

## II

### 4.3 Európai, széles övű I szelvények

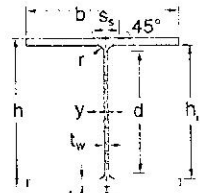
(European wide flange beams)

HE A, HE B, HE C és HE M 100-1000 szelvények

az Euronorm 53-62 szerint

(DIN 1025 IPB, IPBI, IPBv 100-1000 szelvények)

# HE



A szelvény jelölése	M kg/m	h mm	b mm	t <sub>w</sub> mm	t <sub>f</sub> mm	r mm	A cm <sup>2</sup>	h <sub>t</sub> mm	d mm	s <sub>s</sub> mm	Hajlítás			Nyomás			A <sub>L</sub> m <sup>2</sup> /m	A <sub>M</sub> m <sup>2</sup> /t	
											235	355	460	235	355	460			
HE 100 AA	12,2	91	100	4,2	5,5	12	15,60	80	56	29,26	1	3f	3f	1	3f	3f	0,553	45,17	
HE 100 A	16,7	96	100	5,0	8,0	12	21,24	80	56	35,06	1	1	1	1	1	1	0,561	33,68	
HE 100 B	20,4	100	100	6,0	10,0	12	26,04	80	56	40,06	1	1	1	1	1	1	0,567	27,76	
HE 100 M	41,8	120	106	12,0	20,0	12	53,24	80	56	66,06	1	1	1	1	1	1	0,619	14,82	
HE 120 AA	14,6	109	120	4,2	5,5	12	18,55	98	74	29,26	2f	3f	4f	2f	3f	4f	0,669	45,94	
HE 120 A	19,9	114	120	5,0	8,0	12	25,34	98	74	35,06	1	1	2f	1	1	2f	0,677	34,06	
HE 120 B	26,7	120	120	6,5	11,0	12	34,01	98	74	42,56	1	1	1	1	1	1	0,686	25,71	
HE 120 M	52,1	140	126	12,5	21,0	12	66,41	98	74	68,56	1	1	1	1	1	1	0,738	14,16	
HE 140 AA	18,1	128	140	4,3	6,0	12	23,02	116	92	30,36	3f	3f	4f	3f	3f	4f	0,787	43,53	
HE 140 A	24,7	133	140	5,5	8,5	12	31,42	116	92	36,56	1	2f	3f	1	2f	3f	0,794	32,21	
HE 140 B	33,7	140	140	7,0	12,0	12	42,96	116	92	45,06	1	1	1	1	1	1	0,805	23,88	
HE 140 M	63,2	160	146	13,0	22,0	12	80,56	116	92	71,06	1	1	1	1	1	1	0,857	13,56	
HE 160 AA	23,8	148	160	4,5	7,0	15	30,36	134	104	36,07	3f	3f	4f	3f	3f	4f	0,901	37,81	
HE 160 A	30,4	152	160	6,0	9,0	15	38,77	134	104	41,57	1	2f	3f	1	2f	3f	0,906	29,78	
HE 160 B	42,6	160	160	8,0	13,0	15	54,25	134	104	51,57	1	1	1	1	1	1	0,918	21,56	
