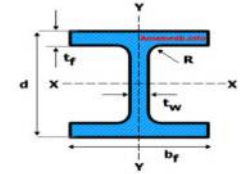


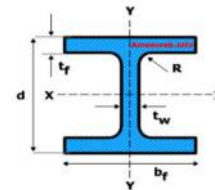
Wide Flange Beams/Columns (Metric Series)
Grade JIS SS400 Q235B Q345B S275JR S355JR



Metric units

Designation Size	Surface Unit Area Per Weight Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J	
		Axis x-x cm ⁴	Axis y-y cm ⁴	Axis x-x cm	Axis y-y cm	Axis x-x cm ³	Axis y-y cm ³	Axis x-x cm ³	Axis y-y cm ³					
mm	kg/m	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³		dm ⁶	cm ⁴	
100x50	9.3	0.376	188	14.8	3.98	1.12	37.5	5.93	44.1	9.5	0.876	12.7	0.000320	2.03
100x100	14.8	0.570	344	117.0	4.20	2.47	69.0	23.0	78.0	36.0	0.843	12.3	0.00253	3.53
	16.9	0.574	378	134	4.18	2.49	75.6	26.7	86.4	41.0	0.836	11.1	0.00283	4.73
	17.2	0.571	383	134	4.18	2.47	76.5	26.8	87.6	41.2	0.837	10.7	0.00283	5.17
125x60	13.2	0.463	413	29.2	4.95	1.32	66.1	9.75	77.6	15.7	0.872	14.0	0.00100	3.75
125x125	23.6	0.723	840	293	5.29	3.13	134	46.9	152	71.7	0.839	12.8	0.00987	7.91
	23.8	0.720	847	294	5.29	3.11	136	47.0	154	71.9	0.840	12.5	0.00988	8.43
150x75	14.0	0.576	666	49.5	6.11	1.67	88.8	13.2	102	20.8	0.876	20.4	0.00253	2.81
150x100	20.7	0.670	1003	150	6.17	2.39	135	30.1	154	46.4	0.880	15.8	0.00727	6.56
	21.1	0.665	1021	151	6.17	2.37	138	30.1	157	46.7	0.881	15.0	0.00728	7.37
150x150	31.1	0.872	1623	563	6.40	3.77	216	75.1	243	114	0.841	14.1	0.0276	12.5
	31.5	0.867	1641	563	6.39	3.75	219	75.1	246	115	0.842	13.7	0.0276	13.5
	37.4	0.877	2018	690	6.51	3.80	262	91.4	298	140	0.845	11.8	0.0348	22.2
175x90	18.0	0.686	1205	97.5	7.26	2.06	138	21.7	156	33.6	0.885	21.8	0.00680	4.31
	18.1	0.685	1214	97.6	7.26	2.06	139	21.7	157	33.7	0.885	21.4	0.00680	4.50
175x125	23.3	0.806	1529	261	7.18	2.97	181	41.8	202	64.3	0.879	19.1	0.0169	6.76
175x175	32.8	1.01	2304	791	7.43	4.35	269	90.9	298	138	0.845	17.5	0.0519	11.5
	40.2	1.01	2884	984	7.50	4.38	330	112	369	171	0.844	14.7	0.0662	20.4
	40.4	1.01	2895	984	7.50	4.37	331	112	370	172	0.845	14.5	0.0662	21.0
200x100	17.8	0.769	1543	113	8.25	2.24	156	22.9	175	35.5	0.883	28.4	0.0103	3.30
