PT. GUNUNG GARUDA
Steel Is Our Business

WIDE FLANGE SHAPE

(HOT ROLLED)

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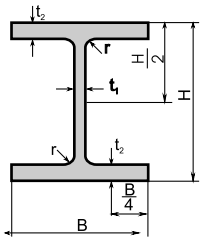
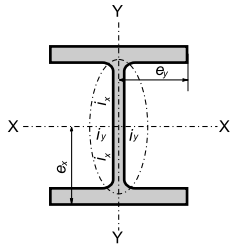


Geometrical moment of inertia $I = Ai^2$

Radius of gyration of area $i = \sqrt{I / A}$

Modulus of section $z = I / e$

(A = sectional area)



ACCORDING JIS G 3192 — METRIC SIZE (SS 400)

STANDARD SECTIONAL DIMENSION					SECTION. AREA	UNIT WEIGHT	INFORMATIVE REFERENCE					
							GEOMETRICAL MOMENT OF INERTIA		RADIUS OF GYRATION OF AREA		MODULUS OF SECTION	
Nominal Dimensional	H x B	t1	t2	r	A		Ix	Iy	ix	iy	Zx	Zy
mm	mm	mm	mm	mm	cm^2	kg/m	cm^4	cm^4	cm	cm	cm^3	cm^3
100 x 100	100 x 100	6	8	10	21.90	17.20	383	134	4.18	2.47	76.5	26.7
125 x 125	125 x 125	6.5	9	10	30.31	23.80	847	293	5.29	3.11	136	47.0
150 x 75	150 x 75	5	7	8	17.85	14.00	666	49.5	6.11	1.66	88.8	13.2
150 x 100	148 x 100	6	9	11	26.84	21.10	1 020	151	6.17	2.37	138	30.1
150 x 150	150 x 150	7	10	11	40.14	31.50	1 640	563	6.39	3.75	219	75.1
175 x 175	175 x 175	7.5	11	12	51.21	40.20	2 880	984	7.50	4.38	330	112
200 x 100	198 x 99	4.5	7	11	23.18	18.20	1580	114	8.26	2.21	160	23.0
	200 x 100	5.5	8	11	27.16	21.30	1840	134	8.24	2.22	184	26.8
200 x 150	194 x 150	6	9	12	38.80	30.60	2675	507	8.30	3.60	275.8	67.6
200 x 200	200 x 200	8	12	13	63.53	49.90	4 720	1 600	8.62	5.02	472	160
250 x 125	248 x 124	5	8	12	32.68	25.70	3 540	255	10.4	2.79	285	41.1
	250 x 125	6	9	12	37.66	29.60	4 050	294	10.4	2.79	324	47.0
250 x 250	250 x 250	9	14	16	92.18	72.40	10 800	3 650	10.8	6.29	867	292
300 x 150	298 x 149	5.5	8	13	40.80	32.0	6 320	442	12.4	3.29	424	59.3
	300 x 150	6.5	9	13	46.78	36.70	7 210	508	12.4	3.29	481	67.7
300 x 300	300 x 300	10	15	18	119.80	94.0	20 400	6 750	13.1	7.51	1 360	450
350 x 175	346 x 174	6	9	14	52.68	41.40	11 100	792	14.5	3.88	641	91.0
	350 x 175	7	11	14	63.14	49.60	13 600	984	14.7	3.95	775	112
● 350 x 350	350 x 350	12	19	20	173.9	137.0	40 300	13 600	15.2	8.84	2 300	776
400 x 200	396 x 199	7	11	16	72.16	56.60	20 000	1 450	16.7	4.48	1 010	145
	400 x 200	8	13	16	84.1	66.0	23 700	1 740	16.8	4.54	1 190	174
● 400 x 400	400 x 400	13	21	22	218.7	172	66 600	22 400	17.5	10.1	3 330	1 120
450 x 200	450 x 200	9	14	18	96.8	76.0	33 500	1 870	18.6	4.40	1 490	187
500 x 200	500 x 200	10	16	20	114.2	89.6	47 800	2 140	20.5	4.33	1 910	214
600 x 200	600 x 200	11	17	22	134.4	106	77 600	2 280	24.0	4.12	2 590	228
● 600 x 300	588 x 300	12	20	28	192.5	151	118 000	9 020	24.8	6.85	4 020	601
● 700 x 300	700 x 300	13	24	28	235.5	185	201 000	10 800	29.3	6.78	5 760	722
● 800 x 300	800 x 300	14	26	28	267.4	210	292 000	11 700	33.0	6.62	7 290	782
● 900 x 300	900 x 300	16	28	28	309.8	243	411 000	12 600	36.4	6.39	9 140	843

