

RECEP TAYYİP ERDOĞAN ÜNİVERSİTESİ
İNŞAAT MÜHENDİSLİĞİ BÖLÜMÜ

ÇELİK YAPILAR TABLOLARI

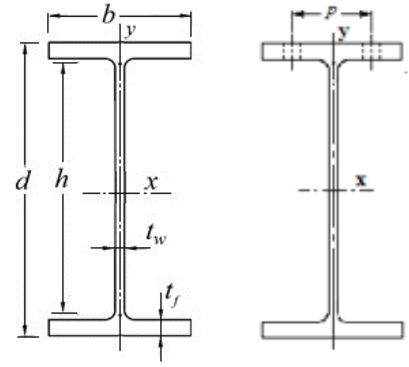


Aralık, 2017

IPE A

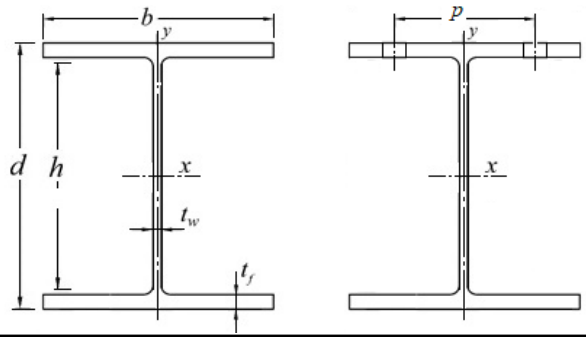
IPE

IPE O



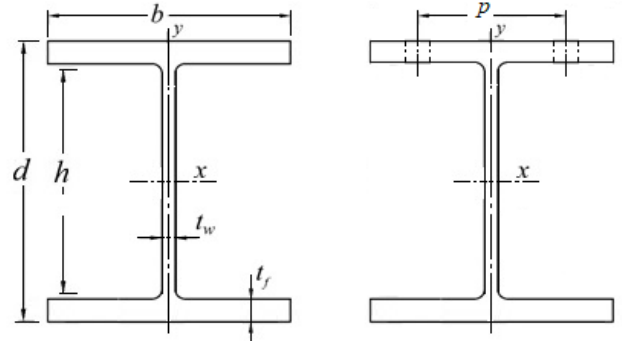
KESİT	G kg/m	ÖLÇÜLER					KESİT ALANI	TASARIM ÖLÇÜLERİ					STATİK DEĞERLER									
		d mm	b mm	t _w mm	t _f mm	r mm		A cm ²	h mm	Ø	p _{min} mm	p _{max} mm	KUVVETLİ EKSEN x-x				ZAYIF EKSEN y-y				J cm ⁴	C _w ×10 ⁻³ cm ⁶
													I _x cm ⁴	W _{ex} cm ³	W _{px} cm ³	i _x cm	I _y cm ⁴	W _{ey} cm ³	W _{py} cm ³	i _y cm		
IPE A 100	6.9	98	55	3.6	4.7	7	8.78	74.6	-	-	-	141.2	28.81	32.98	4.01	13.12	4.77	7.54	1.22	0.77	0.28	
IPE 100	8.1	100	55	4.1	5.7	7	10.32	74.6	-	-	-	171.0	34.20	39.41	4.07	15.92	5.79	9.15	1.24	1.20	0.35	
IPE A 120	8.7	117.6	64	3.8	5.1	7	11.03	93.4	-	-	-	257.4	43.77	49.87	4.83	22.39	7.00	10.98	1.42	1.04	0.71	
IPE 120	10.4	120	64	4.4	6.3	7	13.21	93.4	-	-	-	317.8	52.96	60.73	4.90	27.67	8.65	13.58	1.45	1.74	0.89	
IPE A 140	10.5	137.4	73	3.8	5.6	7	13.39	112.2	-	-	-	434.9	63.30	71.60	5.70	36.42	9.98	15.52	1.65	1.36	1.58	
IPE 140	12.9	140	73	4.7	6.9	7	16.43	112.2	-	-	-	541.2	77.32	88.34	5.74	44.92	12.31	19.25	1.65	2.45	1.98	
IPE A 160	12.7	157	82	4.0	5.9	9	16.18	127.2	-	-	-	689.3	87.81	99.09	6.53	54.43	13.27	20.70	1.83	1.96	3.09	
IPE 160	15.8	160	82	5.0	7.4	9	20.09	127.2	-	-	-	869.3	108.7	123.9	6.58	68.31	16.66	26.10	1.84	3.60	3.96	
IPE A 180	15.4	177	91	4.3	6.5	9	19.58	146.0	M10	48	48	1063	120.1	135.3	7.37	81.89	18.00	27.96	2.05	2.70	5.93	
IPE 180	18.8	180	91	5.3	8.0	9	23.95	146.0	M10	48	48	1317	146.3	166.4	7.42	100.9	22.16	34.60	2.05	4.79	7.43	
IPE O 180	21.3	182	92	6.0	9.0	9	27.10	146.0	M10	50	50	1505	165.4	189.1	7.45	117.3	25.50	39.91	2.08	6.76	8.74	
IPE A 200	18.4	197	100	4.5	7.0	12	23.47	159.0	M10	54	58	1591	161.6	181.7	8.23	117.2	23.43	36.54	2.23	4.11	10.53	
IPE 200	22.4	200	100	5.6	8.5	12	28.48	159.0	M10	54	58	1943	194.3	220.6	8.26	142.4	28.47	44.61	2.24	6.98	12.99	
IPE O 200	25.1	202	102	6.2	9.5	12	31.96	159.0	M10	56	60	2211	218.9	249.4	8.32	168.9	33.11	51.89	2.30	9.45	15.57	
IPE A 220	22.2	217	110	5.0	7.7	12	28.26	177.6	M12	60	62	2317	213.5	240.2	9.05	171.4	31.17	48.49	2.46	5.69	18.71	
IPE 220	26.2	220	110	5.9	9.2	12	33.37	177.6	M12	60	62	2772	252.0	285.4	9.11	204.9	37.25	58.11	2.48	9.07	22.67	
IPE O 220	29.4	222	112	6.6	10.2	12	37.39	177.6	M10	58	66	3134	282.3	321.1	9.16	239.8	42.83	66.91	2.53	12.27	26.79	
IPE A 240	26.2	237	120	5.2	8.3	15	33.31	190.4	M12	64	68	3290	277.7	311.6	9.94	240.1	40.02	62.40	2.68	8.35	31.26	
IPE 240	30.7	240	120	6.2	9.8	15	39.12	190.4	M12	66	68	3892	324.3	366.6	9.97	283.6	47.27	73.92	2.69	12.88	37.39	
IPE O 240	34.3	242	122	7.0	10.8	15	43.71	190.4	M12	66	70	4369	361.1	410.3	10.00	328.5	53.86	84.40	2.74	17.18	43.68	
IPE A 270	30.7	267	135	5.5	8.7	15	39.15	219.6	M16	70	72	4917	368.3	412.5	11.21	358.0	53.03	82.34	3.02	10.30	59.51	
IPE 270	36.1	270	135	6.6	10.2	15	45.95	219.6	M16	72	72	5790	428.9	484.0	11.23	419.9	62.20	96.95	3.02	15.94	70.58	
