

6. Hollow Sections

Structural steel tubes that can be circular, hollow or rectangular, each with its own attributes, used for a wide range of construction and industrial applications.

6.1 Hot Finished

- 6.1.1 Circular Hollow Section (CHS)
- 6.1.2 Rectangular Hollow Section (RHS)
- 6.1.3 Square Hollow Section (SHS)

6.2 Cold Formed

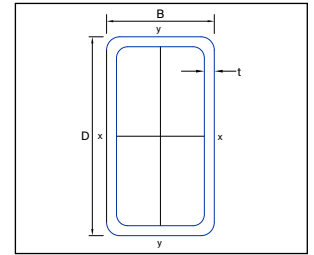
- 6.2.1 Circular Hollow Section (CHS)
- 6.2.2 Rectangular Hollow Section (RHS)
- 6.2.3 Square Hollow Section (SHS)

6.2 Cold Formed Hollow Section

Standard specifications

Material	Yield strength		Tensile strength	Min. Elongation	Min. Charpy V-notch.	Dimensions & Tolerances
	N/mm ²		N/mm ²	$L_0=5.65\sqrt{S_0}$		
<i>EN 10219</i>	$\leq 16\text{mm}$	$>16 - \leq 40\text{mm}$	3-40mm			<i>EN10219</i>
S275J0H	275	265	410-560	20%	27J @ 0°C	
S275J2H	275	265	410-560	20%	27J @ -20°C	
S355J0H	355	345	470-630	20%	27J @ 0°C	
S355J2H	355	345	470-630	20%	27J @ -20°C	
S460MH	460	440	530-720	17%	40J @ -20°C	

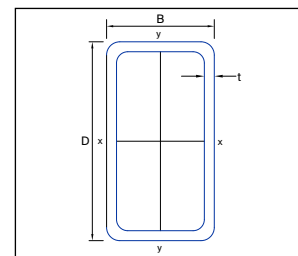
6.2.2 Cold Formed Rectangular Hollow Section (RHS)



