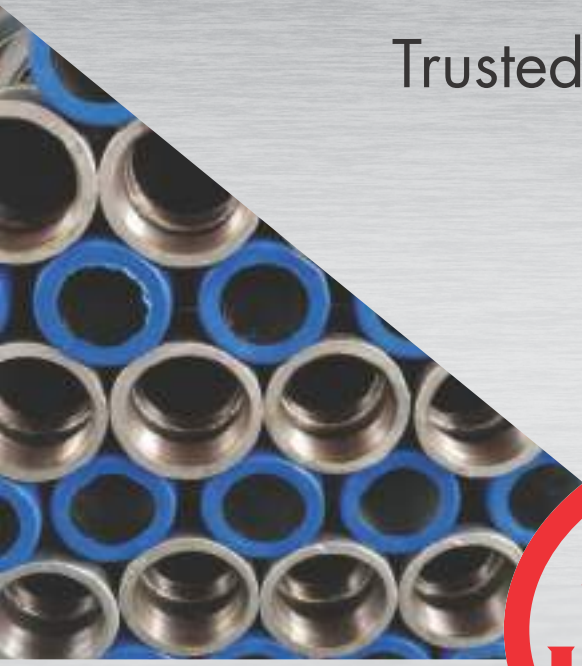
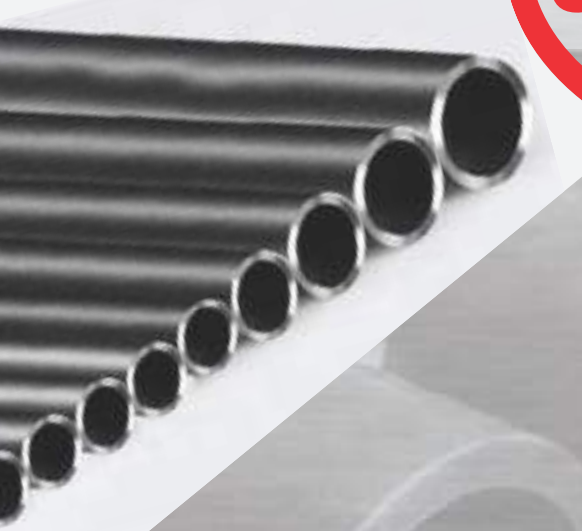
Trusted for Quality & Integrity



TRADE MARK
Jindal
HISSAR



JINDAL INDUSTRIES PRIVATE LIMITED, HISAR

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

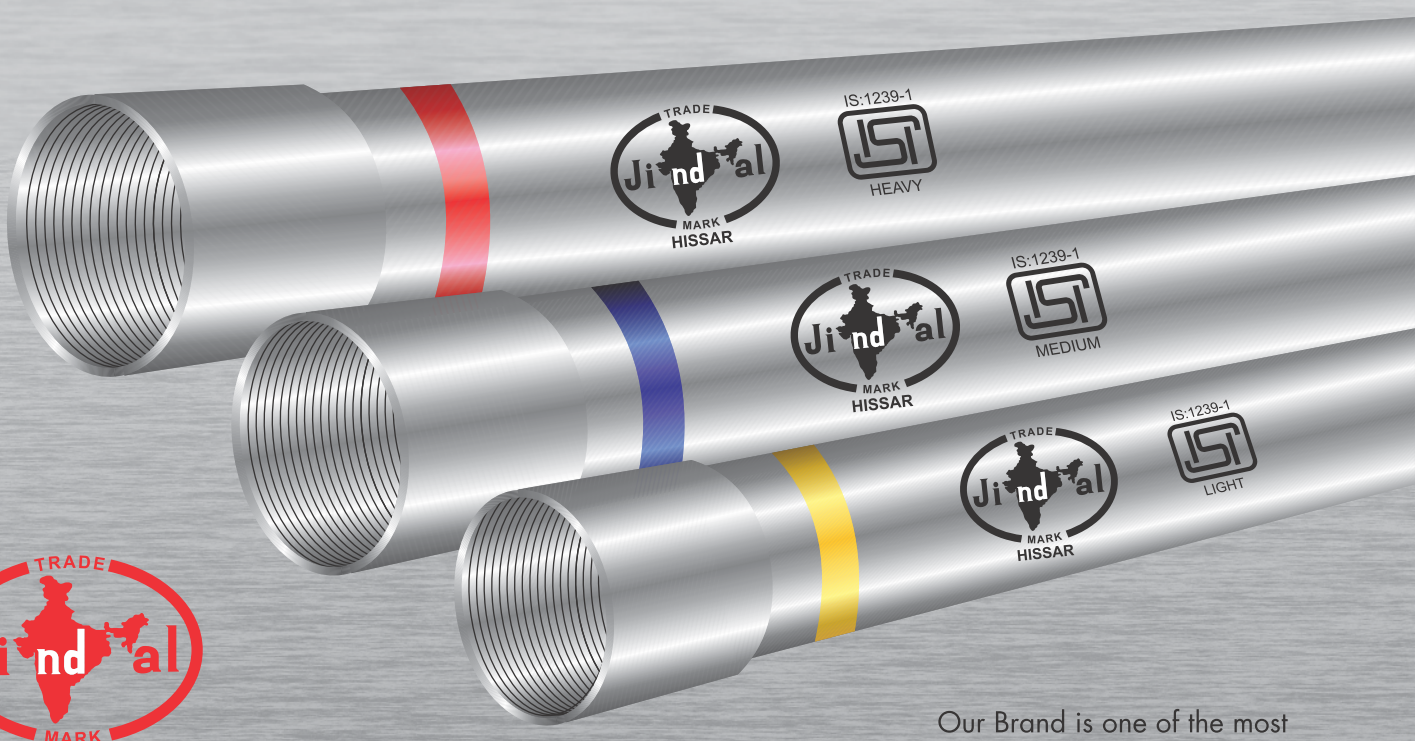

Shaping the future infrastructure

About Us:

Jindal Industries Pvt. Limited, HISAR, is one of the reputed industrial house, and a part of the JINDALS, who have proved their unerring might in steel sector and reckoned with high esteem in the pipe manufacturing industry.

Set up in the year 1980, 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 15mm to 300mm as per National and International standards besides other variants.

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.



Our Brand is one of the most trusted brand in the market

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 25 x 25mm to 220 x 220mm and RHS 50 x 25mm 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 45001:2018

ISO 14001:2015

IS:1239	IS:4270	IS:4923
IS:3589	IS:9295	IS:2713
IS:1161	IS:3601	IS/ISO:3183

Underwriters Laboratories

CE

API 5L

Inspection Agencies

DGS&D

RITES

EIL

SGS

BUREAU VERITAS

TÜV

TÜV NORD

एनटीपीसी NTPC

DMRC

DNV

Product Range

Black Pipes	-	½"(15mm NB) to 12"(300mm NB) to various National & International Standards
Galvanised Pipes	-	½"(15mm NB) to 12"(300mm NB) to various National & International Standards
API (Line Pipes)	-	80mm to 300mm API Pipes upto Grade X70
Hollow Sections	-	Rectangular & Square from 25mm x 25mm to 250mm x 250mm, Black & GI
Poles	-	Swaged Tubular Poles from 410 SP 1 to 410 SP 66

Grades

Conforming To Stringent Specifications

a) Indian Standards

i)	IS:1239-1	- For Ordinary Use In Water, Gas, Air Lines & Fire Fighting
ii)	IS:3589	- Grade Fe330 & 410 For Water, Gas & Sewage Purpose
iii)	IS:4270	- Grade Fe 410, Steel Tubes For Water Wells (Casing Pipes)
iv)	IS:1161	- Grade Yst 210, 240, 310 & 355 For Structural Purpose
v)	IS:3601	- Steel Tubes For Mechanical & General Engineering
vi)	IS:9295	- Grade Yst 210, 240 & 310 for Idlers & Conveyors
vii)	IS/ISO:3183	- Grade Yst 210 & 240 For Use In Oil & Natural Gas Industries
viii)	IS:2713	- Swaged type steel Tubular Poles 410 SP 1 to 410 SP 72.
ix)	IS:4923	- RHS & SHS, Grade Yst 210, 240, 310 & 355 For Structural Purpose

b) International Standards

1) British

i)	BS:1387	- For Ordinary Use In Water, Gas Lines
ii)	BS:1775	- for Mechanical, Structural & General Engineering
iii)	BS:1139	- Tubes For Metal Scaffolding
iv)	BS:534	- For Water, Gas & Sewage
v)	BS:6363	- Structural Tubes, Round Square & Rectangular Shape

2) American

i)	ASTM A53	- For Ordinary Use In Water, Gas & Air Lines with UI Certification
ii)	ASTM A120	- For Ordinary Use In Agriculture & Air Lines
iii)	ASTMA 795	- For Fire Protection Use With UI Certification
iv)	ASTM A 500	- Structural Tubes Round, Square & Rectangular Shape
v)	AP15L	- For Oil & Gas Conveying At High Pressure

3) European

i)	EN 10224-	For Use In Water, Gas & Air Flow
ii)	EN 10255-	For Water, Gas & Air Flow With Ce Certification

4) Japanese

i)	JIS G 3452	- For Use In Water, Gas & Air Flow

Equipment Details

- Slitting unit
- ERW Pipe Mills
- Annealing
- Eddy Current Testing
- End Facers
- Hydro Testing M/c
- Ultrasonic Testing M/c
- Galvanising Lines
- Auto Varnishing Lines
- Threading M/c
- Grooving M/c
- Power Plant

APPLICATIONS

Oil & Gas Transportation
General Engineering
Agriculture & Irrigation
Concealed Piping
Cold Storage
Fire Fighting System
Construction Scaffolding
Water Lines
Structural Purposes

