HEA PROFILE COMPARISON TO SIN BEAM

COMPARISON OF CORRUGATED WEB BEAMS WITH EUROPEAN HOT ROLLED SECTIONS:

Hot rolled sections						Corrugated Web Beam with approximate same											
						Load carrying capacity							Stiffness (deflection)					
Type	h	G	Jy	Wy	Mpl,y	Type	flange	h	Mpl,y	Δ %	G	saving of weight in %	flange	h	Jy	Δ %	G	saving of weight in %
	mm	kg/m	cm^4	cm^3	kNm		cm	mm	kNm		kg/m		cm	mm	cm^4		kg/m	
HEA						WT							WT					
HEA200	190	42,233	**3.690**	429	**103**	***WT333***	***170x8***	349	**111**	108%	23,2	-45%	***160x6***	345	**5.516**	149%	21,3	-49%
HEA220	210	50,4755	**5.410**	568	**136**	***WT333***	***210x8***	349	**137**	101%	25,7	-49%	***160x6***	345	**5.516**	102%	21,3	-58%
HEA240	230	60,288	**7.760**	745	**179**	***WT333***	***220x10***	353	**181**	101%	29,8	-51%	***180x8***	349	**8.372**	108%	28,9	-52%
						WT500	***190x8***	516	**185**	104%	30,8	-49%						
HEA260	250	68,138	**10.450**	920	**221**	***WT500***	***180x10***	520	**220**	100%	33,0	-52%	***160x6***	512	**12.290**	118%	24,5	-64%
						WT625	***180x8***	641	**219**	99%	34,9	-49%						
HEA280	270	76,3805	**13.670**	1.112	**267**	***WT500***	***220x10***	520	**269**	101%	36,1	-53%	***180x6***	512	**13.826**	101%	26,4	-65%
						WT625	***180x10***	645	**274**	103%	37,7	-51%						
HEA300	290	88,705	**18.260**	1.383	**332**	***WT500***	***220x12***	524	**324**	98%	39,6	-55%	***180x8***	516	**18.581**	102%	32,0	-64%
						WT625	***220x10***	645	**335**	101%	40,8	-54%	***160x6***	637	**19.112**	105%	26,8	-70%
HEA320	310	97,34	**22.930**	1.628	**391**	***WT625***	***220x12***	649	**404**	103%	44,3	-55%	***200x6***	637	**23.890**	104%	30,6	-69%
						WT750	***220x10***	770	**401**	103%	45,5	-53%	***160x6***	762	**27.434**	120%	29,2	-70%
HEA340	330	104,405	**27.690**	1.850	**444**	***WT625***	***290x10***	645	**442**	100%	46,3	-56%	***180x8***	641	**28.850**	104%	34,4	-67%
						WT750	***240x10***	770	**438**	99%	47,1	-55%	***160x6***	762	**27.434**	99%	29,2	-72%
HEA360	350	112,255	**33.090**	2.088	**501**	***WT625***	***280x10***	645	**427**	85%	45,5	-59%	***220x8***	641	**35.261**	107%	39,4	-65%
						WT750	***210x10***	770	**383**	76%	44,7	-60%	***200x6***	762	**34.292**	104%	33,0	-71%
HEA400	390	124,815	**45.070**	2.562	**615**	***WT750***	***280x12***	774	**614**	100%	54,6	-56%	***200x8***	766	**45.965**	102%	39,3	-69%
