Z-pipe

D-Section

Hand Rail Pipe

Half Round Pipe

Corner Pipe

PRODUCT PORTFOLIO

		Round Tube In Outer Diameters(OD)				
CHS Circular Hollow Section(Round Pipes & Tubes) Thickness 0.50 to 10.00 mm	8	9.52	12	12.7	15.87	18
	18.5	19.05	21.3	22.23	24.15	25.4
	26.9	28.58	31.75	33.7	34.9	38.1
	40	42	42.4	44.45	48.3	50.8
	57.15	60.3	63.5	76.1	82.7	88.9
	95.5	101.6	114.3	127	139.7	152.4
	165	168.3	173	175	193.7	200
	219.1	Elliptical Tube (56.4x11.4)				
		Rectangle & Oval Tube In Outer Diamentions				
RHS & Oval Rectangle Hollow Sections & Oval Section In Regular Size Thickness Range 0.50 to 10.00 mm	20x10	25x15 OVAL	25x20	25x10	25x12	30x10
	30x15 OVAL	30x16	30x20	31x16	32x12 OVAL	33x12 OVAL
	30x15 OVAL	36x38 OVAL	38x22 OVAL	40x10	40x20	40x25
	40x26	40x30	48x22 OVAL	50x10	50x25	50x30
	50x40	50x70	58x38	60x10	60x30	60x40
	66x33	70x50	75x25	75x30	80x40	85x25
	94x96	96x48	100x50	100x75	102x76	120x60
	122x61	145x82	150x25	150x50	172x92	200x70
	200x100	200x150	240x120			
		Square Tube In Outer Diamentions				
SHS Square Hollow Sections Thickness 0.50 to 10.00 mm	7.5x7.5	10x10	12.5x12.5	15x15	19x19	20x20
	21x21	22x22	25x25	30x30	32x32	33x33
	38x38	40x40	48x48	50x50	60x60	65x65
	70x70	72x72	75x75	80x80	90x90	91.5x91.5
	100x100	113x113	120x120	130x130	132x132	150x150
	152x152	160x160	172x172	175x175	180x180	
		Special Rectangle Tube In Outer Diamentions				
SHS Special Rectangle Hollow Section (mm) Thickness 0.50 to 10.mm	35x25	45x30	48x32	50x20	60x20	62x38
	64x38	65x30	65x35	75x20	75x45	75x50
	78x40	80x20	80x60	80x50	82x38	85x75
	90x50	90x70	92x48	100x40	100x60	100x80
	110x70	112x48	114x46	115x69	120x40	120x50
	120x80	120x100	130x70	130x90	132x48	134x46
	140x60	140x70	140x80	150x70	150x75	150x110
	150x80	152x48	154x48	157x100	160x80	170x90
	171x48	173x46	175x150	180x40	180x80	180x120
	192x72	200x50	200x60	200x120	200x125	235x110
	225x100	235x125	236x116	240x60	245x100	250x100
		Special Rectangle Tube In Outer Diamentions				
THS Triangle Hollow Sections 0.50 to 10.00 mm	40x40x60	60x60x80	63.5x58x50x16	56.24x11.4	60x40	54x34
	85x20x12.5					

PRODUCT RANGE OF PRECISION TUBES

Precision Tubes (CR & GP)

ROUND TUBES (CHS) in CR and GP

Weight Per Mtr.

Outer Dia Size in mm	Thickness in mm												
	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.60	1.80	2.00	2.20	2.50	2.80
8.00	0.092	0.109	0.126	0.142	0.158	0.173	0.201						
9.52	0.111	0.132	0.152	0.172	0.191	0.210	0.246	0.313					
12.00	0.142	0.169		0.221	0.246	0.271	0.320	0.410	0.453				
12.70	0.150	0.179	0.207	0.235	0.262	0.289	0.340	0.438	0.484	0.528			
15.87	0.190	0.226	0.262	0.297	0.332	0.367	0.434	0.563	0.625	0.684			
19.05	0.229	0.273	0.317	0.360	0.403	0.445	0.528	0.689	0.766	0.841			
22.23	0.268	0.320	0.372	0.423	0.473	0.524	0.622	0.814	0.907	0.998			
25.40	0.307	0.367	0.426	0.485	0.544	0.602	0.716	0.939	1.048	1.154	1.259	1.412	1.561
31.75	0.385	0.461	0.536	0.611	0.685	0.758	0.904	1.190	1.330	1.467	1.603	1.803	1.999
38.10		0.555	0.646	0.736	0.826	0.915	1.092	1.440	1.611	1.781	1.948	2.195	2.438
48.30				1.052	1.166	1.394	1.843	2.064	2.284	2.501	2.824	3.142	
50.80						1.468	1.941	2.175	2.407	2.637	2.978	3.315	
60.30							2.316	2.597	2.876	3.152	3.564	3.971	
63.50							2.442	2.739	3.033	3.326	3.761	4.191	
76.20							2.944	3.303	3.660	4.015	4.544	5.068	
88.90							3.445	3.866	4.286	4.704	5.327	5.945	
101.60							3.946	4.430	4.913	5.393	6.110	6.822	
127.00							5.558	6.165	6.771	7.676	8.576		

SQUARE HOLLOW SECTIONS (SHS) in CR and GPSquare

in mm	Thickness in mm												
	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.60	1.80	2.00	2.20	2.50	2.80
7.5 x 7.5	0.111	0.132	0.152	0.172	0.191	0.210	0.246	0.313					
10 x 10	0.150	0.179	0.207	0.235	0.262	0.289	0.340	0.438	0.484				
12.5 x 12.5	0.190	0.226	0.262	0.297	0.332	0.367	0.434	0.563	0.625	0.684			
15 x 15	0.229	0.273	0.317	0.360	0.403	0.445	0.528	0.689	0.766	0.841			
19 x 19	0.292	0.348	0.405	0.461	0.516	0.571	0.679	0.890	0.992	1.093			
20 x 20	0.307	0.367	0.426	0.485	0.544	0.602	0.716	0.939	1.048	1.154	1.259	1.412	1.561
25 x 25	0.385	0.461	0.536	0.611	0.685	0.758	0.904	1.190	1.330	1.467	1.603	1.803	1.999
30 x 30		0.555	0.646	0.736	0.826	0.915	1.092	1.440	1.611	1.781	1.948	2.195	2.438
38 x 38			1.052	1.166	1.394	1.843	2.064	2.284	2.501	2.824	3.142		
40 x 40					1.468	1.941	2.175	2.407	2.637	2.978	3.315		
50 x 50						2.442	2.739	3.033	3.326	3.761	4.191		
60 x 60						2.944	3.303	3.660	4.015	4.544	5.068		
72 x 72						3.445	3.866	4.286	4.704	5.327	5.945		
80 x 80						3.946	4.430	4.913	5.393	6.110	6.822		
100 x 100						5.558	6.165	6.771	7.676	8.576			