GALVANISED & BLACK PIPES FOR WATER, GAS & AIR

TECHNICAL DATA OF BLACK & GALVANISED PIPES
SPECIFICATION IS:1239(PART-1):2004 - DIN 2440, DIN 2441
(EQUIVALENT BS:1387:1990/EN-10255:2004*/DIN EN 10240 : 1998)

NB (mm)	SERIES	OUTSIDE DIAMETER		WALL THICKNESS		NOMINAL WEIGHT GALVANISED & BLACK TUBES				SOCKETS	
						PLAIN END		SCREWED & SOCKETED			
		MIN. (mm)	MAX. (mm)	MM	SWG	Kg/M	Mtrs/Ton	Kg/M	Mtrs/Ton	OD in mm	Length in mm
15	Light	21.0	21.4	2.0	14	0.95	1052	0.96	1046	27	37
	Medium	21.0	21.8	2.6	12	1.21	826	1.22	820		
	Heavy	21.0	21.8	3.2	10	1.44	694	1.45	690		
20	Light	26.4	26.9	2.3	13	1.38	725	1.39	719	32.5	39
	Medium	26.5	27.3	2.6	12	1.56	641	1.57	637		
	Heavy	26.5	27.3	3.2	10	1.87	535	1.88	532		
25	Light	33.2	33.8	2.6	12	1.98	505	2.00	500	39.5	46
	Medium	33.3	34.2	3.2	10	2.41	415	2.43	412		
	Heavy	33.3	34.2	4.0	8	2.93	341	2.95	339		
32	Light	41.9	42.5	2.6	12	2.54	394	2.57	389	49	51
	Medium	42.0	42.9	3.2	10	3.10	322	3.13	319		
	Heavy	42.0	42.9	4.0	8	3.79	264	3.82	262		
40	Light	47.8	48.4	2.9	11	3.23	310	3.27	306	56	51
	Medium	47.8	48.8	3.2	10	3.56	281	3.60	278		
	Heavy	47.9	48.8	4.0	8	4.37	229	4.41	227		
50	Light	59.6	60.2	2.9	11	4.08	245	4.15	241	68	60
	Medium	59.7	60.8	3.6	9	5.03	199	5.10	196		
	Heavy	59.7	60.8	4.5	7	6.19	161	6.26	160		
65	Light	75.2	76.0	3.2	10	5.74	175	5.83	172	84	69
	Medium	75.3	76.6	3.6	9	6.42	156	6.54	153		
	Heavy	75.3	76.6	4.5	7	7.93	126	8.05	124		
80	Light	87.9	88.7	3.2	10	6.72	149	6.89	145	98	75
	Medium	88.0	89.5	4.0	8	8.36	120	8.53	117		
	Heavy	88.0	89.5	4.8	6	9.90	101	10.10	96		
100	Light	113.0	113.9	3.6	9	9.75	102	10.00	100	124	87
	Medium	113.1	115.0	4.5	7	12.20	82	12.50	80		
	Heavy	113.1	115.0	5.4	5	14.50	69	14.80	68		
125	Medium	138.5	140.8	4.8	6	15.90	63	16.40	61	151	96
	Heavy	138.5	140.8	5.4	5	17.90	56	18.40	54		
150	Medium	163.9	166.5	4.8	6	18.90	53	19.50	51	178	96
	Heavy	163.9	166.5	5.4	5	21.30	47	21.90	46		

Tolerances

a) Thickness
Light Tubes : + Not limited
-8 %
Medium & Heavy Tubes :
+ Not limited
-10 %

b) Weight
Light Series
Single Tube : + 10% / - 8 %

For Quantities per Load of
10 Tonnes Minimum : +7.5%, -5%

Medium & Heavy Series
Single Tube : ± 10%

For Quantities per Load of
10 Tonnes Minimum : ± 7.5%

c) Length
Normal : 6 mtr + 0.03 mtr
Random Length 4 to 7 Mtrs
Or as specified by Customer

d) Hydro Test
Each pipe is tested for leak proof test at 51 kgs/cm2

e) End condition
A) PLAIN END
B) BEVEL END
C) SCREWED & SOCKETED
D) SCREWED END TUBE
E) AS PER CUSTOMER SPECIFICATION

*This specification conforms to CE Mark conferred by Det Norske Veritas 13315-2018-CE-IND-DNV
JINDAL-HISSAR MANUFACTURES PIPE SIZE 15mm NB to 150mm NB, BOTH BLACK & GI, BIS LICENCE NO. CM/L - 0458956

ERW STEEL TUBES FOR WATER & SEWAGE PURPOSE

CONFORMING TO IS: 3589 : 2001
Grade Fe 330 and Fe 410/ EN 10224

NB (mm)	OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	WEIGHT (PLAIN END)	MTR/TON
150	168.3	2.6	10.6	94
		3.2	13.0	77
		4.0	16.2	62
		4.5	18.2	55
175	193.7	2.6	12.3	81
		3.6	16.9	59
		4.5	21.0	48
		6.3	29.1	34
200	219.1	2.6	13.9	72
		3.6	19.1	52
		4.5	23.8	42
		6.3	33.1	30
250	273.0	3.6	23.9	42
		4.0	26.5	38
		5.0	33.0	30
		6.3	41.1	24
300	323.9	4.0	31.8	31
		4.5	35.4	28
		5.6	44.0	23
		7.1	55.5	18

TOLERANCES	
OUTSIDE DIAMETER OF PIPE	± 0.75%
OVALITY	1% Max.
THICKNESS	± 10%
LENGTH	
Unless other specified, length are in Single Random Length of 4 to 7 Mtr.	
WEIGHT : Mass per Truck Load of 10 Tons or above	± 7.5%

PHYSICAL PROPERTIES			
GRADE	Y.S. (MIN)	T.S. (MIN)	%Elongation (MIN)
Fe 330	195	330	20
Fe 410	235	410	18

Note:
These are preferred OD & Thickness. Other Sizes not included may be supplied as per Customer Specification.

JINDAL-HISSAR MANUFACTURES PIPE SIZE 150mm NB to 300mm NB, BOTH BLACK & GI,
BIS LICENCE NO. CM/L - 9402267

ERW STEEL TUBES FOR WATER WELLS CONFORMING

TO IS: 4270 : 2001

PLAIN END CASING PIPES

NB (mm)	OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	WEIGHT (PLAIN END)	MTR/TON
100	114.3	5	13.48	74
		5.4	14.5	69
125	141.3	5	16.8	60
		5.4	18.1	55
		7.1	23.5	43
150	168.3	5	20.13	50
		5.4	21.6	46
		7.1	28.2	35
175	193.7	5.4	25.1	40
		6.4	29.6	34
		8	36.6	27
200	219.1	5.4	28.46	35
		6.7	33.6	30
		8	41.6	24
250	273.1	7.1	46.57	21
		8	52.3	19
		10	64.9	15
300	323.9	7.1	55.47	18
		8	62.3	16
		10	77.4	13

TOLERANCES	
OUTSIDE DIAMETER OF PIPE	± 1%
THICKNESS Upto 406.4mm OD	± 10%
LENGTH Unless other specified, length are in Single Random Length of 4 to 7 Mtr.	
WEIGHT : Single Tube	+10%, -8%

PHYSICAL PROPERTIES			
GRADE	Y.S. (min)	T.S. (min)	%Elongation (MIN)
Fe 410	235	410	15

Note:
Higher Thickness other than the Specified may also be manufactured as per Customer requirement.

JINDAL-HISSAR MANUFACTURES PIPE SIZE 100mm to 300mm NB, BOTH BLACK & GI, BIS LICENCE NO. CM/L - 9517082

Slotting of pipes can be done as per customer requirement.

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

NB (mm)	OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	NOMINAL WEIGHT GALVANISED & BLACK TUBES	
			PLAIN END	
			Kg/M	Mtr/Ton
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
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

JINDAL-HISSAR MANUFACTURES PIPE SIZE 15mm NB to 300mm NB, BOTH BLACK & GI, BIS LICENCE NO. CM/L - 0641038

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 %

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

STEEL TUBES FOR MECHANICAL AND GENERAL ENGINEERING PURPOSES

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

NB (mm)	OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	NOMINAL WEIGHT GALVANISED & BLACK TUBES	
			PLAIN END	
			Kg/M	Mtr/Ton
15	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
20	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
25	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
32	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
40	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
50	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
65	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
80	88.9	2.9	6.15	163
		3.2	6.76	148
		4.0	8.38	119
		5.0	10.3	97

JINDAL-HISSAR MANUFACTURES PIPE AS PER IS 3601 SIZE 15mm NB to 300mm NB, BIS LICENCE NO CM/L 9598516WT 210 WT 240

NB (mm)	OUTSIDE DIAMETER (mm)	WALL THICKNESS (mm)	NOMINAL WEIGHT GALVANISED & BLACK TUBES	
			PLAIN END	
			Kg/M	Mtr/Ton
90	101.6	3.6	8.70	115
		4.0	9.63	104
		5.0	11.90	84
100	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
125	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
150	165.1	4.5	17.8	56
		5.0	19.7	51
		5.4	21.2	47
		6.3	24.8	40
150	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
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	4.5	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
250	273	5.0	33.00	30
		6.3	41.04	24
		7.1	46.60	21
		10.0	64.90	15
300	323.9	5.6	44.00	23
		7.1	55.50	18
		8.0	62.30	16
		10.0	77.40	13

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

ERW STEEL TUBES FOR IDLERS FOR BELT CONVEYORS

TECHNICAL DATA OF PIPES SPECIFICATION AS PER IS:9295 – 1983 DIMENSIONS & NOMINAL MASSES

OUTSIDE DIAMETER (mm)	THICKNESS (mm)	Mass Kg/m
63.5	3.65	5.39
	4.50	6.55
76.1	3.65	6.52
	4.50	7.95
88.9	4.05	8.47
	4.85	10.05
	6.30	12.83
101.6	4.05	9.74
	4.85	11.57
	6.30	14.81
114.3	4.50	12.19
	5.40	14.50
	6.30	16.78
139.7	4.50	15.00
	4.85	16.13
	5.40	17.89
	6.30	20.73
165.1	4.50	17.80
	4.85	19.17
	5.40	21.27
	6.30	24.67

