

CHEMICAL AND MECHANICAL PROPERTIES

JINDA

SPECS	TYPE	GRADE	CHEMICAL COMPOSITION								MECHANICAL PROPERTIES										Impact Energy J Ft/Lb	Hydrotest Test Pressure PSI (MPa)
											YIELD STRENGTH					TENSILE STRENGTH						
			C Max	Mn Max	P Max	S Max	CE	PCN	EW		Min	Max	Min	Max	Min	Max	Min	Max	% Elongation in 4"			
API 5L	ERW	A	0.22	0.90	0.030	0.030	-	-	-	-	30,000	207	-	-	48,000	331	-	-	U.S. customary unit e=625,000 A ² 2/U ² 9	-	-	
		PSL-1	B	0.26	1.20	0.030	0.030	-	-	-	-	35,000	241	-	-	60,000	414	-	-	S.I. Unit e=1944 A ² 2/U ² 9	-	-
			X-42	0.26	1.30	0.030	0.030	-	-	-	-	42,000	290	-	-	60,000	414	-	-	-	-	-
			X-46	0.26	1.40	0.030	0.030	-	-	-	-	46,000	317	-	-	63,000	434	-	-	-	-	-
			X-52	0.26	1.40	0.030	0.030	-	-	-	-	52,000	359	-	-	66,000	455	-	-	-	-	-
			X-56	0.26	1.40	0.030	0.030	-	-	-	-	56,000	386	-	-	71,000	490	-	-	-	-	-
			X-60	0.26	1.40	0.030	0.030	-	-	-	-	60,000	414	-	-	75,000	517	-	-	-	-	-
			X-65	0.26	1.45	0.030	0.030	-	-	-	-	65,000	448	-	-	77,000	531	-	-	-	-	-
X-70	0.26	1.65	0.030	0.030	-	-	-	-	70,000	483	-	-	82,000	565	-	-	-	-	-			
API 5L	ERW	B	0.22	1.20	0.025	0.015	0.25	0.43	35,000	241	65,000	448	60,000	414	110,000	758	-	-	-	-	-	
		PSL-2	X-42	0.22	1.30	0.025	0.015	0.25	0.43	42,000	290	72,000	496	60,000	414	110,000	758	-	-	-	-	-
			X-46	0.22	1.40	0.025	0.015	0.25	0.43	46,000	317	76,000	524	63,000	434	110,000	758	-	-	-	-	-
			X-52	0.22	1.40	0.025	0.015	0.25	0.43	52,000	359	77,000	531	66,000	455	110,000	758	-	-	-	-	-
			X-56	0.22	1.40	0.025	0.015	0.25	0.43	56,000	386	79,000	544	71,000	490	110,000	758	-	-	-	-	-
			X-60	0.22	1.40	0.025	0.015	0.25	0.43	60,000	414	82,000	565	75,000	517	110,000	758	-	-	-	-	-
			X-65	0.22	1.45	0.025	0.015	0.25	0.43	65,000	448	87,000	600	77,000	531	110,000	758	-	-	-	-	-
			X-70	0.22	1.65	0.025	0.015	0.25	0.43	70,000	483	90,000	621	82,000	565	110,000	758	-	-	-	-	-
IS: 1978	ERW	YST-210	0.22	0.90	0.040	0.050	-	-	-	-	210	-	-	-	330	-	-	e= 1942.57 A ² 2/U ² 9	-	-	-	
		YST-240	0.27	1.15	0.040	0.050	-	-	-	-	240	-	-	-	410	-	-	-	-	-	-	
IS: 1979	ERW	YST-290	0.28	1.25	0.040	0.050	-	-	-	-	290	-	-	-	410	-	-	e= 1942.57 A ² 2/U ² 9	-	-	-	
		YST-320	0.30	1.35	0.040	0.050	-	-	-	-	320	-	-	-	430	-	-	-	-	-	-	
		YST-360	0.30	1.35	0.040	0.050	-	-	-	-	360	-	-	-	450*/500**	-	-	-	-	-	-	
		YST-390	0.26	1.35	0.040	0.050	-	-	-	-	390	-	-	-	490*/520**	-	-	-	-	-	-	
		YST-410	0.26	1.35	0.040	0.050	-	-	-	-	410	-	-	-	520*/540**	-	-	-	-	-	-	
		YST-450	0.26	1.40	0.040	0.050	-	-	-	-	450	-	-	-	530*/550**	-	-	-	-	-	-	
		YST-480	0.23	1.60	0.040	0.050	-	-	-	-	480	-	-	-	565	-	-	-	-	-	-	
* Applicable for pipes with < 508mm OD and any wall thickness, and pipe with 508mm OD and larger, and wall thickness > 9.5mm ** Applicable for pipes with 508mm OD and larger wall thickness < 9.5mm																						
ASTM	ERW	A	0.25	0.95	0.050	0.045	-	-	-	-	30,000	205	-	-	48,000	330	-	-	e= 625,000 A ² 2/U ² 9	-	-	
		B	0.30	1.20	0.050	0.045	-	-	-	-	35,000	240	-	-	60,000	415	-	-	-	-	-	
IS: 3589	ERW	Fe 330	0.16	1.20	0.040	0.040	-	-	-	-	195	-	-	-	330	-	-	G.L= 5.65/1000	-	-		
		Fe 410	0.20	1.30	0.040	0.040	-	-	-	-	235	-	-	-	410	-	-	20	-	-		
		Fe 450	0.25	1.20	0.040	0.040	-	-	-	-	275	-	-	-	450	-	-	18	-	-		
IS: 4270	ERW	Fe 410	-	-	0.040	0.040	-	-	-	-	235	-	-	-	410	-	-	15	-	-		
		Fe 450	-	-	0.040	0.040	-	-	-	-	275	-	-	-	450	-	-	13	-	-		
API	ERW	H-40	-	-	0.030	0.030	-	-	-	-	40,000	276	80,000	552	60,000	414	-	-	e= 625,000 A ² 2/U ² 9	-	-	
		J-55	-	-	0.030	0.030	-	-	-	-	55,000	379	80,000	552	75,000	517	-	-	-	-	-	