RECTANGLE HOLLOW SECTIONS (RHS) in CR and GPRectangle

in mm	Thickness in mm												
	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.60	1.80	2.00	2.20	2.50	2.80
10 x 5	0.111	0.132	0.152	0.172	0.191	0.210	0.246	0.313					
13 x 7	0.150	0.179	0.207	0.235	0.262	0.289	0.340	0.438	0.484				
15 x 10	0.190	0.226	0.262	0.297	0.332	0.367	0.434	0.563	0.625				
25 x 15	0.307	0.367	0.426	0.485	0.544	0.602	0.716	0.939	1.048	1.154	1.259	1.412	1.561
30 x 10	0.307	0.367	0.426	0.485	0.544	0.602	0.716	0.939	1.048	1.154	1.259	1.412	1.561
30 x 20	0.385	0.461	0.536	0.611	0.685	0.758	0.904	1.190	1.330	1.467	1.603	1.803	1.999
35 x 25		0.555	0.646	0.736	0.826	0.915	1.092	1.440	1.611	1.781	1.948	2.195	2.438
40 x 20		0.555	0.646	0.736	0.826	0.915	1.092	1.440	1.611	1.781	1.948	2.195	2.438
50 x 25			1.052	1.166	1.394	1.843	2.064	2.284	2.501	2.824	3.142		
50 x 30					1.468	1.941	2.175	2.407	2.637	2.978	3.315		
60 x 20					1.468	1.941	2.175	2.407	2.637	2.978	3.315		
60 x 40						2.442	2.739	3.033	3.326	3.761	4.191		
75 x 25						2.442	2.739	3.033	3.326	3.761	4.191		
80 x 40						2.944	3.303	3.660	4.015	4.544	5.068		
96 x 48						3.445	3.866	4.286	4.704	5.327	5.945		
100 x 20						2.944	3.303	3.660	4.015	4.544	5.068		

SIZE AND PROPERTIES OF STEEL TUBES FOR AUTOMOTIVE PURPOSES - AS PER IS 5429:2013

Outside Diameter in mm	Weight in kg/meter (Theoretical)																														
	0.50	0.80	0.90	1.00	1.20	1.50	1.60	1.80	2.00	2.20	2.30	2.50	2.60	2.80	2.90	3.00	3.20	3.50	3.60	4.00	4.50	5.40	5.60	6.00	6.30	7.00	8.00				
5.00	0.06	0.08	0.09	0.10																											
6.00	0.07	0.10	0.11	0.12																											
8.00	0.09	0.14	0.16	0.17																											
9.52	0.11	0.17	0.19	0.21																											
10.00	0.12	0.18	0.20	0.22																											
12.00	0.14	0.22	0.25	0.27																											
12.70	0.15	0.23	0.26	0.29																											
13.50		0.25	0.28	0.31	0.36	0.44	0.47	0.52	0.57																						
15.88		0.30	0.33	0.37	0.43	0.53	0.56	0.63	0.68																						
17.46		0.33	0.37	0.41	0.48	0.59	0.63	0.70	0.76	0.83	0.86																				
18.00		0.34	0.38	0.42	0.50	0.61	0.65	0.72	0.79	0.86	0.89	0.96	0.99																		
18.50		0.35	0.39	0.43	0.51	0.63	0.67	0.74	0.81	0.88	0.92	0.99	1.02										0.00								
19.05		0.36	0.40	0.45	0.53	0.65	0.69	0.77	0.84	0.91	0.95	1.02	1.05																		
22.23		0.42	0.47	0.52	0.62	0.77	0.81	0.91	1.00	1.09	1.13	1.21	1.26	1.34	1.38	1.42	1.50														
23.42		0.45	0.50	0.55	0.66	0.81	0.86	0.96	1.06	1.15	1.20	1.29	1.33	1.42	1.47	1.51	1.60														
25.40		0.49	0.54	0.60	0.72	0.88	0.94	1.05	1.15	1.26	1.31	1.41	1.46	1.56	1.61	1.66	1.75														
28.60		0.55	0.61	0.68	0.81	1.00	1.07	1.19	1.31	1.43	1.49	1.61	1.67	1.78	1.84	1.89	2.00	2.17													
31.75		0.61	0.68	0.76	0.90	1.12	1.19	1.33	1.47	1.60	1.67	1.80	1.87	2.00	2.06	2.13	2.25	2.44	2.50												
33.70			0.81	0.96	1.19	1.27	1.42	1.56	1.71	1.78	1.92	1.99	2.13	2.20	2.27	2.41	2.61	2.67	2.93												
34.00			0.81	0.97	1.20	1.28	1.43	1.58	1.73	1.80	1.94	2.01	2.15	2.22	2.29	2.43	2.63	2.70	2.96												
38.10			0.91	1.09	1.35	1.44	1.61	1.78	1.95	2.03	2.19	2.28	2.44	2.52	2.60	2.75	2.99	3.06	3.36	3.73	4.35										
41.28			0.99	1.19	1.47	1.57	1.75	1.94	2.12	2.21	2.39	2.48	2.66	2.74	2.83	3.01	3.26	3.35	3.68	4.08	4.78										
42.00			1.01	1.21	1.50	1.59	1.78	1.97	2.16	2.25	2.44	2.53	2.71	2.80	2.89	3.06	3.32	3.41	3.75	4.16	4.87										
42.70			1.03	1.23	1.52	1.62	1.82	2.01	2.20	2.29	2.48	2.57	2.76	2.85	2.94	3.12	3.38	3.47	3.82	4.24	4.97										
44.45			1.07	1.28	1.59	1.69	1.89	2.09	2.29	2.39	2.59	2.68	2.88	2.97	3.07	3.26	3.53	3.63	3.99	4.43	5.20										
48.30			1.17	1.39	1.73	1.84	2.06	2.28	2.50	2.61	2.82	2.93	3.14	3.25	3.35	3.56	3.87	3.97	4.37	4.86	5.71	5.90	6.26	6.53	7.13						
50.80			1.23	1.47	1.82	1.94	2.18	2.41	2.64	2.75	2.98	3.09	3.31	3.43	3.54	3.76	4.08	4.19	4.62	5.14	6.05	6.24	6.63	6.91	7.56						
57.15			1.38	1.66	2.06	2.19	2.46	2.72	2.98	3.11	3.37	3.50	3.75	3.88	4.01	4.26	4.63	4.75	5.24	5.84	6.89	7.12	7.57	7.90	8.66						
60.30				1.75	2.18	2.32	2.60	2.88	3.15	3.29	3.56	3.70	3.97	4.11	4.24	4.51	4.90	5.03	5.55	6.19	7.31	7.55	8.03	8.39	9.20						
63.50				1.84	2.29	2.44	2.74	3.03	3.33	3.47	3.76	3.90	4.19	4.33	4.48	4.76	5.18	5.32	5.87	6.55	7.74	8.00	8.51	8.89	9.75						
69.85				2.03	2.53	2.69	3.02	3.35	3.67	3.83	4.15	4.31	4.63	4.79	4.95	5.26	5.73	5.88	6.50	7.25	8.58	8.87	9.45	9.87	10.85						
70.00				2.04	2.53	2.70	3.03	3.35	3.68	3.84	4.16	4.32	4.64	4.80	4.96	5.27	5.74	5.90	6.51	7.27	8.60	8.89	9.47	9.90	10.88						
76.20				2.22	2.76	2.94	3.30	3.66	4.01	4.19	4.54	4.72	5.07	5.24	5.42	5.76	6.28	6.45	7.12	7.96	9.43	9.75	10.39	10.86	11.95	13.46					
81.20					3.14	3.52	3.91	4.29	4.48	4.85	5.04	5.41	5.60	5.79	6.16	6.71	6.89	7.62	8.51	10.09	10.44	11.13	11.64	12.81	14.44						
82.50					3.19	3.58	3.97	4.36	4.55	4.93	5.12	5.50	5.69	5.88	6.26	6.82	7.00	7.74	8.66	10.27	10.62	11.32	11.84	13.03	14.70						
88.90					3.44	3.87	4.29	4.70	4.91	5.33	5.53	5.95	6.15	6.36	6.76	7.37	7.57	8.38	9.37	11.12	11.50	12.27	12.83	14.14	15.96						
101.60					3.95	4.43	4.91	5.39	5.63	6.11	6.35	6.82	7.06	7.29	7.77	8.47	8.70	9.63	10.78	12.81	13.26	14.15	14.81	16.33	18.47						
108.00					4.20	4.71	5.23	5.74	6.00	6.50	6.76	7.26	7.52	7.77	8.27	9.02	9.27	10.26	11.49	13.66	14.14	15.09	15.80	17.44	19.73						
114.30					4.45	4.99	5.54	6.08	6.35	6.89	7.16	7.70	7.97	8.23	8.77	9.56	9.83	10.88	12.19	14.50	15.01	16.03	16.78	18.52	20.97						