OUTSIDE DIAMETER (mm)	THICKNESS (mm)	Mass Kg/m
168.3	4.50	18.20
	4.85	19.55
	5.40	21.69
	6.30	25.17
193.7	5.40	25.10
	6.30	29.12
	7.10	32.67
219.1	5.40	28.50
	6.30	33.06
	7.10	37.12

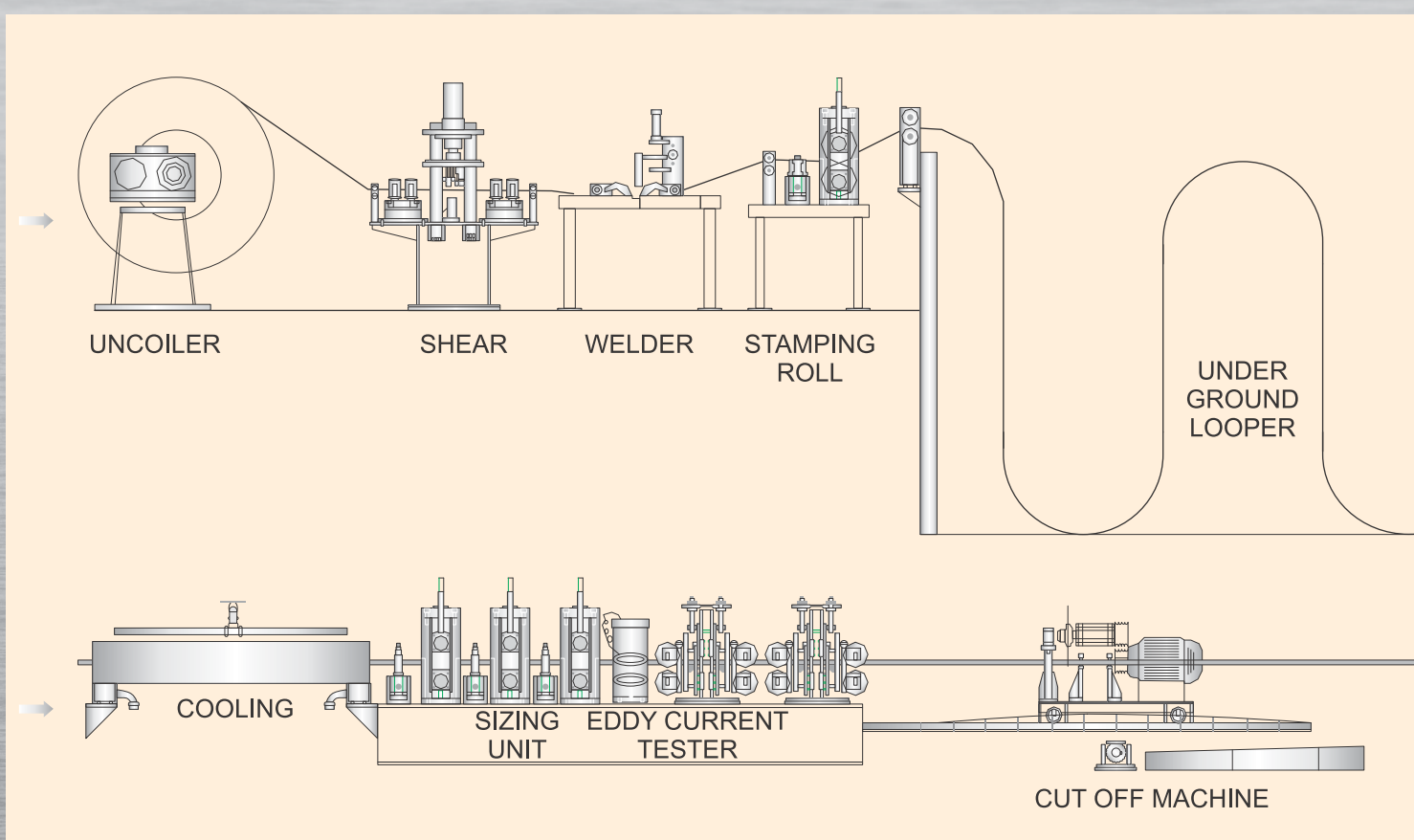
TOLERANCES	
DIMENSION	
Outside Diameter	± 0.8%
Ovality Below 168.3mm OD	0.5mm
Ovality Above 168.3mm OD	1.0mm
Thickness	± 10%
MASS	MASS
Weight Kg/Mtrs – Single Tube	± 10%
For Truck Load of 10 Tons	± 7.5%

JINDAL-HISSAR Manufactures Pipe Size from 63.5mm to 219.1mm OD, Both Black & GI Licence No. CM/L 9200109912

Manufacturing Process

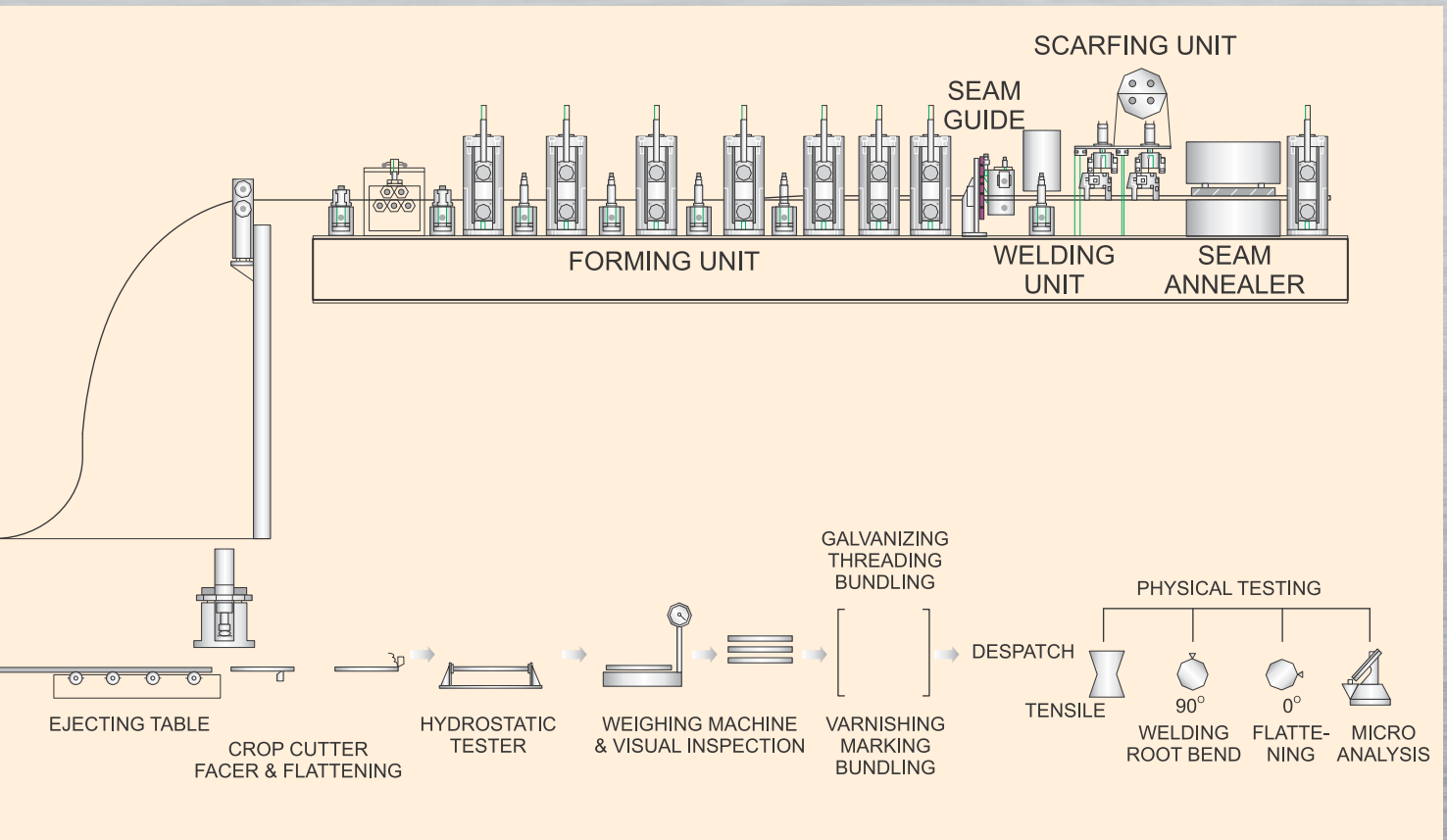
The process utilises the latest technology and modern equipments for producing high Quality ERW Pipes

1. **Slit Preparations**
   HR Colis 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. **Debeading**
   Weld flash on top and inside (if need) is trimmed out through carbide tools.
5. **Seam Annealing**
   Whenever required, welding portion and heat affected zone is put to normalising with medium frequency normaliser and then cooled down in air cooling bed.
6. **Sizing & Cutting**
   After water quenching, slight reduction is applied to pipes with sizing rolls to give them desired accurate outside diameter.
   Pipes are cut to required lengths by flying cut off disc/saw cutter.
7. **Facing and Bevelling**
   The pipe ends are faced and bevelled by the end facer.
   All the processes are continuous with auto arrangements. These plain ended tubes go for further processing as per the customer need like galvanizing, threading, black varnishing etc.
8. **Packing**
   Finished pipes are bundled in desired number of pieces as per customer's requirement and packed properly to ensure freshness till delivery.