NOTE :
- ● Welded Beam
- ● Other sizes which are not mentioned in table above will be supplied as welded condition

continue .....>>

WIDE FLANGE SHAPE

(HOT ROLLED)

ACCORDING TO BS 4360 GR 43A

INCHES SIZE

STANDARD SECTIONAL DIMENSION				SECTION AREA	UNIT WEIGHT	INFORMATIVE REFERENCE					
						GEOMETRICAL MOMENT OF INERTIA		RADIUS OF GYRATION OF AREA		MODULUS OF SECTION	
Nominal Dimensional H X B	t1	t2	r	A		Ix	Iy	ix	iy	Zx	Zy
inches (mm)	in (mm)	in (mm)	in (mm)	in^2 (cm^2)	lb/ft (kg/mm)	in^4 (cm^4)	in^4 (cm^4)	in (cm)	in (cm)	in^3 (cm^3)	in^3 (cm^3)
W5 5 x 3 (127 x 76)	0.165 (4.20)	0.299 (7.60)	0.30 (6.35)	2.60 (16.80)	9 (13.00)	11.5 (477)	1.30 (56.0)	2.10 (5.33)	0.72 (1.83)	4.60 (75.0)	0.90 (15.0)
W6 6 x 4 (152 x 102)	0.170 (4.32)	0.215 (5.46)	0.25 (6.35)	2.68 (17.29)	9 (13.39)	16.4 (683)	2.20 (91.6)	2.47 (6.27)	0.905 (2.30)	5.56 (91.1)	1.11 (18.2)
	0.230 (5.84)	0.280 (7.11)	0.25 (6.35)	3.55 (22.90)	12 (17.86)	22.1 (920)	2.99 (124)	2.49 (6.32)	0.918 (2.33)	7.31 (120)	1.50 (24.6)
	0.260 (6.60)	0.405 (10.20)	0.25 (6.35)	4.74 (30.58)	16 (23.81)	32.1 (1,340)	4.43 (184)	2.60 (6.60)	0.966 (2.45)	10.2 (167)	2.20 (36.1)
W6 6 x 6 (152 x 152)	0.230 (5.84)	0.260 (6.60)	0.25 (6.35)	4.43 (28.58)	15 (22.50)	29.1 (1,210)	9.32 (388)	2.56 (6.50)	1.45 (3.68)	9.72 (159)	3.11 (51.0)
	0.240 (6.10)	0.269 (6.80)	0.25 (6.35)	4.62 (29.80)	15.7 (23.00)	30.3 (1,263)	9.70 (403)	2.56 (6.51)	1.45 (3.68)	10.1 (165.7)	3.20 (52.95)
	0.260 (6.60)	0.365 (9.27)	0.25 (6.35)	5.87 (37.87)	20 (30.00)	41.4 (1,720)	13.3 (554)	2.66 (6.76)	1.50 (3.81)	13.4 (220)	4.41 (72.3)
	0.320 (8.13)	0.455 (11.50)	0.25 (6.35)	7.34 (47.35)	25 (37.20)	53.4 (2,220)	17.1 (712)	2.70 (6.86)	1.52 (3.86)	16.7 (274)	5.61 (91.9)
W8 8 x 4 (203 x 102)	0.170 (4.32)	0.205 (5.21)	0.30 (7.62)	2.96 (19.10)	10 (14.88)	30.8 (1,280)	2.09 (87.0)	3.22 (8.18)	0.841 (2.14)	7.81 (128)	1.06 (17.4)
	0.230 (5.84)	0.255 (6.48)	0.30 (7.62)	3.84 (24.77)	13 (19.35)	39.6 (1,650)	2.73 (114)	3.21 (8.15)	0.843 (2.14)	9.91 (162)	1.37 (22.4)
