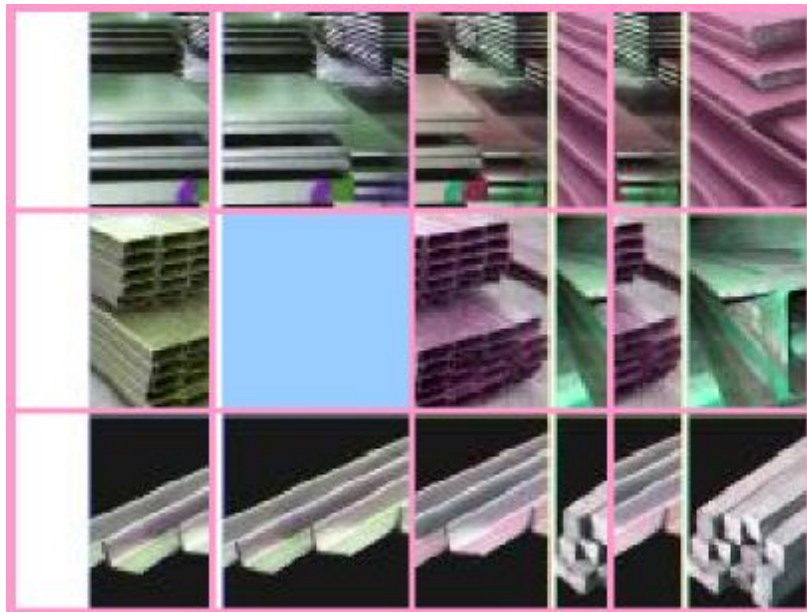




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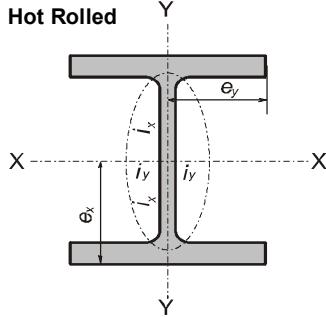


**TABEL BERAT
(WEIGHT TABLE)**

Wide Flange Shape

Product Specifications

Hot Rolled



Geometrical moment of inertia

$$I = Ai^2$$

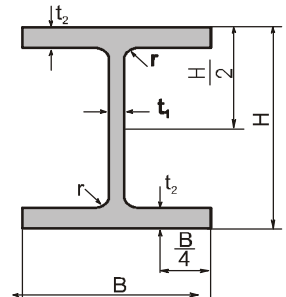
Radius of gyration of area

$$I = \sqrt{I/A}$$

Modulus of section

$$z = I/e$$

(A = sectional area)



Metric Size

According JIS G 3192

Standard Sectional Dimension					Section Area A cm ²	Unit Weight kg/m	Informative Reference					
Nominal Dimensional mm	H x B mm	t1 mm	t2 mm	r mm			Geometrical Moment Of Inertia		Radius Of Gyration Of Area		Modulus Of Section	
							Ix cm ⁴	Iy cm ⁴	ix cm	iy cm	Zx cm ³	Zy cm ³
100 x 100	100 x 100	6	8	10	21.90	17.20	383	134	4.18	2.47	76.50	26.7
125 x 125	125 x 125	6.5	9	10	30.31	23.80	847	293	5.29	3.11	136.00	47.00
150 x 75	150 x 75	5	7	8	17.85	14.00	666	50	6.11	1.66	8.88	13.20
150 x 100	150 x 100	6	9	11	26.84	21.10	1,020	151	6.17	2.37	138.00	30.10
150 x 150	150 x 150	7	10	11	40.14	31.50	1,640	563	6.39	3.75	219.00	75.10
175 x 175	175 x 175	7.5	11	12	51.21	40.20	2,880	984	7.50	4.38	330.00	112.00
200 x 100	198 x 99	4.5	7	11	23.18	18.20	1,580	114	8.26	2.21	160.00	23.00
	200 x 100	5.5	8	11	27.16	21.30	1,840	134	8.24	2.22	184.00	26.80
200 x 150	194 x 150	6	9	12	38.80	30.60	2,675	507	8.30	3.60	275.80	67.60
200 x 200	200 x 200	8	12	13	63.53	49.90	4,720	1,600	8.62	5.02	472.00	160.00
250 x 125	248 x 124	5	8	12	32.68	25.70	3,540	255	10.40	2.79	285.00	41.10
	250 x 125	6	9	12	37.66	29.60	4,050	294	10.40	2.79	324.00	47.00
250 x 250	250 x 250	9	14	16	92.18	72.40	10,800	3,650	10.80	6.29	867.00	292.00
300 x 150	298 x 149	5.5	8	13	40.80	32.00	6,320	442	12.40	3.29	424.00	59.30
	300 x 150	6.5	9	13	46.78	36.70	7,210	508	12.40	3.29	481.00	67.70
300 x 300	300 x 300	10	15	18	119.80	94.00	20,400	6,750	13.10	7.51	1,360.00	450.00
350 x 175	346 x 174	6	9	14	52.68	41.40	11,100	792	14.50	3.88	641.00	91.00
	350 x 175	7	11	14	63.14	49.60	13,600	984	14.70	3.95	775.00	112.00
350 x 350	350 x 350	12	19	20	173.9	137.00	40,300	13,600	15.20	8.84	2,300.00	776.00
400 x 200	396 x 199	7	11	16	72.16	56.60	20,000	1,450	16.70	4.48	1,010.00	145.00
	400 x 200	8	13	16	84.1	66.00	23,700	1,740	16.80	4.54	1,190.00	174.00
400 x 400	400 x 400	13	21	22	218.7	172.00	66,600	22,400	17.50	10.10	3,330.00	1120.00
450 x 200	450 x 200	9	14	18	96.8	76.00	33,500	1,870	18.60	4.40	1,490.00	187.00
500 x 200	500 x 200	10	16	20	114.2	89.60	47,800	2,140	20.50	4.33	1,910.00	214.00
600 x 200	600 x 200	11	17	22	134.4	106.00	77,600	2,280	24.00	4.12	2,590.00	228.00
600 x 200	588 x 300	12	20	28	192.5	151.00	118,000	9,020	24.80	6.85	4,020.00	601.00
700 x 300	700 x 300	13	24	28	235.5	185.00	201,000	10,800	29.30	6.78	5,760.00	722.00
800 x 300	800 x 300	14	26	28	267.4	210.00	292,000	11,700	33.00	6.62	7,290.00	782.00
900 x 300	900 x 300	16	28	28	309.8	243.00	411,000	12,600	36.40	6.39	9,140.00	843.00



