MSP
PIPES

STANDING STRONG FOR LIFELONG.

Pipes &
Hollow Steel
Sections


FOREVER
IN THE
PATH OF
STRENGTH,
STABILITY AND
DURABILITY

MSP PIPES

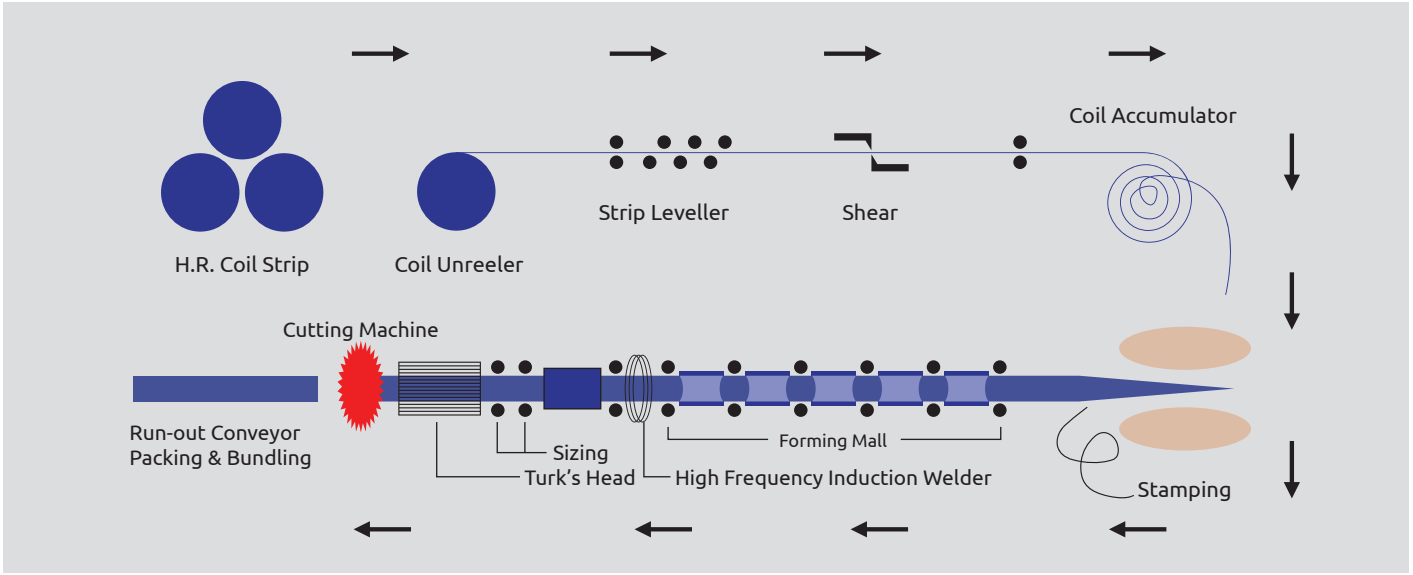
"You never know how strong you are, until being strong is your only choice."

We believe in this philosophy and have continued our journey towards excellence, following the path of resilience. From a humble beginning with a single product manufacturing unit, we have emerged as an established name in the country's steel production scenario. Taking another step to further strengthen the future of the nation, MSP Group has extended its operation in the segment of pipes & hollow steel sections.

The wide range of ERW pipes we offer has assurance of world-class quality, better durability and better reliability. Our promise to provide the best quality product compels us to put equal effort and attention at every level, starting from procurement, manufacturing to the final dispatch of each batch of product.


APPLICATIONS
A wide range of application is found in almost every sector
WATER PIPE LINES
WATER MAINS, INDUSTRIAL WATER LINES, PLANT PIPING, DOMESTIC WATER SUPPLY etc.
AGRICULTURE & IRRIGATION
DEEP TUBE-WELLS & CASING PIPES.
GAS PIPE LINES
PIPE LINES FOR NATURAL GAS, LPG & OTHER NON-TOXIC GASES.
CONSTRUCTION INDUSTRIES
SCAFFOLDING & STRUCTURAL PURPOSES.
TRANSPORTATION INDUSTRIES
CONVEYING OF CHEMICALS & STRUCTURAL SUPPORT OF CONVEYING SYSTEM.
FIRE FIGHTING SYSTEM AND AIR-CONDITIONING
ASH HANDLING SYSTEM, LP PIPING.
OTHER PURPOSES
EXHAUST PIPING, STEEL TUBE IDLERS & TROUGHED BELT CONVEYORS, COLD STORAGE, SUGAR INDUSTRY APPLICATIONS etc.

