JINDAL
D.P. JINDAL GROUP

JINDAL PIPES LIMITED

Corporate Office:
JINDAL CORPORATE CENTRE
Plot No. 30, Institutional Sector - 44, Gurgaon-122 002, Haryana (India)
Tel.: +91 124 2574325 / 26, 4624000 Fax: +91 124 2574327
e-mail: contact@jindalpipe.com
Website: www.jindal.com

Regd.Office & Works
22nd Milestone, Delhi-Hapur Road, P.O. Jindal Nagar,
Hapur-201015, U.P. (India)
Tel.: +91 120 2677601 - 605
Fipe.com

Mumbai
402, Sarjan Plaza, 100,
Dr. Annie Besant Road,
Opp. Telco Show Room, Worli,
Mumbai - 400 018 (India)
Tel.: +91 22 24902570 /72 /74
Fax : +91 22 24925473
e-mail: mslmum@mtnl.net.in

Kolkata
Sukh Sagar Apartment,
Flat No. 8 A&B, 8th Floor,
2/5 Sarat Bose Road,
Kolkata -700 020 (India)
Tel.: +91 33 24559982, 32588626
Fax : +91 33 24742290
e-mail: kolkata@mahaseam.com

Chennai
3A, Royal Court, No-44, 3rd Floor,
Venkatanarayana Road, T. Nagar,
Chennai - 600 017 (India)
Tel.: +91 44 24342231, 24328747
Fax : +91 44 24347990
e-mail: chennai@mahaseam.com

JINDAL STAR

JPL CAT-01, Issue No.04, Rev.No.3; Date 23.01.2015

Note: Information provided in this catalogue is as per currently applicable specifications but since they are subject to changes, please refer relevant specifications to know the current status.

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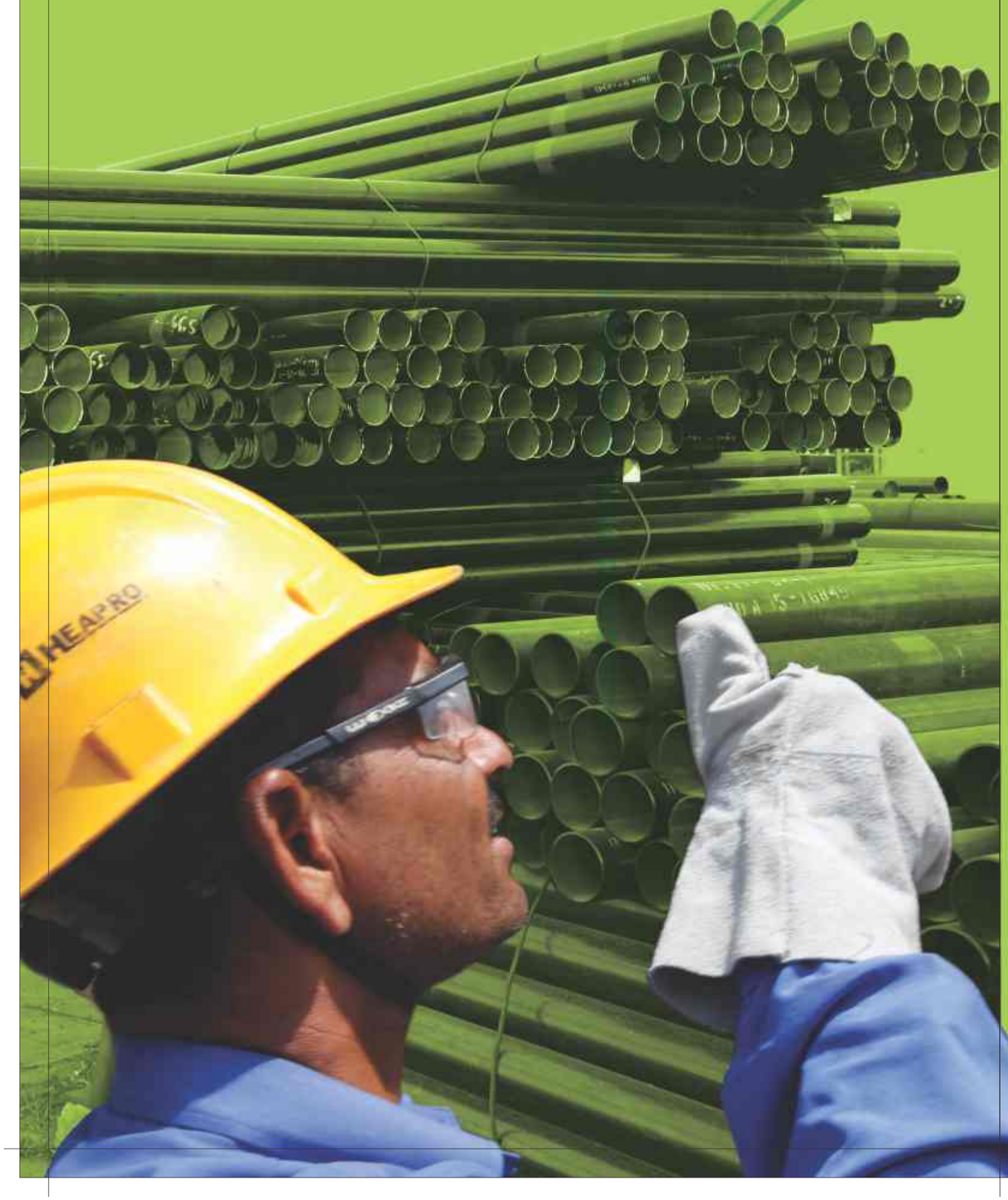
JINDAL STAR



About us:

Jindal Pipes Limited, a pioneer with many innovative projects in the pipe industry, is synonymous with India's best ERW, Galvanized and Black Steel Pipes. Since inception in 1970, the company has brought drastic developments in pipe manufacturing through many innovative measures. Induction of sophisticated state-of-the-art technical know-how and highly motivated skilled work force have made possible for the company to augment its production capacity to 250,000 TPA. A wide range of products that comprises of ½" to 14" NB and 2.00 mm to 10.00mm in wall thickness give Jindal Pipes a commendable advantage in the market. Further, pipes upto 20" NB can be supplied from the sister concern-Maharashtra Seamless Limited.

Quality is the hallmark of Jindal Pipe Strict adherence to the policy of " No compromise on Quality" is demonstrated in its stringent control over procurement of raw materials,production process, streamlined distribution channels and fast delivery of finished products. ISO 9001:2008, API and BIS certifications stand as an unequivocal testimony to Jindal Pipe's quality.