NOTE: Refer current editions of Relevant Specification for Dimensions and Properties data.

* Specifications are subjected to change without any prior notice.

A = Specimen cross-sectional area
U = Specified Min. T.S.

P = Test pressure PSI (MPa)
T = Specified wall thickness

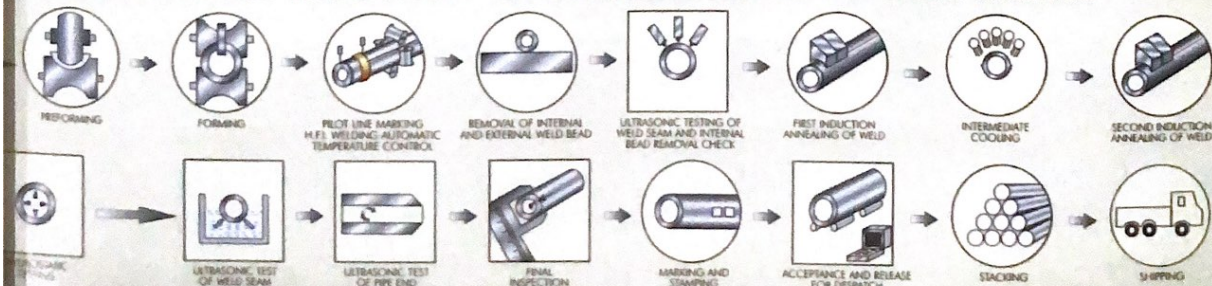
ERW CASING PIPES CONFORMING TO API 5C T **DIMENSION & WEIGHT (Kg/m)/(lb/ft)**