IPE O 270	42.3	274	136	7.5	12.2	15	53.84	219.6	M16	72	72	6947	507.1	574.6	11.36	513.5	75.51	117.7	3.09	24.90	87.64	
IPE A 300	36.5	297	150	6.1	9.2	15	46.53	248.6	M16	72	86	7173	483.1	541.8	12.42	519.0	69.20	107.3	3.34	13.43	107.2	
IPE 300	42.2	300	150	7.1	10.7	15	53.81	248.6	M16	72	86	8356	557.1	628.4	12.46	603.8	80.50	125.2	3.35	20.12	125.9	
IPE O 300	49.3	304	152	8.0	12.7	15	62.83	248.6	M16	74	88	9994	657.5	743.8	12.61	745.7	98.12	152.6	3.45	31.06	157.7	
IPE A 330	43.0	327	160	6.5	10.0	18	54.74	271.0	M16	78	96	10230	625.7	701.9	13.67	685.2	85.64	133.3	3.54	19.57	171.5	
IPE 330	49.1	330	160	7.5	11.5	18	62.61	271.0	M16	78	96	11770	713.1	804.3	13.71	788.1	98.52	153.7	3.55	28.15	199.1	
IPE O 330	57.0	334	162	8.5	13.5	18	72.62	271.0	M16	80	98	13910	833.0	942.8	13.84	960.4	118.6	185.0	3.64	42.15	245.7	
IPE A 360	50.2	357.6	170	6.6	11.5	18	63.96	298.6	M22	86	88	14520	811.8	906.8	15.06	944.3	111.1	171.9	3.84	26.51	282.0	
IPE 360	57.1	360	170	8.0	12.7	18	72.73	298.6	M22	88	88	16270	903.6	1019	14.95	1043	122.8	191.1	3.79	37.32	313.6	
IPE O 360	66.0	364	172	9.2	14.7	18	84.13	298.6	M22	90	90	19050	1047	1186	15.05	1251	145.5	226.9	3.86	55.76	380.3	
IPE A 400	57.4	397	180	7.0	12.0	21	73.10	331.0	M22	94	98	20290	1022	1144	16.66	1171	130.1	202.1	4.00	34.79	432.2	
IPE 400	66.3	400	180	8.6	13.5	21	84.46	331.0	M22	96	98	23130	1156	1307	16.55	1318	146.4	229.0	3.95	51.08	490.0	
IPE O 400	75.7	404	182	9.7	15.5	21	96.39	331.0	M22	96	100	26750	1324	1502	16.66	1564	171.9	269.1	4.03	73.10	587.6	
IPE A 450	67.2	447	190	7.6	13.1	21	85.55	378.8	M24	100	102	29760	1331	1494	18.65	1502	158.1	245.7	4.19	45.67	704.9	
IPE 450	77.6	450	190	9.4	14.6	21	98.82	378.8	M24	100	102	33740	1500	1702	18.48	1676	176.4	276.4	4.12	66.87	791.0	
IPE O 450	92.4	456	192	11.0	17.6	21	117.7	378.8	M24	102	104	40920	1795	2046	18.65	2085	217.2	341.0	4.21	109	997.6	
IPE A 500	79.4	497	200	8.4	14.5	21	101.1	426.0	M24	100	112	42930	1728	1946	20.61	1939	193.9	301.6	4.38	62.78	1125	
IPE 500	90.7	500	200	10.2	16.0	21	115.5	426.0	M24	102	112	48200	1928	2194	20.43	2142	214.2	335.9	4.31	89.29	1249	
IPE O 500	107.0	506	202	12.0	19.0	21	136.7	426.0	M24	104	114	57780	2284	2613	20.56	2622	259.6	408.5	4.38	143.5	1548	
IPE A 550	92.1	547	210	9.0	15.7	24	117.3	467.6	M24	106	122	59980	2193	2475	22.61	2432	231.6	361.5	4.55	86.53	1710	
IPE 550	106	550	210	11.1	17.2	24	134.4	467.6	M24	110	122	67120	2441	2787	22.35	2668	254.1	400.5	4.45	123.2	1884	
IPE O 550	123	556	212	12.7	20.2	24	156.1	467.6	M24	110	122	79160	2847	3263	22.52	3224	304.2	480.5	4.55	187.5	2302	
IPE A 600	108	597	220	9.8	17.5	24	137.0	514.0	M27	114	118	82920	2778	3141	24.60	3116	283.3	442.1	4.77	118.8	2607	
IPE 600	122	600	220	12.0	19.0	24	156.0	514.0	M27	116	118	92080	3069	3512	24.30	3387	307.9	485.6	4.66	165.4	2846	
IPE O 600	154	610	224	15.0	24.0	24	196.8	514.0	M27	118	122	118300	3879	4471	24.52	4521	403.6	640.1	4.79	318.1	3860	

