



PARKER STEEL COMPANY

METRIC SIZE METALS ONLY

www.MetricMetal.com

**The Largest Stock
of Metric Size Metals
In America**



2012 Metric Metals Reference Guide



ISO 9001:2008 Certified



PARKER STEEL COMPANY
METRIC SIZE METALS ONLY

METRIC



Our highly trained sales staff is waiting for your calls.

With more than 5,000 line items, Parker Steel Company is by far the largest distributor of metric size metals in America. Parker Steel exclusively stocks metric size metals and takes pride in the service and selection we have built since the firm was founded in 1955.

When selecting from our large inventory, you can purchase as little as a single piece or a three ton bundle, and all stock is available for immediate shipping. Our products are perfect for the customer who requires pre-sized metric stock in order to eliminate further machining.

Metric Service

At Parker Steel, our service is top of the line. 96% of our orders ship the same day and arranging drop shipments is not a problem. We can even customize and cut the length of your order to meet your needs.

Should we not have a particular size or grade of metal you are looking for, please contact us and we will make every effort to find it for you immediately. Remember, we have a massive inventory of metric-sized metals and we are always expanding our stock.



Parker Steel Company

Distribution Centers in Toledo, OH & Fresno, CA
Main Office: 4239 Monroe St., Toledo, Ohio 43606-0883 U.S.A.
www.MetricMetal.com
En Español: www.MetalMetrico.com

ISO 9001:2008 Certified

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Mission Statement and Copyright

OUR MISSION

The mission of Parker Steel is to provide first class service and products, by having dedicated and well-trained people who are committed to making our customers' experience with Parker Steel extremely positive. We will also ensure that we have the most extensive and diverse inventory of metric size metals in America. Through commitment to Continual Improvement and our Quality Management System, our people will ensure that the quality of our products and services always meet or exceed our customers' expectations. We will always conduct our business with integrity and respect for our people, customers, suppliers and the community.

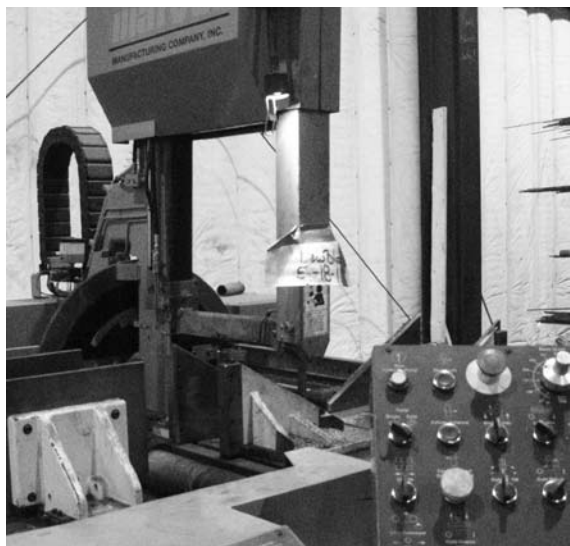
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Should you find any errors in this book, please call us so we may correct future editions.

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Production saw cuts now available.



Pre-made boxes available at your request.

Introduction

Dear Customer:

Thank you for your business.

Please examine this new "Metric Metals Reference Guide 2012." In it you will find most of the metric size metals stocked in our warehouses. Parker Steel is continually adding new items such as Titanium and Nickel alloys to our inventory.

Parker Steel has the largest stock of metric size metals in North America.

Please call if you don't see what you want. Call toll free 1-800-333-4140. To make is easy for you, all calls go directly to the sales room and our hours are from 7:30 a.m. EST to 7:30 p.m. EST weekdays.

California now has our new West Coast branch in Fresno. For our customers in that state, we can usually offer next day delivery at no extra cost.

As part of our efforts to continually improve our service to you we are now CTPAT certified, have achieved ISO 9001:2008 Registration and been approved as a nuclear supplier by several firms.

We want you to always expect the best from us. On request, we will promptly provide you with certifications or test reports.

Parker Steel ships 96% of our orders on the same day that they are placed

Thank you again for your business and I invite you to call us at the number below.

Yours truly,

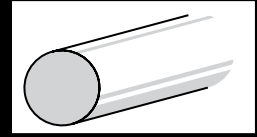


Paul Goldner, CEO



We will search the world for your inquiry.

Metric Cold Finished Rounds/Shafting



CARBON STEEL

1018,1018 TG&P, 1045 TG&P, 1045 IH, 1060 IH, 1117, 1141, 1144 SP, 1144 SR, TG&P, 12L14, 12L14 TG&P, 1215, ISO h6 – h11, ASTM A108, ASTM A29, ASTM A311 Class B, BS 970, DIN 175, DIN 671, EN 10278

ALLOY STEEL

8620 TG&P, 4140 Q&T/H.T., TG&P, 4140 Annealed, 41L40, 4340 H.T., TG&P, E52100, ASTM A193-B7, A29, A295

TOOL STEEL

0-1, A-2

COPPER

Cu-ETP, CW004A, Cu-EPT1, E-58, C110, ASTM B124, DIN EN 13601 (Multiply weights below by 1.1440)

BRASS

CW614N, CuZn39Pb3, EN 12164, CDA 385 (Multiply weights below by 1.084)

ALUMINUM

6060 T6, 6082 (Extruded), 2007 (Drawn), EN 579-3, EN 755-3 (Mult. wgts. Below by .3462)

STAINLESS STEEL

303, 304, 304L, 316L, 416, 430, 440C, 17-4PH and TG&P, Nickel Alloys ASTM A-276, A-582, A-564 (Multiply wgts. below by 1.0100)

TITANIUM

Grade 2, Grade 5 (6Al4V), Grade 7, ASTM B348 (Multiply wgts. below by .5750)

NICKEL ALLOYS

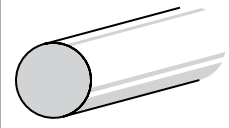
Hastelloy C276, ASTM B574, Inconel 600, 601, 625, ASTM B166, B446, Incoloy 825, ASTM B425, Monel 400, ASTM B164, Nickel 200/201, ASTM B160 (Weight per foot for Nickel Alloys see page 59)

SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR
1	0.0394	0.004	0.05	13	0.5118	0.700	8.40	35	1.3780	5.072	60.86
1.5	0.0591	0.009	0.11	14	0.5512	0.811	9.73	36	1.4173	5.365	64.38
2	0.0787	0.017	0.20	15	0.5906	0.932	11.18	37	1.4567	5.668	68.02
2.5	0.0984	0.026	0.31	16	0.6299	1.060	12.72	38	1.4961	5.978	71.74
3	0.1181	0.037	0.44	17	0.6693	1.196	14.35	39	1.5354	6.297	75.56
3.5	0.1378	0.051	0.61	18	0.7087	1.341	16.09	40	1.5748	6.624	79.49
4	0.1575	0.066	0.79	19	0.7480	1.495	17.93	41	1.6142	6.959	83.51
4.5	0.1772	0.084	1.01	20	0.7874	1.656	19.87	42	1.6535	7.303	87.64
5	0.1969	0.104	1.25	21	0.8268	1.826	21.91	43	1.6929	7.655	91.86
5.5	0.2165	0.125	1.50	22	0.8661	2.004	24.05	44	1.7323	8.015	96.18
6	0.2362	0.149	1.79	23	0.9055	2.190	26.28	45	1.7717	8.384	100.61
6.5	0.2559	0.175	2.10	24	0.9449	2.385	28.62	46	1.8110	8.760	105.12
7	0.2756	0.203	2.44	25	0.9843	2.588	31.05	47	1.8504	9.145	109.74
7.5	0.2953	0.233	2.79	26	1.0236	2.799	33.58	48	1.8898	9.539	114.47
8	0.3150	0.265	3.18	27	1.0630	3.018	36.22	49	1.9291	9.940	119.28
8.5	0.3346	0.299	3.59	28	1.1024	3.246	38.95	50	1.9685	10.350	124.20
9	0.3543	0.335	4.02	29	1.1417	3.482	41.78	51	2.0079	10.768	129.22
9.5	0.3740	0.373	4.48	30	1.1811	3.726	44.71	52	2.0472	11.195	134.34
10	0.3937	0.414	4.97	31	1.2205	3.979	47.75	53	2.0866	11.629	139.55
11	0.4331	0.501	6.01	32	1.2598	4.239	50.87	54	2.1260	12.072	144.86
12	0.4724	0.596	7.15	33	1.2992	4.508	54.10	55	2.1654	12.524	150.29
12.5	0.4921	0.647	7.76	34	1.3386	4.786	57.43	56	2.2047	12.983	155.80

- continued on next page -

SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR
58	2.2835	13.927	167.12	100	3.9370	41.400	496.80	160	6.2992	105.984	1271.81
60	2.3622	14.904	178.85	105	4.1339	45.644	547.73	165	6.4961	112.712	1352.54
62	2.4409	15.914	190.97	110	4.3307	50.094	601.13	170	6.6929	119.646	1435.75
63	2.4803	16.432	197.18	115	4.5276	54.752	657.02	175	6.8898	126.788	1521.46
64	2.5197	16.957	203.49	120	4.7244	59.616	715.39	180	7.0866	134.136	1609.63
65	2.5591	17.492	209.90	125	4.9213	64.688	776.26	185	7.2835	141.692	1700.30
70	2.7559	20.286	243.43	130	5.1181	69.966	839.59	190	7.4803	149.454	1793.45
75	2.9528	23.288	279.46	135	5.3150	75.452	905.42	195	7.6772	157.424	1889.09
80	3.1496	26.496	317.95	140	5.5118	81.144	973.73	200	7.8740	165.600	1987.20
85	3.3465	29.912	358.94	145	5.7087	87.044	1044.53	220	8.6614	200.303	2403.64
90	3.5433	33.534	402.41	150	5.9055	93.150	1117.80	250	9.8425	258.750	3105.00
95	3.7402	37.364	448.37	155	6.1024	99.464	1193.57				

Metric Hard Chrome Plated Shafting



CARBON STEEL (Please see page 59 for Induction Hardened Shafting specifications and page 60 for Hard Chrome Plated Shafting Specifications.)