	0.245 (6.22)	0.315 (8.00)	0.30 (7.62)	4.44 (28.65)	15 (22.32)	48.0 (2,000)	3.41 (142)	3.29 (8.36)	0.876 (2.22)	11.8 (193)	1.70 (27.9)
	0.205 (5.20)	0.368 (9.30)	0.30 (7.62)	4.50 (29.00)	15.5 (23.00)	50.2 (2,091)	3.90 (163)	3.34 (8.49)	0.930 (2.37)	12.6 (206)	2.00 (32.0)
W8 8 x 5 1/4 (203 x 133)	0.230 (5.84)	0.308 (7.80)	0.30 (7.62)	5.01 (32.30)	17 (25.30)	56.4 (2,348)	6.72 (280)	3.36 (8.53)	1.16 (2.95)	14.1 (231)	2.60 (42.6)
	0.230 (5.84)	0.330 (8.38)	0.30 (7.62)	5.26 (33.94)	18 (26.79)	61.9 (2,580)	7.97 (332)	3.43 (8.71)	1.23 (3.12)	15.2 (249)	3.04 (49.8)
	0.248 (6.30)	0.378 (9.60)	0.30 (7.62)	5.89 (38.00)	20 (29.8)	69.2 (2,981)	8.50 (354)	3.43 (8.71)	1.20 (3.05)	17.0 (279)	3.20 (52.4)
	0.250 (6.35)	0.400 (10.10)	0.30 (7.62)	6.16 (39.74)	21 (31.30)	75.3 (3,130)	9.77 (407)	3.49 (8.86)	1.26 (3.20)	18.2 (298)	3.71 (60.8)
W8 8 x 8 (203 x 203)	0.285 (7.24)	0.435 (11.00)	0.40 (10.2)	9.12 (58.84)	31 (46.13)	110 (4,580)	37.1 (1,540)	3.47 (8.81)	2.02 (5.13)	27.5 (451)	9.27 (152)
	0.310 (7.87)	0.495 (12.50)	0.40 (10.2)	10.3 (66.45)	35 (52.09)	127 (5,290)	42.6 (1,770)	3.51 (8.92)	2.03 (5.16)	31.2 (511)	10.6 (174)
	0.360 (9.14)	0.560 (14.20)	0.40 (10.2)	11.7 (75.48)	40 (60.00)	146 (6,080)	49.1 (2,040)	3.53 (8.97)	2.04 (5.18)	35.5 (582)	12.2 (200)
	0.400 (10.16)	0.685 (17.40)	0.40 (10.2)	14.1 (90.97)	48 (71.43)	184 (7,660)	60.9 (2,530)	3.61 (9.17)	2.08 (5.28)	43.3 (710)	15.0 (246)
	0.510 (12.95)	0.810 (20.57)	0.40 (10.2)	17.1 (110.3)	58 (86.31)	228 (9,490)	75.1 (3,130)	3.65 (9.17)	2.10 (5.33)	52.0 (852)	18.3 (300)
	0.570 (14.48)	0.935 (23.75)	0.40 (10.2)	19.7 (127.1)	67 (100.0)	272 (11,300)	88.6 (3,690)	3.72 (9.45)	2.12 (5.38)	60.4 (990)	21.4 (351)
W10 10 x 5 3/4 (254 x 146)	0.240 (6.10)	0.340 (8.60)	0.30 (7.62)	6.20 (40.00)	21 (31.25)	106 (4,425)	9.7 (404)	4.14 (10.5)	1.25 (3.18)	21.5 (352)	3.40 (55.7)
	0.240 (6.10)	0.360 (9.14)	0.30 (7.62)	6.49 (41.87)	22 (32.74)	118 (4,910)	11.4 (474)	4.27 (10.8)	1.33 (3.38)	23.2 (380)	3.97 (65.1)