THE PROCESS CHART



MANUFACTURING PROCESS ERW PIPES

The manufacturing process of MSP Pipes involves uncoiling & levelling of coils and processing the same. The lead end of each coil is squared by shearing operation into the mill. Then this end is joined with the coil end of outgoing coil to maintain continuity in production and reduce losses.

Subsequently the pipe string passes through sizing stands to obtain perfect roundness and diameter. Then pipes are cut to the desired length as per requirement.

Tubes are created for forming into square and rectangular forms, manufactured by Electric Resistance Welding.

QUALITY CONTROL

Random inspections are carried out during production, for surface defects, diameter accuracy, quality and weld bead shape.

Required sample rings as per specification are cut to carry out mechanical testing of weld and body e.g., flattening test, bend test etc.

All pipes & hollow steel sections are then processed in finishing and testing area for pipe end preparation i.e., facing/bevelling followed by hydrostatic pressure testing as per specification.

MSP HOLLOW STEEL SECTIONS

Hollow steel sections are the most versatile and efficient option for construction and mechanical applications.

MSP hollow steel sections have a wide range of industrial & commercial applications - water & gas pipelines, chemical industries, structural and infrastructural engineering etc.

The benefits of choosing MSP steel hollow sections over other brands are:

- Manufactured from world-class coils.
- Lesser surface exposure acts as formidable barrier to rust.
- Lesser painting and maintenance cost.
- Lower dead weight helps in reducing the design loads on earthquake resistant structures, thereby reducing the material cost of foundation.

PRODUCT RANGE

BLACK/GALVANISED STEEL PIPES

For ordinary use
in Water, Gas and Air Lines

Range	15 mm NB - 150 mm NB
Standard	IS: 1239 (Part-I) - 2004

STEEL PIPES

For Water and Sewage Purposes

Range	168.3 mm x 2.6 mm to 323.9 mm x 7.10 mm
Standard	IS: 3589 - 2001

BLACK/GALVANISED/ PRE-GALVANISED STEEL TUBES

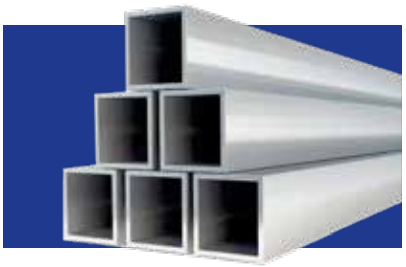
For General Engineering Structural Purpose

Black, GI Range & GP Range	15 mm NB to 200 mm NB
Standard	IS: 1161 - 2014

STEEL TUBES

For Mechanical and General Engineering

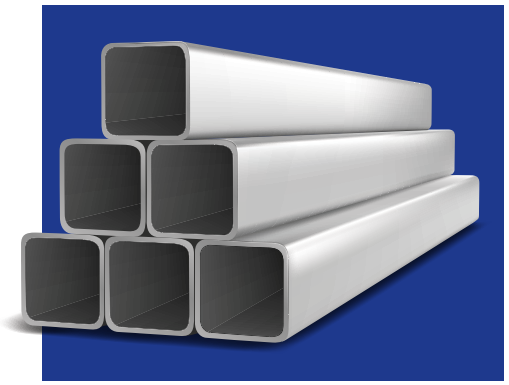
Range	42.4 mm O/D to 406.4 mm O/D
Standard	IS: 3601 - 2006

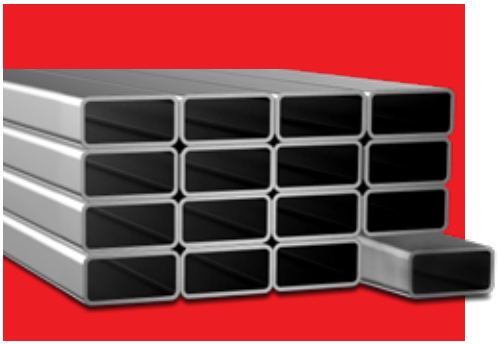


SQUARE HOLLOW SECTIONS BLACK & GP

For Structural Purpose

Black Square Range & GP Square Range	25 mm x 25 mm up to 150 mm x 150 mm
Standard	IS: 4923 - 2017