DESIGNATION		OUTSIDE DIAMETER (D)		WALL THICKNESS		INSIDE DIAMETER		PLAIN-END WEIGHT	
inch	lb/ft	inch	mm	inch	mm	inch	mm	lb/ft	Kg/m
6-5/8	20.00	6.625	168.3	0.288	7.30	6.049	153.64	19.51	29.00
6-5/8	24.00	6.625	168.3	0.352	8.90	5.921	150.40	23.60	35.10
6-5/8	28.00	6.625	168.3	0.417	10.60	5.791	147.10	27.67	41.20
6-5/8	32.00	6.625	168.3	0.475	12.10	5.675	144.15	31.23	46.48
7.00	17.00	7.00	177.80	0.231	5.90	6.538	166.06	16.72	24.90
7.00	20.00	7.00	177.80	0.272	6.90	6.456	163.98	19.56	29.10
7.00	23.00	7.00	177.80	0.317	8.05	6.366	161.70	22.65	33.70
7.00	26.00	7.00	177.80	0.362	9.20	6.276	159.41	25.69	38.20
7.00	29.00	7.00	177.80	0.408	10.40	6.184	157.07	28.75	42.80
7.00	32.00	7.00	177.80	0.453	11.50	6.094	154.79	31.70	47.20
7.00	35.00	7.00	177.80	0.498	12.70	6.004	152.50	34.61	51.50
8-5/8	24.00	8.625	219.1	0.264	6.70	8.097	205.66	23.60	35.10
8-5/8	28.00	8.625	219.1	0.304	7.70	8.017	203.63	27.04	40.24
8-5/8	32.00	8.625	219.1	0.352	8.90	7.921	201.19	31.13	46.33
8-5/8	36.00	8.625	219.1	0.400	10.20	7.825	198.75	35.17	52.34
8-5/8	40.00	8.625	219.1	0.452	11.50	7.725	196.21	39.33	58.53
8-5/8	44.00	8.625	219.1	0.500	12.70	7.625	193.67	43.43	64.63
9-5/8	32.30	9.625	244.50	0.312	7.90	9.001	228.62	31.06	46.20
9-5/8	36.00	9.625	244.50	0.352	8.90	8.921	226.59	34.89	51.90
9-5/8	40.00	9.625	244.50	0.395	10.00	8.835	224.41	38.97	58.00
9-5/8	43.50	9.625	244.50	0.435	11.00	8.755	222.38	42.73	63.60
9-5/8	47.00	9.625	244.50	0.472	12.00	8.681	220.50	46.18	68.70
10-3/4	32.75	10.75	273.1	0.279	7.10	10.192	258.87	31.23	46.48
10-3/4	40.50	10.75	273.1	0.350	8.90	10.050	255.27	38.91	57.90
10-3/4	45.50	10.75	273.1	0.400	10.20	9.950	252.73	44.26	65.87
10-3/4	51.00	10.75	273.1	0.450	11.50	9.850	250.19	49.55	73.74
10-3/4	55.50	10.75	273.1	0.495	12.60	9.760	247.90	54.26	80.75
13-3/8	48.00	13.375	339.7	0.330	8.40	12.715	322.96	46.02	68.50
13-3/8	54.50	13.375	339.7	0.380	9.70	12.615	320.42	52.79	78.60
13-3/8	61.00	13.375	339.7	0.430	10.90	12.515	317.88	59.50	88.55
13-3/8	68.00	13.375	339.7	0.480	12.20	12.415	315.34	66.17	98.50
16	65.00	16.000	406.4	0.375	9.50	15.250	387.34	62.64	93.22
16	75.00	16.000	406.4	0.438	11.10	15.124	384.15	72.86	108.40
16	84.00	16.000	406.4	0.495	12.60	15.010	381.25	82.05	122.10
18-5/8	87.50	18.625	473.07	0.435	11.10	17.755	450.98	84.59	125.90
20	94.00	20.000	508.00	0.438	11.10	19.124	485.75	91.59	136.30
20	106.50	20.000	508.00	0.500	12.70	19.000	482.60	104.23	155.10

BLACK & GALVANIZED **STEEL TUBES CONFORMING TO IS:1239(I) EQUIVALENT TO BS:1387**

SERIES			LIGHT					MEDIUM					HEAVY				
NOMINAL BORE		O.D.	OUTSIDE DIA.		WALL THICK.	WEIGHT		OUTSIDE DIA.		WALL THICK.	WEIGHT		OUTSIDE DIA.		WALL THICK.	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	42.2	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	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	5.4	21.30	21.90