	18.2	0.764	1582	114	8.26	2.22	160	23.0	180	35.7	0.884	26.5	0.0104	3.86
	20.9	0.775	1806	134	8.23	2.24	181	26.7	205	41.6	0.878	24.9	0.0123	5.08
	21.3	0.770	1844	134	8.24	2.22	184	26.8	209	41.9	0.880	23.6	0.0124	5.77
200x150	29.9	0.962	2625	507	8.30	3.65	271	67.6	301	103	0.876	21.2	0.0434	9.32
	30.6	0.954	2690	507	8.30	3.61	277	67.7	309	104	0.878	19.8	0.0434	10.9
	36.9	0.964	3331	633	8.42	3.67	336	83.8	377	128	0.879	16.9	0.0553	18.5
200x200	41.4	1.15	3846	1315	8.54	5.00	392	132	433	201	0.847	18.2	0.114	17.6
	49.9	1.16	4716	1602	8.62	5.02	472	160	525	244	0.846	15.5	0.142	29.8
	57.8	1.17	5603	1897	8.73	5.08	549	189	617	287	0.847	13.6	0.171	45.8
	65.7	1.18	6531	2201	8.83	5.13	628	218	710	332	0.848	12.2	0.203	66.7
250x125	25.1	0.968	3450	255	10.4	2.82	278	41.1	312	63.2	0.884	32.0	0.0367	5.78
	25.7	0.961	3537	255	10.4	2.79	285	41.1	319	63.6	0.886	29.9	0.0367	6.74
	29.0	0.974	3965	294	10.4	2.82	317	47.0	358	72.7	0.880	28.4	0.0426	8.51
	29.6	0.967	4052	294	10.4	2.79	324	47.0	366	73.1	0.881	26.9	0.0427	9.68
250x175	43.6	1.15	6037	984	10.4	4.21	495	112	550	172	0.883	21.3	0.134	21.2
	44.1	1.15	6122	985	10.4	4.19	502	113	558	173	0.884	20.5	0.134	23.2
	51.6	1.16	7308	1184	10.5	4.24	589	135	660	207	0.884	18.0	0.163	36.1
	59.1	1.17	8541	1390	10.7	4.30	678	157	764	241	0.885	16.0	0.195	53.2
250x250	66.5	1.45	9931	3348	10.8	6.29	801	269	883	408	0.850	17.9	0.462	46.7
	71.8	1.46	10750	3648	10.8	6.32	860	292	953	443	0.847	17.1	0.508	55.8
	72.4	1.45	10830	3649	10.8	6.29	867	292	960	444	0.848	16.7	0.508	58.7
	98.1	1.48	15340	5134	11.1	6.41	1180	406	1330	618	0.849	12.8	0.745	141
300x150	25.0	1.14	4940	326	12.3	3.16	336	44.0	375	68.4	0.878	39.7	0.0676	5.51
	32.0	1.16	6318	442	12.4	3.29	424	59.4	475	91.8	0.880	35.6	0.0930	8.65
	36.7	1.16	7210	508	12.4	3.29	481	67.7	542	105	0.876	32.0	0.107	12.4
	41.4	1.17	8578	620	12.7	3.43	564	82.7	633	128	0.888	27.8	0.133	18.8
	46.2	1.18	9514	691	12.7	3.43	622	91.5	702	142	0.884	25.6	0.149	24.9
	69.0	1.21	14820	1100	13.0	3.54	932	143	1070	223	0.884	17.9	0.248	79.0