RECTANGULAR HOLLOW SECTIONS BLACK & GP

For Structural Purpose

Black Rectangular Range & GP Rectangular Range	50 mm x 25 mm up to 500 mm x 300 mm
Standard	IS: 4923 - 2017

The applications of these sections in the structural domain are as follows

1. **Construction and Infrastructure**
- Building Frames: Used in columns, beams, and trusses for all types of buildings (residential, commercial, and industrial)
- Bridges: For structural elements like girders and supports
- Pedestrian Walkways: As balustrades, handrails, and structural supports
- Scaffolding: Temporary structures for construction support
- Airport Structures: Terminal buildings and hangars

2. **Industrial Applications**
- Conveyor Systems: Frameworks for conveyor belts & systems
- Storage Systems: Racking systems and warehouse shelving
- Pipe Supports: Structures to hold pipelines

3. **Industrial Applications Transportation**
- Automotive Industry: Frames, chassis, and crash barriers for vehicles
- Railway Applications: Components for wagons, coaches, & overhead electric supports

4. **Energy Sector**
- Transmission Towers: Lightweight but strong components for power line supports
- Wind Turbines: Structural supports for turbine blades
- Solar Panel Mounting Structures: Frameworks for mounting solar panels

5. **Agriculture and Rural Development**
- Greenhouses: Frames for agricultural greenhouses
- Fencing: As posts and rails for fencing solutions
- Irrigation Structures: Frameworks for water storage and distribution

6. **Urban and Landscape Design**
- Signage: Supporting poles for boards and street signs
- Street Furniture: Benches, shelters, and bike racks
- Playgrounds: Frameworks for play equipment

7. **Sports and Recreational Structures**
- Stadiums: Roofs, spectator stands, and light towers
- Gym Equipment: Lightweight structures for fitness machines

8. **Architectural Applications**
- Aesthetic Structures: Used in modern designs for bridges, facades, and building exteriors
- Skylights and Canopies: Providing strength and style

9. **Offshore and Marine**
- Oil and Gas Platforms: Used in offshore drilling structures

Steel Tubes For Ordinary Uses In Water, Gas And Air Lines

Conforming to IS:1239, Part I - 2004

Normal Bore & Series	Outside Diameter		Wall Thickness		Normal Mass of Steel Tube			
					Plain End		Screwed & Socked	
	Max. mm	Min. mm	mm	SWG	Kg/M	Mtrs/Tonne	Kg/M	Mtrs/Tonne
15 L	21.4	21.0	2.0	14	0.947	1056	0.956	1046
15 M	21.8	21.0	2.6	12	1.21	826	1.22	820
15 H	21.8	21.0	3.2	10	1.44	694	1.45	690
20 L	26.9	26.4	2.3	13	1.38	725	1.39	719
20 M	27.3	26.5	2.6	12	1.56	641	1.57	637
20 H	27.3	26.5	3.2	10	1.87	535	1.88	532
25 L	33.8	33.2	2.6	12	1.98	505	2.00	500
25 M	34.2	33.3	3.2	10	2.41	415	2.43	412
25 H	34.2	33.3	4.0	8	2.93	341	2.95	339
32 L	42.5	41.9	2.6	12	2.54	394	2.57	389
32 M	42.9	42.0	3.2	10	3.10	323	3.13	319
32 H	42.9	42.0	4.0	8	3.79	264	3.82	262
40 L	48.4	47.8	2.9	11	3.23	310	3.27	306
40 M	48. 8	47.9	3.2	10	3.56	281	3.60	278
40 H	48.8	47.9	4.0	8	4.37	229	4.41	227
50 L	60.2	59.6	2.9	11	4.08	245	4.15	241
50 M	60.8	59.7	3.6	9	5.03	199	5.10	196
50 H	60.8	59.7	4.5	7	6.19	162	6.26	160
65 L	76.0	75.2	3.2	10	5.71	175	5.83	172
65 M	76.6	75.3	3.6	9	6.42	156	6.54	153
65 H	76.6	75.3	4.5	7	7.93	126	8.05	124
80 L	88.7	87.9	3.2	10	6.72	149	6.89	145
80 M	89.5	88.0	4.0	8	8.36	120	8.53	117
80 H	89.5	88.0	4.8	6	9.90	101	10.10	99
100 L	113.9	113.0	3.6	9	9.75	103	10.00	100
100 M	115.0	113.1	4.5	7	12.20	82	12.50	80
100 H	115.0	113.1	5.4	5	14.50	69	14.80	68
125 M	140.8	138.5	4.8	6	15.90	63	16.40	61
125 H	140.8	138.5	5.4	5	17.90	56	18.40	54
150 M	166.5	163.9	4.8	6	18.90	53	19.50	51
150 H	166.5	163.9	5.4	5	21.30	47	21.90	46