HE 160 M	76,2	180	166	14,0	23,0	15	97,05	134	104	77,57	1	1	1	1	1	1	0,970	12,74	
HE 180 AA	28,7	167	180	5,0	7,5	15	36,53	152	122	37,57	3f	3f	4f	3f	3f	4f	1,018	35,51	
HE 180 A	35,5	171	180	6,0	9,5	15	45,25	152	122	42,57	1	3f	3f	1	3f	3f	1,024	28,83	
HE 180 B	51,2	180	180	8,5	14,0	15	65,25	152	122	54,07	1	1	1	1	1	1	1,037	20,25	
HE 180 M	88,9	200	186	14,5	24,0	15	113,25	152	122	80,07	1	1	1	1	1	1	1,089	12,25	
HE 200 AA	34,6	186	200	5,5	8,0	18	44,13	170	134	42,59	3f	4f	4f	3f	4f	4f	1,130	32,62	
HE 200 A	42,3	190	200	6,5	10,0	18	53,83	170	134	47,59	1	3f	3f	1	3f	3f	1,136	26,89	
HE 200 B	61,3	200	200	9,0	15,0	18	78,08	170	134	60,09	1	1	1	1	1	1	1,151	18,78	
HE 200 M	103,1	220	206	15,0	25,0	18	131,28	170	134	86,09	1	1	1	1	1	1	1,203	11,67	
HE 220 AA	40,4	205	220	6,0	8,5	18	51,46	188	152	44,09	3f	4f	4f	3f	4f	4f	1,247	30,87	
HE 220 A	50,5	210	220	7,0	11,0	18	64,34	188	152	50,09	1	3f	3f	1	3f	3f	1,255	24,85	
HE 220 B	71,5	220	220	9,5	16,0	18	91,04	188	152	62,59	1	1	1	1	1	1	1,270	17,77	
HE 220 M	117,3	240	226	15,5	26,0	18	149,44	188	152	88,59	1	1	1	1	1	1	1,322	11,27	
HE 240 AA	47,4	224	240	6,5	9,0	21	60,38	206	164	49,10	3f	4f	4f	3f	4f	4f	1,359	28,67	
HE 240 A	60,3	230	240	7,5	12,0	21	76,84	206	164	56,10	1	3f	3f	1	3f	3f	1,369	22,70	
HE 240 B	83,2	240	240	10,0	17,0	21	105,99	206	164	68,60	1	1	1	1	1	1	1,384	16,63	
HE 240 M	156,7	270	248	18,0	32,0	21	199,59	206	164	106,60	1	1	1	1	1	1	1,460	9,32	
HE 260 AA	54,1	244	260	6,5	9,5	24	68,97	225	177	53,62	3f	4f	4f	3f	4f	4f	1,474	27,22	
HE 260 A	68,2	250	260	7,5	12,5	24	86,82	225	177	60,62	2f	3f	3f	2f	3f	3f	1,484	21,77	
HE 260 B	93,0	260	260	10,0	17,5	24	118,44	225	177	73,12	1	1	2f	1	2f	1	2f	1,499	16,12
HE 260 M	172,4	290	268	18,0	32,5	24	219,64	225	177	111,1	1	1	1	1	1	1	1,575	9,13	