Jindal Pipe has been constantly executing need based and demanding orders for pipes to meet the requirement of sectors like: agriculture, oil & gas, public health, housing, irrigation, engineering etc.

QUALITY POLICY

Consistent with the group purpose, we are committed to create value for all our stakeholders by continuously improving the effectiveness of Quality System and Process through innovations, involving all our employees.

We shall constantly strive to improve the quality of lives of the communities it serve through excellence in all facets of its activities. Our objectives shall be to:

A) Produce and deliver products as per customer's expectations, conforming to national / international standards.

B) Enhance the knowledge and skills of employees for effective implementation of Quality Management System (QMS).

Rev. No. 3: 28-09-07

Raghav Jindal
Managing Director

QUALITY CREDENTIALS

Jindal Pipe's idea ofTotal Quality is demonstrated in its stringent controls on raw materials, production process and on the speed at which the product reaches the customer. It's "No compromises on Quality" policy has brought in an ISO 9001: 2008, API and BIS certifications.

Jindal Pipes Limited has accreditation of API Ql System and has been awarded ISO 9001, on Quality Assurance. In addition to these, our products have the approval of international inspection agencies, such as Llyods, DNV, BVIS, EIL, PDIL, SGS etc.

Jindal Pipes Limited has in-house laboratory to undertake various testings and inspections during the stages of manufacturing.

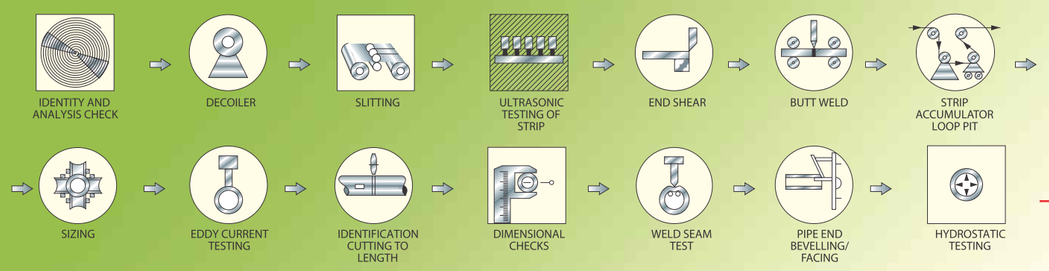
INSPECTION AGENCIES

TPL	SGS	HMPL	BVIS
DGS&D	RITS	INTERTEK	QSS
NTPC	DNV	ICS	TUV SUD
EIL			TUV NORD IRS

Application & Specifications

Oil & Gas Sector	API	: 5L, 5CT
	IS/ISO	:3183
Automotive Industry	BS	: 6323 (Pt-V)
	IS	:3601, 3074
Hydrocarbon & Process Industry	ASTM	:A-53
	BS	:3603
	IS	:6286
Boiler, Heat Exchanger, Superheater, Air Heater & Condenser	ASTM	:A-178 , A-214, A-333, A-334
	BS	:3059 (P-I & P-II), 6323 (Pt-V)
	IS	:2416 (Pt-IV)
Railways	IS	:1239 (Pt-I), 1161
	RDSO	: ETI/ OHE/ 11
Mechanical, Structural & General Engineering	IS	:1161, 3601, 4923, 9295
	BS	:6323 (Pt-V)
Water, Gas & Sewage	IS	:3589, 1239 (Pt-I)
	BS	:1387
	DIN	: 2440, 2441
	ISO	: 65
Water Well	IS	:4270

