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Please visit us at our website www.jindalinds.com



JINDAL INDUSTRIES PVT. LIMITED

Quality make us **UNIQUE**, since its way of life for us



Trust Transparency Integrity



Our Products with compressive Range

- * Galvanized Tubes/Pipes * MS black Tubes/Pipes * Hollow Sections
- * Line Pipes (API Tubes) * Swaged Poles



Registered Office : JINDAL INDUSTRIES PVT. LIMITED, O.P. JINDAL MARG, MODEL TOWN, HISAR (HARYANA),INDIA
Ph. 01662-220781,01662-220782 Email - info@jindalinds.com

We stand ahead in quality

Product Catalogue

Our Resplendence



An Introduction

JINDAL INDUSTRIES PVT LIMITED, HISAR set up in the 1960s manufactures high quality MS Black and Galvanized pipes/tubes in the range of 15mm to 300 mm as per national and international standards. The company is fully equipped with modern manufacturing machineries, Mills, Welding plants and galvanizing plants. It has full in house maintenance work shop and testing equipments to produce the best quality steel pipes besides other infrastructural facilities.

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.

Jindal Industries Pvt. Limited manufactures hollow sections using state-of-the art manufacturing facilities in comprehensive range SHS 25 x 25 mm to 220 x 220 and RHS 50 x 25 mm to 200 x 100 mm, with our reputed brand name, BIS certification and excellent quality.

JINDAL INDUSTRIES PVT LIMITED has doubled its production and sales during last five years. It has achieved this feat by winning a higher share in a very competitive market, which is also flooded with inferior and duplicate quality pipes. Our strength lies in our all time Endeavour to provide higher and higher standards of quality and service to our worthy customers.

Jindal-HISSAR never compromise on Quality front even under the most adverse market conditions. Mainly SAIL and JSW material in Steel is being used to cater to high quality hollow sections (Square, rectangular and circular), pipes/tubes, and Steel Tubular Poles. Our hollow sections, pipes are engraved with ISI mark and trade mark 'Jindal' with

the device of the map of India in oval shape and word 'HISSAR' underneath, which has become synonymous with high quality. Each hollow sections, pipe/tube manufactured by JINDAL INDUSTRIES PVT LIMITED is a testimony to our commitment to Quality, and service.

JINDAL INDUSTRIES PVT LIMITED is a prestigious company of JINDALS, who have proved their unerring might in steel sector, having unstinted record of four decades' service to the nation.

Steel Hollow Sections (Square, Rectangular and Circular) for Structural Purpose

Building on a long standing tradition of quality steel pipes and tubes, we manufacture steel Hollow sections and supply 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 sections minimizes corrosion and facilitates easy, onsite fabrication to significantly enhance the aesthetics of structures. A higher strength to weight ratio credits these sections with nearly 20% reduction in the use of steel.



Accreditation & Inspection agencies

Accreditation



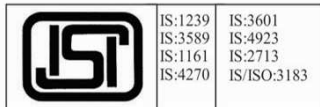
ISO 9001 :2008



OHSAS 18001:2008



ISO 14001 :2004



API 5L

Inspection Agencies



Product Range

- Black Pipes - ½”(15mm NB) to 12”(300mmNB) to various National & International Standards
- Galvanised Pipes - ½”(15mm NB) to 12”(300mmNB) to various National & International Standards
- API(Line Pipes) - 80mm to 300mm API Pipes upto Grade X 70
- 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 - For Ordinary use in Water, Gas & Air Lines
- ii) IS:3589 - Grade Fe330 & 410 for Water, Gas & Sewerage Purpose
- iii) IS:4270 - Grade Fe 410, Steel Tubes for Water Wells(Casing Pipes)
- iv) IS:1161 - Grade YST 210, 240 & 310 for Structural Purpose
- v) IS:3601 - Steel Tubes for Mechanical & General Engineering
- vi) IS:9295 - For Idlers & Conveyors
- vii) IS/ISO3183- Grade YST 210 & 240 for use in Oil & Natural Gas Industries

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 UL Certification
 - ii) ASTM A120 – For Ordinary use in Agriculture & Air Lines
 - iii) ASTM A 795 – For Fire Protection use with UL Certification
 - iv) ASTM A 500 – Structural Tubes Round, Square & Rectangular shape
 - v) API 5L – For Oil & Gas Conveying at High Pressure
- 3) EUROPEAN
 - i) EN 10224 – For use in Water, Gas & Air Flow
 - ii) EN10255 – 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
- Automatic Ultrasonic Testing M/c
- Galvanising Lines
- Varnishing Lines
- Threading M/c
- Power Plant

APPLICATION

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

GALVANISED & BLACK Pipes for Water, Gas & Air

TECHNICAL DATA OF BLACK & GALVANISED PIPES
SPECIFICATION IS:1239(PART-1):2004 - DIN 2439, DIN 2440, DIN 2441
(EQUIVALENT BS:1387:1985/EN-10255:2004*/EN 10240 : 1998/ DIN2444)

NB (mm)	SERIES	OUTSIDE DIAMETER		WALL THICKNESS		NOMINAL WEIGHT GALVANISED & BLACK TUBES				SOCKETS		Tolerances
		MIN. (mm)	MAX. (mm)	MM	SWG	PLAIN END		SCREWED & SOCKETED		OD in mm	Length in mm	
						Kg/M	Mtrs/Ton	Kg/M	Mtrs/Ton			
15	Light	21.0	21.4	2.0	14	0.95	1052	0.96	1046	27	37	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/cm ² e) End condition A) Plain End b) Bevel End C) Screwed & Socketed D) Screwed Without Socket or As Per Customer Specification
	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			

*This specification conforms to CE Mark conferred by Det Norske Veritas



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



ERW STEEL TUBES FOR WATER WELLS CONFORMING TO IS: 4270 : 2001 PLAIN END CASING PIPES

NB	OUTSIDE DIAMETER	WALL THICKNESS	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	± 10%
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.