	0.252 (6.40)	0.430 (10.90)	0.30 (7.62)	7.36 (47.50)	25 (37.20)	133 (5,545)	12.7 (529)	4.26 (10.8)	1.31 (3.33)	26.4 (433)	4.40 (72.1)
	0.260 (6.60)	0.440 (11.10)	0.30 (7.62)	7.61 (49.10)	26 (38.69)	144 (5,990)	14.1 (587)	4.35 (11.0)	1.36 (3.45)	27.9 (457)	4.89 (80.1)
	0.289 (7.30)	0.500 (12.70)	0.30 (7.62)	8.54 (55.10)	29 (43.00)	157 (6,548)	15.2 (633)	4.29 (10.9)	1.34 (3.40)	30.8 (505)	5.20 (85.2)
	0.300 (7.62)	0.510 (12.90)	0.30 (7.62)	8.85 (57.10)	30 (44.80)	170 (7,080)	16.8 (699)	11.1 (1.38)	1.38 (3.51)	32.5 (533)	5.76 (94.4)
W10 10 x 10 (254 x 254)	0.340 (8.64)	0.560 (14.20)	0.50 (12.7)	14.4 (92.90)	49 (73.00)	272 (11,300)	93.4 (3,890)	4.35 (11.0)	2.54 (6.45)	54.6 (895)	18.7 (306)
	0.370 (9.40)	0.615 (15.60)	0.50 (12.7)	15.8 (101.9)	54 (80.36)	303 (12,600)	103 (4,290)	4.37 (11.1)	2.56 (6.50)	60.0 (983)	20.6 (338)
	0.420 (10.67)	0.680 (17.27)	0.50 (12.7)	17.6 (113.5)	60 (89.29)	341 (14,200)	116 (4,830)	4.39 (11.2)	2.57 (6.53)	66.7 (1,090)	23.0 (377)
	0.470 (11.94)	0.770 (19.56)	0.50 (12.7)	20.0 (129.0)	68 (101.2)	394 (19,400)	134 (5,580)	4.44 (11.3)	2.58 (6.55)	75.7 (1,240)	26.4 (433)
	0.510 (13.00)	0.808 (20.50)	0.50 (12.7)	21.2 (136.6)	72 (107.0)	421 (17,510)	142 (5,903)	4.46 (11.3)	2.59 (6.58)	80.1 (1,312)	27.9 (457)
	0.530 (13.46)	0.870 (22.10)	0.50 (12.7)	22.6 (145.8)	77 (115.0)	455 (18,900)	154 (6,410)	4.49 (11.4)	2.60 (6.60)	85.9 (1,410)	30.1 (493)
	0.605 (15.37)	0.990 (25.15)	0.50 (12.7)	25.9 (167.1)	88 (131.0)	534 (22,200)	179 (7,540)	4.54 (11.5)	2.63 (6.68)	98.5 (1,610)	34.8 (570)
	0.615 (15.60)	0.998 (25.30)	0.50 (12.7)	26.2 (168.9)	89 (132.0)	542 (22,580)	181 (7,518)	4.55 (11.6)	2.63 (6.68)	99.7 (1,634)	35.2 (577)
	0.680 (17.27)	1.120 (28.45)	0.50 (12.7)	29.4 (189.7)	149.0 (29.4)	624 (26,000)	207 (8,620)	4.61 (11.7)	2.65 (6.73)	112 (1,840)	40.0 (655)
	0.755 (19.18)	1.250 (31.75)	0.50 (12.7)	32.9 (212.3)	167.0 (32.9)	716 (29,800)	236 (9,820)	4.66 (11.8)	2.68 (6.81)	126 (2,060)	45.3 (742)