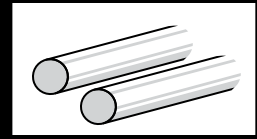
1045/1050 C.P., 1045/1050 IHCP, 1050/1060 IHCP, ASTM A-108, A-311, UNI C45/C50, EN 10278

ALLOY STEEL 4140 H.T., SR., Q.T., 42CrMo4, A-193 B7, ASTM A-29 (106,000 min. yield)

STAINLESS STEEL 303, ASTM A582, 304, A276, 17-4PH, A-564

SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 20 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 20 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 20 FT. BAR
6	0.2362	0.149	2.98	36	1.4173	5.365	107.30	105	4.1339	45.644	912.88
8	0.3150	0.265	5.30	38	1.4961	5.978	119.56	110	4.3307	50.094	1001.88
10	0.3937	0.414	8.28	40	1.5748	6.624	132.48	115	4.5276	54.752	1095.04
12	0.4724	0.596	11.92	45	1.7717	8.384	167.68	120	4.7244	59.616	1192.32
14	0.5512	0.811	16.22	50	1.9685	10.350	207.00	125	4.9213	64.688	1293.76
15	0.5906	0.932	18.64	55	2.1654	12.524	250.48	130	5.1181	69.966	1399.32
16	0.6299	1.060	21.20	56	2.2047	12.983	259.66	140	5.5118	81.144	1622.88
17	0.6693	1.196	23.92	60	2.3622	14.904	298.08	150	5.9055	93.150	1863.00
18	0.7087	1.341	26.82	63	2.4803	16.432	328.64	160	6.2992	105.984	2119.68
20	0.7874	1.656	33.12	65	2.5591	17.492	349.84	170	6.6929	119.646	2392.92
22	0.8661	2.004	40.08	70	2.7559	20.286	405.72	180	7.0866	134.136	2682.72
24	0.9449	2.385	47.70	75	2.9528	23.288	465.76	190	7.4803	149.454	2989.08
25	0.9843	2.588	51.76	80	3.1496	26.496	529.92	200	7.8740	165.600	3312.00
28	1.1024	3.246	64.92	85	3.3465	29.912	598.24	220	8.6614	200.303	4006.06
30	1.1811	3.726	74.52	90	3.5433	33.534	670.68	250	9.8425	258.750	5175.00
32	1.2598	4.239	84.78	95	3.7402	37.364	747.28				
35	1.3780	5.072	101.44	100	3.9370	41.400	828.00				

Metric Drill Rods



O-1, A-2, ASTM A-681; Tolerances; 3mm and under $\pm .0003"$, 4mm to 12mm $\pm .0005"$; 13mm and larger $\pm 0.001"$
 0.0003"=0.008mm 0.0005"=0.013mm 0.001"=0.025mm

Diameter in mm/inch

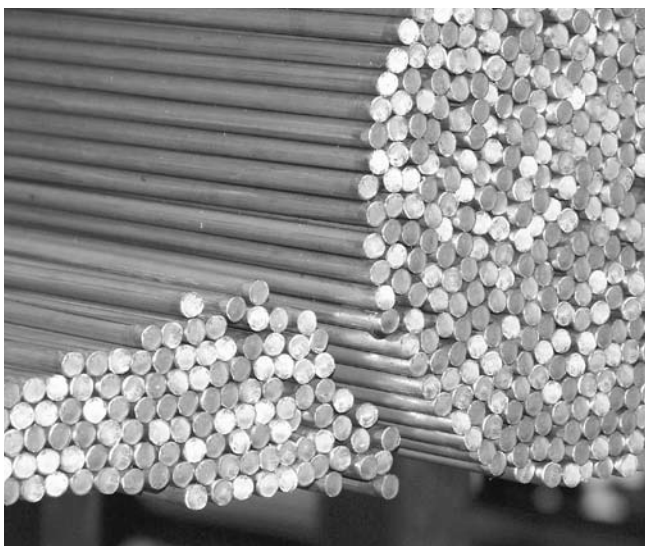
NOMINAL	mm	2	3	4	5	6	7	8	9	10
DIAMETER	inch	0.0787	0.1181	0.1575	0.1969	0.2362	0.2756	0.3150	0.3543	0.3937
WEIGHT/FT	lbs	0.0166	0.0373	0.0662	0.1035	0.1490	0.2029	0.2650	0.3353	0.4140

Diameter in mm/inch

NOMINAL	mm	11	12	13	14	15	16	17	18	19	20
DIAMETER	inch	0.4331	0.4724	0.5118	0.5512	0.5906	0.6299	0.6693	0.7087	0.7480	0.7874
WEIGHT/FT	lbs	0.5009	0.5962	0.6997	0.8114	0.9315	1.0598	1.1965	1.3414	1.4945	1.6560

Diameter in mm/inch

NOMINAL	mm	22	23	24	25	30	32	35	40	45	50
DIAMETER	inch	0.8661	0.9055	0.9449	0.9843	1.1811	1.2598	1.3780	1.5748	1.7717	1.9685
WEIGHT/FT	lbs	2.0038	2.1901	2.3846	2.5875	3.7260	4.2394	5.0715	6.6240	8.3835	10.3500



Round wire and round stock from 1mm – 250mm in diameter.



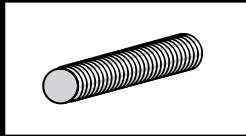
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Metric Threaded Rods



CARBON STEEL

DIN 975, Steel - Property Class 4.6, Low Carbon, Zinc Plated, Trapezoidal / Acme, Right Handed, Course Threads, Commercial Nut Fit. Left handed is available upon request.

ALLOY STEEL

A 193-B7, 4140, ASTM A-29

STAINLESS STEEL

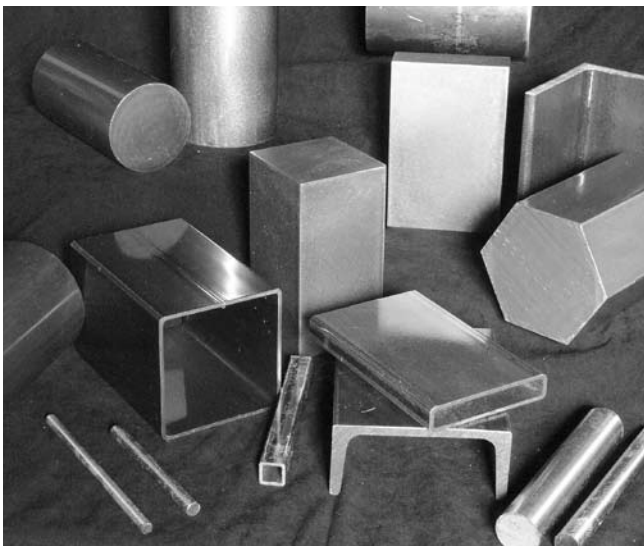
304, 316, 17-4PH, ASTM A-276, ASTM A-564

Coarse & Fine Thread

THREAD	MM	M4	M5	M6	M7	M8	M8	M10	M10	M12	M12
DIAMETER	INCH	0.157	0.197	0.236	0.276	0.315	0.315	0.315	0.394	0.472	0.472
PITCH	MM	0.700	0.800	1.000	1.000	1.000	1.250	1.250	1.500	1.250	1.750

THREAD	MM	M14	M16	M16	M18	M20	M20	M22	M24	M27	M30
DIAMETER	INCH	0.551	0.630	0.630	0.709	0.787	0.787	0.866	0.945	1.063	1.181
PITCH	MM	2.000	1.500	2.000	2.500	1.500	2.500	2.500	3.000	3.000	3.500

THREAD	MM	M33	M36	M39	M42	M45	M48	M52	M56	M60	M64
DIAMETER	INCH	1.299	1.417	1.535	1.654	1.772	1.890	2.047	2.205	2.362	2.520
PITCH	MM	3.500	4.000	4.000	4.500	4.500	5.000	5.000	5.500	5.500	6.000



We have the largest selection of metric size metals in North America.



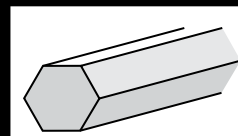
Fast credit approval.

