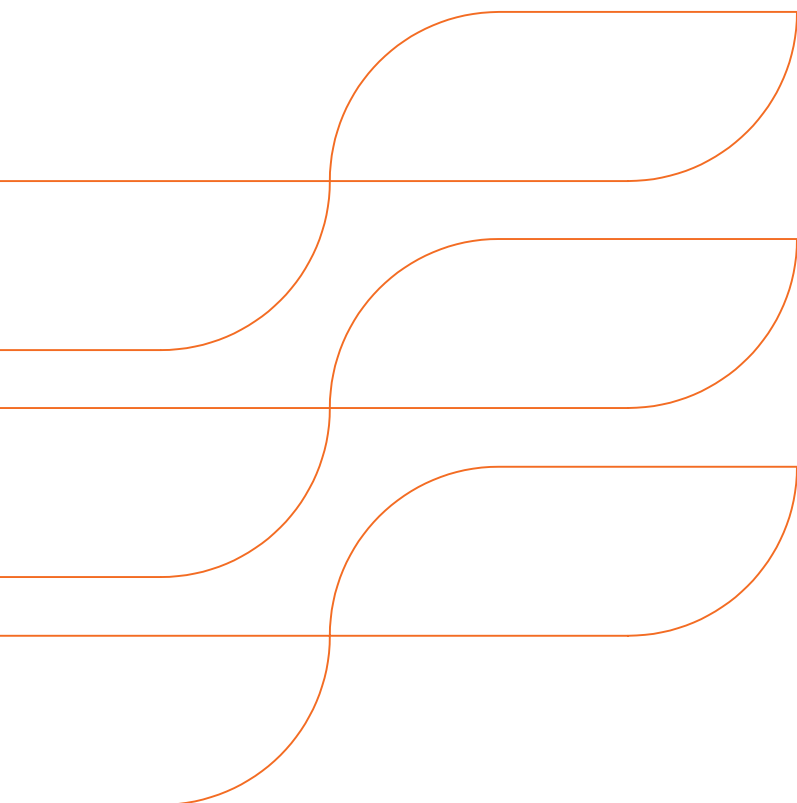
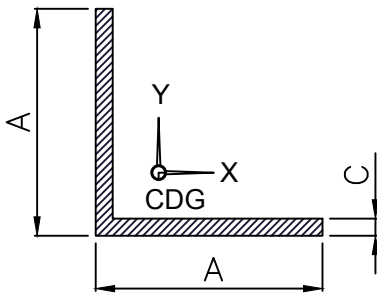


# STANDARD Profiles

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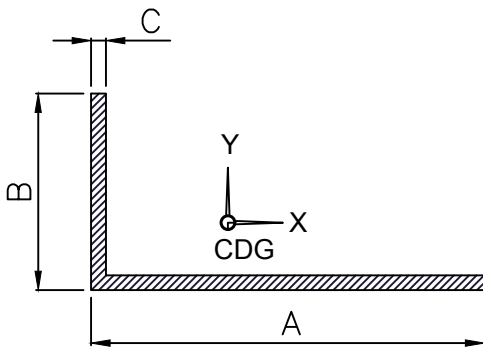
A = Width  
C = Thickness