Designation		Mass per Metre	Area of Section	Second Moment of Area		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area per Metre
Size	Thickness			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	J	C	
mm	mm	kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m
19x9	1.0 *	0.411	0.494	0.206	0.062	0.645	0.354	0.216	0.138	0.283	0.165	0.165	0.244	0.053
	1.2 *	0.421	0.577	0.231	0.069	0.633	0.346	0.243	0.153	0.323	0.188	0.187	0.273	0.052
	1.6 *	0.540	0.728	0.268	0.078	0.607	0.328	0.282	0.174	0.390	0.224	0.222	0.315	0.051
25x12	1.0 *	0.555	0.674	0.510	0.160	0.869	0.487	0.408	0.266	0.521	0.310	0.410	0.467	0.071
	1.2 *	0.659	0.793	0.583	0.181	0.857	0.478	0.467	0.302	0.604	0.358	0.473	0.532	0.070
	1.6 *	0.859	1.02	0.705	0.215	0.833	0.460	0.564	0.358	0.749	0.440	0.582	0.638	0.069
25x13	1.2 *	0.670	0.817	0.617	0.219	0.869	0.517	0.494	0.337	0.632	0.398	0.549	0.586	0.072
	1.6 *	0.860	1.05	0.749	0.262	0.845	0.500	0.599	0.402	0.786	0.492	0.679	0.707	0.071
32x16	1.0 *	0.707	0.894	1.15	0.391	1.14	0.661	0.722	0.488	0.905	0.558	0.962	0.847	0.093
	1.2 *	0.838	1.06	1.34	0.449	1.12	0.652	0.836	0.562	1.06	0.650	1.12	0.978	0.092
	1.6 *	1.10	1.37	1.66	0.550	1.10	0.634	1.04	0.688	1.34	0.818	1.41	1.21	0.091
38x19	1.0 *	0.858	1.07	1.99	0.676	1.36	0.793	1.05	0.711	1.30	0.805	1.65	1.23	0.111
	1.2 *	1.02	1.27	2.32	0.783	1.35	0.784	1.22	0.824	1.53	0.943	1.93	1.43	0.110
	1.6 *	1.34	1.66	2.91	0.973	1.33	0.766	1.53	1.02	1.95	1.20	2.46	1.79	0.109
38x25	1.0 *	0.949	1.19	2.40	1.26	1.42	1.03	1.26	1.01	1.52	1.14	2.63	1.66	0.123
	1.2 *	1.13	1.42	2.80	1.47	1.41	1.02	1.48	1.17	1.79	1.35	3.10	1.94	0.122
	1.6 *	1.50	1.85	3.55	1.85	1.39	1.00	1.87	1.48	2.30	1.72	3.99	2.45	0.121
