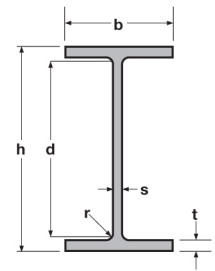


EMERALD SYNERGY MATERIA PTE LTD

CHAKKI STEEL CORPORATION PTE LTD

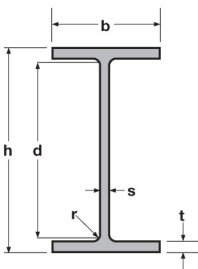


UNIVERSAL BEAMS



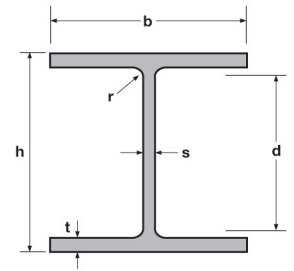
Designation	Mass per Metre	Depth of Section	Width of Section	Thickness Web	Thickness Flange	Root Radius	Depth between fillets
		h	b	s	f	r	d
	kg/m	mm	mm	mm	mm	mm	mm
127 x 76	13	127	76	4	7.6	7.6	96.6
152 x 89	16	152.4	88.7	4.5	7.7	7.6	121.8
178 x 102	19	177.8	101.2	4.8	7.9	7.6	146.8
203 x 102	23	203.2	101.8	5.4	9.3	7.6	169.4
203 x 133	25	203.2	133.2	5.7	7.8	7.6	172.4
	30	206.8	133.9	6.4	9.6	7.6	172.4
254 x 102	22	254	101.6	5.7	6.8	7.6	225.2
	25	257.2	101.9	6	8.4	7.6	225.2
	28	260.4	102.2	6.3	10	7.6	225.2
254 x 146	31	251.4	146.1	6	8.6	7.6	219
	37	256	146.4	6.3	10.9	7.6	219
	43	259.6	147.3	7.2	12.9	7.6	219
305 x 102	25	305.1	101.6	5.8	7	7.6	275.9
	28	308.7	101.8	6	8.8	7.6	275.9
	33	312.7	102.4	6.6	10.8	7.6	275.9
305 x 127	37	304.4	123.3	7.1	10.7	8.9	265.2
	42	307.2	124.3	8	12.1	8.9	265.2
	48	311	125.3	9	14	8.9	265.2
305 x 165	40	303.4	165	6	10.2	8.9	265.2
	46	306.6	165.7	6.7	11.8	8.9	265.2
	54	310.4	166.9	7.9	13.7	8.9	265.2

UNIVERSAL BEAMS



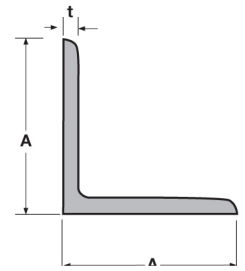
Designation	Mass per Metre	Depth of Section	Width of Section	Thickness Web	Thickness Flange	Root Radius	Depth between fillets
		h	b	s	f	r	d
	kg/m	mm	mm	mm	mm	mm	mm
356 x 127	33	349	125.4	6	8.5	10.2	311.6
	39	353.4	126	6.6	10.7	10.2	311.6
356 x 171	45	351.4	171.1	7	9.7	10.2	311.6
	51	355	171.5	7.4	11.5	10.2	311.6
	57	358	172.2	8.1	13	10.2	311.6
	67	363.4	173.2	9.1	15.7	10.2	311.6
406 x 140	39	398	141.8	6.4	8.6	10.2	360.4
	46	403.2	142.2	6.8	11.2	102.2	360.4
406 x 178	54	402.6	177.7	7.7	10.9	102.2	360.4
	60	406.4	177.9	7.9	12.8	10.2	360.4
	67	409.4	178.8	8.8	14.3	10.2	360.4
	74	412.8	179.5	9.5	16.0	10.2	360.4
457 x 152	52	449.8	152.4	7.6	10.9	10.2	407.6
	60	454.6	152.9	8.1	13.3	10.2	407.6
	67	458.0	153.8	9.0	15.0	10.2	407.6
	74	462.0	154.4	9.6	17.0	10.2	407.6
	82	465.8	155.3	10.5	18.9	10.2	407.6
457 x 191	67	453.4	189.9	8.5	12.7	10.2	407.6
	74	457.0	190.4	9.0	14.5	10.2	407.6
	82	460.0	191.3	9.9	16.0	10.2	407.6
	89	463.4	191.9	10.5	17.7	10.2	407.6
	98	467.2	192.8	11.4	19.6	10.2	407.6