Wide Flange Shape

Dimensional Tolerances

According JIS G 3192

Item, mm (in.)		Tolerance	Remarks
Width (B)		± 3.0 (0.118)	
Depth (H)	Nominal depth of under 400 (15.748)	± 3.0 (0.118)	
	400 to 600 (23.622), excl.	± 4.0 (0.157)	
	600 and over	± 5.0 (0.197)	
Thickness	Flange t^2	Under 16	
		16 or over to and excl. 25	± 2.0 (0.079)
		25 or over to and excl. 40	± 2.5 (0.098)
		40 or over	± 3.0 (0.118)
	Web t^1	Under 16	± 1.0 (0.039)
		16 or over to and excl. 25	± 1.5 (0.024)
Length		7 m or under	+ 40 (1.575) - 0
		Over 7 m	40 (1.575) plus 5 (0.197) for each additional meter or fraction there of
Out-of-Square (T)	Nominal depths 300 (11.811) or under in nominal depth	Not more than 1.2 percent of flange width B or 2.0 (0.079) at minimum.	
	Nominal depths Over 300 (11.811) in nominal depth	Not more than 1.5 percent of flange width B or 2.0 (0.079) at minimum.	
Chamber of Sweep	Nominal depths 300 (11.811) and under	Not more than 0.20 percent of Length.	Horizontal or Vertical Curvature in the direction of length
	Nominal depths Over 300 (11.811)	Not more than 0.10 percent of Length.	
Web Off Centre (S)	Nominal depths 300 (11.811) and under	± 3.0 (0.118)	$S = \frac{b_1 - b_2}{2}$
	Nominal depths Over 300 (11.811)	± 4.5 (0.117)	
Ends Out of Square (e)		1.6% or under of width B or of depth H, provided that 3.0mm is the minimum	



Wide Flange Shape

Chemical Composition

Symbol Of Grade	Chemical Composition				
	C	Si	Mn	P	S
SS 400	-	-	-	0.050 max	0.050 max
SM 490 YA	0.20 Max	0.55 Max	1.60 Max	0.035 Max	0.035 Max
SM 490 YB					



Wide Flange Shape

Chemical Composition

Type Of Material	Classified by Tensile Strength		Specifications			
	Tensile Strength Class (N/mm)	Special Specification	JIS	ASTM	BS 4360	DIN
Steel Structure	400	-	G 3101 SS400	A 36	Gr. 43A	St 33



Wide Flange Shape

Mechanical Properties

Classification	Yield Point/mm ²		Tensile Strength N/mm ²	Elongation (%)		
	Thickness			Thickness of Steel Products (mm)		
	16 or under	>16 up to 40		5 or under	5 to 6	>6 up to 50
JIS G3101 SS 400	245 min	235 min	400 - 510	21 min	17 min	21 min
JIS G3106 SM 490 YA SM 490 YB	365 min	355 min	490 - 610	19 min	15 min	19 min



Wide Flange Shape

Table Weight

Specification : JIS G3101 SS400.

Size	Kg/M	Kg/12M
------	------	--------

Hot Rolled Beam / WF

IWF	150	x	75	x	5	x	7	14	168
IWF	198	x	99	x	4.5	x	7	18.2	218
WF	148	x	100	x	6	x	9	21.1	253
IWF	200	x	100	x	5.5	x	8	21.3	256
IWF	248	x	124	x	5	x	8	25.7	308
IWF	250	x	125	x	6	x	9	29.6	355
WF	194	x	150	x	6	x	9	30.6	367
IWF	298	x	149	x	5.5	x	8	32	384
IWF	300	x	150	x	6.5	x	9	36.7	440
IWF	346	x	174	x	6	x	9	41.4	497
IWF	350	x	175	x	7	x	11	49.6	595
IWF	396	x	199	x	7	x	11	56.6	679
IWF	400	x	200	x	8	x	13	66	792
IWF	450	x	200	x	9	x	14	76	912
IWF	500	x	200	x	10	x	16	89.6	1,075
IWF	600	x	200	x	11	x	17	106	1,272
IWF	588	x	300	x	12	x	20	151	1,812

Hot Rolled Beam / H-Beam

HB	100	x	100	x	6	x	8	17.2	206
HB	125	x	125	x	6.5	x	9	23.8	286
HB	150	x	150	x	7	x	10	31.5	378
HB	175	x	175	x	7.5	x	11	40.2	482
HB	200	x	200	x	8	x	12	49.9	599
HB	250	x	250	x	9	x	14	72.4	869
HB	300	x	300	x	10	x	15	94	1128
HB	350	x	350	x	12	x	19	137	1644