Thickness and Mass are applicable for Black and Galvanised Steel Tubes

TOLERANCE

THICKNESS	TOLERANCE	WEIGHT	TOLERANCE	LENGTH TOLERANCE
1. Light Tube	+ not limited-8%	1. Single Tube Light Series)	+ 10%-8%	Unless otherwise specified 4 to 7 mtrs. can also be supplied in fix lengths.
2. Medium and Heavy Tube	+ not limited-10%	3. Single Tube (Medium and Heavy Series)	± 10%	
		4. For quantities per load of 10 tonnes minimum (Light Series)	+ 7.5%-5%	
		5. For quantities per load of 10 tonnes minimum (Medium and heavy Series)	± 7.5%	

Hollow Steel Sections For Structural USE (SHS)

Conforming to IS:4923 - 2017

Designation/Size mm	Depth *D* mm	Width *B* mm	Thickness *t* mm	Weight kg/m	Area of Section cm^2	Moment of Inertia cm^4	Radius of Gyration cm	Elastic Modulus cm^3	Plastic Modulus cm^3
25 x 25 x 2	25	25	2.00	1.36	1.74	1.48	0.92	1.19	1.47
25 x 25 x 2.6	25	25	2.60	1.69	2.16	1.72	0.89	1.38	1.76
25 x 25 x 3.2	25	25	3.20	1.98	2.53	1.89	0.86	1.51	1.98
30 x 30 x 2	30	30	2.00	1.68	2.14	2.72	1.13	1.81	2.21
30 x 30 x 2.6	30	30	2.60	2.10	2.68	3.23	1.10	2.15	2.68
30 x 30 x 3.2	30	30	3.20	2.49	3.17	3.62	1.07	2.41	3.08
32 x 32 x 2.6	32	32	2.60	2.26	2.88	4.02	1.18	2.51	3.11

