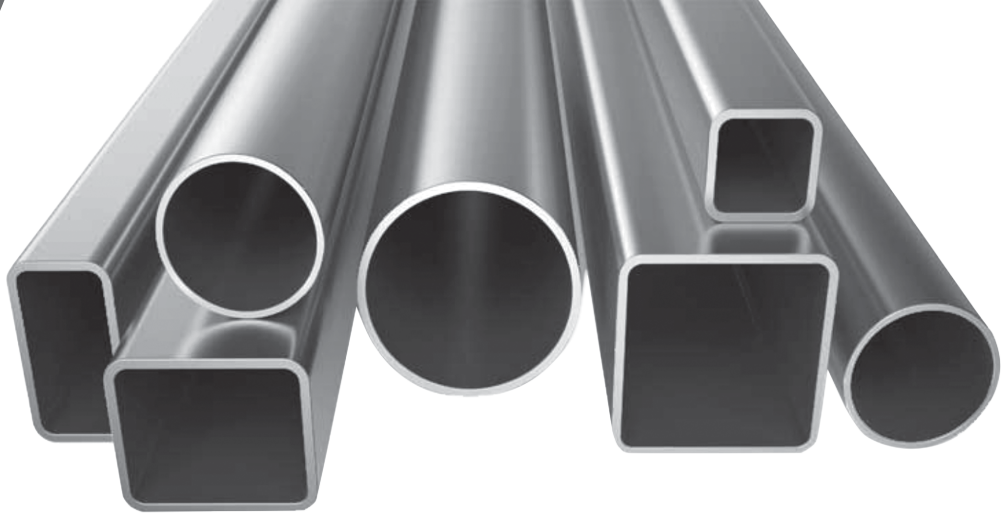
Shaping
the future
infrastructure



STEEL HOLLOW SECTION

SQUARE | RECTANGULAR | CIRCULAR

TRADE Jindal MARK HISSAR

Trusted for Quality & Integrity

JINDAL INDUSTRIES PRIVATE LIMITED, HISSAR

Galvanized Tubes & Pipes | MS Black Tubes & Pipes | Hollow Sections | Line Pipe (API Tubes) | Swaged Poles | Powder Coated Pipes | Chaukhats

Profile :

Jindal Industries Pvt. Limited, HISSAR, is one of the reputed industrial house, and a unit of O.P. JINDAL GROUP, who have proved their unerring might in steel sector and reckoned with high esteem in the pipe manufacturing industry.

Set up in the year 1960, JINDAL-HISSAR plant is the most advanced state-of-the-art facility equipped with Modern Manufacturing Machineries. Besides having all the plants under one roof - from Rolling Milling, Welding to Galvanizing the plant has a fully functional in-house maintenance Workshop and Laboratory Testing facility. The plant is well equipped to manufacture best Quality MS Black and Galvanized Pipes & Tubes in the range of 12.7mm OD to 406.4mm OD as per National and International standards besides other variants.

The PVC segment of the company cater - Plumbing, Sanitation & Agri. (Pipes & Fittings).

In the Past five years the company has experienced manifold growth due to our relentless endeavour to maintain higher standards of Quality and service to our worthy Customers.

Steel Hollow Sections

(Square, Rectangular and Circular) for Structural Purpose

JINDAL-HISSAR, products have earned the reputation of impeccable Quality and total Reliability. The name has become synonyms with the best in Steel Hollow Sections and Tubes. Manufactured in its state-of-the art manufacturing plant, the Hollow Sections are regarded best for their excellent quality and reliability. Having BIS certification and backed by our reputed Brand name our Hollow Sections offer most comprehensive range in SHS 16 x 16mm to 220 x 220mm and RHS 20 x 40mm to 200 x 100mm.

Hollow sections are supplied to clients nationwide for a variety of applications including mechanical engineering for example, manufacturing of booms. frames and other vehicle components, especially for applications where high strength combined with excellent usability is needed. With high torsion rigidity and compressive strength, these hollow sections are comparably more efficient than conventional steel sections. The excellent distribution of material around the axis of the square and rectangular steel hollow sections allows for remarkable strength qualities and thus offers decisive advantages in its applications. The smooth and uniform profile of the section minimizes corrosion and facilitates easy, onsite fabrication to significantly enhance the aesthetics of structures. A higher strength to weight ration credits these sections with nearly 20% reduction in the use of steel.

We never compromise on **Quality**

Adhering to the stringent Quality Standards has always been our motto. Whatever the circumstances may arise, we always remain stubborn as far as Quality is concerned. It is our Quality that makes us Unique. To check Quality at every stage of production Jindal Industries has its own set of strict procedure in compliance with International Standards. Various Accreditations and Certifications are testimony to our commitment to Quality and Service.

Our in-house Testing facilities are considered best in the industry.

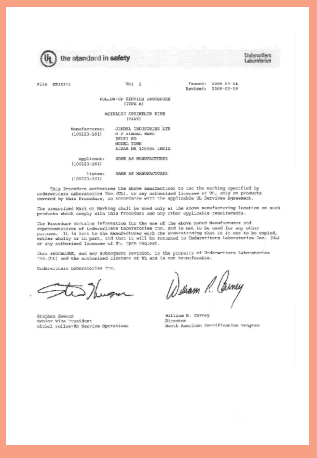
Certification

ISO 9001:2015

OHSAS 14001:2015

ISO 45001:2018

IS:4923 | IS:3601 | IS:1161



Quality Control

The quality of our product is controlled during the manufacturing process. It starts with slitting the strip edges, continues with speed, temperature control during the high frequency induction welding and is followed testing. Off-line, drift and flattening tests are conducted.

This is all within our QUALITY MANAGEMENT SYSTEM.

Advantages of Jindal Steel Hollow Sections

The excellent distribution of material around the axis of these steel hollow sections allows for remarkable strength qualities and thus offers decisive advantages as regards to application technology.

Their higher strength to weight ratio could result in upto 30% savings in steel.

Jindal Steel Hollow Sections 5Cs

Cost Effective

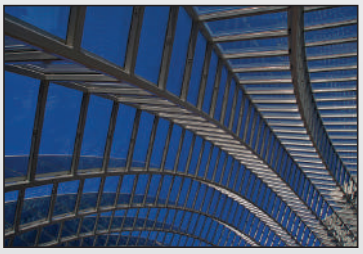
- By virtue of its shape Hollow sections have high Radius of Gyration and other properties resulting in savings in Material, Transportation and Fabrication cost.
- Less Surface area compared to equivalent conventional sections results in savings in Paint and Labour cost.

Corrosion Resistant

- Less exposed surface area combined with superior quality raw material results in less corrosion.
- Smooth uniform profiles of sections minimizes dust and moisture accumulation.

Concentric Strength

- By virtue of its shape Hollow sections have high Radius of Gyration resulting in higher concentric strength.
- Due to closeness of the section there will be higher torsional rigidity compared to conventional sections.
- Better lateral stability and lower wind drag.
- Enables weight reduction of upto 30%.



Convenience of Fabrication

- Due to less weight and smoother profile, fabrication is easier.
- Also minimum use of gusset plates expedites the fabrication process.

Creativity

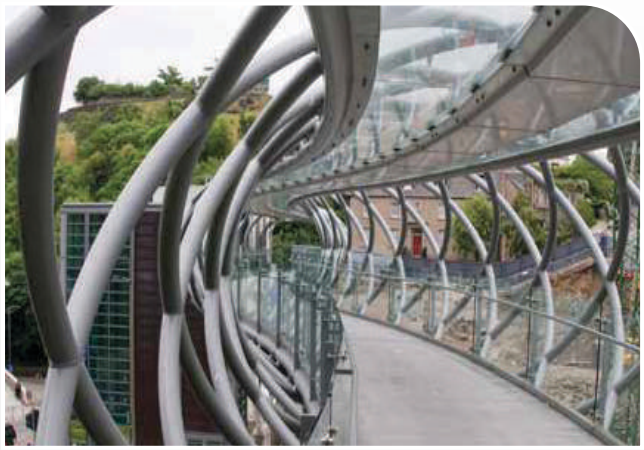
- Due to higher torsional rigidity and better moment resistance on both the axis, bending of hollow section is easier compared to open sections. This gives flexibility to the architects to shape their structures and express their creativity.
- Smooth profile of Jindal Steel Hollow enhances the aesthetic appeal of the structures.
- Most suitable for usage in exposed environment.