HEA A



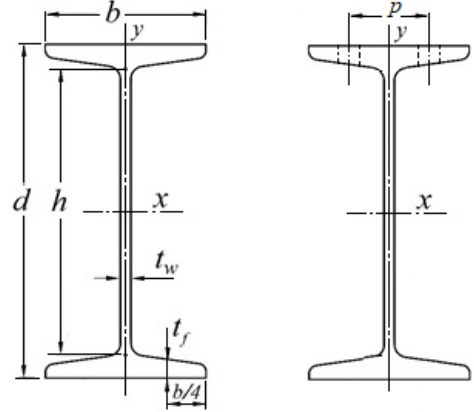
KESİT	G kg/m	ÖLÇÜLER					KESİT ALANI	TASARIM ÖLÇÜLERİ					STATİK DEĞERLER									
													KUVVETLİ EKSEN x-x					ZAYIF EKSEN y-y				
		d mm	b mm	t _w mm	t _f mm	r mm		A cm ²	h mm	Ø	p _{min} mm	p _{max} mm	I _x cm ⁴	W _{ex} cm ³	W _{px} cm ³	i _x cm	I _y cm ⁴	W _{ey} cm ³	W _{py} cm ³	i _y cm		
HE 100 AA	12.2	91	100	4.2	5.5	12	15.60	56	M10	54	58	236.5	51.98	58.36	3.89	92.06	18.41	28.44	2.43	2.51	1.68	
HE 100 A	16.7	96	100	5.0	8.0	12	21.24	56	M10	54	58	349.2	72.76	83.01	4.06	133.8	26.76	41.14	2.51	5.24	2.58	
HE 120 AA	14.6	109	120	4.2	5.5	12	18.55	74	M12	58	68	413.4	75.85	84.12	4.72	158.8	26.47	40.62	2.93	2.78	4.24	
HE 120 A	19.9	114	120	5.0	8.0	12	25.34	74	M12	58	68	606.2	106.3	119.5	4.89	230.9	38.48	58.85	3.02	5.99	6.47	
HE 140 AA	18.1	128	140	4.3	6.0	12	23.02	92	M16	64	76	719.5	112.4	123.8	5.59	274.8	39.26	59.93	3.45	3.54	10.21	
HE 140 A	24.7	133	140	5.5	8.5	12	31.42	92	M16	64	76	1033	155.4	173.5	5.73	389.3	55.62	84.85	3.52	8.13	15.06	
HE 160 AA	23.8	148	160	4.5	7.0	15	30.36	104	M20	76	84	1283	173.4	190.4	6.50	478.7	59.84	91.36	3.97	6.33	23.75	
HE 160 A	30.4	152	160	6.0	9.0	15	38.77	104	M20	78	84	1673	220.1	245.1	6.57	615.6	76.95	117.6	3.98	12.19	31.41	
HE 180 AA	28.7	167	180	5.0	7.5	15	36.53	122	M24	84	92	1967	235.6	258.2	7.34	730	81.1	123.6	4.47	8.33	46.36	
HE 180 A	35.5	171	180	6.0	9.5	15	45.25	122	M24	86	92	2510	293.6	324.9	7.45	924.6	102.7	156.5	4.52	14.80	60.21	
HE 200 AA	34.6	186	200	5.5	8.0	18	44.13	134	M27	96	100	2944	316.6	347.1	8.17	1068	106.8	163.2	4.92	12.69	84.49	
HE 200 A	42.3	190	200	6.5	10.0	18	53.83	134	M27	98	100	3692	388.6	429.5	8.28	1336	133.6	203.8	4.98	20.98	108.0	
HE 220 AA	40.4	205	220	6.0	8.5	18	51.46	152	M27	98	118	4170	406.9	445.5	9.00	1510	137.3	209.3	5.42	15.93	145.6	
HE 220 A	50.5	210	220	7.0	11.0	18	64.34	152	M27	98	118	5410	515.2	568.5	9.17	1955	177.7	270.6	5.51	28.46	193.3	
HE 240 AA	47.4	224	240	6.5	9.0	21	60.38	164	M27	104	138	5835	521.0	570.6	9.83	2077	173.1	264.4	5.87	22.98	239.6	
HE 240 A	60.3	230	240	7.5	12.0	21	76.84	164	M27	104	138	7763	675.1	744.6	10.05	2769	230.7	351.7	6.00	41.55	328.5	
HE 260 AA	54.1	244	260	6.5	9.5	24	68.97	177	M27	110	158	7981	654.1	714.5	10.76	2788	214.5	327.7	6.36	30.31	382.6	
HE 260 A	68.2	250	260	7.5	12.5	24	86.82	177	M27	110	158	10450	836.4	919.8	10.97	3668	282.1	430.2	6.50	52.37	516.4	
HE 280 AA	61.2	264	280	7.0	10.0	24	78.02	196	M27	110	178	10560	799.8	873.1	11.63	3664	261.7	399.4	6.85	36.22	590.1	
HE 280 A	76.4	270	280	8.0	13.0	24	97.26	196	M27	112	178	13670	1013	1112	11.86	4763	340.2	518.1	7.00	62.10	785.4	
HE 300 AA	69.8	283	300	7.5	10.5	27	88.91	208	M27	116	198	13800	976	1065	12.46	4734	315.6	482.3	7.30	49.35	877.2	
HE 300 A	88	290	300	8.5	14.0	27	112.50	208	M27	118	198	18260	1260	1383	12.74	6310	420.6	641.2	7.49	85.17	1200	
HE 320 AA	74	301	300	8.0	11.0	27	94.58	225	M27	118	198	16450	1093	1196	13.19	4959	330.6	505.7	7.24	55.87	1041	
HE 320 A	97.6	310	300	9.0	15.5	27	124.40	225	M27	118	198	22930	1479	1628	13.58	6985	465.7	709.7	7.49	108.00	1512	
HE 340 AA	78.9	320	300	8.5	11.5	27	100.50	243	M27	118	198	19550	1222	1341	13.95	5185	345.6	529.3	7.18	63.07	1231	
HE 340 A	105.0	330	300	9.5	16.5	27	133.50	243	M27	118	198	27690	1678	1850	14.40	7436	495.7	755.9	7.46	127.20	1824	
HE 360 AA	84	339	300	9.0	12.0	27	106.60	261	M27	118	198	23040	1359	1495	14.70	5410	360.7	553.0	7.12	70.99	1444	
HE 360 A	112	350	300	10.0	17.5	27	142.80	261	M27	120	198	33090	1891	2088	15.22	7887	525.8	802.3	7.43	148.80	2177	
HE 400 AA	92	378	300	9.5	13.0	27	117.70	298	M27	118	198	31250	1654	1824	16.30	5861	390.8	599.7	7.06	84.69	1948	
HE 400 A	125	390	300	11.0	19.0	27	159.00	298	M27	120	198	45070	2311	2562	16.84	8564	570.9	872.9	7.34	189.00	2942	
HE 450 AA	100	425	300	10.0	13.5	27	127.10	344	M27	120	198	41890	1971	2183	18.16	6088	405.8	624.4	6.92	95.61	2572	
HE 450 A	140.0	440	300	11.5	21.0	27	178.00	344	M27	122	198	63720	2896	3216	18.92	9465	631.0	965.5	7.29	243.80	4148	
HE 500 AA	107	472	300	10.5	14.0	27	136.90	390	M27	120	198	54640	2315	2576	19.98	6314	420.9	649.3	6.79	107.70	3304	
HE 500 A	155	490	300	12.0	23.0	27	197.50	390	M27	122	198	86970	3550	3949	20.98	10370	691.1	1059.0	7.24	309.30	5643	
HE 550 AA	120	522	300	11.5	15.0	27	152.80	438	M27	122	198	72870	2792	3128	21.84	6767	451.1	698.6	6.65	133.70	4338	
HE 550 A	166	540	300	12.5	24.0	27	211.80	438	M27	122	198	111900	4146	4622	22.99	10820	721.3	1107.0	7.15	351.50	7189	
HE 600 AA	129	571	300	12.0	15.5	27	164.10	486	M27	122	198	91900	3218	3623	23.66	6993	466.2	724.5	6.53	149.80	5381	
HE 600 A	178	590	300	13.0	25.0	27	226.50	486	M27	122	198	141200	4787	5350	24.97	11270	751.4	1156.0	7.05	397.80	8978	
HE 650 AA	138	620	300	12.5	16.0	27	175.80	534	M27	122	198	113900	3676	4160	25.46	7221	481.4	750.7	6.41	167.50	6567	
HE 650 A	190	640	300	13.5	26.0	27	241.60	534	M27	124	198	175200	5474	6136	26.93	11720	781.6	1205.0	6.97	448.30	11030	
HE 700 AA	150	670	300	13.0	17.0	27	190.90	582	M27	122	198	142700	4260	4840	27.34	7673	511.5	799.7	6.34	195.20	8155	
HE 700 A	204	690	300	14.5	27.0	27	260.50	582	M27	124	198	215300	6241	7032	28.75	12180	811.9	1257.0	6.84	513.90	13350	
HE 800 AA	172	770	300	14.0	18.0	30	218.50	674	M27	130	198	208900	5426	6225	30.92	8134	542.2	856.6	6.10	256.80	11450	
HE 800 A	224	790	300	15.0	28.0	30	285.80	674	M27	130	198	303400	7682	8699	32.58	12640	842.6	1312.0	6.65	596.90	18290	
HE 900 AA	198	870	300	15.0	20.0	30	252.20	770	M27	130	198	301100	6923	7999	34.55	9041	602.8	957.7	5.99	334.90	16260	
HE 900 A	252	890	300	16.0	30.0	30	320.50	770	M27	132	198	422100	9485	10810	36.29	13550	903.2	1414.0	6.50	736.80	24960	
HE 1000 AA	222	970	300	16.0	21.0	30	282.20	868	M27	132	198	406500	8380	9777	37.95	9501	633.4	1016.0	5.80	403.40	21280	
HE 1000 A	272	990	300	16.5	31.0	30	346.80	868	M27	132	198	553800	11190	12820	39.96	14000	933.6	1470.0	6.35	822.40	32070	

