

FORMULA	
SIZE IN MM	
ROUND	$\therefore D^2 \times 0.0019 = Wt/Ft$
SQUARE	$\therefore W^2 \times 0.0024 = Wt/Ft$
FLAT	$\therefore W \times T \times 0.0024 = Wt/Ft$
HEX (A/F)	$\therefore H^2 \times 0.00208 = Wt/Ft$
SHEET/PLAT	$\therefore W \times T \times L \times 0.00000785 = Wt/Pc$
ROUND TUBE	$\therefore [OD - T] \times T \times 0.007516 = Wt/Ft$
SQ./RECT. TUBE	$\therefore (2W + 2H) \times T \times 0.0022 = Wt/Ft$

CONVERSION FORMULA	
<i>To Convert</i>	<i>Multiply by</i>
inches into millimetres	25.4
feet into metres	0.3048
yards into metres	0.9144
miles into kilometres	1.609344
sq. feet into sq. metres	0.092903
sq. yards into sq. metres	0.8361
cu. feet into cu. metres	0.028317
cu. feet into litres	28.32
pounds into kilograms	0.4536

- All dimensions in this book are approximate.
- Suggestions Accepted

BRIGHT BARS				
	ROUND BARS		SQUARE BARS	
Size	Wt / ft	Wt / mtr	Wt / ft	Wt / mtr
1/8"	0.02	0.066	-	-
5/32"	0.03	0.098	-	-
3/16"	0.043	0.141	0.054	0.177
7/32"	0.058	0.190	-	-
1/4"	0.076	0.249	0.097	0.318
9/32"	0.096	0.315	-	-
5/16"	0.119	0.390	0.151	0.495
11/32"	0.143	0.469	-	-
3/8"	0.171	0.561	0.218	0.715
7/16"	0.233	0.764	0.296	0.971
1/2"	0.305	1.001	0.386	1.266
9/16"	0.384	1.260	0.49	1.608
5/8"	0.473	1.552	0.604	1.982
11/16"	0.587	1.926	0.76	2.494
3/4"	0.687	2.254	0.87	2.854
13/16"	0.8	2.625	1.021	3.350
7/8"	0.932	3.058	1.184	3.885

BRIGHT BARS				
	ROUND BARS		SQUARE BARS	
Size	Wt / ft	Wt / mtr	Wt / ft	Wt / mtr
15/16"	1.067	3.501	-	-
1"	1.223	4.013	1.546	5.072
1.1/16"	1.356	4.449	-	-
1.1/8"	1.569	5.148	1.956	6.418
1.3/16"	1.708	5.604	-	-
1.1/4"	1.888	6.195	2.415	7.724
1.5/16"	2.07	6.792	-	-
1.3/8"	2.318	7.605	2.922	9.587
1.7/16"	2.505	8.219	-	-
1.1/2"	2.76	9.056	3.478	11.411
1.9/16"	2.933	9.623	-	-
1.5/8"	3.205	10.516	-	-
1.11/16"	3.421	11.224	-	-
1.3/4"	3.738	12.264	4.726	15.506
1.7/8"	4.3	14.108	-	-
2"	4.905	16.093	6.175	20.260
2.1/8"	5.52	18.111	-	-

BRIGHT BARS

ROUND BARS SQUARE BARS

Size	Wt / ft	Wt / mtr	Wt / ft	Wt / mtr
2.1/4"	6.21	20.375	-	-
2.3/8"	6.873	22.550	-	-
2.1/2"	7.614	24.982	9.646	31.65
2.5/8"	8.28	27.167	-	-
2.3/4"	9.282	30.454	-	-
2.7/8"	9.931	32.584	-	-
3"	11	36.078	138.92	45.58
3.1/4"	12.82	42.059	-	-
3.1/2"	14.95	49.038	-	-
4"	19.62	64.370	24.67	81.03
4.1/2"	24.84	81.490	-	-
5"	30.46	99.923	-	-
6"	43.98	144.305	-	-
7"	59.4	194.891	-	-
8"	77.5	254.278	-	-
9"	99.28	325.721	-	-
10"	121.5	398.477	-	-

BRIGHT BARS

HEXAGON

Size	Wt / ft	Wt / mtr	Size	Wt / ft	Wt / mtr
5	0.052	0.171	28	1.637	5.371
6	0.074	0.243	29	1.749	5.738
7	0.102	0.335	30	7.872	25.828
8	0.133	0.436	32	2.088	6.851
9	0.168	0.551	35	2.548	8.360
10	0.208	0.682	36	2.696	8.846
11	0.252	0.827	40	3.328	10.919
12	0.03	0.983	42	3.669	12.038
13	0.352	1.155	45	4.212	13.820
14	0.408	1.339	46	4.401	14.440
15	0.468	1.536	50	5.2	17.061
16	0.532	1.745	55	6.292	20.644
17	0.601	1.972	57	6.758	22.173
18	0.674	2.211	60	7.488	24.568
19	0.751	2.464	65	8.788	28.833
20	0.832	2.730	70	10.192	33.440
21	0.917	3.009	75	11.7	38.388
22	1.007	3.304	80	13.312	43.677
23	1.1	3.609	85	15.028	49.307
24	1.198	3.931	90	16.848	55.278
25	1.3	4.265	95	18.772	61.591
26	1.406	4.613	100	20.800	68.245
27	1.516	4.974			