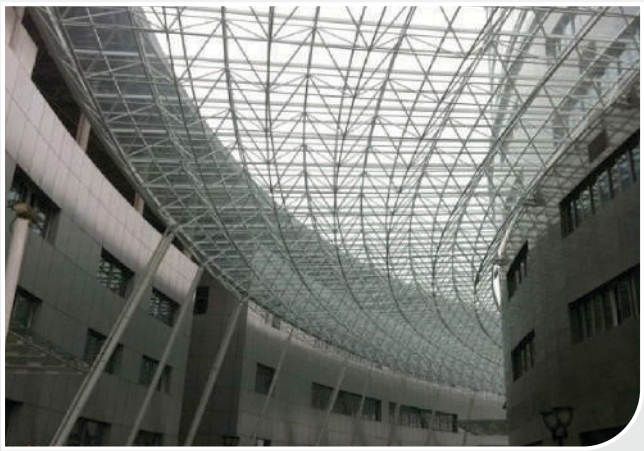
Structural Purposes Applications of JINDAL HISSAR

The applications of JINDAL HISSAR Section Pipes has been classified under the following segments:

Architectural | Infrastructural | Industrial | General Engineering

Architectural





Applications

- Shopping Malls
- Canopies/Atrium
- Partition Frames
- Space Frames
- Guard Rails & Staircases
- Glass Curtain Wall Frames

Attributes

- Lightweight
- Smooth surface finish
- Flexible and easy to form shapes
- Appealing aesthetics
- Contemporary

Infrastructural

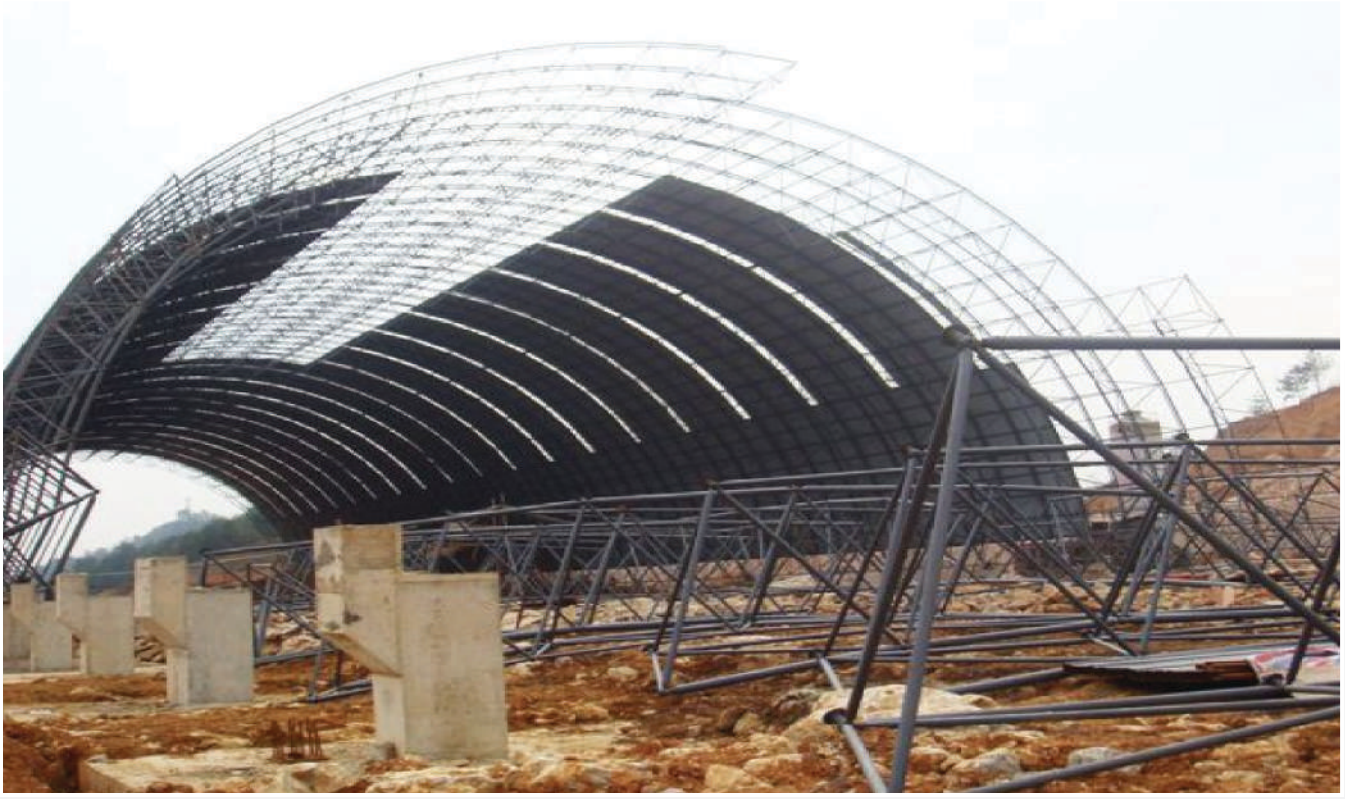
Applications

- Airport Terminal Buildings
- Bridges / Pedestrian Walkovers
- Bus Stands Building
- Sports Galleries
- Railways Platforms / Foot Over Bridges
- Hoarding Supporting Structures
- Water Park Structures

Attributes

- High strength
- Various sizes and thickness
- Easy fabrication
- Lightweight
- More column free space

Industrial



Applications

- Industrial Sheds
- Trusses, Columns and Purlins
- Material Storage Racks
- Pipe Racks
- Conveyor Gantries, Trestles
- Drilling Rigs
- Steel & Power Plants
- Pallets

Attributes

- High strength to weight ratio
- Ease of fabrication and erection
- Easy maintenance
- Free from sharp edges
- Cost effective

General Engineering

Applications

- Automobile Chassis
- Greenhouse Structures
- Truck & Bus Body Members
- Hoarding Structures
- Exhibition Stalls
- Scaffolding
- Furniture
- Solar Power Plant Structures
- Amusement Park & Playground Equipment

Attributes

- Lightweight
- Ease of fabrication
- High torsional resistance
- Minimal painting area
- Appealing aesthetics

STEEL TUBES FOR STRUCTURAL PURPOSES

TECHNICAL DATA OF BLACK & GALVANISED PIPES
SPECIFICATION IS:1161: 2014

NB (mm)	OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	NOMINAL WEIGHT GALVANISED & BLACK TUBES	
			PLAIN END	
			Kg/M	Mtr/Ton
15	21.3	2.0	0.95	1053
		2.6	1.20	833
		3.2	1.43	699
20	26.9	2.3	1.40	714
		2.6	1.56	641
		3.2	1.87	535
25	33.7	2.6	1.99	503
		3.2	2.41	415
		4.0	2.93	341
32	42.4	2.6	2.55	392
		3.2	3.09	324
		4.0	3.79	264
40	48.3	2.9	3.25	308
		3.2	3.56	281
		4.0	4.37	229
50	60.3	2.9	4.11	243
		3.6	5.03	199
		4.5	6.19	162
65	76.1	2.9	5.24	191
		3.6	6.44	155
		4.5	7.95	126
80	88.9	3.2	6.76	148
		4.0	8.38	119
		4.8	9.96	100
90	101.6	3.6	8.70	115
		4.0	9.63	104
		4.8	11.46	87
100	114.3	3.6	9.83	102
		4.5	12.19	82
		5.4	14.50	69
125	139.7	4.5	15.0	67
		4.8	15.97	63
		5.4	17.89	56
150	165.1	4.5	17.82	56
		4.8	18.98	53
		5.4	21.27	47
		5.9	23.20	43
		6.3	24.67	41