continue .....>>

WIDE FLANGE SHAPE

(HOT ROLLED)

ACCORDING TO BS 4360 GR 43A

INCHES SIZE

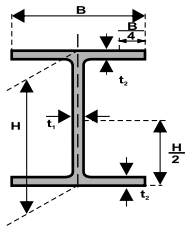
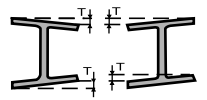
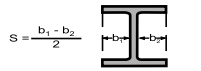
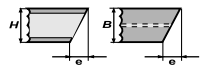
STANDARD SECTIONAL DIMENSION				SECTION AREA	UNIT WEIGHT	INFORMATIVE REFERENCE					
						GEOMETRICAL MOMENT OF INERTIA		RADIUS OF GYRATION OF AREA		MODULUS OF SECTION	
Nominal Dimensional H X B	t1	t2	r	A		Ix	Iy	ix	iy	Zx	Zy
inches (mm)	in (mm)	in (mm)	in (mm)	in^2 (cm^2)	lb/ft (kg/mm)	in^4 (cm^4)	in^4 (cm^4)	in (cm)	in (cm)	in^3 (cm^3)	in^3 (cm^3)
W12 12 x 6 ½ (305 x 165)	0.230 (5.84)	0.380 (9.65)	0.30 (7.62)	7.65 (49.35)	26 (38.70)	204 (8,490)	17.3 (720)	5.17 (13.1)	1.51 (3.84)	33.4 (547)	5.34 (87.5)
	0.240 (6.10)	0.400 (10.20)	0.30 (7.62)	7.98 (51.50)	27 (40.00)	204.1 (8,496)	16.6 (691)	5.06 (12.8)	1.44 (3.66)	34.1 (559)	5.10 (83.6)
	0.260 (6.60)	0.440 (11.10)	0.30 (7.62)	8.79 (56.71)	30 (44.64)	238 (9,910)	20.3 (845)	5.21 (13.2)	1.52 (3.86)	38.6 (633)	6.24 (102)
	0.265 (6.70)	0.465 (11.80)	0.30 (7.62)	9.13 (58.90)	31 (46.00)	238.4 (9,924)	19.8 (824)	5.11 (12.9)	1.47 (3.73)	39.4 (646)	6.10 (100)
	0.300 (7.62)	0.520 (13.20)	0.30 (7.62)	10.3 (66.45)	35 (52.09)	280.8 (11,690)	23.7 (986,6)	5.15 (13.1)	1.50 (3.81)	45.9 (752)	7.20 (118)
	0.305 (7.70)	0.540 (13.70)	0.30 (7.62)	10.6 (68.40)	36 (54.00)	285 (11,900)	24.5 (1,020)	5.25 (13.3)	1.54 (3.91)	45.6 (747)	7.47 (122)
W12 12 x 12 (305 x 305)	0.390 (9.91)	0.605 (15.30)	0.60 (15.2)	19.1 (123.2)	65 (97.0)	553 (22,200)	174 (7,240)	5.28 (13.4)	3.02 (7.67)	87.9 (1,440)	29.1 (477)
	0.430 (10.92)	0.670 (17.02)	0.60 (15.2)	21.1 (136.1)	72 (107.1)	597 (24,800)	195 (8,120)	5.31 (13.5)	3.04 (7.72)	97.4 (1,600)	32.4 (531)
	0.470 (11.94)	0.735 (18.67)	0.60 (15.2)	23.2 (149.7)	79 (118.0)	662 (27,600)	216 (8,990)	5.34 (13.6)	3.05 (7.75)	107 (1,750)	35.8 (587)
	0.515 (13.08)	0.810 (20.57)	0.60 (15.2)	25.6 (165.2)	87 (129.5)	740 (30,800)	241 (10,000)	5.38 (13.7)	3.07 (7.80)	118 (1,930)	39.7 (651)
	0.545 (13.80)	0.856 (21.70)	0.60 (15.2)	27.1 (174.6)	92 (137.0)	789 (32,840)	256 (10,670)	5.40 (13.7)	3.08 (7.82)	125 (2,048)	42.2 (691)
	0.550 (13.97)	0.900 (22.86)	0.60 (15.2)	28.2 (182.0)	96 (143.0)	833 (34,700)	270 (11,200)	5.44 (13.8)	3.09 (7.85)	131 (2,150)	44.4 (728)
	0.610 (15.49)	0.990 (25.15)	0.60 (15.2)	31.2 (201.3)	106 (158.0)	933 (38,800)	301 (12,500)	5.47 (13.9)	3.11 (7.90)	145 (2,380)	49.3 (808)