STEEL TUBES FOR STRUCTURAL PURPOSES
TECHNICAL DATA OF BLACK & GALVANISED PIPES

SPECIFICATION IS:1161:1998

NB (mm)	SERIES	OUTSIDE DIAMETER	WALL THICKNESS	NOMINAL WEIGHT GALVANISED & BLACK TUBES		
				Kg/M	Mtrs/Ton	
		(mm)	MM			PLAIN END
15	Light	21.3	2.0	0.95	1056	
	Medium			2.6	1.21	826
	Heavy			3.2	1.44	694
20	Light	26.9	2.3	1.38	725	
	Medium			2.6	1.56	641
	Heavy			3.2	1.87	535
25	Light	33.7	2.6	1.98	505	
	Medium			3.2	2.41	415
	Heavy			4.0	2.93	341
32	Light	42.4	2.6	2.54	394	
	Medium			3.2	3.10	323
	Heavy			4.0	3.79	264
40	Light	48.3	2.9	3.23	310	
	Medium			3.2	3.56	281
	Heavy			4.0	4.37	229
50	Light	60.3	2.9	4.08	245	
	Medium			3.6	5.03	199
	Heavy			4.5	6.19	162
65	Light	76.1	3.2	5.71	175	
	Medium			3.6	6.42	156
	Heavy			4.5	7.93	126
80	Light	88.9	4.0	6.72	149	
	Medium			4.0	8.36	120
	Heavy			4.8	9.90	101
100	Light	114.3	3.6	9.75	103	
	Medium			4.5	12.20	82
	Heavy			5.4	14.50	69
110	Light	127.0	4.5	13.60	74	
	Medium			4.8	14.50	69
	Heavy			5.4	16.20	62
125	Light	139.7	4.5	15.00	67	
	Medium			4.8	15.90	63
	Heavy			5.4	17.90	56
150	Light	165.1	4.5	17.80	56	
	Medium			4.8	18.90	53
	Heavy1			5.4	21.30	47
	Heavy2			5.9	23.20	43
	Heavy3			6.3	24.70	40
150	Light	168.3	4.5	18.20	55	
	Medium			4.8	19.40	52
	Heavy1			5.4	21.70	46
	Heavy2			6.3	25.20	40
	Light			4.8	22.40	45
175	Light	193.7	5.4	25.10	40	
	Medium			5.9	27.30	37
	Heavy			4.8	25.40	39
	Light			5.6	29.50	34
	Medium			5.9	31.00	32
200	Light	219.1	8.0	41.60	24	
	Medium			10.0	51.60	19
	Heavy1			5.9	34.70	29
	Heavy2			8.0	52.30	19
	Heavy3			10.0	64.90	15
250	Light	273.0	6.3	49.30	20	
	Medium			8.0	62.30	16
	Heavy1			10.0	77.40	13
	Heavy2			8.0	62.30	16
	Heavy3			10.0	77.40	13



TOLERANCES

OUTSIDE DIAMETER	UPTO & INCLUDING 48.3MM = +0.4MM, -0.8 MM
	OVER 48.3MM = ±1%
THICKNESS	FOR ALL SIZE = +NOT LIMITED, -10%
WEIGHT	
SINGLE TUBE	10 TON LOT
LIGHT CLASS = +10%, -8%	LIGHT CLASS = ± 5%
MEDIUM & HEAVY CLASS = ± 10%	MEDIUM & HEAVY CLASS = ± 7.5%

TENSILE PROPERTIES

Grade	Y.S. (Min)		% Elongation
	MPA	MPA	
YST - 210	210	330	20
YST - 240	240	410	17
YST - 310	310	450	14

IS:10748: HOT ROLLED STEEL STRIP FOR WELDED TUBES & PIPES							
Chemical composition				Physical Properties			
GRADE	CONSTITUENT, PERCENT, MAX.				T S (MPa) Min.	Y S (MPa) Min.	% ELONG. Min at Gauge Length 5.65sSo
	C %	Mn %	S %	P %			
1	0.10	0.50	0.040	0.040	290	170	30
2	0.12	0.60	0.040	0.040	330	210	28
3	0.16	1.20	0.040	0.040	410	240	25
4	0.20	1.30	0.040	0.040	430	275	20