UNIVERSAL COLUMNS



Designation	Mass per Metre	Depth of Section	Width of Section	Thickness Web	Thickness Flange	Root Radius	Depth between fillets
		h	b	s	f	r	d
	kg/m	mm	mm	mm	mm	mm	mm
152 x 152	23	152.4	152.2	5.8	6.8	7.6	123.6
	30	157.6	152.9	6.5	9.4	7.6	123.6
	37	161.8	154.4	8	11.4	7.6	123.6
203 x 203	46	203.2	203.6	7.2	11	10.2	160.8
	52	206.2	204.3	7.9	12.5	10.2	160.8
	60	209.6	205.8	9.4	14.2	10.2	160.8
	71	215.8	206.4	10	17.3	10.2	160.8
	86	222.2	209.1	12.7	20.5	10.2	160.8
254 x 254	73	254.1	254.6	8.6	14.2	12.7	200.3
	89	260.3	256.3	10.3	17.3	12.7	200.3
	107	266.7	258.8	12.8	20.5	12.7	200.3
	132	276.3	261.3	15.3	25.3	12.7	200.3
	167	289.1	265.2	19.2	31.7	12.7	200.3
305 x 305	97	307.9	305.3	9.9	15.4	15.2	246.7
	118	314.5	307.4	12	18.7	15.2	246.7
	137	320.5	309.2	13.8	21.7	15.2	246.7
	157	327.1	311.2	15.8	25.0	15.2	246.7
	198	339.9	314.5	19.1	31.4	15.2	246.7
	240	352.5	318.4	23.0	37.7	15.2	246.7
356 x 368	129	355.6	368.6	10.4	17.5	15.2	290.2
	153	362.0	370.5	12.3	20.7	15.2	290.2
	177	368.2	372.6	14.4	23.8	15.2	290.2
	202	374.6	374.7	16.5	27.0	15.2	290.2
356 x 406	235	381.0	394.8	18.4	30.2	15.2	290.2
	287	393.6	399.0	22.6	36.5	15.2	290.2
	340	406.4	403.0	26.6	42.9	15.2	290.2