ANGLES EQUAL SIDES					
Dimension (mm) A x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
15 x 1.4	1618	0,113	62	0,08	0,08
19 x 1.5	14068	0,154	77	0,19	0,19
20 x 1.4	1544	0,146	80	0,21	0,21
20 x 1.5	1820	0,157	79	0,22	0,22
20 x 2	21186	0,205	79	0,28	0,28
25 x 1.5	1513	0,197	99	0,44	0,44
25 x 2	1655	0,267	102	0,57	0,57
30 x 1.5	1533	0,237	119	0,77	0,77
30 x 2	21187	0,313	119	1,01	1,01
30 x 4	14055	0,610	121	1,85	1,85
40 x 1.6	1564	0,338	156	1,98	1,98
40 x 2	1687	0,421	159	2,47	2,47
40 x 2.5	1743	0,529	161	3,02	3,02
40 x 3	2617	0,621	158	3,55	3,55
40 x 4	1738	0,829	161	4,60	4,60
50 x 1.5	1736	0,405	202	3,72	3,72
50 x 3	1647	0,794	202	7,14	7,14
50 x 5	1771	1,283	199	11,25	11,25
60 x 2.3	1674	0,729	242	9,75	9,75
60 x 4	1853	1,253	240	16,30	16,30
60 x 5	1690	1,552	239	19,89	19,89
60 x 6	(*1) 1609	1,852	237	23,19	23,19
80 x 8	1841	3,284	319	73,68	73,68
100 x 10	(*2) 16537	5,119	395	178,93	178,93
170 x 10	16653	8,910	679	938,07	938,07

(\*1) inner vertex radius 4 mm.

(\*2) inner vertex radius 2.5 mm and outer vertex radius 3 mm.





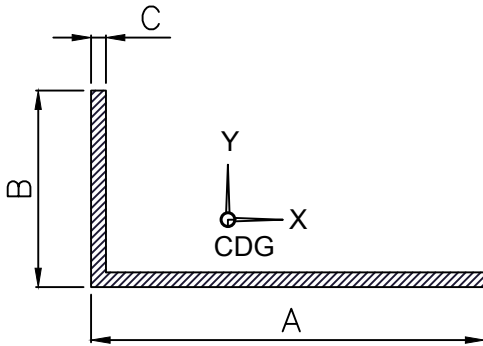
A = Width  
B = High  
C = Thickness

ANGLES UNEQUAL SIDES					
Dimention (mm) A x B x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
25 x 15 x 1.5	1522	0,162	81	0,10	0,37
30 x 15 x 1.5	1673	0,181	92	0,11	0,61
30 x 15 x 2	1821	0,232	90	0,14	0,80
34 x 10 x 1.5	1598	0,170	87	0,03	0,76
40 x 10 x 2	1872	0,259	100	0,44	1,54
40 x 20 x 1.5	1534	0,237	119	0,26	1,47
40 x 20 x 4	(*1) 1782	0,599	117	0,59	3,53
45 x 30 x 1.5	1865	0,297	149	0,87	2,36
50 x 12 x 2	16710	0,324	124	0,08	3,04
50 x 13 x 2	1686	0,329	125	0,10	3,11
50 x 30 x 1.6	1532	0,339	159	0,94	3,32
50 x 30 x 2	1825	0,422	159	1,17	4,13
50 x 30 x 5	1787	1,013	159	2,57	9,43
60 x 30 x 3	1607	0,713	182	1,75	9,92
60 x 40 x 1.5	1791	0,400	200	2,12	5,70
60 x 40 x 3	1828	0,786	199	4,01	10,96
65 x 37.5 x 3	1641	0,805	204	3,40	13,30
70 x 15 x 1.5	1623	0,343	172	0,13	6,25
75 x 50 x 8	1752	2,535	252	18,71	52,46
80 x 20 x 1.5	1616	0,405	201	0,30	9,82
80 x 40 x 1.6	1792	0,513	240	2,41	13,19
80 x 40 x 2.5	(*2) 12170	0,805	241	3,65	20,33
80 x 40 x 3	1829	0,948	239	4,30	24,01
80 x 50 x 4	1793	1,361	259	10,57	33,92
82 x 14 x 2	12685	0,513	193	0,13	12,49
85 x 60 x 6	1786	2,252	289	25,83	61,67
100 x 20 x 5	1706	1,561	243	0,90	56,39
100 x 40 x 3	1830	1,110	279	4,51	44,00
100 x 50 x 4	1640	1,577	300	11,16	62,33
100 x 50 x 5	16542	1,955	298	13,53	76,47
100 x 50 x 6	13252	2,338	301	15,82	90,32
110 x 50 x 3	16081	1,279	322	8,77	61,46