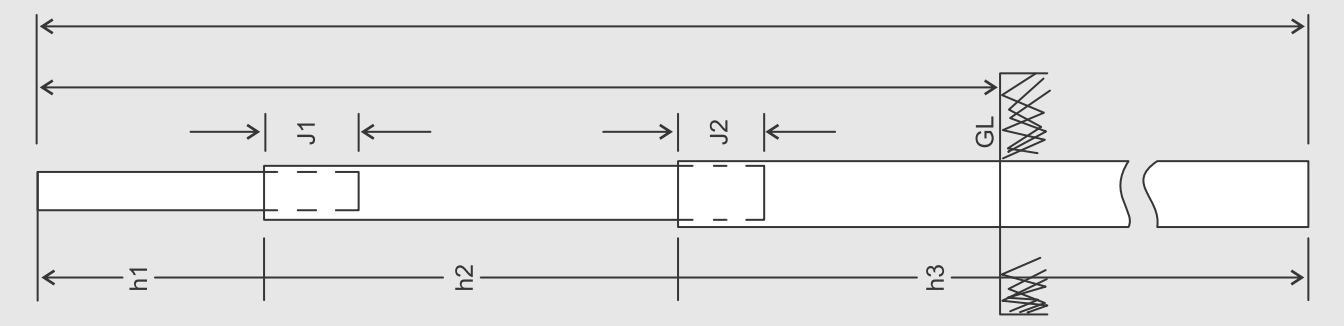
Quality - a prerequisite

Sr. No.	Machine	Purpose
1	Universal Testing Machines 100 Ton	For material testing (mechanical properties).
2	Non Destructive Test	
	a. Eddy Current Testing Machine	For on line flaw detection on welds & HAZ.
	b. Automatic Ultrasonic Testing For Pipe Weld & Body	Detection of defects in steel and welding.
3	Hydro Testing Machine	High Pressure Testing upto 450kg/cm^2.
4	Vickers Micro Hardness Tester	For checking micro hardness on weld, heat affected zone and material.
5	Digital Ultrasonic Thickness Gauge	For checking thickness & pipes.
6	Mandrels and Fixtures	For welding root bend test.
7	Hydraulic Press	For flattening and weld ductility test.
8	Bending Machine	For pipe bend test.
9	Impact Testing Machine (300J)	For Impact Test.
10	Boroscope	For Internal Visual Inspection
11	Spectro Analyser	For Chemical Analysis
12	Metallurgical Microscope	Micro-structure Study of Steel
13	DWTT Machine	To determine fracture ductility of Line Pipe



SWAGED TYPE STEEL TUBULAR POLES AS PER IS:2713 (PART II)-1980-410 SP-MPA

Designation	Overall Length	Planting Depth	Load Applied from Top at a Distance of	Height above ground H	Length of Sections			Outside Diameter and Thickness of Sections			Approx Weight of Pole	Breaking Load	Crippling Load	Working Load		Load for Permanent Set not Exceeding 13mm	Load for Temporary Deflection of 157.5mm
					Bottom h3	Middle h2	Top h1	Bottom h3	Middle h2	Top h1				Col 14 2	Col 13 2.5		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(mm)	(mm)	(mm)	(Kg)	(Kg)	N (Kg)	N (Kg)	N (Kg)	N (Kg)	N (Kg)
410SP-1	7.00	1.25	0.30	5.75	4.00	1.50	1.50	114.3x3.65	88.9 x3.25	76.1X3.25	62	2570 (262)	1820(186)	912(93)	1030(105)	1245(127)	785(80)
410SP-2	7.00	1.25	0.30	5.75	4.00	1.50	1.50	114.3x4.50	88.9 x4.05	76.1X3.25	73	3100(316)	2240(224)	1100(112)	1240(126)	1510(154)	941(96)
410SP-3	7.00	1.25	0.30	5.75	4.00	1.50	1.50	114.3x5.40	88.9 x4.85	76.1X3.25	85	3630(370)	2580(263)	1280(131)	1450(148)	1760(180)	1090(111)
410SP-4	7.50	1.25	0.30	6.25	4.50	1.50	1.50	114.3x3.65	88.9 x3.25	76.1X3.25	67	2350(240)	1670(170)	1320(135)	941(96)	1150(117)	627(64)
410SP-5	7.50	1.25	0.30	6.25	4.50	1.50	1.50	114.3x4.50	88.9 x4.05	76.1X3.25	79	2760(281)	1960(200)	981(100)	1100(112)	1340(137)	745(76)
410SP-6	7.50	1.25	0.30	6.25	4.50	1.50	1.50	114.3x5.40	88.9 x4.85	76.1X3.25	93	3320(339)	2360(241)	1180(120)	1330(136)	1620(165)	873(89)
410SP-7	7.50	1.25	0.30	6.25	4.50	1.50	1.50	139.7x4.50	114.3x3.65	89.9X3.25	97	4330(442)	3080(314)	1540(157)	1740(177)	2110(215)	1400(143)
410SP-8	7.50	1.25	0.30	6.25	4.50	1.50	1.50	139.7x4.85	114.3x3.65	89.9X3.25	103	4630(472)	3280(335)	1650(168)	1850(189)	2250(229)	1480(151)
410SP-9	7.50	1.25	0.30	6.25	4.50	1.50	1.50	139.7x5.40	114.3x3.65	89.9X3.25	110	5100(520)	3620(369)	1810(185)	2040(208)	2480(253)	1600(163)
410SP-10	8.00	1.50	0.30	6.50	4.50	1.75	1.75	114.3x3.65	88.9 x3.25	76.1X3.25	70	2260(230)	1600(163)	804(82)	902(92)	1110(112)	520(53)
410SP-11	8.00	1.50	0.30	6.50	4.50	1.75	1.75	114.3x4.50	88.9 x4.05	76.1X3.25	83	2730(278)	1930(197)	971(99)	1090(111)	1320(135)	618(63)
410SP-12	8.00	1.50	0.30	6.50	4.50	1.75	1.75	114.3x5.40	88.9 x4.85	76.1X3.25	97	3190(325)	2270(231)	1130(115)	1270(130)	1550(158)	725(74)
410SP-13	8.00	1.50	0.30	6.50	4.50	1.75	1.75	139.7x4.50	114.3x3.65	89.9X3.25	101	4160(424)	2950(301)	1480(151)	1670(170)	2020(206)	1180(120)
410SP-14	8.00	1.50	0.30	6.50	4.50	1.75	1.75	139.7x4.85	114.3x4.50	89.9X3.25	111	4440(453)	3160(322)	1580(161)	1770(181)	2160(220)	1280(131)
410SP-15	8.00	1.50	0.30	6.50	4.50	1.75	1.75	139.7x5.40	114.3x4.50	89.9X3.25	109	4890(499)	3470(354)	1740(177)	1960(200)	2380(243)	1380(140)
410SP-16	8.50	1.50	0.30	7.00	5.00	1.75	1.75	114.3x3.65	88.9 x3.25	76.1X3.25	75	2090(213)	1480(151)	745(76)	834(85)	1020(104)	432(44)
410SP-17	8.50	1.50	0.30	7.00	5.00	1.75	1.75	114.3x4.50	88.9 x4.05	76.1X3.25	89	2520(257)	1790(182)	893(91)	1010(103)	1230(125)	510(52)
410SP-18	8.50	1.50	0.30	7.00	5.00	1.75	1.75	114.3x5.40	88.9 x4.85	76.1X3.25	104	2950(301)	2100(214)	1050(107)	1180(120)	1430(146)	598(61)
410SP-19	8.50	1.50	0.30	7.00	5.00	1.75	1.75	139.7x4.50	114.3x3.65	89.9X3.25	109	3844(392)	2730(278)	1360(139)	1540(157)	1800(191)	961(98)
410SP-20	8.50	1.50	0.30	7.00	5.00	1.75	1.75	139.7x4.85	114.3x3.65	89.9X3.25	115	5110(419)	2910(297)	1460(140)	1650(168)	2000(204)	1010(103)
410SP-21	8.50	1.50	0.30	7.00	5.00	1.75	1.75	139.7x5.40	114.3x4.50	89.9X3.25	129	4530(462)	3220(328)	1620(164)	1810(185)	2210(225)	1130(115)
410SP-22	8.50	1.50	0.30	7.00	5.00	1.75	1.75	165.1x4.50	139.7x4.50	114.3x3.65	141	5450(556)	3870(395)	1930(197)	2180(222)	2650(270)	1730(176)
410SP-23	8.50	1.50	0.30	7.00	5.00	1.75	1.75	165.1x4.85	139.7x4.50	114.3x3.65	148	5840(596)	4150(423)	2080(212)	2330(238)	2840(290)	1820(186)
410SP-24	8.50	1.50	0.30	7.00	5.00	1.75	1.75	165.1x5.40	139.7x4.50	114.3x3.65	158	6450(658)	4580(467)	2340(234)	2579(263)	3140(320)	1970(201)
410SP-25	9.00	1.50	0.30	7.50	5.00	2.00	2.00	114.3x3.65	88.9 x3.25	76.1X3.25	78	1940(198)	1380(141)	686(70)	775(79)	941(96)	333(34)
410SP-26	9.00	1.50	0.30	7.50	5.00	2.00	2.00	114.3x4.50	88.9 x4.05	76.1X3.25	92	2340(239)	1670(170)	834(85)	941(96)	1140(116)	402(41)
410SP-27	9.00	1.50	0.30	7.50	5.00	2.00	2.00	114.3x5.40	88.9 x4.85	76.1X3.25	108	2750(280)	1950(199)	971(99)	1100(112)	1330(136)	461(47)
410SP-28	9.00	1.50	0.30	7.50	5.00	2.00	2.00	139.7x4.50	114.3x3.65	89.9X3.25	113	3580(365)	2540(259)	1270(130)	1430(146)	1740(117)	745(76)
410SP-29	9.00	1.50	0.30	7.50	5.00	2.00	2.00	139.7x4.85	114.3x3.65	89.9X3.25	125	3820(390)	2728(277)	1350(138)	1530(156)	1860(190)	814(83)
410SP-30	9.00	1.50	0.30	7.50	5.00	2.00	2.00	139.7x5.40	114.3x4.50	89.9X3.25	133	4220(430)	2990(305)	1500(153)	1690(172)	2050(209)	882(90)
410SP-31	9.00	1.50	0.30	7.50	5.00	2.00	2.00	165.1x4.50	139.7x4.50	114.3x3.65	147	5070(517)	3600(367)	1800(184)	2030(207)	2460(251)	1360(139)
410SP-32	9.00	1.50	0.30	7.50	5.00	2.00	2.00	165.1x4.85	139.7x4.50	114.3x3.65	154	5430(554)	3850(393)	1930(197)	2180(222)	2640(269)	1430(146)
410SP-33	9.00	1.50	0.30	7.50	5.00	2.00	2.00	165.1x5.40	139.7x4.50	114.3x3.65	164	6000(612)	4270(435)	2130(217)	2410(245)	2910(297)	1540(157)