Wide Flange Beams/Columns (Metric Series)
Grade JIS SS400 Q235B Q345B S275JR S355JR

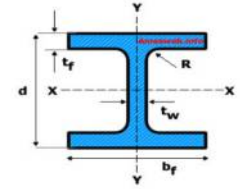


Metric units

Designation Size	Surface Unit Weight	Surface Area Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J
			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y				
			cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³				
mm	kg/m	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H	J
300x200	48.3	1.33	9431	1317	12.4	4.63	650	132	721	203	0.882	26.0	0.258	22.8
	55.8	1.35	11110	1602	12.5	4.75	756	160	842	245	0.882	24.0	0.319	31.4
	56.8	1.34	11340	1604	12.5	4.71	771	160	859	247	0.883	22.7	0.319	35.8
	65.4	1.35	13310	1900	12.6	4.77	893	189	1000	291	0.884	20.1	0.383	53.4
	77.3	1.37	16280	2341	12.9	4.88	1071	232	1204	356	0.888	17.2	0.482	87.8
300x300	87.0	1.74	18850	6242	13.0	7.51	1265	418	1389	634	0.850	20.0	1.26	71.3
	93.0	1.76	20190	6753	13.1	7.55	1346	450	1484	683	0.847	19.4	1.37	82.1
	94.0	1.75	20410	6756	13.1	7.51	1361	450	1501	684	0.848	18.8	1.37	88.1
	106	1.76	23380	7733	13.2	7.57	1538	514	1705	781	0.849	16.9	1.59	125
	125	1.78	28130	9282	13.3	7.64	1815	613	2031	932	0.849	14.6	1.95	200
	130	1.78	28630	9470	13.2	7.57	1847	621	2079	949	0.842	14.4	1.99	215
	147	1.79	31370	10450	13.0	7.48	2011	674	2295	1040	0.830	13.0	2.21	298
350x175	41.2	1.35	11040	792	14.5	3.88	638	91.0	712	140	0.881	38.1	0.225	13.2
	41.4	1.35	11100	792	14.5	3.88	641	91.0	716	140	0.882	37.5	0.225	13.6
	49.4	1.36	13500	984	14.6	3.96	771	113	864	173	0.883	32.2	0.283	22.4
	49.6	1.36	13560	985	14.7	3.95	775	113	868	174	0.884	31.8	0.283	23.0
	57.8	1.37	16100	1184	14.8	4.01	909	135	1022	208	0.885	27.6	0.344	36.1
	66.2	1.38	18710	1390	14.9	4.06	1045	157	1180	243	0.886	24.4	0.409	53.6
	71.8	1.39	20240	1508	14.9	4.06	1124	169	1276	263	0.883	22.9	0.446	66.3
	79.7	1.39	22760	1669	15.0	4.06	1250	189	1425	293	0.884	20.6	0.499	91.3
350x250	69.2	1.62	18510	3093	14.5	5.92	1102	248	1215	380	0.881	25.8	0.812	44.6
	78.1	1.64	21230	3649	14.6	6.05	1249	292	1382	445	0.881	24.2	0.969	58.0
	79.7	1.63	21680	3652	14.6	6.00	1275	292	1412	447	0.882	22.8	0.970	66.3
	94.2	1.64	26440	4488	14.8	6.12	1528	358	1699	547	0.886	19.5	1.21	109
	108	1.65	30190	5138	14.8	6.12	1725	406	1935	623	0.882	17.6	1.41	155
350x350	113	2.04	32850	11240	15.1	8.84	1910	646	2092	978	0.848	21.1	3.02	111
	115	2.05	33810	11840	15.1	8.95	1966	669	2153	1014	0.846	20.4	3.18	123
	135	2.05	39847	13583	15.2	8.89	2277	776	2515	1176	0.847	18.0	3.72	186
	137	2.04	40300	13590	15.2	8.84	2303	776	2545	1179	0.849	17.5	3.72	199
	159	2.06	47590	16000	15.3	8.90	2674	909	2979	1382	0.848	15.4	4.46	305
	181	2.07	55190	18500	15.5	8.96	3049	1045	3424	1591	0.848	13.7	5.25	445
400x200	56.1	1.55	19770	1447	16.6	4.50	999	145	1114	223	0.883	36.8	0.536	25.0
	56.6	1.55	20020	1448	16.7	4.48	1011	145	1128	224	0.884	35.6	0.536	27.1
	65.4	1.56	23460	1736	16.8	4.56	1173	174	1313	267	0.885	31.8	0.650	39.6
	66.0	1.56	23710	1737	16.8	4.54	1185	174	1326	268	0.886	30.9	0.650	42.2
	75.5	1.57	27490	2035	16.9	4.60	1361	202	1528	312	0.887	27.4	0.770	62.3
	88.2	1.58	33060	2478	17.2	4.70	1612	245	1815	378	0.891	23.4	0.952	101
	140	1.63	54850	4216	17.5	4.86	2551	405	2941	632	0.887	15.7	1.70	373
	187	1.68	75250	5919	17.8	4.98	3374	553	3968	873	0.883	12.5	2.49	825
400x300	94.3	1.91	33680	6246	16.7	7.21	1745	418	1918	637	0.880	25.8	2.16	79.9
	105	1.94	37860	7204	16.9	7.35	1942	480	2141	730	0.879	24.5	2.52	100
	107	1.92	38680	7210	16.9	7.28	1983	481	2188	733	0.881	23.2	2.52	114
	127	1.94	46660	8735	17.0	7.35	2357	578	2620	884	0.880	20.0	3.10	185
	144	1.95	54420	10220	17.2	7.45	2707	674	3022	1030	0.883	17.7	3.69	272
400x400	140	2.32	48970	16260	16.6	9.55	2524	809	2802	1237	0.830	22.5	5.66	156
	147	2.32	56150	18930	17.3	10.1	2850	951	3118	1441	0.850	20.9	6.69	194
	172	2.34	66620	22420	17.5	10.1	3331	1121	3672	1700	0.850	18.2	8.05	303
	200	2.35	78040	26200	17.5	10.1	3844	1300	4280	1977	0.846	16.1	9.56	462
	232	2.37	92770	31030	17.7	10.2	4482	1532	5026	2331	0.848	14.1	11.6	714
	283	2.41	119200	39360	18.2	10.4	5570	1934	6311	2941	0.854	11.6	15.2	1317
	415	2.49	187100	60530	18.8	10.7	8172	2903	9540	4436	0.853	8.5	25.2	3885
	605	2.60	297900	94360	19.7	11.1	11960	4369	14460	6724	0.852	6.4	43.2	11060