STEEL TUBES FOR MECHANICAL & GENERAL ENGINEERING PURPOSES
SPECIFICATION IS:3601:2006

NB (mm)	OUTSIDE DIAMETER	WALL THICKNESS	NOMINAL WEIGHT OF BLACK TUBES		NB (mm)	OUTSIDE DIAMETER	WALL THICKNESS	NOMINAL WEIGHT OF BLACK TUBES	
			PLAIN END					PLAIN END	
			MIN. (mm)	MM				Kg/M	Mtrs/Ton
15	21.3	1.8	0.866	1155	100	114.3	3.2	8.77	114
		2.0	0.952	1050			3.6	9.75	103
		2.6	1.21	826			4.5	12.20	82
		3.2	1.43	699			5.4	14.50	69
		4.0	1.71	585			6.3	16.80	60
20	26.9	1.8	1.11	901	110	127.0	4.5	13.60	74
		2.0	1.23	813			5.0	15.00	67
		2.3	1.38	725			5.4	16.20	62
		2.6	1.56	641			3.6	12.10	83
		3.2	1.87	535			4.0	13.40	75
		4.0	2.26	442			4.5	15.00	67
		2.0	1.56	641			5.0	15.90	63
25	33.7	2.3	1.78	562	125	139.7	5.4	17.90	56
		2.6	1.99	503			6.3	20.70	48
		3.2	2.41	415			4.5	17.80	56
		4.0	2.93	341			5.0	19.70	51
		2.3	2.27	441			5.4	21.20	47
32	42.4	2.6	2.54	394	150	165.1	6.3	24.80	40
		3.2	3.10	323			4.0	16.20	62
		3.6	3.44	291			4.5	18.20	55
		4.0	3.79	264			5.0	19.40	52
		2.3	2.27	441			5.4	21.70	46
		2.6	2.55	392			6.3	25.20	40
		2.9	3.23	310			7.1	28.20	35
40	48.3	3.2	3.56	281	175	193.7	5.0	23.30	43
		4.0	4.37	229			5.4	25.10	40
		2.3	3.29	304			5.9	27.30	37
		2.6	3.70	270			6.3	29.10	34
		2.9	4.08	245			4.5	23.80	42
		3.6	5.03	199			5.0	26.40	38
		4.0	5.55	180			5.6	29.50	34
50	60.3	4.5	6.19	162	200	219.1	6.3	33.10	30
		2.6	5.24	191			8.0	41.60	24
		2.9	5.75	174			5.0	33.00	30
		3.2	5.71	175			6.3	41.40	24
		3.6	6.42	156			7.1	46.60	21
		4.5	7.93	126			10.0	64.90	15
		2.9	6.15	163			5.6	44.00	23
65	76.1	3.2	6.72	149	250	273.0	7.1	55.50	18
		4.0	8.38	119			8.0	62.30	16
		5.0	10.30	97			10.0	77.40	13
		3.2	6.72	149					
		4.0	8.38	119					
80	88.9	4.0	8.36	120	300	323.9	8.0	62.30	16
		5.0	10.30	97					

TENSILE PROPERTIES

Tube Designation	T. S. (Min.) Mpa	Y.S. (Min) MPA	Elongation % age	
			<1"	>1"
WT 160	310	160	15	22
WT 210	330	210	12	20
WT 240	410	240	10	15
WT 310	450	310	6	10

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

Manufacturing Process

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

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 coils 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 needed) 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 Beveling

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.

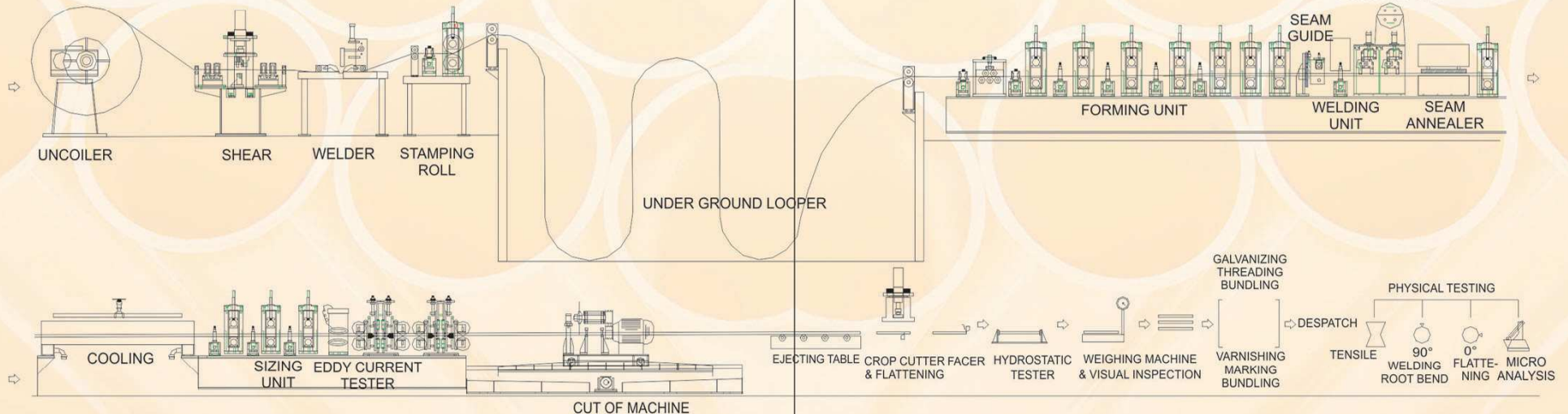
8. Packing

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 40 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	
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.	Mandrills and Fixtures	For welding root bent test.
8.	Hydraulic Press	For flattening and weld ductility test.
9.	Bending Machine	For pipe bend test.

MANUFACTURING PROCESS...