SPECIFICATION FOR MAS GLOBAL STEEL PURPOSES

Conforming to IS 4923 / 1997

Dimensions and Properties of Square Hollow Sections

Designation	Thickness in mm	Depth or width in mm	Weight in kg/ meter	Area of Section cm ²	Moment of Inertia cm ⁴	Radius of Gyration cm	Elastic Modulus cm ³	Plastic Modulus cm ³
25x25	2.6	25	1.69	2.16	1.72	0.89	1.38	1.76
	3.2	25	1.98	2.53	1.89	0.86	1.51	1.98
30x30	2.6	30	2.10	2.68	3.23	1.10	2.15	2.68
	3.2	30	2.49	3.17	3.62	1.07	2.41	3.08
32x32	4	30	2.94	3.75	3.97	1.03	2.64	3.50
	2.6	32	2.26	2.88	4.02	1.18	2.51	3.11
32x32	3.2	32	2.69	3.42	4.54	1.15	2.84	3.59
	4	32	3.19	4.07	5.02	1.11	3.14	4.11
38x38	2.6	38	2.75	3.51	7.14	1.43	3.76	4.57
	2.9	38	3.03	3.86	7.68	1.41	4.04	4.97
38x38	3.2	38	3.29	4.19	8.18	1.40	4.30	5.34
	3.6	38	3.63	4.62	8.76	1.38	4.61	5.80
38x38	4	38	3.95	5.03	9.26	1.36	4.87	6.22
40x40	2.6	40	2.92	3.72	8.45	1.51	4.22	5.12
	3.2	40	3.49	4.45	9.72	1.48	4.86	6.01
40x40	3.6	40	3.85	4.91	10.45	1.46	5.22	6.53
	4	40	4.20	5.35	11.07	1.44	5.54	7.01
49.5x49.5	2.9	49.5	4.07	5.19	18.37	1.88	7.42	8.93
	3.6	49.5	4.93	6.28	21.42	1.85	8.66	10.60
49.5x49.5	4.5	49.5	5.95	7.58	24.64	1.80	9.96	12.47
72x72	3.2	72	6.71	8.54	66.32	2.79	18.42	21.80
	4	72	8.22	10.47	79.03	2.75	21.95	26.32
72x72	4.8	72	9.66	12.31	90.31	2.71	25.09	30.49
91.5x91.5	3.6	91.5	9.67	12.32	156.49	3.56	34.21	40.24
	4.5	91.5	11.88	15.14	187.57	3.52	41.00	48.79
91.5x91.5	5.4	91.5	14.01	17.85	215.68	3.48	47.14	56.77
100x100	4	100	11.73	14.95	226.35	3.89	45.27	53.30
	5	100	14.41	18.36	271.10	3.84	54.22	64.59
100x100	6	100	16.98	21.63	311.47	3.79	62.29	75.10
113.5x113.5	4.5	113.5	14.99	19.10	372.88	4.42	65.71	77.33
	4.8	113.5	15.92	20.28	393.31	4.40	69.30	81.81
113.5x113.5	5.4	113.5	17.74	22.60	432.58	4.38	76.23	90.55
113.5x113.5	6	113.5	19.53	24.87	469.81	4.35	82.79	98.96
132x132	4.8	132	18.71	23.83	634.39	5.16	96.12	112.69
132x132	5.4	132	20.88	26.59	700.11	5.13	106.08	125.02
	6	132	23.01	29.31	762.98	5.10	115.60	136.98
150x150	5	150	22.26	28.36	982.12	5.89	130.95	152.98
	6	150	26.40	33.63	1145.91	5.84	152.79	179.88
180x180	4	180	21.90	27.90	1434.00	7.17	159.00	184.00
	5	180	27.20	34.60	1755.00	7.12	195.00	226.00
180x180	6	180	32.05	40.83	2036.00	7.06	226.00	280.00
	8	180	42.50	54.10	2633.00	6.98	293.00	346.00