NB (mm)	OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	NOMINAL WEIGHT GALVANISED & BLACK TUBES	
			PLAIN END	
			Kg/M	Mtr/Ton
150	168.3	4.5	18.18	55
		4.8	19.35	52
		5.4	21.69	46
		6.3	25.17	40
175	193.7	4.8	22.36	45
		5.4	25.08	40
		5.9	27.33	37
		6.3	29.12	34
		8.0	36.64	27
200	219.1	4.8	25.37	39
		5.6	29.49	34
		5.9	31.02	32
		6.3	33.06	30
		8.0	41.65	24
		10.0	51.57	19
250	273	5.9	38.86	26
		6.3	41.44	24
		8.0	52.28	19
		10.0	64.86	15
300	323.9	6.3	49.34	20
		8.0	62.32	16
		10.0	77.41	13
350	355.6	8.0	87.36	11
		10.0	108.57	9

GRADE	Y.S. (min) MPa	T.S. (min) MPa	%Elongation
YST – 210	210	330	20
YST – 240	240	410	17
YST – 310	310	450	14
YST – 355	355	490	10

Outside Diameter	Upto & Including 48.3mm = +0.4mm, -0.8 mm Over 48.3 mm = ±1%
Thickness	± 10% (For All Sizes)
Weight	Single Tubes: ± 10 % 10 Ton lots : ± 7.5 %

JINDAL-HISSAR MANUFACTURES PIPE SIZE 15mm NB to 350mm NB, BOTH BLACK & GI. BIS LICENCE NO. CM/L - 0641038

STEEL TUBES FOR MECHANICAL AND GENERAL ENGINEERING PURPOSES

TECHNICAL DATA OF BLACK & GALVANISED PIPES SPECIFICATION IS:3601: 2006

OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	NOMINAL WEIGHT GALVANISED & BLACK TUBES	
		PLAIN END	
		Kg/M	Mtr/Ton
21.3	1.8	0.866	1155
	2.0	0.952	1053
	2.6	1.20	833
	3.2	1.43	699
	4.0	1.71	585
26.9	1.8	1.11	901
	2.0	1.23	813
	2.3	1.40	714
	2.6	1.56	641
	3.2	1.87	535
	4.0	2.26	442
33.7	2.0	1.56	641
	2.3	1.78	562
	2.6	1.99	503
	3.2	2.41	415
	4.0	2.93	341
	4.5	3.24	309
42.4	2.3	2.27	441
	2.6	2.55	392
	3.2	3.09	324
	3.6	3.44	291
	4.0	3.79	264
48.3	2.3	2.61	383
	2.6	2.93	341
	2.9	3.25	308
	3.2	3.56	281
	3.6	3.97	252
	4.0	4.37	229
60.3	2.3	3.29	304
	2.6	3.70	270
	2.9	4.11	243
	3.2	4.51	222
	3.6	5.03	199
	4.0	5.55	180
	4.5	6.19	162
76.1	2.6	5.24	191
	2.9	5.75	174
	3.2	6.44	155
	3.6	7.11	141
	4.5	7.95	126
	5.0	8.77	114
88.9	2.9	6.15	163
	3.2	6.76	148
	4.0	8.38	119
	5.0	10.3	97
101.6	3.6	8.70	115
	4.0	9.63	104
	5.0	11.90	84
114.3	3.2	8.77	114
	3.6	9.83	102
	4.5	12.2	82
	5.4	14.5	69
	6.3	16.8	60

OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	NOMINAL WEIGHT GALVANISED & BLACK TUBES	
		PLAIN END	
		Kg/M	Mtr/Ton
127	4.5	13.6	74
	5.0	15.0	67
	5.4	16.2	62
139.7	3.6	12.1	83
	4.0	13.4	75
	4.5	15.0	67
	5.0	16.6	60
	5.4	17.9	56
	6.3	20.7	48
165.1	4.5	17.8	56
	5.0	19.7	51
	5.4	21.2	47
	6.3	24.8	40
168.3	4.0	16.2	62
	4.5	18.2	55
	5.0	20.1	50
	5.4	21.7	46
	6.3	25.2	40
	7.1	28.2	35
193.7	4.8	22.36	45
	5.4	25.08	40
	5.9	27.33	37
	6.3	29.12	34
	8.0	36.64	27
219.1	4.5	23.82	42
	5.0	26.04	38
	5.6	29.48	34
	6.3	33.06	30
	8.0	41.65	24
	10.0	51.57	19
273	5.0	33.00	30
	6.3	41.04	24
	7.1	46.60	21
	10.0	64.90	15
323.9	5.6	44.00	23
	7.1	55.50	18
	8.0	62.30	16
	10.0	77.40	13
355.6	5.6	48.3	21
	8.0	68.6	15
	10.0	85.2	12
406.4	6.3	62.2	16
	8.8	86.3	12
	10.0	97.8	10

GRADE	Y.S. (min)	T.S. (min)	%Elongation (min)	
			<33.7mm OD	>33.7mm OD
WT 160	160	310	15	22
WT 210	210	330	12	20
WT 240	240	410	10	15
WT 310	310	450	06	10

JINDAL-HISSAR MANUFACTURES PIPE AS PER IS 3601 SIZE 21.3mm OD to 406.4mm OD, BOTH BLACK & GI. BIS LICENCE NO CM/L 9598516

Manufacturing Process

The process utilises the latest technology and modern equipments for producing high Quality ERW Hollow Section:

1. **Slit Preparations**
   HR Coils are slitted to predetermined widths for each size of pipe and thickness. Slitted coil is uncoiled at the entry of ERW mill and the ends are sheared and welded one after another to make it single endless strip.

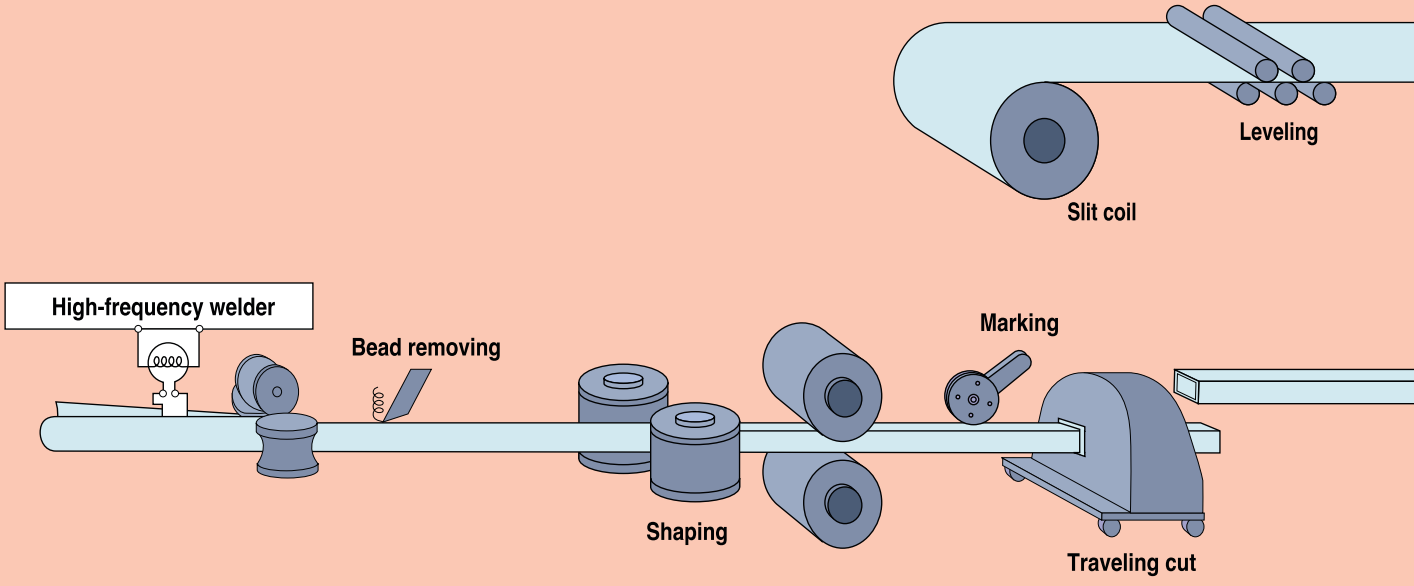
2. **Forming**
   Slitted coil are initially formed into 'U' shape and then into a cylindrical shape with open edges using a series of forming rolls.