(\*1) outer vertex of radius 2 mm

(\*2) inner vertex of radius 3 mm

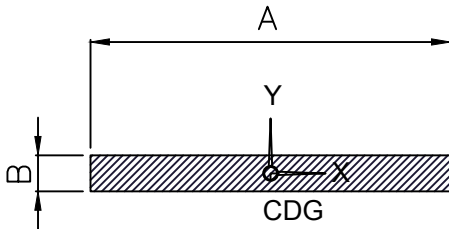




A = Width  
B = High  
C = Thickness

ANGLES UNEQUAL SIDES					
Dimension (mm) A x B x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				I <sub>x</sub> (cm <sup>4</sup> )	I <sub>y</sub> (cm <sup>4</sup> )
120 x 40 x 3	1831	1,272	319	4,67	72,15
120 x 50 x 3	1805	1,353	339	8,93	77,79
120 x 70 x 8	16656	3,931	379	56,43	217,93
130 x 60 x 6.5	12549	3,227	382	30,77	212,96
140 x 40 x 3	1832	1,434	359	4,79	109,68
150 x 100 x 10	(*1) 16538	6,467	496	201,47	555,10
160 x 40 x 3	1833	1,596	399	4,89	157,79
160 x 40 x 5	16572	2,633	399	76,38	256,71
180 x 30 x 4	16657	2,225	419	2,72	264,58
192 x 60 x 5	1817	3,335	504	26,36	481,76
200 x 100 x 10	(*1) 16539	7,817	596	216,39	1223,05





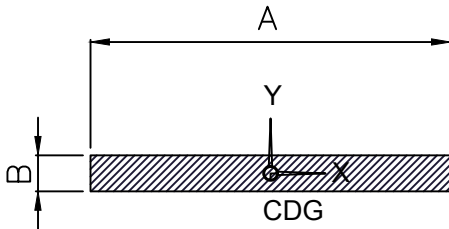
A = Width  
B = High

PLATES					
Dimension (mm) A x B	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
11 x 4	1797	0,119	30	0,006	0,04
12 x 3	1587	0,095	28	0,003	0,04
16 x 16	1619	0,691	62	0,54	0,54
20 x 3	1660	0,170	48	0,01	0,19
20 x 4	1535	0,216	47	0,01	0,26
20 x 10	(*1) 1775	0,535	58	0,16	0,65
20 x 15	1541	0,810	70	0,56	0,99
20 x 20	1624	1,080	80	1,33	1,33
25 x 2	1591	0,135	53	0,002	0,26
25 x 4	1538	0,270	57	0,01	0,51
25 x 8	1729	0,545	67	0,11	1,03
25 x 25	1517	1,688	99	3,24	3,24
26 x 10	16066	0,710	74	0,22	1,46
30 x 5	1570	0,402	68	0,03	1,11
30 x 6	1583	0,483	70	0,05	1,33
30 x 8	1577	0,645	74	0,12	1,78
40 x 3	16341	0,324	86	0,008	1,59
40 x 4	1536	0,432	87	0,02	2,10
40 x 6	1519	0,648	91	0,07	3,17
40 x 8	1520	0,864	95	0,17	4,23
40 x 10	1600	1,085	100	0,33	5,30
45 x 25	1527	3,038	139	5,85	18,94
45 x 28	1528	3,402	145	8,22	21,22
50 x 6	(*1) 1770	0,813	112	0,09	6,13
50 x 10	1748	1,358	122	0,42	10,40
50 x 15	1518	2,025	129	1,40	15,57
50 x 25	(*2) 1679	3,353	148	6,37	25,42
60 x 3	1545	0,486	125	0,01	5,32
60 x 5	1683	0,810	129	0,06	8,99
60 x 8	1654	1,301	137	0,25	14,32
64 x 3	1871	0,518	133	0,143	6,54

(\*1) 1.5 mm radius.