						WT1000	***250x10***	1020	**606**	99%	57,3	-54%	***160x6***	1012	**48.578**	108%	33,9	-73%
HEA450	440	139,73	**63.720**	3.216	**772**	***WT1000***	***270x12***	1024	**787**	102%	63,1	-55%	***160x8***	1016	**65.028**	102%	38,9	-72%
						WT1250	***260x10***	1270	**786**	102%	67,5	-52%	***160x6***	1262	**75.722**	119%	38,6	-72%
HEA500	490	155,43	**86.970**	3.949	**948**	***WT750***	***340x15***	780	**936**	99%	68,3	-56%	***250x12***	774	**87.097**	100%	61,2	-61%
						WT1000	***320x12***	1024	**933**	98%	67,8	-56%	***180x10***	1020	**91.809**	106%	47,1	-70%
HEA550	540	166,42	**111.900**	4.622	**1.109**	***WT1000***	***320x15***	1030	**1169**	105%	75,4	-55%	***220x10***	1020	**112.211**	100%	53,4	-68%
						WT1250	***300x12***	1274	**1090**	98%	75,4	-55%	***180x8***	1266	**113.945**	102%	46,2	-72%
HEA600	590	177,41	**141.200**	5.320	**1.277**	***WT750***	***350x20***	790	**1294**	101%	83,2	-53%	***320x15***	780	**140.454**	99%	89,5	-50%
						WT1000	***260x20***	1040	**1273**	100%	78,5	-56%	***230x12***	1024	**141.332**	100%	62,2	-65%
HEA650	640	189,97	**175.200**	6.136	**1.473**	***WT1000***	***300x20***	1040	**1469**	100%	84,8	-55%	***280x12***	1024	**172.056**	98%	71,6	-62%
						WT1250	***320x15***	1280	**1457**	99%	84,8	-55%	***220x10***	1270	**174.636**	100%	58,1	-69%
HEA700	690	204,1	**215.300**	7.032	**1.688**	***WT1000***	***350x20***	1040	**1714**	102%	92,6	-55%	***280x15***	1030	**216.347**	100%	84,8	-58%
						WT1250	***300x20***	1290	**1829**	108%	94,2	-54%	***280x10***	1270	**222.264**	103%	67,5	-67%
HEA800	790	224,51	**303.400**	8.699	**2.088**	***WT1000***	***350x25***	1050	**2153**	103%	106,4	-53%	***300x20***	1040	**312.120**	103%	113,0	-50%
						WT1250	***340x20***	1290	**2073**	99%	100,5	-55%	***250x15***	1280	**300.042**	99%	82,4	-63%
HEA900	890	251,985	**422.100**	10.811	**2.595**	***WT1000***	***350x30***	1060	**2596**	100%	120,1	-52%	***320x25***	1050	**420.250**	100%	144,4	-43%
						WT1250	***350x25***	1300	**2678**	103%	115,8	-54%	***280x20***	1290	**451.612**	107%	111,5	-56%
HEA1000	990	272,395	**553.800**	12.824	**3.078**	***WT1250***	***350x30***	1310	**3226**	105%	129,5	-52%	***280x25***	1300	**568.969**	103%	133,5	-51%
						WT1500	***350x25***	1550	**3203**	104%	125,2	-54%	***250x20***	1540	**577.600**	104%	106,8	-61%