HIGH FREQUENCY INDUCTION WELDED/ELECTRIC RESISTANCE WELDED



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

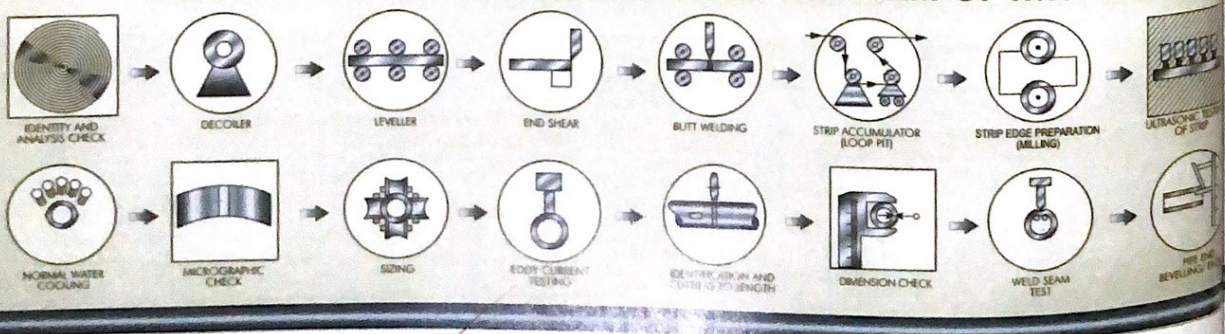
SPEC.	OUT SIDE DIAMETER		WALL THICKNESS	WEIGHT	LENGTH																	
	PIPE BODY	PIPE END			NOMINAL ft mtr.	Avg ft mtr.	Min. ft mtr.	MINIMUM ft mtr.	MAXIMUM ft mtr.													
API 5L	<20 inch Size $\pm 0.75\%$ ≥ 20 inch and ≤ 36 " size $+0.75\% - 0.25\%$	≤ 10 3/4 inch Size + 1.59 mm (1/16") - 0.40 mm (1/64") ≥ 10 3/4 and ≤ 42 inch size + 2.38 mm (3/32") - 0.79 mm (1/32")	<20 inch size + 15.0% - 12.5% ≥ 20 inch size + 17.5% - 12.5% (for Gr. B or lower) + 19.50% - 8.0% (Gr. X-42 or higher)	Single length of pipe + 10% - 3.5% Carloades-40,000 lb (18,144 kg) or more - 1.75%, less - 3.5%	20 40	6.0 12.0	17.5 35	5.33 10.67	9.0 14.0	2.74 4.27	22.3 45.0											
IS. 1978	60.3 and above $\pm 1\%$	≤ 273 1 mm OD ± 1.60 mm - 0.40 mm 323.9 mm OD & larger pipe = + 2.40 mm - 0.80 mm	101.6 mm to 457.2 mm OD = + 15% - 12.5% 508 mm OD and above + 17.5% - 10.0%	Single length of pipe + 10% - 3.5% Carloades: for min. 18,000 Kg - 1.75%	-	6.0 12.0	-	5.3 10.7	-	2.70 4.30	-											
IS. 1979	< 508.0 mm OD $\pm 0.75\%$ ≥ 508.0 mm OD PIPE $\pm 1.0\%$	≤ 273 1 mm OD pipe ± 1.60 mm - 0.40 mm 323.9 mm OD & LARGER PIPE = + 2.40 mm - 0.80 mm	≤ 457.0 mm OD pipe = + 15.0% - 12.5% ≥ 508.0 mm OD pipe = + 19.5% - 8.0%	Single length of pipe + 10% - 3.5% Carloades: for min. 18,144 Kg - 1.75%	-	6.0 12.0	-	5.3 10.7	-	2.70 4.30	-											
ASTM A-53	Pipe 2" NPS and over $\pm 1.0\%$		At any point - 12.5% (Max) $T_m = T_n \times 0.875$ T_n = Nominal w.t T_m = Minimum w.t	$\pm 10\%$	20 40	6.0 12.0	35	10.67	16 22	4.88 6.71	22 45											
IS. 3589	Upto 508 mm OD $\pm 0.75\%$		$\pm 10\%$		-	6.0 12.0	-	-	4.00 7.00	-	7.6 14.0											
IS. 4270	$\pm 1.0\%$		upto 406.4 mm OD = + 15% - 12.5% over 406.4 mm OD $\pm 15\%$ - 10%	+ 10% - 8%	-	6.0	-	-	4.0	-	7.6											
API-5CT	4 - 1/2" and larger $\pm 1.0\%$ - .5% of OD	5" and larger $\pm 1.0\%$ - 0.016"	-12.50%	Single length of pipe + 6.5% - 3.5% Car loades: for min 40,000 lb or more - 1.75%	<table><tr><th>Range-1</th><th>Range-2</th><th>Range-3</th></tr><tr><th>ft/mtr</th><th>ft/mtr</th><th>ft/mtr</th></tr><tr><td>16/4.88 min.</td><td>25/7.62 min.</td><td>34/10.36 min.</td></tr><tr><td>25/7.62 max.</td><td>34/10.36 max.</td><td>48/14.63 max.</td></tr></table>						Range-1	Range-2	Range-3	ft/mtr	ft/mtr	ft/mtr	16/4.88 min.	25/7.62 min.	34/10.36 min.	25/7.62 max.	34/10.36 max.	48/14.63 max.
Range-1	Range-2	Range-3																				
ft/mtr	ft/mtr	ft/mtr																				
16/4.88 min.	25/7.62 min.	34/10.36 min.																				
25/7.62 max.	34/10.36 max.	48/14.63 max.																				