50x25	1.0 *	1.15	1.43	4.69	1.60	1.81	1.06	1.87	1.28	2.31	1.43	3.85	2.22	0.147
	1.2 *	1.37	1.71	5.50	1.88	1.80	1.05	2.20	1.50	2.73	1.69	4.54	2.59	0.146
	1.6 *	1.81	2.23	7.02	2.37	1.77	1.03	2.81	1.90	3.53	2.17	5.85	3.29	0.145
	2.0 *	2.15	2.74	8.38	2.81	1.75	1.01	3.35	2.25	4.26	2.62	7.06	3.92	0.143
	2.3 *	2.48	3.10	9.31	3.10	1.73	1.00	3.72	2.48	4.78	2.92	7.90	4.34	0.142
	2.5 *	2.62	3.34	9.89	3.28	1.72	0.991	3.95	2.62	5.11	3.12	8.43	4.60	0.141
	3.0 *	3.07	3.91	11.2	3.67	1.69	0.969	4.47	2.93	5.86	3.56	9.64	5.18	0.140
	3.2 *	3.41	4.13	11.6	3.80	1.68	0.960	4.65	3.04	6.14	3.73	10.1	5.38	0.139
50x30	2.0	2.31	2.94	9.54	4.29	1.80	1.21	3.81	2.86	4.74	3.33	9.77	4.84	0.153
	2.5	2.82	3.59	11.3	5.05	1.77	1.19	4.52	3.37	5.70	3.98	11.7	5.72	0.151
	3.0	3.30	4.21	12.8	5.70	1.75	1.16	5.13	3.80	6.57	4.58	13.5	6.49	0.150
	4.0	4.20	5.35	15.3	6.69	1.69	1.12	6.10	4.46	8.05	5.58	16.5	7.71	0.146
60x40	1.6 *	2.37	3.03	15.2	8.16	2.24	1.64	5.07	4.08	6.12	4.64	16.9	6.72	0.195
	2.3 *	3.33	4.25	20.7	11.0	2.20	1.61	6.88	5.50	8.44	6.38	23.4	9.10	0.192
	2.5	3.60	4.59	22.1	11.7	2.19	1.60	7.36	5.87	9.06	6.84	25.1	9.72	0.191
	3.0	4.25	5.41	25.4	13.4	2.17	1.58	8.46	6.72	10.5	7.94	29.3	11.2	0.190
	4.0	5.45	6.95	31.0	16.3	2.11	1.53	10.3	8.14	13.2	9.89	36.7	13.7	0.186
	4.5 *	6.01	7.67	33.3	17.4	2.08	1.51	11.1	8.72	14.3	10.7	39.9	14.7	0.185
65x38	1.6 *	2.45	3.13	17.8	7.79	2.39	1.58	5.49	4.10	6.70	4.63	17.4	6.91	0.201
	2.3 *	3.40	4.39	24.2	10.5	2.35	1.55	7.46	5.53	9.24	6.37	24.0	9.36	0.198
	3.0	4.38	5.59	29.8	12.8	2.31	1.51	9.18	6.75	11.5	7.93	30.0	11.5	0.196
	3.2	4.54	5.92	31.3	13.4	2.30	1.51	9.63	7.06	12.2	8.35	31.6	12.1	0.195
	4.0 *	5.64	7.19	36.5	15.5	2.25	1.47	11.2	8.17	14.5	9.89	37.5	14.0	0.192