BRIGHT BARS

FLAT BARS

Size	Wt / ft	Wt / mtr	Size	Wt / ft	Wt / mtr
5/8 x 3/8	0.361	1.184	1.1/2 x 1/4	0.58	1.903
5/8 x 1/2	0.482	1.581	1.1/2 x 3/8	0.867	2.845
3/4 x 1/4	0.289	0.948	1.1/2 x 1/2	1.158	3.799
3/4 x 3/8	0.434	1.424	1.1/2 x 5/8	1.448	4.751
3/4 x 1/2	0.578	1.896	1.1/2 x 3/4	1.74	5.709
3/4 x 5/8	0.723	2.372	1.1/2 x 1	2.32	7.612
1 x 1/4	0.386	1.266	1.1/2 x 1.1/4	3.024	9.922
1 x 3/8	0.58	1.903	2 x 1/4	0.772	2.533
1 x 1/2	0.77	2.526	2 x 3/8	1.158	3.799
1 x 5/8	0.967	3.173	2 x 1/2	1.54	5.053
1 x 3/4	1.158	3.799	2 x 5/8	1.93	6.332
1.1/4 x 1/4	0.48	1.575	2 x 3/4	2.32	7.612
1.1/4 x 3/8	0.721	2.366	2 x 1	3.085	10.122
1.1/4 x 1/2	0.967	3.173	2 x 1.1/4	3.86	12.665
1.1/4 x 5/8	1.208	3.963	2.1/2 x 1/4	0.967	3.173
1.1/4 x 3/4	1.448	4.751	2.1/2 x 3/8	1.448	4.751
1.1/4 x 1	1.93	6.332	2.1/2 x 1/2	1.93	6.332

BRIGHT BARS

FLAT BARS

Size	Wt / ft	Wt / mtr	Size	Wt / ft	Wt / mtr
2.1/2 x 5/8	2.41	7.907	4 x 5/8	3.86	12.665
2.1/2 x 3/4	2.9	9.515	4 x 3/4	4.63	15.191
2.1/2 x 1	3.86	12.665	4 x 1	6.17	20.244
2.1/2 x 1.1/4	4.83	15.847	4 x 1.1/4	7.71	25.297
2.1/2 x 1.1/2	5.79	18.997	4 x 1.1/2	9.26	30.382
3 x 1/4	1.158	3.799	4 x 2	12.34	40.488
3 x 3/8	1.74	5.709	5 x 3/8	2.9	9.515
3 x 1/2	2.32	7.612	5 x 1/2	3.86	12.665
3 x 5/8	2.9	9.515	5 x 5/8	4.83	15.847
3 x 3/4	3.47	11.385	5 x 3/4	5.79	18.997
3 x 1	4.63	15.191	5 x 1	7.71	25.297
3 x 1.1/4	5.79	18.997	6 x 3/8	3.47	11.385
3 x 1.1/2	6.95	22.803	6 x 1/2	4.63	15.191
3 x 2	9.26	30.382	6 x 5/8	5.79	18.997
4 x 1/4	1.541	5.056	6 x 3/4	6.95	22.803
4 x 3/8	2.315	7.596	6 x 1	9.26	30.382
4 x 1/2	3.085	10.122			

M. S. FLATS					
Size In mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.	Size In mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.
12x3	0.086	0.282	40x6	0.580	1.903
12x5	0.143	0.470	40x8	0.762	2.500
20x3	0.143	0.470	40x10	0.945	3.100
18x4	0.180	0.585	40x12	1.158	3.799
20x5	0.241	0.790	40x16	1.523	4.997
20x6	0.287	0.942	40x20	1.920	6.300
25x3	0.183	0.600	40x25	2.407	7.897
25x5	0.305	1.000	40x32	2.897	9.505
25x6	0.365	1.197	50x3	0.365	1.197
25x8	0.470	1.550	50x5	0.609	1.998
25x10	0.609	1.998	50x6	0.731	2.398
25x12	0.731	2.398	50x8	0.944	3.097
32x3	0.243	0.798	50x10	1.188	3.898
32x5	0.395	1.296	50x12	1.432	4.698
32x6	0.457	1.499	50x16	1.920	6.300
32x8	0.671	2.202	50x20	2.377	7.799
32x10	0.854	2.802	50x25	2.986	9.797
32x12	1.005	3.297	50x40	4.754	15.598
32x16	1.342	4.403	63x6	0.915	3.002
40x3	0.274	0.899	63x8	1.219	4.000
40x5	0.487	1.598	63x10	1.500	4.922

M. S. FLATS					
Size In mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.	Size In mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.
63x12	1.798	5.899	100x25	5.973	19.599
63x16	2.407	7.897	100x32	7.650	25.099
63x20	3.017	9.899	100x40	9.500	31.170
63x25	3.779	12.399	125x6	1.800	5.900
63x32	4.815	15.798	125x8	2.400	7.900
63x40	6.034	19.798	125x10	2.986	9.797
75x6	1.066	3.490	125x12	3.596	11.798
75x8	1.432	4.698	125x16	4.800	15.750
75x10	1.798	5.899	125x20	5.973	19.597
75x12	2.163	7.097	125x25	7.500	24.600
75x16	2.864	9.397	125x32	9.570	31.399
75x20	3.596	11.798	150x6	2.200	7.218
75x25	4.480	14.699	150x8	2.850	9.400
75x40	7.200	23.600	150x10	3.596	11.798
100x6	1.432	4.698	150x12	4.297	14.098
100x8	1.920	6.300	150x16	5.729	18.797
100x10	2.377	7.798	150x20	7.192	23.597
100x12	2.864	9.397	150x25	8.991	29.499
100x16	3.840	12.599	150x32	11.490	37.599
100x20	4.785	15.700	150x40	14.355	47.099