(\*2) 5 mm radius on one side





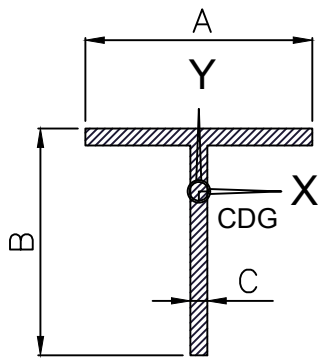
A = Width  
B = High

PLATES					
Dimension (mm) A x B	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
70 x 4	1646	0,764	150	0,04	11,40
70 x 5	1730	0,950	151	0,07	14,18
70 x 8	(*1) 1776	1,507	154	0,29	22,63
70 x 70	1608	13,230	280	200,08	200,08
80 x 6	(*1) 1777	1,291	170	0,14	25,29
80 x 8	1579	1,725	174	0,34	34,00
80 x 10	1543	2,160	179	0,66	42,53
80 x 12	1842	2,592	184	1,15	51,18
80 x 14	1572	3,021	186	1,82	59,59
100 x 7	1537	1,890	213	0,28	58,12
100 x 8	(*1) 1778	2,155	214	0,42	66,19
115 x 10	1800	3,105	250	0,95	126,66
120 x 6	(*1) 1694	1,944	252	0,21	85,71
126 x 15	(*1) 1779	5,098	280	3,53	249,29
140 x 8	(*1) 1780	3,019	294	0,59	181,99
150 x 10	(*2) 16540	4,042	317	1,24	279,34
150 x 30	1557	12,150	358	33,73	843,27
180 x 20	1649	9,717	398	971,31	11,99
200 x 6	(*1) 1781	3,235	410	0,36	398,08
200 x 20	1823	10,800	440	13,33	1333,11
250 x 6	1879	4,050	511	0,44	780,91
300 x 10	(*2) 1750	8,092	617	2,49	2242,32

(\*1) 1.5 mm radius.

(\*2) 2 mm radius.





A = Width
B = High
C = Thickness

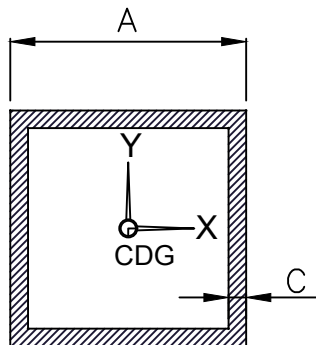
T - PROFILES						
Dimension (mm) A x B x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia		
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )	
20 x 20 x 1	(*1) 1635	0,105	79	0,15	0,07	
25.4 x 25.4 x 1	1621	0,135	102	0,32	0,13	
100 x 50 x 2	13843	0,807	303	5,90	16,67	
120 x 50 x 1.9	(*2) 1721	0,834	386	5,71	26,08	