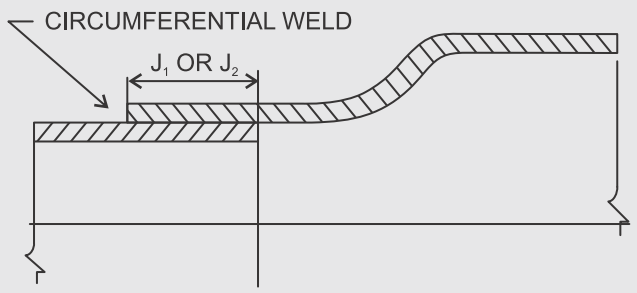
Weight: (-) 5% on lot basis & (-) 7.5% on individual Pole

Straightness: The finished pole shall not out of straightness by more than 1/600 of 1st length

SWAGED TYPE STEEL TUBULAR POLES AS PER IS:2713 (PART II)-1980-410 SP-MPA

Designation	Overall Length	Planting Depth	Load Applied from Top at a Distance of	Height above ground H	Length of Sections			Outside Diameter and Thickness of Sections			Approx Weight of Pole	Breaking Load	Crippling Load	Working Load		Load for Permanent Set not Exceeding 13mm	Load for Temporary Deflection of 157.5mm
					Bottom h3	Middle h2	Top h1	Bottom h3	Middle h2	Top h1				Col 14 2	Col 13 2.5		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(mm)	(mm)	(mm)	(Kg)	(Kg)	N (Kg)	N (Kg)	N (Kg)	N (Kg)	N (Kg)
410-SP-34	9.50	1.80	0.60	7.70	5.00	2.25	2.25	139.7x4.50	114.3x4.50	89.9X3.25	122	3630(370)	2580(263)	1280(131)	1450(148)	1760(180)	745(76)
410-SP-35	9.50	1.80	0.60	7.70	5.00	2.25	2.25	139.7x4.85	114.3x4.50	89.9X3.25	129	3880(396)	2760(281)	1390(142)	1550(158)	1880(192)	784(80)
410-SP-36	9.50	1.80	0.60	7.70	5.00	2.25	2.25	139.7x5.40	114.3x4.50	89.9X3.25	137	4280(436)	3040(310)	1520(155)	1710(174)	2080(212)	833(85)
410-SP-37	9.50	1.80	0.60	7.70	5.00	2.25	2.25	165.1x4.50	139.7x4.50	114.3x3.65	153	5150(525)	3660(373)	1820(186)	2060(210)	2500(255)	1300(133)
410-SP-38	9.50	1.80	0.60	7.70	5.00	2.25	2.25	165.1x4.85	139.7x4.50	114.3x3.65	160	5510(562)	3910(399)	1960(200)	2210(225)	2680(273)	1370(140)
410-SP-39	9.50	1.80	0.60	7.70	5.00	2.25	2.25	165.1x5.40	139.7x4.50	114.3x3.65	170	6090(621)	4320(441)	2160(220)	2430(248)	2960(302)	1480(151)
410-SP-40	10.00	1.80	0.60	8.20	5.20	2.40	2.40	139.7x4.50	114.3x4.50	89.9X3.25	128	3390(346)	2410(246)	1210(123)	1350(138)	1650(168)	608(62)
410-SP-41	10.00	1.80	0.60	8.20	5.20	2.40	2.40	139.7x4.85	114.3x4.50	89.9X3.25	135	3630(370)	2580(263)	1280(131)	1450(148)	1760(180)	637(65)
410-SP-42	10.00	1.80	0.60	8.20	5.20	2.40	2.40	139.7x5.40	114.3x4.50	89.9X3.25	144	3990(407)	2830(289)	1410(144)	1600(163)	1940(198)	677(69)
410-SP-43	10.00	1.80	0.60	8.20	5.20	2.40	2.40	165.1x4.50	139.7x4.50	114.3x3.65	160	4810(490)	3410(348)	1710(174)	1920(196)	2330(238)	1060(108)
410-SP-44	10.00	1.80	0.60	8.20	5.20	2.40	2.40	165.1x4.85	139.7x4.50	114.3x3.65	168	5150(525)	3660(373)	1820(186)	2060(210)	2500(255)	1120(114)
410-SP-45	10.00	1.80	0.60	8.20	5.20	2.40	2.40	165.1x5.40	139.7x4.50	114.3x3.65	178	5690(580)	4040(412)	2020(206)	2280(232)	2760(282)	1200(122)
410-SP-46	10.00	1.80	0.60	8.20	5.20	2.40	2.40	193.7x4.85	165.1x4.50	139.7x4.50	208	7210(735)	5120(522)	2560(261)	2880(294)	3500(357)	1850(189)
410-SP-47	10.00	1.80	0.60	8.20	5.20	2.40	2.40	193.7x5.40	165.1x4.50	139.7x4.50	221	7910(807)	5620(573)	2800(286)	3170(323)	3840(392)	1990(203)
410-SP-48	10.00	1.80	0.60	8.20	5.20	2.40	2.40	193.7x5.90	165.1x4.50	139.7x4.50	233	8620(879)	6120(624)	3060(312)	3450(352)	4190(427)	2110(215)
410-SP-49	11.00	1.80	0.60	9.20	5.60	2.70	2.70	139.7x4.50	114.3x4.50	89.9X3.25	140	3000(306)	2130(217)	1070(109)	1200(122)	1460(149)	412(42)
410-SP-50	11.00	1.80	0.60	9.20	5.60	2.70	2.70	139.7x4.85	114.3x4.50	89.9X3.25	147	3210(327)	2280(232)	1140(116)	1280(131)	1560(159)	431(44)
410-SP-51	11.00	1.80	0.60	9.20	5.60	2.70	2.70	139.7x5.40	114.3x4.50	89.9X3.25	164	3530(360)	2510(256)	1260(128)	1410(144)	1720(175)	480(49)
410-SP-52	11.00	1.80	0.60	9.20	5.60	2.70	2.70	165.1x4.50	139.7x4.50	114.3x3.65	175	4250(433)	3010(307)	1510(154)	1700(173)	2060(210)	726(74)
410-SP-53	11.00	1.80	0.60	9.20	5.60	2.70	2.70	165.1x4.85	139.7x4.50	114.3x3.65	183	4550(464)	3230(329)	1620(165)	1820(186)	2220(226)	765(78)
410-SP-54	11.00	1.80	0.60	9.20	5.60	2.70	2.70	165.1x5.40	139.7x4.50	114.3x3.65	194	5030(513)	3570(364)	1780(182)	2010(205)	2440(249)	814(83)
410-SP-55	11.00	1.80	0.60	9.20	5.60	2.70	2.70	193.7x4.85	165.1x4.50	139.7x4.50	227	6370(650)	4530(462)	2260(231)	2550(260)	3100(316)	1270(130)
410-SP-56	11.00	1.80	0.60	9.20	5.60	2.70	2.70	193.7x5.40	165.1x4.85	139.7x4.50	241	6990(713)	4820(502)	2480(253)	2790(285)	3400(347)	1370(140)
410-SP-57	11.00	1.80	0.60	9.20	5.60	2.70	2.70	193.7x5.90	165.1x4.85	139.7x4.50	256	7620(777)	5410(552)	2710(276)	3050(311)	3710(378)	1470(150)
410-SP-58	12.00	2.00	0.60	10.00	5.80	3.10	3.10	165.1x4.50	139.7x4.50	114.3x3.65	286	3880(396)	2760(281)	1380(141)	1550(158)	1880(192)	539(55)
410-SP-59	12.00	2.00	0.60	10.00	5.80	3.10	3.10	165.1x4.85	139.7x4.50	114.3x3.65	297	4160(424)	2950(301)	1480(151)	1670(170)	2020(206)	569(58)
410-SP-60	12.00	2.00	0.60	10.00	5.80	3.10	3.10	165.1x5.40	139.7x4.50	114.3x3.65	208	4600(469)	3270(333)	1630(166)	1840(188)	2240(228)	598(61)
410-SP-61	12.00	2.00	0.60	10.00	5.80	3.10	3.10	193.7x4.85	165.1x4.50	139.7x4.50	245	5820(594)	4140(422)	2070(211)	2330(238)	2830(289)	951(97)
410-SP-62	12.00	2.00	0.60	10.00	5.80	3.10	3.10	193.7x5.40	165.1x4.85	139.7x4.50	259	6390(652)	4540(463)	2270(231)	2560(261)	3110(317)	1010(103)
410-SP-63	12.00	2.00	0.60	10.00	5.80	3.10	3.10	193.7x5.90	165.1x4.85	139.7x4.50	277	6960(710)	4940(504)	2470(252)	2709(284)	3390(345)	1090(111)
410-SP-64	12.00	2.00	0.60	10.00	5.80	3.10	3.10	219.1x4.85	193.7x4.85	165.1x4.50	292	7490(764)	5320(542)	2660(271)	3000(306)	3640(371)	1460(140)
410-SP-65	12.00	2.00	0.60	10.00	5.80	3.10	3.10	219.1x5.40	193.7x4.85	165.1x4.50	313	8530(871)	6060(618)	3030(309)	3410(348)	4150(423)	1610(164)
410-SP-66	12.00	2.00	0.60	10.00	5.80	3.10	3.10	219.1x5.90	193.7x4.85	165.1x4.50	322	8980(916)	6370(560)	3190(325)	3590(366)	4360(445)	1660(169)