# Európai, széles övű I szelvények

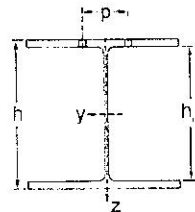
(European wide flange beams)

HE A, HE B, HE C és HE M 100-1000 szelvények

az Euronorm 53-62 szerint

(DIN 1025 IPB, IPBl, IPBv 100-1000 szelvények)

# HE



II

A szelvény jelölése	$I_y$ cm <sup>4</sup>	$W_{el,y}$ cm <sup>3</sup>	$W_{pl,y}$ cm <sup>3</sup>	$i_y$ cm	$A_{vz}$ cm <sup>2</sup>	$I_z$ cm <sup>4</sup>	$W_{el,z}$ cm <sup>3</sup>	$W_{pl,z}$ cm <sup>3</sup>	$i_z$ cm	$I_T$ cm <sup>4</sup>	$I_w \times 10^{-3}$ cm <sup>6</sup>	csavar max Ø	$p_{min}$ mm	$p_{max}$ mm
HE 100 AA	236,51	51,98	58,36	3,89	6,15	92,06	18,41	28,44	2,43	2,51	1,68	M10	54	58
HE 100 A	349,22	72,76	83,01	4,06	7,56	133,81	26,76	41,14	2,51	5,24	2,58	M10	54	58
HE 100 B	449,54	89,91	104,21	4,16	9,04	167,27	33,45	51,42	2,53	9,25	3,36	M10	56	58
HE 100 M	1142,61	190,44	235,81	4,63	18,04	399,15	75,31	116,31	2,74	68,21	9,93	M10	62	64
HE 120 AA	413,36	75,85	84,12	4,72	6,90	158,81	26,47	40,62	2,93	2,78	4,24	M12	58	68
HE 120 A	606,15	106,34	119,49	4,89	8,46	230,90	38,48	58,85	3,02	5,99	6,47	M12	58	68
HE 120 B	864,37	144,06	165,21	5,04	10,96	317,52	52,92	80,97	3,06	13,84	9,41	M12	60	68
HE 120 M	2017,57	288,22	350,81	5,51	21,15	702,77	111,55	171,63	3,25	91,66	24,79	M12	66	74
HE 140 AA	719,45	112,41	123,78	5,59	7,92	274,83	39,26	59,93	3,45	3,54	10,21	M16	64	76
HE 140 A	1033,13	155,36	173,50	5,73	10,12	389,32	55,62	84,85	3,52	8,13	15,06	M16	64	76
HE 140 B	1509,23	215,60	245,43	5,93	13,08	549,67	78,52	119,78	3,58	20,06	22,48	M16	66	76
HE 140 M	3291,36	411,42	493,83	6,39	24,46	1144,34	156,76	240,51	3,77	120,01	54,33	M16	72	82
HE 160 AA	1282,88	173,36	190,41	6,50	10,38	478,73	59,84	91,36	3,97	6,33	23,75	M20	76	84
HE 160 A	1672,97	220,13	245,15	6,57	13,21	615,57	76,95	117,63	3,98	12,19	31,41	M20	78	84
HE 160 B	2492,00	311,50	353,97	6,78	17,59	889,23	111,15	169,96	4,05	31,24	47,94	M20	80	84
HE 160 M	5098,26	566,47	674,57	7,25	30,81	1758,77	211,90	325,46	4,26	162,43	108,05	M20	86	90