Designation/Size mm	Depth *D* mm	Width *B* mm	Thickness *t* mm	Weight kg/m	Area of Section cm^2	Moment of Inertia cm^4	Radius of Gyration cm	Elastic Modulus cm^3	Plastic Modulus cm^3
32 x 32 x 3.2	32	32	3.20	2.69	3.42	4.54	1.15	2.84	3.59
32 x 32 x 4	32	32	4.00	3.19	4.07	5.02	1.11	3.14	4.11
35 x 35 x 2.6	35	35	2.60	2.51	3.20	5.43	1.30	3.10	3.81
35 x 35 x 3.2	35	35	3.20	2.99	3.81	6.18	1.27	3.53	4.42
35 x 35 x 4	35	35	4.00	3.57	4.55	6.93	1.23	3.96	5.11
38 x 38 x 2	38	38	2.00	2.18	2.78	5.88	1.46	3.10	3.70
38 x 38 x 2.6	38	38	2.60	2.75	3.51	7.14	1.43	3.76	4.57
38 x 38 x 3.2	38	38	3.20	3.29	4.19	8.18	1.40	4.30	5.34
38 x 38 x 4	38	38	4.00	3.95	5.03	9.26	1.36	4.87	6.22
40 x 40 x 2	40	40	2.00	2.31	2.94	6.94	1.54	3.47	4.12
40 x 40 x 2.6	40	40	2.60	2.92	3.72	8.45	1.51	4.22	5.12
40 x 40 x 3.2	40	40	3.20	3.49	4.45	9.72	1.48	4.86	6.00
40 x 40 x 4	40	40	4.00	4.20	5.35	11.07	1.44	5.54	7.01
45 x 45 x 2.6	45	45	2.60	3.33	4.24	12.42	1.71	5.52	6.64
45 x 45 x 2.9	45	45	2.90	3.66	4.67	13.45	1.70	5.98	7.25
45 x 45 x 3.2	45	45	3.20	3.99	5.09	14.41	1.68	6.40	7.82
45 x 45 x 4	45	45	4.00	4.83	6.15	16.61	1.64	7.38	9.22
45 x 45 x 4.5	45	45	4.50	5.31	6.77	17.74	1.62	7.88	9.99
49.5 x 49.5 x 2.6	49.5	49.5	2.60	3.69	4.70	16.91	1.90	6.83	8.16
49.5 x 49.5 x 3.2	49.5	49.5	3.20	4.45	5.66	19.74	1.87	7.98	9.67
49.5 x 49.5 x 4	49.5	49.5	4.00	5.39	6.87	22.95	1.83	9.27	11.46
63.5 x 63.5 x 3.2	63.5	63.5	3.20	5.85	7.46	44.35	2.44	13.97	16.65
63.5 x 63.5 x 3.6	63.5	63.5	3.60	6.51	8.29	48.55	2.42	15.29	18.36
63.5 x 63.5 x 4.5	63.5	63.5	4.50	7.93	10.10	57.00	2.38	17.95	21.93
72 x 72 x 3.2	72	72	3.20	6.71	8.54	66.32	2.79	18.42	21.80
72 x 72 x 4	72	72	4.00	8.22	10.47	79.03	2.75	21.95	26.32
72 x 72 x 4.8	72	72	4.80	9.66	12.31	90.31	2.71	25.09	30.48
75 x 75 x 3.2	75	75	3.20	7.01	8.93	75.53	2.91	20.14	23.79
75 x 75 x 3.6	75	75	3.60	7.81	9.95	83.606	2.89	22.15	26.32
75 x 75 x 4.5	75	75	4.50	9.55	12.17	98.55	2.85	26.28	31.68
88.9 x 88.9 x 3.2	88.9	88.9	3.20	8.40	10.71	129.40	3.48	29.11	34.11
88.9 x 88.9 x 3.6	88.9	88.9	3.60	9.38	11.95	142.83	3.46	32.13	37.85
88.9 x 88.9 x 4.5	88.9	88.9	4.50	11.52	14.67	170.97	3.41	38.46	45.85
91.5 x 91.5 x 3.6	91.5	91.5	3.60	9.67	12.32	156.49	3.56	34.21	40.24
91.5 x 91.5 x 4.5	91.5	91.5	4.50	11.88	15.14	187.57	3.52	41.00	48.79
91.5 x 91.5 x 4.8	91.5	91.5	4.80	12.60	16.05	197.27	3.51	43.12	51.51
100 x 100 x 4	100	100	4.00	11.73	14.95	226.35	3.89	45.27	53.30
100 x 100 x 5	100	100	5.00	14.41	18.36	271.10	3.84	54.22	64.59
100 x 100 x 6	100	100	6.00	16.98	21.63	311.47	3.79	62.29	75.09
113.5 x 113.5 x 4.5	113.5	113.5	4.50	14.99	19.10	372.88	4.42	65.71	77.32
113.5 x 113.5 x 4.8	113.5	113.5	4.80	15.92	20.28	393.30	4.40	69.30	81.81
113.5 x 113.5 x 5.4	113.5	113.5	5.40	17.74	22.60	432.58	4.38	76.23	90.54
113.5 x 113.5 x 6	113.5	113.5	6.00	19.53	24.87	469.81	4.35	82.79	98.95