STEAM, WATER, GAS AND AIR LINE ERW PIPES CONFORMING TO ASTM A-53/API 5L

DIMENSION'S & WEIGHT

NPS DESIGN NATION	OUTSIDE DIAMETER		SCHEDULED WALL THICKNESS/ WEIGHT															
			10		20		30		STD		40		XS		60		80	
	inch	mm	inch (lb/ft)	mm (Kg/m)	inch (lb/ft)	mm (Kg/m)	inch (lb/ft)	mm (Kg/m)	inch (lb/ft)	mm (Kg/m)	inch (lb/ft)	mm (Kg/m)	inch (lb/ft)	mm (Kg/m)	inch (lb/ft)	mm (Kg/m)	inch (lb/ft)	mm (Kg/m)
6	6.625	168.3	-	-	-	-	-	-	0.280 18.97	7.11 28.28	0.280 18.97	7.11 28.26	0.432 28.57	10.97 42.56	-	-	0.432 28.57	10.97 42.56
8	8.625	219.1	-	-	0.250 22.360	6.35 33.31	0.277 24.70	7.04 36.31	0.322 28.55	8.18 42.55	0.322 28.55	8.18 42.55	0.500 43.39	12.70 64.64	0.460 35.64	10.31 53.08	0.500 43.39	12.70 64.64
10	10.750	273.0	-	-	0.250 28.04	6.35 41.75	0.307 34.24	7.80 51.01	0.365 40.48	9.27 60.29	0.365 40.48	9.27 60.29	0.500 54.74	12.70 81.52	0.500 54.74 (Xs)	12.70 81.52	-	-
12	12.750	323.8	-	-	0.250 33.38	6.35 49.71	0.330 43.70	8.38 65.18	0.375 49.58	9.52 73.78	0.406 53.52	10.31 79.70	0.500 65.42	12.70 97.43	-	-	-	-
14	14.000	355.0	0.250 36.71	6.35 54.69	0.312 45.61	7.92 67.90	0.375 54.57	9.52 81.25	0.375 54.57	9.52 81.25	0.438 63.44	11.13 94.55	0.500 72.09	12.70 107.39	-	-	-	-
16	16.000	406.4	0.250 42.05	6.35 62.64	0.312 52.27	7.92 77.83	0.375 62.58	9.52 93.17	0.375 62.58	9.52 93.17	0.500 82.77	12.70 123.30	0.500 82.77	12.70 123.30	-	-	-	-
18	18.000	457.2	0.250 47.39	6.35 70.60	0.312 58.94	7.92 87.75	0.438 82.15	11.13 122.43	0.375 70.59	9.52 105.10	-	-	0.500 93.45	12.70 139.20	-	-	-	-
20	20.000	508.0	0.250 52.73	6.35 78.55	0.375 78.60	9.52 117.02	0.500 104.13	12.70 155.12	0.375 78.60	9.52 117.02	-	-	0.500 104.13	12.70 155.12	-	-	-	-