*"We have always
pursued the critical path with
determined deliverables"*

SPECIFICATION FOR MAS GLOBAL STEEL PURPOSES

Conforming to IS 4923 / 1997

Dimensions and Properties of Rectangular Hollow Sections

Designation	Thickness	Depth of Section		Width of Section		Area of Section	Moment of Inertia about		Radius of Gyration about		Elastic Modulus About		Plastic Modulus About		
		D	B	in	kg/ meter		cm ²	cm ⁴	cm ⁴	X-X	Y-Y	X-X	Y-Y	X-X	Y-Y
in mm	in mm	in mm	in mm	kg/ meter	cm ²	cm ⁴	cm ⁴	X-X	Y-Y	cm	cm	cm ³	cm ³	cm ³	cm ³
50x25	2.9	50	25	2.98	3.80	10.93	3.60	1.70	0.97	4.37	2.88	5.72	3.48		
	3.2	50	25	3.24	4.13	11.63	3.80	1.68	0.96	4.65	3.04	6.14	3.73		
60x40	2.9	60	40	4.12	5.25	24.74	13.11	2.17	1.58	8.25	6.56	10.25	7.73		
	2.9	66	33	4.07	5.19	27.33	9.12	2.29	1.33	8.28	5.53	10.59	6.49		
66x33	3.6	66	33	4.93	6.28	31.87	10.52	2.25	1.29	9.66	6.37	12.56	7.66		
	4.5	66	33	5.95	7.58	36.64	11.93	2.20	1.25	11.10	7.23	14.77	8.94		
80x40	2.9	80	40	5.03	6.41	50.87	17.11	2.82	1.63	12.72	8.56	16.07	9.88		
	3.2	80	40	5.50	7.01	54.94	18.41	2.80	1.62	13.74	9.21	17.46	10.72		
80x40	4	80	40	6.71	8.55	64.79	21.49	2.75	1.59	16.20	10.74	20.91	12.77		
	3.2	96	48	6.71	8.54	98.61	33.28	3.40	1.97	20.54	13.87	25.85	15.91		
96x48	4	96	48	8.22	10.47	117.54	39.32	3.55	1.94	24.49	16.30	31.21	19.14		
	4.8	96	48	9.66	12.31	134.35	44.55	3.30	1.90	27.99	18.56	36.13	22.08		
122x61	3.6	122	61	9.67	12.32	232.61	78.83	4.34	2.35	38.13	25.84	47.71	29.42		
	4.5	122	61	11.88	15.14	278.94	93.78	4.29	2.49	45.73	30.75	57.85	35.56		
122x61	5.4	122	61	14.01	17.85	320.83	107.03	4.24	2.45	52.60	35.09	67.29	41.22		
	4.8	145	82	15.92	20.28	555.16	228.50	5.23	3.36	76.57	55.73	94.93	63.93		
145x82	5.4	145	82	17.74	22.60	610.85	250.59	5.20	3.33	84.26	61.12	105.07	70.66		
	4.8	172	92	18.71	23.83	917.13	346.91	6.20	3.82	106.64	75.41	132.08	85.61		
172x92	5.4	172	92	20.88	26.59	1012.47	381.74	6.17	3.79	117.73	82.99	146.55	94.86		
	4	200	100	18.01	22.95	1199.71	410.78	7.23	4.23	119.97	82.16				
200x100	5	200	100	22.26	28.36	1459.28	496.94	7.17	4.19	145.93	99.39				
	6	200	100	26.40	33.63	1703.34	576.92	7.12	4.14	170.33	115.38				
200x100	8	200	100	34.38	43.79	2146.27	719.19	7.00	4.05	214.62	143.84				
	4	240	120	21.78	27.75	2110.72	725.35	8.72	5.11	175.89	120.89				
240x120	5	240	120	26.97	34.36	2597.67	882.47	8.67	5.07	214.97	147.08				
	6	240	120	32.05	40.83	3025.91	1030.45	8.61	5.02	252.16	171.74				
	8	240	120	41.91	53.39	3851.50	1299.95	8.55	4.93	320.99	216.66				

Tolerances

Thickness all sizes : ± 10%
 Outside Dimensions of sides : ± 1 % with a minimum of + / - 0.5 mm

Weight

On Individual Lengths : + 10 %
 : - 8 %

On Lots of 10 Tonnes, min : ± 7.5 %

Squareness of corner : 90 Deg ± 2 Deg

Radii of corners - Outside Length : 3 t, Max where t is the thickness of the sections
 : ± 6 mm

Customised length ranging from 4 mtr to 15 mtr may be supplied

Tensile Properties of Hollow Sections

Grade	Tensile Strength		Yield Stress		Elongation, Over 25.4 and under 25.4	
	Min, mPa	Max, mPa	Min, mPa	Max, mPa	25.4	Over 25.4
Yst 210	330	210	12	20		
Yst 240	410	240	10	15		
Yst 310	450	310	8	10		