M. S. ROUND			M. S. SQUARE		
Size in mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.	Size in mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.
6	0.067	0.220	9x9	0.195	0.640
8	0.119	0.390	10x10	0.239	0.784
10	0.189	0.620	12x12	0.345	1.132
12	0.271	0.890	16x16	0.612	2.008
16	0.482	1.581	20x20	0.957	3.140
20	0.753	2.471	25x25	1.496	4.908
25	1.173	3.849	32x32	2.450	8.038
32	1.923	6.309	40x40	3.828	12.560
36	2.435	7.989	50x50	5.979	19.617
40	3.005	9.859	63x63	9.497	31.160
45	3.745	12.287	75x75	13.456	44.149
50	4.696	15.403	100x100	23.925	78.498
53	5.275	17.307	T. M. T. BARS		
56	5.895	19.341			
60	6.760	22.180	6(R)	0.067	0.220
63	7.458	24.470	8	0.120	0.395
70	10.563	34.657	10	0.188	0.617
80	12.026	39.457	12	0.270	0.885
90	15.220	49.937	16	0.480	1.578
100	18.793	61.660	20	0.751	2.466
110	22.736	74.597	25	0.174	3.852
125	29.362	96.337	32	1.925	6.313

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M. S. ANGLES			M. S. ANGLES		
Size in mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.	Size in mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.
20x20x3	0.274	0.899	90x90x8	3.292	10.801
25x25x3	0.335	1.099	90x90x10	4.084	13.400
25x25x5	0.548	1.798	100x100x6	2.804	9.200
31x31x3	0.390	1.280	100x100x8	3.687	12.097
35x35x5	0.792	2.599	100x100x10	4.545	14.912
37x37x3	0.518	1.700	100x100x12	5.395	17.701
40x40x3	0.548	1.798	110x110x12	5.028	16.497
40x40x5	0.915	3.002	130x130x10	6.004	19.699
40x40x6	1.066	3.498	150x150x10	6.950	22.803
50x50x5	1.158	3.799	150x150x12	8.290	27.199
50x50x6	1.372	4.502	150x150x16	10.911	35.799
60x60x6	1.645	5.397	150x150x20	13.441	44.100
65x65x6	1.767	5.798	TEE ANGLES		
65x65x8	2.346	7.697			
65x65x10	2.864	9.397	3/4" T	0.275	0.902
75x75x6	2.072	6.798	1" T	0.350	1.148
75x75x8	2.712	8.898	1 1/2" T	1.100	3.610
75x75x10	3.352	10.998	2" T	1.450	4.760
80x80x6	2.224	7.297	2 1/2" T	2.100	6.900
80x80x8	2.925	9.597	3" T	2.800	9.200
90x90x6	2.499	8.199			

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UNEQUAL ANGLES			M. S. CHANNELS		
Size in mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.	Size in mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.
45x30x5	0.853	2.8	75x40	2.172	7.126
45x30x6	2.530	8.3	100x50	2.925	9.597
75x50x6	1.707	5.6	125x65	3.992	13.098
75x50x8	2.255	7.4	150x75	5.120	16.799
90x60x6	2.073	6.8	175x75	5.973	19.597
90x60x8	2.713	8.9	200x75	6.796	22.298
90x60x10	3.353	11	250x80	9.326	30.599
100x75x6	2.438	8	300x90	11.063	36.298
100x75x8	3.200	10.5	400x100	15.270	50.300
100x75x10	3.962	13	BEAMS		
125x75x8	3.688	12.1			
125x75x10	4.541	14.9	100x50	2.432	7.979
150x75x8	4.176	13.7	125x70	4.023	13.199
150x75x10	5.151	16.9	150x75	4.571	14.997
150x75x12	6.126	20.1	175x85	5.943	19.499
150x115x10	6.096	20	200x100	7.893	24.897
150x115x12	7.254	23.8	250x125	11.612	38.099
M.S. GATE CHANNEL			300x140	14.782	48.500
			350x140	16.125	52.906
Collapsible Gate	0.180	0.590	400x140	19.080	62.601
41x32	1.456	4.790	450x150	22.280	73.100
			500x180	26.730	87.700
			600x210	37.370	122.600

M. S. SHEET				M. S. PLATE		
Size in inches	Size in Gauge	Wt. in Kgs./Ft.	Wt. in Kgs./Mtr.	Size in mm	Weight in Kgs. / Ft.	Weight in Kgs. / Mt.
3.15	10	2.300	24.750	4	3.000	32.000
2.80	11	2.045	21.980	5	3.800	40.000
2.50	12	1.826	19.625	6	4.500	48.000
2.24	13	1.636	17.584	8	6.000	64.000
2.00	14	1.461	15.700	10	7.500	80.000
1.80	15	1.314	14.130	12	9.000	96.000
1.60	16	1.168	12.560	16	12.000	128.000
1.40	17	1.022	10.990	20	15.000	160.000
1.25	18	0.913	9.850	25	18.000	200.000
1.12	19	0.818	8.792	M.S. CHEQUERED PLATE		
1.00	20	0.730	7.850			
0.90	21	0.657	7.065	4	3.100	34.000
0.80	22	0.585	6.280	5	3.900	42.000
0.63	24	0.461	4.950	6	4.750	50.000
0.50	26	0.365	3.925	M.S. WINDOW SECTION		
0.40	28	0.293	3.140			
				"Z" (F-7)	0.450	1.476
				4B	0.750	2.461