f_y = 240 N/mm² γ_M = 1,0 web thickness = 2 mm

IPE PROFILE COMPARISON TO SIN BEAM

COMPARISON OF CORRUGATED WEB BEAMS WITH EUROPEAN HOT ROLLED SECTIONS:

Hot rolled sections						Corrugated Web Beam with approximate same												
						Load carrying capacity							Stiffness (deflection)					
Type	h	G	Jy	Wy	Mpl,y	Type	flange	h	Mpl,y	Δ %	G	saving of weight in %	flange	h	Jy	Δ %	G	saving of weight in %
	mm	kg/m	cm^4	cm^3	kNm		cm	mm	kNm		kg/m		cm	mm	cm^4		kg/m	
IPE						*WT*							*WT*					
IPE200	200	22,3725	**1.940**	221	**53**	***WT333***	***160x6***	345	**78**	147%	20,1	-10%	***160x6***	345	**5.516**	284%	21,3	-5%
IPE240	240	30,6935	**3.890**	367	**88**	***WT333***	***180x6***	345	**88**	100%	21,0	-31%	***160x6***	345	**5.516**	142%	21,3	-30%
IPE270	270	36,0315	**5.790**	484	**116**	***WT333***	***180x8***	349	**118**	101%	23,9	-34%	***180x6***	345	**6.206**	107%	23,2	-36%
						WT500	***160x6***	512	**117**	100%	26,4	-27%						
IPE300	300	42,233	**8.360**	628	**151**	***WT500***	***160x8***	516	**156**	104%	28,9	-32%	***160x6***	512	**12.290**	147%	24,5	-42%
						WT625	***160x6***	637	**145**	96%	31,1	-26%						
IPE330	330	49,141	**11.770**	804	**193**	***WT500***	***160x10***	520	**196**	101%	31,4	-36%	***160x6***	512	**12.290**	104%	24,5	-50%
						WT625	***160x8***	641	**194**	101%	33,6	-32%						
IPE360	360	57,0695	**16.270**	1.019	**245**	***WT500***	***200x10***	520	**245**	100%	34,5	-39%	***180x8***	516	**18.581**	114%	32,0	-44%
						WT625	***200x8***	641	**243**	99%	36,1	-37%	***160x6***	637	**19.112**	117%	26,8	-53%
IPE400	400	66,3325	**23.130**	1.307	**314**	***WT625***	***200x10***	645	**305**	97%	39,3	-41%	***150x8***	641	**24.041**	104%	30,6	-54%
						WT750	***170x10***	770	**310**	99%	41,6	-37%	***160x6***	762	**27.434**	119%	29,2	-56%
IPE450	450	77,558	**33.740**	1.702	**408**	***WT625***	***270x10***	645	**411**	101%	44,7	-42%	***170x10***	645	**34.274**	102%	38,5	-50%
						WT750	***230x10***	770	**420**	103%	46,3	-40%	***200x6***	762	**34.292**	102%	33,0	-57%
IPE500	500	91,06	**48.200**	2.192	**526**	***WT750***	***290x10***	770	**529**	101%	51,0	-44%	***200x8***	766	**45.965**	95%	39,3	-57%
						WT1000	***220x10***	1020	**533**	101%	55,0	-40%	***170x6***	1012	**51.614**	107%	34,9	-62%
IPE550	550	105,19	**67.120**	2.787	**669**	***WT750***	***250x15***	780	**689**	103%	57,7	-45%	***240x10***	770	**69.312**	103%	51,8	-51%
						WT1000	***280x10***	1020	**679**	101%	59,7	-43%	***180x8***	1016	**73.157**	109%	41,4	-61%
IPE600	600	122,46	**92.080**	3.512	**843**	***WT1000***	***290x12***	1024	**845**	100%	65,0	-47%	***190x10***	1020	**96.910**	105%	48,7	-60%
						WT1250	***280x10***	1270	**847**	100%	69,1	-44%	***190x6***	1262	**89.920**	98%	41,4	-66%

f_y = 240 N/mm² γ_M = 1,0 web thickness = 2 mm

HEB PROFILE COMPARISON TO SIN BEAM

COMPARISON OF CORRUGATED WEB BEAMS WITH EUROPEAN HOT ROLLED SECTIONS:

Hot rolled sections						Corrugated Web Beam with approximate same												
						Load carrying capacity							Stiffness (deflection)					
Type	h	G	Jy	Wy	Mpl,y	Type	flange	h	Mpl,y	D %	G	saving of weight in %	flange	h	Jy	D %	G	saving of weight in %
	mm	kg/m	cm^4	cm^3	kNm		cm	mm	kNm		kg/m		cm	mm	cm^4		kg/m	
HEB						*WT*							*WT*					
HEB200	200	61,3085	**5.700**	643	**154**	***WT333***	***200x10***	353	**165**	107%	28,2	-54%	***160x6***	345	**5.516**	97%	21,3	-65%
HEB220	220	71,435	**8.090**	827	**198**	***WT333***	***240x10***	353	**198**	100%	31,4	-56%	***160x6***	345	**5.516**	68%	21,3	-70%
HEB240	240	83,21	**11.260**	1.053	**253**	***WT333***	***260x12***	357	**258**	102%	37,0	-55%	***160x6***	345	**5.516**	49%	21,3	-74%
						WT500	***210x10***	520	**257**	102%	35,3	-58%						
HEB260	260	92,63	**14.920**	1.283	**308**	***WT500***	***210x12***	524	**310**	101%	38,6	-58%	***160x6***	512	**12.290**	82%	24,5	-74%
						WT625	***200x10***	645	**305**	99%	39,3	-58%						
HEB280	280	102,835	**19.270**	1.534	**368**	***WT500***	***250x12***	524	**369**	100%	42,4	-59%	***160x6***	512	**12.290**	64%	24,5	-76%
						WT625	***250x10***	645	**381**	103%	43,2	-58%						
HEB300	300	116,965	**25.170**	1.869	**449**	***WT500***	***250x15***	530	**464**	103%	48,3	-59%	***160x6***	512	**12.290**	49%	24,5	-79%
						WT625	***250x12***	649	**459**	102%	47,1	-60%	***160x7***	639	**22.368**	89%	29,4	-75%
HEB320	320	126,385	**30.820**	2.149	**516**	***WT625***	***280x12***	649	**514**	100%	49,9	-60%	***200x8***	641	**32.055**	104%	36,9	-71%
						WT750	***280x10***	770	**511**	99%	50,2	-60%	***180x6***	762	**30.863**	100%	31,1	-75%
HEB340	340	134,235	**36.660**	2.408	**578**	***WT625***	***320x12***	649	**587**	102%	53,7	-60%	***180x10***	645	**36.290**	99%	40,0	-70%
						WT750	***260x12***	774	**571**	99%	52,8	-61%	***160x8***	766	**36.772**	100%	34,2	-75%
HEB360	360	142,085	**43.190**	2.683	**644**	***WT750***	***300x12***	774	**658**	102%	56,5	-60%	***180x8***	766	**41.369**	96%	36,7	-74%
						WT1000	***260x10***	1020	**630**	98%	58,1	-59%	***160x6***	1012	**48.578**	112%	33,9	-76%
HEB400	400	155,43	**57.680**	3.232	**776**	***WT750***	***280x15***	780	**771**	99%	61,2	-61%	***200x10***	770	**57.760**	100%	45,5	-71%
						WT1000	***280x12***	1024	**816**	105%	64,1	-59%	***180x6***	1012	**54.650**	95%	35,8	-77%
HEB450	450	171,13	**79.890**	3.982	**956**	***WT750***	***260x20***	790	**961**	101%	69,1	-60%	***220x12***	774	**76.645**	96%	55,6	-68%
						WT1000	***260x15***	1030	**950**	99%	68,3	-60%	***200x8***	1016	**81.285**	102%	44,0	-74%
HEB500	500	187,615	**107.200**	4.815	**1.156**	***WT750***	***320x20***	790	**1183**	102%	78,5	-58%	***240x15***	780	**105.341**	98%	70,7	-62%
						WT1000	***320x15***	1030	**1169**	101%	75,4	-60%	***220x10***	1020	**112.211**	105%	53,4	-72%
HEB550	550	199,39	**136.700**	5.591	**1.342**	***WT750***	***300x25***	800	**1395**	104%	87,1	-56%	***280x15***	780	**122.897**	90%	80,1	-60%
						WT1000	***300x20***	1040	**1469**	109%	84,8	-57%	***220x12***	1024	**135.187**	99%	60,3	-70%
HEB600	600	211,95	**171.000**	6.425	**1.542**	***WT750***	***350x25***	800	**1628**	106%	96,9	-54%	***300x20***	790	**177.870**	104%	108,3	-49%
						WT1000	***320x20***	1040	**1567**	102%	87,9	-59%	***220x15***	1030	**169.987**	99%	70,7	-67%
HEB650	650	224,51	**210.600**	7.320	**1.757**	***WT1000***	***350x20***	1040	**1714**	98%	92,6	-59%	***280x15***	1030	**216.347**	103%	84,8	-62%
						WT1250	***300x20***	1290	**1829**	104%	94,2	-58%	***220x12***	1274	**210.229**	100%	65,0	-71%
HEB700	700	240,21	**256.900**	8.327	**1.998**	***WT1000***	***320x25***	1050	**1968**	98%	100,5	-58%	***320x15***	1030	**247.254**	96%	94,2	-61%
						WT1250	***320x20***	1290	**1951**	98%	97,3	-59%	***280x12***	1274	**267.564**	104%	76,3	-68%
HEB800	800	262,19	**359.100**	10.229	**2.455**	***WT1000***	***320x30***	1060	**2373**	97%	113,0	-57%	***340x20***	1040	**353.736**	99%	125,6	-52%
						WT1250	***320x25***	1300	**2448**	100%	109,9	-58%	***300x15***	1280	**360.051**	100%	94,2	-64%
HEB900	900	291,235	**494.100**	12.584	**3.020**	***WT1000***	***400x30***	1060	**2966**	98%	131,9	-55%	***380x25***	1050	**499.047**	101%	168,0	-42%
						WT1250	***400x25***	1300	**3060**	101%	125,6	-57%	***320x20***	1290	**516.128**	104%	124,0	-57%
HEB1000	1000	314	**644.700**	14.855	**3.565**	***WT1250***	***380x30***	1310	**3502**	98%	136,6	-57%	***320x25***	1300	**650.250**	101%	149,2	-53%
						WT1500	***380x25***	1550	**3477**	98%	131,1	-58%	***380x15***	1530	**654.139**	101%	117,8	-63%

f_y = 240 N/mm² γ_M = 1,0 web thickness = 2 mm