SPECIFICATION FOR MAS GLOBAL STEEL PURPOSES

Conforming to IS 1161 / 2014

NB Nominal Bore in mm	Outside Diameter in (mm)	Thickness (WT) in mm	Weight (Mass) kg/Mtr	Area of Cross Section cm ²	Internal Volume cm ³ /m	External cm ³ /m	Surface Internal cm ³ /m	Moment of Inertia cm ⁴ /m	Modulus of Section cm ³	Radius of Gyration cm	Square of Radius of Gyration cm ²
15	21.3	2	0.952	1.21	235	669	543	0.57	0.54	0.69	0.47
	21.3	2.6	1.20	1.53	204	669	506	0.68	0.64	0.67	0.45
	21.3	3.2	1.43	1.82	174	669	468	0.77	0.72	0.65	0.42
20	26.9	2.3	1.40	1.78	391	845	701	1.36	1.01	0.87	0.76
	26.9	2.6	1.56	1.98	370	845	682	1.48	1.10	0.86	0.75
	26.9	3.2	1.87	2.38	330	845	644	1.70	1.27	0.85	0.71
25	33.7	2.6	1.99	2.54	638	1059	895	3.09	1.84	1.10	1.22
	33.7	3.2	2.41	3.07	585	1059	858	3.60	2.14	1.08	1.18
	33.7	4	2.93	3.73	519	1059	807	4.19	2.49	1.06	1.12
32	42.4	2.6	2.55	3.25	1087	1332	1169	6.46	3.05	1.41	1.99
	42.4	3.2	3.09	3.94	1018	1332	1131	7.62	3.59	1.39	1.93
	42.4	4	3.79	4.83	929	1332	1081	8.99	4.24	1.36	1.86
40	48.3	2.9	3.25	4.14	1419	1517	1335	10.70	4.43	1.61	2.59
	48.3	3.2	3.56	4.53	1379	1517	1316	11.59	4.80	1.60	2.56
	48.3	4	4.37	5.57	1276	1517	1266	13.77	5.70	1.57	2.47
50	60.3	2.9	4.11	5.23	2333	1894	1712	21.59	7.16	2.03	4.13
	60.3	3.6	5.03	6.41	2215	1894	1668	25.87	8.58	2.01	4.02
	60.3	4.5	6.19	7.89	2067	1894	1612	30.90	10.25	1.98	3.92
65	76.1	2.9	5.24	6.67	3882	2391	2209	44.74	11.76	2.59	6.71
	76.1	3.6	6.44	8.20	3728	2391	2165	54.01	14.19	2.57	6.59
	76.1	4.5	7.95	10.12	3536	2391	2108	65.12	17.11	2.54	6.43
80	88.9	3.2	6.76	8.62	5346	2793	2592	79.21	17.82	3.03	9.19
	88.9	4	8.38	10.67	5140	2793	2542	96.34	21.67	3.00	9.03
	88.9	4.8	9.96	12.68	4939	2793	2491	112.49	25.31	2.98	8.87
90	101.6	3.6	8.70	11.08	6999	3192	2966	133.24	26.23	3.47	12.02
	101.6	4	9.63	12.26	6881	3192	2941	146.28	28.80	3.45	11.93
	101.6	4.8	11.46	14.60	6648	3192	2890	171.39	33.74	3.43	11.74
100	114.3	3.6	9.83	12.52	9009	3591	3365	191.98	33.59	3.92	15.33
	114.3	4.5	12.19	15.52	8709	3591	3308	234.32	41.00	3.89	15.10
	114.3	5.4	14.50	18.47	8413	3591	3252	274.54	48.04	3.85	14.86
110	127	4.5	13.59	17.32	10936	3990	3707	325.29	51.23	4.33	18.78
	127	4.8	14.47	18.43	10825	3990	3688	344.50	54.25	4.32	18.69
	127	5.4	16.19	20.63	10605	3990	3651	382.04	60.16	4.30	18.52
125	139.7	4.5	15.00	19.11	13417	4389	4106	437.20	62.59	4.78	22.87
	139.7	4.8	15.97	20.34	13295	4389	4087	463.33	66.33	4.77	22.78
	139.7	5.4	17.89	22.78	13050	4389	4050	514.50	73.66	4.75	22.58
135	152.4	4.5	16.41	20.91	16151	4788	4505	572.24	75.10	5.23	27.37
	152.4	4.8	17.47	22.26	16016	4788	4486	606.76	79.63	5.22	27.26
	152.4	5.4	19.58	24.94	15748	4788	4448	674.51	88.52	5.20	27.05
150	165.1	4.5	17.82	22.70	19138	5187	4904	732.57	88.74	5.68	32.27
	165.1	4.8	18.98	24.17	18991	5187	4885	777.13	94.14	5.67	32.15
	165.1	5.4	21.27	27.09	18699	5187	4847	864.70	104.75	5.65	31.92
	165.1	5.9	23.20	29.50	18465	5189	4818	970.00	113.40	5.63	31.72
	165.1	6.3	24.67	31.43	18265	5187	4791	992.28	120.20	5.62	31.57
	165.1	8	30.99	39.48	17460	5187	4684	1221.25	147.94	5.56	30.93
150	168.3	4.5	18.18	23.16	19931	5287	5005	777.22	92.36	5.79	33.56
	168.3	4.8	19.35	24.66	19781	5287	4986	824.57	97.99	5.78	33.44
	168.3	5.4	21.69	27.64	19483	5287	4948	917.69	109.05	5.76	33.21
	168.3	6.3	25.17	32.06	19040	5287	4891	1053.42	125.18	5.73	32.85
	168.3	8	31.63	40.29	18218	5287	4785	1297.27	154.16	5.67	32.20
175	193.7	4.8	22.36	28.49	26619	6085	5784	1271.39	131.27	6.68	44.63
	193.7	5.4	25.08	31.94	26273	6085	5746	1416.97	146.31	6.66	44.36
	193.7	5.9	27.33	34.81	25987	6085	5715	1536.13	158.61	6.64	44.13
	193.7	6.3	29.12	37.09	25759	6085	5689	1630.05	168.31	6.63	43.95
	193.7	8	36.64	46.67	24801	6085	5583	2015.54	208.11	6.57	43.19
200	219.1	4.8	25.37	32.32	34471	6883	6582	1856.03	169.42	7.58	57.43
	219.1	5.6	29.49	37.56	33947	6883	6531	2141.61	195.49	7.55	57.02
	219.1	5.9	31.02	39.52	33751	6883	6513	2247.01	205.11	7.54	56.86
	219.1	6.3	33.06	42.12	33491	6883	6487	2386.14	217.81	7.53	56.65
	219.1	8	41.65	53.06	32397	6883	6381	2959.63	270.16	7.47	55.78

Mechanical Properties

Tensile Properties	Tensile Strength Min MPa	Yield Strength Min MPa	Elongation on Guage Length 5.65/S ₀ Min Percent
Yst 210	330	210	20
Yst 240	410	240	17
Yst 310	450	310	14
Yst 355	490	355	10

Tolerances

Outside Diameter	Thickness
Up to & Including 48.3 mm	+ 0.4 mm
Over 48.3 mm	- 0.8 mm
	± 1.0 percent

Notes

1. 1MPa = 1N/mm² = 0.102 kgf/mm²
2. Elongation percent for tube up to and including 25 mm nominal bore for all grades shall be 12 minimum