(\*1) offset pin

(\*2) one side serrated







A = Width  
C = Thickness

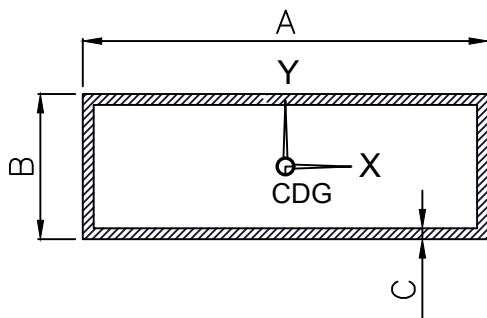
SQUARE TUBES					
Dimension (mm) A x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				I <sub>x</sub> (cm <sup>4</sup> )	I <sub>y</sub> (cm <sup>4</sup> )
14 x 1	(*1) 1556	0,140	103	0,14	0,14
16 x 1.4	1546	0,221	116	0,29	0,29
17 x 1.2	(*1) 1555	0,205	126	0,30	0,30
20 x 1.3	1500	0,267	151	0,56	0,56
20 x 1.5	1672	0,300	147	0,63	0,63
20 x 2.6	1630	0,486	137	0,93	0,93
25 x 1.4	1501	0,362	190	1,22	1,22
25 x 2	(*2) 12317	0,497	184	1,58	1,58
30 x 1.4	1503	0,438	230	2,17	2,17
30 x 1.5	1834	0,462	227	2,30	2,30
30 x 2	1682	0,613	226	2,94	2,94
30 x 3	1713	0,880	218	3,98	3,98
35 x 1.5	1502	0,548	269	3,74	3,74
40 x 1.5	1504	0,629	309	5,68	5,68
40 x 2	1794	0,820	304	7,33	7,33
40 x 3	1602	1,199	296	10,16	10,16
45 x 1.5	1746	0,713	350	8,23	8,23
50 x 1.5	1530	0,786	387	11,37	11,37
50 x 2	(*2) 14544	1,037	383	14,57	14,57
50 x 3	1604	1,520	374	20,80	20,80
50 x 4	(*3) 1728	1,973	365	25,69	25,69
60 x 1.6	1505	1,009	466	21,19	21,19
60 x 3	1685	1,855	459	37,13	37,13
60 x 4	1855	2,419	448	47,06	47,06
60 x 8	1873	4,490	414	76,68	76,68
70 x 1.7	1582	1,253	545	36,03	36,03
70 x 3	1762	2,176	537	60,17	60,17
80 x 1.8	1550	1,520	625	57,28	57,28
90 x 1.8	1629	1,712	704	82,36	82,36
100 x 1.8	1584	1,906	783	113,51	113,51
100 x 4	1878	4,147	766	236,33	236,33
100 x 8	15467	7,954	737	418,22	418,22

(\*1) 1.5 mm radius.

(\*2) 2 mm radius.

(\*3) 3 mm radius.





A = Width  
B = High  
C = Thickness

### RECTANGULAR TUBES

Dimension (mm) A x B x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				I <sub>x</sub> (cm <sup>4</sup> )	I <sub>y</sub> (cm <sup>4</sup> )
20 x 10 x 1.3	1523	0,192	109	0,11	0,33
30 x 15 x 1.3	1506	0,298	169	0,40	1,20
30 x 15 x 2	21731	0,443	163	0,55	1,76
30 x 15 x 2.5	1631	0,537	158	0,63	2,10
30 x 20 x 2	1681	0,505	186	1,11	2,15
35 x 20 x 1.5	1737	0,429	210	1,02	2,50
40 x 15 x 1.3	1656	0,370	210	0,53	2,59
40 x 20 x 1.5	1507	0,462	227	1,14	3,46
40 x 20 x 2.5	1877	0,743	219	1,68	5,29
40 x 20 x 3	1601	0,872	214	1,89	6,05
40 x 20 x 4	(*1) 16636	1,115	206	2,17	7,26
40 x 25 x 1.6	1851	0,535	247	2,03	4,27
40 x 25 x 3	(*2) 1741	0,942	234	3,16	6,82
40 x 25 x 4	1784	1,237	230	3,89	8,68
40 x 30 x 3	1595	1,034	254	5,06	8,10
50 x 20 x 1.45	1551	0,526	269	1,36	5,90
50 x 20 x 3	1747	1,045	258	2,33	10,88
50 x 25 x 1.9	1802	0,732	285	2,84	8,61
50 x 32 x 3	(*4) 1580	1,469	300	8,25	16,24
50 x 40 x 1.5	1590	0,702	346	6,80	9,60
55 x 15 x 1.4	1571	0,505	267	0,75	6,27
60 x 20 x 1.45	1562	0,605	307	1,61	9,40
60 x 20 x 2	1769	0,826	305	2,08	12,51
60 x 40 x 1.5	1509	0,786	387	8,00	14,82
60 x 40 x 3	1603	1,520	374	14,28	27,31
70 x 20 x 1.6	1552	0,750	348	2,02	15,33
70 x 40 x 1.5	1573	0,864	426	9,02	21,50
70 x 60 x 10	(*3) 1663	5,870	424	96,42	125,92
80 x 15 x 1.5	1783	0,746	368	1,14	18,33
80 x 20 x 2	1597	1,042	385	2,73	26,67
80 x 30 x 1.3	16408	0,756	430	4,73	22,11
80 x 35 x 2	1680	1,207	446	9,71	35,89