	0.710 (18.03)	1.100 (28.07)	0.60 (15.2)	35.3 (227.7)	120 (179.0)	1,070 (44,500)	345 (14,400)	5.51 (14.0)	3.13 (7.95)	163 (2,670)	56.0 (918)
	0.755 (19.20)	1.236 (31.40)	0.60 (15.2)	39.1 (252.3)	133 (198.0)	1,221 (50,840)	390 (16,230)	5.59 (14.2)	3.16 (8.03)	183 (2,991)	63.1 (1,034)
	0.790 (20.07)	1.250 (31.75)	0.60 (15.2)	39.9 (257.4)	136 (202.4)	1,240 (51,600)	398 (16,600)	5.58 (14.2)	3.16 (8.03)	186 (3,050)	64.2 (1,050)
	0.870 (22.10)	1.400 (35.56)	0.60 (15.2)	44.7 (288.4)	152 (226.2)	1,430 (59,500)	454 (18,900)	5.66 (14.4)	3.19 (8.10)	209 (3,420)	72.8 (1,190)
	0.905 (23.00)	1.486 (37.70)	0.60 (15.2)	47.4 (305.6)	161 (240.0)	1,542 (64,180)	486 (20,240)	5.70 (14.5)	3.20 (8.13)	222 (3,641)	77.1 (1,273)
	0.960 (24.38)	1.560 (39.62)	0.60 (15.2)	50.0 (322.6)	170 (253.0)	1,650 (68,700)	517 (21,500)	5.74 (14.6)	3.22 (8.18)	235 (3,850)	82.3 (1,350)
	1.060 (26.92)	1.735 (44.07)	0.60 (15.2)	55.8 (360.0)	190 (283.0)	1,890 (78,700)	589 (24,500)	5.82 (14.8)	3.25 (8.25)	263 (4,310)	93.0 (1,520)
	1.180 (29.97)	1.900 (48.26)	0.60 (15.2)	61.8 (398.7)	210 (312.5)	2,140 (89,100)	664 (27,600)	5.89 (15.0)	3.28 (8.33)	292 (4,780)	104 (1,700)
	1.285 (32.64)	2.070 (52.58)	0.60 (15.2)	67.7 (436.8)	230 (342.3)	2,420(101,000)	742 (30,900)	5.97 (15.2)	3.31 (8.41)	321 (5,260)	115 (1,880)
	1.395 (35.43)	2.250 (57.15)	0.60 (15.2)	74.0 (477.4)	252 (375.0)	2,720(113,000)	828 (34,500)	6.06 (15.4)	3.34 (8.48)	353 (5,780)	127 (2,080)
	1.530 (38.86)	2.470 (62.74)	0.60 (15.2)	81.9 (528.4)	278 (413.7)	3,110(129,000)	937 (39,000)	6.16 (15.6)	3.38 (8.59)	393 (6,440)	143 (2,340)
	1.625 (41.27)	2.705 (68.71)	0.60 (15.2)	89.6 (578.1)	305 (453.9)	3,550(148,000)	1,050 (43,700)	6.29 (16.0)	3.42 (8.69)	435 (7,130)	159 (2,610)
	1.775 (45.08)	2.955 (75.06)	0.60 (15.2)	98.8 (637.4)	336 (500.0)	4,060(169,000)	1,190 (49,500)	6.41 (16.3)	3.47 (8.81)	483 (7,910)	177 (2,900)
W14 14 x 6 ¾ (356 x 171)	0.270 (6.86)	0.385 (9.78)	0.40 (10.2)	8.85 (57.10)	30 (45.0)	291 (12,100)	19.6 (816)	5.73 (14.6)	1.49 (3.78)	42.0 (688)	5.82 (95.4)
	0.285 (7.24)	0.455 (11.50)	0.40 (10.2)	10.0 (64.52)	34 (51.0)	340 (14,200)	23.3 (970)	5.83 (14.8)	1.53 (3.89)	48.6 (796)	6.91 (113)
	0.310 (7.87)	0.515 (13.00)	0.40 (10.2)	11.2 (72.26)	38 (57.0)	385 (16,000)	26.7 (1,110)	5.88 (14.9)	1.55 (3.94)	54.6 (895)	7.88 (129)
	0.357 (9.10)	0.618 (15.70)	0.40 (10.2)	13.2 (85.40)	45 (67.0)	469 (19,522)	32.7 (1,362)	5.95 (15.1)	1.57 (3.99)	65.5 (1,073)	9.60 (157)
W16 16 x 7 (406 x 178)	0.295 (7.49)	0.430 (10.90)	0.40 (10.2)	10.6 (68.39)	36 (54.0)	448 (18,600)	24.5 (1,020)	6.51 (16.5)	1.52 (3.86)	56.5 (926)	7.00 (115)