Parker Steel Company
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 Toll Free: 1-800-333-4140 In Mexico: 001-866-896-8905
 email: sales@metricmetal.com

Metric Cold Drawn Hexagons



CARBON STEEL

1018, 1035, 1040, 1045, 1117, 1137, 1140, 1144, 144 Stress Relieved, 12L14, 1215, S235JR C+C, C45, ASTM A-311 Class B, ASTM A-108, ASTM A-29, DIN 176, EN 10278, BS970

ALLOY STEEL

4140 Annealed, 4140 Q&T/SR, HT, 8650 Annealed, 42CrMo4, ASTM A29, EN 10083-1

STAINLESS STEEL

303, 304, 304L, 316, 316Ti, 430F ASTM A582, ASTM A276, X8CrNiS18-9, X2CrNi18-10, X5CrNiMo17-12-2, X6CrNiMoTi17-12, W.Nr 1.4301, 1.4305, 1.4306, 1.4401, 1.4404, 1.4571, EN 10088-3
(Multiply weight below by 1.0100)

ALUMINUM

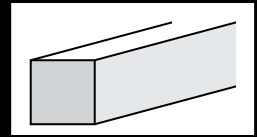
(Extruded) 2007 T-3/T-8, 2011 T-3/T-8, 6060 T-6, EN 573-3, EN 754-6
(Multiply Weights Below by 0.3462)

BRASS

CDA 385, CuZn39Pb3, CW614N, EN 12164 (Multiply Weights Below by 1.084)

SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR
2	0.0787	0.018	0.22	20	0.7874	1.828	21.94	42	1.6535	8.061	96.73
2.5	0.0984	0.029	0.35	21	0.8268	2.015	24.18	43	1.6929	8.450	101.40
3	0.1181	0.041	0.49	22	0.8661	2.212	26.54	44	1.7323	8.848	106.18
3.5	0.1378	0.056	0.67	23	0.9055	2.418	29.02	45	1.7717	9.254	111.05
4	0.1575	0.073	0.88	24	0.9449	2.632	31.58	46	1.8110	9.670	116.04
4.5	0.1772	0.093	1.12	25	0.9843	2.856	34.27	47	1.8504	10.095	121.14
5	0.1969	0.114	1.37	26	1.0236	3.089	37.07	48	1.8898	10.529	126.35
5.5	0.2165	0.138	1.66	27	1.0630	3.332	39.98	49	1.9291	10.973	131.68
6	0.2362	0.165	1.98	28	1.1024	3.583	43.00	50	1.9685	11.425	137.10
7	0.2756	0.224	2.69	29	1.1417	3.843	46.12	52	2.0472	12.357	148.28
8	0.3150	0.292	3.50	30	1.1811	4.113	49.36	54	2.1260	13.326	159.91
9	0.3543	0.370	4.44	31	1.2205	4.392	52.70	55	2.1654	13.824	165.89
10	0.3937	0.457	5.48	32	1.2598	4.680	56.16	56	2.2047	14.332	171.98
11	0.4331	0.553	6.64	33	1.2992	4.977	59.72	58	2.2835	15.373	184.48
12	0.4724	0.658	7.90	34	1.3386	5.283	63.40	60	2.3622	16.452	197.42
13	0.5118	0.772	9.26	35	1.3780	5.598	67.18	65	2.5591	19.308	231.70
14	0.5512	0.896	10.75	36	1.4173	5.923	71.08	70	2.7559	22.393	268.72
15	0.5906	1.028	12.34	37	1.4567	6.256	75.07	75	2.9528	25.706	308.47
16	0.6299	1.170	14.04	38	1.4961	6.599	79.19	80	3.1496	29.248	350.98
17	0.6693	1.321	15.85	39	1.5354	6.951	83.41	85	3.3464	33.018	396.22
18	0.7087	1.481	17.77	40	1.5748	7.312	87.74	90	3.5433	37.020	444.24
19	0.7480	1.650	19.80	41	1.6142	7.682	92.18	100	3.9370	45.700	548.40

Metric Cold Drawn Squares & Key Stock



CARBON STEEL

1008/1018, 1008/1018, 1040, 1045, 1045 Key Stock, 12L14, 1215, S235JRG2, SS400, C45, ASTM A29, ASTM A108, DIN 178, DIN 6880 (Key Stock), BS 970, EN 10278

ALLOY STEEL

4140, 42CrMo, SCM440, ASTM A-29, EN 10083-1

TOOL STEEL

0-1 (Ground Stock) ASTM A-681

STAINLESS STEEL

303, 304, 304L, 316, 316Ti, 430F ASTM A582, ASTM A276, X8CrNiS18-9, X2CrNi18-10, X5CrNiMo17-12-2, X6CrNiMoTi17-12, W.Nr 1.4301, 1.4305, 1.4306, 1.4401, 1.4404, 1.4571, EN 10088-3

(Multiply weight below by 1.0100)

ALUMINUM

6060 T-6 (Extruded), EN 754-4

(Multiply Weights Below by 0.3462)

BRASS

CDA 385, CuZn39Pb3, CW 614N, EN12164

(Multiply Weights Below by 1.084)

SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR	SIZE mm	SIZE INCHES	EST. LBS. PER FT.	EST. LBS. PER 12 FT. BAR
2	0.0787	0.021	0.25	21	0.8268	2.324	27.89	44	1.7323	10.203	122.44
2.5	0.0984	0.033	0.40	22	0.8661	2.551	30.61	45	1.7717	10.672	128.06
3	0.1181	0.047	0.56	23	0.9055	2.788	33.46	46	1.8110	11.151	133.81
3.5	0.1378	0.065	0.78	24	0.9449	3.036	36.43	47	1.8504	11.641	139.69
4	0.1575	0.084	1.01	25	0.9843	3.294	39.53	48	1.8898	12.142	145.70
4.5	0.1772	0.107	1.28	26	1.0236	3.563	42.76	49	1.9291	12.653	151.84
5	0.1969	0.132	1.58	27	1.0630	3.842	46.10	50	1.9685	13.175	158.10
5.5	0.2165	0.159	1.91	28	1.1024	4.132	49.58	52	2.0472	14.250	171.00
6	0.2362	0.190	2.28	29	1.1417	4.432	53.18	54	2.1260	15.367	184.40
7	0.2756	0.258	3.10	30	1.1811	4.743	56.92	55	2.1654	15.942	191.30
8	0.3150	0.337	4.04	31	1.2205	5.064	60.77	56	2.2047	16.527	198.32
9	0.3543	0.427	5.12	32	1.2598	5.396	64.75	58	2.2835	17.728	212.74
10	0.3937	0.527	6.32	33	1.2992	5.739	68.87	60	2.3622	18.972	227.66
11	0.4331	0.638	7.66	34	1.3386	6.092	73.10	65	2.5591	22.266	267.19
12	0.4724	0.759	9.11	35	1.3780	6.456	77.47	70	2.7559	25.823	309.88
13	0.5118	0.891	10.69	36	1.4173	6.830	81.96	75	2.9528	29.644	355.73
14	0.5512	1.033	12.40	37	1.4567	7.215	86.58	80	3.1496	33.728	404.74
15	0.5906	1.186	14.23	38	1.4961	7.610	91.32	90	3.5433	42.690	512.28
16	0.6299	1.349	16.19	39	1.5354	8.016	96.19	100	3.9370	52.700	632.40
17	0.6693	1.523	18.28	40	1.5748	8.432	101.18	110	4.3307	63.770	765.24
18	0.7087	1.707	20.48	41	1.6142	8.859	106.31	120	4.7244	75.890	910.68
19	0.7480	1.902	22.82	42	1.6535	9.296	111.55	150	5.9505	118.575	1425.00
20	0.7874	2.108	25.30	43	1.6929	9.744	116.93				

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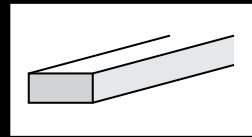
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Metric Cold Drawn Flat & Key Stock



CARBON STEEL

1008/1015, 1008/1018, 1042, 1045, 1045 Key Stock, S235JRG2, C45, ASTM A29, DIN 174, BS 970, EN 10278, DIN 6880, (Key Stock) JIS G3101, SS400, SS400-D, SGD400, JIS G 3505, SWRM 10K, SWRM 8, S45C

ALLOY STEEL

4140 Annealed, 4140 Keystock, ASTM A108, 42CrMo4, EN 10083-1, EN 10029 (Hot rolled cut from plate)

TOOL STEEL

0-1 (Ground Stock) ASTM A-681

STAINLESS STEEL

303, 304, 304L, 316, 316Ti, 430F ASTM A582, ASTM A276, X8CrNiS18-9, X2CrNi18-10, X5CrNiMo17-12-2, X6CrNiMoTi17-12, W.Nr 1.4301, 1.4305, 1.4306, 1.4401, 1.4404, 1.4571, EN 10088-3 (Multiply weights below by 1.0100)

ALUMINUM

6060 T-6 (Extruded), EN 754-5, EN 755-5 (Mult. Wgts. Below by 0.3462)

BRASS

CDA 378, CuZn40Pb2, EN12167, CW617N (Mult. Wgts Below by 1.084)

COPPER

C110, ASTM B124, Cu-ETP, CW004A, Cu-EPT1, E-58, DIN EN 13601 (Multiply weights below by 1.1440)

WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.
2	2	0.02	10	2	0.11	14	4	0.30	16	9	0.76	20	5	0.53
3	3	0.05	10	3	0.16	14	5	0.37	16	10	0.84	20	6	0.63
4	3	0.06	10	4	0.21	14	6	0.44	16	12	1.01	20	7	0.74
4	4	0.08	10	5	0.26	14	7	0.52	16	16	1.35	20	8	0.84
5	3	0.08	10	6	0.32	14	8	0.60	18	2	0.19	20	10	1.05
5	4	0.11	10	7	0.37	14	9	0.66	18	3	0.28	20	12	1.26
5	5	0.13	10	8	0.42	14	10	0.74	18	4	0.38	20	15	1.58
6	2	0.06	10	10	0.53	14	12	0.88	18	5	0.47	20	16	1.69
6	3	0.09	11	11	0.64	14	14	1.03	18	6	0.57	20	18	1.90
6	4	0.13	12	2	0.13	15	1	0.08	18	7	0.66	20	20	2.11
6	5	0.16	12	3	0.19	15	1.5	0.12	18	8	0.76	22	3	0.35
6	6	0.19	12	4	0.25	15	2	0.16	18	10	0.95	22	4	0.46
7	3	0.11	12	5	0.32	15	3	0.24	18	11	1.04	22	4.5	0.52
7	4	0.15	12	6	0.38	15	4	0.32	18	12	1.14	22	5	0.58
7	5	0.18	12	7	0.44	15	5	0.40	18	18	1.71	22	6	0.70
7	7	0.26	12	8	0.51	15	6	0.47	19	3	0.30	22	7	0.81
8	2	0.08	12	9	0.57	15	7	0.55	19	4	0.40	22	8	0.93
8	3	0.13	12	10	0.62	15	8	0.63	19	4.5	0.45	22	9	1.04
8	4	0.17	12	12	0.76	15	10	0.79	19	5	0.50	22	10	1.16
8	5	0.21	13	3	0.21	15	12	0.95	19	6	0.60	22	12	1.39
8	6	0.25	13	4	0.27	15	15	1.19	19	8	0.80	22	14	1.62
8	7	0.30	13	4.5	0.31	16	2	0.17	19	9	0.90	22	15	1.74
8	8	0.34	13	5	0.34	16	3	0.25	19	12	1.20	22	16	1.86
9	3	0.14	13	6	0.41	16	4	0.34	19	16	1.60	22	19	2.20
9	4.5	0.21	13	8	0.55	16	4.5	0.38	20	1	0.11	22	20	2.32
9	6	0.28	13	9	0.62	16	5	0.42	20	1.5	0.16	22	22	2.55
9	9	0.43	13	13	0.89	16	6	0.51	20	2	0.21	24	14	1.77
10	1	0.06	14	2	0.15	16	7	0.59	20	3	0.32	25	1	0.13
10	1.5	0.08	14	3	0.22	16	8	0.67	20	4	0.42	25	1.5	0.20

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- METRIC COLD DRAWN FLAT & KEY STOCK continued from previous page -

WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.
25	2	0.26	32	15	2.53	40	16	3.37	50	19	5.01	60	35	11.07
25	3	0.40	32	16	2.70	40	20	4.22	50	20	5.27	60	40	12.65
25	4	0.53	32	18	3.04	40	22	4.64	50	22	5.80	60	50	15.81
25	4.5	0.59	32	19	3.20	40	25	5.27	50	25	6.59	60	60	18.97
25	5	0.66	32	20	3.37	40	30	6.32	50	28	7.38	63	32	10.68
25	6	0.79	32	22	3.71	40	35	7.38	50	30	7.91	65	3	1.03
25	7	0.92	32	25	4.22	40	40	8.43	50	35	9.22	65	4	1.37
25	8	1.05	35	3	0.56	44	5	1.16	50	38	10.01	65	4.5	1.54
25	9	1.19	35	4	0.74	44	6	1.39	50	40	10.54	65	5	1.71
25	10	1.32	35	5	0.92	44	9	2.09	50	50	13.18	65	6	2.06
25	12	1.58	35	6	1.11	44	12	2.78	55	2.5	0.73	65	8	2.74
25	14	1.84	35	7	1.29	44	16	3.71	55	3	0.87	65	9	3.08
25	15	1.98	35	8	1.48	44	19	4.41	55	4	1.16	65	10	3.43
25	16	2.11	35	10	1.84	44	22	5.10	55	5	1.45	65	12	4.11
25	18	2.37	35	12	2.22	44	25	5.80	55	6	1.74	65	15	5.14
25	19	2.50	35	15	2.77	45	2	0.48	55	7	2.03	65	16	5.48
25	20	2.64	35	16	2.95	45	3	0.71	55	8	2.32	65	19	6.51
25	22	2.90	35	18	3.32	45	4	0.95	55	10	2.90	65	20	6.85
25	25	3.29	35	20	3.69	45	5	1.19	55	12	3.48	65	22	7.54
26	16	2.19	35	25	4.61	45	6	1.42	55	15	4.35	65	25	8.56
26	20	2.74	35	30	5.53	45	7	1.66	55	16	4.64	65	30	10.28
28	16	2.36	35	35	6.46	45	8	1.90	55	20	5.80	65	32	10.96
30	2	0.32	36	1	0.19	45	10	2.37	55	25	7.25	65	35	11.99
30	3	0.47	36	2	0.38	45	12	2.85	55	30	8.70	65	38	13.02
30	4	0.63	36	20	3.79	45	15	3.56	55	35	10.15	65	40	13.70
30	5	0.79	38	3	0.60	45	16	3.79	55	40	11.59	65	50	17.13
30	6	0.95	38	4.5	0.90	45	20	4.74	55	55	15.94	65	65	22.27
30	7	1.11	38	5	1.00	45	25	5.93	56	32	9.46	70	2	0.74
30	8	1.26	38	6	1.20	45	30	7.11	60	3	0.95	70	3	1.11
30	10	1.58	38	9	1.80	45	35	8.30	60	4	1.26	70	4	1.48
30	12	1.90	38	10	2.00	45	40	9.49	60	5	1.58	70	5	1.84
30	15	2.37	38	12	2.40	45	45	10.67	60	6	1.90	70	6	2.21
30	16	2.53	38	16	3.20	50	2	0.52	60	7	2.21	70	7	2.58
30	18	2.85	38	19	3.80	50	3	0.79	60	8	2.53	70	8	2.96
30	20	3.16	38	22	4.41	50	4	1.05	60	9	2.85	70	10	3.69
30	25	3.95	38	25	5.01	50	4.5	1.19	60	10	3.16	70	12	4.43
30	30	4.74	40	2	0.42	50	5	1.32	60	12	3.79	70	15	5.53
32	3	0.51	40	3	0.63	50	6	1.58	60	15	4.74	70	16	5.90
32	4	0.67	40	4	0.85	50	7	1.84	60	16	5.06	70	20	7.38
32	4.5	0.76	40	5	1.05	50	8	2.11	60	18	5.69	70	25	9.22
32	5	0.84	40	6	1.26	50	9	2.37	60	19	6.01	70	30	11.07
32	6	1.01	40	7	1.48	50	10	2.64	60	20	6.32	70	35	12.91
32	8	1.35	40	8	1.69	50	12	3.16	60	22	6.96	70	36	13.36
32	9	1.52	40	10	2.11	50	15	3.95	60	25	7.91	70	40	14.76
32	10	1.69	40	12	2.53	50	16	4.22	60	30	9.49	70	50	18.45
32	12	2.02	40	15	3.16	50	18	4.74	60	32	10.12	70	60	22.13

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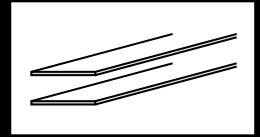
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WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.	WIDTH mm	THICKNESS mm	EST. LBS./FT.
70	70	25.82	90	19	9.01	120	8	5.06	150	5	3.95	200	15	15.81
75	5	1.98	90	20	9.49	120	10	6.32	150	6	4.74	200	16	16.86
75	6	2.37	90	22	10.43	120	12	7.59	150	8	6.32	200	19	20.03
75	8	3.16	90	25	11.86	120	15	9.49	150	9	7.11	200	20	21.08
75	9	3.56	90	30	14.23	120	20	12.64	150	10	7.91	200	25	26.35
75	10	3.95	90	40	18.97	120	25	16.31	150	12	9.49	200	30	31.62
75	12	4.74	90	45	21.34	120	30	18.97	150	15	11.86	200	32	33.73
75	15	5.93	90	50	23.72	120	40	25.30	150	16	12.65	200	38	40.05
75	16	6.32	90	60	28.46	120	50	31.62	150	19	15.02	200	40	42.16
75	19	7.51	90	90	42.69	120	60	37.94	150	20	15.81	200	50	52.70
75	20	7.91	100	4.5	2.37	125	6	3.95	150	25	19.76	200	60	63.24
75	22	8.70	100	5	2.64	125	8	5.27	150	30	23.72	250	6	7.91
75	25	9.88	100	6	3.16	125	9	5.93	150	38	30.04	250	10	13.18
75	30	11.86	100	8	4.22	125	10	6.59	150	40	31.62	250	12	15.81
75	35	13.83	100	9	4.74	125	12	7.91	150	50	39.53	250	15	19.76
75	38	15.02	100	10	5.27	125	15	9.88	150	60	47.43	250	20	26.35
75	40	15.81	100	12	6.32	125	16	10.54	160	6	5.06	250	25	32.94
75	50	19.76	100	15	7.91	125	19	12.52	160	8	6.75	250	30	39.53
75	75	29.64	100	16	8.43	125	20	13.18	160	10	8.43	250	40	52.70
80	3	1.26	100	19	10.01	125	25	16.47	160	12	10.12	250	50	65.88
80	4	1.69	100	20	10.54	125	30	19.76	160	15	12.65	250	60	79.05
80	5	2.11	100	22	11.59	125	32	21.08	160	16	13.49	300	6	9.49
80	6	2.53	100	25	13.18	125	38	25.03	160	20	16.86	300	10	15.81
80	7	2.95	100	30	15.81	125	40	26.35	160	25	21.08	300	12	18.97
80	8	3.37	100	32	16.86	125	50	32.94	160	30	25.30	300	15	23.72
80	10	4.22	100	35	18.45	130	6	4.11	160	40	33.73	300	20	31.62
80	12	5.06	100	38	20.03	130	8	5.48	160	45	37.94	300	25	39.53
80	15	6.32	100	40	21.08	130	10	6.85	160	50	42.16	300	30	47.43
80	16	6.75	100	50	26.35	130	12	8.22	160	60	50.59	300	40	63.24
80	20	8.43	100	60	31.62	130	15	10.28	180	8	7.59	350	10	18.45
80	25	10.54	100	65	34.26	130	16	10.96	180	9	8.54	350	12	22.13
80	30	12.65	100	75	39.53	130	20	13.70	180	10	9.49	350	15	27.67
80	35	14.76	110	5	2.90	130	25	17.13	180	12	11.38	350	20	36.89
80	40	16.86	110	6	3.48	130	30	20.55	180	15	14.23	350	25	46.11
80	50	21.08	110	8	4.64	130	40	27.40	180	16	15.18	350	30	55.34
80	60	25.30	110	10	5.80	130	50	34.26	180	20	18.97	350	40	73.78
80	80	33.73	110	12	6.96	130	60	41.11	180	25	23.72	350	50	92.23
85	10	4.48	110	15	8.69	140	6	4.43	180	30	28.46	350	60	110.67
85	20	8.96	110	16	9.28	140	10	7.38	180	40	37.94	400	8	16.86
90	5	2.37	110	20	11.59	140	12	8.85	180	50	47.43	400	10	21.08
90	6	2.85	110	25	14.49	140	15	11.07	180	60	56.92	400	12	25.30
90	8	3.79	110	30	17.39	140	20	14.76	180	75	71.15	400	15	31.62
90	9	4.27	110	40	23.19	140	25	18.45	200	7	7.38	400	20	42.16
90	10	4.74	110	50	28.99	140	30	22.13	200	8	8.43	400	50	105.40
90	12	5.69	110	60	34.78	140	40	29.51	200	9	9.49	400	60	126.48
90	15	7.12	120	5	3.16	140	50	36.89	200	10	10.54	500	50	131.75
90	16	7.59	120	6	3.79	140	60	44.27	200	12	12.65			