HEB HEM



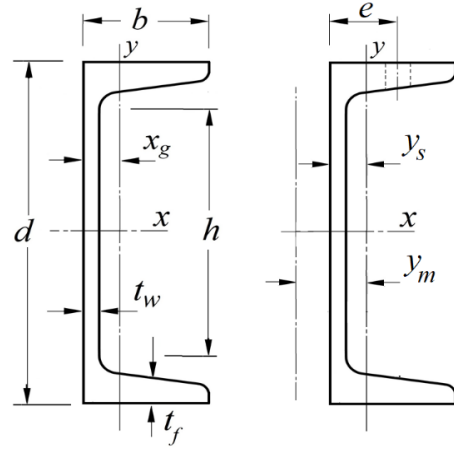
KESİT	G kg/m	ÖLÇÜLER					KESİT ALANI	TASARIM ÖLÇÜLERİ				STATİK DEĞERLER									
												KUVVETLİ EKSEN x-x				ZAYIF EKSEN y-y				J cm ⁴	C _w x10 ⁻³ cm ⁶
		d mm	b mm	t _w mm	t _f mm	r mm	A cm ²	h mm	Ø	p _{min} mm	p _{max} mm	I _x cm ⁴	W _{ex} cm ³	W _{px} cm ³	i _x cm	I _y cm ⁴	W _{ey} cm ³	W _{py} cm ³	i _y cm		
HE 100 B	20.4	100	100	6.0	10.0	12	26.04	56	M10	56	58	449.5	89.91	104.20	4.16	167.3	33.45	51.42	2.53	9.25	3.38
HE 100 M	41.8	120	106	12.0	20.0	12	53.24	56	M10	62	64	1143	190.4	235.80	4.63	399.2	75.31	116.30	2.74	68.21	9.93
HE 120 B	26.7	120	120	6.5	11.0	12	34.01	74	M12	60	68	864	144.1	165.2	5.04	317.5	52.92	80.97	3.06	13.84	9.41
HE 120 M	52.1	140	126	12.5	21.0	12	66.41	74	M12	66	74	2018	288.2	350.6	5.51	702.8	111.60	171.60	3.25	91.66	24.79
HE 140 B	33.7	140	140	7.0	12.0	12	42.96	92	M16	66	76	1509	215.6	245.4	5.93	549.7	78.52	119.80	3.58	20.06	22.48
HE 140 M	63.2	160	146	13.0	22.0	12	80.56	92	M16	72	82	3291	411.4	493.8	6.39	1144	156.80	240.50	3.77	120.00	54.33
HE 160 B	42.6	160	160	8.0	13.0	15	54.25	104	M20	80	84	2492	311.5	354.0	6.78	889.2	111.2	170.0	4.05	31.24	47.94
HE 160 M	76.2	180	166	14.0	23.0	15	97.05	104	M20	86	90	5098	566.5	674.6	7.25	1759	211.9	325.5	4.26	162.40	108.10
HE 180 B	51.2	180	180	8.5	14.0	15	65.25	122	M24	88	92	3831	425.7	481.4	7.66	1363	151.4	231.0	4.57	42.16	93.75
HE 180 M	88.9	200	186	14.5	24.0	15	113.30	122	M24	94	98	7483	748.3	883.4	8.13	2580	277.4	425.2	4.77	203.30	199.30
HE 200 B	61.3	200	200	9.0	15.0	18	78.08	134	M27	100	100	5696	569.6	642.5	8.54	2003	200.3	305.8	5.07	59.28	171.1
HE 200 M	103.0	220	206	15.0	25.0	18	131.30	134	M27	106	106	10640	967.4	1135.0	9.00	3651	354.5	543.2	5.27	259.40	346.3
HE 220 B	71.5	220	220	9.5	16.0	18	91.04	152	M27	100	118	8091	735.5	827.0	9.43	2843	258.5	393.9	5.59	76.57	295.4
HE 220 M	117.0	240	226	15.5	26.0	18	149.40	152	M27	108	124	14600	1217.0	1419.0	9.89	5012	443.5	678.6	5.79	315.3	572.7
HE 240 B	83.2	240	240	10.0	17.0	21	106.00	164	M27	108	138	11260	938.3	1053.0	10.31	3923	326.9	498.4	6.08	102.7	486.9
HE 240 M	157.0	270	248	18.0	32.0	21	199.60	164	M27	116	146	24290	1799.0	2117.0	11.03	8153	657.5	1006.0	6.39	627.9	1152.0
HE 260 B	93.0	260	260	10.0	17.5	24	118.40	177	M27	114	158	14920	1148.0	1283.0	11.22	5135	395.0	602.2	6.58	123.8	753.7
HE 260 M	172	290	268	18.0	32.5	24	219.60	177	M27	122	166	31310	2159.0	2524.0	11.94	10450	779.7	1192.0	6.90	719.0	1728.0
HE 280 B	103	280	280	10.5	18.0	24	131.40	196	M27	114	178	19270	1376.0	1534	12.11	6595	471.0	717.6	7.09	143.7	1130.0
HE 280 M	189.0	310	288	18.5	33.0	24	240.20	196	M27	122	186	39550	2551.0	2966.0	12.83	13160	914.1	1397.0	7.40	807.3	2520.0
HE 300 B	117.0	300	300	11.0	19.0	27	149.10	208	M27	120	198	25170	1678.0	1869.0	12.99	8563	570.9	870.1	7.58	185.0	1688
HE 300 M	238.0	340	310	21.0	39.0	27	303.10	208	M27	132	208	59200	3482	4078	13.98	19400	1252.0	1913.0	8.00	1408.0	4386
HE 320 B	127.0	320	300	11.5	20.5	27	161.30	225	M27	122	198	30820	1926	2149	13.82	9239	615.9	939.1	7.57	225.1	2069
HE 320 M	245	359	309	21.0	40.0	27	312.00	225	M27	132	204	68130	3796	4435	14.78	19710	1276.0	1951.0	7.95	1501.0	5004
HE 340 B	134	340	300	12.0	21.5	27	170.90	243	M27	122	198	36660	2156	2408	14.65	9690	646.0	985.7	7.53	257.2	2454
HE 340 M	248	377	309	21.0	40.0	27	315.80	243	M27	132	204	76370	4052	4718	15.55	19710	1276.0	1953.0	7.90	1506.0	5584
HE 360 B	142	360	300	12.5	22.5	27	180.60	261	M27	122	198	43190	2400	2683	15.46	10140	676.1	1032.0	7.49	292.5	2883
HE 360 M	250.0	395	308	21.0	40.0	27	318.80	261	M27	132	204	84870	4297	4989	16.32	19520	1268.0	1942.0	7.83	1507.0	6137
HE 400 B	155.0	400	300	13.5	24.0	27	197.80	298	M27	124	198	57680	2884	3232	17.08	10820	721.3	1104.0	7.40	355.7	3817
HE 400 M	256	432	307	21.0	40.0	27	325.80	298	M27	132	202	104100	4820	5571	17.88	19340	1260.0	1934.0	7.70	1515.0	7410
HE 450 B	171	450	300	14.0	26.0	27	218.00	344	M27	124	198	79890	3551	3982	19.14	11720	781.4	1198.0	7.33	440.5	5258
HE 450 M	263	478	307	21.0	40.0	27	335.40	344	M27	132	202	131500	5501	6331	19.80	19340	1260.0	1939.0	7.59	1529.0	9251
HE 500 B	187	500	300	14.5	28.0	27	238.60	390	M27	124	198	107200	4287	4815	21.19	12620	841.6	1292.0	7.27	538.4	7018
HE 500 M	270	524	306	21.0	40.0	27	344.30	390	M27	132	202	161900	6180	7094	21.69	19150	1252.0	1932.0	7.46	1539.0	11190
HE 550 B	199	550	300	15.0	29.0	27	254.10	438	M27	124	198	136700	4971	5591	23.20	13080	871.8	1341.0	7.17	600.3	8856
HE 550 M	278	572	306	21.0	40.0	27	354.40	438	M27	132	202	198000	6923	7933	23.64	19160	1252.0	1937.0	7.35	1554.0	13520
HE 600 B	212	600	300	15.5	30.0	27	270.00	486	M27	126	198	171000	5701	6425	25.17	13530	902.0	1391.0	7.08	667.2	10970
HE 600 M	285	620	305	21.0	40.0	27	363.70	486	M27	132	200	237400	7660	8772	25.55	18980	1244.0	1930.0	7.22	1564.0	15910
HE 650 B	225	650	300	16.0	31.0	27	286.30	534	M27	126	198	210600	6480	7320	27.12	13980	932.3	1441.0	6.99	739.2	13360
HE 650 M	293	668	305	21.0	40.0	27	373.70	534	M27	132	200	281700	8433	9657	27.45	18980	1245.0	1936.0	7.13	1579.0	18650
HE 700 B	241	700	300	17.0	32.0	27	306.40	582	M27	126	198	256900	7340	8327	28.96	14440	962.7	1495.0	6.87	830.9	16060
HE 700 M	301	716	304	21.0	40.0	27	383.00	582	M27	132	200	329300	9198	10540	29.32	18800	1237.0	1929.0	7.01	1589.0	21400
HE 800 B	262	800	300	17.5	33.0	30	334.20	674	M27	134	198	359100	8977	10230	32.78	14900	993.6	1553.0	6.68	946.0	21840
HE 800 M	317	814	303	21.0	40.0	30	404.30	674	M27	138	198	442600	10870	12490	33.09	18630	1230.0	1930.0	6.79	1646.0	27780
HE 900 B	291	900	300	18.5	35.0	30	371.30	770	M27	134	198	494100	10980	12580	36.48	15820	1054.0	1658.0	6.53	1137.0	29460
HE 900 M	333	910	302	21.0	40.0	30	423.60	770	M27	138	198	570400	12540	14440	36.70	18450	1222.0	1929.0	6.60	1671.0	34750
HE 1000 B	314	1000	300	19.0	36.0	30	400.00	868	M27	134	198	644700	12890	14860	40.15	16280	1085.0	1716.0	6.38	1254.0	37640
HE 1000 M	349	1008	302	21.0	40.0	30	444.20	868	M27	138	198	722300	14330	16570	40.32	18460	1222.0	1940.0	6.45	1701.0	43020