3. **Welding**
   The open edges are heated to the required temperature through high frequency low voltage high current and press welded by forge rolls making perfect and strong butt-weld without filler materials.

4. **Sizing & Cutting**
   After water quenching, slight reduction is applied to pipes with sizing rolls to give them desired accurate outside dimensions.
   Pipes are cut to required lengths by flying cut off disc/saw cutter.

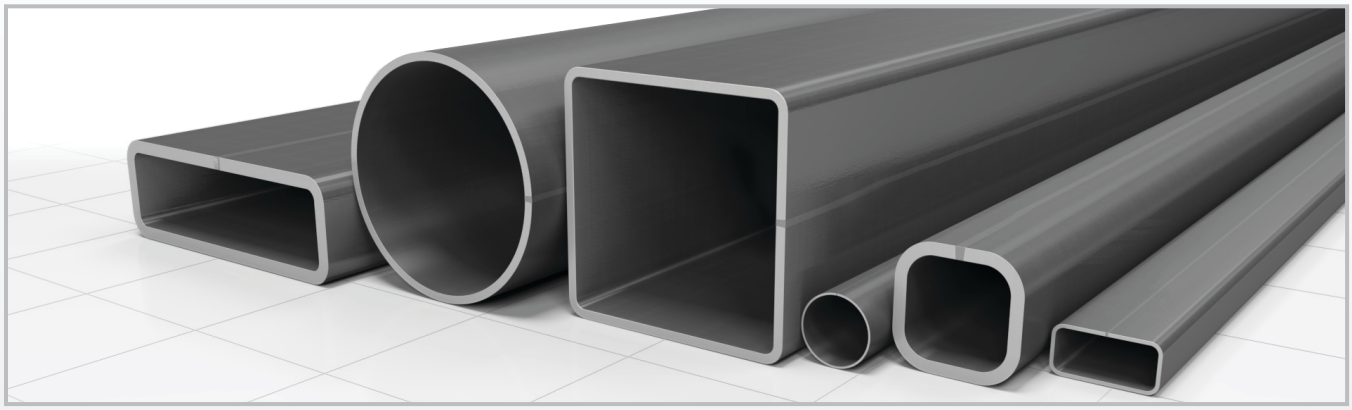
5. **Packing**
   Finished pipes are bundled in desired number of pieces as per customer's requirement and packed properly to ensure freshness till delivery.

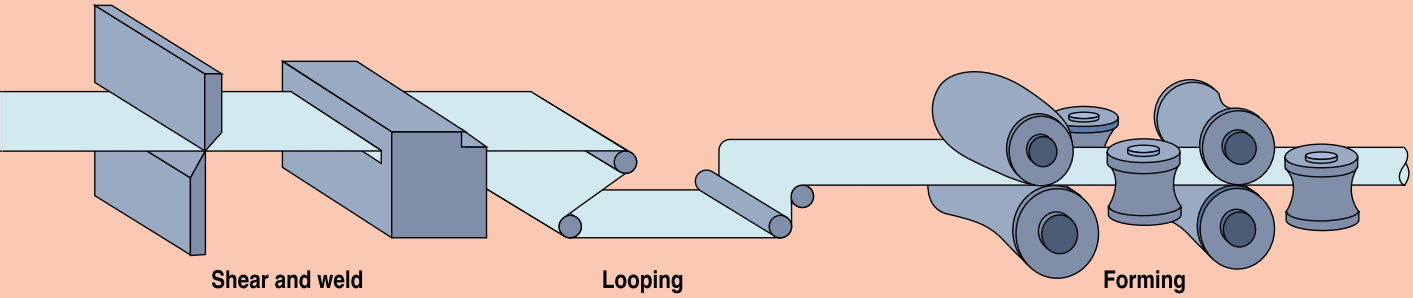
6. **Coating**
   In addition to Rust Preventive oil coating and black varnish, the Hollow Sections can be supplied as zinc coated. Zinc coating processes shall be hot dip galvanizing.

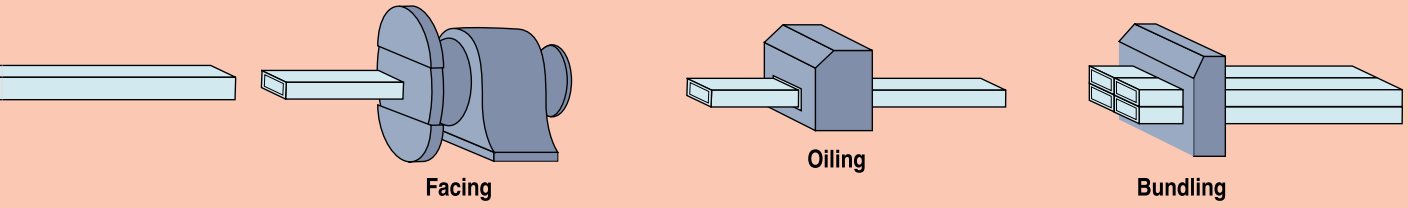


Quality - a prerequisite

Sr. No.	Machine	Purpose
1	Universal Testing Machines 100 Ton	For material testing (mechanical properties).
2	Digital Ultrasonic Thickness Gauge	For checking thickness & pipes.
3	Mandrels and Fixtures	For bend test.
4	Hydraulic Press	For ductility test.
5	Bending Machine	For pipe bend test.
6	Impact Testing Machine (300J)	For Impact Test.
7	Spectro Analyser	For Chemical Analysis

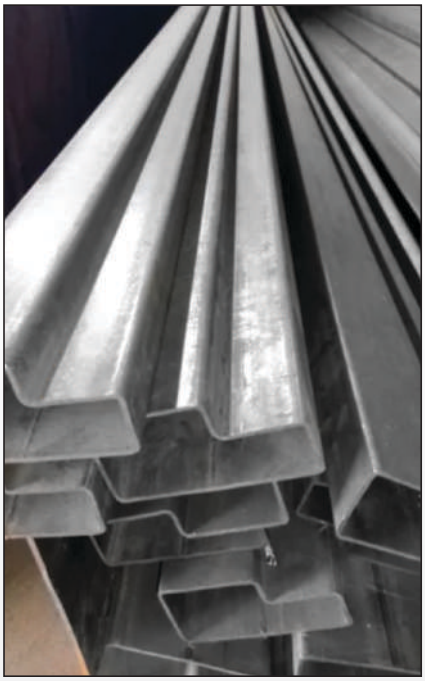


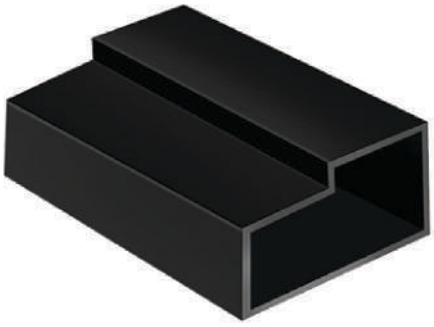


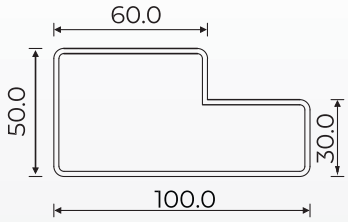


Chaukhats (Door Frames)