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CARBON STEEL

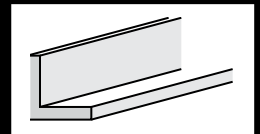
1008/1010, ASTM A 109, QQS698, Full Hard

STAINLESS STEEL

301/302, ASTM A666, 2B finish, QQ766, Full Hard
(Multiply weights below by 1.0100)

THICKNESS mm	WIDTH mm	WEIGHT FT	THICKNESS mm	WIDTH mm	WEIGHT FT	THICKNESS mm	WIDTH mm	WEIGHT FT
0.05	150	.03952	0.25	150	.19762	0.65	150	.51382
0.10	150	.07905	0.30	150	.23715	0.80	150	.63240
0.15	150	.11857	0.40	150	.31620	1.00	36	.18972
0.20	150	.15810	0.50	150	.39525	2.00	36	.37944

Metric Cold Drawn Equal Angles



CARBON STEEL

1008/1018, S235JRC, ST37-2, EN 10277, DIN 59370, DIN 1652/17100

STAINLESS STEEL

304, ASTM A 276, EN 10088-1, EN 10088-3

SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.
10 x 10 x 2	0.19	25 x 25 x 4	0.97	35 x 35 x 6	1.78	50 x 50 x 4	2.06
12 x 12 x 2	0.24	5	1.19	40 x 40 x 2	0.83	5	2.51
3	0.33	6	1.50	3	1.22	6	2.98
15 x 15 x 2	0.30	30 x 30 x 2	0.61	4	1.61	7	3.47
3	0.43	3	0.90	5	1.98	60 x 60 x 5	3.03
4	0.55	4	1.18	6	2.34	6	3.63
20 x 20 x 2	0.40	5	1.45	45 x 45 x 2	0.91	65 x 65 x 6	3.98
3	0.58	32 x 32 x 4	1.26	3	1.37	75 x 75 x 9	6.70
4	0.76	6	1.94	4	1.82	12	8.75
5	0.92	35 x 35 x 3	1.06	5	2.27	90 x 90 x 13	11.44
25 x 25 x 2	0.50	4	1.39	6	2.72	100 x 100 x 7	7.20
3	0.75	5	1.71	50 x 50 x 3	1.55	13	12.85

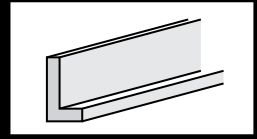
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Metric Cold Drawn Unequal Angles



CARBON STEEL

1008/1018, S235JRC, ST37-2, EN 10277, DIN 59370, DIN 1652/17100

STAINLESS STEEL

304, ASTM A 276, EN 10088-1, EN 10088-3 (Multiply weights below by 1.0100)

SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.
15 x 10 x 2	0.24	30 x 15 x 3	0.67	40 x 30 x 4	1.38	60 x 30 x 5	2.27
3	0.35	30 x 20 x 3	0.75	45 x 20 x 2	0.60	60 x 40 x 3	1.48
20 x 10 x 2	0.29	4	0.97	3	0.90	5	2.56
3	0.43	40 x 20 x 3	0.90	45 x 30 x 4	1.50	75 x 50 x 5	3.15
20 x 15 x 2	0.33	4	1.18	5	1.85	80 x 40 x 4	2.42
3	0.50	5	1.45	6	2.18	6	3.64
25 x 15 x 3	0.58	40 x 30 x 2	0.72	50 x 30 x 4	1.59	100 x 50 x 5	3.81
30 x 15 x 2	0.45	3	1.01	60 x 30 x 4	1.81	6	4.53



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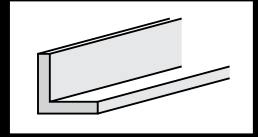
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Metric Hot Rolled Equal Angles



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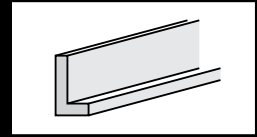
1008/1010, ST37-2, S235JR, S355J, EN 10025, EN 10277, DIN 59370, EN 10056-2, DIN 1028, JIS G3101, JIS G3192, SS400

STAINLESS STEEL

304, ASTM A276, EN 10088-3, EN 10056-2 (Multiply weights below by 1.0100)

SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.
20 x 20 x 2	0.40	50 x 50 x 5	2.54	75 x 75 x 10	7.44	120 x 120 x 13	16.15
3	0.59	6	3.01	12	8.75	15	17.90
4	0.76	7	3.47	80 x 80 x 6	4.94	130 x 130 x 9	12.06
25 x 25 x 3	0.75	8	3.92	8	6.48	12	15.89
4	0.98	9	4.38	10	8.01	15	19.38
5	1.19	55 x 55 x 6	3.34	12	9.46	140 x 140 x 13	18.51
6	1.50	60 x 60 x 4	2.40	90 x 90 x 6	5.59	150 x 150 x 10	15.48
30 x 30 x 3	0.92	5	3.08	7	6.47	12	18.37
4	1.20	6	3.65	8	7.34	14	21.27
5	1.47	8	4.77	9	8.20	15	22.75
6	1.74	10	5.85	10	9.02	18	27.19
35 x 35 x 4	1.42	65 x 65 x 5	3.25	12	10.70	20	30.02
5	1.73	6	4.18	13	11.51	160 x 160 x 14.6	23.36
6	2.02	7	4.60	100 x 100 x 6	6.00	15	24.37
40 x 40 x 3	1.24	8	5.16	7	7.20	17	27.39
4	1.63	9	5.44	8	8.21	175 x 175 x 12	21.87
5	2.00	70 x 70 x 6	4.29	10	10.10	15	26.25
6	2.37	7	4.97	12	11.98	180 x 180 x 16	29.27
8	3.11	8	5.63	13	12.85	18	32.70
45 x 45 x 3	1.41	9	6.29	15	14.74	200 x 200 x 16	32.68
4	1.84	10	6.93	16	15.81	18	36.55
5	2.27	75 x 75 x 6	4.59	110 x 110 x 10	11.18	20	40.31
6	2.69	7	5.34	120 x 120 x 8	9.89	24	47.85
8	3.11	8	6.08	10	12.25	250 x 250 x 25	62.5
50 x 50 x 3	1.57	75 x 75 x 9	6.75	120 x 120 x 11	13.40		
4	2.05			12	14.54		

Metric Hot Rolled Unequal Angles



CARBON STEEL

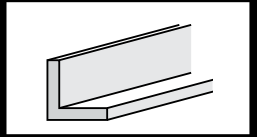
1008/1010, ST37-2, S235JR, S355J, EN 10025, EN 10277, DIN 59370, EN 10056-2, DIN 1028, JIS G3101, JIS G3192, SS400

STAINLESS STEEL

304, ASTM A276, EN 10088-3, EN 10056-2 (Multiply weights below by 1.0100)

SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.
20 x 10 x 3	0.43	65 x 65 x 9	5.06	100 x 65 x 11	9.02	150 x 75 x 11	12.52
25 x 15 x 3	0.75	70 x 50 x 6	3.63	100 x 75 x 7	6.28	12	13.59
30 x 15 x 3	0.68	7	4.38	8	7.13	150 x 90 x 9	11.04
30 x 20 x 3	0.75	75 x 50 x 6	3.74	9	7.95	10	12.25
4	0.98	7	4.38	10	8.75	12	14.54
40 x 20 x 3	0.91	8	4.97	11	9.63	15	17.90
4	1.20	9	5.54	12	10.36	150 x 100 x 9	11.86
40 x 25 x 4	1.29	10	5.99	120 x 80 x 8	8.21	10	12.79
40 x 30 x 5	1.75	75 x 55 x 5	3.33	10	10.10	12	15.21
45 x 30 x 3	1.16	7	4.58	12	11.98	14	17.57
4	1.52	9	5.78	125 x 75 x 7	7.20	15	18.75
5	1.87	80 x 40 x 6	3.64	8	8.21	160 x 80 x 10	12.25
50 x 30 x 4	1.63	8	4.76	10	10.10	12	14.54
5	2.00	80 x 60 x 6	4.29	12	11.98	180 x 90 x 10	13.86
50 x 40 x 4	1.83	7	4.96	13	13.00	12	16.48
5	2.27	8	5.61	125 x 90 x 3	3.23	200 x 100 x 10	15.48
6	2.69	80 x 65 x 8	5.82	10	10.64	12	18.37
60 x 30 x 5	2.27	10	7.20	130 x 65 x 8	8.01	14	21.30
6	2.69	90 x 60 x 6	4.59	10	9.83	15	22.68
60 x 40 x 5	2.53	8	6.03	11	10.74	200 x 150 x 12	21.54
6	3.00	90 x 75 x 9	7.43	12	11.65	16	24.17
7	3.46	100 x 50 x 6	4.61	130 x 90 x 10	11.44	250 x 90 x 10	17.92
60 x 50 x 9	5.14	8	6.06	12	13.26	12	21.50
65 x 30 x 5	2.27	10	7.47	137 x 102 x 6.4	7.89	14	25.08
65 x 50 x 5	2.93	100 x 65 x 7	5.90	7.9	9.76	16	28.66
6	3.47	8	6.69	150 x 75 x 8	9.22		
7	4.02	9	7.47	9	10.30		
8	4.54	10	8.28	10	11.44		

Metric Aluminum Equal Angles



ALUMINUM

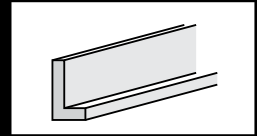
6060 T-6; (Extruded), EN 573-3, EN 755-2, EN 755-9

SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.
10 x 10 x 2	0.099	0.067
15 x 15 x 2	0.154	0.104
3	0.223	0.150
20 x 20 x 1.5	0.159	0.107
2	0.209	0.141
3	0.305	0.205
4	0.396	0.267
25 x 25 x 2	0.264	0.178
3	0.388	0.261
4	0.506	0.341
30 x 30 x 2	0.319	0.215
3	0.470	0.316
4	0.616	0.415
5	0.756	0.509
35 x 35 x 2	0.374	0.252
3	0.553	0.372
4	0.726	0.489
5	0.894	0.602
40 x 40 x 2	0.429	0.289

SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.
40 x 40 x 3	0.635	0.427
4	0.836	0.563
5	1.031	0.694
45 x 45 x 2	0.484	0.326
4	0.946	0.637
5	1.169	0.787
50 x 50 x 2	0.539	0.363
3	0.800	0.538
4	1.056	0.711
5	1.306	0.879
6	1.551	1.044
8	2.024	1.362
10	2.475	1.666
60 x 60 x 2	0.649	0.437
2.5	0.808	0.544
3	0.965	0.649
4	1.276	0.859
5	1.581	1.064
6	1.881	1.266

SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.
60 x 60 x 8	2.464	1.658
10	3.025	2.036
70 x 70 x 2.5	0.945	0.636
5	1.856	1.249
6	2.211	1.488
7	2.560	1.723
80 x 80 x 3	1.295	0.872
4	1.716	1.155
5	2.131	1.434
6	2.541	1.710
8	3.344	2.251
10	4.125	2.776
100 x 100 x 4	2.156	1.451
6	3.201	2.154
8	4.224	2.843
10	5.225	3.516
120 x 120 x 8	5.104	3.435
10	6.325	4.257

Metric Aluminum Unequal Angles

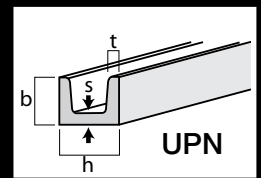
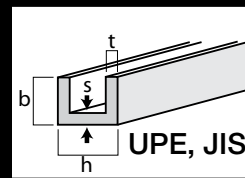


ALUMINUM

6060 T-6; (Extruded), EN 573-3, EN 755-2, EN 755-9

SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.	SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.	SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.	SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.
12 x 12 x 2	0.120	0.081	40 x 25 x 3	0.512	0.345	60 x 30 x 2	0.484	0.326	100 x 40 x 3	1.130	0.760
15 x 10 x 2	0.127	0.085	4	0.671	0.452	3	0.718	0.483	4	1.496	1.007
20 x 10 x 2	0.154	0.104	40 x 30 x 2	0.374	0.252	4	0.946	0.637	100 x 50 x 3	1.213	0.816
20 x 15 x 2	0.182	0.122	3	0.553	0.372	5	1.169	0.787	4	1.606	1.081
2.5	0.223	0.150	4	0.726	0.489	60 x 40 x 2	0.539	0.363	5	1.994	1.342
3	0.264	0.178	45 x 10 x 2	0.292	0.197	3	0.800	0.538	6	2.376	1.599
25 x 10 x 2	0.182	0.122	45 x 20 x 2	0.347	0.234	4	1.056	0.711	8	3.124	2.102
25 x 15 x 2	0.209	0.141	45 x 30 x 3	0.594	0.400	5	1.306	0.879	10	3.850	2.591
2.5	0.258	0.174	50 x 15 x 2	0.347	0.234	6	1.551	1.044	100 x 60 x 6	2.541	1.710
3	0.305	0.205	3	0.512	0.345	70 x 15 x 2	0.457	0.308	110 x 30 x 2	0.759	0.511
25 x 20 x 2	0.237	0.160	50 x 20 x 2	0.374	0.252	70 x 20 x 2	0.484	0.326	120 x 20 x 2	0.759	0.511
3	0.347	0.234	2.5	0.464	0.312	70 x 25 x 2.5	0.636	0.428	120 x 40 x 4	1.716	1.155
30 x 10 x 2	0.209	0.141	3	0.553	0.372	70 x 30 x 2	0.539	0.363	120 x 50 x 5	2.269	1.527
30 x 15 x 2	0.237	0.160	50 x 25 x 2	0.402	0.271	3	0.800	0.538	120 x 60 x 6	2.871	1.932
3	0.347	0.234	2.5	0.498	0.335	75 x 50 x 5	1.650	1.110	8	3.784	2.547
30 x 20 x 2	0.264	0.178	3	0.594	0.400	80 x 15 x 2	0.512	0.345	120 x 80 x 10	5.225	3.516
2.5	0.327	0.220	4	0.781	0.526	80 x 20 x 2	0.539	0.363	130 x 30 x 3	1.295	0.872
3	0.388	0.261	50 x 30 x 2	0.429	0.289	80 x 25 x 2	0.567	0.382	140 x 40 x 3	1.460	0.983
4	0.506	0.341	3	0.635	0.427	2.5	0.705	0.474	150 x 50 x 4	2.156	1.451
30 x 25 x 2	0.292	0.197	4	0.836	0.563	80 x 30 x 3	0.883	0.594	150 x 75 x 8	4.774	3.213
3	0.429	0.289	5	1.031	0.694	80 x 40 x 2	0.649	0.437	10	5.913	3.979
35 x 20 x 2	0.292	0.197	50 x 40 x 2	0.484	0.326	3	0.965	0.649	150 x 100 x 5	3.369	2.267
3	0.429	0.289	3	0.718	0.483	4	1.276	0.859	10	6.600	4.442
35 x 25 x 3	0.470	0.316	4	0.946	0.637	5	1.581	1.064	180 x 150 x 6	5.346	3.598
40 x 10 x 2	0.264	0.178	5	1.169	0.787	6	1.881	1.266	200 x 100 x 10	7.975	5.367
40 x 15 x 2	0.292	0.197	60 x 15 x 2	0.402	0.271	80 x 50 x 5	1.719	1.157			
40 x 20 x 2	0.319	0.215	60 x 20 x 2	0.429	0.289	80 x 50 x 6	2.046	1.377			
2.5	0.395	0.266	60 x 20 x 2.5	0.533	0.359	80 x 60 x 4	1.496	1.007			
3	0.470	0.316	3	0.635	0.427	6	2.211	1.488			
4	0.616	0.415	60 x 25 x 2.5	0.567	0.382	100 x 20 x 2	0.649	0.437			
40 x 25 x 2	0.347	0.234	3	0.677	0.456	100 x 30 x 3	1.048	0.705			