Designation/Size mm	Depth *D* mm	Width *B* mm	Thickness *t* mm	Weight kg/m	Area of Section cm^2	Moment of Inertia cm^4	Radius of Gyration cm	Elastic Modulus cm^3	Plastic Modulus cm^3
125 x 125 x 4.5	125	125	4.50	16.62	21.17	505.83	4.89	80.92	94.84
125 x 125 x 5	125	125	5.00	18.34	23.36	552.62	4.86	88.42	104.09
125 x 125 x 6	125	125	6.00	21.69	27.63	640.89	4.82	102.54	121.86
132 x 132 x 4.5	132	132	4.50	17.61	22.43	600.45	5.17	90.98	106.37
132 x 132 x 4.8	132	132	4.80	18.71	23.83	634.39	5.16	96.12	112.68
132 x 132 x 5.4	132	132	5.40	20.88	26.60	700.11	5.13	106.08	125.01
132 x 132 x 6	132	132	6.00	23.01	29.31	762.98	5.10	115.60	136.97
150 x 150 x 5	150	150	5.00	22.26	28.36	982.12	5.89	130.95	152.97
150 x 150 x 6	150	150	6.00	26.40	33.63	1145.91	5.84	152.79	179.87
150 x 150 x 7	150	150	7.00	30.44	38.78	1299.44	5.79	173.26	205.57
150 x 150 x 8	150	150	8.00	34.38	43.79	1443.00	5.74	192.40	2320.09
180 x 180 x 4	180	180	4.00	21.90	27.90	1434.00	7.17	159.00	184.00
180 x 180 x 5	180	180	5.00	27.20	34.60	1755.00	7.12	195.00	226.00
180 x 180 x 6	180	180	6.00	32.05	40.83	2036.00	7.06	226.00	280.00
180 x 180 x 8	180	180	8.00	42.50	54.10	2633.00	6.98	293.00	346.00
220 x 220 x 6	220	220	6.00	39.59	50.43	3813.36	8.70	346.67	402.16
220 x 220 x 8	220	220	8.00	51.96	66.19	4894.99	8.60	445.00	521.67
220 x 220 x 10	220	220	10.00	63.92	81.43	5887.19	8.50	535.20	634.11
220 x 220 x 12	220	220	12.00	75.47	96.14	6793.08	8.41	617.55	739.60
250 x 250 x 6	250	250	6.00	45.24	57.63	5672.00	9.92	453.76	524.43
250 x 250 x 8	250	250	8.00	59.50	75.79	7315.65	9.82	585.25	682.64
250 x 250 x 10	250	250	10.00	73.34	93.43	8841.86	9.73	707.35	832.74
250 x 250 x 12	250	250	12.00	86.77	110.54	10254.21	9.63	820.34	974.87
300 x 300 x 6	300	300	6.00	54.66	69.63	9963.67	11.96	664.24	764.21
300 x 300 x 8	300	300	8.00	72.06	91.79	12925.07	11.87	861.67	998.91
300 x 300 x 10	300	300	10.00	89.04	113.43	15713.90	11.77	1047.59	1223.79
300 x 300 x 12	300	300	12.00	105.61	134.54	18334.49	11.67	1222.30	1438.98
350 x 350 x 8	350	350	8.00	84.62	107.79	20849.89	13.91	1191.42	1375.18
350 x 350 x 10	350	350	10.00	104.74	133.43	25453.75	13.81	1454.50	1689.84
350 x 350 x 12	350	350	12.00	124.45	158.54	29824.41	13.72	1704.25	1993.09
400 x 400 x 8	400	400	8.00	97.18	123.79	31490.11	15.95	1574.51	1811.45
400 x 400 x 10	400	400	10.00	120.44	153.43	38561.41	15.85	1928.07	2230.89
400 x 400 x 12	400	400	12.00	143.29	182.54	45323.97	15.76	2266.20	2637.20

Sizes & thickness other than listed above can be supplied on mutual understanding of the manufacturer and buyer

OTHER ALLOWABLE STRESS VALUES (IN MPa)

Steel Grade	Minimum Yield Stress	Minimum UTS
Yst 210	210	330
Yst 240	240	410
Yst 310	310	450

Note 1 Minimum % Elongation: 10% for GR, Yst 310, 15% for GR, Yst 240 & 20% for GR Yst 210

Note 2 We also manufacture & supply all kind of section in accordance with EN 10219 & ASTMA- 500

Large Dia ERW Pipes

Stee tubes for water and sewage purposes conforming to IS:3589:2001 (Grade FE 330, FE 410 & FE 450)

Outside diameter mm	Wall thickness mm	Weight (Plain End)	
		Kg/m	m/tonne
168.3	2.6	10.6	94
	3.2	12.0	83
	4.0	16.2	62
	4.5	18.2	55
219.1	2.6	13.9	72
	3.6	19.1	52
	4.5	23.8	42
	6.3	33.1	30
273	3.6	23.9	42
	4.0	26.5	38
	5.6	33	30
	6.3	41.1	24
323.9	4.0	31.8	31
	4.5	35.4	28
	5.6	44	23
	7.1	55.5	18
355.6	4.0	34.7	29
	5.0	43.2	23
	5.6	48.3	21
	8.0	68.6	15

A - PHYSICAL PROPERTIES

T.S. (min)	YS. (min)	Elongation %
195	FE 330	20
235	FE 410	18
275	FE 450	15

Note Elongation percent for tubes up to and including 25 mm NB for all grades shall be 12 minimum

B - TOLERANCE

1. Outside diameter of ERW pipe ± 0.75%
2. Thickness ± 10%
3. Unless otherwise specified, lengths are in single random lengths from 4 to 7 metres and double random lengths from 7 to 14 metres.

Note Sizes other than specified above may be supplied as per the customer requirment.