SPECIFICATION FOR STEEL TUBES FOR MECHANICAL AND GENERAL PURPOSES

Conforming to IS 3601 / 2006

Outside Diameter	Thickness (WT)	Mass	Area of Cross-Section	Moment of Inertia	Modulus of Sections	Radius of Gyration	Outside Diameter	Thickness (WT)	Mass	Area of Cross-Section	Moment of Inertia	Modulus of Sections	Radius of Gyration	
mm	mm	kg / Mtr	cm ²	cm ⁴	cm ³	cm	mm	mm	kg / Mtr	cm ²	cm ⁴	cm ³	cm	
21.3	1.8	0.866	1.10	0.53	0.50	0.69	139.7	3.6	12.10	15.38	356.36	51.02	4.81	
	2.0	0.952	1.21	0.57	0.54	0.69		4.0	13.40	17.04	392.57	56.20	4.80	
	2.6	1.20	1.53	0.68	0.64	0.67		4.5	15.00	19.10	437.20	62.60	4.78	
	3.2	1.43	1.82	0.77	0.72	0.65		5.0	16.60	21.20	480.50	68.80	4.77	
	4.0	1.71	2.17	0.86	0.81	0.63		5.4	17.90	22.80	514.50	73.70	4.75	
26.9	1.8	1.11	1.42	1.12	0.83	0.89	152.4	6.3	20.70	26.30	591.00	84.70	4.73	
	2.0	1.23	1.56	1.22	0.91	0.88		8.0	26.00	32.50	716.00	103.00	4.71	
	2.3	1.40	1.78	1.36	1.01	0.87		4.5	16.40	20.90	572.20	75.10	5.23	
	2.6	1.56	1.98	1.48	1.10	0.86		5.0	18.20	23.20	629.50	82.60	5.21	
	3.2	1.87	2.38	1.70	1.27	0.85		5.4	19.60	24.90	674.50	88.50	5.20	
	4.0	2.26	2.88	1.95	1.45	0.82		4.5	17.80	22.70	732.60	88.70	5.68	
33.7	2.0	1.56	1.99	2.51	1.49	1.12	165.1	5.0	19.70	25.10	806.60	97.70	5.66	
	2.3	1.78	2.27	2.81	1.67	1.11		5.4	21.20	27.10	864.70	105.00	5.65	
	2.6	1.99	2.54	3.09	1.84	1.10		6.3	24.80	31.40	992.00	120.00	5.63	
	3.2	2.41	3.07	3.60	2.14	1.08		4.0	16.20	20.64	696.87	82.81	5.81	
	4.0	2.93	3.73	4.19	2.49	1.06		4.5	18.20	23.20	777.20	98.40	5.79	
	4.5	3.24	4.13	4.51	2.68	1.05		5.0	20.10	25.70	855.80	102.00	5.78	
42.4	2.3	2.27	2.90	5.85	2.76	1.42	168.3	5.4	21.70	27.60	917.70	109.00	5.76	
	2.6	2.55	3.25	6.46	3.05	1.41		6.3	25.20	32.10	1053.00	125.00	5.73	
	3.2	3.09	3.94	7.62	3.59	1.39		7.1	28.20	35.94	1169.66	139.00	5.70	
	3.6	3.44	4.39	8.33	3.93	1.38		8.0	31.60	39.70	1288.00	153.00	5.69	
	4.0	3.79	4.83	8.90	4.24	1.36		5.0	23.30	29.60	1320.00	136.00	6.67	
	5.0	4.61	5.87	10.45	4.93	1.33		5.4	25.10	31.90	1417.00	146.00	6.66	
48.3	2.3	2.61	3.32	8.80	3.64	1.63	193.7	5.9	27.30	34.80	1536.00	159.00	6.64	
	2.6	2.93	3.73	9.77	4.05	1.62		6.3	29.10	37.00	1600.00	165.00	6.60	
	2.9	3.25	4.14	10.70	4.43	1.61		8.0	36.60	46.30	2004.00	207.00	6.57	
	3.2	3.56	4.53	11.59	4.80	1.60		4.5	23.80	30.32	1746.18	159.40	7.59	
	3.6	3.97	5.05	12.69	5.25	1.59		5.0	26.40	33.60	1928.00	176.00	7.57	
	4.0	4.37	5.57	13.77	5.70	1.57		5.6	29.50	37.60	2142.00	195.00	7.56	
60.3	4.9	5.24	6.64	15.99	6.63	1.55	219.1	6.3	33.10	42.00	2404.00	219.00	7.54	
	5.0	5.34	6.80	16.15	6.69	1.54		8.0	41.60	52.00	1940.00	268.00	7.52	
	2.3	3.29	4.19	17.65	5.85	2.05		-	25.40	31.40	± 0.15			
	2.6	3.70	4.71	19.64	6.51	2.04		25.40	51.00	63.50	± 0.18			
	2.9	4.11	5.23	21.59	7.16	2.03		51.00	63.50	76.10	± 0.25			
	3.2	4.51	5.74	23.47	7.78	2.02		63.50	76.10	88.90	± 0.25			
76.1	3.6	5.03	6.41	25.87	8.58	2.01	152.40	76.10	88.90	101.60	114.30	152.40	Less than 1/600	
	4.0	5.55	7.07	28.15	9.34	2.00		88.90	101.60	114.30	128.00	141.00	152.40	
	4.5	6.19	7.89	30.90	10.20	1.98		101.60	114.30	128.00	141.00	152.40		
	5.0	6.82	8.70	33.48	11.10	1.96		114.30	128.00	141.00	152.40	168.30	168.30	
	2.6	4.71	6.00	40.57	10.66	2.60		128.00	141.00	152.40	168.30	183.70	183.70	
	2.9	5.23	6.67	44.74	11.76	2.59		141.00	152.40	168.30	183.70	193.70	193.70	
88.9	3.2	5.75	7.33	48.78	12.80	2.58	168.30	152.40	168.30	183.70	193.70	204.10	204.10	
	3.6	6.44	8.20	54.01	14.20	2.57		168.30	183.70	193.70	204.10	214.50	214.50	
	4.5	7.95	10.10	65.12	17.10	2.54		183.70	193.70	204.10	214.50	224.90	224.90	
	5.0	8.77	11.16	70.87	18.63	2.52		193.70	204.10	214.50	224.90	235.30	235.30	
	2.9	6.15	7.83	72.47	16.30	3.04		204.10	214.50	224.90	235.30	245.70	245.70	
	3.2	6.76	8.62	79.21	17.80	3.03		214.50	224.90	235.30	245.70	256.10	256.10	
101.6	4.0	8.38	10.70	96.34	21.70	3.00	114.3	224.90	235.30	245.70	256.10	266.50	266.50	
	5.0	10.30	13.20	116.40	26.20	2.97		235.30	245.70	256.10	266.50	276.90	276.90	
	4.5	11.10	14.00	123.80	27.80	2.97		245.70	256.10	266.50	276.90	287.30	287.30	
	5.4	11.50	14.65	127.64	28.72	2.95		256.10	266.50	276.90	287.30	297.70	297.70	
	6.3	12.80	16.20	141.20	31.80	2.93		266.50	276.90	287.30	297.70	308.10	308.10	
	8.0	16.00	20.32	167.86	37.76	2.87		276.90	287.30	297.70	308.10	318.50	318.50	
114.3	3.6	8.70	11.10	133.20	26.20	3.47	127.0	308.10	318.50	328.90	339.30	349.70	349.70	
	4.0	9.63	12.30	146.20	28.80	3.45		318.50	328.90	339.30	349.70	350.10	350.10	
	5.0	11.90	15.20	177.50	34.90	3.42		328.90	339.30	349.70	350.10	360.50	360.50	
	3.2	8.77	11.16	172.33	30.15	3.93		339.30	349.70	350.10	360.50	370.90	370.90	
	3.6	9.83	12.50	192.00	33.60	3.92		349.70	350.10	360.50	370.90	381.30	381.30	
	4.5	12.20	15.50	234.30	41.00	3.89		350.10	360.50	370.90	381.30	391.70	391.70	
127.0	5.4	14.50	18.50	274.50	48.00	3.86	127.0	360.50	370.90	381.30	391.70	402.10	402.10	
	6.3	16.80	21.20	315.00	55.10	3.83		370.90	381.30	391.70	402.10	412.50	412.50	
	8.0	21.00	26.30	377.60	66.00	3.78		381.30	391.70	402.10	412.50	422.90	422.90	
127.0	4.5	13.60	17.30	325.30	51.20	4.33	127.0	402.10	412.50	422.90	433.30	443.70	443.70	
	5.0	15.00	19.20	357.10	56.20	4.32		412.50	422.90	433.30	443.70	454.10	454.10	
	5.4	16.20	20.60	302.00	60.20	4.30		422.90	433.30	443.70	454.10	464.50	464.50	