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

Designation	Over All Length (m)	Planting Depth (m)	Load Applied from Top at a Distance of (m)	Height above ground (m)	Length of Sections			Outside Diameter and Thickness of Sections			Approx. Weight of Pole (kg)	Breaking Load (kg)	Crippling Load (N/kg)	Working Load		Load for Permanent Set not Exceeding 13 mm (N/kg)	Load for Temporary Deflection of 157.5 mm (N/kg)
					Bottom h ₁ (m)	Middle h ₂ (m)	Top h ₃ (m)	Bottom h ₁ (mm)	Middle h ₂ (mm)	Top h ₃ (mm)				Col 14 2 (N/kg)	Col 13 2.5 (N/kg)		
410SP-1	7.00	1.25	0.30	5.75	4.00	1.50	1.50	114.3 x 3.65	88.9 x 3.25	76.1 x 3.25	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	114.3 x 4.50	88.9 x 4.05	76.1 x 3.25	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	114.3 x 5.40	88.9 x 4.85	76.1 x 3.25	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	224.3 x 3.65	88.9 x 3.25	76.1 x 3.25	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	114.3 x 4.50	88.9 x 4.05	76.1 x 3.25	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	114.3 x 5.40	88.9 x 4.85	76.1 x 3.25	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	139.7 x 4.50	114.3 x 3.65	88.9 x 3.25	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	139.7 x 4.85	114.3 x 3.65	88.9 x 3.25	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	139.7 x 5.40	114.3 x 3.65	88.9 x 3.25	110	5100 (520)	3620 (369)	1810 (185)	2040 (208)	2480 (253)	1600 (163)
410SP-10	8.00	1.25	0.30	6.50	4.50	1.75	1.75	114.3 x 3.65	88.9 x 3.25	76.1 x 3.25	70	2260 (230)	1600 (163)	804 (82)	902 (92)	1110 (112)	520 (53)
410SP-11	8.00	1.25	0.30	6.50	4.50	1.75	1.75	114.3 x 4.50	88.9 x 4.05	76.1 x 3.25	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	114.3 x 5.40	88.9 x 4.85	76.1 x 3.25	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	139.7 x 4.50	114.3 x 3.65	88.9 x 3.25	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	139.7 x 4.85	114.3 x 4.50	88.9 x 3.25	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	139.7 x 5.40	114.3 x 4.50	88.9 x 3.25	119	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	114.3 x 3.65	88.9 x 3.25	76.1 x 3.25	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	114.3 x 4.50	88.9 x 4.05	76.1 x 3.25	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	114.3 x 5.40	88.9 x 4.85	76.1 x 3.25	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	139.7 x 4.50	114.3 x 3.65	88.9 x 3.25	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	139.7 x 4.85	114.3 x 3.65	88.9 x 3.25	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	139.7 x 5.40	114.3 x 4.50	88.9 x 3.25	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	165.1 x 4.50	139.7 x 4.50	114.3 x 3.65	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	165.1 x 4.85	139.7 x 4.50	114.3 x 3.61	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	165.1 x 5.40	139.7 x 4.50	114.3 x 3.65	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	114.3 x 3.65	88.9 x 3.25	76.1 x 3.25	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	114.3 x 4.50	88.9 x 4.05	76.1 x 3.25	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	114.3 x 5.40	88.9 x 4.85	76.1 x 3.25	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	139.7 x 4.50	114.3 x 3.65	88.9 x 3.25	113	3580 (365)	2540 (259)	1270 (130)	1430 (146)	1740 (177)	745 (76)