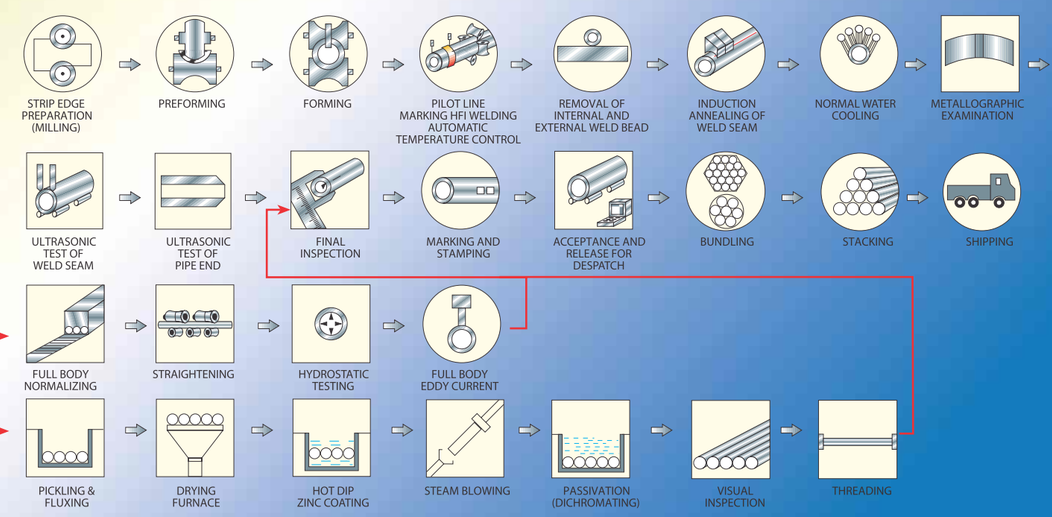
MANUFACTURING AND TESTING FLOW DIAGRAM ELECTRIC RESISTANCE WELDED BLACK



FOR BOILER TUBES

FOR GALVANIZED TUBES

OF HIGH FREQUENCY INDUCTION WELDED / AND GALVANIZED PIPES/ TUBES



BLACK & GALVANIZED

ERW STEEL TUBES CONFORMING TO IS:1239(Pt-I) EQUIVALENTTO BS:1387 & STRUCTURAL TUBES CONFORMING TO IS:1161

SERIES			LIGHT					MEDIUM					HEAVY				
NOMINAL BORE		O.D.	OUTSIDE DIA.		W. T.	WEIGHT		OUTSIDE DIA.		W. T.	WEIGHT		OUTSIDE DIA.		W. T.	WEIGHT	
INCH	mm	mm	MIN. (mm)	MAX. (mm)	mm	P/E Kg/m	S/S Kg/m	MIN. (mm)	MAX. (mm)	mm	P/E Kg/m	S/S Kg/m	MIN. (mm)	MAX. (mm)	mm	P/E Kg/m	S/S Kg/m
1/2	15	21.3	21.0	21.4	2.0	0.947	0.956	21.0	21.8	2.6	1.21	1.22	21.0	21.8	3.2	1.44	1.45
3/4	20	26.9	26.4	26.9	2.3	1.38	1.39	26.5	27.3	2.6	1.56	1.57	26.5	27.3	3.2	1.87	1.88
1	25	33.7	33.2	33.8	2.6	1.98	2.00	33.3	34.2	3.2	2.41	2.43	33.3	34.2	4.0	2.93	2.95
1 1/4	32	42.4	41.9	42.5	2.6	2.54	2.57	42.0	42.9	3.2	3.10	3.13	42.0	42.9	4.0	3.79	3.82
1 1/2	40	48.3	47.8	48.4	2.9	3.23	3.27	47.9	48.8	3.2	3.56	3.60	47.9	48.8	4.0	4.37	4.41
2	50	60.3	59.6	60.2	2.9	4.08	4.15	59.7	60.8	3.6	5.03	5.10	59.7	60.8	4.5	6.19	6.26
2 1/2	65	76.1	75.2	76.0	3.2	5.71	5.83	75.3	76.6	3.6	6.42	6.54	75.3	76.6	4.5	7.93	8.05
3	80	88.9	87.9	88.7	3.2	6.72	6.89	88.0	89.5	4.0	8.36	8.53	88.0	89.5	4.8	9.90	10.10
4	90	101.6	-	-	3.6	8.70	-	-	-	4.0	9.63	-	-	-	4.8	11.5	-
4	100	114.3	113.0	113.9	3.6	9.75	10.00	113.1	115.0	4.5	12.20	12.50	113.1	115.0	5.4	14.50	14.80
5	125	139.7	-	-	4.5	15.00	-	138.5	140.8	4.8	15.90	16.40	138.5	140.8	5.4	17.90	18.40
6	150	165.1	-	-	4.5	17.80	-	163.9	166.5	4.8	18.90	19.50	163.9	166.5	H15.4	21.30	21.90
6	150	165.1	-	-											H2-5.9	23.20	-
6	150	165.1													H3-6.3	24.70	-
6	150	165.1													H4-8	31.00	-
6	150	168.3	-	-	4.5	18.20	-	-	-	4.8	19.40	-	-	-	H1-5.4	21.70	-
6	150	168.3	-	-	-	-	-	-	-	-	-	-	-	-	H2-6.3	25.20	-
6	150	168.3	-	-	-	-	-	-	-	-	-	-	-	-	H3-8	31.60	-
6	150	168.3	-	-	-	-	-	-	-	-	-	-	-	-	H4-10	39.00	-
7	175	193.7	-	-	4.8	22.40	-	-	-	5.4	25.10	-	-	-	H15.9	27.30	-
7	175	193.7	-	-	-	-	-	-	-	-	-	-	-	-	H2-6.3	29.10	-
7	175	193.7	-	-	-	-	-	-	-	-	-	-	-	-	H3-8	36.60	-
7	175	193.7	-	-	-	-	-	-	-	-	-	-	-	-	H4-10	45.30	-
8	200	219.1	-	-	4.8	25.40	-	-	-	5.6	29.50	-	-	-	H15.9	31.00	-
8	200	219.1	-	-	-	-	-	-	-	-	-	-	-	-	H2-8	41.60	-
8	200	219.1	-	-	-	-	-	-	-	-	-	-	-	-	H3-10	51.60	-
10	250	273.0	-	-	-	-	-	-	-	-	-	-	-	-	H15.9	38.90	-
10	250	273.0	-	-	-	-	-	-	-	-	-	-	-	-	H2-8	52.30	-
10	250	273.0	-	-	-	-	-	-	-	-	-	-	-	-	H3-10	64.90	-
12	300	323.9	-	-	-	-	-	-	-	-	-	-	-	-	H16.3	49.30	-
12	300	323.9	-	-	-	-	-	-	-	-	-	-	-	-	H2-8	62.30	-
12	300	323.9	-	-	-	-	-	-	-	-	-	-	-	-	H3-10	77.40	-
14	350	355.6	-	-	-	-	-	-	-	-	-	-	-	-	H18.0	68.60	-
14	350	355.6	-	-	-	-	-	-	-	-	-	-	-	-	H2-10	85.20	-

NOTE: (I) IS:1239 & BS:1387 cover sizes upto 100 mm NB all series and 125 & 150 mm NB medium & heavy series, plain end and screwed & socketed ends.
(II) IS:1161 covers all sizes Plain End only.
(III) IS:1161 O.D. Tolerance will be as per dimension tolerance clause.Above table min./max. O.D. applicable for IS:1239 only.
(IV) Hydro test Pressure - 5 MPa (IS:1161 Hydro Test not required.)

ERW PIPES FOR WATER & SEWAGE CONFORMING TO IS:3589 & WATER WELL CASING CONFORMING TO IS:4270

SIZE		CONVENTIONAL MASS PER UNIT LENGTH (Kg/m)																	
NB	OD	WALL THICKNESS (mm)																	
mm	mm	3.20	3.60	4.00	4.30	4.65	4.85	5.00	5.20	5.40	5.60	6.00	6.35	6.40	7.00	7.10	8.00	9.50	10.00
100	114.30	-	-	-	-	-	-	13.48	-	14.50	-	16.02	-	-	-	-	-	-	-
125	141.30	-	-	-	-	-	-	16.81	-	18.10	-	20.02	-	-	-	-	-	-	-
150	168.30	13.03	14.62	16.21	17.39	18.77	19.55	20.13	20.91	21.69	-	24.01	25.36	25.55	27.84	28.22	-	-	-
175	193.70	-	16.88	18.71	20.08	21.68	22.59	23.27	24.17	25.07	-	27.77	29.34	29.56	32.23	32.67	36.63	-	-
200	219.10	-	19.13	21.22	22.78	24.59	25.62	26.40	27.43	28.46	29.48	31.53	33.31	33.57	36.61	37.12	41.65	49.10	51.56
250	273.10	-	23.93	26.54	28.50	30.78	32.08	33.06	34.35	35.65	36.94	39.52	41.77	42.09	45.93	46.57	52.30	61.75	64.88
300	323.90	-	-	31.55	33.89	36.61	38.16	39.32	40.87	42.41	43.96	47.04	49.73	50.11	54.70	55.47	62.32	73.65	77.41
350	355.60	-	-	34.68	37.25	40.24	41.95	43.23	44.93	46.63	48.33	51.73	54.69	55.11	60.18	61.02	68.57	81.08	85.22

NOTE: (I) IS:4270 covers Pipe size 100 mm to 350 mm NB & IS:3589 covers Pipe size 168.30 mm O.D. to 355.6 mm O.D.
(II) IS:4270 covers Wall Thickness upto 10 mm.
(III) Other thickness may be supplied as per agreement.
(IV) Max. Hydro Test Pressure IS:3589 -5 MPa, IS:4270 -7 MPa.