JINDAL-HISSAR MANUFACTURES POLES AS PER IS 2713 SIZE 410-SP-01 TO 410-SP-66, LICENCE NO CM/L 9908606



Outside Diameter of Smaller Tube in Joint	Length of Joint (J1 or J2)
mm	mm
76.1	200
88.9	230
114.3	300
139.7	350
165.1	400
193.7	450

Tolerances: Thickness Tolerance up to +/- 10%

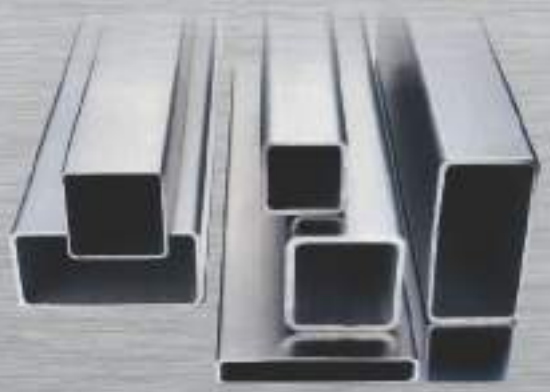
Length: of any section +/- 40mm overall length of pole +/- 25 mm

DIMENSIONS AND PROPERTIES OF SQUARE SECTIONS (SHS) AS PER IS:4923-2017

Width (mm)	Depth (mm)	Thickness (mm)	Area (cm^2)	Weight (Kg/Mtr)	Moment of inertia (cm^4)		Radius of Gyration (cm)		Radius of Gyration (cm^3)		Radius of Gyration (cm^3)	
					Ix	*Iy*	*Rx*	*Ry*	*Zx*	*Zy*	*Sx*	*Sy*
50	25	2.00	2.74	2.15	8.38	2.81	1.75	1.01	3.35	2.25	4.26	2.62
50	25	2.60	3.46	2.71	10.16	3.36	1.71	0.99	4.06	2.69	5.26	3.21
50	25	3.20	4.13	3.24	11.63	3.80	1.68	0.96	4.65	3.04	6.14	3.73
50	25	4.00	4.95	3.88	13.13	4.23	1.63	0.92	5.25	3.38	7.13	4.29
60	40	2.60	4.76	3.73	22.76	12.09	2.19	1.59	7.59	6.05	9.36	7.07
60	40	2.90	5.25	4.12	24.74	13.11	2.17	1.58	8.25	6.56	10.25	7.73
60	40	3.60	6.35	4.98	28.90	15.23	2.13	1.55	9.63	7.62	12.16	9.15
60	40	4.50	7.67	6.02	33.30	17.43	2.08	1.51	11.10	8.72	14.32	10.75
66	33	2.60	4.70	3.69	25.15	8.43	2.31	1.34	7.62	5.11	9.68	5.94
66	33	2.90	5.19	4.07	27.33	9.12	2.29	1.33	8.28	5.53	10.59	6.49
66	33	3.60	6.28	4.93	31.87	10.52	2.25	1.29	9.66	6.37	12.56	7.66
66	33	4.50	7.58	5.95	36.64	11.93	2.20	1.25	11.10	7.23	14.77	8.94
80	40	2.60	5.80	4.55	46.58	15.73	2.84	1.65	11.64	7.87	14.63	9.01
80	40	2.90	6.41	5.03	50.87	17.11	2.82	1.63	12.72	8.56	16.07	9.88
80	40	3.20	7.01	5.50	54.94	18.41	2.80	1.62	13.74	9.21	17.46	10.72
80	40	4.00	8.55	6.71	64.79	21.49	2.75	1.59	16.20	10.74	20.91	12.77
96	48	3.20	8.54	6.71	98.61	33.28	3.40	1.97	20.54	13.87	25.85	15.91
96	48	4.00	10.47	8.22	117.54	39.32	3.35	1.94	24.49	16.30	31.21	19.14
96	48	4.80	12.31	9.66	134.35	44.55	3.30	1.90	27.99	18.56	36.13	22.08
100	50	3.20	8.93	7.01	112.29	37.95	3.55	2.06	22.46	15.18	28.20	17.37
100	50	3.60	9.95	7.81	123.50	41.56	3.52	2.04	24.70	16.63	31.20	19.19
100	50	4.50	12.17	9.55	146.59	48.87	3.47	2.00	29.32	19.55	37.55	23.00
100	50	5.40	14.28	11.21	166.80	55.09	3.42	1.96	33.36	22.04	43.34	26.43
120	60	3.20	10.85	8.51	199.87	67.94	4.29	2.50	33.31	22.65	41.50	25.63
120	60	3.60	12.11	9.50	220.73	74.76	4.27	2.48	36.79	24.92	46.06	28.40
120	60	4.50	14.87	11.67	264.49	88.87	4.22	2.44	44.08	29.62	55.82	34.30
122	61	3.60	12.32	9.67	232.61	78.83	4.34	2.35	38.13	25.84	47.71	29.42
122	61	4.50	15.14	11.88	278.94	93.78	4.29	2.49	45.72	30.75	57.85	35.56
122	61	5.40	17.85	14.01	320.83	107.03	4.24	2.45	52.60	35.09	67.29	41.22
145	82	4.80	20.28	15.92	555.16	228.50	5.23	3.36	76.57	55.73	94.93	63.93
145	82	5.40	22.60	17.74	610.85	250.59	5.20	3.33	84.26	61.12	105.07	70.66
172	92	4.80	23.83	18.70	917.13	346.91	6.20	3.82	106.64	75.41	132.08	85.61
172	92	5.40	26.59	20.88	1012.47	381.74	6.17	3.79	117.73	82.99	146.55	94.86
200	100	4.00	22.95	18.01	1199.64	410.76	7.23	4.23	119.96	82.15	148.03	91.70
200	100	5.00	28.36	22.26	1459.16	496.92	7.17	4.19	145.92	99.38	181.36	112.09
200	100	6.00	33.63	26.40	1703.17	576.89	7.12	4.14	170.32	115.38	213.25	131.49

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 SECTIONS (RHS) AS PER IS:4923-2017

Width (mm)	Depth (mm)	Thickness (mm)	Area (cm^2)	Weight (Kg/Mtr)	moment of inertia (cm^4)	Radius of Gyration (cm)	Elastic module (cm^3)	Plastic module (cm^3)
25	25	1.6	1.43	1.12	1.28	0.94	1.02	1.24
25	25	2.0	1.74	1.36	1.48	0.92	1.19	1.47
25	25	2.6	2.16	1.69	1.72	0.89	1.38	1.76
25	25	3.2	2.53	1.98	1.89	0.86	1.51	1.98
32	32	2.0	2.3	1.80	3.36	1.21	2.10	2.54
32	32	2.6	2.88	2.26	4.02	1.18	2.51	3.11
32	32	3.2	3.42	2.69	4.54	1.15	2.83	3.59
32	32	4.0	4.07	3.19	5.02	1.11	3.14	4.11
38	38	2.0	2.78	2.18	5.88	1.46	3.10	3.70
38	38	2.6	3.51	2.75	7.13	1.43	3.76	4.57
38	38	3.2	4.19	3.29	8.18	1.40	4.30	5.34
38	38	4.0	5.03	3.95	9.26	1.36	4.87	6.22
40	40	2.6	3.72	2.92	8.45	1.51	4.22	5.12
40	40	2.9	4.09	3.21	9.11	1.49	4.56	5.58
40	40	3.2	4.45	3.49	9.72	1.48	4.86	6.00
40	40	4.0	5.35	4.20	11.07	1.44	5.54	7.01
49.5	49.5	2.6	4.70	3.69	16.91	1.90	6.83	8.16
49.5	49.5	2.9	5.19	4.07	18.37	1.88	7.42	8.93
49.5	49.5	3.2	5.66	4.44	19.74	1.87	7.97	9.67
49.5	49.5	4.0	6.87	5.39	22.94	1.83	9.27	11.46
60	60	2.6	5.80	4.55	31.33	2.33	10.44	12.34
60	60	2.9	6.41	5.03	34.21	2.31	11.40	13.56
60	60	3.2	7.01	5.50	36.94	2.30	12.31	14.73
60	60	4.0	8.55	6.71	43.55	2.26	14.52	17.64
60	60	4.5	9.47	7.43	47.20	2.23	15.73	19.31
72	72	3.2	8.54	6.71	66.32	2.79	18.42	21.80
72	72	4.0	10.47	8.22	79.02	2.75	21.95	26.32
72	72	4.8	12.31	9.66	90.30	2.71	25.08	30.48
80	80	3.2	9.57	7.51	92.71	3.11	23.18	27.29
80	80	4.0	11.75	9.22	111.04	3.07	27.76	33.07
80	80	4.9	14.10	11.07	129.51	3.03	32.38	39.09
91.5	91.5	3.6	12.32	9.67	156.48	3.56	34.20	40.24
91.5	91.5	4.5	15.14	11.88	187.56	3.52	41.00	48.79
91.5	91.5	5.4	17.85	14.01	215.66	3.48	47.14	56.76
100	100	4.0	14.95	11.73	226.34	3.89	45.27	53.30
100	100	5.0	18.36	14.41	271.08	3.84	54.22	64.59
100	100	6.0	21.63	16.98	311.45	3.79	62.29	75.09
113.5	113.5	4.5	19.10	14.99	372.86	4.42	65.70	77.32
113.5	113.5	4.8	20.28	15.92	393.28	4.40	69.30	81.81
113.5	113.5	5.4	22.60	17.74	432.55	4.38	76.22	90.54
113.5	113.5	6.0	24.87	19.52	469.78	4.35	82.78	98.95
132	132	4.8	23.83	18.70	634.36	5.16	96.11	112.68
132	132	5.4	26.59	20.88	700.07	5.13	106.07	125.01
132	132	6.0	29.31	23.01	762.93	5.10	115.60	136.97
150	150	4.0	22.95	18.01	807.78	5.93	107.70	124.86
150	150	5.0	28.36	22.26	982.07	5.89	130.94	152.97
150	150	6.0	33.63	26.40	1145.84	5.84	152.78	179.87
150	150	7.0	38.78	30.44	1299.36	5.79	173.25	205.57
150	150	8.0	43.79	34.37	1442.89	5.74	192.39	230.09
220	220	4.0	34.15	26.81	2639.06	8.79	239.91	275.46
220	220	5.0	42.36	33.25	3237.9	8.74	294.35	339.72
220	220	6.0	50.43	39.59	3813.19	8.7	346.65	402.16
220	220	7.0	58.38	45.83	4365.33	8.65	396.85	462.81