SPECIFICATION FOR BLACK STEEL TUBES FOR USE IN WATER, NON-HAZARDOUS GAS, STEAM AND AIR LINES

Conforming to IS 1239 (Part - 1) : 2004

Nominal Bore		Series	Outside Diameter			Nominal Mass of Tube		
in mm	in Inch		Maximum in mm	Minimum in mm	Wall Thickness (T) in mm	in Guage	kg/Mtr	Plain End Mtrs/M.Ton
15	0.50	Light	21.4	21.0	2.00	14	0.947	1056
		Medium	21.8	21.0	2.60	12	1.210	826
		Heavy	21.8	21.0	3.20	10	1.440	694
20	0.75	Light	26.9	26.4	2.30	13	1.380	725
		Medium	27.3	26.5	2.60	12	1.560	641
		Heavy	27.3	26.5	3.20	10	1.870	535
25	1.00	Light	33.8	33.2	2.60	12	1.980	505
		Medium	34.2	33.3	3.20	10	2.410	415
		Heavy	34.2	33.3	4.00	8	2.930	341
32	1.25	Light	42.5	41.9	2.60	12	2.540	394
		Medium	42.9	42.0	3.20	10	3.100	323
		Heavy	42.9	42.0	4.00	8	3.790	264
40	1.50	Light	48.4	47.8	2.90	11	3.230	310
		Medium	48.8	47.9	3.20	10	3.560	281
		Heavy	48.8	47.9	4.00	8	4.370	229
50	2.00	Light	60.2	59.6	2.90	11	4.080	245
		Medium	60.8	59.7	3.60	9	5.030	199
		Heavy	60.8	59.7	4.50	7	6.190	162
65	2.50	Light	76.0	75.2	3.20	10	5.710	175
		Medium	76.6	75.3	3.60	9	6.420	156
		Heavy	76.6	75.3	4.50	7	7.930	126
80	3.00	Light	88.7	87.9	3.20	10	6.720	149
		Medium	89.5	88.0	4.00	8	8.360	120
		Heavy	89.5	88.0	4.80	6	9.900	101
100	4.00	Light	113.9	113.0	3.60	9	9.750	103
		Medium	115.0	113.1	4.50	7	12.200	82
		Heavy	115.0	113.1	5.40	5	14.500	69
125	5.00	Medium	140.8	138.5	4.80	6	15.900	63
		Heavy	140.8	138.5	5.40	5	17.900	56
		Medium	166.5	163.9	4.80	6	18.900	53
	6.00	Heavy	166.5	163.9	5.40	5	21.300	47

Tolerance on Thickness and Mass

Class	Thickness	Mass (Weight)		
		Single Tube	Per Load of 10 Mton Min.	
Light	+ Not Limited	+ 10 percent	+ 7.5 percent	
	- 8 percent	- 8 percent	- 5 percent	
Medium &Heavy	+ Not Limited	± 10 percent	± 7.5 percent	
	- 10 percent			

SPECIFICATION FOR STEEL TUBES FOR IDLERS FOR BELT CONVEYORS

Conforming to IS 9295/1983

Outside Diameter in mm	Thickness (T) in mm	Weight Mass	
		Kg / Mtr	Mtr / Tonne
63.5	3.65	5.39	186
	4.5	6.55	153
76.1	3.65	6.52	153
	4.5	7.95	126
88.9	4.05	8.47	118
	4.85	10.05	100
	6.3	12.83	78
101.6	4.05	9.74	103
	4.85	11.57	86
	6.3	14.81	68
114.3	4.5	12.19	82
	5.4	14.50	69
	6.3	16.78	60
127	4.5	13.60	74
	4.85	14.61	68
	5.4	16.10	62
	6.3	18.75	53
139.7	4.5	15.00	67
	4.85	16.13	62
	5.4	17.89	56
	6.3	20.73	48
165.1	4.5	17.80	56
	4.85	19.17	52
	5.4	21.27	47
	6.3	24.67	41
168.3	4.5	18.20	55
	4.85	19.55	51
	5.4	21.69	46
	6.3	25.17	40
193.7	5.4	25.10	40
	6.3	29.12	34
	7.1	32.67	31
219.1	5.4	28.50	35
	6.3	33.06	30
	7.1	37.12	27

Mechanical Properties

Tube Designation	Tensile Strength Mpa min	Yield Stress Mpa min	Elongation percent min
ERW 210	330	210	20
ERW 240	410	240	18
ERW 310	450	310	15

Tolerances

Ovality	Below 168.30	0.5 mm
	Including 168.3 and Above	1.0 mm
Mass	Single Tube Per Load of 10 Tonne	± 10 % ± 7.5 %
Eccentricity		5% Max
Outside Diameter		± 0.8 %
Thickness		± 10 %
Length	+ 6 mm - 0 mm	

PIPES & TUBES



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

Carbon Steel : ASTM A53 GR. B/ A105 GR./ A106 GR. B/ API 5L GRADE B/ API 5L GR.X42/46/52/56/60/65/70, etc.

Low Temperature, Carbon Steel : A333 Gr.3/ Gr.6 etc.

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

Nickel Alloys : Monel, Nickel, Inconel, Hastalloy, Titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Non

Ferrous Metal: Copper, Brass, Bronze, Zinc, Lead etc.

Types : Round, Square, Rectangular.

Size : Upto 72" NB. (Seamless & Welded)

Wall Thickness : Sch. 5S to Sch. XXS

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

CarbonSteel: ASTMA105/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: Weldneck, Slipon, Blind, Socket Weld, Lap Joint, Spectacles, Ring Joint, Oriface, Long Weldneck, Deck Flange, RTJ, Flange

Size: 1/2" NB TO 72" NB.