IPN



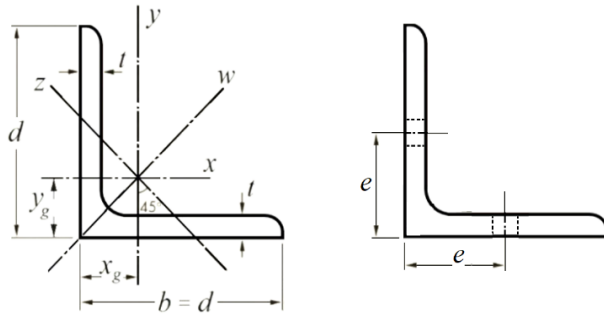
KESİT	G kg/m	ÖLÇÜLER						KESİT ALANI A cm ²	TASARIM ÖLÇÜLERİ				STATİK DEĞERLER											
		d mm	b mm	t _w mm	t _f mm	r ₁ mm	r ₂ mm		h mm	Ø	p _{min} mm	p _{max} mm	KUVVETLİ EKSEN x-x				ZAYIF EKSEN y-y				J cm ⁴	C _w x10 ⁻³ cm ⁶		
													I _x cm ⁴	W _{ex} cm ³	W _{px} cm ³	i _x cm	I _y cm ⁴	W _{ey} cm ³	W _{py} cm ³	i _y cm				
IPN 120	11.1	120	58	5.1	7.7	5.1	3.1	14.2	92.4	-	-	-	328	54.7	63.6	4.81	21.5	7.41	12.4	1.23	2.71	0.69		
IPN 140	14.3	140	66	5.7	8.6	5.7	3.4	18.3	109.1	-	-	-	573	81.9	95.4	5.61	35.2	10.7	17.9	1.40	4.32	1.54		
IPN 160	17.9	160	74	6.3	9.5	6.3	3.8	22.8	125.8	-	-	-	935	117	136	6.4	54.7	14.8	24.9	1.55	6.57	3.14		
IPN 180	21.9	180	82	6.9	10.4	6.9	4.1	27.9	142.4	-	-	-	1450	161	187	7.2	81.3	19.8	33.2	1.71	9.58	5.92		
IPN 200	26.2	200	90	7.5	11.3	7.5	4.5	33.4	159.1	-	-	-	2140	214	250	8.0	117	26.0	43.5	1.87	13.5	10.5		
IPN 220	31.1	220	98	8.1	12.2	8.1	4.9	39.5	175.8	M10	50	56	3060	278	324	8.8	162	33.1	55.7	2.02	18.6	17.8		
IPN 240	36.2	240	106	8.7	13.1	8.7	5.2	46.1	192.5	M10	54	60	4250	354	412	9.59	221	41.7	70.0	2.20	25.0	28.7		
IPN 260	41.9	260	113	9.4	14.1	9.4	5.6	53.3	208.9	M12	62	62	5740	442	514	10.4	288	51.0	85.9	2.32	33.5	44.1		
IPN 280	47.9	280	119	10.1	15.2	10.1	6.1	61.0	225.1	M12	68	68	7590	542	632	11.1	364	61.2	103	2.45	44.2	64.6		
IPN 300	54.2	300	125	10.8	16.2	10.8	6.5	69.0	241.6	M12	70	74	9800	653	762	11.9	451	72.2	121	2.56	56.8	91.8		
IPN 320	61.0	320	131	11.5	17.3	11.5	6.9	77.7	257.9	M12	70	80	12510	782	914	12.7	555	84.7	143	2.67	72.5	129		
IPN 340	68.0	340	137	12.2	18.3	12.2	7.3	86.7	274.3	M12	78	86	15700	923	1080	13.5	674	98.4	166	2.80	90.4	176		
IPN 360	76.1	360	143	13	19.5	13	7.8	97.0	290.2	M12	78	92	19610	1090	1276	14.2	818	114.0	194	2.90	115	240		
IPN 380	84.0	380	149	13.7	20.5	13.7	8.2	107	306.7	M16	84	86	24010	1260	1482	15.0	975	131.0	221	3.02	141	319		
IPN 400	92.4	400	155	14.4	21.6	14.4	8.6	118	322.9	M16	86	92	29210	1460	1714	15.7	1160	149	253	3.13	170	420		
IPN 450	115	450	170	16.2	24.3	16.2	9.7	147	363.6	M16	92	106	45850	2040	2400	17.7	1730	203	345	3.43	267	791		
IPN 500	141	500	185	18	27	18	10.8	179	404.3	M20	102	110	68740	2750	3240	19.6	2480	268	456	3.72	402	1400		
IPN 550	166	550	200	19	30	19	11.9	212	445.6	M22	112	118	99180	3610	4240	21.6	3490	349	592	4.02	544	2390		