Hot Rolled Beam / WF In Inch

UB	467	x	192.8	x	11.4	x	19.6	98.3	1,179.60
UB	463	x	191.9	x	10.5	x	17.7	89.3	1,071.60
UB	460	x	191.3	x	9.9	x	16	82	984.00
UB	457	x	190.4	x	9	x	14.5	74.3	891.60
UB	453	x	189.9	x	8.5	x	12.7	67.1	805.20
UB	466	x	155.3	x	10.5	x	18.9	82.1	985.20
UB	462	x	154.4	x	9.6	x	17	74.2	890.40
UB	458	x	153.8	x	9	x	15	67.2	806.40
UB	455	x	152.9	x	8.1	x	13.3	59.8	717.60
UB	450	x	152.4	x	7.6	x	10.9	52.3	627.60
UB	413	x	179.5	x	9.5	x	16	74.2	890.40
UB	409	x	178.8	x	8.8	x	14.3	67.1	805.20
UB	406	x	177.9	x	7.9	x	12.8	60.1	721.20
UB	403	x	177.7	x	7.7	x	10.9	54.1	649.20
UB	363	x	173.2	x	9.1	x	15.7	67.1	805.20
UB	358	x	172.2	x	8.1	x	13	57	684.00
UB	355	x	171.5	x	7.4	x	11.5	51	612.00
UB	351	x	171.1	x	7	x	9.7	45	540.00
UB	310	x	166.9	x	7.9	x	13.7	54	648.00
UB	307	x	165.7	x	6.7	x	11.8	46.1	553.20
UB	303	x	165	x	6	x	10.2	40.3	483.60
UB	260	x	147.3	x	7.2	x	12.7	43	516.00
UB	256	x	146.4	x	6.3	x	10.9	37	444.00



Wide Flange Shape

Table Weight

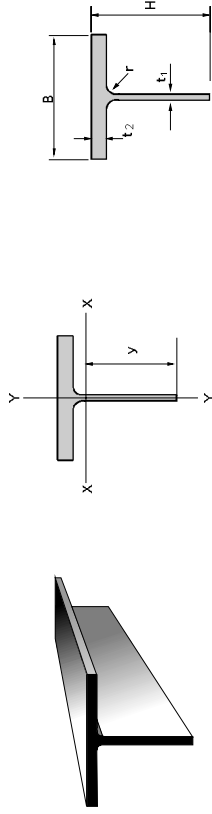
Specification : JIS G3101 SS400.

Size					Kg/M	Kg/12M			
UB	251	x	146.1	x	6	x	8.6	31.1	373.20
UB	207	x	133.9	x	6.4	x	9.6	30	360.00
UB	203	x	133.2	x	5.7	x	7.8	25.1	301.20
UB	127	x	76	x	4	x	7.6	13	156.00
UC	222	x	209.1	x	12.7		20.5	86.1	1,033.20
UC	216	x	206.4	x	10		17.3	71	852.00
UC	210	x	205.8	x	9.4		14.2	60	720.00
UC	206	x	204.3	x	7.9		12.5	52	624.00
UC	203	x	203.6	x	7.2		11	46.1	553.20
UC	162	x	154.4	x	8		11.5	37	444.00
UC	158	x	152.9	x	6.5		9.4	30	360.00
UC	152	x	152.2	x	5.8		6.8	23	276.00



T-Beam

Product Specifications



Metric Size

Sectional Index	Standard Sectional Dimension				Sectional Area A cm ²	Unit Weight kg/m	Center of Gravity		Geometrical Moment of Inertia		Radius of Gyration of Area		Modulus of Section	
	Depth of Section H mm	Width of Section B mm	Web Thickness t ₁ mm	Flange Thickness t ₂ mm			Corner Radius r mm	y mm	x mm	I _x cm ⁴	I _y cm ⁴	k _x cm	k _y cm	Z _x cm ³
T 50 x 100	50	100	6	8	10.95	8.6	40	16	67	1.2	2.47	4	13.4	
T 62.5 x 125	62.5	125	6.5	9	15.16	11.9	50.6	35	147	1.51	3.11	6.9	23.5	
T 75 x 75	75	75	5	7	8.93	7	57	42	25	2.18	1.67	7.4	6.6	
T 75 x 150	75	150	7	10	20.07	15.75	61.3	66	282	1.81	3.75	10.8	37.6	
T 100 x 100	100	100	5.5	8	13.58	10.65	71.7	114	67	2.9	2.22	14.8	13.4	
T 99 x 100	99	100	4.5	7	11.59	9.1	78.1	94	58	2.84	2.25	12	11.7	
T 87.5 x 175	87.5	175	7.5	11	25.61	20.1	72	114	492	2.11	4.38	15.8	56.2	
T 100 x 200	100	200	8	12	31.77	24.95	82.7	184	801	2.41	5.02	22.2	80.1	
T 125 x 125	125	125	6	9	18.83	14.8	97.2	248	147	3.63	2.79	25.5	23.5	
T 124 x 124	124	124	5	8	16.34	12.85	97.7	207	127	3.56	2.79	21.2	20.5	
T 125 x 250	125	250	9	14	46.09	36.2	104.2	411	1825	2.98	6.29	39.4	146	
T 150 x 150	150	150	6.5	9	23.39	18.35	115.9	463	254	4.45	3.29	39.9	33.8	
T 149 x 149	149	149	5.5	8	20.4	16	116.4	393	221	4.39	3.29	33.7	29.6	
T 150 x 300	150	300	10	15	59.9	47	125.3	796	3378	3.64	7.51	63.5	225.2	
T 175 x 175	175	175	7	11	31.57	24.8	137.5	814	492	5.08	3.95	59.2	56.3	
T 173 x 174	173	174	6	9	26.34	20.7	136	678	396	5.07	3.88	49.9	45.5	
T 175 x 350	175	350	12	19	86.95	68.85	146.4	1515	6794	4.17	8.84	103.5	388.2	
T 200 x 200	200	200	8	13	42.06	33	157.7	1395	868	5.76	4.54	88.5	86.8	
T 198 x 199	198	199	7	11	36.08	28.3	156.3	1193	723	5.75	4.48	76.3	72.7	
T 200 x 400	200	400	13	21	109.35	86	167.9	2470	11207	4.75	10.12	147.1	560.4	
T 225 x 200	225	200	9	14	48.38	38	173.5	2155	936	6.67	4.4	124.2	93.6	
T 250 x 200	250	200	10	16	57.1	44.8	190.5	3210	1071	7.5	4.33	168.5	107.1	
T 300 x 200	300	200	11	17	67.2	53	221.6	5786	1139	9.29	4.12	261.9	113.9	
T 294 x 300	294	300	12	20	96.25	75.5	233.2	6995	4509	8.34	6.84	295.3	300.6	
T 350 x 300	350	300	13	24	117.75	92.5	274.5	12015	5412	10.1	6.78	447.3	360.8	
T 400 x 300	400	300	14	26	133.7	105	308.3	18787	5866	11.85	6.62	609.5	391.1	

Note :

- Material Specification refer to Wide Flange Shape.