* Sizes not included in BS EN 10219 Part 2 (1997)

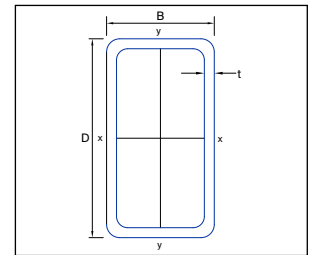
6.2.2 Cold Formed Rectangular Hollow Section (RHS)



Designation		Mass per Metre	Area of Section	Second Moment of Area		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area per Metre
Size	Thickness			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	J	C	
DxB	t	kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m
mm	mm													
75x38	1.6 *	2.70	3.45	25.3	8.85	2.71	1.60	6.76	4.66	8.3	5.21	21.2	8.03	0.221
	1.9 *	3.22	4.06	29.4	10.2	2.69	1.59	7.85	5.39	9.7	6.08	24.7	9.30	0.219
	2.3 *	3.86	4.85	34.6	12.0	2.67	1.57	9.23	6.30	11.5	7.19	29.2	10.9	0.218
	3.0 *	4.99	6.19	42.8	14.7	2.63	1.54	11.4	7.72	14.5	8.98	36.6	13.4	0.216
	3.2 *	5.17	6.56	45.0	15.4	2.62	1.53	12.0	8.09	15.3	9.46	38.6	14.1	0.215
	4.0 *	6.27	7.99	52.8	17.9	2.57	1.50	14.1	9.40	18.3	11.2	45.9	16.5	0.212
	4.5 *	6.94	8.84	57.1	19.2	2.54	1.47	15.2	10.1	19.9	12.3	50.0	17.8	0.211
75x50	1.9 *	3.60	4.51	35.5	19.1	2.81	2.05	9.48	7.62	11.4	8.65	39.5	12.5	0.243
	2.3 *	4.31	5.40	41.9	22.4	2.79	2.04	11.2	8.96	13.6	10.3	46.9	14.8	0.242
	3.0 *	5.59	6.91	52.2	27.8	2.75	2.00	13.9	11.1	17.1	12.9	59.3	18.4	0.240
	3.2 *	5.80	7.33	54.9	29.2	2.74	2.00	14.6	11.7	18.0	13.6	62.6	19.3	0.239
	4.0 *	7.08	8.95	65.0	34.3	2.69	1.96	17.3	13.7	21.7	16.3	75.3	22.9	0.236
	4.5 *	7.88	9.92	70.6	37.2	2.67	1.94	18.8	14.9	23.8	17.9	82.7	24.9	0.235
	4.6 *	8.04	10.1	71.6	37.7	2.66	1.93	19.1	15.1	24.2	18.2	84.1	25.2	0.234
	4.8 *	8.33	10.5	73.7	38.8	2.65	1.92	19.6	15.5	24.9	18.8	86.8	26.0	0.234
	5.0 *	8.53	10.9	75.6	39.7	2.64	1.91	20.2	15.9	25.7	19.3	89.5	26.7	0.233