JINDAL SECTIONS SECTIONAL						
H-Beam Section	Designation (with BS41.1993/ ASTM A6/BIS:12778 applicable spec ⁴)	Sectional Wt. in (Kg/m)	Beam Depth (H) in mm	Flange Width (W) in mm	Web Thk. (tw) in mm	Flange Thk. (t1) in mm
152.4x152.2x23.0	UC-152	23.0	152.4	152.2	5.8	6.8
157.6x152.9x30.0	UC-152	30.0	157.6	152.9	6.5	9.4
161.8x154.4x37.0	UC-152	37.0	161.8	154.4	8	11.5
203.2x203.6x46.1	UC-203	46.1	203.2	203.6	7.2	11
206.2x204.3x52.0	UC-203	52.0	206.2	204.3	7.9	12.5
209.6x205.8x60.0	UC-203	60.0	209.6	205.8	9.4	14.2
215.8x206.4x71.0	UC-203	71.0	215.8	206.4	10	17.3
222.2x209.1x86.1	UC-203	86.1	222.2	209.1	12.7	20.5
254.1x254.6x73.1	UC-254	73.1	254.1	254.6	8.6	14.2
260.3x256.3x88.9	UC-254	88.9	260.3	256.3	10.3	17.3
266.7x258.8x107.1	UC-254	107.1	266.7	258.8	12.8	20.5
276.3x261.3x132.0	UC-254	132.0	276.3	261.3	15.3	25.3
289.1x265.2x167.1	UC-254	167.1	289.1	265.2	19.2	31.7
307.9x305.3x96.9	UC-305	96.9	307.9	305.3	9.9	15.4
314.5x307.4x117.9	UC-305	117.9	314.5	307.4	12	18.7
320.5x309.2x136.9	UC-305	136.9	320.5	309.2	13.8	21.7
327.1x311.2x158.1	UC-305	158.1	327.1	311.2	15.8	25
339.9x314.5x198.1	UC-305	198.1	339.9	314.5	19.1	31.4
352.5x318.4x240.0	UC-305	240.0	352.5	318.4	23	37.7
365.3x322.2x282.9	UC-305	282.9	365.3	322.2	26.8	44.1
400x140x8.9	ISMB-400	61.5	400	140	8.9	16
402.6x177.7x54.1	UB 406	54.1	402.6	177.7	7.7	10.9
406.4x177.9x60.1	UB 406	60.1	406.4	177.9	7.9	12.8

PROPERTIES							
Fillet Radius (R) in mm	Sectional Area (A) in cm ²	Geo. Moment of Inertia		Radius of Gyration		Modulus of Section	
		Iy (cm ⁴)	Ix (cm ⁴)	ry (cm)	rx (cm)	zy (cm ³)	zx (cm ³)
7.6	29.25	399.9	1250	3.7	6.54	52.55	164
7.6	38.26	560.5	1748	3.83	6.76	73.31	221.8
7.6	47.11	706.2	2210	3.87	6.85	91.48	273.2
10.2	58.73	1548	4568	5.13	8.82	152.1	449.6
10.2	66.28	1778	5259	5.18	8.91	174	210.1
10.2	76.37	2065	6125	5.2	8.96	200.6	584.4
10.2	90.43	2537	7618	5.3	9.18	245.9	706
10.2	109.6	3127	9449	5.34	9.28	299.1	850.5
12.7	93.1	3908	11410	6.48	11.07	307	897.9
12.7	113.3	4857	14270	6.55	11.22	379	1096
12.7	136.4	5928	17510	6.59	11.33	458.1	1313
12.7	168.1	7531	22530	6.69	11.58	576.4	1631
12.7	212.9	9870	30000	6.81	11.87	744.3	2075
15.2	123.4	7308	22250	7.69	13.42	478.7	1445
15.2	150.2	9059	27670	7.77	13.57	589.4	1760
15.2	174.4	10700	32810	7.83	13.72	692.1	2048
15.2	201.4	12570	38750	7.9	13.87	807.8	2369
15.2	252.4	16300	50900	8.04	14.2	1037	2995
15.2	305.8	20310	64200	8.15	14.49	1276	3643
15.2	360.4	24630	78870	8.27	14.79	1529	4318
14/7		622	20500	2.82	16.2	88.9	1020
10.2	68.95	1021	18720	3.85	16.48	114.9	930
10.2	76.52	1203	21600	3.97	16.8	135.3	1063

JINDAL SECTIONS SECTIONAL						
H-Beam Section	Designation (with BS41.1993/ ASTM A6/BIS:12778 applicable spec*)	Sectional Wt. in (Kg/m)	Beam Depth (H) in mm	Flange Width (W) in mm	Web Thk. (tw) in mm	Flange Thk. (t1) in mm
409.4x178.8x67.1	UB 406	67.1	409.4	178.8	8.8	14.3
412.8x179.5x74.2	UB 406	74.2	412.8	179.5	9.5	16
450x150x19.4	ISMB-450	72.4	450	150	9.4	17.4
447x190x67.2	IPEA / NPB 450	67.2	447	190	7.6	13.1
450x190x77.6	IPE / NPB 450	77.6	450	190	9.4	14.6
456x192x92.4	IPEA / NPB 450	92.4	456	192	11	17.6
500x180x10.2	ISMB-500	86.9	500	180	10.2	17.2
497x200x79.4	IPEA / NPB 500	79.4	497	200	8.4	14.5
500x200x90.7	IPE / NPB 500	90.7	500	200	10.2	16
506x202x107	IPEO / NPB 500	107	506	202	12	19
600x210x12	ISMB-600	123.0	600	210	12	20.3
602.6x227.6x101.2	UB 610	101.2	602.6	227.6	10.5	14.8
597x220x108	IPE A / NPB 600	108	597	220	9.8	17.5
607.6x228.2x113.0	UB 610	113.0	607.6	228.2	11.1	17.3
600x220x122.4	IPE / NPB 600	122.4	600	220	12	19
612.2x230.2x139.9	UB 610	125.1	612.2	229	11.9	19.6
617.2x230.2x139.9	UB 610	139.9	617.2	230.2	13.1	22.1
610x224x154.0	IPEO / NPB 600	154	610	224	15	24
Beam-600x300						
571x300x129.0	HE AA / WPB 600	129	571	300	12	15.5
590x300x178.0	HE A / WPB 600	178	590	300	13	25
600x300x212.0	HE B / WPB 600	212	600	300	15.5	30
620x305x285.0	HE M / WPB 600	285	620	305	21	40