Metric Channels – European and Japanese



CARBON STEEL

European: S235JR, S355J, ST37-2, ST52-3, DIN 1026, EN 10025-2, EN 10279

Japanese: SS400, JIS G3101, JIS G3192

STAINLESS STEEL

304, ASTM A276, EN 10088-3

h mm	b mm	t mm	s mm	kg/m	lb/ft	Description	U Section #
30	15	4.5	4	1.74	1.17	Euro	30 x 15
30	33	7	5	4.27	2.87	Euro	30
40	20	5.5	5	2.87	1.93	Euro	40 x 20
40	35	7	5	4.87	3.28	Euro	40
50	25	6	5	3.86	2.6	Euro	50 x 25
50	38	7	5	5.59	3.76	Euro	50
60	30	6	6	5.07	3.41	Euro	60
65	42	7.5	5.5	7.09	4.77	Euro	65
75	40	7	5	6.92	4.66	Japanese	75 x 40
80	45	8	6	8.64	5.81	Euro	80
100	50	7.5	5	9.36	6.3	Japanese	100 x 50
100	50	8.5	6	10.6	7.13	Euro	100
120	55	9	7	13.409	9.02	Euro	120
125	65	8	6	13.4	9.02	Japanese	125 x 65
140	60	10	7	16	10.77	Euro	140
150	75	10	6.5	18.6	12.52	Japanese	150 x 75
150	75	12.5	9	24	16.15	Japanese	150 x 75
160	65	10.5	7.5	18.8	12.65	Euro	160
180	70	11	8	22	14.81	Euro	180
180	75	10.5	7	21.4	14.4	Japanese	180 x 75
200	75	11.5	8.5	25.3	17.03	Euro	200
200	80	11	7.5	24.6	16.56	Japanese	200 x 80
200	90	13.5	8	30.3	20.39	Japanese	200 x 90
220	80	12.5	9	29.4	19.79	Euro	220
240	85	13	9.5	33.2	22.35	Euro	240
250	90	13	9	34.6	23.28	Japanese	250 x 90
250	90	14.5	11	40.2	27.05	Japanese	250 x 90
260	90	14	10	37.9	25.51	Euro	260
280	95	15	10	41.8	28.13	Euro	280
300	90	13	9	38.1	25.64	Japanese	300 x 90
300	90	15.5	10	43.8	29.48	Japanese	300 x 90
300	90	16	12	48.6	32.71	Japanese	300 x 90
300	100	16	10	46.2	31.09	Euro	300
320	100	17.5	14	59.5	40.04	Euro	320
350	100	16	14	60.6	40.78	Euro	350
380	100	16	10.5	54.5	36.68	Japanese	380 x 100
380	100	16.5	13	62	41.73	Japanese	380 x 100
380	100	20	13	67.3	45.3	Japanese	380 x 100
380	102	16	13.5	63.1	42.46	Euro	380
400	110	18	14	71.8	48.32	Euro	400

According to Din 1026, <300mm will have a 8% slope on the flange thickness (t mm).
>300mm will have a 5% slope on the flange thickness (t mm).

According to the European Standard DIN 1026 this will give you the percentage of the slope on the flange thickness (t mm)

Parker Steel Company

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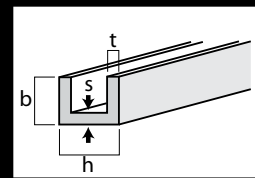
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Metric Channels – Aluminum

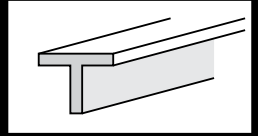


ALUMINUM 6060 T-6 (Extruded) EN573-3, EN 755-2, EN 755-9

DIMENSION (H x B x S)	WEIGHT	
	kg/m	lb/ft
10 x 10 x 1.5	0.111	0.075
10 x 10 x 2	0.143	0.096
12 x 12 x 2	0.176	0.118
14 x 12 x 2	0.187	0.126
15 x 15 x 1.5	0.173	0.116
15 x 15 x 2	0.226	0.152
15 x 20 x 1.5	0.215	0.145
15 x 20 x 2	0.281	0.189
20 x 15 x 2	0.253	0.170
20 x 20 x 1.5	0.235	0.158
20 x 20 x 2	0.308	0.207
20 x 20 x 3	0.446	0.300
20 x 30 x 2	0.418	0.281
20 x 40 x 2.5	0.653	0.439
20 x 40 x 4	1.012	0.681
23 x 23 x 1.5	0.272	0.183
25 x 15 x 2	0.281	0.189
25 x 20 x 2	0.336	0.226
25 x 25 x 2	0.391	0.263
25 x 25 x 3	0.569	0.383
30 x 15 x 2	0.308	0.207
30 x 20 x 2	0.363	0.244
30 x 20 x 3	0.528	0.355
30 x 30 x 2	0.473	0.318
30 x 30 x 3	0.693	0.466
35 x 35 x 2	0.556	0.374
35 x 35 x 3	0.817	0.550
40 x 20 x 2	0.418	0.281
40 x 20 x 2.5	0.516	0.347
40 x 20 x 3	0.611	0.411
40 x 25 x 3	0.693	0.466
40 x 30 x 3	0.776	0.522
40 x 30 x 4	1.012	0.681
40 x 40 x 2	0.638	0.429
40 x 40 x 2.5	0.791	0.532
40 x 40 x 3	0.941	0.633
40 x 40 x 4	1.232	0.829
50 x 20 x 2	0.473	0.318
50 x 25 x 2.5	0.670	0.451
50 x 25 x 3	0.776	0.522

DIMENSION (H x B x S)	WEIGHT	
	kg/m	lb/ft
50 x 30 x 2	0.583	0.392
50 x 30 x 3	0.858	0.577
50 x 30 x 4	1.222	0.822
50 x 40 x 4	1.342	0.903
50 x 50 x 3	1.188	0.780
50 x 50 x 4	1.562	1.051
50 x 50 x 5	1.925	1.296
55 x 45 x 2	0.776	0.522
60 x 20 x 2	0.528	0.355
60 x 30 x 3	0.941	0.633
60 x 40 x 2.5	0.928	0.625
60 x 40 x 3	1.106	0.744
60 x 40 x 4	1.452	0.977
60 x 40 x 5	1.778	1.197
60 x 50 x 2	0.858	0.577
60 x 50 x 3	1.271	0.855
60 x 60 x 4	1.892	1.273
60 x 60 x 5	2.338	1.573
65 x 65 x 2	0.756	0.509
65 x 55 x 2	1.169	0.787
70 x 40 x 3	1.188	0.800
80 x 30 x 3	1.106	0.744
80 x 40 x 3	1.271	0.855
80 x 40 x 4	1.672	1.125
80 x 40 x 5	2.063	1.388
80 x 40 x 6	2.442	1.643
80 x 45 x 6	2.607	1.754
80 x 50 x 5	2.338	1.573
86 x 40 x 3	1.320	0.888
88 x 50 x 3	1.502	1.011
90 x 40 x 3	1.353	0.911
100 x 20 x 2	0.748	0.503
100 x 40 x 3	1.436	0.966
100 x 50 x 5	2.613	1.759
106 x 40 x 3	1.485	0.999
120 x 40 x 3	1.601	1.077
120 x 55 x 7 / 9	4.820	3.244
125 x 80 x 8	5.918	3.983
140 x 40 x 3	1.766	1.189
160 x 80 x 10	8.250	3.533

Metric Tees – Hot Rolled



CARBON STEEL

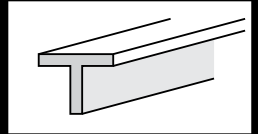
S235JR, S355J, ST37-2, ST52-3, DIN 1024, EN 10055, EN 10025-2, DIN 17100

STAINLESS STEEL

316TI, ASTM A-276, EN 10088-3

SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.	SIZE mm	EST. LBS./FT.
		Round Edge Deep Webbed T-Bars				Round Edge Wide Flanged T-Bars	
20 x 20 x 3	0.59	45 x 45 x 5.5	2.47	90 x 90 x 10	9.02	30 x 60 x 5.5	2.45
25 x 25 x 3.5	0.86	50 x 50 x 6	2.99	100 x 100 x 11	11.04	35 x 70 x 6	3.14
30 x 30 x 4	1.20	60 x 60 x 7	4.20	120 x 120 x 13	15.62	40 x 80 x 7	4.18
35 x 35 x 4.5	1.57	70 x 70 x 8	5.60	140 x 140 x 15	21.07	50 x 100 x 8.5	6.34
40 x 40 x 5	2.00	80 x 80 x 9	7.20			60 x 120 x 10	9.02

Metric Tees – Aluminum

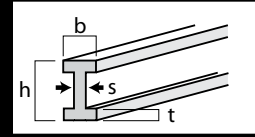


ALUMINUM

6060 T-6, (Extruded) AlMgSi0,5 F22, EN 573-3, EN 573-4, EN755-2, EN 755-9

DIMENSION (H x B x S)	WEIGHT		DIMENSION (H x B x S)	WEIGHT	
	kg/m	lb/ft		kg/m	lb/ft
15 x 15 x 2	0.154	0.104	40 x 40 x 2	0.429	0.289
20 x 20 x 2	0.209	0.141	40 x 40 x 3	0.635	0.427
20 x 20 x 3	0.305	0.205	40 x 40 x 4	0.836	0.563
25 x 25 x 2	0.264	0.178	50 x 50 x 4	1.056	0.711
25 x 25 x 3	0.388	0.261	50 x 50 x 5	1.306	0.879
30 x 30 x 2	0.319	0.215	60 x 60 x 4	1.276	0.859
30 x 30 x 3	0.470	0.316	60 x 60 x 6	1.881	1.266
35 x 35 x 3	0.553	0.372	100 x 60 x 5	2.131	1.434
40 x 20 x 2	0.319	0.215	100 x 100 x 10	5.225	3.516