410SP-29	9.00	1.50	0.30	7.50	5.00	2.00	2.00	139.7 x 4.85	114.3 x 4.50	88.9 x 3.25	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	139.7 x 5.40	114.3 x 4.05	88.9 x 3.25	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	165.1 x 4.50	139.7 x 4.50	114.3 x 3.65	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	165.1 x 4.85	139.7 x 4.50	114.3 x 3.65	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	165.1 x 5.40	139.7 x 4.50	114.3 x 3.65	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	Over All Length (m)	Planting Depth (m)	Load Applied from Top at a Distance of (m)	Height above ground (m)	Length of Sections			Outside Diameter and Thickness of Sections			Approx. Weight of Pole (kg)	Breaking Load (kg)	Crippling Load (N/kg)	Working Load		Load for Permanent Set not Exceeding 13 mm (N/kg)	Load for Temporary Deflection of 157.5 mm (N/kg)
					Bottom h ₁ (m)	Middle h ₂ (m)	Top h ₃ (m)	Bottom h ₁ (mm)	Middle h ₂ (mm)	Top h ₃ (mm)				Col 14 2 (N/kg)	Col 13 2.5 (N/kg)		
410SP-34	9.50	1.80	0.60	7.70	5.00	2.25	2.25	139.7 x 4.50	114.3 x 4.50	88.9 x 3.25	122	3630 (370)	2580 (263)	1280 (131)	1450 (148)	1760 (180)	745 (76)
410SP-35	9.50	1.80	0.60	7.70	5.00	2.25	2.25	139.7 x 4.85	114.3 x 4.50	88.9 x 3.25	129	3880 (396)	2760 (281)	1390 (142)	1550 (158)	1880 (192)	784 (80)
410SP-36	9.50	1.80	0.60	7.70	5.00	2.25	2.25	139.7 x 5.40	114.3 x 4.50	88.9 x 3.25	137	4280 (436)	3040 (310)	1520 (155)	1710 (174)	2080 (212)	833 (85)
410SP-37	9.50	1.80	0.60	7.70	5.00	2.25	2.25	165.1 x 4.50	139.7 x 4.50	114.3 x 3.65	153	5150 (525)	3660 (373)	1820 (186)	2060 (210)	2500 (255)	1300 (133)
410SP-38	9.50	1.80	0.60	7.70	5.00	2.25	2.25	165.1 x 4.85	139.7 x 4.50	114.3 x 3.65	160	5510 (562)	3910 (399)	1960 (200)	2210 (225)	2680 (273)	1370 (140)
410SP-39	9.50	1.80	0.60	7.70	5.00	2.25	2.25	165.1 x 5.40	139.7 x 4.50	114.3 x 3.65	170	6090 (621)	4320 (441)	2160 (220)	2430 (248)	2960 (302)	1480 (151)
410SP-40	10.00	1.80	0.60	8.20	5.20	2.40	2.40	139.7 x 4.50	114.3 x 4.50	88.9 x 3.25	128	3390 (346)	2410 (246)	1210 (123)	1350 (138)	1650 (168)	608 (62)
410SP-41	10.00	1.80	0.60	8.20	5.20	2.40	2.40	139.7 x 4.85	114.3 x 4.50	88.9 x 3.25	135	3630 (370)	2580 (263)	1280 (131)	1450 (148)	1760 (180)	637 (65)
410SP-42	10.00	1.80	0.60	8.20	5.20	2.40	2.40	139.7 x 5.40	114.3 x 4.50	88.9 x 3.25	144	3990 (407)	2820 (289)	1410 (144)	1600 (163)	1940 (198)	677 (69)
410SP-43	10.00	1.80	0.60	8.20	5.20	2.40	2.40	165.1 x 4.50	139.7 x 4.50	114.3 x 3.65	160	4810 (490)	3410 (348)	1710 (174)	1920 (196)	2330 (238)	1060 (108)
410SP-44	10.00	1.80	0.60	8.20	5.20	2.40	2.40	165.1 x 4.85	139.7 x 4.50	114.3 x 3.65	168	5150 (525)	3660 (373)	1820 (186)	2060 (210)	2500 (255)	1120 (114)
410SP-45	10.00	1.80	0.60	8.20	5.20	2.40	2.40	165.1 x 5.40	139.7 x 4.50	114.3 x 3.65	178	5690 (580)	4040 (412)	2020 (206)	2280 (232)	2760 (282)	1200 (122)
410SP-46	10.00	1.80	0.60	8.20	5.20	2.40	2.40	193.7 x 4.85	165.1 x 4.50	139.7 x 4.50	208	7210 (735)	5120 (522)	2560 (261)	2880 (294)	3500 (357)	1850 (189)
410SP-47	10.00	1.80	0.60	8.20	5.20	2.40	2.40	193.7 x 5.40	165.1 x 4.50	139.7 x 4.50	221	7910 (807)	5620 (573)	2800 (286)	3170 (323)	3840 (392)	1990 (203)
410SP-48	10.00	1.80	0.60	8.20	5.20	2.40	2.40	193.7 x 5.90	165.1 x 4.50	139.7 x 4.50	233	8620 (879)	6120 (624)	3060 (312)	3450 (352)	4190 (427)	2110 (215)
410SP-49	11.00	1.80	0.60	9.20	5.60	2.70	2.70	139.7 x 4.50	114.3 x 4.50	88.9 x 3.25	140	3000 (306)	2130 (217)	1070 (109)	1200 (122)	1480 (149)	412 (42)
410SP-50	11.00	1.80	0.60	9.20	5.60	2.70	2.70	139.7 x 4.85	114.3 x 4.50	88.9 x 3.25	147	3210 (327)	2280 (232)	1140 (116)	1280 (131)	1560 (159)	431 (44)
410SP-51	11.00	1.80	0.60	9.20	5.60	2.70	2.70	139.7 x 5.40	114.3 x 4.50	88.9 x 3.25	164	3530 (360)	2510 (256)	1260 (128)	1410 (144)	1720 (175)	480 (49)
410SP-52	11.00	1.80	0.60	9.20	5.60	2.70	2.70	165.1 x 4.50	139.7 x 4.50	114.3 x 3.65	175	4250 (433)	3010 (307)	1510 (154)	1700 (173)	2060 (210)	726 (74)
410SP-53	11.00	1.80	0.60														