Single Door

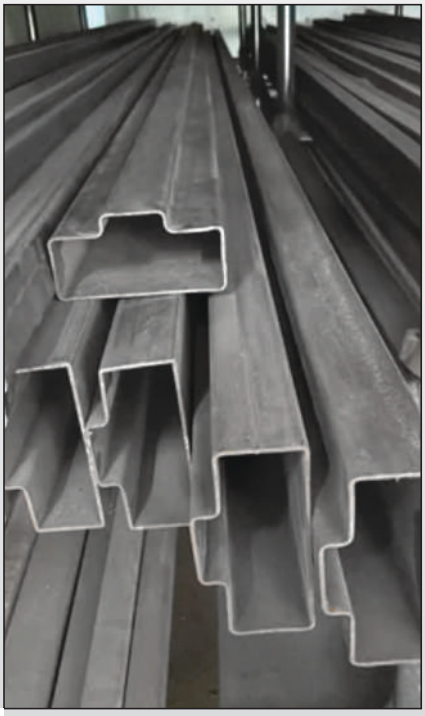


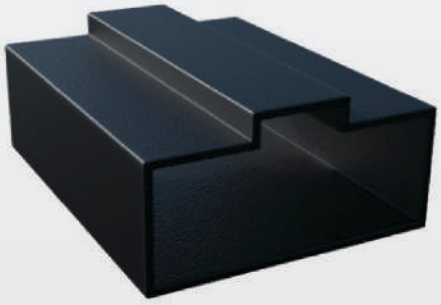


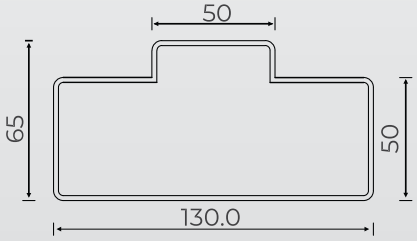


Size	100 x 50 mm
Thickness	1.0 to 2.5 mm

Double Door







Size	130 x 65 mm
Thickness	1.4 to 2.5 mm

DIMENSIONS AND PROPERTIES OF SQUARE SECTIONS (SHS) AS PER IS:

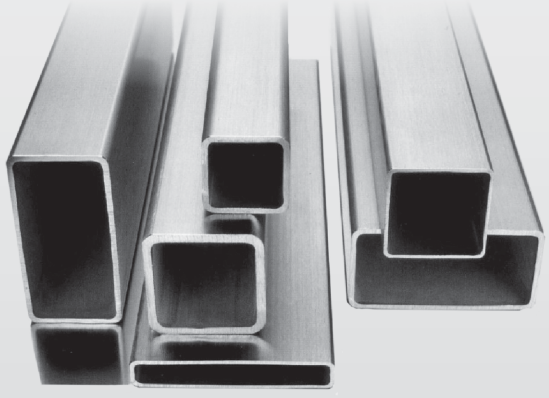
Designation (mm)	Depth (mm)	Width (mm)	Thickness (mm)	Weight (mm)	Area of Section (mm)	Moment of Inertia (mm)	Radius of Gyration (mm)	Elastic Module (mm)	Plastic module (mm)
20x20x2	20	20	2.00	1.05	1.34	0.69	0.72	0.69	0.88
25x25x2	25	25	2.00	1.36	1.74	1.48	0.92	1.19	1.47
25x25x2.5	25	25	2.50	1.64	2.09	1.69	0.90	1.35	1.71
25x25x2.6	25	25	2.60	1.69	2.16	1.72	0.89	1.38	1.76
25x25x3	25	25	3.00	1.89	2.41	1.84	0.87	1.47	1.91
25x25x3.2	25	25	3.20	1.98	2.53	1.89	0.86	1.51	1.98
30x30x2	30	30	2.00	1.68	2.14	2.72	1.13	1.81	2.21
30x30x2.5	30	30	2.50	2.03	2.59	3.16	1.10	2.10	2.61
30x30x2.6	30	30	2.60	2.10	2.68	3.23	1.10	2.15	2.68
30x30x3	30	30	3.00	2.36	3.01	3.50	1.08	2.34	2.96
30x30x3.2	30	30	3.20	2.49	3.17	3.62	1.07	2.41	3.08
32x32x2	32	32	2.00	1.80	2.30	3.36	1.21	2.10	2.54
32x32x2.5	32	32	2.50	2.19	2.79	3.92	1.19	2.45	3.02
32x32x2.6	32	32	2.60	2.26	2.88	4.02	1.18	2.51	3.11
32x32x3	32	32	3.00	2.55	3.25	4.38	1.16	2.74	3.44
32x32x3.2	32	32	3.20	2.69	3.42	4.54	1.15	2.84	3.59
32x32x4	32	32	4.00	3.19	4.07	5.02	1.11	3.14	4.11
38x38x2	38	38	2.00	2.18	2.78	5.88	1.46	3.10	3.70
38x38x2.6	38	38	2.60	2.75	3.51	7.14	1.43	3.76	4.57
38x38x3.2	38	38	3.20	3.29	4.19	8.18	1.40	4.30	5.34
38x38x4	38	38	4.00	3.95	5.03	9.26	1.36	4.87	6.22
40x40x2	40	40	2.00	2.31	2.94	6.94	1.54	3.47	4.13
40x40x2.6	40	40	2.60	2.92	3.72	8.45	1.51	4.22	5.12
40x40x3	40	40	3.00	3.30	4.21	9.32	1.49	4.66	5.72
40x40x3.2	40	40	3.20	3.49	4.45	9.72	1.48	4.86	6.00
40x40x4	40	40	4.00	4.20	5.35	11.07	1.44	5.54	7.01
49.5x49.5x2	49.5	49.5	2.00	2.90	3.70	13.70	1.93	5.54	6.52
49.5x49.5x2.6	49.5	49.5	2.60	3.69	4.70	16.91	1.90	6.83	8.16
49.5x49.5x3	49.5	49.5	3.00	4.20	5.35	18.84	1.88	7.61	9.18
49.5x49.5x3.2	49.5	49.5	3.20	4.45	5.66	19.74	1.87	7.98	9.67
49.5x49.5x4	49.5	49.5	4.00	5.39	6.87	22.95	1.83	9.27	11.46
49.5x49.5x5	49.5	49.5	5.00	6.48	8.26	26.11	1.78	10.55	13.38
50x50x2	50	50	2.00	2.93	3.74	14.15	1.95	5.66	6.66
50x50x2.5	50	50	2.50	3.60	4.59	16.94	1.92	6.78	8.07
50x50x3.2	50	50	3.20	4.50	5.73	20.40	1.89	8.16	9.89
50x50x4	50	50	4.00	5.45	6.95	23.74	1.85	9.49	11.73
50x50x5	50	50	5.00	6.56	8.36	27.04	1.80	10.82	13.70
60x60x2	60	60	2.00	3.56	4.54	25.14	2.35	8.38	9.79
60x60x2.5	60	60	2.50	4.39	5.59	30.34	2.33	10.11	11.93
60x60x3	60	60	3.00	5.19	6.61	35.13	2.31	11.71	13.95
60x60x4	60	60	4.00	6.71	8.55	43.55	2.26	14.52	17.64
60x60x5	60	60	5.00	8.13	10.36	50.49	2.21	16.83	20.88
60x60x6	60	60	6.00	9.45	12.03	56.07	2.16	18.69	23.67
60x60x6.3	60	60	6.30	9.82	12.51	57.48	2.14	19.16	24.43
72x72x2.5	72	72	2.50	5.33	6.79	53.99	2.82	15.00	17.55
72x72x3	72	72	3.00	6.32	8.05	62.92	2.80	17.48	20.62
72x72x3.2	72	72	3.20	6.71	8.54	66.32	2.79	18.42	21.80
72x72x4	72	72	4.00	8.22	10.47	79.03	2.75	21.95	26.32
72x72x4.8	72	72	4.80	9.66	12.31	90.31	2.71	25.09	30.48
72x72x5	72	72	5.00	10.01	12.76	92.91	2.70	25.81	31.47
80x80x3	80	80	3.00	7.07	9.01	87.84	3.12	21.96	25.78
80x80x4	80	80	4.00	9.22	11.75	111.04	3.07	27.76	33.07
80x80x5	80	80	5.00	11.27	14.36	131.44	3.03	32.86	39.73
80x80x6	80	80	6.00	13.21	16.83	149.18	2.98	37.29	45.78
80x80x6.3	80	80	6.30	13.78	17.55	154.00	2.96	38.50	47.48
80x80x8	80	80	8.00	16.79	21.39	177.19	2.88	44.30	56.11
91.5x91.5x3.6	91.5	91.5	3.60	9.67	12.32	156.49	3.56	34.21	40.24
91.5x91.5x4	91.5	91.5	4.00	10.67	13.59	170.68	3.54	37.31	44.11
91.5x91.5x4.5	91.5	91.5	4.50	11.88	15.14	187.57	3.52	41.00	48.79