	0.305 (7.75)	0.505 (12.80)	0.40 (10.2)	11.8 (76.13)	40 (60.0)	518 (21,600)	28.9 (1,200)	6.63 (16.8)	1.57 (3.99)	64.7 (1,060)	8.25 (135)
	0.345 (8.76)	0.565 (14.30)	0.40 (10.2)	13.3 (85.81)	45 (67.0)	586 (24,400)	32.8 (1,370)	6.65 (16.9)	1.57 (3.99)	72.7 (1,190)	9.34 (153)
	0.380 (9.65)	0.630 (16.00)	0.40 (10.2)	14.7 (94.84)	50 (74.41)	659 (27,400)	37.2 (1,550)	6.68 (17.0)	1.59 (4.04)	81.0 (1,330)	10.5 (172)
	0.430 (10.92)	0.715 (18.16)	0.40 (10.2)	16.8 (108.4)	57 (85.0)	758 (31,600)	43.1 (1,790)	6.72 (17.1)	1.60 (4.06)	92.2 (1,510)	12.1 (198)
W18 18 x 6 (457 x 152)	0.300 (7.62)	0.425 (10.80)	0.40 (10.2)	10.3 (66.45)	35 (52.9)	510 (21,200)	15.3 (637)	7.04 (17.9)	1.22 (3.10)	57.6 (944)	5.12 (83.9)
	0.315 (8.00)	0.525 (13.30)	0.40 (10.2)	11.8 (76.13)	40 (60.00)	612 (25,500)	19.1 (795)	7.21 (18.3)	1.27 (3.23)	68.4 (1,120)	6.35 (104)
	0.360 (9.10)	0.589 (15.00)	0.40 (10.2)	13.2 (85.40)	45 (67.00)	686 (28,577)	21.1 (878)	7.20 (18.3)	1.26 (3.21)	76.3 (1,250)	7.00 (116)
	0.360 (9.14)	0.605 (15.30)	0.40 (10.2)	13.5 (87.10)	46 (68.46)	712 (29,600)	22.5 (937)	7.25 (18.4)	1.29 (3.28)	78.8 (1,290)	7.43 (122)
	0.389 (9.90)	0.669 (17.00)	0.40 (10.2)	14.7 (95.00)	50 (74.00)	779 (32,435)	24.3 (1,012)	7.28 (18.5)	1.28 (3.26)	85.8 (1,406)	8.10 (133)
	0.420 (10.7)	0.744 (18.90)	0.40 (10.2)	16.2 (104.5)	55 (82.00)	870 (36,215)	27.5 (1,143)	7.33 (18.6)	1.30 (3.31)	95.0 (1,557)	9.10 (149)
W18 18 x 7 ½ (457 x 191)	0.334 (8.50)	0.500 (12.70)	0.40 (10.2)	13.2 (85.40)	45 (67.00)	704 (29,330)	31.9 (1,328)	7.30 (18.5)	1.55 (3.94)	78.9 (1,293)	8.5 (139)
	0.355 (9.02)	0.570 (14.40)	0.40 (10.2)	14.7 (94.84)	50 (74.41)	800 (33,300)	40.1 (1,670)	7.38 (18.7)	1.65 (4.19)	88.9 (1,460)	10.7 (175)
	0.390 (9.91)	0.630 (16.00)	0.40 (10.2)	16.2 (104.5)	55 (82.00)	890 (37,000)	44.9 (1,870)	7.41 (18.8)	1.67 (4.24)	98.3 (1,610)	11.9 (195)
	0.415 (10.54)	0.695 (17.65)	0.40 (10.2)	17.6 (113.5)	60 (89.29)	984 (41,000)	50.1 (2,090)	7.47 (19.0)	1.68 (4.27)	108 (1,770)	13.3 (218)
	0.450 (11.43)	0.750 (19.05)	0.40 (10.2)	19.1 (123.2)	65 (97.00)	1,070 (44,500)	54.8 (2,280)	7.49 (19.0)	1.69 (4.29)	117 (1,920)	14.4 (236)
	0.450 (11.40)	0.770 (19.60)	0.40 (10.2)	19.4 (125.3)	66 (98.00)	1,098 (45,717)	56.3 (2,343)	7.52 (19.1)	1.70 (4.33)	119 (1,956)	14.8 (243)
	0.495 (12.57)	0.810 (20.57)	0.40 (10.2)	20.8 (134.2)	71 (106.0)	1,170 (48,700)	60.3 (2,510)	7.50 (19.0)	1.70 (4.33)	127 (2,080)	15.8 (259)