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

FLANGES



SHEET PLATES



M. S. Sheets & Plates

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 Gr. A, B & C, IS 2002 Gr. 1 & 2 ASTM A 516 Gr. 60 & 70, ASTM A 515 Gr.70

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, Duplex and Super Duplex Steel, Titanium,Copper, Brass, Bronze, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead, etc.

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

Size: 1/2" NB TO 72" NB.

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

FASTENERS



RODS BARS



Material Grade : Stainless Steel, Nickel Alloys, Carbon Steel, Alloy Steel, IBR NonIBR, MS.

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

Types: Rods, Hex, Square, Wires, Billets, etc.



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BRASS TUBES



COPPER

DHP Copper, ETP Copper, DPA Copper
OFHC Copper

BRASS

63 / 37 Brass, 70 / 30 Brass, Admiralty Brass,
Aluminium Brass & other compositions of
Brass.

CUPRONICKEL

95 / 5 alloy, 90 / 10 alloy & 70 / 30 alloy.

BRONZES

Phosphorous Bronze Aluminium Bronze & Gun
Metal, Phosphorous Bronze A B1 / A B2
Bush Round.

RANGE

TUBES

2mm OD to 200mm OD with wall thickness of 0.10 mm to 15mm
in length upto 10 mtrs straight (in coils upto 25 mtrs) in copper,
Brass & Cupronickel.

RODS

In all sizes upto 160mm diameter in Copper, Brass and Bronzes.

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Copper strips and sections as per clients
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WIRES

Copper wires upto 42 swg in bright annealed
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S. E. WIRES

Super enamelled copper wires upto 42 swg.

RANGE

COPPER TUBES



BRASS RODS



SPECIFICATIONS

Indian Standard Specification (ISS)
British Standard Specification (BSS)
American Standard for Testing of Material
(ASTM)
As per Parties Specific Specification.

COPPER TUBE & SECTIONS



TESTING FACILITIES



Chemical Analysis
Physical Testing
Hardness Testing
Hydrostatic Testing
Pneumatic Testing
Stress Corrosion Testing
Dimensional Inspection
Destructive Testing-Flattening, Drift Test,
Bend Test etc.
NDT - Eddy Current Testing



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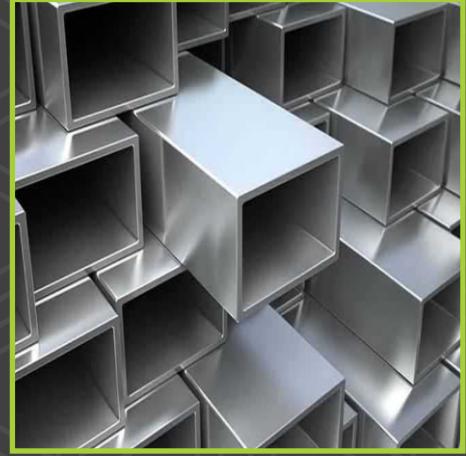
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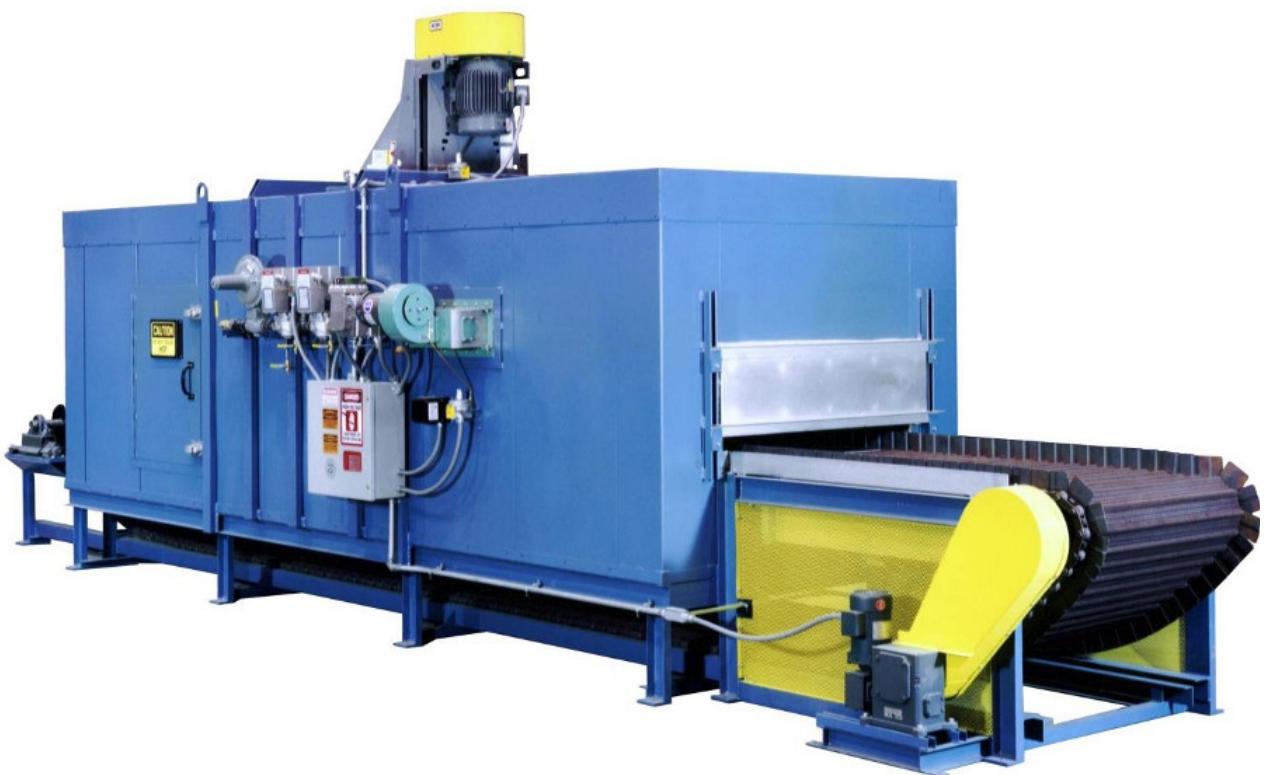
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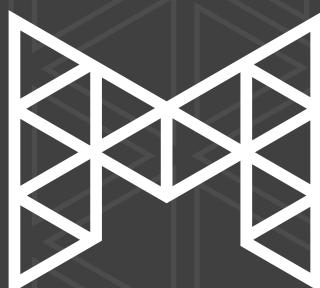
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