PROPERTIES							
Fillet Radius (R) in mm	Sectional Area (A) in cm ²	Geo. Moment of Inertia		Radius of Gyration		Modulus of Section	
		Iy (cm ⁴)	Ix (cm ⁴)	ry (cm)	rx (cm)	zy (cm ³)	zx (cm ³)
10.2	85.54	1365	24330	3.99	16.87	152.7	1189
10.2	94.51	1545	27310	4.04	17	172.2	1323
15/7.5		834	30400	3.01	18.2	111.0	1350
21	85.6	1502	29760	4.19	18.65	158.1	1331
21	98.8	1676	33740	4.12	18.48	176.4	1500
21	118	2085	40920	4.21	18.65	217.2	1795
17/8.5		1370	45200	3.52	20.2	152	1810
21	101	1939	42930	4.38	20.61	193.9	1728
21	116	2142	48200	4.31	20.43	241.2	1928
21	137	2620	57780	4.38	20.56	259.6	2284
20/10		2650	91800	4.12	24.2	252	3060
12.7	128.9	2915	75780	4.75	24.24	256.1	2515
24	137	3116	82920	4.77	24.6	283.3	2778
12.7	143.9	3434	87320	4.88	24.63	301	2874
24	156	3387	92080	4.66	24.3	307.9	3069
12.7	159.3	3932	98610	4.97	24.88	343.4	3221
12.7	178.2	4505	111800	5.03	25.05	391.4	3622
24	197	4521	118300	4.79	24.52	403.6	3879
27	164.1	6993	91900	6.53	23.66	466.2	3218
27	226.5	11270	141200	7.05	24.97	751.4	4787
27	270	13530	171000	7.08	25.17	902	5701
27	363.7	18980	237400	7.22	25.55	1244	7660

JINDAL SECTIONS		SECTIONAL				
H-Beam Section	Designation (with BS41.1993/ ASTM A6/BIS:12778 applicable spec*)	Sectional Wt. in (Kg/m)	Beam Depth (H) in mm	Flange Width (W) in mm	Web Thk. (tw) in mm	Flange Thk. (t1) in mm
Beam-700x300						
670x300x150.0	HE AA / WPB 700	150	670	300	13	17
690x300x204.0	HE A / WPB 700	204	690	300	14.5	27
700x300x241.0	HE B / WPB 700	241	700	300	17	32
716x304x301.0	HE M / WPB 700	301	716	304	21	40
200x100x5.7	ISMB-200	25.4	200	100	5.7	10
203.2x133.2x25.1	UB 203	25.1	203.2	133.2	5.7	7.8
206.8x133.9x30	UB 203	30.0	206.8	133.9	6.4	9.6
250x125x6.9	ISMB-250	37.3	250	125	6.9	12.5
251.4x146.1x31.1	UB 254	31.1	251.4	146.1	6	8.6
256x146.4x37.0	UB 254	37.0	256	146.4	6.3	10.9
259.6x147.3x43.0	UB 254	43.0	259.6	147.3	7.2	12.7
300x140x7.7	ISMB-300	46.0	300	140	7.7	13.1
303.4x165x40.3	UB-305	40.3	303.4	165	6	10.2
306.6x165.7x46.1	UB-305	46.1	306.6	165.7	6.7	11.8
310.4x166.9x54.0	UB-305	54.0	310.4	166.9	7.9	13.7
350x140x8.1	ISMB-350	52.4	350	140	8.1	14.2
355x171.5x51	UB-356	51	355	171.5	7.4	11.5
	Channels					
ISMC 250 x 80		30.6	250	80	7.2	14.1
ISMC 250 x 82		34.2	250	82	9	14.1
ISMC x 300 x 90		36.3	300	90	7.8	13.6
ISMC x 400 x 100		50.1	400	100	8.8	15.3

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PROPERTIES							
Fillet Radius (R) in mm	Sectional Area (A) in cm ²	Geo. Moment of Inertia		Radius of Gyration		Modulus of Section	
		Iy (cm ⁴)	Ix (cm ⁴)	ry (cm)	rx (cm)	zy (cm ³)	zx (cm ³)
27	190.9	7673	142700	6.34	27.34	511.5	4260
27	260.5	12180	215300	6.84	28.75	811.9	6241
27	306.4	14440	256900	6.87	28.96	962.7	7340
27	383	18800	329300	7.01	29.32	1237	9198
11/5.5		137	2120	2.11	8.29	27.4	212
7.6	31.97	307.6	2340	3.1	8.56	46.19	230.3
7.6	38.21	384.7	2896	3.17	8.71	57.45	280
13/6.5		335	5130	2.65	10.4	53.5	410
7.6	39.68	447.4	4413	3.36	10.55	61.26	351.1
7.6	47.17	570.6	5537	3.48	10.83	77.96	432.6
7.6	54.77	677.4	6544	3.52	10.93	91.97	504.1
14/7		486	8990	2.86	12.4	69.5	599
8.9	51.32	764.4	8503	3.86	12.87	92.65	560.5
8.9	58.75	895.7	9899	3.9	12.98	108.1	645.7
8.9	68.77	1063	11700	3.93	13.04	127.4	753.6
14/7		538	13600	2.84	14.3	76.8	779
10.2	64.91	968.3	14140	3.86	14.76	112.9	796.4
12	39	211	3880	2.37	9.92	38.5	307
12	43.5	244	4080	2.37	9.68	40.9	326
13	46.5	313	6420	2.6	11.8	47.1	428
15	63.8	508	15200	2.82	15.4	67	760