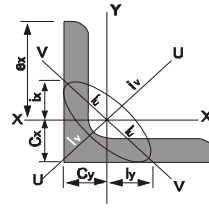
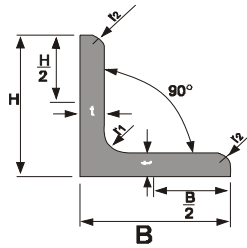
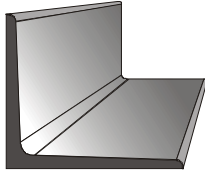
- Tolerance H = + 2mm.



Angle Shape

Product Specifications

Hot Rolled



JIS 3192

Metric Size

Standard Sectional Dimensions					Section Area A cm ²	Unit Weight Kg/m	Center of Gravity Cx = Cy cm	Informative Reference					
H x B mm x mm	t mm	r ¹ mm	r ² mm	Geometrical Moment of Inertia				Radius of Gyration of Area			Modulus of Section Zx = Zy cm ³		
				Ix = Iy cm ⁴	Max Iu cm ⁴	Min Iv cm ⁴	Ix = Iy cm	Max Iu cm	Min Iv cm				
25 x 25	3	4	2	1.427	1.12	0.719	0.797	1.26	0.332	0.747	0.94	0.48	0.448
30 x 30	3	4	2	1.727	1.36	0.844	1.42	2.26	0.59	0.908	1.14	0.58	0.661
40 x 40	3	4.5	2	2.336	1.83	1.09	3.53	5.6	1.46	1.23	1.55	0.79	1.21
40 x 40	4	4.5	2	2.336	1.83	1.09	3.53	5.6	1.46	1.23	1.55	0.79	1.21
40 x 40	5	4.5	3	3.755	2.95	1.17	5.42	8.59	2.25	1.2	1.51	0.77	1.91
45 x 45	5	6.5	3	4.302	3.38	1.28	7.91	12.5	3.29	1.36	1.71	0.87	2.46
45 x 45	4	6.5	3	3.492	2.74	1.24	6.5	10.3	2.7	1.36	1.72	0.88	2
50 x 50	4	6.5	3	3.892	3.06	1.37	9.06	14.4	3.76	1.53	1.92	0.98	2.49
50 x 50	5	6.5	3	4.802	3.77	1.41	11.1	17.5	4.58	1.52	1.91	0.98	3.08
50 x 50	6	6.5	4.5	5.644	4.43	1.44	12.6	20	5.23	1.5	1.88	0.96	3.55
60 x 60	4	6.5	3	4.692	3.68	1.61	16	25.4	6.62	1.85	2.33	1.19	3.66
60 x 60	5	6.5	3	5.802	4.55	1.66	19.6	31.2	8.09	1.84	2.32	1.18	4.52
60 x 60	6	8	4	6.91	5.4	1.7	22.79	36.16	9.42	1.82	2.29	1.17	5.28
65 x 65	5	8.5	3	6.367	5	1.77	25.3	40.1	10.5	1.99	2.51	1.28	5.35
65 x 65	6	8.5	4	7.527	5.91	1.81	29.4	46.6	12.2	1.98	2.49	1.27	6.26
65 x 65	8	8.5	6	9.761	7.66	1.88	36.8	58.3	15.3	1.94	2.44	1.25	7.96
70 x 70	6	8.5	4	8.127	6.38	1.93	37.1	58.9	15.3	2.14	2.69	1.37	7.33
75 x 75	6	8.5	4	8.727	6.85	2.06	46.1	73.2	19	2.3	2.9	1.48	8.47
75 x 75	9	8.5	6	12.69	9.96	2.17	64.4	102	26.7	2.25	2.84	1.45	21.1
75 x 75	12	8.5	6	16.56	13	2.29	81.9	129	34.5	2.22	2.79	1.44	15.7
80 x 80	6	8.5	4	9.23	7.32	2.18	56.4	89.6	23.2	2.46	3.1	1.58	9.7
90 x 90	6	10	5	10.55	8.28	2.42	80.7	128	33.4	2.77	3.48	1.78	12.3
90 x 90	7	10	5	12.22	9.59	2.46	93	148	38.3	2.76	3.48	1.77	14.2
90 x 90	10	10	7	17	13.3	2.57	125	199	51.7	2.71	3.42	1.74	19.5
90 x 90	13	10	7	21.71	17	2.69	156	248	65.3	2.68	3.38	1.73	24.8
100 x 100	7	10	5	13.62	10.7	2.71	129	205	53.2	3.08	3.88	1.98	17.7
100 x 100	13	10	7	24.31	19.1	2.94	220	348	91.1	3	3.78	1.94	31.1
100 x 100	10	10	7	19	14.9	2.82	175	278	72	3.04	3.83	1.95	24.4
120 x 120	8	12	5	18.76	14.7	3.24	258	410	106	3.71	4.67	2.38	29.5
120 x 120	11	13	6.5	25.37	19.9	3.3	340	541	140	3.66	4.62	2.35	39.36
120 x 120	12	13	6.5	27.54	21.6	3.4	367	583	151	3.65	4.6	2.35	42.68
130 x 130	9	12	6	22.74	17.9	3.53	366	583	150	4.01	5.06	2.57	38.7
130 x 130	12	12	8.5	29.76	23.4	3.64	467	743	192	3.96	5	2.54	49.9
130 x 130	15	12	8.5	36.75	28.8	3.76	568	902	234	3.93	4.95	2.53	41.6
150 x 150	12	14	7	34.77	27.3	4.14	740	1180	304	4.61	5.82	2.96	68.1
150 x 150	15	14	10	42.74	33.6	4.24	888	1410	365	4.56	5.75	2.92	82.6
150 x 150	19	14	10	53.38	41.9	4.4	1090	1730	451	4.52	5.69	2.91	103
175 x 175	12	15	11	40.52	31.8	4.73	1170	1860	480	5.38	6.78	3.44	91.8
175 x 175	15	15	11	50.21	39.4	4.85	1440	2290	589	5.35	6.75	3.48	114
200 x 200	15	17	12	57.75	45.3	5.46	2180	3470	891	6.14	7.75	3.93	150
200 x 200	20	17	12	76	59.7	5.67	2820	4490	1160	6.09	7.68	3.9	197
200 x 200	25	17	12	93.75	73.6	5.86	3420	5420	1410	6.04	7.61	3.88	242
250 x 250	25	24	12	119.4	93.7	7.1	6950	11000	2860	7.63	9.62	4.89	388
250 x 250	35	24	18	162.6	128	7.45	9110	14400	3790	7.49	9.42	4.83	519