Dimensions and Properties of Square Sections (SHS) as per IS:4923:1997/EN 10219-1:2006/ASTM A500

Width (mm)	Depth (mm)	Thickness (mm)	Area (cm ²)	Weight (Kg/m)	moment of inertia (cm ⁴)	Radius of Gyration (cm)	Elastic module (cm ²)	Plastic module (cm ²)
25	25	1.60	1.43	1.12	1.28	0.94	1.02	1.24
25	25	2.00	1.74	1.36	1.48	0.92	1.19	1.47
25	25	2.60	2.16	1.69	1.72	0.89	1.38	1.76
25	25	3.20	2.53	1.98	1.89	0.86	1.51	1.98
32	32	2.00	2.30	1.80	3.36	1.21	2.10	2.54
32	32	2.60	2.88	2.26	4.02	1.18	2.51	3.11
32	32	3.20	3.42	2.69	4.54	1.15	2.83	3.59
32	32	4.00	4.07	3.19	5.02	1.11	3.14	4.11
38	38	2.00	2.78	2.18	5.88	1.46	3.10	3.70
38	38	2.60	3.51	2.75	7.13	1.43	3.76	4.57
38	38	3.20	4.19	3.29	8.18	1.40	4.30	5.34
38	38	4.00	5.03	3.95	9.26	1.36	4.87	6.22
40	40	2.60	3.72	2.92	8.45	1.51	4.22	5.12
40	40	2.90	4.09	3.21	9.11	1.49	4.56	5.58
40	40	3.20	4.45	3.49	9.72	1.48	4.86	6.00
40	40	4.00	5.35	4.20	11.07	1.44	5.54	7.01
49.5	49.5	2.60	4.70	3.69	16.91	1.90	6.83	8.16
49.5	49.5	2.90	5.19	4.07	18.37	1.88	7.42	8.93
49.5	49.5	3.20	5.66	4.44	19.74	1.87	7.97	9.67
49.5	49.5	4.00	6.87	5.39	22.94	1.83	9.27	11.46
60	60	2.60	5.80	4.55	31.33	2.33	10.44	12.34
60	60	2.90	6.41	5.03	34.21	2.31	11.40	13.56
60	60	3.20	7.01	5.50	36.94	2.30	12.31	14.73
60	60	4.00	8.55	6.71	43.55	2.26	14.52	17.64
60	60	4.50	9.47	7.43	47.20	2.23	15.73	19.31
72	72	3.20	8.54	6.71	66.32	2.79	18.42	21.80
72	72	4.00	10.47	8.22	79.02	2.75	21.95	26.32
72	72	4.80	12.31	9.66	90.30	2.71	25.08	30.48
80	80	3.20	9.57	7.51	92.71	3.11	23.18	27.29
80	80	4.00	11.75	9.22	111.04	3.07	27.76	33.07
80	80	4.90	14.10	11.07	129.51	3.03	32.38	39.09
91.5	91.5	3.60	12.32	9.67	156.48	3.56	34.20	40.24
91.5	91.5	4.50	15.14	11.88	187.56	3.52	41.00	48.79
91.5	91.5	5.40	17.85	14.01	215.66	3.48	47.14	56.76
100	100	4.00	14.95	11.73	226.34	3.89	45.27	53.30
100	100	5.00	18.36	14.41	271.08	3.84	54.22	64.59
100	100	6.00	21.63	16.98	311.45	3.79	62.29	75.09
113.5	113.5	4.50	19.10	14.99	372.86	4.42	65.70	77.32
113.5	113.5	4.80	20.28	15.92	393.28	4.40	69.30	81.81
113.5	113.5	5.40	22.60	17.74	432.55	4.38	76.22	90.54
113.5	113.5	6.00	24.87	19.52	469.78	4.35	82.78	98.95
132	132	4.80	23.83	18.70	634.36	5.16	96.11	112.68
132	132	5.40	26.59	20.88	700.07	5.13	106.07	125.01
132	132	6.00	29.31	23.01	762.93	5.10	115.60	136.97
150	150	4.00	22.95	18.01	807.78	5.93	107.70	124.86
150	150	5.00	28.36	22.26	982.07	5.89	130.94	152.97
150	150	6.00	33.63	26.40	1145.84	5.84	152.78	179.87
150	150	7.00	38.78	30.44	1299.36	5.79	173.25	205.57
150	150	8.00	43.79	34.37	1442.89	5.74	192.39	230.09
220	220	4.00	34.15	26.81	2639.06	8.79	239.91	275.46
220	220	5.00	42.36	33.25	3237.90	8.74	294.35	339.72
220	220	6.00	50.43	39.59	3813.19	8.70	346.65	402.16
220	220	7.00	58.38	45.83	4365.33	8.65	396.85	462.81

Dimensions and Properties of Rectangular Sections (RHS) as per IS:4923:1997/EN 10219-1:2006/ASTM A500

Width (mm)	Depth (mm)	Thickness (mm)	Area (cm ²)	Weight (Kg/m)	Moment of inertia (cm ⁴)		Radius of Gyration (cm)		Elastic module (cm ³)		Plastic module (cm ³)	
					I _x	I _y	R _x	R _y	Z _x	Z _y	S _x	S _y
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:4923:1997

1. Outside dimensions of the sides : **± 1 % with a minimum of ± 0.5 mm**
2. Thickness : **± 10 %**
3. Weight : **Individual Length : ± 10% / - 8%
On Lots of 10 Tonnes : ± 7.5**
4. Squareness of corner : **90° ± 2°**
5. Radii of corners- Outsides : **3 t Max. Where t is the thickness of the section.**

Mechanical Properties

Grade	Tensile Strength (MPa)	Yield Stress (MPa)	Elongation % age	
			Upto 25.4 mm	Above 25.4 mm
YSt 210	330	210	12	20
YSt 240	410	240	10	15
YSt 310	450	310	8	10



Technical Data Sheet- Pipe to API 5L 45th Edition / IS/ISO:3183-2007

Out Side Diameter Tolerance	Body	Specified OD	± 0.0075D (0.75%)
	End	From 88.9 mm OD to 168.3 mm OD From 219.1 mm OD mm to 323.9 mm OD	Specified OD +1.60 mm, -0.40 mm 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.	Min.	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	Nb+V ≤ 0.06% Nb+V+Ti ≤ 0.15 %										As per Table 5 foot notes d, e, g, l, j and h
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		0.22	1.30	0.025	0.015	0.45					
L360/X52	0.26	1.40	0.03	0.03		0.22	1.40	0.025	0.015	0.45					
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					