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SEAMLESS TUBES				LINEPIPE			
Normal Point Size inch	mm	Out side Diameter mm	Schedule 10 mm	Schedule 20 mm	Schedule 30 mm	Standard Weight mm	Schedule 40 mm
1/4	8	13.7	1.65			2.24	2.24
3/8	10	17.1	1.65			2.31	2.31
1/2	15	21.3	2.11			2.77	2.77
3/4	20	26.7	2.11			2.87	2.87
1	25	33.4	2.77			3.38	3.38
1 1/4	32	42.2	2.77			3.56	3.56
1 1/2	40	48.3	2.77			3.68	3.68
2	50	60.3	2.77			3.91	3.91
2 1/2	65	73.0	3.05			5.16	5.16
3	80	88.9	3.05			5.49	5.49
3 1/2	90	101.6	3.05			5.74	5.74
4	100	114.3	3.05			6.02	6.02
5	125	141.3	3.40			6.55	6.55
6	150	168.3	3.40			7.11	7.11
8	200	219.1	3.76	6.35	7.04	8.18	8.18
10	250	273.1	4.19	6.35	7.80	9.27	9.27
12	300	323.9	4.57	6.35	8.38	9.53	10.31
14	350	355.6	6.35	7.92	9.53	9.53	11.13
16	400	406.4	6.35	7.92	9.53	9.53	12.70
18	450	457	6.35	7.92	11.13	9.53	14.27
20	500	508	6.35	9.53	12.70	9.53	15.09
22	550	559	6.35	9.53	12.70	9.53	
24	600	610	6.35	9.53	14.27	9.53	17.48
26	650	660	7.92	12.70		9.53	
28	700	711	7.92	12.70	15.88	9.53	
30	750	762	7.92	12.70	15.88	9.53	
32	800	813	7.92	12.70	15.88	9.53	17.48
34	850	864	7.92	12.70	15.88	9.53	17.48
36	900	914	7.92	12.70	15.88	9.53	19.05

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DIMENSIONS							
Extra Strong mm	Schedule 60 mm	Schedule 80 mm	Schedule 100 mm	Schedule 120 mm	Schedule 140 mm	Schedule 160 mm	Double Extra Strong mm
3.02		3.02					
3.20		3.20					
3.73		3.73				4.78	7.47
3.91		3.91				5.56	7.82
4.55		4.55				6.35	9.09
4.85		4.85				6.35	9.70
5.08		5.08				7.14	10.15
5.54		5.54				8.74	11.07
7.01		7.01				9.53	14.02
7.62		7.62				11.13	15.24
8.08		8.08					
8.56		8.56		11.13		13.49	17.12
9.53		9.53		12.70		15.88	19.05
10.97		10.97		14.27		18.26	21.95
12.70	10.31	12.70	15.09	18.26	20.62	23.01	22.23
12.70	12.70	15.09	18.26	21.44	25.40	28.58	25.40
12.70	14.27	17.48	21.44	25.40	28.58	33.32	25.40
12.70	15.09	19.05	23.83	27.79	31.75	35.71	
12.70	16.66	21.44	26.19	30.96	36.53	40.49	
12.70	19.05	23.83	29.36	34.93	39.67	45.24	
12.70	20.62	26.19	32.54	38.10	44.45	50.01	
12.70	22.23	28.58	34.93	41.28	47.63	53.98	
12.70	24.61	30.96	38.89	46.02	52.37	59.54	
12.70							
12.70							
12.70							
12.70							

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SEAMLESS TUBES				LINEPIPE			
Normal Point Inch	Size mm	Out side Diameter mm	Schedule 10 kg./m	Schedule 20 kg./m	Schedule 30 kg./m	Standard Weight kg./m	Schedule 40 kg./m
1/4	8	13.7	0.49			0.63	0.63
3/8	10	17.1	0.63			0.85	0.85
1/2	15	21.3	1.00			1.27	1.27
3/4	20	26.7	1.27			1.68	1.68
1	25	33.4	2.09			2.50	2.50
1 1/4	32	42.2	2.69			3.38	3.38
1 1/2	40	48.3	3.11			4.05	4.05
2	50	60.3	3.94			5.44	5.44
2 1/2	65	73.0	5.25			8.62	8.62
3	80	88.9	6.46			11.29	11.29
3 1/2	90	101.6	7.42			13.57	13.57
4	100	114.3	8.37			16.07	16.07
5	125	141.3	11.61			21.78	21.78
6	150	168.3	13.81			28.26	28.26
8	200	219.1	20.01	33.31	36.79	42.53	42.53
10	250	273.1	27.79	41.77	51.00	60.29	60.29
12	300	323.9	36.00	49.72	65.20	73.82	79.72
14	350	355.6	54.68	67.94	81.28	81.28	94.49
16	400	406.4	62.63	77.86	93.21	93.21	123.29
18	450	457	70.59	87.79	122.36	105.14	155.91
20	500	508	78.54	117.07	155.10	117.07	183.37
22	550	559	86.50	129.01	171.01	129.01	
24	600	610	94.45	140.94	209.54	140.94	255.14
26	650	660	127.50	202.83		152.87	
28	700	711	137.42	218.73	272.18	164.80	
30	750	762	147.36	234.64	292.06	176.73	
32	800	813	157.28	250.55	311.95	188.66	342.70
34	850	864	167.20	266.46	331.83	200.59	364.58
36	900	914	177.13	282.36	351.72	212.52	420.56