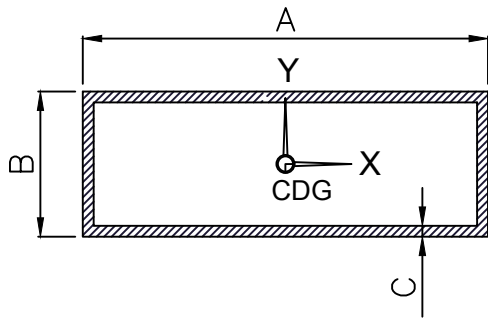
(\*1) 2 mm radius

(\*2) 3 mm radius

(\*3) 7 mm outer radius

(\*4) one side with a thickness of 5 mm.



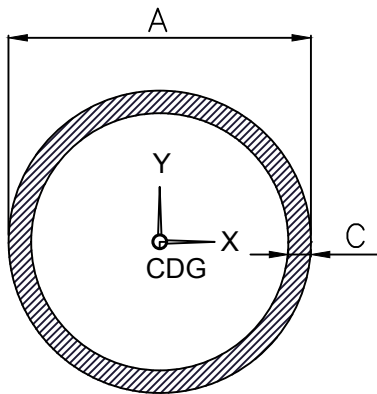


A = Width  
 B = High  
 C = Thickness

RECTANGULAR TUBES						
Dimension (mm) A x B x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia		
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )	
80 x 40 x 1.6	1510	1,015	468	10,13	29,77	
80 x 40 x 3	1658	1,852	457	18,39	55,71	
80 x 40 x 4	1692	2,425	449	22,97	71,00	
80 x 50 x 3	1662	2,014	497	30,75	64,61	
80 x 60 x 4	(*1) 1639	2,838	526	59,00	93,06	
100 x 20 x 1.8	14542	1,137	466	3,11	44,04	
100 x 36 x 1.8	(*1) 1751	1,277	525	11,35	56,52	
100 x 40 x 1.8	1511	1,326	545	14,56	61,38	
100 x 45 x 1.8	1542	1,374	565	18,90	65,72	
100 x 50 x 2	1644	1,582	585	26,24	77,30	
100 x 50 x 3	1844	2,333	576	37,43	112,09	
120 x 40 x 1.8	1563	1,517	623	17,20	97,38	
120 x 40 x 3	1866	2,495	615	26,65	156,20	
120 x 60 x 3	1657	2,827	698	60,39	197,22	
120 x 60 x 4	1665	3,720	687	84,69	254,91	
120 x 60 x 5	1822	4,590	680	101,39	309,33	
120 x 80 x 6	1708	6,097	753	228,87	437,85	
140 x 40 x 3	1798	2,819	695	30,74	232,51	
140 x 40 x 4	1667	3,712	686	38,59	300,95	
150 x 50 x 2.5	1766	2,638	781	46,09	262,54	
160 x 80 x 8	1739	9,685	898	368,06	1138,00	
190 x 70 x 2	20863	2,765	1024	97,43	461,71	
200 x 100 x 3	1643	4,768	1177	323,67	946,39	
220 x 120 x 3	1666	5,411	1335	525,63	1336,72	
240 x 100 x 4	1843	7,171	1328	494,48	1946,19	
240 x 100 x 5	1869	8,910	1320	602,74	2394,74	