STEEL TUBES FOR MECHANICAL & GENERAL ENGINEERING PURPOSE IS 3601 : 2006

Dimensions and design properties of steel tubes
Grade WT 160 and WT 210

Outside Diameter	Thickness	Mass	Area of Cross Section	Moment of Inertia	Modules of Sections	Radius of Gyration
Mm	Mm	Mm	Mm	Mm	Mm	Mm
1	2	3	4	5	6	7
21.3	1.8	0.866	1.10	0.53	0.50	0.69
	2.0	0.952	1.21	0.57	0.54	0.69
	2.6	1.20	1.53	0.68	0.64	0.67
	3.2	1.43	1.82	0.77	0.72	0.65
26.9	1.8	1.11	1.42	1.12	0.83	0.89
	2.0	1.23	1.56	1.22	0.91	0.88
	2.3	1.40	1.78	1.36	1.01	0.87
	2.6	1.56	1.98	1.48	1.10	0.86
	3.2	1.87	2.38	1.70	1.27	0.85
33.7	2.0	1.56	1.99	2.51	1.49	1.12
	2.3	1.78	2.27	2.81	1.67	1.11
	2.6	1.99	2.54	3.09	1.84	1.10
	3.2	2.41	3.07	3.60	2.14	1.08
	4.0	2.93	3.73	4.19	2.49	1.06
44.4	2.3	2.27	2.90	5.85	2.76	1.42
	2.6	2.55	3.25	6.46	3.05	1.41
	3.2	3.09	3.94	7.62	3.59	1.39
	3.6	3.44	4.39	8.33	3.93	1.38
	4.0	3.79	4.83	8.90	4.24	1.36
48.3	2.3	2.61	3.32	8.80	3.64	1.63
	2.6	2.93	3.73	9.77	4.05	1.62
	2.9	3.25	4.14	10.70	4.43	1.61
	3.2	3.56	4.53	11.59	4.80	1.60
	3.6	3.97	5.05	12.69	5.25	1.59
	4.0	4.37	5.57	13.77	5.70	1.57

Outside Diameter	Thickness	Mass	Area of Cross Section	Moment of Inertia	Modules of Sections	Radius of Gyration
Mm	Mm	Mm	Mm	Mm	Mm	Mm
1	2	3	4	5	6	7
60.3	2.3	3.29	4.19	17.65	5.85	2.05
	2.6	3.70	4.71	19.64	6.51	2.04
	2.9	4.11	5.23	21.59	7.16	2.03
	3.2	4.51	5.74	23.47	7.78	2.02
	3.6	5.03	6.41	25.87	8.58	2.01
	4.0	5.55	7.07	28.15	9.34	2.00
	4.5	6.19	7.89	30.90	10.20	1.98
76.1	2.6	5.24	6.00	40.57	10.66	2.60
	2.9	5.75	6.67	44.74	11.76	2.59
	3.2	6.44	7.33	48.78	12.80	2.58
	3.6	7.11	8.20	54.01	14.20	2.57
	4.5	7.95	10.10	65.12	17.10	2.54
	5.0	8.77	11.16	70.87	18.63	2.52
88.9	2.9	6.15	7.83	72.47	16.30	3.04
	3.2	6.76	8.62	79.21	17.80	3.03
	4.0	8.38	10.70	96.34	21.70	3.00
	5.0	10.30	13.20	116.40	26.20	2.97
	5.4	11.10	14.00	123.80	27.80	2.97
	5.6	11.50	14.65	127.64	28.72	2.95
101.6	3.6	8.70	11.10	133.20	26.20	3.47
	4.0	9.63	12.30	146.20	28.80	3.45
	5.0	11.90	15.20	177.50	34.90	3.42
114.3	3.2	8.77	11.16	172.33	30.15	3.93
	3.6	9.83	12.50	192.00	33.60	3.92
	4.5	12.20	15.50	234.30	41.00	3.89
	5.4	14.50	18.50	274.50	48.00	3.86
	6.3	16.80	21.20	315.00	55.10	3.83
139.7	3.60	12.10	15.38	356.36	51.02	4.81
	4.00	13.40	17.04	392.57	56.20	4.80
	4.50	15.00	19.10	437.20	62.60	4.78
	5.00	16.60	21.20	480.50	68.80	4.77
	5.40	17.90	22.80	514.50	73.70	4.75
	6.30	20.70	26.30	591.00	84.70	4.73

