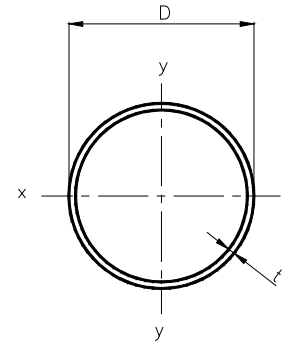


## Circular hollow sections



Dxt	m	A	I <sub>x</sub>	Z <sub>x</sub>	r <sub>x</sub>	J	Z <sub>plx</sub>
mmxmm	kg/m	10 <sup>3</sup> mm <sup>2</sup>	10 <sup>6</sup> mm <sup>4</sup>	10 <sup>3</sup> mm <sup>3</sup>	mm	10 <sup>6</sup> mm <sup>4</sup>	10 <sup>3</sup> mm <sup>3</sup>
32x2.0	1.48	.188	.021	1.33	10.6	.043	1.80
32x2.5	1.82	.232	.025	1.59	10.5	.051	2.18
34x2.0	1.58	.201	.026	1.52	11.3	.052	2.05
34x2.5	1.94	.247	.031	1.82	11.2	.062	2.49
34x3.0	2.29	.292	.035	2.08	11.0	.071	2.89
34x4.0	2.96	.377	.043	2.54	10.7	.087	3.62
38x2.0	1.78	.226	.037	1.93	12.7	.074	2.59
38x2.5	2.19	.279	.044	2.32	12.6	.088	3.16
38x3.0	2.59	.330	.051	2.68	12.4	.102	3.68
38x4.0	3.35	.427	.063	3.29	12.1	.126	4.65
42x2.0	1.97	.251	.050	2.40	14.2	.101	3.20
42x2.5	2.44	.310	.061	2.89	14.0	.122	3.91
42x3.0	2.89	.368	.070	3.35	13.8	.141	4.57
42x4.0	3.75	.478	.087	4.15	13.5	.175	5.80
42x4.5	4.16	.530	.095	4.50	13.4	.190	6.36
48x2.0	2.27	.289	.077	3.19	16.3	.153	4.23
48x2.5	2.81	.357	.093	3.86	16.1	.186	5.18
48x3.0	3.33	.424	.108	4.49	15.9	.216	6.08
48x3.5	3.84	.489	.122	5.08	15.8	.244	6.95
48x4.0	4.34	.553	.135	5.62	15.6	.271	7.77

Dxt	m	A	I <sub>x</sub>	Z <sub>x</sub>	r <sub>x</sub>	J	Z <sub>plx</sub>
mmxmm	kg/m	10 <sup>3</sup> mm <sup>2</sup>	10 <sup>6</sup> mm <sup>4</sup>	10 <sup>3</sup> mm <sup>3</sup>	mm	10 <sup>6</sup> mm <sup>4</sup>	10 <sup>3</sup> mm <sup>3</sup>
51x2.0	2.42	.308	.093	3.63	17.3	.185	4.80
51x2.5	2.99	.381	.112	4.40	17.2	.225	5.89
51x3.0	3.55	.452	.131	5.13	17.0	.262	6.92
51x3.5	4.10	.522	.148	5.81	16.8	.297	7.91
51x4.0	4.64	.591	.164	6.44	16.7	.329	8.86
60x2.0	2.86	.364	.153	5.11	20.5	.307	6.73
60x2.5	3.55	.452	.187	6.23	20.3	.374	8.27
60x3.0	4.22	.537	.219	7.29	20.2	.438	9.76
60x3.5	4.88	.621	.249	8.29	20.0	.498	11.2
60x4.0	5.52	.704	.277	9.24	19.8	.555	12.6
63x2.0	3.01	.383	.178	5.67	21.6	.357	7.44
63x2.5	3.73	.475	.218	6.91	21.4	.436	9.16
63x3.0	4.44	.565	.255	8.10	21.2	.511	10.8
63x3.5	5.14	.654	.291	9.22	21.1	.582	12.4
63x4.0	5.82	.741	.324	10.3	20.9	.649	13.9
63x4.5	6.49	.827	.356	11.3	20.7	.713	15.4
76x2.5	4.53	.577	.390	10.3	26.0	.781	13.5
76x3.0	5.40	.688	.459	12.1	25.8	.919	16.0
76x3.5	6.26	.797	.525	13.8	25.7	1.05	18.4
76x4.0	7.10	.905	.588	15.5	25.5	1.18	20.8
76x5.0	8.75	1.12	.706	18.6	25.2	1.41	25.2