(\*1) 3 mm radius

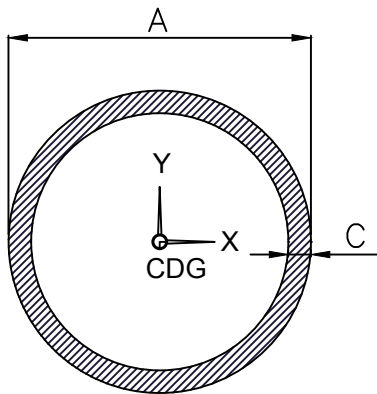




A = Diameter  
C = Thickness

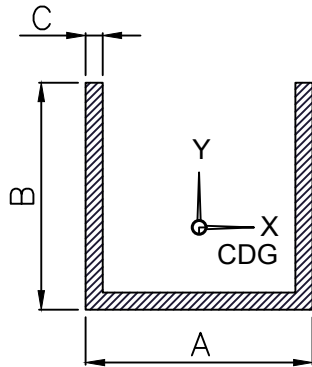
ROUND TUBES					
Dimension (mm) A x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
10 x 1.2	14844	0,097	58	0,03	0,03
12 x 1.5	1764	0,140	69	0,07	0,07
13 x 1.25	1568	0,124	74	0,08	0,08
16 x 1.3	12460	0,170	95	0,16	0,16
16 x 1.5	12111	0,192	94	0,18	0,18
18 x 1.5	1569	0,211	104	0,27	0,27
20 x 1.3	12112	0,213	120	0,33	0,33
20 x 1.4	1512	0,221	117	0,36	0,36
20 x 2	13915	0,313	116	0,46	0,46
22 x 1.5	1606	0,262	129	0,51	0,51
25 x 1.5	1547	0,300	148	0,77	0,77
25 x 2	1553	0,392	145	0,96	0,96
25.6 x 4.55	13750	0,821	136	1,74	1,74
28.7 x 1.3	1651	0,311	175	1,05	1,05
30 x 1.4	1548	0,340	180	1,29	1,29
30 x 2	1615	0,481	178	1,73	1,73
30 x 4	1711	0,888	166	2,83	2,83
30 x 5.2	1756	1,102	159	3,25	3,25
32 x 1.5	1559	0,388	192	1,68	1,68
33 x 3	1567	0,764	188	3,21	3,21
35 x 1.5	1560	0,427	210	2,22	2,22
35 x 4	1742	1,058	197	4,76	4,76
38 x 1.5	16635	0,464	230	2,83	2,87
40 x 1.5	1531	0,489	242	3,37	3,37
40 x 3	1581	0,942	234	6,01	6,01
40 x 4	16547	1,223	227	7,42	7,42
42 x 4	1876	1,291	239	8,71	8,71
45 x 2	1659	0,737	273	6,25	6,25
50 x 1.95	1585	0,794	302	8,51	8,51
50 x 2	13914	0,824	305	8,70	8,70
50 x 3	1767	1,204	298	12,28	12,28
50 x 4	1714	1,561	289	15,40	15,40





A = Diameter  
C = Thickness

ROUND TUBES					
Dimension (mm) A x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
55 x 6	1874	2,495	308	28,13	28,13
60 x 1.5	1549	0,745	368	11,80	11,80
60 x 2	1684	0,983	364	15,34	15,34
60 x 2.5	1753	1,228	364	18,70	18,70
60 x 5	1838	2,333	346	32,93	32,93
60 x 6	1693	2,754	342	37,56	37,56
70 x 3	1709	1,712	424	35,50	35,50
70 x 6	1875	3,256	402	62,30	62,30
75 x 1.3	1759	0,813	463	20,41	20,41
76 x 4	1845	2,444	453	58,81	58,81
80 x 1.8	1628	1,202	493	33,82	33,82
80 x 3	21699	1,960	484	53,86	53,86
80 x 4	1732	2,587	481	69,14	69,14
90 x 3	1710	2,222	550	77,67	77,67
90 x 4	1846	2,919	541	100,1	100,1
100 x 3	1868	2,468	609	107,62	107,62
100 x 5	1773	4,031	597	154,26	154,26
116 x 2	12991	1,941	719	116,39	116,39
125 x 2	14460	2,095	776	146,19	146,19
130 x 2	12992	2,179	807	164,75	164,75