Technical Data Sheet- Pipe to API 5L 46th Edition / IS/ISO:3183-2019

Out Side Diameter Tolerance	Body	Specified OD	+ 0.0075D (0.75%)
	End	From 88.9 mm OD to 168.3 mm OD	Specified OD +1.60 mm, -0.40 mm
		From 219.1 mm OD mm to 323.9 mm OD	Specified OD +0.005D (+0.5%)
Thickness Tolerances		For thickness < 5.00 mm	+0 .5 mm
		For thickness >5.00 mm to 15 mm	+10%
Weight Tolerances		Special PE pipes (Single Tube)	+10%, - 5%
		For other pipes (Single Tube)	+10% - 3.5%
		Lot of 20 Ton	-1.75%

PHYSICAL PROPERTIES

Grade	PSL-1		PSL-2				Minimum % of Elongation (For PSL-1 & PSL-2)
	Yield Stress (Mpa)	Tensile Strength (Mpa)	Yield Stress (Mpa)		Tensile Strength (Mpa)		
	Min.	Max.	Min.	Max.	Min.	Max.	
L210/A	210	335					As per Table 6 (c) & 7 (f) of API 5L
L245/B	245	415	245	450	415	655	
L290/X42	290	415	290	495	415	655	
L320/X46	320	435	320	525	435	655	
L360/X52	360	460	360	530	460	760	
L390/X56	390	490	390	545	490	760	
L415/X60	415	520	415	565	520	760	
L450/X65	450	535	450	600	535	760	
L485/X70	485	570	485	635	570	760	

Chemical Properties

Grade	Specified Requirements (%)													
	PSL-1					PSL-2								
	C	Mn	P	S	Others	C	Mn	P	S	Si	V	Nb	Ti	Others
L210/A	0.22	0.90	0.03	0.03		-	-	-	-	-				
L245/B	0.26	1.20	0.03	0.03		0.22	1.20	0.025	0.015	0.45				
L290/X42	0.26	1.30	0.03	0.03		0.22	1.30	0.025	0.015	0.45				
L320/X46	0.26	1.40	0.03	0.03	Nb+V < 0.06%	0.22	1.30	0.025	0.015	0.45	As per Table 5 foot notes			
L360/X52	0.26	1.40	0.03	0.03	Nb+V+Ti < 0.15 % of API 5L	0.22	1.40	0.025	0.015	0.45	d, e, g, h and l of API 5L			
L390/X56	0.26	1.40	0.03	0.03		0.22	1.40	0.025	0.015	0.45				
L415/X60	0.26	1.40	0.03	0.03		0.12	1.60	0.025	0.015	0.45				
L450/X65	0.26	1.45	0.03	0.03		0.12	1.60	0.025	0.015	0.45				
L485/X70	0.26	1.65	0.03	0.03		0.12	1.70	0.025	0.015	0.45				

JINDAL-HISSAR MANUFACTURES PIPE AS PER API 5L SIZE 80mm NB to 300mm NB, API 5L LICENCE NO. 5L-1163
JINDAL-HISSAR MANUFACTURES PIPE AS PER IS/ISO 3183 SIZE 80mm NB to 300mm NB, IS/ISO 3183 LICENCE NO CM/L 9586509

Technical Data Sheet- Pipe to API 5L 46th Edition / IS/ISO:3183-2019

Size (OD) (mm)	Thk (mm)	Hydro Testing Test Pressure (In Kgs)								
		Grades								
		A	B	X42	X46	X52	X56	X60	X65	X70
88.9	4.00	115.7	134.9	159.7	176.2	198.3	214.8	228.6	247.8	267.1
88.9	4.40	127.2	148.4	175.7	193.9	218.1	236.3	251.4	272.6	293.8
88.9	4.80	138.8	161.9	191.7	211.5	237.9	257.7	274.3	297.4	320.5
88.9	5.50	159.0	185.5	219.6	242.3	272.6	295.3	314.3	340.8	367.3
88.9	6.40	185.0	215.9	255.5	282.0	317.2	343.7	365.7	396.5	427.4
88.9	7.10	205.3	239.5	283.5	312.8	351.9	381.2	405.7	439.9	474.1
88.9	7.60	219.7	256.4	303.5	334.8	376.7	408.1	434.3	470.9	507.5
114.3	4.00	90.0	104.9	124.2	137.1	154.2	167.1	177.8	192.8	207.7
114.3	4.40	98.9	115.4	136.6	150.8	169.6	183.8	195.5	212.0	228.5
114.3	4.80	107.9	125.9	149.1	164.5	185.0	200.5	213.3	231.3	249.3
114.3	5.20	116.9	136.4	161.5	178.2	200.5	217.2	231.1	250.6	270.1
114.3	5.60	125.9	146.9	173.9	191.9	215.9	233.9	248.9	269.9	290.8
114.3	6.00	134.9	157.4	186.3	205.6	231.3	250.6	266.6	289.1	311.6
114.3	6.40	143.9	167.9	198.8	219.3	246.7	267.3	284.4	308.4	332.4
114.3	7.10	159.7	186.3	220.5	243.3	273.7	296.5	315.5	342.1	368.8
114.3	7.90	177.7	207.3	245.3	270.7	304.6	329.9	351.1	380.7	410.3
114.3	8.60	193.4	225.6	267.1	294.7	331.5	359.2	382.2	414.4	446.7
141.3	4.00	72.8	84.9	100.5	110.9	124.7	135.1	143.8	155.9	168.1
141.3	4.80	87.3	101.9	120.6	133.1	149.7	162.2	172.6	187.1	201.7
141.3	5.60	101.9	118.8	140.7	155.2	174.6	189.2	201.3	218.3	235.3
141.3	6.60	120.1	140.1	165.8	183.0	205.8	223.0	237.3	257.3	277.3
141.3	7.10	129.2	150.7	178.4	196.8	221.4	239.9	255.2	276.8	298.3
141.3	7.90	143.7	167.7	198.5	219.0	246.4	266.9	284.0	307.9	331.9
141.3	8.70	158.3	184.6	218.6	241.2	271.3	293.9	312.8	339.1	365.5
141.3	9.50	172.8	201.6	238.6	263.3	296.3	320.9	341.5	370.3	399.1
168.3	4.00	61.1	71.3	105.5	116.4	130.9	141.8	150.9	163.6	176.4
168.3	4.40	67.2	78.4	116.0	128.0	144.0	156.0	166.0	180.0	194.0
168.3	4.80	73.3	85.5	126.5	139.6	157.1	170.2	181.1	196.4	211.6
168.3	5.20	79.4	92.7	137.1	151.3	170.2	184.4	196.2	212.7	229.3
168.3	5.60	85.5	99.8	147.6	162.9	183.3	198.5	211.3	229.1	246.9
168.3	6.40	97.7	114.0	168.7	186.2	209.5	226.9	241.5	261.8	282.2
168.3	7.10	108.4	126.5	187.2	206.5	232.4	251.7	267.9	290.5	313.0