ERW Line Pipes conforming to API 5L, IS/ISO : 3183 & ASTM A 53

Dimensions, Weights and Test Pressures for Sizes 3 1/2" through 14" (SI Units)

Size	Specified Outside Diameter	Specified Wall Thickness	Plain-end Weight per Unit Length	Calculated Inside Diameter	Minimum Test Pressure (kPa x 100)									
	D (mm)	t (mm)	Wpe (Kg/m)	d (mm)	Grade A25	Grade A	Grade B	Grade X-42	Grade X-46	Grade X-52	Grade X-56	Grade X-60	Grade X-65	Grade X-70
3 1/2"	88.9	3.2	6.76	82.5	69	91	106	125	138	156	168	179	194	205
	88.9	3.6	7.57	81.7	69	102	119	141	156	175	190	201	205	205
	88.9	4.0	8.37	80.9	69	113	132	157	173	194	205	205	205	205
	88.9	4.4	9.17	80.1	69	125	146	172	190	205	205	205	205	205
	88.9	4.8	9.95	79.3	69	136	159	188	205	205	205	205	205	205
	88.9	5.5	11.31	77.9	69	156	170	205	205	205	205	205	205	205
4"	101.6	3.2	7.76	95.2	-	79	93	110	121	136	147	157	170	183
	101.6	3.6	8.70	94.4	55	89	104	123	136	153	166	177	191	205
	101.6	4.0	9.63	93.6	-	99	116	137	151	170	184	196	205	205
	101.6	4.4	10.55	92.8	69	109	127	151	166	187	202	205	205	205
	101.6	4.8	11.46	92	83	119	139	164	181	204	205	205	205	205
	101.6	5.7	13.48	90.2	83	141	165	195	205	205	205	205	205	205
	101.6	6.4	15.02	88.8	-	159	185	205	205	205	205	205	205	205
4 1/2"	114.3	3.2	8.77	107.9	55	71	82	97	108	121	131	139	151	163
	114.3	3.6	9.83	107.1	-	79	93	110	121	136	147	157	170	183
	114.3	4.0	10.88	106.3	69	88	103	122	134	151	164	174	189	204
	114.3	4.4	11.92	105.5	-	97	113	134	148	166	180	192	205	205
	114.3	4.8	12.96	104.7	83	106	124	146	161	181	197	205	205	205
	114.3	5.2	13.99	103.9	-	115	134	158	175	197	205	205	205	205
	114.3	5.6	15.01	103.1	83	123	144	170	188	205	205	205	205	205
	114.3	6.0	16.02	102.3	83	132	154	183	202	205	205	205	205	205
	114.3	6.4	17.03	101.5	-	141	165	195	205	205	205	205	205	205
5 9/16"	141.3	3.2	10.90	134.9	46	57	67	79	87	98	106	113	122	132
	141.3	4.0	13.54	133.3	58	71	83	99	109	122	132	141	153	165
	141.3	4.8	16.16	131.7	70	86	100	118	130	147	159	169	183	198
	141.3	5.6	18.74	130.1	81	100	117	138	152	171	186	197	205	205
	141.3	6.6	21.92	128.1	83	118	137	163	179	202	205	205	205	205
6 5/8"	168.3	3.2	13.03	161.9	-	48	56	83	91	103	111	118	128	138
	168.3	3.6	14.62	161.1	-	54	63	93	103	116	125	133	144	156
	168.3	4.0	16.21	160.3	-	60	70	103	114	128	139	148	160	173
	168.3	4.4	17.78	159.5	-	66	77	114	125	141	153	163	176	190
	168.3	4.8	19.35	158.7	-	72	84	124	137	154	167	178	193	205
	168.3	5.2	20.91	157.9	-	78	91	134	148	167	181	192	205	205
	168.3	5.6	22.47	157.1	-	84	98	145	160	180	195	205	205	205
	168.3	6.4	25.55	155.5	-	96	112	165	183	205	205	205	205	205
	168.3	7.1	28.22	154.1	-	106	124	184	202	205	205	205	205	205
8 5/8"	219.1	4.0	21.22	211.1	-	46	54	79	88	99	107	114	123	133
	219.1	4.8	25.37	209.5	-	55	64	95	105	118	128	136	148	159
	219.1	5.2	27.43	208.7	-	60	70	103	114	128	139	148	160	173
	219.1	5.6	29.48	207.9	-	64	75	111	123	138	150	159	173	186
	219.1	6.4	33.57	206.3	-	74	86	127	140	158	171	182	197	205
	219.1	7.0	36.61	205.1	-	81	94	139	153	173	187	199	205	205
	219.1	7.9	41.14	203.3	-	91	106	157	173	195	205	205	205	205
	219.1	8.2	42.65	202.7	-	94	110	163	180	202	205	205	205	205
	219.1	8.7	45.14	201.7	-	100	117	173	191	205	205	205	205	205
	219.1	9.5	49.10	200.1	-	109	127	189	205	205	205	205	205	205

ERW Line Pipes conforming to API 5L, IS/ISO : 3183 & ASTM A 53

Dimensions, Weights and Test Pressures for Sizes 3 1/2" through 14" (SI Units)