UPN



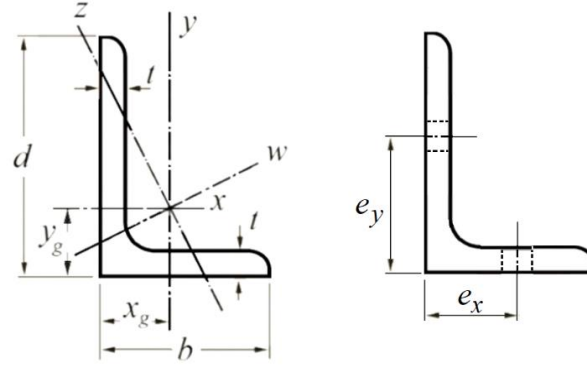
KESİT	G kg/m	ÖLÇÜLER						KESİT ALANI	TASARIM ÖLÇÜLERİ					STATİK DEĞERLER													
														KUVVETLİ EKSEN x-x				ZAYIF EKSEN y-y				J	C _w x10 ⁻³	y _s	y _m		
		d	b	t _w	t _f	r ₁	r ₂		A	h	Ø	e _{min}	e _{max}	I _x	W _{ex}	W _{px}	i _x	I _y	W _{ey}	W _{py}	i _y					cm ⁴	cm ⁶
UPN 100	10.6	100	50	6	8.5	8.5	4.5	13.5	64	-	-	-	206	41.2	49	3.91	29.3	8.49	16.2	1.47	2.81	0.41	1.55	2.93			
UPN 120	13.4	120	55	7	9	9	4.5	17.0	82	-	-	-	364	60.7	72.6	4.62	43.2	11.1	21.2	1.59	4.15	0.9	1.6	3.03			
UPN 140	16.0	140	60	7	10	10	5	20.4	98	M12	33	37	605	86.4	103	5.45	62.7	14.8	28.3	1.75	5.68	1.8	1.75	3.37			
UPN 160	18.8	160	65	7.5	10.5	11	5.5	24.0	115	M12	34	42	925	116	138	6.21	85.3	18.3	35.2	1.89	7.39	3.26	1.84	3.56			
UPN 180	22.0	180	70	8	11	11	5.5	28.0	133	M16	38	41	1350	150	179	6.95	114	22.4	42.9	2.02	9.55	5.57	1.92	3.75			
UPN 200	25.3	200	75	8.5	11.5	12	6	32.2	151	M16	39	46	1910	191	228	7.7	148	27	51.8	2.14	11.9	9.07	2.01	3.94			
UPN 220	29.4	220	80	9	12.5	13	6.5	37.4	167	M16	40	51	2690	245	292	8.48	197	33.6	64.1	2.3	16	14.6	2.14	4.2			
UPN 240	33.2	240	85	9.5	13	13	6.5	42.3	184	M20	46	50	3600	300	358	9.22	248	39.6	75.7	2.42	19.7	22.1	2.23	4.39			
UPN 260	37.9	260	90	10	14	14	7	48.3	200	M22	50	52	4820	371	442	9.99	317	47.7	91.6	2.56	25.5	33.3	2.36	4.66			
UPN 280	41.8	280	95	10	15	15	7.5	53.3	216	M22	52	57	6280	448	532	10.9	399	57.2	109	2.74	31	48.5	2.53	5.02			
UPN 300	46.2	300	100	10	16	16	8	58.8	232	M24	55	59	8030	535	632	11.7	495	67.8	130	2.9	37.4	69.1	2.7	5.41			
UPN 320	59.5	320	100	14	17.5	18	8.8	75.8	246	M22	58	62	10870	679	826	12.1	597	80.6	152	2.81	66.7	96.1	2.6	4.82			
UPN 350	60.6	350	100	14	16	16	8	77.3	282	M22	56	62	12840	734	918	12.9	570	75	143	2.72	61.2	114	2.4	4.45			
UPN 380	63.1	380	102	13.5	16	16	8	80.4	313	M24	59	60	15760	829	1014	14	615	78.7	148	2.77	59.1	146	2.38	4.58			
UPN 400	71.8	400	110	14	18	18	9	91.5	324	M27	61	62	20350	1020	1240	14.9	846	102	190	3.04	81.6	221	2.65	5.11			