<p>A = Width B = High C = Thickness</p>
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U - PROFILES					
Dimension (mm) A x B x C	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
10 x 10 x 1	17096	0,075	58	0,02	0,04
13.5 x 12.5 x 1.2	21201	0,119	74	0,06	0,12
14 x 16 x 2	1698	0,227	87	0,21	0,25
15 x 5 x 2	14329	0,119	47	0,006	0,10
15 x 15 x 2	(*1) 1578	0,216	84	0,18	0,27
20 x 12.9 x 1.4	1642	0,170	90	0,09	0,36
20 x 20 x 1.4	1526	0,219	117	0,32	0,54
20 x 20 x 2	1632	0,300	114	0,45	0,71
23 x 23 x 2	15794	0,359	135	0,70	1,13
30 x 15 x 1.45	1574	0,221	115	0,17	1,11
30 x 15 x 2	14326	0,308	117	0,22	1,46
30 x 30 x 2	16003	0,469	176	1,59	2,63
35 x 35 x 1.4	13122	0,391	209	1,85	3,14
55 x 15 x 1.3	16463	0,292	167	0,18	4,36
55 x 55 x 5	1788	2,093	319	23,86	38,26
60 x 30 x 4	13633	1,218	234	3,71	23,53
70 x 8 x 1.5	12039	0,343	170	0,03	6,46
80 x 30 x 1.3	16409	0,484	277	1,48	17,08
80 x 32 x 3	(*2) 18107	1,124	279	3,81	38,78
83 x 88 x 6	(*7) 1726	4,390	503	127,47	180,66
120 x 79 x 8	(*3) 1768	6,193	531	133,89	487,04
160 x 60 x 10	4168	7,028	542	77,53	904,60
160 x 90 x 10	(*4) 4019	8,761	652	249,30	1261,60
200 x 80 x 6	1727	5,643	707	122,22	1234,93
200 x 80 x 10	(*5) 12983	9,180	696	189,38	1927,90
220 x 60 x 7	(*6) 1765	5,081	666	60,30	1326,98

(\*1) outer vertex of 1.2 x 45°.

(\*2) inner vertex of radius 2 mm.

(\*3) outer vertex of radius 5 mm and base thickness 10 mm.

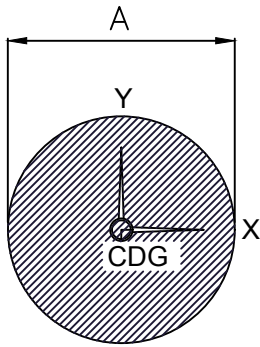
(\*4) inner vertex of radius 10 mm.

(\*5) inner and outer vertex of radius 2 mm.

(\*6) inner vertex of radius 5 mm and thickness at base 5 mm.

(\*7) thickness at the base at 8 mm.





A = Diameter

RODS					
Dimension (mm) A	Reference	Weight (kg/m )	Perimeter (mm )	Moments of inertia	
				Ix (cm <sup>4</sup> )	Iy (cm <sup>4</sup> )
8	1565	0,135	25	0,02	0,02
9.9	1688	0,208	31	0,04	0,04
12	1539	0,305	38	0,10	0,10
14	1671	0,424	47	0,18	0,18
16	1540	0,543	50	0,32	0,32
19	12871	0,775	63	0,64	0,64
35	1521	2,598	110	7,37	7,37
40	1847	3,394	126	12,5	12,5
42	1848	3,742	132	15,2	15,2
45	1849	4,296	142	20,1	20,1
48	1850	4,887	151	26,05	26,05
50	1712	5,308	160	30,68	30,68



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