Size	Specified Outside Diameter	Specified Wall Thickness	Plain-end Weight per Unit Length	Calculated Inside Diameter	Minimum Test Pressure (kPa x 100)									
	D (mm)	t (mm)	Wpe (Kg/m)	d (mm)	Grade A25	Grade A	Grade B	Grade X-42	Grade X-46	Grade X-52	Grade X-56	Grade X-60	Grade X-65	Grade X-70
10 3/4"	273.1	4.0	26.54	265.1	-	37	43	72	80	90	97	103	112	121
	273.1	4.8	31.76	263.5	-	44	52	87	96	108	117	124	134	145
	273.1	5.2	34.35	262.7	-	48	56	94	104	117	126	134	146	157
	273.1	5.6	36.94	261.9	-	52	60	101	112	125	136	145	157	169
	273.1	6.4	42.09	260.3	-	59	69	116	127	143	155	165	179	193
	273.1	7.1	46.57	258.9	-	66	76	128	141	159	172	183	199	205
	273.1	7.8	51.03	257.5	-	72	84	141	155	175	189	202	205	205
	273.1	8.7	56.72	255.7	-	80	94	157	173	195	205	205	205	205
	273.1	9.3	60.50	254.5	-	86	100	168	185	205	205	205	205	205
12 3/4"	323.9	4.4	34.67	315.1	-	34	40	67	74	83	90	96	104	112
	323.9	4.8	37.77	314.3	-	37	44	73	81	91	98	105	113	122
	323.9	5.2	40.87	313.5	-	40	47	79	87	98	106	113	123	132
	323.9	5.6	43.96	312.7	-	44	51	85	94	106	115	122	132	143
	323.9	6.4	50.11	311.1	-	50	58	97	107	121	131	139	151	163
	323.9	7.1	55.47	309.7	-	55	64	108	119	134	145	155	168	181
	323.9	7.9	61.56	308.1	-	61	72	120	133	149	162	172	187	201
	323.9	8.4	65.35	307.1	-	65	76	128	141	159	172	183	198	205
	323.9	8.7	67.62	306.5	-	68	79	132	146	164	178	189	205	205
	323.9	9.5	73.65	304.9	-	74	86	145	160	179	194	205	205	205
14"	355.6	4.8	41.52	346.0	-	34	40	67	73	83	89	95	103	111
	355.6	5.2	44.93	345.2	-	37	43	72	80	89	97	103	112	121
	355.6	5.3	45.78	345.0	-	38	44	74	81	91	99	105	114	123
	355.6	5.6	48.33	344.4	-	40	46	78	86	96	104	111	121	130
	355.6	6.4	55.11	342.8	-	45	53	89	98	110	119	127	138	148
	355.6	7.1	61.02	341.4	-	50	59	98	109	122	132	141	153	165
	355.6	7.9	67.74	339.8	-	56	65	110	121	136	147	156	170	183
	355.6	8.7	74.42	338.2	-	62	72	121	133	150	162	173	187	202
	355.6	9.5	81.08	336.6	-	67	79	132	145	163	177	188	204	205

API CASING

Dimensions, Weights and End Finish

Outside Diameter		Nom. Wt.	Wall Thickness		Type of finish Grade		COUPLING OD	THREAD TYPES	
In.	mm	lb/ft	Inch	mm	J-55 K-55	N-80 Type-1,Q	mm	STC LTC	BTC
4 1/2	114.30	9.50	0.205	5.21	P	-	127.00	8	-
4 1/2	114.30	10.50	0.224	5.69	P	-	127.00	8	5
4 1/2	114.30	11.60	0.250	6.35	P	PLB	127.00	8	5
5 1/2	139.70	14.00	0.244	6.20	P	-	153.67	8	-
5 1/2	139.70	15.50	0.275	6.98	P	-	153.67	8	5
5 1/2	139.70	17.00	0.304	7.72	P	PLB	153.67	8	5
6 5/8	168.28	20.00	0.288	7.32	P	-	187.71	8	5
6 5/8	168.28	24.00	0.352	8.94	P	PLB	187.71	8	5
7 5/8	193.68	24.00	0.300	7.62	-	-	215.90	8	-
7 5/8	193.68	26.40	0.328	8.33	P	PLB	215.90	8	5
7 5/8	193.68	29.70	0.375	9.52	-	PLB	215.90	8	5

REMARK : P = Plain End

API TUBING

Dimensions, Weights and End Finish

Outside Diameter		Nominal Weight		Wall Thickness		COUPLING OD		THREAD TYPES		TYPES OF END FINISH
		Non Upset T & C	Non Upset T & C			NUE	EUE	API Round		Grade
In.	mm	lb/ft	lb/ft	In	mm	mm	mm	NUE TPI	EUE TPI	K-55 J-55 / N-80
2 7/8	73.02	6.4	6.5	0.217	5.51	88.9	93.17	10	8	P / P

REMARK : P = Plain End

ERW Boiler, Super Heater, Heat Exchanger, Condenser & Air Heater Tubes & Pipes

Conforming to BS 3059(Pt-I & II), BS 6323 (Pt-V), ASTM, A-178, A-214, A-333, A-334, IS 2416 (Pt-IV).

Out side Diameter (mm)	Conventional Mass per Unit length in kg/m for a Tube Thickness in mm of:																								
	2.03	2.34	2.64	2.95	3.25	3.38	3.56	3.66	3.68	3.91	4.06	4.50	5.16	5.49	5.74	6.02	6.35	6.55	7.04	7.11	7.80	7.92	8.18	8.38	9.27	9.52
33.4 / 33.7	1.59	1.81	2.02	2.24	2.44	2.53	-	2.71	-	-	2.97	3.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.0	1.80	2.06	2.30	2.55	2.79	-	-	3.10	-	-	3.40	3.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42.2 / 42.4	-	2.31	2.59	2.87	3.14	-	3.41	3.50	-	-	3.84	4.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44.5	-	2.43	2.73	3.02	3.31	-	-	3.69	-	-	4.05	4.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48.3	-	2.65	2.97	3.30	3.61	-	-	4.03	4.05	-	4.43	4.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50.8	-	2.80	3.14	3.48	3.81	-	-	4.25	-	-	4.68	5.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57.2	-	-	3.55	3.95	4.32	-	-	4.83	-	-	5.32	5.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60.3	-	-	3.75	4.17	4.57	-	-	5.11	-	5.44	5.63	6.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63.5	-	-	3.96	4.40	4.83	-	-	5.40	-	-	5.85	6.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73.0	-	-	-	-	-	-	-	-	-	-	-	-	8.63	-	-	-	-	-	-	-	-	-	-	-	-	-
76.1	-	-	-	5.32	5.84	-	-	6.54	-	-	7.21	7.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88.9	-	-	-	-	6.86	-	-	7.69	-	-	8.49	9.37	-	11.29	-	-	-	-	-	-	-	-	-	-	-	-
101.6	-	-	-	-	-	-	-	8.84	-	-	9.77	10.78	-	-	13.57	-	-	-	-	-	-	-	-	-	-	-
114.3	-	-	-	-	-	-	-	-	-	-	11.04	12.18	-	-	-	16.07	-	-	-	-	-	-	-	-	-	-
127.0	-	-	-	-	-	-	-	-	-	-	-	13.59	-	-	-	-	-	-	-	-	-	-	-	-	-	-
141.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.77	-	-	-	-	-	-	-	-
168.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.26	-	-	-	-	-	-
219.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.31	-	36.31	-	-	-	42.55	-	-	-
273.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41.75	-	-	-	51.01	-	-	-	60.29	-
323.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49.71	-	-	-	-	-	-	65.18	-	73.78
355.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54.69	-	-	-	-	67.90	-	-	-	81.25

NOTE: (i) Leak Test - Hydro Test / NDT test as per specification requirements .