Technical Data Sheet- Pipe to API 5L 45th Edition / IS/ISO:3183-2007

Size (OD) (mm)	Thk (mm)	Hydro Testing Test Pressure (In Kgs)										Size (OD) (mm)	Thk (mm)	Hydro Testing Test Pressure (In Kgs)									
		Grades												Grades									
		A	B	X42	X46	X52	X56	X60	X65	X70	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	168.3	7.90	120.7	140.8	208.3	229.8	258.5	280.1	298.0	323.2	348.3		
88.9	4.40	127.2	148.4	175.7	193.9	218.1	236.3	251.4	272.6	293.8	168.3	8.70	132.9	155.0	229.4	253.1	284.7	308.5	328.2	355.9	383.6		
88.9	4.80	138.8	161.9	191.7	211.5	237.9	257.7	274.3	297.4	320.5	168.3	9.50	145.1	169.3	250.5	276.4	310.9	336.8	358.4	388.6	418.9		
88.9	5.50	159.0	185.5	219.6	242.3	272.6	295.3	314.3	340.8	367.3	219.1	4.00	46.9	54.7	81.0	89.4	100.6	108.9	115.9	125.7	135.5		
88.9	6.40	185.0	215.9	255.5	282.0	317.2	343.7	365.7	396.5	427.4	219.1	4.80	56.3	65.7	97.2	107.3	120.7	130.7	139.1	150.8	162.6		
88.9	7.10	205.3	239.5	283.5	312.8	351.9	381.2	405.7	439.9	474.1	219.1	5.20	61.0	71.2	105.3	116.2	130.7	141.6	150.7	163.4	176.1		
88.9	7.60	219.7	256.4	303.5	334.8	376.7	408.1	434.3	470.9	507.5	219.1	5.60	65.7	76.6	113.4	125.1	140.8	152.5	162.3	176.0	189.7		
114.3	4.00	90.0	104.9	124.2	137.1	154.2	167.1	177.8	192.8	207.7	219.1	6.40	75.1	87.6	129.6	143.0	160.9	174.3	185.5	201.1	216.8		
114.3	4.40	98.9	115.4	136.6	150.8	169.6	183.8	195.5	212.0	228.5	219.1	7.00	82.1	95.8	141.8	156.4	176.0	190.6	202.9	220.0	237.1		
114.3	4.80	107.9	125.9	149.1	164.5	185.0	200.5	213.3	231.3	249.3	219.1	7.90	92.7	108.1	160.0	176.5	198.8	215.1	228.9	248.2	267.6		
114.3	5.20	116.9	136.4	161.5	178.2	200.5	217.2	231.1	250.6	270.1	219.1	8.20	96.2	112.2	166.1	183.2	206.1	223.3	237.6	257.7	277.7		
114.3	5.60	125.9	146.9	173.9	191.9	215.9	233.9	248.9	269.9	290.8	219.1	8.70	102.1	119.1	176.2	194.4	218.7	236.9	252.1	273.4	294.7		
114.3	6.00	134.9	157.4	186.3	205.6	231.3	250.6	266.6	289.1	311.6	219.1	9.50	111.5	130.0	192.4	212.3	238.8	258.7	275.3	298.5	321.7		
114.3	6.40	143.9	167.9	198.8	219.3	246.7	267.3	284.4	308.4	332.4	273.1	4.00	37.6	43.9	73.7	81.3	91.4	99.0	105.4	114.3	123.2		
114.3	7.10	159.7	186.3	220.5	243.3	273.7	296.5	315.5	342.1	368.8	273.1	4.80	45.2	52.7	88.4	97.5	109.7	118.9	126.5	137.1	147.8		
114.3	7.90	177.7	207.3	245.3	270.7	304.6	329.9	351.1	380.7	410.3	273.1	5.20	48.9	57.1	95.7	105.7	118.9	128.8	137.0	148.6	160.1		
114.3	8.60	193.4	225.6	267.1	294.7	331.5	359.2	382.2	414.4	446.7	273.1	5.60	52.7	61.5	103.1	113.8	128.0	138.7	147.6	160.0	172.4		
141.3	4.00	72.8	84.9	100.5	110.9	124.7	135.1	143.8	155.9	168.1	273.1	6.40	60.2	70.3	117.8	130.0	146.3	158.5	168.6	182.9	197.1		
141.3	4.80	87.3	101.9	120.6	133.1	149.7	162.2	172.6	187.1	201.7	273.1	7.10	66.8	78.0	130.7	144.3	162.3	175.8	187.1	202.9	218.6		
141.3	5.60	101.9	118.8	140.7	155.2	174.6	189.2	201.3	218.3	235.3	273.1	7.80	73.4	85.6	143.6	158.5	178.3	193.1	205.5	222.9	240.2		
141.3	6.60	120.1	140.1	165.8	183.0	205.8	223.0	237.3	257.3	277.3	273.1	8.70	81.9	95.5	160.2	176.8	198.9	215.4	229.2	248.6	267.9		
141.3	7.10	129.2	150.7	178.4	196.8	221.4	239.9	255.2	276.8	298.3	273.1	9.30	87.5	102.1	171.2	189.0	212.6	230.3	245.1	265.7	286.4		
141.3	7.90	143.7	167.7	198.5	219.0	246.4	266.9	284.0	307.9	331.9	323.9	4.40	34.9	40.7	68.3	75.4	84.8	91.9	97.8	106.0	114.2		
141.3	8.70	158.3	184.6	218.6	241.2	271.3	293.9	312.8	339.1	365.5	323.9	4.80	38.1	44.4	74.5	82.2	92.5	100.2	106.6	115.6	124.6		
141.3	9.50	172.8	201.6	238.6	263.3	296.3	320.9	341.5	370.3	399.1	323.9	5.20	41.3	48.1	80.7	89.1	100.2	108.6	115.5	125.3	135.0		
168.3	4.00	61.1	71.3	105.5	116.4	130.9	141.8	150.9	163.6	176.4	323.9	5.60	44.4	51.8	86.9	95.9	107.9	116.9	124.4	134.9	145.4		
168.3	4.40	67.2	78.4	116.0	128.0	144.0	156.0	166.0	180.0	194.0	323.9	6.40	50.8	59.3	99.4	109.6	123.3	133.6	142.2	154.2	166.2		
168.3	4.80	73.3	85.5	126.5	139.6	157.1	170.2	181.1	196.4	211.6	323.9	7.10	56.3	65.7	110.2	121.6	136.8	148.2	157.7	171.0	184.3		
168.3	5.20	79.4	92.7	137.1	151.3	170.2	184.4	196.2	212.7	229.3	323.9	7.90	62.7	73.1	122.6	135.3	152.3	164.9	175.5	190.3	205.1		
168.3	5.60	85.5	99.8	147.6	162.9	183.3	198.5	211.3	229.1	246.9	323.9	8.40	66.7	77.8	130.4	143.9	161.9	175.4	186.6	202.4	218.1		
168.3	6.40	97.7	114.0	168.7	186.2	209.5	226.9	241.5	261.8	282.2	323.9	8.70	69.0	80.5	135.1	149.0	167.7	181.6	193.3	209.6	225.9		
168.3	7.10	108.4	126.5	187.2	206.5	232.4	251.7	267.9	290.5	313.0	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	DN Designator	Size (OD) in mm	Schedule	Thickness (mm)	Mass of Plain end Pipe (Kg/mtr)	Hydro Test Pressure (MPa)		Tolerance												
						Grade A	Grade B													
1/2	15	21.3	40	2.77	1.27	4.8	4.8	Outside diameter : Pipe size upto and including DN40 ± 0.4mm Pipe size DN 50 or larger ± 1 % Thickness : - 12.5 % Weight : ± 10 %												
3/4	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 1/4	32	42.2	40	3.56	3.39	8.3	9													
1 1/2	40	48.3	40	3.68	4.05	8.3	9													
2	50	60.3	40	3.91	5.44	15.9	17.2	Galvanizing (as per ASTM A-90) Mass of Zinc coating (Min.): 490 g/m ² (70 µ app.) Mass of Zinc coating (Avg.): 550 g/m ² (79 µ app.)												
2 1/2	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	Mechanical Properties <table border="0"> <tr> <td></td> <td>Grade A</td> <td>Grade B</td> </tr> <tr> <td>Y.S (Mpa) Min. -</td> <td>205</td> <td>240</td> </tr> <tr> <td>T.S. (Mpa) Min. -</td> <td>330</td> <td>415</td> </tr> <tr> <td>Elong. (%) Min. -</td> <td colspan="2">As per ASTM A53</td> </tr> </table>		Grade A	Grade B	Y.S (Mpa) Min. -	205	240	T.S. (Mpa) Min. -	330	415	Elong. (%) Min. -	As per ASTM A53	
	Grade A	Grade B																		
Y.S (Mpa) Min. -	205	240																		
T.S. (Mpa) Min. -	330	415																		
Elong. (%) Min. -	As per ASTM A53																			
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													