DIMENSIONS AND PROPERTIES OF SQUARE SECTIONS (SHS) AS PER IS:

Designation (mm)	Depth (mm)	Width (mm)	Thickness (mm)	Weight (mm)	Area of Section (mm)	Moment of Inertia (mm)	Radius of Gyration (mm)	Elastic Module (mm)	Plastic module (mm)
91.5x91.5x4.8	91.5	91.5	4.80	12.60	16.05	197.27	3.51	43.12	51.51
100x100x3	100	100	3.00	8.96	11.41	177.05	3.94	35.41	41.21
100x100x4	100	100	4.00	11.73	14.95	226.35	3.89	45.27	53.30
100x100x5	100	100	5.00	14.41	18.36	271.10	3.84	54.22	64.59
100x100x6	100	100	6.00	16.98	21.63	311.47	3.79	62.29	75.09
100x100x6.3	100	100	6.30	17.73	22.59	322.76	3.78	64.55	78.10
100x100x8	100	100	8.00	21.82	27.79	379.77	3.70	75.95	93.82
100x100x10	100	100	10.00	26.24	33.43	432.60	3.60	86.52	109.59
100x100x12	100	100	12.00	30.25	38.54	471.27	3.50	94.25	122.53
100x100x12.5	100	100	12.50	31.19	39.73	478.87	3.47	95.77	125.34
113.5x113.5x3	113.5	113.5	3.00	10.23	13.03	262.73	4.49	46.30	53.66
113.5x113.5x4	113.5	113.5	4.00	13.43	17.11	337.67	4.44	59.50	69.66
113.5x113.5x4.5	113.5	113.5	4.50	14.99	19.10	372.88	4.42	65.71	77.32
113.5x113.5x4.8	113.5	113.5	4.80	15.92	20.28	393.30	4.40	69.30	81.81
113.5x113.5x5	113.5	113.5	5.00	16.53	21.06	406.63	4.39	71.65	84.76
113.5x113.5x5.4	113.5	113.5	5.40	17.74	22.60	432.58	4.38	76.23	90.54
132x132x4	132	132	4.00	15.75	20.07	542.25	5.20	82.16	95.64
132x132x4.5	132	132	4.50	17.61	22.43	600.45	5.17	90.98	106.37
132x132x4.8	132	132	4.80	18.71	23.83	634.39	5.16	96.12	112.68
132x132x5	132	132	5.00	19.43	24.76	656.62	5.15	99.49	116.83
132x132x5.4	132	132	5.40	20.88	26.60	700.11	5.13	106.08	125.01
132x132x6	132	132	6.00	23.01	29.31	762.98	5.10	115.60	136.97
150x150x4	150	150	4.00	18.01	22.95	807.82	5.93	107.71	124.86
150x150x5	150	150	5.00	22.26	28.36	982.12	5.89	130.95	152.97
150x150x6	150	150	6.00	26.40	33.63	1146	5.84	152.79	179.87
150x150x6.3	150	150	6.30	27.63	35.19	1193	5.82	159.07	187.71
150x150x7	150	150	7.00	30.44	38.78	1299	5.79	173.26	205.57
150x150x8	150	150	8.00	34.38	43.79	1443	5.74	192.40	230.09
150x150x10	150	150	10.00	41.94	53.43	1701	5.64	226.83	275.64
150x150x12	150	150	12.00	49.09	62.54	1923	5.54	256.35	316.64
150x150x12.5	150	150	12.50	50.81	64.73	1972	5.52	262.99	326.20
150x150x16	150	150	16.00	62.15	79.18	2263	5.35	301.73	385.48

TOLERANCES FOR SHS & RHS AS PER IS:4923		
1	Outside Dimensions of the Sides	± 1% with a minimum of 0.5mm
2	Thickness	± 10%
3	Weight	Individual Length + 10%, -8% On lot of 10 tonnes ± 7.5%
4	Squareness of Corner	90° ± 2°
5	Radii of Corners- Outside	3t Max. Where t is the thickness of the section

MECHANICAL PROPERTIES				
Grade	Tensile Strength (MPa)	Yield Stress (MPa)	%Elongation (MIN)	
			Upto 25.4mm	Upto 25.4mm
YSt 210	330	210	12	20
YSt 240	410	240	10	15
YSt 310	450	310	8	10
YSt 355	490	355	8	10