TOLERANCE ON OUTSIDE DIAMETER, WALL THICKNESS, WEIGHT AND LENGTH OF PIPE

SPEC	OUT SIDE DIAMETER		WALL THICKNESS	WEIGHT	LENGTH							
	PIPE BODY	PIPE END			NORMAL		Avg. (MIN)		MINIMUM		MAXIMUM	
					ft	mtr	ft	mtr	ft	mtr	ft	mtr
API 5L & IS/ISO:3183	<2-3/8" (60.3mm) OD = + 0.40mm, - 0.80mm ⩾ 2-3/8" (60.3mm) OD = ±0.0075 D	< 2 3/8" (60.8mm): + 0.4mm, - 0.8mm > 2 3/8" (60.8mm) to ⩽ 6 5/8" (168.3mm) + 1.60mm, - 0.40mm > 6 5/8" (168.3mm) ± 0.005 D (but max.of ±1.6mm)	⩽ 5.0mm WT ± 0.5mm > 5.0mm WT to < 15.0mm WT ± 0.1t ⩾ 15.0mm WT ± 1.5mm	Single length of pipe + 10%, - 3.5% Car loades - 40,000 lb (18,144 Kg.) or more - 1.75%, less - 3.5%	20 40	6.0 12.0	17.5 35	5.3 10.7	9.0 14.0	2.74 4.27	22.5 45.0	6.86 13.72
IS:1239 & BS:1387	As per table	N.A.	Light - 8% + not limited Medium & Heavy - 10%, + not limited	Carload 10 MT Light +7.5%, -5%, M & H ± 7.5% Single Tube Light -8% + 10% Med & Heavy ± 10%	- -	6.0 12.0	- -	- -	- -	4.0 7.0	- -	7.0 10.0
					Tolarance - Exact length - + 6, -0mm Approximate length ± 150mm							
IS:3589	Upto 508mm OD = + 0.75%	N.A.	± 10%	Carload 10MT and above ± 7.5%	- -	6.0 12.0	- -	- -	- -	4.00 7.00	- -	7.0 14.0
					Tolerance - For exect length + 10, -0mm							
IS:4270	± 1.0%	-	Upto 406.4mm OD = +15% - 12.5%	+ 10% - 8%	-	6.0	-	-	-	4.00	-	7.0
IS:4923	± 1.0% (±0.5mm min.)	N.A	± 10% Excluding Weld Area	Carload 10MT : ±7.5% Single Tube +10%, -8%	Tolarance - Exect Length : ±6mm							
IS:1161	Upto 48.3mm OD + 0.4mm, -0.8mm Over 48.3mm ± 1.0%	N.A.	-10%, + not limited	Carload 10 MT Light ± 5%, M & H ± 7.5% Single Tube Light -8% + 10% Med & Heavy ± 10%	-	6.0	-	-	-	4.0	-	7.0
					Tolarance - Exact length - as agreed Random Length 4 to 7 mtr.							
IS:9295	± 0.8%	N.A.	±10%	Single Length : ±10% Carload per 10 tonnes : ±7.5%	-	6.0	-	-	-	4.0	-	7.0
					Tolarance - Exact length : +6mm, -0							
IS:1914 Pt-IV	+ 0, -1%	N.A.	+ 10%, -5%	N.A.	Tolarance - Upto 9 mtr +3, -0mm Above 9 mtr +6, -0mm							
IS:2416 Pt-IV	± 0.75% (± 0.30mm min.)	N.A.	+ 10%, -5%	N.A.	Tolarance - Upto 9 mtr +3, -0mm Above 9 mtr +6, -0mm							
IS:11714 Pt-III	As per table	N.A.	+ 18%, -0	+ 10%, -0	Tolarance - Below 50mm + 3.2, -0mm 50mm & above + 4.8, -0mm							
BS:3059 Pt-I	± 0.75% (± 0.30mm min.)	N.A.	Upto 3.25mm ± 10% Over 3.25mm ± 7.5%	N.A.	Tolarance - Upto 6 mtr +6, -0mm Above 6 mtr 1.5mm will increase for every 3 mtr increase of length. (12mm max.)							
BS:3059 Pt-II	± 0.75% (± 0.30mm min.)	N.A. ±	10% (excluding weld area)	N.A.								
BS:6323 Pt-V	As per table	N.A.	Less than 3mm + 10% 3mm & above + 8%	N.A.	-	-	-	-	-	3	-	12
					Tolarance - Upto 0.5 mtr +2, -0mm 0.5 to 2 mtr +3, -0mm ; 2 to 5 mtr +5, -0mm ; 5 to 7 mtr + 10, -0mm ; Above 7 mtr as agreed							
ASTM A-53	1-1/2 NPS & under = ± 0.4mm 2" NPS and over = ±1.0%	N.A.	At any point - 12.5% (max.)	±10%	20 40	6.0 12.0	- 35	- 10.6	16 22	4.88 6.71	22 -	6.71 -