Eşit kenarlı köşebentler



KESİT	ÖLÇÜLER					KESİT ALANI	EKSEN ÖLÇÜLERİ				STATİK DEĞERLER									TASARIM ÖLÇÜLERİ			
											EKSEN y-y / z -z			EKSEN w-w		EKSEN z -z							
	G kg/m	b= d mm	t mm	r ₁ mm	r ₂ mm		A cm ²	x=y cm	v cm	u ₁ cm	u ₂ cm	I _x =I _y cm ⁴	W _e =W _{ey} cm ³	i _x =i _y cm	I _w cm ⁴	i _w cm	I _z cm ⁴	i _z cm	I _{xy} cm ⁴	f	e _{min} mm	e _{max} mm	A _{net} cm ²
L 100 x 100 x 8	12.2	100	8	12	6	15.51	2.74	7.07	3.87	3.52	144.8	19.94	3.06	230.2	3.85	59.47	1.96	-85.4	M27	48	53	13.11	
L 100 x 100 x 10	15.0	100	10	12	6	19.20	2.82	7.07	3.99	3.54	176.7	24.62	3.04	280.7	3.83	72.65	1.95	-104	M27	50	53	16.15	
L 100 x 100 x 12	17.8	100	12	12	6	22.71	2.90	7.07	4.11	3.57	206.7	29.12	3.02	328.0	3.80	85.42	1.94	-121	M27	52	53	19.11	
L 110 x 110 x 10	16.6	110	10	13	6.5	21.18	3.06	7.78	4.33	3.88	238.0	29.99	3.35	378.2	4.23	97.72	2.15	-140	M27	50	62	18.18	
L 110 x 110 x 12	19.7	110	12	13	6.5	25.14	3.15	7.78	4.45	3.91	279.1	35.54	3.33	443.3	4.20	115.0	2.14	-164	M27	52	62	21.54	
L 120 x 120 x 10	18.2	120	10	13	6.5	23.18	3.31	8.49	4.69	4.24	312.9	36.03	3.67	497.6	4.63	128.3	2.35	-185	M27	50	72	20.18	
L 120 x 120 x 11	19.9	120	11	13	6.5	25.37	3.36	8.49	4.75	4.25	340.6	39.41	3.66	541.5	4.62	139.8	2.35	-201	M27	51	72	22.07	
L 120 x 120 x 12	21.6	120	12	13	6.5	27.54	3.40	8.49	4.80	4.26	367.7	42.73	3.65	584.3	4.61	151.0	2.34	-217	M27	52	72	23.94	
L 120 x 120 x 13	23.3	120	13	13	6.5	29.69	3.44	8.49	4.86	4.28	394.0	46.01	3.64	625.9	4.59	162.2	2.34	-232	M27	53	72	25.79	
L 120 x 120 x 15	26.6	120	15	13	6.5	33.93	3.51	8.49	4.97	4.31	444.9	52.43	3.62	705.6	4.56	184.2	2.33	-261	M27	55	72	29.43	
L 130 x 130 x 12	23.5	130	12	14	7	30.00	3.64	9.19	5.15	4.60	472.2	50.44	3.97	750.6	5.00	193.7	2.54	-279	M27	52	82	26.37	
L 140 x 140 x 10	21.4	140	10	15	7.5	27.24	3.79	9.90	5.37	4.93	504.4	49.43	4.30	802	5.43	206.8	2.76	-298	M27	51	92	24.24	
L 140 x 140 x 13	27.4	140	13	15	7.5	34.95	3.92	9.90	5.55	4.96	638.5	63.37	4.27	1015	5.39	262.0	2.74	-377	M27	54	92	31.05	
L 150 x 150 x 10	23.0	150	10	16	8	29.27	4.03	10.61	5.71	5.28	624.0	56.91	4.62	992	5.82	256.0	2.96	-368	M27	52	102	26.27	
L 150 x 150 x 12	27.3	150	12	16	8	34.83	4.12	10.61	5.83	5.29	736.9	67.75	4.60	1172	5.80	302.0	2.94	-435	M27	54	102	31.23	
L 150 x 150 x 14	31.6	150	14	16	8	40.31	4.21	10.61	5.95	5.32	845.4	78.33	4.58	1344	5.77	346.9	2.93	-499	M27	56	102	36.11	
L 150 x 150 x 15	33.8	150	15	16	8	43.02	4.25	10.61	6.01	5.33	898.1	83.52	4.57	1427	5.76	368.9	2.93	-529	M27	57	102	38.52	
L 150 x 150 x 18	40.1	150	18	16	8	51.03	4.37	10.61	6.17	5.37	1050	98.74	4.54	1666	5.71	433.8	2.92	-616	M27	61	102	45.63	
L 160 x 160 x 14	33.9	160	14	17	8.5	43.15	4.45	11.31	6.29	5.66	1034	89.50	4.89	1644	6.17	423.8	3.13	-610	M27	57	111	38.95	
L 160 x 160 x 15	36.2	160	15	17	8.5	46.06	4.49	11.31	6.35	5.67	1099	95.5	4.88	1747	6.16	450.8	3.13	-648	M27	58	111	41.56	
L 160 x 160 x 16	38.4	160	16	17	8.5	48.95	4.53	11.31	6.41	5.69	1163	101.4	4.87	1848	6.14	477.6	3.12	-685	M27	60	111	44.15	
L 160 x 160 x 17	40.7	160	17	17	8.5	51.82	4.57	11.31	6.46	5.70	1225	107.2	4.86	1947	6.13	504.1	3.12	-721	M27	61	111	46.72	
L 180 x 180 x 13	35.7	180	13	18	9	45.46	4.90	12.73	6.93	6.35	1396	106.5	5.54	2221	6.99	571.6	3.55	-825	M27	57	131	41.56	
L 180 x 180 x 14	38.3	180	14	18	9	48.79	4.94	12.73	6.99	6.36	1493	114.3	5.53	2375	6.98	611.3	3.54	-882	M27	58	131	44.59	
L 180 x 180 x 15	40.9	180	15	18	9	52.10	4.98	12.73	7.05	6.37	1589	122.0	5.52	2527	6.96	650.5	3.53	-938	M27	59	131	47.60	
L 180 x 180 x 16	43.5	180	16	18	9	55.39	5.02	12.73	7.10	6.38	1682	129.7	5.51	2675	6.95	689.4	3.53	-993	M27	61	131	50.59	
L 180 x 180 x 17	46.0	180	17	18	9	58.66	5.06	12.73	7.16	6.40	1775	137.2	5.50	2822	6.94	727.8	3.52	-1047	M27	62	131	53.56	
L 180 x 180 x 18	48.6	180	18	18	9	61.91	5.10	12.73	7.22	6.41	1866	144.7	5.49	2965	6.92	766.0	3.52	-1100	M27	63	131	56.51	
L 180 x 180 x 19	51.1	180	19	18	9	65.14	5.14	12.73	7.27	6.42	1955	152.1	5.48	3106	6.91	803.8	3.51	-1151	M27	64	131	59.44	
L 180 x 180 x 20	53.7	180	20	18	9	68.35	5.18	12.73	7.33	6.44	2043	159.4	5.47	3244	6.89	841.3	3.51	-1202	M27	65	131	62.35	
L 200 x 200 x 15	45.6	200	15	18	9	58.10	5.48	14.14	7.75	7.08	2209	152.2	6.17	3516	7.78	903	3.94	-1306	M27	59	151	53.60	
L 200 x 200 x 16	48.5	200	16	18	9	61.79	5.52	14.14	7.81	7.09	2341	161.7	6.16	3726	7.77	957	3.94	-1384	M27	61	151	56.99	
L 200 x 200 x 17	51.4	200	17	18	9	65.46	5.56	14.14	7.87	7.10	2472	171.2	6.14	3932	7.75	1011	3.93	-1461	M27	62	151	60.36	
L 200 x 200 x 18	54.3	200	18	18	9	69.11	5.60	14.14	7.93	7.12	2600	180.6	6.13	4135	7.74	1064	3.92	-1536	M27	63	151	63.71	
L 200 x 200 x 19	57.1	200	19	18	9	72.74	5.64	14.14	7.98	7.13	2726	189.9	6.12	4335	7.72	1117	3.92	-1609	M27	64	151	67.04	
L 200 x 200 x 20	59.9	200	20	18	9	76.35	5.68	14.14	8.04	7.15	2851	199.1	6.11	4532	7.70	1169	3.91	-1681	M27	65	151	70.35	
L 200 x 200 x 21	62.8	200	21	18	9	79.94	5.72	14.14	8.09	7.16	2973	208.2	6.10	4725	7.69	1221	3.91	-1752	M27	66	151	73.64	
L 200 x 200 x 22	65.6	200	22	18	9	83.51	5.76	14.14	8.15	7.18	3094	217.3	6.09	4915	7.67	1273	3.90	-1821	M27	67	151	76.91	
L 200 x 200 x 23	68.3	200	23	18	9	87.06	5.80	14.14	8.20	7.19	3213	226.3	6.08	5102	7.66	1324	3.90	-1889	M27	68	151	80.16	
L 200 x 200 x 24	71.1	200	24	18	9	90.59	5.84	14.14	8.26	7.21	3331	235.2	6.06	5286	7.64	1375	3.90	-1955	M27	69	151	83.39	
L 200 x 200 x 25	73.9	200	25	18	9	94.10	5.88	14.14	8.31	7.23	3446	244.0	6.05	5467	7.62	1426	3.89	-2020	M27	70	151	86.60	
L 200 x 200 x 26	76.6	200	26	18	9	97.59	5.91	14.14	8.36	7.25	3560	252.7	6.04	5645	7.61	1476	3.89	-2084	M27	71	151	89.79	
L 250 x 250 x 20	75.6	250	20	18	9	96.35	6.93	17.68	9.81	8.91	5743	317.90	7.72	9144	9.74	2341	4.93	-3401	M27	40	240	96.35	
L 250 x 250 x 21	79.2	250	21	18	9	100.94	6.97	17.68	9.86	8.93	5997	332.70	7.71	9548	9.73	2447	4.92	-3550	M27	41	246	100.94	
L 250 x 250 x 22	82.8	250	22	18	9	105.51	7.01	17.68	9.92	8.94	6249	347.40	7.70	9946	9.71	2551	4.92	-3697	M27	42	246	105.51	
L 250 x 250 x 23	86.4	250	23	18	9	110.06	7.05	17.68	9.97	8.96	6497	362.00	7.68	10339	9.69	2655	4.91	-3842	M27	43	246	110.06	
L 250 x 250 x 24	90.0	250	24	18	9	114.59	7.09	17.68	10.03	8.98	6743	37											