HE 180 AA	1966,90	235,56	258,24	7,34	12,16	729,97	81,11	123,58	4,47	8,33	46,36	M24	84	92
HE 180 A	2510,28	293,60	324,85	7,45	14,47	924,60	102,73	156,49	4,52	14,80	60,21	M24	86	92
HE 180 B	3831,13	425,68	481,45	7,66	20,24	1362,85	151,43	231,01	4,57	42,16	93,75	M24	88	92
HE 180 M	7483,13	748,31	883,45	8,13	34,65	2580,13	277,43	425,19	4,77	203,27	199,33	M24	94	98
HE 200 AA	2944,30	316,59	347,06	8,17	15,45	1068,49	106,85	163,17	4,92	12,69	84,49	M27	96	100
HE 200 A	3692,15	388,65	429,48	8,28	18,08	1335,51	133,55	203,82	4,98	20,98	108,00	M27	98	100
HE 200 B	5696,17	569,62	642,55	8,54	24,83	2003,37	200,34	305,81	5,07	59,28	171,13	M27	100	100
HE 200 M	10640,00	967,45	1135,15	9,00	41,03	3651,21	354,49	543,22	5,27	259,41	346,26	M27	106	106
HE 220 AA	4170,22	406,85	445,50	9,00	17,63	1510,49	137,32	209,34	5,42	15,93	145,61	M27	98	118
HE 220 A	5409,69	515,21	568,46	9,17	20,67	1954,56	177,69	270,59	5,51	28,46	193,27	M27	98	118
HE 220 B	8090,96	735,54	827,05	9,43	27,92	2843,26	258,48	393,88	5,59	76,57	295,42	M27	100	118
HE 220 M	14600,00	1217,07	1419,45	9,89	45,31	5012,05	443,54	678,55	5,79	315,27	572,68	M27	108	124
HE 240 AA	5835,17	521,00	570,57	9,83	21,54	2077,04	173,09	264,38	5,87	22,98	239,63	M27	104	138
HE 240 A	7763,17	675,06	744,62	10,05	25,18	2768,81	230,73	351,69	6,00	41,55	328,49	M27	104	138
HE 240 B	11260,00	938,27	1053,15	10,31	33,23	3922,66	326,89	498,42	6,08	102,69	486,95	M27	108	138
HE 240 M	24290,00	1799,22	2116,95	11,03	60,07	8152,62	657,47	1005,93	6,39	627,90	1151,99	M27	116	146
HE 260 AA	7980,55	654,14	714,45	10,76	24,75	2788,04	214,46	327,73	6,36	30,31	382,58	M27	110	158
HE 260 A	10450	836,39	919,77	10,97	28,76	3667,56	282,12	430,17	6,50	52,37	516,35	M27	110	158
HE 260 B	14920	1147,65	1282,91	11,22	37,59	5134,51	394,96	602,25	6,58	123,78	753,65	M27	114	158
HE 260 M	31310	2159,09	2523,61	11,94	66,89	10450,0	779,74	1192,47	6,90	719,02	1728,35	M27	122	166