Angle Shape

Chemical Composition

According JIS G 3101, G 3106

Symbol Of Grade	Chemical Composition					
		C	Si	Mn	P	S
SS 400, 490		-	-	-	0.050 max	0.050 max
SS 540		0.3 max	-	1.60 max	0.040 max	0.040 max
SM 400 A	50mm or under in thickness	0.23 max	-	2.5 x c min (1)	0.035 max	0.035 max
	Over 50 mm, up to and incl. 200mm in thickness	0.25 max				
SM 400 B	50mm or under in thickness	0.20 max	0.35 max	0.6 - 1.40	0.035 max	0.035 max
	Over 50 mm, up to and incl. 200mm in thickness	0.22 max				
SM 400 C	100mm or under in thickness	0.18 max	0.35 max	1.40 max	0.035 max	0.035 max
SM 490 A	50mm or under in thickness	0.20 max	0.55 max	1.60 max	0.035 max	0.035 max
	Over 50 mm, up to and incl. 200mm in thickness	0.22 max				
SM 490 B	50mm or under in thickness	0.18 max	0.55 max	1.60 max	0.035 max	0.035 max
	Over 50 mm, up to and incl. 200mm in thickness	0.20 max				
SM 490 C	100mm or under in thickness	0.18 max	0.55 max	1.60 max	0.035 max	0.035 max
SM 490 YA	100mm or under in thickness	0.20 max	0.55 max	1.60 max	0.035 max	0.035 max
SM 490 YB						
SM 520 B	100mm or under in thickness	0.20 max	0.55 max	1.60 max	0.035 max	0.035 max
SM 520 C						
SM 570	100mm or under in thickness	0.18 max	0.55 max	1.60 max	0.035 max	0.035 max



Angle Shape

Corresponding Specification

Metric Size

Type of Material	Classified By Tensile Strength		Specifications			
	Tensile Strength Class (N/mm ²)	Special Specification	JIS	ASTM	BS 4360	DIN
General Structure	400	-	G 3101 SS 400	A 36	Gr. 43 A	St 33
	490	-	G 3101 SS 490	-	Gr. 50 A	St 50-2
Welded Structure	400	-	G 3106 SM 400 A	A 572 Gr. 42	Gr. 43 B	-
		Charpy impact test	G 3106 SM 400 B, C	-	Gr. 43 C	St 37-2 RSt 37-2
		Charpy impact test for low temperature	-	-	Gr. 43 D	-
	490	-	G 3106 SM 490 A	-	Gr. 43 DD	-
		Charpy impact test	G 3106 SM 490 B, C	-	-	-
	490 (High Yield Point)	-	G 3106 SM 490 YA	A 572 Gr. 42	Gr. 50 B	-
		Charpy impact test	G 3106 SM 490 B, C SM 520 B, C	-	Gr. 50 C	St 52-3
		Charpy impact test for low temperature	-	-	Gr. 50 D	-



Angle Shape

Mechanical Properties

Metric Size

Classification	Yield Point N/mm ²		Tensile Strength N/mm ²	Elongation, %		
	Thickness (mm)			Thickness (mm)		
	16 or under	over 16		5 or under	5 to 16	over 16
JIS G 3101 SS400	245	235	400 - 510	21	17	21
JIS G 3101 SS540	400	390	min 540	16	13	17
JIS G 3101 SS490	285	275	490 - 610	19	15	19
JIS G 3106 SM400 A, B, C	245	235	400 - 510	23	18	22
JIS G 3106 SM490 A, B, C	325	315	490 - 610	22	17	21
JIS G 3106 SM490 YA, YB	365	355	490 - 610	19	15	19
JIS G 3106 SM520 B, C	365	355	520 - 640	19	15	19
JIS G 3106 SM570	460	450	570 - 720	19	19	26

Angle Shape

Dimensional Tolerance

JIS G3192/ TIS 1227-194

Metric Size

Dimensional		Tolerance	Remark	
Leg Length (A or B)	Under 50 in depth	± 1.5		
	50 or over to and excl. 100	± 2.0		
	100 or over to and excl. 200	± 3.0		
	200 or over	± 4.0		
Thickness t, t ₁ , t ₂	For Leg Length A (B for T Section) or under 130 in depth	Under 6.3		± 0.6
		6.3 or over to and excl.10		± 0.7
		10 or over to and excl.16		± 0.8
		16 or over		± 1.0
	For Leg Length A (B for T Section) or under 130 or over in depth	Under 6.3		± 0.7
		6.3 or over to and excl.10		± 0.8
		10 or over to and excl.16	± 1.0	
		16 or over to and excl.25	± 1.2	
Length	7m or under	+ 40 - 0		
	Over 7m	Add 5mm to the plus side tolerance given in the above column for every 1m. Increase in length or its fraction		
Out of Square (T)	I Section	2.0 % or under of width B		
	Sections excluding I and T sections	2.5 % or under of width of flange B (or leg length)		
Bend	I and T Sections	0.20% or under of length	To be applied to bend such as sweep and camber	
	Sections excluding I and T sections	0.30% or under of length		