6.0 *	9.92	12.6	84.4	44.1	2.58	1.87	22.5	17.6	29.2	21.9	102	29.8	0.229	
80x40	3.0	5.19	6.61	52.3	17.6	2.81	1.63	13.1	8.78	16.5	10.2	43.9	15.3	0.230
	4.0	6.71	8.55	64.8	21.5	2.75	1.59	16.2	10.7	20.9	12.8	55.2	18.8	0.226
90x50	3.0	6.13	7.81	81.9	32.7	3.24	2.05	18.2	13.1	22.6	15.0	76.7	22.4	0.270
	3.6 *	7.24	9.23	94.7	37.7	3.20	2.02	21.1	15.1	26.4	17.5	89.6	25.8	0.268
	4.0	7.97	10.1	103	40.7	3.18	2.00	22.8	16.3	28.8	19.1	97.7	28.0	0.266
	5.0	9.70	12.4	121	47.4	3.12	1.96	26.8	18.9	34.4	22.7	116	32.7	0.263
100x50	1.9 *	4.36	5.46	71.6	24.5	3.62	2.12	14.3	9.82	17.6	10.9	58.7	16.9	0.293
	2.3 *	5.23	6.55	84.8	29.0	3.60	2.10	17.0	11.6	21.0	13.0	69.9	20.0	0.292
	3.0	6.60	8.41	106	36.1	3.56	2.07	21.3	14.4	26.7	16.4	88.6	25.0	0.290
	3.2 *	7.07	8.93	112	38.0	3.55	2.06	22.5	15.2	28.2	17.4	93.7	26.4	0.289
	4.0	8.59	10.9	134	44.9	3.50	2.03	26.8	18.0	34.1	20.9	113	31.3	0.286
	4.5 *	9.70	12.2	147	48.9	3.47	2.00	29.3	19.5	37.6	23.0	124	34.2	0.285
	5.0	10.50	13.4	158	52.5	3.44	1.98	31.6	21.0	40.8	25.0	135	36.8	0.283
	6.0	12.30	15.6	179	58.7	3.38	1.94	35.8	23.5	46.9	28.5	154	41.4	0.279
	6.3	12.50	15.9	176	58.2	3.32	1.91	35.1	23.3	46.9	28.6	158	42.1	0.273
100x60	3.0	7.07	9.01	121	54.6	3.66	2.46	24.1	18.2	29.6	20.8	122	30.6	0.310
	3.6 *	8.37	10.7	140	63.3	3.63	2.44	28.0	21.1	34.7	24.3	143	35.6	0.308
	4.0	9.22	11.7	153	68.7	3.60	2.42	30.5	22.9	37.9	26.6	156	38.7	0.306
	5.0	11.30	14.4	181	80.8	3.55	2.37	36.2	26.9	45.6	31.9	188	45.8	0.303
	6.0	13.20	16.8	205	91.2	3.49	2.33	41.1	30.4	52.5	36.6	216	51.9	0.299
	6.3	13.50	17.2	203	90.9	3.44	2.30	40.7	30.3	52.8	36.9	223	53.0	0.293