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

Technical Specification of Pipes conforming to BS EN 10255

Specified OD (mm)	Designation of Thread	H Heavy Series				M Medium Series				L Series				L1 Series				L2 Series								
		Max.	Min.	Thick-ness (mm)	Mass per unit length of bare pipe (kg/Mtr.)	Max.	Min.	Thick-ness (mm)	Mass per unit length of bare pipe (kg/Mtr.)	Max.	Min.	Thick-ness (mm)	Mass per unit length of bare pipe (kg/Mtr.)	Max.	Min.	Thick-ness (mm)	Mass per unit length of bare pipe (kg/Mtr.)	Max.	Min.	Thick-ness (mm)	Mass per unit length of bare pipe (kg/Mtr.)					
21.3	1/2	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	3/4	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 1/4	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	1 1/2	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 1/2	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	6.71	6.83
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 1/2	-	-	-	-	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-	-	-

Tolerance	Chemical Properties(Max%)	Mechanical Properties	Galvanizing Test
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)	Carbon : 0.20% Manganese : 1.40% Phosphorus : 0.035% Sulphur : 0.030%	Yield Stress : 195 N/mm ² (Min.) Tensile Strength : 320 to 520 N/mm ² %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	1. Zinc coating : 55 µ (min.) 2. Adhesion test (upto 60.3 mmOD) Bend Test:- For tubes upto & including 60.3 mm OD Bending Angle : 90° Bending radius : 3 D

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