Angle Shape

Table Weight

SIZE	Weight		
	Kg/m	Kg/6m	Kg/12m

Equal Angle (Hot Rolled)

L 45 x 45 x 4	2.74	16.5	33
L 50 x 50 x 4	3.06	18.5	37
L 50 x 50 x 5	3.77	22.62	45.24
L 60 x 60 x 5	4.55	27.5	55
L 60 x 60 x 6	5.42	32.5	65
L 65 x 65 x 5	5	30	60
L 65 x 65 x 6	5.91	35.5	71
L 70 x 70 x 6	6.38	38.5	77
L 70 x 70 x 7	7.38	44.5	89
L 75 x 75 x 6	6.85	41	82
L 90 x 90 x 6	8.28	49.5	99
L 90 x 90 x 7	9.6	58	115
L 90 x 90 x 8	10.8	65	130
L 90 x 90 x 9	12.2	73	146
L 90 x 90 x 10	13.3	80	160
L 90 x 90 x 13	17	102	204
L 100 x 100 x 7	10.7	64	128
L 100 x 100 x 8	12.1	73	146
L 100 x 100 x 9	13.5	81	162
L 100 x 100 x 10	14.9	89.5	179
L 100 x 100 x 12	17.8	107	214
L 100 x 100 x 13	19.1	114.6	229
L 120 x 120 x 8	14.7	88	176
L 120 x 120 x 10	18.2	109	218
L 120 x 120 x 11	19.9	119.5	239
L 120 x 120 x 12	21.6	130	260
L 130 x 130 x 9	17.9	107.5	215
L 130 x 130 x 10	19.7	118	236
L 130 x 130 x 12	23.4	140.5	281
L 150 x 150 x 10	23	138	276
L 150 x 150 x 12	27.3	164	328
L 150 x 150 x 15	33.6	202	404
L 175 x 175 x 12	31.8	191	382
L 175 x 175 x 15	39.4	236.5	473
L 180 x 180 x 14	38	228	456
L 200 x 200 x 15	45.3	272	544
L 200 x 200 x 20	59.7	358	716
L 200 x 200 x 25	73.6	442	884
L 250 x 250 x 25	93.7	562	1124
L 250 x 250 x 35	128	768	1536

Unequal Angle (Hot Rolled)

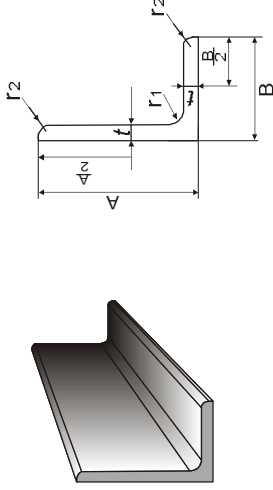
L 125 x 75 x 8	12.2	73	146
L 125 x 75 x 9	13.49	81	162
L 125 x 75 x 10	14.9	89	178
L 150 x 90 x 9	16.4	98.5	197
L 150 x 90 x 10	18.1	109	218
L 150 x 90 x 12	21.6	129.5	259



Unequal Angle

Product Specifications

Hot Rolled



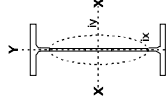
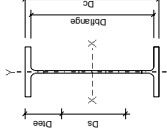
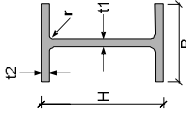
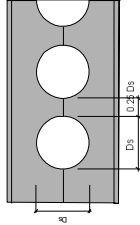
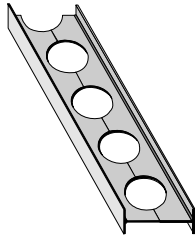
Metric Size

Standard Sectional Dimensions			Section Area A cm ²	Unit Weight Kg/m	Center of Gravity				Geometrical Moment of Inertia				Radius of Gyration of Area				tan α	Modulus of Section	
H x B mm x mm	t mm	r ¹ mm			C _x cm	C _y cm	I _x cm ⁴	I _y cm ⁴	Max I _u cm ⁴	Min I _v cm ⁴	I _x cm	I _y cm	Max I _u cm	Min I _v cm	Z _x cm ³	Z _y cm ³			
95 x 75	9	8.5	6	14.04	11	2.75	2	109	68.1	143	34.1	2.78	2.2	3.19	1.56	17.4	12.4		
100 x 75	7	10	5	11.87	9.32	3.06	1.83	118	56.9	144	30.8	3.15	2.19	3.49	1.61	17	10		
100 x 75	10	10	7	16.5	13	3.17	1.94	159	76.1	194	41.3	3.11	2.15	3.43	1.58	23.3	13.7		
125 x 75	7	10	5	13.62	10.7	4.1	1.64	219	60.4	243	36.4	4.01	2.11	4.23	1.64	26.1	10.3		
125 x 75	10	10	7	19	14.9	4.22	1.75	299	80.8	330	49	3.96	2.06	4.17	1.61	36.1	14.1		
125 x 75	13	10	7	24.31	19.1	4.35	1.87	376	101	415	61.9	3.93	2.04	4.13	1.6	46.1	17.9		
125 x 90	10	10	7	20.5	16.1	3.95	2.22	318	138	380	76.2	3.94	2.59	4.3	1.93	37.2	20.3		
125 x 90	13	10	7	26.26	20.6	4.07	2.34	401	173	477	96.3	3.91	2.57	4.26	1.91	47.5	25.9		
150 x 90	9	12	6	20.94	16.4	4.95	1.99	485	133	537	80.4	4.81	2.52	5.06	1.96	48.2	19		
150 x 90	12	12	8.5	27.36	21.5	5.07	2.1	619	167	685	102	4.76	2.47	5	1.93	62.3	24.3		
150 x 100	9	12	6	21.84	17.1	4.76	2.3	502	181	579	104	4.79	2.88	5.15	2.18	49.1	23.5		
150 x 100	12	12	8.5	28.56	22.4	4.88	2.41	642	228	738	132	4.74	2.83	5.09	2.15	63.4	30.1		
150 x 100	15	12	8.5	35.25	27.7	5	2.53	782	276	897	161	4.71	2.8	5.04	2.14	78.2	37		