DIMENSIONS AND PROPERTIES OF RECTANGULAR HOLLOW SECTIONS (RHS) AS PER IS:4923

Designation	Depth	Width	Thick-ness	Weight	Area of Section	Moment of Inertia		Radius of Gyration		Elastic Module		Plastic module	
(mm)	(mm)	(mm)	(mm)	kg/m	cm^2	cm^3	cm^4	cm	cm	cm^3	cm^3	cm^3	cm^3
40x20x2.0	40	20	2.0	1.68	2.14	4.05	1.34	1.38	0.79	2.02	1.34	2.61	1.60
40x20x2.5	40	20	2.5	2.03	2.59	4.69	1.54	1.35	0.77	2.35	1.54	3.09	1.88
40x20x3.0	40	20	3.0	2.36	3.01	5.21	1.68	1.32	0.75	2.60	1.68	3.50	2.12
50x25x2.0	50	25	2.0	2.15	2.74	8.38	2.81	1.75	1.01	3.35	2.25	4.26	2.62
50x25x2.5	50	25	2.5	2.62	3.34	9.89	3.28	1.72	0.99	3.95	2.62	5.10	3.12
50x25x2.9	50	25	2.9	2.98	3.80	10.93	3.60	1.70	0.97	4.37	2.88	5.72	3.48
50x25x3.2	50	25	3.2	3.24	4.13	11.63	3.80	1.68	0.96	4.65	3.04	6.14	3.73
50x25x4.0	50	25	4.0	3.88	4.95	13.13	4.23	1.63	0.92	5.25	3.38	7.13	4.29
66x33x2.0	66	33	2.0	2.90	3.70	20.37	6.90	2.35	1.37	6.17	4.18	7.73	4.77
66x33x2.6	66	33	2.60	3.69	4.70	25.15	8.43	2.31	1.34	7.62	5.11	9.68	5.94
66x33x2.9	66	33	2.9	4.07	5.19	27.33	9.12	2.29	1.33	8.28	5.53	10.59	6.49
66x33x3.6	66	33	3.6	4.93	6.28	31.87	10.52	2.25	1.29	9.66	6.37	12.56	7.65
66x33x4.0	66	33	4.0	5.39	6.87	34.13	11.20	2.23	1.28	10.34	6.79	13.58	8.26
66x33x4.5	66	33	4.5	5.95	7.58	36.64	11.93	2.20	1.25	11.10	7.23	14.76	8.94
60x40x2.0	60	40	2.0	2.93	3.74	18.41	9.83	2.22	1.62	6.14	4.92	7.47	5.65
60x40x2.5	60	40	2.5	3.60	4.59	22.07	11.74	2.19	1.60	7.36	5.87	9.06	6.84
60x40x2.9	60	40	2.9	4.12	5.25	24.74	13.11	2.17	1.58	8.25	6.56	10.24	7.73
60x40x3.0	60	40	3.0	4.25	5.41	25.38	13.44	2.17	1.58	8.46	6.72	10.53	7.94
60x40x4.0	60	40	4.0	5.45	6.95	30.99	16.28	2.11	1.53	10.33	8.14	13.16	9.89
60x40x5.0	60	40	5.0	6.56	8.36	35.33	18.43	2.06	1.48	11.78	9.21	15.38	11.52
80x40x2.0	80	40	2.0	3.56	4.54	37.36	12.72	2.87	1.67	9.34	6.36	11.61	7.17
80x40x2.5	80	40	2.5	4.39	5.59	45.11	15.26	2.84	1.65	11.28	7.63	14.14	8.72
80x40x2.9	80	40	2.9	5.03	6.41	50.87	17.11	2.82	1.63	12.72	8.56	16.07	9.88
80x40x3.0	80	40	3.0	5.19	6.61	52.25	17.56	2.81	1.63	13.06	8.78	16.54	10.16
80x40x3.2	80	40	3.2	5.50	7.01	54.94	18.41	2.80	1.62	13.74	9.21	17.46	10.71
80x40x4.0	80	40	4.0	6.71	8.55	64.79	21.49	2.75	1.59	16.20	10.74	20.91	12.77
80x40x5.0	80	40	5.0	8.13	10.36	75.11	24.59	2.69	1.54	18.78	12.30	24.73	15.02
96x48x2.0	96	48	2.0	4.32	5.50	66.04	22.59	3.47	2.03	13.76	9.41	17.00	10.52
96x48x2.5	96	48	2.5	5.33	6.79	80.23	27.29	3.44	2.00	16.71	11.37	20.80	12.85
96x48x3.2	96	48	3.2	6.71	8.54	98.61	33.28	3.40	1.97	20.54	13.87	25.85	15.91
96x48x4	96	48	4.0	8.22	10.47	17.54	39.32	3.35	1.94	24.49	16.38	31.20	19.14
96x48x4.8	96	48	4.8	9.66	12.31	134.35	44.55	3.30	1.90	27.99	18.56	36.13	22.07
100x50x2.5	100	50	2.5	5.57	7.09	91.20	31.06	3.59	2.09	18.24	12.42	22.67	14.01
100x50x3.2	100	50	3.2	7.01	8.93	112.29	37.95	3.55	2.06	22.46	15.18	28.20	17.37
100x50x4.0	100	50	4.0	8.59	10.95	134.14	44.95	3.50	2.03	26.83	17.98	34.10	20.93
122x61x2.5	122	61	2.5	6.86	8.74	169.74	58.09	4.41	2.58	27.83	19.05	34.36	21.28
122x61x3.0	122	61	3.0	8.16	10.39	199.18	67.86	4.38	2.56	32.65	22.25	40.56	25.07
122x61x3.6	122	61	3.6	9.67	12.32	232.61	78.83	4.34	2.53	38.13	25.84	47.71	29.42
122x61x4.0	122	61	4.0	10.67	13.59	253.76	85.69	4.32	2.51	41.60	28.10	52.30	32.21
122x61x4.5	122	61	4.5	11.88	15.14	278.94	93.78	4.29	2.49	45.73	30.75	57.84	35.55
122x61x5.0	122	61	5.0	13.08	16.66	302.75	101.35	4.26	2.47	49.63	33.23	63.17	38.76
122x61x5.4	122	61	5.4	14.01	17.85	320.83	107.03	4.24	2.45	52.60	35.09	67.28	41.22
145x82x4.0	145	82	4.0	13.43	17.11	476.35	196.94	5.28	3.39	65.70	48.03	80.82	54.53
145x82x4.8	145	82	4.8	15.92	20.28	555.16	228.50	5.23	3.36	76.57	55.73	94.93	63.93
145x82x5.0	145	82	5.0	16.53	21.06	574.05	236.02	5.22	3.35	79.18	57.56	98.35	66.20
145x82x5.4	145	82	5.4	17.74	22.60	610.85	250.59	5.20	3.33	84.26	61.12	105.06	70.66
172x92x4.0	172	92	4.0	15.75	20.07	783.54	297.66	6.25	3.85	91.11	64.71	112.10	72.79
172x92x4.8	172	92	4.8	18.71	23.83	917.13	346.91	6.20	3.82	106.64	75.41	132.07	85.61
172x92x5.0	172	92	5.0	19.43	24.76	949.37	358.72	6.19	3.81	110.39	77.98	136.94	88.72
172x92x5.4	172	92	5.4	20.88	26.60	1012.47	381.74	6.17	3.79	117.73	82.99	146.54	94.85
200x100x4.0	200	100	4.0	18.01	22.95	1200	411	7.23	4.23	119.97	82.16	148.03	91.70
200x100x5.0	200	100	5.0	22.26	28.36	1459	497	7.17	4.19	145.93	99.39	181.36	112.09
200x100x6.0	200	100	6.0	26.40	33.63	1703	577	7.12	4.14	170.33	115.38	213.25	131.49
200x100x6.3	200	100	6.3	27.63	35.19	1774	600	7.10	4.13	177.36	119.95	222.54	137.13
200x100x8.0	200	100	8	34.38	43.79	2146	719	7.00	4.05	214.62	143.84	272.76	167.42
200x100x10	200	100	10	41.94	53.43	2531	839	6.88	3.96	253.10	167.85	326.69	199.59
200x100x12.5	200	100	12.5	50.81	64.73	2934	961	6.73	3.85	293.39	192.13	386.43	234.71

Fabrication and Connection Details

Jointing : Workshop & Site Practice

CUTTING

Jindal Steel Hollow Sections can be cut:

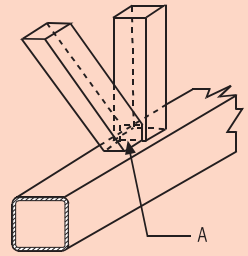
- By means of a heavy duty circular/hand saw
- By flame cutting: either manual or automatic

- The path of the cut can be marked directly on the surface of the section or on a template after shop layout
- For section thicknesses of 5 mm and above, edges may be chamfered for proper welding penetration

BENDING

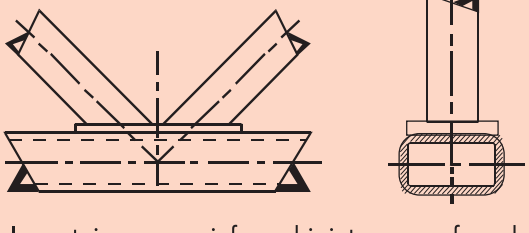
- Axial cold bending of Jindal Structura Steel Hollow Sections is possible by using an internal mandrel and the roller must be adapted to the shape and size of the section
- Three roll bending machine may be adapted - bend by slow multiple pass, through trial and error method
- Thicker or larger sections are recommended to be preheated in a normalising furnace before bending in hot condition for better formation

OVERLAP JOINTS



The weld seam 'A' can be omitted without affecting the behaviour of the joint.

POSSIBLE REINFORCEMENTS



In certain cases reinforced joints are preferred for improved joint rigidity.

WELDING

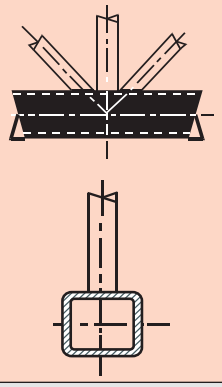
Technique in principle is similar for that of conventional sections. Follow relevant BIS code of practice and design conditions.

- Electrodes : Low hydrogen electrodes are suggested for use.
- Butt welds : The throat thickness of the seam:

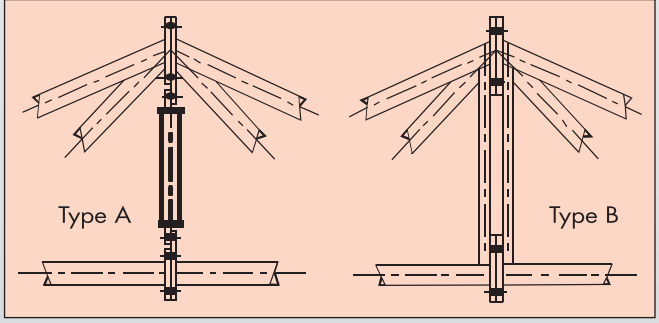
  a) Wall thickness of the section when joining members are of equal thickness,

  b) Wall thickness of thinner section, If thicknesses are different. Backing strip may be provided to ensure total root penetration in case of thicker section design size.
- Fillet welds : Various types may be provided. Size of the fillet is guided by the throat thickness as explained above.
- Note : All free ends of Jindal Steel Hollow Sections should be sealed properly by welding, to prevent internal corrosion.
- Normal M. S. electrodes of reputed brands are recommended. Moisture from electrode should be removed by baking before welding.
- Sequence : Edges are to be tack welded to maintain uniform gap during welding to minimise residual stress:
  - Transverse weld before longitudinal one
  - Fillet weld following butt weld
  - Starting from inside to outwards.