SPEC	OUT SIDE DIAMETER		WALL THICKNESS	WEIGHT	LENGTH
	PIPE BODY	PIPE END			
ASTM- A178 & A214	<1" (25.4mm): ± 0.10mm 1" (25.4mm) to 1-1/2" (38.1mm) Incl.: ± 0.15mm > 1-1/2" (38.1mm) to 2" (50.8mm) excl.: ± 0.20mm 2" (50.8mm) to 2-1/2" (63.5mm) excl.: ± 0.25mm 2-1/2" (63.5mm) to 3" (76.2mm) excl.: ± 0.30mm 3" (76.2mm) to 4" (101.6mm) Incl.: ± 0.38mm > 4" (101.6mm) to 7-1/2" (190.5mm) Incl.: + 0.38mm, - 0.64mm > 7-1/2" (190.5mm)to 9" (228.6mm) Incl.: +0.38mm, - 1.14mm	N.A.	+ 18%, -0	+ 10%, -0	< 2" (50.8mm) O.D. : +3mm, - 0 ⩾ 2" (50.8mm) O.D. : +5mm, - 0
ASTM- A333 & A334	1/8" to 1-1/2" Incl.: + 0.40mm, - 0.80mm over 1-1/2" to 4" Incl.: ± 0.80mm over 4" to 8" Incl.: + 1.60mm, - 0.80mm over 8" to 18" Incl.: + 2.40mm, - 0.80mm	N.A.	At any point: -12.5% (max)	Single pipe NPS 12 & under: +10%, - 3.5% Single pipe over NPS 12: +10%, - 5%	20 6.0 - - 16 4.88 22 6.71 40 12.0 35 10.67 22 6.71 - -
					Specified length: + 6mm, - 0
API 5 CT	< 4-1/2" (114.3mm) O.D.:± 0.031" (0.79mm) ⩾ 4-1/2" (114.3mm) O.D.: +1% D, - 0.5% D	N.A.	+ not limited - 12.50%	Single Length: +6.5%, - 3.5% Carload ⩾ 40,000 lbs (18,144 kgs): - 1.75% Carload < 40,000 lbs (18,144 kgs): -3.5%	Casing ft. Range 1: 16-25 Range 2: 25-34 Range 3: 34-48 mtrs. (4.88-7.62) (7.62-10.36) (10.36-14.63) Tubing ft. 20-24 28-32 38-42 mtrs. (6.10-7.32) (8.53-9.75) (11.58-12.80)
					Pup joints 2,3,4,6,8,10 & 12 ft. tolerance : ± 3"
IBR	± 0.75% (But min 0.30mm)	N.A.	for grade WC1: ⩽ 3.2mm: ± 10% > 3.2mm : ± 7.5% for grade WC2 & WC3: ± 10%	N.A.	tolerance - Upto & incl. 6 mm, - 0 and above 6 mtrs.: 1.5mm will incesase for every 3 mtr increase of length. (12mm max.)
RDSO ETI/OHE/11	33.7mm OD + 0.8, - 1.0mm 38.0mm OD + 0.32,- 0.2mm 49.0mm OD + 0.32,- 0.2mm	28.4 (Std. ID) & 27.70 (Min. ID) 29.9 (Std. ID) & 29.58 (Min. ID) 40.9 (Std. ID) & 40.58 (Min. ID)	-0.31mm, + not limited -0.35mm, + not limited -0.35mm, + not limited	N.A. N.A. N.A.	Tolarance - As agreed

CHEMICAL COMPOSITION & MECHANICAL PROPERTIES

Specification	Grade	Chemical Composition (%) Max.							Mechanical Properties								% Elongation e (min)	Impact Energy J (Ft.lb) (min.)
		C	Mn	P	S	Si	C.E.		Yield Strength				Tensile Strength					
							PCM	IIW	Min		Max		Min		Max			
									PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa		
API 5L PSL - 1 & IS/ISO:3183 PSL - 1	L210 or A	0.22	0.90	0.030	0.030	-	-	-	30,500	210	-	-	48,600	335	-	-	U.S Customary Unit $e = 625{,}000\ A^{0.2} / U^{0.9}$	-
	L245 or B	0.26	1.20	0.030	0.030	-	-	-	35,500	245	-	-	60,200	415	-	-		-
	L290 or X-42	0.26	1.30	0.030	0.030	-	-	-	42,100	290	-	-	60,200	415	-	-	S.I Unit $e = 1940\ A^{0.2} / U^{0.9}$	-
	L320 or X-46	0.26	1.40	0.030	0.030	-	-	-	46,400	320	-	-	63,100	435	-	-		-
	L360 or X-52	0.26	1.40	0.030	0.030	-	-	-	52,200	360	-	-	66,700	460	-	-	Legend : e = Specified min. elongation	-
	L390 or X-56	0.26	1.40	0.030	0.030	-	-	-	56,600	390	-	-	71,100	490	-	-	A= Tensile test piece cross sectional area.	-
	L415 or X-60	0.26	1.40	0.030	0.030	-	-	-	60,200	415	-	-	75,400	520	-	-		-
	L450 or X-65	0.26	1.45	0.030	0.030	-	-	-	65,300	450	-	-	77,600	535	-	-	U= Specified min. tensile strength.	-
	L485 or X-70	0.26	1.65	0.030	0.030	-	-	-	70,300	485	-	-	82,700	570	-	-		-
API 5L PSL - 2 & IS/ISO:3183 PSL - 2	L245M or BM	0.22	1.20	0.025	0.015	0.45	0.25	0.43	35,500	245	65,300	450	60,200	415	110,200	760		27 (20)
	L290M or X42M	0.22	1.30	0.025	0.015	0.45	0.25	0.43	42,100	290	71,800	495	60,200	415	110,200	760		27 (20)
	L320M or X46M	0.22	1.30	0.025	0.015	0.45	0.25	0.43	46,400	320	76100	525	63,100	435	110,200	760		27 (20)
	L360M or X52M	0.22	1.40	0.025	0.015	0.45	0.25	0.43	52,200	360	76,900	530	66,700	460	110,200	760		27 (20)
	L390M or X56M	0.22	1.40	0.025	0.015	0.45	0.25	0.43	56,600	390	79,000	545	71,100	490	110,200	760		27 (20)
	L415M or X60M	0.12	1.60	0.025	0.015	0.45	0.25	0.43	60,200	415	81,900	565	75,400	520	110,200	760		27 (20)
	L450M or X65M	0.12	1.60	0.025	0.015	0.45	0.25	0.43	65,300	450	87,000	600	77,600	535	110,200	760		27 (20)
	L485M or X70M	0.12	1.70	0.025	0.015	0.45	0.25	0.43	70,300	485	92,100	635	82,700	570	110,200	760		27 (20)
IS:1239	-	0	.20	1.30	0.040	0.040	-	-	-	-	-	-	-	-	320	-	-	12 UPTO 25 mm NB 20 ABOVE 25 mm	-
IS:3589	Fe 330	0.16	1.20	0.040	0.040	-	-	-	-	195	-	-	-	330	-	-	20	-
	Fe 410	0.20	1.30	0.040	0.040	-	-	0.45	-	235	-	-	-	410	-	-	18	-
	Fe 450	0.25	1.20	0.040	0.040	-	-	0.45	-	275	-	-	-	450	-	-	15 $GL = 5.65\sqrt{Area}$	
IS:1161	YST-210	0.12	0.60	0.040	0.040	-	-	-	-	210	-	-	-	330	-	-	20	Distance between plates Forweld-75%, 85%, 85% For parent- 60%, 75%, 75% N.A.
	YST-240	0.16	1.20	0.040	0.040	-	-	-	-	240	-	-	-	410	-	-	17	
	YST-310	0.25	1.30	0.040	0.040	-	-	0.45	-	310	-	-	-	450	-	-	14 $GL = 5.65\sqrt{Area}$	
IS:4270	Fe410	-	-	0.040	0.040	-	-	-	-	235	-	-	-	410	-	-	15	Hardness= 230 HV max
	Fe 450	-	-	0.040	0.040	-	-	-	-	275	-	-	-	450	-	-	13 $GL = 5.65\sqrt{Area}$	
IS:4923	YST-210	-	-	0.050	0.050	-	-	-	-	210	-	-	-	330	-	-	upto 25.4 above 25.4	-
	YST-240	-	-	0.050	0.050	-	-	-	-	240	-	-	-	410	-	-	12 20	
	YST-310	-	-	0.050	0.050	-	-	-	-	310	-	-	-	450	-	-	10 15	
																	8 10 $GL = 5.65\sqrt{Area}$	
IS:9295	YST-210	-	-	0.06	0.06	-	-	-	-	210	-	-	-	330	-	-	20	Drift test = minimum increase in OD after expansion shall be 2.5% Flattering distance between plates for weld = 75% and for parent = 60%
	YST-240	-	-	0.06	0.06	-	-	-	-	240	-	-	-	410	-	-	18	
	YST-310	-	-	0.06	0.06	-	-	-	-	310	-	-	-	450	-	-	15 $GL = 5.65\sqrt{Area}$	