MANUFACTURING AND TESTING FLOW DIAGRAM OF H.F.I WELDED



ERW LINE PIPE CONFORMING TO API 5L, IS:1978, IS:1979

JINDAL

WATER GAS & SEWAGE LINE CONFORMING TO IS:3589

WATER WELL CASING CONFORMING TO IS:4270

DIMENSION AND WEIGHT (Kg/m) / (lb/ft)

W.T.		OUTSIDE DIAMETER inch/mm											
	Inch	6.5/8 mm 168.3	8.5/8 219.1	10.3/4 273.1	12.3/4 323.9	14 355.6	16 406.4	16.5 419.0	16.3/4 426.0	18 457.0	18.5/8 473.0	20 508.0	20.7/8 530.0
mm	Inch	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft	Kg/m lb/ft
3.20	0.125	13.03 8.69	17.04 11.36	-	-	-	-	-	-	-	-	-	-
3.60	0.141	14.62 9.77	19.13 -	-	-	-	-	-	-	-	-	-	-
4.00	0.156	16.21 10.79	21.22 14.12	26.54 17.67	-	-	-	-	-	-	-	-	-
4.40	0.172	17.78 11.87	23.29 -	29.15 -	34.67 23.13	38.10 -	43.62 -	44.98 -	45.74 -	49.10 -	50.84 -	-	-
4.50	0.180	18.18 -	23.81 -	29.80 -	35.44 -	38.96 -	44.60 -	46.00 -	46.77 -	50.21 -	51.99 -	-	-
4.80	0.188	19.35 12.94	25.37 16.96	31.76 21.23	37.77 25.25	41.52 27.76	47.54 31.78	49.03 -	49.86 -	53.53 35.80	55.42 -	59.56 -	62.17 -
5.20	0.203	20.91 13.94	27.43 18.28	34.35 22.89	40.87 27.23	44.93 29.94	51.45 34.28	53.06 -	53.96 -	57.93 -	59.99 -	64.47 -	67.30 -
5.30	0.209	-	-	-	-	45.78 30.96	-	-	-	-	-	-	-
5.40	0.210	21.69 -	28.45 -	35.64 -	42.41 -	46.63 -	53.40 -	55.08 -	56.01 -	60.13 -	62.27 -	66.93 -	69.86 -
5.60	0.219	22.47 15.00	29.48 19.68	36.94 24.65	43.96 29.34	48.33 32.26	55.35 36.95	57.09 -	58.05 -	62.34 41.63	64.54 -	69.38 46.31	72.42 -
6.00	0.236	24.01 -	31.53 -	39.52 -	47.04 -	51.73 -	59.24 -	61.11 -	62.14 -	66.73 -	69.10 -	74.27 -	77.53 -
6.30	0.248	25.17 -	33.06 -	41.45 -	49.34 -	54.26 -	62.16 -	64.11 -	65.20 -	70.20 -	72.50 -	77.94 -	81.36 -
6.40	0.250	25.55 17.04	33.57 22.38	42.09 28.06	50.11 33.41	55.11 36.75	63.13 42.09	65.12 -	66.22 -	71.12 47.44	73.64 -	79.16 52.78	82.64 -
7.00	0.277	27.84 -	36.61 24.72	45.93 -	54.70 -	60.17 -	68.94 -	71.12 -	72.33 -	77.68 -	80.44 -	86.48 -	90.28 -
7.10	0.280	28.22 18.99	-	46.57 31.23	55.47 37.46	61.02 41.21	69.91 47.22	72.12 -	73.34 -	78.77 53.23	81.57 -	87.70 59.23	91.55 -
7.80	0.307	-	-	51.03 34.27	-	-	-	79.10 -	80.44 -	-	89.48 -	-	100.44 -
7.90	0.312	31.25 21.06	41.14 27.73	-	61.56 41.48	67.74 45.65	77.63 52.32	80.09 -	81.45 -	87.49 58.99	90.61 -	97.43 65.66	101.71 -