## II

### Európai, széles övű I szelvények

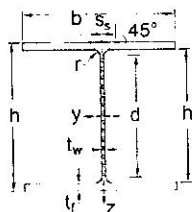
(European wide flange beams)

HE A, HE B, HE C és HE M 100-1000 szelvények

az Euronorm 53-62 szerint

(DIN 1025 IPB, IPB1, IPBv 100-1000 szelvények)

# HE



A szelvény jelölése	M kg/m	h mm	b mm	t <sub>w</sub> mm	t <sub>f</sub> mm	r mm	A cm <sup>2</sup>	h <sub>i</sub> mm	d mm	s <sub>s</sub> mm	Hajlítás			Nyomás			A <sub>L</sub> m <sup>2</sup> /m	A <sub>M</sub> m <sup>2</sup> /t
											235	355	460	235	355	460		
HE 280 AA	61,2	264	280	7,0	10,0	24	78,02	244	196	55,12	3f	4f	4f	3f	4f	4f	1,593	26,01
HE 280 A	76,4	270	280	8,0	13,0	24	97,26	244	196	62,12	2f	3f	4f	2f	3f	4f	1,603	20,99
HE 280 B	103,1	280	280	10,5	18,0	24	131,36	244	196	74,62	1	1	2f	1	1	2f	1,618	15,69
HE 280 M	188,5	310	288	18,5	33,0	24	240,16	244	196	112,6	1	1	1	1	1	1	1,694	8,98
HE 300 AA	69,8	283	300	7,5	10,5	27	88,91	262	208	60,13	3f	4f	4f	3f	4f	4f	1,705	24,42
HE 300 A	88,3	290	300	8,5	14,0	27	112,53	262	208	68,13	2f	3f	3f	2f	3f	3f	1,717	19,43
HE 300 B	117,0	300	300	11,0	19,0	27	149,08	262	208	80,63	1	1	3f	1	1	3f	1,732	14,80
HE 300 C	176,7	320	305	16,0	29,0	27	225,08	262	208	105,6	1	1	1	1	1	1	1,782	10,08
HE 300 M	237,9	340	310	21,0	39,0	27	303,08	262	208	130,6	1	1	1	1	1	1	1,832	7,70
HE 320 AA	74,2	301	300	8,0	11,0	27	94,58	279	225	61,63	3f	4f	4f	3f	4f	4f	1,740	23,43
HE 320 A	97,6	310	300	9,0	15,5	27	124,37	279	225	71,63	1	3f	3f	1	3f	3f	1,756	17,98
HE 320 B	126,7	320	300	11,5	20,5	27	161,34	279	225	84,13	1	1	2f	1	1	2f	1,771	13,98
HE 320 M	245,0	359	309	21,0	40,0	27	312,05	279	225	132,6	1	1	1	1	1	1	1,866	7,62
HE 340 AA	78,9	320	300	8,5	11,5	27	100,50	297	243	63,13	3f	4f	4f	3f	4f	4f	1,777	22,52
HE 340 A	104,8	330	300	9,5	16,5	27	133,47	297	243	74,13	1	3f	3f	1	3f	3f	1,795	17,13
HE 340 B	134,2	340	300	12,0	21,5	27	170,90	297	243	86,63	1	1	1	1	1	1	1,810	13,49
HE 340 M	247,9	377	309	21,0	40,0	27	315,83	297	243	132,6	1	1	1	1	1	1	1,902	7,67
HE 360 AA	83,7	339	300	9,0	12,0	27	106,61	315	261	64,63	3f	4f	4f	3f	4f	4f	1,814	21,67
HE 360 A	112,1	350	300	10,0	17,5	27	142,76	315	261	76,63	1	2f	3f	1	2f	3f	1,834	16,36
HE 360 B	141,8	360	300	12,5	22,5	27	180,63	315	261	89,13	1	1	1	1	1	1	1,849	13,04
HE 360 M	250,3	395	308	21,0	40,0	27	318,81	315	261	132,6	1	1	1	1	1	1	1,934	7,73
HE 400 AA	92,4	378	300	9,5	13,0	27	117,70	352	298	67,13	3f	3f	4f	3f	3	4	1,891	20,46
HE 400 A	124,8	390	300	11,0	19,0	27	158,98	352	298	80,63	1	1	3f	1	2w	3f	1,912	15,32
HE 400 B	155,3	400	300	13,5	24,0	27	197,78	352	298	93,13	1	1	1	1	1	1	1,927	12,41
HE 400 M	255,7	432	307	21,0	40,0	27	325,78	352	298	132,6	1	1	1	1	1	1	2,004	7,83
HE 400 x 299	298,5	444	309	25,5	46,0	27	380,30	352	298	149,1	1	1	1	1	1	1	2,027	6,79
HE 400 x 347	346,9	458	313	29,5	53,0	27	441,88	352	298	167,1	1	1	1	1	1	1	2,063	5,95
HE 400 x 403	403,4	474	318	34,0	61,0	27	513,90	352	298	187,6	1	1	1	1	1	1	2,106	5,22
HE 400 x 468	467,7	492	323	39,0	70,0	27	595,74	352	298	210,6	1	1	1	1	1	1	2,152	4,60
HE 450 AA	99,7	425	300	10,0	13,5	27	127,06	398	344	68,63	3f	3f	4f	3f	4w	4	1,984	19,89
HE 450 A	139,8	440	300	11,5	21,0	27	178,03	398	344	85,13	1	1	1	1	2w	3w	2,011	14,39
HE 450 B	171,1	450	300	14,0	26,0	27	217,98	398	344	97,63	1	1	1	1	1	2w	2,026	11,84
HE 450 M	263,3	478	307	21,0	40,0	27	335,44	398	344	132,6	1	1	1	1	1	1	2,096	7,96