Cell Form

Product Specifications



ORIGINAL SECTION

CELL FORM SECTION

Metric Size

Sectional Index	Weight	Depth of Section		Width of Section	Thickness		Corner Radius	Depth of Cell Form Hole	Depth of Cell Form Tee	Depth Between Flanges	Section Area		Moment of Inertia		Radius of Gyration		Modulus of Section	
		Original	Cell Form		Web	Flange					Max	Min	I _x	I _y	i _x	i _y	Z _x	Z _y
mm	Kg/m	mm	mm	mm	mm	mm	mm	mm	mm	mm	cm ²	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³
100 x 100	16.27	100	150	75	6	8	10	103	23	134	25	18.8	908.9	134	7	2.7	121.2	26.8
150 x 75	12.78	150	225	75	5	7	8	155	35	211	21.7	14	1586.2	49.5	10.7	1.9	141	13.2
150 x 150	29.75	150	225	150	7	10	11	155	35	205	45.6	34.7	3897.8	563	10.6	4	346.5	75.1
200 x 100	19.44	200	300	100	5.5	8	11	206	47	284	32.8	21.5	4322.8	134	14.2	2.5	288.2	26.8
300 x 99	16.54	198	300	99	4.5	7	11	210	45	286	27.9	18.4	3732.3	114	14.2	2.5	248.8	23
300 x 200	47.1	200	300	200	8	12	13	206	47	276	71.8	55.3	11159.9	1600	14.2	5.4	744	160
375 x 125	26.98	250	375	125	6	9	12	258	59	357	45.4	29.9	9516.5	294	17.8	3.1	507.5	47
375 x 124	23.33	248	375	124	5	8	12	262	57	359	39.2	26.1	8351.7	255	17.9	3.1	445.4	41.1
375 x 250	68.32	250	375	250	9	14	16	258	59	347	103.8	80.6	25510.2	3650	17.8	6.7	1360.5	292
450 x 150	33.55	300	450	150	6.5	9	13	309	70	432	56.8	36.7	16943.9	508	21.5	3.7	753.1	67.7
450 x 149	29.17	298	450	149	5.5	8	13	313	68	434	49.4	32.2	14905.3	442	21.5	3.7	662.5	59.3
450 x 300	88.76	300	450	300	10	15	18	309	70	420	135.3	104.3	47919.5	6750	21.4	8	2129.8	450
525 x 175	45.11	350	525	175	7	11	14	361	82	503	75.8	50.5	31912.4	984	25.1	4.4	1215.7	112.5
525 x 174	37.65	346	525	174	6	9	14	369	78	507	63.8	41.6	26499.6	792	25.2	4.4	1009.5	91
525 x 350	129.25	350	525	350	12	19	20	361	82	487	195.5	152.3	95108.4	13599.9	25	9.5	3623.2	777.1
600 x 200	59.94	400	600	200	8	13	16	412	94	574	100.6	67.6	55799	1740	28.7	5.1	1860	174
600 x 199	51.37	396	600	199	7	11	16	421	90	578	86.9	57.4	47743	1450	28.8	5	1591.4	145.7
675 x 200	68.66	450	675	200	9	14	18	464	106	647	117.6	75.9	78909.5	1870	32.2	5	2338.1	187
750 x 200	80.28	500	750	200	10	16	20	515	117	718	140	88.4	113123.5	2140	35.8	4.9	3016.6	214
900 x 200	94.11	600	900	200	11	17	22	618	141	866	168.4	100.4	184605.2	2279.9	42.9	4.8	4102.3	228
900 x 300	136.46	588	900	300	12	20	28	643	128	860	231.1	153.9	286789.2	9019.9	43.2	7.7	6373.1	601.3
600 x 400	162.21	400	600	400	13	21	22	412	94	558	245.5	191.9	157075.6	22399.9	28.6	10.8	5235.9	1120
1050 x 300	165.42	700	1050	300	13	24	28	722	184	1002	282.4	188.6	473991	10799.9	50.1	7.6	7028.4	720
1200 x 300	185.76	800	1200	300	14	26	28	825	188	1148	325.1	209.7	691563.8	11699.8	57.4	7.5	11526.1	780



Cell Form

Product Specifications

Dimensional Tolerance

Flange Width (B) (mm)	Depth (Dc) (mm)		Depth of Cell Form Hole (Ds) (mm)
	Under 400	400 - 600	
± 3.0	± 4.0	± 5.0	± 3.0
		± 6.0	
			± 3.0

Mechanical Properties

Classification	Yield Point N/mm ²	Tensile Strength N/mm ²	Elongation %	
	Thickness (mm)	Thickness (mm)	5 or under	Over 16
JIS G 3101 SS400	245	400 - 510	21	21
			17	
				21