CHEMICAL COMPOSITION & MECHANICAL PROPERTIES

Specification	Type	Grade	CHEMICAL COMPOSITION								MECHANICAL PROPERTIES									Remarks Impact / Hardness
			C		Mn		P	S	Sl		YIELD STRENGTH				TENSILE STRENGTH				% Elongation (min) e	
											Min		Max		Min		Max			
			Min	Max	Min	Max	Max	Max	Min	Max	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa		
IS:2416 Pt-IV	ERW	310	0.08	0.25	0.35	1.40	0.050	0.050	-	0.35	-	152	-	-	-	304	-	402	(100 - RM / 9.81) /C C=2.20 RM = Measured T.S.	
		360	0.08	0.25	0.35	1.40	0.050	0.050	-	0.35	-	177	-	-	-	353	-	451		
		440	0.08	0.25	0.35	1.40	0.050	0.050	-	0.35	-	201	-	-	-	402	-	500		
IS:11714 Pt-III	ERW	-	0.06	0.18	0.27	0.63	0.035	0.035	-	0.25	-	-	-	-	-	-	-	-		77 HRB (Max)
IS:1914 Pt-IV	ERW	320	0.08	0.25	0.35	1.40	0.050	0.050	-	0.35	-	176	-	-	-	320	-	480	(100 - RM / 9.81) /C C=2.20 RM = Measured T.S.	-
		360	0.08	0.25	0.35	1.40	0.050	0.050	-	0.35	-	198	-	-	-	360	-	500		-
		440	0.08	0.25	0.35	1.40	0.050	0.050	-	0.35	-	242	-	-	-	440	-	580		-
BS:1387	ERW	-	-	0.20	-	1.20	0.045	0.045	-	-	-	195	-	-	-	320	-	460	12 UPTO 25 mm NB 20 ABOVE 25 mm	-
BS:3059 Part-I	ERW	320	-	0.16	0.30	0.70	0.040	0.040	-	0.35	-	195	-	-	-	320	-	480	25	-
BS:3059 Part-II	ERW	360	-	0.17	0.40	0.80	0.035	0.035	0.10	0.35	-	235	-	-	-	360	-	500	24	-
		440	0.12	0.18	0.90	1.20	0.035	0.035	0.10	0.35	-	245	-	-	-	480	-	580	21	-
BS:6323 Part-V	ERW	ERW-1	-	0.13	-	0.60	0.050	0.050	-	-	-	200	-	-	-	300	-	-	D/a <2 0 D/a >20/10	-
		ERW-2	-	0.16	-	0.70	0.050	0.050	-	-	-	250	-	-	-	340	-	-	10 20	-
		ERW-3	-	0.20	-	0.90	0.050	0.050	-	0.35	-	300	-	-	-	400	-	-	8 15 7 12	-
ASTM A-53	ERW	A	-	0.25	-	0.95	0.050	0.045	Cu, Ni, Cr = 0.40 max. Mo= 0.15 max., V= 0.08 max.		30,000	205	-	-	48,000	330	-	-	$e = 625{,}000\ A^{0.2}/U^{0.9}$ at GL 50.8 mm	-
		B	-	0.30	-	1.20	0.050	0.045			35,000	240	-	-	60,000	415	-	-		-
ASTM A-178	ERW	A	0.06	0.18	0.27	0.63	0.035	0.035	-	-	26,000	180	-	-	47,000	325	-	-	35	-
		C	-	0.35	-	0.80	0.035	0.035	-	-	37,000	255	-	-	60,000	415	-	-	30	-
ASTM-A-214	ERW	-	-	0.18	0.27	0.63	0.035	0.035	-	-	-	-	-	-	-	-	-	-		72 HRB (Max)
ASTM A333 & A334	ERW	1	-	0.30	0.40	1.06	0.025	0.025	-	-	30,000	205	-	-	55,000	380	-	-	35	14 J
		6	-	0.30	0.29	1.06	0.025	0.025	0.10	-	35,000	240	-	-	60,000	415	-	-	30	85 HRB (Max) 18 J 90 HRB (Max)
IBR	ERW	W C1	-	0.16	0.30	0.70	0.040	0.040	-	0.35	-	195	-	-	-	320	-	480	25	-
		W C2	-	0.17	0.40	0.80	0.035	0.035	0.10	0,35	-	235	-	-	-	360	-	500	24	-
		W C3	0.12	0.18	0.90	1.20	0.035	0.035	0.10	0.35	-	245	-	-	-	440	-	580	21	-
RDSO (ETI/ OHE /11)	ERW	YST-310	-	-	-	-	0.060	0.060	-	-	-	310	-	-	-	440	-	-	14	Exp-7.5% fo ID
API 5CT	ERW	J-55	-	-	-	-	0.030	0.030	-	-	-	379	-	552	-	517	-	-	$e=1942.57.\frac{A^{0.2}}{U^{0.9}}$ e = Min. elongation A = tensile test piece cross sectional area U = Specified minimum tensile strength(MPa)	
		N 80 Type-1	-	-	-	-	0.030	0.030	-	-	-	552	-	758	-	689	-	-		
		N 80 Type-Q	-	-	-	-	0.030	0.030	-	-	-	552	-	758	-	689	-	-		

NOTE: Refer current editions of Relevant Specification for Dimension and Properties data.
Specifications are subject to change without any prior notice.

A= Speciman crosssectional area
U= Specified Min. T.S.