Wide Flange Beams/Columns (Metric Series)
Grade JIS SS400 Q235B Q345B S275JR S355JR



Metric units

Designation Size	Unit Weight	Surface Area Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J
			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y				
			cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³				
mm	kg/m	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H	J
450x200	65.1	1.65	28130	1579	18.4	4.36	1262	159	1423	245	0.876	38.4	0.744	33.9
	66.2	1.64	28700	1581	18.5	4.33	1287	159	1450	247	0.878	36.5	0.744	38.3
	74.9	1.66	32890	1870	18.6	4.43	1462	187	1652	290	0.878	33.6	0.889	51.6
	76.0	1.65	33450	1872	18.6	4.40	1487	187	1679	291	0.879	32.2	0.890	56.9
	88.9	1.67	40400	2308	18.9	4.51	1772	230	2003	356	0.884	27.5	1.11	92.5
	98.9	1.68	45430	2619	19.0	4.56	1975	259	2240	403	0.885	25.0	1.27	126
	110	1.68	47860	2742	18.5	4.43	2081	268	2399	423	0.869	23.9	1.33	152
450x300	106	2.00	46800	6695	18.6	7.04	2157	448	2384	686	0.883	27.0	2.94	104
	121	2.04	54730	8106	18.9	7.26	2488	540	2757	823	0.885	24.9	3.61	141
	124	2.02	56070	8114	18.9	7.18	2549	541	2825	828	0.887	23.4	3.61	163
	145	2.03	66380	9658	19.0	7.24	2977	640	3323	981	0.886	20.5	4.36	253
500x200	77.9	1.75	40840	1843	20.3	4.31	1647	185	1869	288	0.874	37.5	1.07	52.5
	79.5	1.74	41870	1846	20.3	4.27	1688	186	1914	290	0.876	35.2	1.07	60.8
	88.2	1.76	46810	2138	20.4	4.36	1872	214	2130	333	0.875	33.3	1.25	75.9
	89.6	1.75	47850	2142	20.5	4.33	1914	214	2175	335	0.877	31.6	1.25	85.9
	102	1.77	55480	2578	20.7	4.47	2193	257	2496	399	0.880	28.7	1.53	119
	103	1.76	56520	2582	20.7	4.43	2234	257	2541	401	0.881	27.5	1.53	132
	117	1.77	65450	3035	21.0	4.52	2557	300	2913	469	0.884	24.3	1.82	193
500x300	111	2.12	58270	6756	20.3	6.92	2418	450	2696	690	0.877	32.4	3.68	93.9
	114	2.10	60370	6768	20.4	6.82	2505	451	2791	695	0.880	29.4	3.69	118
	125	2.13	68860	8106	20.8	7.14	2822	540	3132	825	0.887	28.0	4.48	143
	128	2.11	70960	8118	20.8	7.05	2908	541	3228	830	0.889	25.9	4.48	172
	150	2.13	83810	9663	20.9	7.11	3393	640	3792	984	0.888	22.8	5.40	265
600x200	79.0	1.92	58240	1665	24.1	4.07	1968	169	2239	265	0.870	45.2	1.40	53.0
	92.5	1.95	66640	1976	23.8	4.10	2236	199	2576	312	0.861	42.9	1.67	69.2
	94.6	1.93	68720	1982	23.9	4.06	2306	199	2651	315	0.864	39.7	1.67	82.4