* Sizes not included in BS EN 10219 Part 2 (1997)

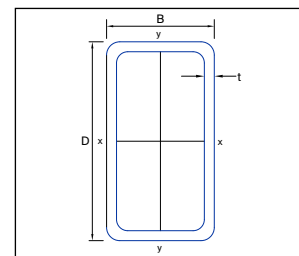
Dimensions	EN10219-2
Specification	EN10219-1
Size Range	40mm x 20mm to 400mm x 300mm



Designation		Mass per Metre	Area of Section	Second Moment of Area		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area per Metre
Size	Thickness			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	J	C	
DxB	t	kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m
mm	mm													
100x75	2.3 *	6.04	7.70	112	72.3	3.82	3.06	22.5	19.3	26.6	21.9	138	31.0	0.342
	3.0 *	8.02	9.91	142	91.1	3.78	3.03	28.4	24.3	33.9	27.9	177	39.1	0.340
	3.2 *	8.33	10.5	150	96.2	3.77	3.02	30.0	25.6	35.9	29.5	187	41.3	0.339
	4.0 *	10.20	12.9	180	115	3.73	2.99	36.0	30.8	43.7	35.9	228	49.7	0.336
	4.5 *	11.50	14.4	198	127	3.71	2.96	39.6	33.7	48.3	39.6	253	54.6	0.335
	4.6 *	11.70	14.7	201	129	3.70	2.96	40.3	34.3	49.2	40.3	257	55.5	0.334
	4.8 *	12.10	15.3	208	133	3.69	2.95	41.6	35.4	51.0	41.8	267	57.4	0.334
	5.0 *	12.80	15.9	215	137	3.68	2.94	42.9	36.5	52.7	43.2	276	59.2	0.333
120x60	3.0	8.01	10.2	189	64.4	4.30	2.51	31.5	21.5	39.2	24.2	156	37.1	0.350
	3.6 *	9.50	12.1	221	74.8	4.27	2.48	36.8	24.9	46.1	28.4	184	43.2	0.348
	4.0	10.50	13.3	241	81.2	4.25	2.47	40.1	27.1	50.5	31.1	201	47.0	0.346
	5.0	12.80	16.4	287	96.0	4.19	2.42	47.8	32.0	60.9	37.4	242	55.8	0.343
	6.0	15.10	19.2	328	109	4.13	2.38	54.7	36.3	70.6	43.1	280	63.6	0.339
	6.3	15.50	19.7	327	109	4.07	2.35	54.5	36.4	71.2	43.7	289	65.1	0.333
120x80	4.0	11.70	14.9	295	157	4.44	3.24	49.1	39.3	59.8	45.2	331	64.9	0.386
	5.0	14.40	18.4	353	188	4.39	3.20	58.9	46.9	72.4	54.7	402	77.8	0.383
	6.0	17.00	21.6	406	215	4.33	3.15	67.7	53.8	84.3	63.5	469	89.4	0.379
	6.3	17.50	22.2	408	217	4.28	3.12	68.1	54.3	85.6	64.7	488	92.1	0.373
	8.0	21.40	27.2	476	252	4.18	3.04	79.3	62.9	102.0	76.9	584	108.0	0.366
125x50	2.3 *	6.04	7.70	148	35.5	4.39	2.15	23.7	14.2	29.9	15.7	93.9	25.3	0.342
	3.0 *	8.02	9.91	187	44.4	4.34	2.12	29.9	17.7	38.1	20.0	119	31.6	0.340
	3.2 *	8.33	10.5	198	46.7	4.33	2.11	31.6	18.7	40.4	21.1	126	33.4	0.339
	4.0 *	10.20	12.9	238	55.6	4.28	2.07	38.0	22.2	49.0	25.5	152	39.8	0.336
	4.5 *	11.50	14.4	261	60.6	4.25	2.05	41.7	24.2	54.2	28.1	167	43.5	0.335
	4.6 *	11.70	14.7	265	61.5	4.25	2.04	42.4	24.6	55.2	28.6	170	44.2	0.334
	4.8 *	12.10	15.3	274	63.4	4.23	2.04	43.8	25.3	57.2	29.6	176	45.6	0.334
	5.0 *	12.80	15.9	282	65.2	4.22	2.03	45.2	26.1	59.1	30.6	182	47.0	0.333
	6.0 *	15.10	18.6	322	73.3	4.16	1.98	51.5	29.3	68.3	35.1	209	53.1	0.329
125x75	2.3 *	6.95	8.85	192	87.5	4.65	3.14	30.6	23.3	37.0	26.1	190	39.1	0.392
	3.0 *	9.23	11.4	243	111	4.61	3.11	38.9	29.5	47.3	33.3	243	49.5	0.390
	3.2 *	9.60	12.1	257	117	4.60	3.10	41.1	31.1	50.1	35.3	258	52.3	0.389
	4.0 *	11.80	14.9	311	141	4.56	3.07	49.7	37.5	61.1	43.0	315	63.1	0.386
	4.5 *	13.30	16.7	342	155	4.53	3.04	54.8	41.2	67.7	47.5	349	69.5	0.385
	5.0 *	14.70	18.4	373	168	4.50	3.02	59.6	44.7	74.1	52.0	382	75.6	0.383
	6.0 *	17.20	21.6	428	192	4.45	2.98	68.5	51.1	86.2	60.3	444	86.7	0.379
	6.4 *	18.20	22.6	435	196	4.39	2.94	69.6	52.2	88.5	62.1	467	90.3	0.373
150x50	3.0 *	9.23	11.4	299	52.6	5.12	2.15	39.8	21.1	51.4	23.5	150	38.3	0.390
	3.2 *	9.60	12.1	316	55.5	5.10	2.14	42.1	22.2	54.5	24.9	159	40.4	0.389
	4.0 *	11.80	14.9	381	66.2	5.05	2.10	50.9	26.5	66.5	30.1	192	48.3	0.386