WEIGHT							
Extra Strong Kg./m	Schedule 60 kg./m	Schedule 80 kg./m	Schedule 100 kg./m	Schedule 120 kg./m	Schedule 140 kg./m	Schedule 160 kg./m	Double Extra Strong kg./m
0.80		0.80					
1.10		1.10					
1.62		1.62				1.95	2.55
2.19		2.19				2.89	3.63
3.23		3.23				4.23	5.45
4.47		4.47				5.60	7.76
5.41		5.41				7.24	9.55
7.48		7.48				11.11	13.45
11.41		11.41				14.91	20.39
15.27		15.27				21.33	27.67
18.62		18.62					
22.31		22.31		28.30		33.53	41.02
30.95		30.95		40.28		49.09	57.42
42.56		42.56		54.20		67.55	79.18
64.63	53.09	64.63	75.89	90.43	100.93	111.25	107.87
81.54	81.54	95.97	114.74	133.00	155.10	172.25	155.10
97.44	108.96	132.01	159.85	186.92	208.04	238.72	186.92
107.38	126.68	158.08	194.90	224.60	253.53	281.68	
123.29	160.12	203.48	245.50	286.62	333.11	365.30	
139.19	205.80	254.59	309.76	363.65	408.45	459.51	
155.10	247.85	311.17	381.53	441.49	508.11	564.81	
171.01	294.25	373.83	451.42	527.02	600.63	672.26	
186.92	355.02	442.08	547.71	640.03	720.15	808.22	
202.83							
218.73							
234.64							
250.55							
266.46							
282.36							

TECHNICAL DATA OF

IS Specification IS - 1239 (Part 1)

N.B. and Series	Nominal Weight		GALVD S/S
	Wall Thickness	Black Plain End	
MM	MM	Mtrs. / Tonne	Mtrs. / Tonne
15 L	2.00	1056	1046
M	2.60	826	819
H	3.20	694	689
20 L	2.30	724	719
M	2.60	641	637
H	3.20	534	532
25 L	2.60	505	500
M	3.20	415	411
H	4.00	341	339
32 L	2.60	393	389
M	3.20	322	319
H	4.00	264	261
40 L	2.90	309	306
M	3.20	821	277
H	4.00	229	226

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ERW TUBES (MS / GALVD.)

1990 Dimensions & Weights etc.

N.B. and Series	Nominal Weight		GALVD S/S
	Wall Thickness	Black Plain End	
MM	MM	Mtrs. / Tonne	Mtrs. / Tonne
50 L	2.90	245	241
M	3.60	199	196
H	4.50	161	159
65 L	3.20	175	171
M	3.60	155	153
H	4.50	126	124
80 L	3.20	149	145
M	4.00	119	117
H	4.80	101	96
100 L	3.60	102	100
M	4.50	82	80
H	5.40	69	67
125 M	4.80	63	61
H	5.40	56	54
150 M	4.80	53	51
H	5.40	47	45

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TECHNICAL DATA OF

Confirming to IS : 3589 - 1991

Nominal Size (mm)	Thick-ness mm	Kg./ Mtr.	Meters / Mt.	Nominal Size (mm)	Thick-ness mm	Kg./ Mtr.	Meters / Mt.
150	4.30	17.39	58	250	4.30	28.50	35
	4.65	18.77	53		4.65	30.78	33
	4.85	19.55	51		4.85	32.08	31
	5.20	20.92	48		5.20	34.36	29
	6.00	24.02	42		6.00	39.52	25
	6.35	25.36	39		6.35	41.77	24
	7.00	27.85	36		7.00	45.94	22
200	4.30	22.78	44		8.00	52.30	19
	4.65	24.59	41		9.50	61.76	16
	4.85	25.63	39	300	4.30	33.89	30
	5.20	27.43	37		4.65	36.61	27
	6.00	31.53	32		4.85	38.16	26
	6.35	33.32	30		5.20	40.87	24
	7.00	36.61	27		6.00	47.04	21
	8.00	41.65	24		6.35	49.73	20
	9.50	49.00	20		7.00	54.71	18

ERW TUBES (MS / GALVD.)

Grade St 330 & Grade St 410

Nominal Size (mm)	Thick-ness mm	Kg./ Mtr.	Meters / Mt.	Nominal Size (mm)	Thick-ness mm	Kg./ Mtr.	Meters / Mt.
	8.00	62.32	16		6.00	51.73	19
	9.50	73.68	14		6.35	54.69	18
350	4.30	37.25	27		7.00	60.18	17
	4.65	40.25	25		8.00	68.58	15
	4.85	41.95	24		9.50	81.09	12
	5.20	44.94	22				

Birmingham Gauges to Inches & Millimeters

B. G.	Thick inch	Thick mm	B. G.	Thick inch	Thick mm
10	0.1250	03.175	25	0.0220	0.5598
12	0.0991	02.517	26	0.0196	0.4981
14	0.0785	01.994	27	0.0175	0.4432
16	0.0625	01.588	28	0.0156	0.3969
18	0.0495	01.257	29	0.0139	0.3531
19	0.0440	01.118	30	0.0123	0.3124
20	0.0392	0.9957	32	0.0098	0.2489
21	0.0349	0.8865	34	0.0077	0.1956
22	0.313	0.7938	36	0.0061	0.1549
24	0.0248	0.6289			