Outside Diameter	Thickness	Mass	Area of Cross Section	Moment of Inertia	Modules of Sections	Radius of Gyration
Mm	Mm	Mm	Mm	Mm	Mm	Mm
1	2	3	4	5	6	7
152.4	4.50	16.40	20.90	572.20	75.10	5.23
	5.00	18.20	23.20	629.50	82.60	5.21
	5.40	19.60	24.90	674.50	88.50	5.20
165.1	4.50	17.80	22.70	732.60	88.70	5.68
	5.00	19.70	25.10	806.60	97.70	5.66
	5.40	21.20	27.10	864.70	105.00	5.65
	6.30	24.80	31.40	992.00	120.00	5.63
168.3	4.00	16.20	20.64	696.87	82.810	5.81
	4.50	18.20	23.20	777.20	98.40	5.79
	5.00	20.10	25.70	855.80	102.00	5.78
	5.40	21.70	27.60	917.70	109.00	5.76
	6.30	25.20	32.10	1053.00	125.00	5.73
	7.10	28.20	35.90	1169.66	139.00	5.70
	8.00	31.60	39.70	1288.00	153.00	5.69
193.7	5.00	23.30	29.60	1320.00	136.00	6.67
	5.40	25.10	31.90	1417.00	146.00	6.66
	5.90	27.30	34.80	1536.00	159.00	6.64
	6.30	29.10	37.00	1600.00	165.00	6.60
	8.00	36.60	46.30	2004.00	207.00	6.57
219.1	4.5	23.80	30.32	1746.18	159.00	7.59
	5.0	26.40	33.60	1928.00	176.00	7.57
	5.6	29.50	37.60	2142.00	195.00	7.56
	6.3	33.10	42.00	2404.00	219.0	7.54
	8.0	41.60	52.00	1940.00	268.00	7.52

A – Physical Properties

GRADE	Y.S. (Mpa)	T.S. (Mpa)	% Elongation (Min.)	
			As welded (less than or equal to 33.7mm OD)	As welded (less than or equal to 33.7mm OD)
WT160	160	310	15	22
WT210	210	330	12	20

B – Tolerance

1. Outside diameter + 0.4mm
   upto and including 51mm ± 18mm
2. Thickness + Not limited

Note: The tolerance of thickness excluding the weld shall be ±10%.1

MSP STRUCTURAL TUBES

Steel Tubes for Structural Purposes
Conforming to IS : 1161 : 2014
Grade YST 210, YST 240, YST 310

N.B. and Series	Outside Diameter	Thickness	Nominal Weight Black Tubes Plain End	
	mm	mm	kg/m	m/tonne
L	21.3	2.0	0.947	1056
15 M		2.6	1.21	826
H		3.2	1.44	694
L	26.9	2.3	1.38	725
20 M		2.6	1.56	641
H		3.2	1.87	535
L	33.7	2.6	1.98	505
25 M		3.2	2.41	415
H		4.0	2.93	341
L	42.4	2.6	2.54	394
32 M		3.2	3.10	323
H		4.0	3.79	264
L	48.3	2.9	3.23	310
40 M		3.2	3.56	281
H		4.0	4.37	229
L	60.3	2.9	4.08	245
50 M		3.6	5.03	199
H		4.5	6.19	162
L	76.1	2.9	5.24	175
65 M		3.6	6.42	156
H		4.5	7.93	126
L	88.9	3.2	6.72	149
80 M		4.0	8.36	120
H		4.8	9.90	101

N.B. and Series	Outside Diameter	Thickness	Nominal Weight Black Tubes Plain End	
	mm	mm	kg/m	m/tonne
L	101.6	3.6	8.70	115
90 M		4.0	9.63	144
H		4.8	11.50	87
L	114.3	3.6	9.75	103
100M		4.5	12.20	82
H		5.4	14.50	69
L	127.0	4.5	13.60	74
110M		4.8	14.50	69
H		5.4	16.20	62
125M	139.7	4.8	15.90	63
H		5.4	17.90	56
135M	152.4	4.8	17.50	57
H		5.4	19.60	51
150M	165.1	4.8	19.4	52
H		5.4	21.7	46
175M	193.7	5.4	25.10	40
H		5.9	27.30	37
200	219.1	5.6	29.50	34
		5.9	31.00	32
225	244.5	5.9	34.70	29

A – Physical Properties

Grade	YS. (min)	T.S. (min)	Elongation %
	(Mpa)	(Mpa)	(Min.)
YST-210	210	330	20
YST-240	240	410	17
YST-310	310	450	14

MSP PIPES

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