continue .....>>

WIDE FLANGE SHAPE (HOT ROLLED)

DIMENSIONAL TOLERANCE

ACCORDING JIS G 3192

ITEM, mm (in.)			TOLERANCE	REMARKS
Depth (*H*)		FLANGE WIDTH, B	± 3.0 (0.118)	
		Nominal depths of under 400 (15.748) 400 to 600 (23.622), excl. 600 and over	± 3.0 (0.118) ± 4.0 (0.157) ± 5.0 (0.197)	
Thickness	Flange, t_2	Under 16 16 or over to and excl. 25 25 or over to and excl. 40 40 or over	± 1.5 (0.059) ± 2.0 (0.079) ± 2.5 (0.098) ± 3.0 (0.118)	
	Web, t_1	Under 16 16 or over to and excl. 25 25 or over to and excl. 40 40 or over	± 1.0 (0.039) ± 1.5 (0.059) ± 2.0 (0.079) ± 2.5 (0.098)	
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	
Camber 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 Center, (*S*)		Nominal depths 300 (11.811) and under	± 3.0 (0.118)	
		Nominal depths over 300 (11.811)	± 4.5 (0.117)	
Ends-out-osquare (e)			1.6 % or under of width B or of depth H, provided that 3.0 mm is the minimum	

CHEMICAL COMPOSITION

SYMBOL OF GRADE	CHEMICAL COMPOSITION				
	C	Si	Mn	P	S
SS 400	–	–	–	0.050 max	0.050 max
SM 490 YA SM 490 YB	0.20 Max	0,55 Max	1.60 Max	0.035 Max	0.035 Max

CORRESPONDING SPECIFICATION

TYPE OF MATERIAL	CLASSIFIED BY TENSILE STRENGTH		SPECIFICATIONS			
	Tensile strength class (N/mm)	Special Specification	JIS	ASTM	BS 4360	D I N
Steel Structure	400	–	G3101 SS400	A 36	Gr 43A	St 33

MECHANICAL PROPERTIES

CLASSIFICATION	YIELD POINT / mm2		TENSILE STRENGTH	ELONGATION, %		
	Thickness (mm)			Thickness of Steel Product (mm)		
	16 or under	> 16 up to 40	N/mm2	5 or under	5 to 16	> 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