CHEMICAL ANALYSIS

EN No.	Mechanical Properties						Mechanical Properties				
	C.	Mn.	Si.	Cr.	Ni.	Mo.	S.P. Max.	TS t/sq	YS t/sq	E %	Hardness BHN
2062A,B,C	0.23 max.	1.50 max.	0.10-0.40	-	-	-	0.050 max.	410	250	23.0	-
EN - 1 A	0.07/0.15	0.80/1.20	0.10 max	-	-	-	s0.2/0.3	32	-	10	-
EN - 2 B	0.15 max	0.50 max	-	-	-	-	0.050	-	-	-	-
EN - 3 B	0.25 max.	1 max.	0.35 max.	-	-	-	0.060	28	-	17	-
EN-8 D	0.40/0.45	0.70/0.90	0.05/0.35	-	-	-	0.060	-	-	-	152/207
EN-8 M	0.35/0.45	1.00/1.30	0.25 max	-	-	-	s0.12/0.2	35	18	20	201/255
EN-9	0.50/0.60	0.50/0.80	0.05/0.35	-	-	-	0.060	45	23	18	201/255
EN-19	0.35/0.45	0.50/0.80	0.10/0.35	0.90/1.50	-	0.20/0.40	0.050	45	34	22	223/277
EN-24	0.35/0.45	0.45/0.70	0.10/0.35	0.90/1.40	1.30/1.80	0.20/0.35	0.050	50	38	20	-
EN-31	0.90/1.20	0.30/0.75	0.10/0.35	1.00/1.60	-	-	0.050	-	-	-	-
EN-36 A	0.15 max.	0.3/0.6	0.10/0.35	0.60/1.10	3.00/3.75	-	0.05	55	-	15	201/255
EN-41 B	0.35/0.45	0.85 max.	0.10/0.45	1.40/1.80	0.40 max.	0.10/0.25	0.050+	45	34	20	-
EN-42	0.70/0.85	0.55/0.75	0.10/0.40	-	-	-	0.050	-	-	-	-

+Al - 0.92 / 1.20

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EN-45	0.55/0.60	0.70/1.00	1.50/2.00	-	-	-	0.050	-	-	-	-
EN-353	0.20max	0.50/1.00	0.35max	0.75/1.25	1.00/1.50	0.08/0.15	0.050	65	-	12	-
EN-354	0.20	0.5/1.00	0.35 max.	0.75/1.25	1.5/2.00	0.1/0.2	0.05	75	-	12	-
SS 304	0.08	2.00	1.00 max.	18/20	8/10	-	-	-	-	-	-
SS 316	0.06	2.00	1.00	18/18	10/12	2.03	-	-	-	-	-
SS 410	0.15	1.00	1.00	11.5/13.5	-	-	-	-	-	-	-
SS 420	0.15 min	1.00	0.5/1.00	12 to 14	-	-	-	-	-	-	-
1010	0.08/0.13	0.30/0.60	-	-	-	-	0.05/0.04	-	-	-	-
1018	0.15/0.20	0.60/0.90	-	-	-	-	0.05/0.04	-	-	-	-
1040	0.37/0.44	0.60/0.9	-	-	-	-	0.05/0.04	-	-	-	-
4140	0.38/0.43	0.75/1.00	0.15/0.30	0.80/1.10	-	0.15/0.25	0.04/0.035	-	-	-	-
4340	0.38/0.43	0.60/0.80	0.15/0.30	0.70/0.90	1.65/2.0	0.20/0.30	0.04/0.035	-	-	-	-
8620	0.18/0.23	0.70/0.90	0.15/0.30	0.40/0.60	0.40/0.70	0.15/0.25	0.04/0.035	-	-	-	-
16Mn Cr5	0.14/0.19	1.00/1.30	0.15/0.40	0.80/1.10	Upto 30 mm dia		-	80/110	60	10	40
20Mn Cr5	0.17/0.22	1.10/1.40	0.15/0.40	1.00/1.30	Upto 63 mm dia		0.035	65/95	45	11	40
					Upto 30 mm dia		-	100/130	70	8	35
					Upto 63 mm dia		0.035	80/110	55	10	35

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RAILS (WEIGHT & DIMENSIONS)

Meter 7	Yard	A Height	B Bottom	C Top	D Web
6.94 kg	14 LBS	2.1/8"	2.1/8"	1.5/32"	13/64"
		54 mm	54mm	29.00mm	5.00mm
9.92 kg	20 LBS	2.1/2"	2.1/2"	1.3/8"	15.64"
		63.49 mm	63.49mm	35.00mm	6.00mm
11.91 kg	24 LBS	2.23/32"	2.3/4"	1.1/2"	9/32"
		69mm	70mm	38.00mm	7.00mm
14.88 kg	30 LBS	3"	3"	1.5/8"	19/64"
		76.20mm	76.20mm	14.28mm	7.54mm
20.50 kg	41 ^{1/4} LBS	3.15/32"	3.1/4"	1.7/8"	21/64"
		88.05mm	82.07mm	47.06mm	8.33mm
24.80 kg	50 LBS	104.78	100.01	52.39	9.92
29.76kg/m	60 LBS	4.5/16"	4.5/16"	21/4"	29/64"
		114.30mm	109.54mm	57.15mm	11.01mm
37.13 kg	75 LBS	4.13/16"	4.13/16"	2.7/16"	17.32"
		128.59mm	122.24mm	61.91mm	13.10mm
44.61kg/m	90 LBS	5.3/8"	5.3/8"	2.5/8"	9/64"
		142.88mm	136.53mm	66.68mm	14.29mm
51.89kg/m	105 LBS	5.7/8"	5.7/8"	2.3/4"	37/64"
		156mm	136mm	67mm	155mm
60.34kg/m		172mm	150mm	74.3mm	16.5mm
Crane Rails		A Height	B Bottom	C Top	D Web
CR 80 (64.2 kg/mtr)		130	130	87	32
CR100 (89.0kg/mtr)		150	150	108	38
CR120 (118.0kg/mtr)		170	170	150	60