EQUAL ANGLES



Designation		Mass per metre
Size	Thickness	
A	t	
mm	mm	kg

25 x 25	2.7	1.01
	3	1.12
	4	1.46
	5	1.77

30 x 30	2.5	1.14
	3	1.36
	4	1.78
	5	2.18

38 x 38	2.5	1.46
	2.7	1.57
	3	1.74
	3.7	2.12
	4.6	2.60
	5	2.80

40 x 40	2.7	1.66
	3.0	1.84
	3.7	2.25
	4	2.42
	4.7	2.81
	5	2.97
	6	3.52

Designation		Mass per metre
Size	Thickness	
A	t	
mm	mm	kg

50 x 50	3.0	2.34
	3.7	2.84
	4.0	3.07
	4.7	3.56
	5	3.77
	5.5	4.12
	6	4.47
	8	5.82

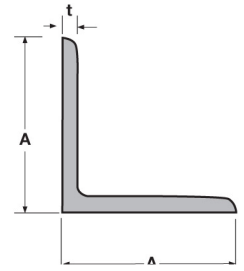
60 x 60	5	4.58
	6	5.42
	8	7.09

63 x 63	5	4.81
	6	5.77

65 x 65	5	4.97
	6	5.92
	8	7.67

70 x 70	5	5.37
	6	6.38
	7	7.38
	8	8.40

EQUAL ANGLES



Designation		Mass per metre
Size	Thickness	
A	t	
mm	mm	kg

75 x 75	5	5.80
	5.5	6.30
	6	6.87
	8	9.03
	9.0	9.96
	10	11.07
	12	13.1

80 x 80	6	7.34
	8	9.63
	10	11.9

90 x 90	6	8.33
	7	9.61
	8	10.9
	9	12.2
	10	13.4
	12	15.9

100 x 100	6	9.20
	7	10.73
	8	12.2
	10	15
	12	17.8
	15	21.9

Designation		Mass per metre
Size	Thickness	
A	t	
mm	mm	kg

120 x 120	8	14.7
	10	18.2
	12	21.6
	15	25
	16	26.6

125 x 125	10	18.80
	12	22.50

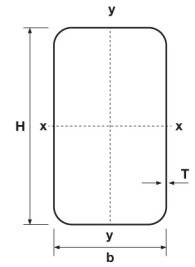
130 x 130	9	17.90
	10	19.89
	12	23.60

150 x 150	10	23
	12	27.3
	15	33.8
	18	40.1
	20	44.2

200 x 200	16	48.5
	18	54.2
	20	60.0
	24	71.1

Grades Available:
S275JR / ASTM A36 / SS400

RECTANGULAR HOLLOW SECTIONS

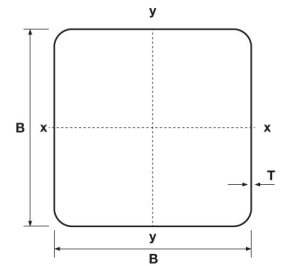


Size	Thickness	Mass
mm	mm	kg/ m
H x b	t	
60 x 40	2.5	3.68
	3	4.35
	3.2	4.62
	4	5.64
80 x 40	3	5.29
	3.2	5.62
	4	6.9
	4.9	8.28
	5	8.42
	6	9.87
100 x 50	3	6.71
	3.2	7.13
	3.6	7.96
	4	8.78
	4.9	10.6
	5	10.8
	6	12.7
120 x 60	3.6	9.7
	4	10.7
	4.9	12.9
	5	13.1
	5.6	14.6
	6	15.5
	6.3	16.2
120 x 80	3.6	10.8
	4	11.9
	4.9	14.4
	5	14.7
	5.6	16.3
	6	17.4
	6.3	18.2
125 X 75	3.5	10.68
	4.0	11.70
	4.5	13.09
	5.0	15.50
	6.0	17.00
150 x 100	4	15.1
	4.9	18.3
	5	18.6

Size	Thickness	Mass
mm	mm	kg/ m
H x b	t	
	5.6	20.7
	6	22.1
	6.3	23.1
	7.1	25.9
	8	28.9
	10	35.3
160 x 80	5	17.8
	5.6	19.9
	6	21.2
	6.3	22.2
	7.1	24.7
	8	27.6
200 x 100	4.0	18.02
	6	26.8
	8	35.1
	9	38.20
	10	43.1
	12	50.8
200 x 150	6	31.5
	8	41.4
	10	51
	12	60.2
250 x 150	6	36.2
	8	47.7
	10	58.8
	12	69.6
300 X 150	10.0	65.49
300 x 200	6	45.7
	8	60.30
	10	74.50
	12	88.50
	16	115
400 x 200	8	72.8
	10	90.2
	12	107
	16	141

Grades Available:
ASTM A500 Grade A / S355J2H

SQUARE HOLLOW SECTIONS



Size	Thickness	Mass
B x B	T	M
mm	mm	kg/ m

40 x 40	2.5	2.89
	3	3.41
	3.2	3.61
	4	4.39
	4.9	5.2
	5	5.28

50 x 50	2.0	2.94
	2.5	3.68
	3	4.35
	3.2	4.62
	4	5.64
	4.9	6.74
	5	6.85
	6	7.99
	6.3	8.31

60 x 60	3	5.29
	3.2	5.62
	4	6.9
	4.9	8.28
	5	8.42
	6	9.87

75 x 75	2.0	4.51
	2.5	5.57
	2.8	6.19
	3.0	6.61
	4.0	8.60
	5.0	10.49
	6.0	12.34

80 x 80	3.2	7.63
	3.6	8.53
	4	9.41
	4.9	11.4

Size	Thickness	Mass
B x B	T	M
mm	mm	kg/ m

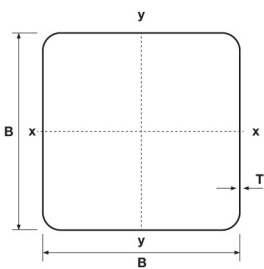
	5	11.6
	5.6	12.8
	6	13.6
	6.3	14.2
	7.1	15.8
	8	17.5

90 x 90	3.6	9.66
	4	10.7
	4.9	12.9
	5	13.1
	5.6	14.6
	6	15.5

100 x 100	3.0	8.96
	3.6	10.8
	4	11.9
	4.9	14.4
	5	14.7
	5.6	16.3
	6	17.4
	6.3	18.2
	7.1	20.3
	8	22.6
	10	27.4

120 x 120	4	14.4
	4.9	17.5
	5	17.8
	5.6	19.9
	6	21.2
	8	27.6

SQUARE HOLLOW SECTIONS



Size	Thickness	Mass
B x B	T	M
mm	mm	kg/ m

150 x 150	5	22.6
	6	26.8
	8	35.1
	10	43.1
	12	50.8

200 x 200	5	30.4
	6	36.2
	8	47.7
	10	58.8
	12	69.6

Size	Thickness	Mass
B x B	T	M
mm	mm	kg/ m

250 x 250	6	45.7
	8	60.3
	10	74.5
	12	88.5

300 x 300	8.0	72.07
	10.0	88.34
	12.0	105.61
	16.0	137.54

Grades Available:
ASTM A500 Grade A / S355J2H