Chemical Composition

Grade	Chemical Composition (%)				
	C	Si	Mn	P	S
SS 400	-	-	-	0.05 max	0.05 max

Welding

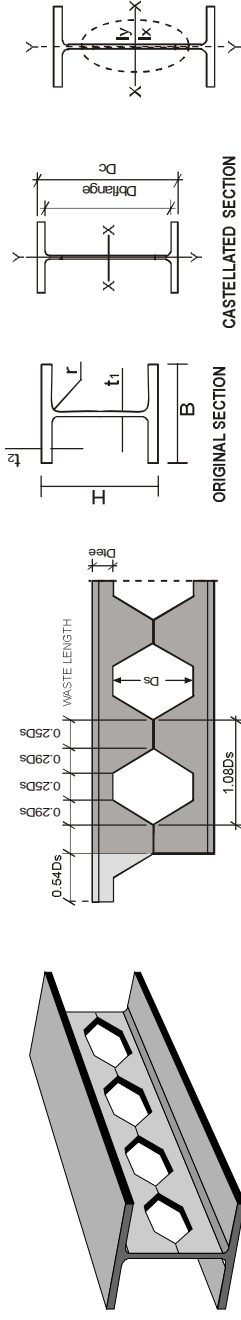
- As per AWS

- Welding material : E 6013



Castellated Shape Honey Comb

Product Specifications



Metric Size

Sectional Index		Weight Kg/m	Depth of Section		Width of Section mm	Thickness		Corner Radius mm	Depth of Castellated Hole mm	Depth of Castellated Tee mm	Depth Between Flanges mm	Section Area		Moment of Inertia		Radius of Gyration		Modulus of Section			
Original	Castellated		H	DC		Web	Flange					Gross	Net	I_x	I_y	k_x	k_y	Max	Min	I_x	I_y
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
100 x 100	150 x 100	17.2	100	150	100	6	8	10	105	22.5	134	24.9	18.57	905.3	134	7	2.7	120.7	26.8		
150 x 75	225 x 75	14	150	225	75	5	7	8	154	35.5	211	21.6	13.85	1579.7	49.5	10.7	1.9	140.4	13.2		
150 x 150	225 x 150	31.5	150	225	150	7	10	11	154	35.5	205	45.39	34.54	3889.6	563	10.6	4	345.7	75.1		
200 x 100	300 x 100	21.3	200	300	100	5.5	8	11	205	47.5	284	32.66	21.36	4306.8	134	14.2	2.5	287.1	26.8		
297 x 99	198 x 297	18.2	198	297	99	4.5	7	11	202	47.5	283	27.64	18.5	3643.9	114	14	2.5	245.4	23		
200 x 200	300 x 200	49.9	200	300	200	8	12	13	205	47.5	276	71.53	55.09	11139	1600.1	14.2	5.4	742.6	160		
375 x 125	250 x 375	29.6	250	375	125	6	9	12	254	60.5	357	45.16	29.86	9491.5	294.1	17.8	3.1	506.2	47		
372 x 124	248 x 372	25.7	248	372	124	5	8	12	253	59.5	356	38.88	26.21	8189.6	255	17.7	3.1	440.3	41.1		
250 x 250	375 x 250	72.4	250	375	250	9	14	16	254	60.5	347	103.43	80.48	25477.5	3650.2	17.8	6.7	1358.8	292		
450 x 150	300 x 450	36.7	300	450	150	6.5	9	13	305	72.5	432	56.53	36.67	16895.1	508.1	21.5	3.7	750.9	67.7		
447 x 149	298 x 447	32	298	447	149	5.5	8	13	302	72.5	431	49	32.33	14664	442	21.3	3.7	656.1	59.3		
450 x 300	450 x 300	94	300	450	300	10	15	18	305	72.5	420	134.8	104.25	47854.8	6750.3	21.4	8	2126.9	450		
525 x 175	350 x 525	49.6	350	525	175	7	11	14	354	85.5	503	75.39	50.54	31847.5	984.1	25.1	4.4	1213.2	112.5		
519 x 174	346 x 519	41.4	346	519	174	6	9	14	350	84.5	501	63.06	42	25819.2	792.1	24.8	4.3	995	91		
525 x 350	350 x 525	137	350	525	350	12	19	20	354	85.5	487	194.9	152.3	95013.1	13600.6	25	9.4	3619.5	777.2		
600 x 200	400 x 600	66	400	600	200	8	13	16	405	97.5	574	100.12	67.68	55683.6	1740.2	28.7	5.1	1856.1	174		
594 x 199	396 x 594	56.6	396	594	199	7	11	16	401	96.5	572	86.02	57.92	46656.1	1450.1	28.4	5	1570.9	145.7		
450 x 200	675 x 200	76	450	675	200	9	14	18	454	110.5	647	117.01	76.06	78747.4	1870.3	32.2	5	2333.3	187		
750 x 200	500 x 750	89.6	500	750	200	10	16	20	505	122.5	718	139.2	88.65	122855.7	2140.5	35.7	4.9	3009.5	214		
600 x 200	900 x 200	106	600	900	200	11	17	22	605	147.5	866	167.4	100.8	184103	2280.8	42.7	4.8	4091.2	228.1		
588 x 300	882 x 300	151	588	882	300	12	20	28	593	144.5	842	227.78	156.56	274532.9	9021	41.9	7.6	6225.2	601.4		
400 x 400	600 x 400	172	400	600	400	13	21	22	405	97.5	558	244.7	191.99	156913.2	22400.8	28.6	10.8	5230.4	1120		
700 x 300	1050 x 300	185	700	1050	300	13	24	28	705	172.5	1002	281	189.29	473222.7	10801.5	50	7.6	9013.8	720.1		
800 x 300	1200 x 300	210	800	1200	300	14	26	28	805	197.5	1148	323.4	210.63	690341.9	11702.2	57.2	7.5	11505.7	780.1		



Castellated Shape Honey Comb

Product Specifications

mm

Dimensional Tolerance

Flange Width (B) (mm)	Depth (Dc) (mm)		Depth of Castellated Hole (Ds) (mm)
	Under 400	400 - 600	
± 3.0	± 4.0	± 5.0	± 3.0
		± 6.0	
			± 3.0

Mechanical Properties

Classification	Yield Point N/mm ²		Tensile Strength N/mm ²		Elongation %	
	Thickness (mm)		N/mm ²		Thickness (mm)	
	16 or under	Over 16	16 or under	Over 16	5 or under	Over 16
JIS G 3101 SS400	245	235	400 - 510	400 - 510	21	17
					21	21

Chemical Composition

Grade	Chemical Composition (%)				
	C	Si	Mn	P	S
SS 400	-	-	-	0.05 max	0.05 max

Welding

- As per AWS
- Welding material : E 6013