* Sizes not included in BS EN 10219 Part 2 (1997)

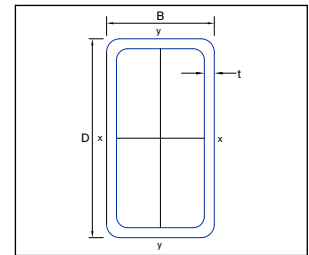
6.2.2 Cold Formed Rectangular Hollow Section (RHS)



Designation		Mass per Metre	Area of Section	Second Moment of Area		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area per Metre
Size	Thickness			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	J	C	
DxB	t	kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m
mm	mm													
150x50	4.5 *	13.30	16.7	420	72.2	5.02	2.08	56.0	28.9	73.6	33.2	212	52.9	0.385
	4.6 *	13.50	17.0	427	73.4	5.01	2.08	57.0	29.4	75.0	33.8	215	53.7	0.384
	4.8 *	14.00	17.7	442	75.7	5.00	2.07	58.9	30.3	77.8	35.0	223	55.4	0.384
	5.0 *	14.70	18.4	456	77.9	4.99	2.06	60.8	31.1	80.5	36.2	230	57.1	0.383
	6.0 *	17.30	21.6	523	87.9	4.92	2.02	69.8	35.2	93.5	41.7	264	64.8	0.379
	6.4 *	18.20	22.6	528	89.3	4.84	1.99	70.4	35.7	95.7	42.9	275	66.9	0.373
150x75	3.0 *	10.10	12.9	380	130	5.42	3.17	50.6	34.7	62.5	38.7	312	59.8	0.440
	3.2 *	10.90	13.7	402	137	5.41	3.16	53.6	36.6	66.3	41.0	331	63.3	0.439
	4.0 *	13.40	16.9	488	166	5.37	3.13	65.1	44.2	81.1	50.1	404	76.6	0.436
	4.5 *	15.10	18.9	539	183	5.34	3.11	71.9	48.7	90.0	55.5	448	84.4	0.435
	4.6 *	15.30	19.3	549	186	5.33	3.10	73.2	49.5	91.7	56.5	457	85.9	0.434
	4.8 *	14.00	20.1	568	192	5.32	3.09	75.8	51.2	95.2	58.6	474	88.9	0.434
	5.0 *	16.70	20.9	588	198	5.31	3.08	78.4	52.9	98.6	60.7	491	91.9	0.433
	6.0 *	19.70	24.6	679	228	5.25	3.04	90.5	60.7	115	70.6	572	105.8	0.429
	6.4 *	20.70	25.8	693	233	5.19	3.01	92.4	62.2	119	73.1	603	110.4	0.423
9.0 *	27.60	34.5	865	287	5.01	2.89	115	76.6	153	93.6	775	138.1	0.411	
150x100	3.0 *	11.58	14.4	461	248	5.65	4.15	61.4	49.5	73.5	55.8	507	81.4	0.490
	3.2 *	12.00	15.3	488	262	5.64	4.14	65.1	52.5	78.0	59.2	539	86.2	0.489
	4.0 *	14.90	18.9	595	319	5.60	4.10	79.3	63.7	95.7	72.5	662	105	0.486
	4.5 *	16.90	21.2	658	352	5.58	4.08	87.7	70.4	106	80.5	736	116	0.485
	4.6 *	17.10	21.6	670	358	5.57	4.07	89.4	71.7	108	82.1	751	118	0.484
	4.8 *	17.80	22.5	695	371	5.56	4.06	92.7	74.3	113	85.2	780	123	0.484
	5.0 *	18.30	23.4	719	384	5.55	4.05	95.9	76.8	117	88.3	809	127	0.483
	6.0 *	21.70	27.6	835	444	5.50	4.01	111	88.8	137	103	948	147	0.479
	6.3 *	22.40	28.5	848	453	5.45	3.98	113	90.5	140	106	992	152	0.473
	6.4 *	23.20	29.0	858	458	5.44	3.98	114	91.6	142	107	1005	154	0.473
	8.0 *	27.70	35.2	1008	536	5.35	3.90	134	107	169	128	1206	182	0.466
	9.0 *	31.40	39.0	1089	577	5.29	3.85	145	115	185	140	1320	197	0.461
	9.5 *	33.30	40.8	1127	597	5.26	3.82	150	119	192	145	1374	204	0.459
12.7 *	42.30	50.1	1232	655	4.96	3.61	164	131	221	167	1619	234	0.435	
160x80	5.0	17.50	22.4	722	244	5.68	3.30	90.2	61.0	113	69.7	601	106	0.463
	6.0	20.70	26.4	836	281	5.62	3.26	105	70.2	132	81.3	702	122	0.459
	8.0	26.40	33.6	1001	335	5.46	3.16	125	83.7	163	100	882	150	0.446
175x100	4.8 *	19.70	24.9	1013	426	6.38	4.14	116	85.2	142	96.7	969	144	0.534
	6.4 *	25.70	32.2	1260	528	6.26	4.05	144	106	180	122	1251	182	0.523
	9.5 *	37.10	45.5	1673	694	6.06	3.90	191	139	246	166	1719	243	0.509
	12.7 *	47.30	56.5	1867	777	5.75	3.71	213	155	288	195	2052	283	0.485
175x125	4.8 *	21.60	27.3	1187	708	6.60	5.09	136	113	163	129	1410	184	0.584
	6.4 *	28.30	35.4	1487	886	6.49	5.01	170	142	207	164	1832	234	0.573
	9.5 *	40.90	50.3	1999	1184	6.30	4.85	228	189	285	226	2554	317	0.559
	12.7 *	52.40	62.8	2286	1356	6.03	4.65	261	217	340	270	3129	377	0.535