Dxt	m	A	Ix	Zx	rx	J	Zplx
mmxmm	kg/m	10 <sup>3</sup> mm <sup>2</sup>	10 <sup>8</sup> mm <sup>4</sup>	10 <sup>9</sup> mm <sup>3</sup>	mm	10 <sup>6</sup> mm <sup>4</sup>	10 <sup>9</sup> mm <sup>3</sup>
89x3.0	6.36	.811	.750	16.9	30.4	1.50	22.2
89x3.5	7.38	.940	.861	19.3	30.3	1.72	25.6
89x4.0	8.38	1.07	.967	21.7	30.1	1.94	28.9
89x5.0	10.4	1.32	1.17	26.2	29.8	2.34	35.3
102x3.0	7.32	.933	1.14	22.4	35.0	2.29	29.4
102x3.5	8.50	1.08	1.32	25.8	34.8	2.63	34.0
102x4.0	9.67	1.23	1.48	29.0	34.7	2.96	38.4
102x5.0	12.0	1.52	1.80	35.2	34.3	3.60	47.1
102x6.0	14.2	1.81	2.09	41.0	34.0	4.19	55.4
114x3.5	9.54	1.22	1.86	32.6	39.1	3.71	42.8
114x4.0	10.9	1.38	2.09	36.7	38.9	4.19	48.4
114x5.0	13.4	1.71	2.55	44.7	38.6	5.10	59.4
114x6.0	16.0	2.04	2.98	52.2	38.2	5.96	70.1
127x4.0	12.1	1.55	2.93	46.1	43.5	5.85	60.5
127x5.0	15.0	1.92	3.57	56.2	43.2	7.15	74.5
127x6.0	17.9	2.28	4.18	65.9	42.8	8.38	87.9
140x4.0	13.4	1.71	3.95	56.5	48.1	7.91	74.0
140x5.0	16.6	2.12	4.84	69.1	47.8	9.68	91.2
140x6.0	19.8	2.53	5.68	81.2	47.4	11.4	108
152x4.0	14.6	1.86	5.10	67.1	52.3	10.2	87.6
152x5.0	18.1	2.31	6.24	82.2	52.0	12.5	108
152x6.0	21.6	2.75	7.35	96.6	51.7	14.7	128
165x4.0	15.9	2.02	6.56	79.5	56.9	13.1	104
165x5.0	19.7	2.51	8.05	97.6	56.6	16.1	128
165x6.0	23.5	3.00	9.48	115	56.3	19.0	152
177x3.0	12.9	1.64	6.21	70.1	61.5	12.4	90.8
177x4.0	17.1	2.17	8.14	91.9	61.2	16.3	120
177x4.5	19.1	2.44	9.08	103	61.0	18.2	134

Dxt	m	A	Ix	Zx	rx	J	Zplx
mmxmm	kg/m	10 <sup>3</sup> mm <sup>2</sup>	10 <sup>8</sup> mm <sup>4</sup>	10 <sup>9</sup> mm <sup>3</sup>	mm	10 <sup>6</sup> mm <sup>4</sup>	10 <sup>9</sup> mm <sup>3</sup>
194x3.5	16.4	2.09	9.51	98.0	67.4	19.0	127
194x4.5	21.0	2.68	12.0	124	67.0	24.1	162
194x6.0	27.8	3.54	15.7	162	66.5	31.4	212
194x8.0	36.7	4.67	20.3	209	65.8	40.5	277
194x9.5	43.2	5.51	23.5	242	65.3	47.0	324
219x3.5	18.6	2.37	13.8	126	76.2	27.5	163
219x4.5	23.8	3.03	17.4	159	75.9	34.9	207
219x6.0	31.5	4.01	22.8	208	75.3	45.6	272
219x8.0	41.6	5.30	29.6	270	74.7	59.1	356
219x10.0	51.5	6.57	35.9	328	74.0	71.9	437
273x4.5	29.8	3.80	34.2	251	94.9	68.4	324
273x6.0	39.5	5.03	44.9	329	94.4	89.8	428
273x8.0	52.3	6.66	58.5	429	93.7	117	562
273x10.0	64.9	8.26	71.5	524	93.1	143	692
324x4.5	35.5	4.52	57.6	356	113	115	459
324x6.0	47.1	5.99	75.8	468	112	152	607
324x8.0	62.3	7.94	99.2	612	112	198	799
324x10.0	77.4	9.86	122	751	111	243	986
356x6.0	51.8	6.60	101	568	124	202	735
356x8.0	68.7	8.75	132	744	123	265	969
356x10.0	85.3	10.9	163	915	122	326	1200
406x6.0	59.2	7.54	151	743	141	302	960
406x8.0	78.5	10.0	198	976	141	396	1270
457x6.0	66.7	8.50	216	946	159	432	1220
457x8.0	88.6	11.3	284	1240	159	569	1610