GAP JOINTS

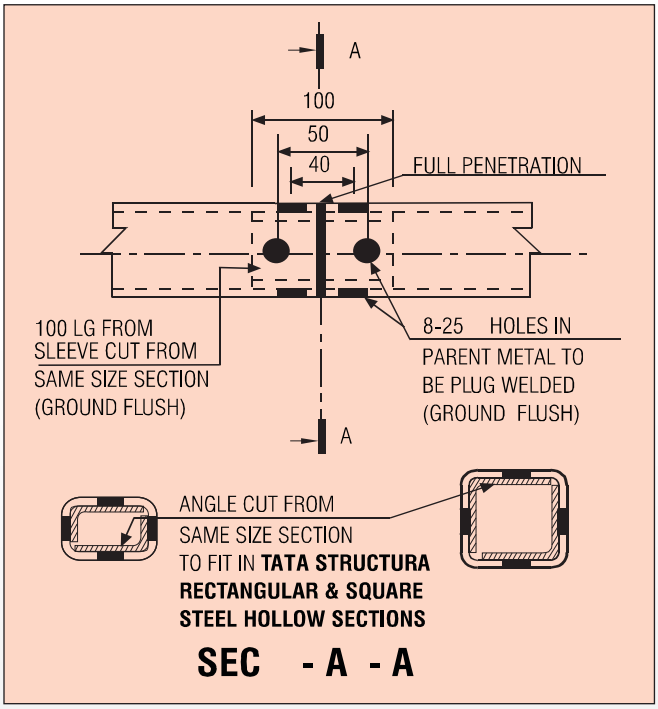


This arrangement is often the simplest and most economical and the joints are sufficiently strong. Joining member alignments should be at > 30 with respect to the other.



BOLTED RIDGE DETAILS & TIE CONNECTIONS

Bolted connections as shown (Type A & Type B) are adopted by using single or double sag ties respectively.



TYPICAL SPLICING DETAIL

The internal backing sleeve fulfils two functions; it facilitates the proper alignment of the parts and acts as backing strip for butt weld. For more technical information, visit our website www.jindalhissar.com or contact us for Designer Handbook.

Jointing : Workshop & Site Practice

CORRECTING DISTORTIONS

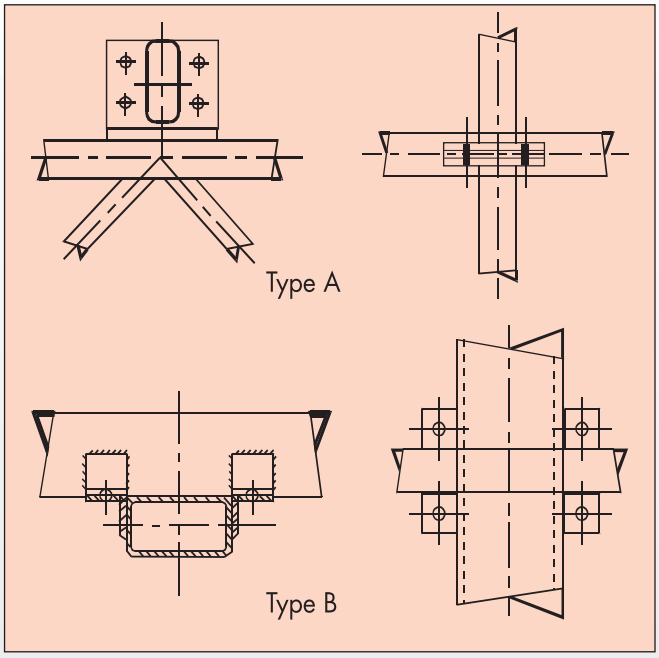
Post weld distortions, despite precautions, can be corrected by cold bending, hammering of the welds or by applying controlled local compensating heating on opposite sides. It is imperative to avoid excessive thermo-mechanical operation.

BOLTED/RIVETED CONNECTIONS

- Fasteners should conform to relevant BIS specifications and arrangements should be adequate to withstand combination of design loads at joints and to facilitate ease of fixing
- As internal surfaces of Jindal Steel Hollow Sections are inaccessible, they are adaptable to: Special structural fittings for indirect external bolting Blind bolts Self threading bolts, etc.

ERECTION

- In principle similar techniques are adopted as those for conventional section assemblies. For hoisting and handling no additional stiffeners are required due to high torsional rigidity of Tata Steel Hollow Sections.



PURLIN CONNECTIONS

Purlin becomes very efficient with Jindal Steel Rectangular & Square Hollow Sections because of its lateral rigidity to avoid intermediate sag rods. The connection shown (Type X & Type Y) can provide end - fixity.

JINDAL HISSAR
your trusted exporting partner

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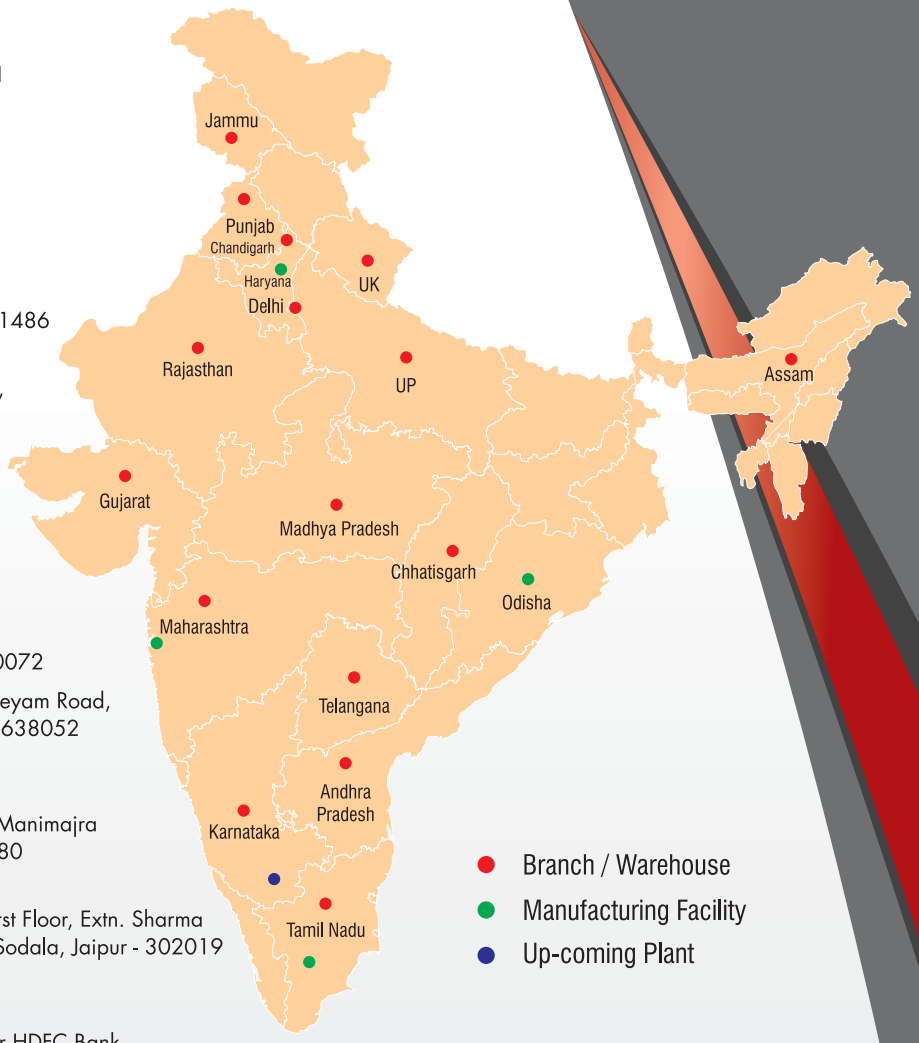

JINDAL INDUSTRIES PRIVATE LIMITED

Manufacturers of ERW BLACK & GALVANISED STEEL PIPES, POWDER COATED PIPES
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