Çeşit kenar köşebentler



KESİT	G	ÖLÇÜLER					KESİT ALANI	EKSEN ÖLÇÜLERİ							STATİK DEĞERLER														TASARIM ÖLÇÜLERİ					
															EKSEN x-x			EKSEN y - y			EKSEN w - w		EKSEN z - z				Uzun kenar			Kısa kenar				
		d	b	t	r ₁	r ₂	A	y _g	x _g	z ₁	z ₂	w ₁	w ₂	w ₃	I _x	W _{ex}	i _x	I _y	W _{ey}	i _y	I _w	i _w	I _z	i _z	I _{xy}	a	f _y	e _{y.min}	e _{y.max}	f _x	e _{x.min}	e _{x.max}		
kg/m	mm	mm	mm	mm	mm	cm ²	cm	cm	cm	cm	cm	cm	cm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm	cm ⁴	cm	cm ⁴	cm	cm ⁴	°		mm	mm		mm	mm			
L 120 x 80 x 8	12.2	120	80	8	11	5.5	15.49	3.83	1.87	8.23	5.97	3.25	4.19	2.09	225.7	27.63	3.82	80.76	13.17	2.28	260.0	4.10	46.39	1.73	-78.5	23.65	M27	48	72	M16	38	51		
L 120 x 80 x 10	15.0	120	80	10	11	5.5	19.13	3.92	1.95	8.19	6.01	3.35	4.17	2.15	275.5	34.10	3.80	98.11	16.21	2.26	317.0	4.07	56.60	1.72	-95.34	23.53	M27	50	72	M16	40	51		
L 120 x 80 x 12	17.8	120	80	12	11	5.5	22.69	4.00	2.03	8.14	6.04	3.45	4.16	2.20	322.8	40.37	3.77	114.33	19.14	2.24	370.7	4.04	66.46	1.71	-110.8	23.37	M27	52	72	M16	42	51		
L 130 x 65 x 8	11.8	130	65	8	11	5.5	15.09	4.56	1.37	8.51	5.71	2.48	3.82	1.39	262.5	31.10	4.17	44.77	8.72	1.72	278.6	4.30	28.72	1.38	-61.25	14.68	M27	48	82	M12	35	42		
L 130 x 65 x 10	14.6	130	65	10	11	5.5	18.63	4.65	1.45	8.44	5.77	2.57	3.78	1.46	320.5	38.39	4.15	54.2	10.73	1.71	339.6	4.27	35.02	1.37	-73.99	14.53	M27	50	82	M12	37	42		
L 150 x 90 x 10	18.2	150	90	10	12	6	23.15	5.00	2.04	10.10	7.07	3.61	4.97	2.20	533.1	53.29	4.80	146.1	20.98	2.51	591.3	5.05	87.9	1.95	-160.9	19.87	M27	50	102	M24	47	49		
L 150 x 90 x 11	19.9	150	90	11	12	6	25.34	5.04	2.08	10.07	7.09	3.66	4.95	2.23	580.7	58.30	4.79	158.7	22.91	2.50	643.7	5.04	95.7	1.94	-174.7	19.81	M27	51	102	M24	48	49		
L 150 x 100 x 10	19.0	150	100	10	12	6	24.15	4.81	2.34	10.27	7.48	4.08	5.25	2.64	552.6	54.23	4.78	198.5	25.92	2.87	637.3	5.14	113.8	2.17	-192.8	23.72	M27	50	102	M27	50	53		
L 150 x 100 x 12	22.5	150	100	12	12	6	28.71	4.90	2.42	10.23	7.52	4.18	5.23	2.70	650.5	64.38	4.76	232.6	30.69	2.85	749.3	5.11	133.90	2.16	-225.8	23.61	M27	52	102	M27	52	53		
L 150 x 100 x 14	26.1	150	100	14	12	6	33.19	4.98	2.50	10.19	7.55	4.28	5.22	2.75	744.4	74.27	4.74	264.9	35.32	2.82	855.9	5.08	153.40	2.15	-256.8	23.48	M27	54	102	M24	51	59		
L 160 x 80 x 10	18.2	160	80	10	13	6.5	23.18	5.63	1.69	10.46	7.04	3.06	4.70	1.73	611.3	58.94	5.14	104.4	16.55	2.12	648.7	5.29	67.01	1.70	-142.7	14.69	M27	50	111	M16	40	51		
L 160 x 80 x 12	21.6	160	80	12	13	6.5	27.54	5.72	1.77	10.40	7.10	3.15	4.66	1.80	719.5	69.98	5.11	122.0	19.59	2.10	762.8	5.26	78.77	1.69	-166.5	14.57	M27	52	111	M16	42	51		
L 200 x 100 x 10	23.0	200	100	10	15	7.5	29.24	6.93	2.01	13.15	8.74	3.72	5.94	2.09	1219	93.24	6.46	210.3	26.33	2.68	1294	6.65	134.5	2.14	-286.8	14.82	M27	54	150	M27	51	53		
L 200 x 100 x 12	27.3	200	100	12	15	7.5	34.80	7.03	2.10	13.08	8.81	3.82	5.89	2.17	1440	111.0	6.43	247.2	31.28	2.67	1529	6.63	158.5	2.13	-337.3	14.74	M27	54	150	M27	53	53		
L 200 x 100 x 14	31.6	200	100	14	15	7.5	40.28	7.12	2.18	13.01	8.86	3.91	5.85	2.24	1654	128.4	6.41	282.2	36.08	2.65	1755	6.60	181.7	2.12	-384.8	14.65	M27	55	151	M24	52	59		