Size (OD) (mm)	Thk (mm)	Hydro Testing Test Pressure (In Kgs)								
		Grades								
		A	B	X42	X46	X52	X56	X60	X65	X70
168.3	7.90	120.7	140.8	208.3	229.8	258.5	280.1	298.0	323.2	348.3
168.3	8.70	132.9	155.0	229.4	253.1	284.7	308.5	328.2	355.9	383.6
168.3	9.50	145.1	169.3	250.5	276.4	310.9	336.8	358.4	388.6	418.9
219.1	4.00	46.9	54.7	81.0	89.4	100.6	108.9	115.9	125.7	135.5
219.1	4.80	56.3	65.7	97.2	107.3	120.7	130.7	139.1	150.8	162.6
219.1	5.20	61.0	71.2	105.3	116.2	130.7	141.6	150.7	163.4	176.1
219.1	5.60	65.7	76.6	113.4	125.1	140.8	152.5	162.3	176.0	189.7
219.1	6.40	75.1	87.6	129.6	143.0	160.9	174.3	185.5	201.1	216.8
219.1	7.00	82.1	95.8	141.8	156.4	176.0	190.6	202.9	220.0	237.1
219.1	7.90	92.7	108.1	160.0	176.5	198.6	215.1	228.9	248.2	267.6
219.1	8.20	96.2	112.2	166.1	183.2	206.1	223.3	237.6	257.7	277.7
219.1	8.70	102.1	119.1	176.2	194.4	218.7	236.9	252.1	273.4	294.7
219.1	9.50	111.5	130.0	192.4	212.3	238.8	258.7	275.3	298.5	321.7
273.1	4.00	37.6	43.9	73.7	81.3	91.4	99.0	105.4	114.3	123.2
273.1	4.80	45.2	52.7	88.4	97.5	109.7	118.9	126.5	137.1	147.8
273.1	5.20	48.9	57.1	95.7	105.7	118.9	128.8	137.0	148.6	160.1
273.1	5.60	52.7	61.5	103.1	113.8	128.0	138.7	147.6	160.0	172.4
273.1	6.40	60.2	70.3	117.8	130.0	146.3	158.5	168.6	182.9	197.1
273.1	7.10	66.8	78.0	130.7	144.3	162.3	175.8	187.1	202.9	218.6
273.1	7.80	73.4	85.6	143.6	158.5	178.3	193.1	205.5	222.9	240.2
273.1	8.70	81.9	95.5	160.2	176.8	198.9	215.4	229.2	248.6	267.9
273.1	9.30	87.5	102.1	171.2	189.0	212.6	230.3	245.1	265.7	286.4
323.9	4.40	34.9	40.7	68.3	75.4	84.8	91.9	97.8	106.0	114.2
323.9	4.80	38.1	44.4	74.5	82.2	92.5	100.2	106.6	115.6	124.6
323.9	5.20	41.3	48.1	80.7	89.1	100.2	108.6	115.5	125.3	135.0
323.9	5.60	44.4	51.8	86.9	95.9	107.9	116.9	124.4	134.9	145.4
323.9	6.40	50.8	59.3	99.4	109.6	123.3	133.6	142.2	154.2	166.2
323.9	7.10	56.3	65.7	110.2	121.6	136.8	148.2	157.7	171.0	184.3
323.9	7.90	62.7	73.1	122.6	135.3	152.3	164.9	175.5	190.3	205.1
323.9	8.40	66.7	77.8	130.4	143.9	161.9	175.4	186.6	202.4	218.1
323.9	8.70	69.0	80.5	135.1	149.0	167.7	181.6	193.3	209.6	225.9
323.9	9.50	75.4	88.0	147.5	162.7	183.1	198.3	211.1	228.9	246.7

Technical Specification of Pipes conforming to ASTM A53 Grade A & B

NPS Designator in inch	DN Designator in mm	Size (OD) im mm	Schedule	Thickness (mm)	Mass of Plain end Pipe (Kg/mtr)	Hydro Test Pressure (MPa)	
						Grade A	Grade B
½	15	21.3	40	2.77	1.27	4.8	4.8
	20	26.7	40	2.87	1.69	4.8	4.8
1	25	33.4	40	3.38	2.50	4.8	4.8
1	32	42.2	40	3.56	3.39	8.3	9
1 ½	40	48.3	40	3.68	4.05	8.3	9
2	50	60.3	40	3.91	5.44	15.9	17.2
2 ½	65	73.0	40	5.16	8.63	17.2	17.2
3	80	88.9	40	5.49	11.29	15.3	17.2
3 ½	90	101.6	40	5.74	13.57	14.0	16.3
4	100	114.3	40	6.02	16.07	13.1	15.2
5	125	141.3	40	6.55	21.77	11.5	13.4
6	150	168.3	40	7.11	28.26	10.5	12.3
8	200	219.1	40	8.18	42.55	9.2	10.8
10	250	273.1	20	6.35	41.75	5.8	6.8
10	250	273.1	40	9.27	60.29	8.4	9.9
12	300	323.9	20	6.35	49.71	4.9	5.7
12	300	323.9	30	8.38	65.18	6.4	7.5
12	300	323.9	STD	9.52	73.78	7.3	8.5
12	300	323.9	40	10.31	79.7	7.9	9.2

Tolerances

Outside diameter :
Pipe size upto and including DN40 ±0.4mm
Pipe size DN 50 or larger ± 1 %
Thickness : - 12.5 %
Weight : ± 10 %

Galvanizing (as per ASTM A-90)

Mass of Zn coating (Min.):
490 g/m2 (70 µ app.)
Mass of Zinc coating (Avg.):
550 g/m2 (79 µ app.)

Mechanical Properties

	Grade A	Grade B
Y.S (Mpa) Min. -	205	240
T.S. (Mpa)Min. -	330	415
Elong.(%)Min. -	As per ASTM A53	

Chemical Properties (Max %)

Grade	C%	Mn%	P%	S%	Cu%	Ni%	Cr%	Mo%	V%
A	0.25	0.95	0.05	0.045	0.5	0.4	0.4	0.15	0.08
B	0.30	1.20	0.05	0.045	0.5	0.4	0.4	0.15	0.08

JINDAL-HISSAR MANUFACTURES PIPE AS PER ASTM A53 SIZE ½" to 12", BOTH BLACK & GI, UL LISTED LICENCE NO. 3PPPA

Technical Specification of Pipes conforming to BS EN 10255

Specified OD (mm)	Designation of Thread	H Heavy Series					Medium Heavy Series					Light Series					L1 Series					L2 Series				
		Outside Diameter (mm)		Thickness (mm)	Mass per unit length of bare pipe (kg/Mtr.)		Outside Diameter (mm)		Thickness (mm)	Mass per unit length of bare pipe (kg/Mtr.)		Outside Diameter (mm)		Thickness (mm)	Mass per unit length of bare pipe (kg/Mtr.)		Outside Diameter (mm)		Thickness (mm)	Mass per unit length of bare pipe (kg/Mtr.)		Outside Diameter (mm)		Thickness (mm)	Mass per unit length of bare pipe (kg/Mtr.)	
		Max.	Min.		Plain End	Threaded & socketed	Max.	Min.		Plain End	Threaded & socketed	Max.	Min.		Plain End	Threaded & socketed	Max.	Min.		Plain End	Threaded & socketed	Max.	Min.		Plain End	Threaded & socketed
21.3	½	21.8	21.0	3.2	1.44	1.45	21.8	21.0	2.6	1.21	1.22	21.7	21.0	2.3	1.08	1.09	21.7	21.0	2.3	1.08	1.09	21.4	21.0	2.0	0.947	0.956
26.9		27.3	26.5	3.2	1.87	1.88	27.3	26.5	2.6	1.56	1.57	27.1	26.4	2.3	1.40	1.41	27.1	26.4	2.3	1.39	1.40	26.9	26.4	2.3	1.38	1.39
33.7	1	34.2	33.3	4.0	2.93	2.95	34.2	33.3	3.2	2.41	2.43	34.0	33.3	2.9	2.20	2.22	34.0	33.2	2.9	2.20	2.22	33.8	33.2	2.6	1.98	2.00
42.4	1	42.9	42.0	4.0	3.79	3.82	42.9	42.0	3.2	3.10	3.13	42.7	41.9	2.9	2.82	2.85	42.7	41.9	2.9	2.82	2.85	42.5	41.9	2.6	2.54	2.57
48.3	1½	48.8	47.9	4.0	4.37	4.41	48.8	47.9	3.2	3.56	3.60	48.6	47.8	2.9	3.25	3.29	48.6	47.8	2.9	3.24	3.28	48.4	47.8	2.9	3.23	3.27
60.3	2	60.8	59.7	4.5	6.19	6.26	60.8	59.7	3.6	5.03	5.10	60.7	59.6	3.2	4.51	4.58	60.7	59.6	3.2	4.49	4.56	60.2	59.6	2.9	4.08	4.15
76.1	2 ½	76.6	75.3	4.5	7.93	8.05	76.6	75.3	3.6	6.42	6.54	76.0	75.2	3.2	5.75	5.87	76.3	75.2	3.2	5.73	5.85	76.0	75.2	3.2	5.71	5.83
88.9	3	89.5	88.0	5.0	10.3	10.5	89.5	88.0	4.0	8.36	8.53	88.7	87.9	3.2	6.76	6.93	89.4	87.9	3.6	7.55	7.72	88.7	87.9	3.2	6.72	6.89
101.6	3 ½	-	-	-	-	-	-	-	-	-	-	101.2	100.3	3.6	8.70	8.88	-	-	-	-	-	-	-	-	-	-
114.3	4	115.0	113.1	5.4	14.5	14.8	115.0	113.1	4.5	12.2	12.5	113.9	113.0	3.6	9.83	10.1	114.9	113.0	4.0	10.8	11.1	113.9	113.0	3.6	9.75	10.0
139.7	5	140.8	138.5	5.4	17.9	18.4	140.8	138.5	5.0	16.6	17.1	140.8	138.5	4.5	15.0	15.5	-	-	-	-	-	-	-	-	-	-
165.1	6	166.5	163.9	5.4	21.3	21.9	166.5	163.9	5.0	19.8	20.4	166.5	163.9	4.5	17.8	18.4	-	-	-	-	-	-	-	-	-	-

Tolerances

OD :- As per above table

Thickness: -
± 10% (For H, M & L Series)
± 8% (For L1 & L2 Series)

Weight:
± 7.5% (For H, M & L Series)
-8%,+10% (For L1 & L2 Series)

Chemical Properties (Max%)

Carbon : 0.20%
Manganese : 1.40%
Phosphorus : 0.035%
Sulphur : 0.030%

Mechanical Properties

Y ield Stress : 195 N/mm (Min.)
Tensile Strength : 320 to 520 N/mm
%Elongation : 20 %(Min.)

Bend Test:-
For tubes upto & including 60.3 mm OD
Bending Angle : 90
Bending radius : 3 D

Flattening Test:-
For tubes above 60.3 mm OD
1.Flatten upto 75% of OD for weld test weld at 12 of 3 O'clock.
2.Flatten upto 60% of OD for raw material test

Galvanizing Test

1. Zinc coating : 55 µ (min.)
2. Adhesion test (upto 60.3 mm OD)

JINDAL-HISSAR MANUFACTURES PIPEAS PER EN 10255 SIZE ½" to 6", BOTH BLACK & GI, 13315-2018-CE-IND-DNV

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