# Európai, széles övű I szelvények

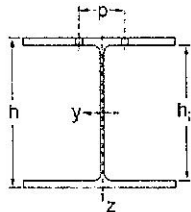
(European wide flange beams)

HE A, HE B, HE C és HE M 100-1000 szelvények

az Euronorm 53-62 szerint

(DIN 1025 IPB, IPBI, IPBv 100-1000 szelvények)

# HE



II

I. szelvény jelölése	$I_y$	$W_{el,y}$	$W_{pl,y}$	$i_y$	$A_{vz}$	$I_z$	$W_{el,z}$	$W_{pl,z}$	$i_z$	$I_T$	$I_w \times 10^{-3}$	csavar	$p_{min}$	$p_{max}$
	cm <sup>4</sup>	cm <sup>3</sup>	cm <sup>3</sup>	cm	cm <sup>2</sup>	cm <sup>4</sup>	cm <sup>3</sup>	cm <sup>3</sup>	cm	cm <sup>4</sup>	cm <sup>6</sup>	max Ø	mm	mm
HE 280 AA	10560	799,85	873,06	11,63	27,52	3664,24	261,73	399,37	6,85	36,22	590,11	M27	110	178
HE 280 A	13670	1012,84	1112,22	11,86	31,74	4762,64	340,19	518,13	7,00	62,10	785,37	M27	112	178
HE 280 B	19270	1376,45	1534,43	12,11	41,09	6594,52	471,04	717,57	7,09	143,72	1130,15	M27	114	178
HE 280 M	39550	2551,44	2965,63	12,83	72,03	13160	914,08	1396,68	7,40	807,28	2520,23	M27	122	186
HE 300 AA	13800	975,55	1065,28	12,46	32,37	4733,50	315,57	482,31	7,30	49,35	877,15	M27	116	198
HE 300 A	18260	1259,55	1383,27	12,74	37,28	6309,55	420,64	641,17	7,49	85,17	1199,77	M27	118	198
HE 300 B	25170	1677,71	1868,67	12,99	47,43	8562,82	570,85	870,14	7,58	185,05	1687,79	M27	120	198
HE 300 C	40950	2559,44	2926,67	13,49	68,48	13740	900,74	1374,41	7,81	598,31	2903,17	M27	126	203
HE 300 M	59200	3482,41	4077,67	13,98	90,53	19400	1251,81	1913,18	8,00	1407,58	4386,03	M27	132	208
HE 320 AA	16450	1092,85	1196,20	13,19	35,40	4959,08	330,61	505,74	7,24	55,87	1040,74	M27	118	198
HE 320 A	22930	1479,26	1628,09	13,58	41,13	6985,23	465,68	709,74	7,49	107,97	1512,36	M27	118	198
HE 320 B	30820	1926,47	2149,24	13,82	51,77	9238,82	615,92	939,10	7,57	225,07	2068,71	M27	122	198
HE 320 M	68130	3795,81	4435,03	14,78	94,85	19710	1275,68	1950,72	7,95	1500,59	5003,86	M27	132	204
HE 340 AA	19550	1222,02	1340,92	13,95	38,69	5184,73	345,65	529,30	7,18	63,07	1231,29	M27	118	198
HE 340 A	27690	1678,37	1850,47	14,40	44,95	7435,99	495,73	755,95	7,46	127,20	1824,36	M27	118	198
HE 340 B	36660	2156,26	2408,11	14,65	56,09	9689,93	646,00	985,72	7,53	257,20	2453,63	M27	122	198
HE 340 M	76370	4051,55	4717,57	15,55	98,63	19710	1275,77	1952,71	7,90	1506,15	5584,50	M27	132	204
HE 360 AA	23040	1359,13	1495,24	14,70	42,17	5410,45	360,70	552,97	7,12	70,99	1443,54	M27	118	198
HE 360 A	33090	1890,84	2088,47	15,22	48,96	7886,84	525,79	802,28	7,43	148,82	2176,58	M27	120	198
HE 360 B	43190	2399,63	2682,99	15,46	60,60	10140	676,08	1032,49	7,49	292,45	2883,25	M27	122	198
HE 360 M	84870	4297,06	4989,32	16,32	102,41	19520	1267,65	1942,35	7,83	1507,44	6137,02	M27	132	204
HE 400 AA	31250	1653,55	1824,13	16,30	47,95	5861,38	390,76	599,69	7,06	84,69	1948,42	M27	118	198
HE 400 A	45070	2311,25	2561,80	16,84	57,33	8563,82	570,92	872,86	7,34	189,04	2942,08	M27	120	198
HE 400 B	57680	2884,02	3231,74	17,08	69,98	10820	721,27	1104,04	7,40	355,75	3817,15	M27	122	198
HE 400 M	104100	4820,33	5570,62	17,88	110,18	19340	1259,64	1934,13	7,70	1514,59	7410,30	M27	132	202
HE 400 x 199	124200	5592,63	6553,4	18,07	132,59	22690	1468,72	2265,04	7,72	2341,06	8957,53	M27	130/ 133	219
HE 400 x 147	149400	6522,20	7738,7	18,39	154,35	27190	1737,43	2685,76	7,84	3579,19	11110	M27	134/ 137	223
HE 400 x 113	180800	7628,89	9170,9	18,76	179,62	32840	2065,63	3200,42	7,99	5465,99	13940	M27	138/ 141	228
HE 400 x 88	219200	8908,72	10860	19,18	208,64	39530	2447,74	3801,34	8,15	8269,14	17500	M27	143/ 146	233
HE 450 AA	41890	1971,18	2183,34	18,16	54,70	6087,53	405,84	624,35	6,92	95,61	2571,73	M27	120	198
HE 450 A	63720	2896,44	3215,87	18,92	65,78	9465,32	631,02	965,53	7,29	243,76	4147,63	M27	122	198
HE 450 B	79890	3550,56	3982,37	19,14	79,66	11720	781,42	1197,66	7,33	440,48	5258,45	M27	124	198
HE 450 M	131500	5501,43	6331,02	19,80	119,84	19340	1259,87	1939,20	7,59	1528,79	9251,50	M27	132	202