8.00	0.315	31.62 -	41.60 -	52.30 -	62.32 -	68.57 -	78.59 -	81.08 -	82.46 -	88.58 -	91.73 -	98.64 -	102.98 -
8.20	0.322	32.37 -	42.65 28.58	53.56 -	63.84 -	70.25 -	80.52 -	83.07 -	84.48 -	90.75 -	93.99 -	101.06 -	105.51 -
8.40	0.330	-	-	-	65.35 43.81	-	-	85.05 -	86.50 -	-	96.24 -	-	108.05 -
8.70	0.344	34.24 23.10	45.14 30.45	56.72 38.27	67.62 45.62	74.42 50.22	85.32 57.57	88.03 -	89.53 -	96.18 64.93	99.61 -	107.12 72.28	111.84 -
9.00	0.354	35.35 -	46.63 -	58.61 -	69.89 -	76.92 -	88.20 -	90.99 -	92.55 -	99.43 -	102.98 -	110.75 -	115.63 -
9.30	0.365	-	-	60.50 40.52	-	-	-	93.96 -	95.56 -	-	106.34 -	-	119.42 -
9.50	0.375	37.20 25.05	49.10 33.07	61.75 -	73.65 49.61	81.08 54.62	92.98 62.64	95.93 -	97.57 -	104.84 70.65	108.58 -	116.78 78.67	121.94 -
10.00	0.394	39.04 -	51.56 -	64.88 -	77.40 -	85.22 -	97.75 -	100.86 -	102.58 -	110.23 -	114.17 -	122.80 -	128.23 -
10.30	0.405	40.13 -	53.03 -	66.75 -	79.65 53.57	87.70 59.00	100.61 67.68	103.81 -	105.59 -	113.46 76.36	117.52 -	126.41 85.04	132.00 -
10.50	0.413	40.86 -	54.02 -	67.99 -	81.15 -	89.36 -	102.51 -	105.77 -	107.58 -	115.61 -	119.75 -	128.82 -	134.51 -
11.00	0.432	42.67 28.60	-	-	-	-	-	-	-	-	-	-	-
11.10	0.438	43.02 -	56.94 38.33	71.72 48.28	85.62 57.65	94.30 63.50	108.20 72.86	111.65 -	113.57 -	122.05 82.23	126.43 -	136.01 91.59	142.03 -
11.30	0.445	43.75 -	57.90 -	72.95 -	87.10 -	95.94 -	110.10 -	113.61 -	115.56 -	124.20 -	128.65 -	138.41 -	144.54 -
11.50	0.453	44.47 -	58.87 -	74.19 -	88.59 -	97.58 -	111.99 -	115.56 -	117.55 -	126.34 -	130.87 -	140.80 -	147.04 -
11.90	0.469	45.90 -	60.80 -	76.65 -	91.56 -	100.86 67.84	115.77 77.87	119.46 -	121.52 -	130.62 87.89	135.31 -	145.58 97.92	152.04 -
12.00	0.472	46.25 -	61.28 -	77.26 -	92.30 -	101.68 -	116.71 -	120.43 -	122.51 -	131.68 -	136.42 -	146.78 -	153.29 -
12.50	0.492	48.03 -	63.68 -	80.33 -	95.99 -	105.76 -	121.42 -	125.30 -	127.46 -	137.02 -	141.95 -	152.74 -	159.52 -
12.70	0.500	48.73 32.74	64.64 43.43	81.55 54.79	97.46 65.48	107.39 72.16	123.30 82.85	127.25 -	129.44 -	139.15 93.54	144.16 -	155.12 104.23	162.00 -

NOTE: i) Size indicates weight lb/ft respective thickness conforms to API 5L, IS:1978 and IS:1979

ii) Above sizes conform several other National and International Standards for Different Applications.

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