	103	1.96	75560	2274	24.0	4.16	2519	227	2904	358	0.863	38.4	1.93	97.3
	106	1.94	77630	2280	24.0	4.12	2588	228	2979	361	0.865	36.0	1.94	113
	118	1.97	88320	2716	24.3	4.26	2915	270	3357	426	0.868	33.4	2.33	147
	120	1.95	90400	2723	24.3	4.23	2983	271	3432	429	0.870	31.7	2.34	167
	134	1.97	103500	3178	24.6	4.32	3382	315	3893	498	0.873	28.3	2.76	237
	600x300	133	2.32	98950	7659	24.2	6.73	3400	511	3822	786	0.876	35.5	6.11
137		2.29	102700	7675	24.3	6.63	3530	512	3963	793	0.879	32.1	6.13	173
147		2.33	114400	9009	24.7	6.94	3889	601	4348	921	0.886	31.2	7.27	199
151		2.30	118100	9025	24.8	6.85	4018	602	4489	928	0.888	28.8	7.28	241
170		2.35	133600	10570	24.8	6.98	4497	700	5057	1077	0.885	27.3	8.62	304
175		2.32	137300	10590	24.9	6.90	4624	701	5197	1085	0.887	25.5	8.63	356
203		2.34	162600	12680	25.1	7.00	5401	834	6101	1292	0.888	22.3	10.5	551
217		2.35	179300	14090	25.4	7.13	5896	927	6653	1431	0.893	20.5	11.8	702
700x300		166	2.51	172400	9030	28.6	6.53	4984	602	5629	936	0.878	34.3	10.2
	182	2.54	197500	10820	29.2	6.83	5643	721	6338	1110	0.887	31.4	12.4	343
	185	2.53	201500	10830	29.3	6.78	5757	722	6464	1116	0.889	30.0	12.4	383
	215	2.55	237100	12890	29.4	6.86	6699	854	7559	1323	0.889	26.3	14.9	588
800x300	191	2.71	253600	9936	32.3	6.39	6405	662	7288	1036	0.873	36.8	14.7	341
	207	2.74	286400	11720	33.0	6.67	7159	781	8098	1210	0.882	33.9	17.6	440
	210	2.72	291700	11740	33.0	6.62	7292	782	8243	1216	0.883	32.5	17.6	486
	241	2.74	339200	13820	33.2	6.70	8397	915	9534	1426	0.883	28.7	20.9	726
	267	2.76	383600	15820	33.6	6.82	9402	1044	10680	1625	0.887	25.8	24.2	1003
900x300	210	2.92	338500	10280	35.6	6.20	7608	687	8750	1079	0.863	42.2	19.3	361
	213	2.90	345300	10290	35.7	6.16	7760	688	8913	1085	0.865	40.2	19.3	403
	240	2.94	404500	12630	36.4	6.43	8989	842	10290	1317	0.872	35.9	24.0	580
	243	2.92	411300	12650	36.4	6.39	9139	843	10450	1324	0.873	34.5	24.0	633
	283	2.97	491000	15660	36.9	6.59	10770	1037	12340	1622	0.876	30.1	30.2	979
	286	2.95	497800	15670	37.0	6.56	10920	1038	12500	1629	0.877	29.3	30.2	1050
	304	2.98	535400	17210	37.2	6.67	11660	1136	13380	1778	0.878	27.9	33.4	1234
	307	2.96	542200	17230	37.2	6.63	11810	1137	13540	1785	0.879	27.2	33.4	1316