* Sizes not included in BS EN 10219 Part 2 (1997)

Dimensions	EN10219-2
Specification	EN10219-1
Size Range	40mm x 20mm to 400mm x 300mm



Designation		Mass per Metre	Area of Section	Second Moment of Area		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area per Metre
Size	Thickness			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	J	C	
DxB	t	kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m
mm	mm													
200x100	4.0	18.00	22.9	1200	411	7.23	4.23	120	82.2	148	91.7	985	142	0.586
	4.5 *	20.50	25.7	1331	455	7.20	4.21	133	90.9	165	102	1097	157	0.585
	4.6 *	20.80	26.2	1357	463	7.20	4.20	136	92.6	168	104	1119	160	0.584
	4.8 *	21.60	27.3	1409	480	7.19	4.20	141	96.0	175	108	1163	166	0.584
	5.0	22.30	28.4	1459	497	7.17	4.19	146	99.4	181	112	1206	172	0.583
	6.0	26.40	33.6	1703	577	7.12	4.14	170	115	213	132	1417	200	0.579
	6.3	27.40	34.8	1739	591	7.06	4.12	174	118	219	135	1483	208	0.573
	6.4 *	28.30	35.4	1761	598	7.06	4.11	176	120	222	137	1503	210	0.573
	8.0	33.90	43.2	2091	705	6.95	4.04	209	141	267	165	1811	250	0.566
	9.0 *	40.52	48.0	2276	764	6.89	3.99	228	153	293	180	1988	272	0.561
	9.5 *	40.90	50.3	2362	792	6.85	3.97	236	158	306	188	2073	282	0.559
12.0	49.10	60.1	2607	876	6.59	3.82	261	175	350	215	2414	322	0.538	
12.7 *	52.40	62.8	2679	898	6.53	3.78	268	180	363	223	2496	331	0.535	
200x150	4.5 *	25.40	30.2	1761	1135	7.64	6.13	176	151	209	172	2169	243	0.685
	6.0 *	31.10	39.6	2268	1457	7.56	6.06	227	194	271	223	2826	313	0.679
	6.3 *	33.30	41.1	2330	1499	7.53	6.04	233	200	280	230	2965	325	0.673
	9.0 *	45.30	57.0	3097	1985	7.37	5.90	310	265	379	312	4055	435	0.661
	9.5 *	48.40	59.8	3225	2066	7.34	5.88	322	275	396	326	4244	454	0.659
	12.0 *	58.50	72.1	3668	2353	7.14	5.71	367	314	463	380	5099	532	0.638
	12.7 *	62.50	75.5	3794	2432	7.09	5.67	379	324	482	396	5316	552	0.635
250x150	5.0	30.10	38.4	3304	1508	9.28	6.27	264	201	320	225	3285	337	0.783
	6.0	35.80	45.6	3886	1768	9.23	6.23	311	236	378	266	3886	396	0.779
	6.3	37.20	47.4	4001	1825	9.18	6.20	320	243	391	276	4078	412	0.773
	8.0	46.50	59.2	4886	2219	9.08	6.12	391	296	482	340	5050	504	0.766
	9.0 *	52.30	66.0	5369	2433	9.02	6.07	430	324	533	375	5596	554	0.761
	10.0	57.00	72.6	5825	2634	8.96	6.02	466	351	582	409	6121	602	0.757
	12.0	66.00	84.1	6458	2925	8.77	5.90	517	390	658	463	7088	684	0.738
	12.5	68.30	87.0	6633	3002	8.73	5.87	531	400	678	477	7315	704	0.736
300x100	6.0	35.8	45.6	4777	842	10	4.30	318	168	411	188	2403	306	0.779
	6.3	37.2	47.4	4907	868	10	4.28	327	174	425	194	2515	318	0.773
	10.0	57.0	72.6	7106	1224	10	4.11	474	245	631	285	3681	455	0.757
300x200	6.0	45.20	57.6	7370	3962	11.3	8.29	491	396	588	446	8115	651	0.979
	6.3	47.10	60.0	7624	4104	11.3	8.27	508	410	610	463	8524	680	0.973
	8.0	59.10	75.2	9389	5042	11.2	8.19	626	504	757	574	10630	838	0.966
	9.0 *	66.50	84.0	10370	5561	11.1	8.14	691	556	840	637	11820	927	0.961
	10.0	72.70	92.6	11310	6058	11.1	8.09	754	606	921	698	12990	1012	0.957
	12.0	84.80	108	12790	6854	10.9	7.96	853	685	1056	801	15240	1167	0.938
	12.5	88.00	112	13180	7060	10.8	7.94	879	706	1091	828	15770	1204	0.936
400x200	6.0 *	54.70	69.6	14790	5092	14.6	8.55	739	509	906	562	12070	877	1.18
	8.0	71.60	91.2	18970	6517	14.4	8.45	949	652	1173	728	15820	1133	1.17
	9.0 *	80.60	102	21020	7204	14.4	8.40	1051	720	1305	809	17620	1255	1.16
	10.0 *	88.40	113	23000	7864	14.3	8.36	1150	786	1434	888	19370	1373	1.16
	12.0 *	104.00	132	26250	8977	14.1	8.24	1312	898	1656	1027	22780	1591	1.14
	12.5	108.00	137	27100	9260	14.1	8.22	1355	926	1714	1062	23590	1644	1.14

* Sizes not included in BS EN 10219 Part 2 (1997)