Metric Carbon Steel I Beams



CARBON STEEL

IPE Range Sections: EN 10025-2, EN 10034, DIN 1025-5, St37-2, St52-3, S235JrG2C, S355J2G3C, Stock Length 6 Meters

IPN, I Range Sections: EN 10025-2, EN 10024, DIN 1025-1, JIS G3466 (KS D3568), St37-2, St52-3, S235JrG2C, S355J2G3C, Stock Length 6 Meters

IPB-1 Range Sections: EN 10025-2, DIN 1025-3, EN 10034, Euronorm (HEA), St37-2, St52-3, S235JrG2C, S355J2G3C, Stock Length 6 Meters

IPB Range Sections: EN 10025-2, DIN 1025-2, EN 10034, Euronorm (HEB), St37-2, St52-3, S235JrG2C, S355J2G3C, Stock Length 6 Meters

IPBv Range Sections: DIN 1025-4, EN 10025-2, EN 10034, Euronorm (HEM), St37-2, St52-3, S235JrG2C, S355J2G3C, Stock Length 6 Meters

Japanese: IJ, JIS G3101, JIS G3192-4, SS400, Comparable to A36, Stock Lengths 6-6.3, 10-10.6 Meters

Japanese: IJ, JIS G3101, JIS G3192-4, SS400, Comparable to A36, Stock Lengths 6-6.3, 10-10.6 Meters

h mm	b mm	t mm	s mm	kg/m	lb/ft	Description	U SECTION #
80	42	5.9	3.9	5.94	4.00	Narrow Flange	IPN 80
80	46	5.2	3.8	6.0	4.04	Medium Flange	IPE 80
96	100	8.0	5.0	16.70	11.24	Light Wide	IPB-1 100
100	50	6.8	4.5	8.3	5.63	Narrow Flange	IPN 100
100	50	7.0	5.0	9.30	6.26	Japanese Wide	IWF 100x50
100	55	5.7	4.1	8.1	5.45	Medium Flange	IPE 100
100	75	8.0	5.0	12.90	8.68	Japanese	IJ 100x75
100	100	8.0	6.0	17.2	11.58	Japanese Wide	IWF 100x100
100	100	10.0	6.0	20.40	13.73	Wide Medium	IPB 100
114	120	8.0	5.0	19.9	13.39	Light Wide	IPB-1 120
120	58	7.7	5.1	11.10	7.47	Narrow Flange	IPN 120
120	64	6.3	4.4	10.4	7.00	Medium Flange	IPE 120
120	106	20.0	12.0	41.80	28.13	Heavy Wide	IPBv 100
120	120	11.0	6.5	26.7	17.97	Wide Medium	IPB 120
125	60	8.0	6.0	17.20	8.88	Japanese Wide	IWF 125x60
125	75	9.5	5.5	16.1	10.84	Japanese	IJ 125x75
125	125	9.0	6.5	23.80	16.02	Japanese Wide	IWF 125x125
133	140	8.5	5.5	24.7	16.62	Light Wide	IPB-1 140
140	66	8.6	5.7	14.30	9.62	Narrow Flange	IPN 140
140	73	6.9	4.7	12.9	8.68	Medium Flange	IPE 140
140	126	21.0	12.5	52.10	35.06	Heavy Wide	IPBv 120
140	140	12.0	7.0	33.7	22.68	Wide Medium	IPB 140
148	100	9.0	6.0	21.10	14.20	Japanese Wide	IWF 150x100
150	75	7.0	5.0	14.0	9.42	Japanese Wide	IWF 150x75
150	75	9.5	5.5	17.10	11.51	Japanese	IJ 150x75
150	125	14.0	8.5	36.2	24.36	Japanese	IJ 150x125
150	150	10.0	7.0	31.50	21.20	Japanese Wide	IWF 150x150
152	160	9.0	6.0	30.4	20.46	Light Wide	IPB-1 160
160	74	9.5	6.3	17.90	12.05	Narrow Flange	IPN 160
160	82	7.4	5.0	15.8	10.63	Medium Flange	IPE 160

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h mm	b mm	t mm	s mm	kg/m	lb/ft	Description	U SECTION #
160	146	22.0	13.0	63.20	42.53	Heavy Wide	IPBv 140
160	160	13.0	8.0	42.6	28.67	Wide Medium	IPB 160
171	180	9.5	6.0	35.50	23.89	Light Wide	IPB-1 180
175	90	8.0	5.0	18.1	12.18	Japanese Wide	IWF 175x90
175	175	11.0	7.5	40.20	27.05	Japanese Wide	IWF 175x175
180	82	10.4	6.9	21.9	14.74	Narrow Flange	IPN 180
180	91	8.0	5.3	18.80	12.65	Medium Flange	IPE 180
180	100	10.0	6.0	23.6	15.88	Japanese	IJ 180x100
180	166	23.0	14.0	76.20	51.28	Heavy Wide	IPBv 160
180	180	14.0	8.5	51.2	34.46	Wide Medium	IPB 180
190	200	10.0	6.5	42.30	28.47	Light Wide	IPB-1 200
194	150	9.0	6.0	30.6	20.59	Japanese Wide	IWF 200x150
198	99	7.0	4.5	18.20	12.25	Japanese Wide	IWF 200x100
200	90	11.3	7.5	26.2	17.63	Narrow Flange	IPN 200
200	100	8.0	5.5	21.30	14.33	Japanese Wide	IWF 200x100
200	100	8.5	5.6	22.4	15.08	Medium Flange	IPE 200
200	100	10.0	7.0	26.00	17.50	Japanese	IJ 200x100
200	150	16.0	9.0	50.4	33.92	Japanese	IJ 200x150
200	186	24.0	14.5	88.90	59.83	Heavy Wide	IPBv 180
200	200	12.0	8.0	49.9	33.59	Japanese Wide	IWF 200x200
200	204	12.0	12.0	56.20	37.82	Japanese Wide	IWF 200x200
200	200	15.0	9.0	61.3	41.25	Wide Medium	IPB 200
210	220	11.0	7.0	50.50	33.99	Light Wide	IPB-1 220
220	98	12.2	8.1	31.1	20.93	Narrow Flange	IPN 220
220	110	9.2	5.9	26.20	17.63	Medium Flange	IPE 220
220	206	25.0	15.0	103.0	69.32	Heavy Wide	IPBv 200
220	220	16.0	9.5	71.50	48.12	Wide Medium	IPB 220
230	240	12.0	7.5	60.3	40.58	Light Wide	IPB-1 240
240	106	13.1	8.7	36.20	24.36	Narrow Flange	IPN 240
240	120	9.8	6.2	30.7	20.66	Medium Flange	IPE 240
240	226	26.0	15.5	117.00	78.74	Heavy Wide	IPBv 220
240	240	17.0	10.0	83.2	55.99	Wide Medium	IPB 240
244	175	11.0	7.0	44.10	29.68	Japanese Wide	IWF 250x175
248	124	8.0	5.0	25.7	17.30	Japanese Wide	IWF 250x125
250	125	9.0	6.0	29.60	19.92	Japanese Wide	IWF 250x125
250	125	12.5	7.5	38.3	25.78	Japanese	IJ 250x125
250	125	19.0	10.0	55.50	37.35	Japanese	IJ 250x125
250	125	19.0	10.0	55.5	37.35	Japanese	IJ 250x125
250	250	14.0	9.0	72.40	48.73	Japanese Wide	IWF 250x250
250	255	14.0	14.0	82.2	55.32	Japanese Wide	IWF 250x250
250	260	12.5	7.5	68.20	45.90	Light Wide	IPB-1 260
260	113	14.1	9.4	41.9	28.20	Narrow Flange	IPN 260
260	260	17.5	10.0	93.00	62.59	Wide Medium	IPB 260
270	135	10.2	6.6	36.1	24.30	Medium Flange	IPE 270
270	248	32.0	18.0	157.00	105.66	Heavy Wide	IPBv 240
270	280	13.0	8.0	76.4	51.42	Light Wide	IPB-1 280
280	119	15.2	10.1	47.90	32.24	Narrow Flange	IPN 280
280	280	18.0	10.5	103.0	69.32	Wide Medium	IPB 280
290	268	32.5	18.0	172.00	115.76	Heavy Wide	IPBv 260
290	300	14.0	8.5	88.3	59.43	Light Wide	IPB-1 300

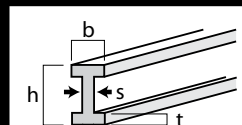
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h mm	b mm	t mm	s mm	kg/m	lb/ft	Description	U SECTION #
298	149	8.0	5.5	32.00	21.53	Japanese Wide	IWF 300x150
300	125	16.2	10.8	54.2	36.48	Narrow Flange	IPN 300
300	150	9.0	6.6	37.70	25.37	Japanese Wide	IWF 300x150
300	150	10.7	7.1	42.2	28.40	Medium Flange	IPE 300
300	150	13.0	8.0	48.30	32.50	Japanese	IIJ 300x150
300	150	13.0	8.0	48.3	32.50	Japanese	IIJ 300x150
300	150	18.5	10.0	65.50	44.08	Japanese	IIJ 300x150
300	150	18.5	10.0	65.5	44.08	Japanese	IIJ 300x150
300	150	22.0	11.5	76.80	51.69	Japanese	IIJ 300x150
300	150	22.0	11.5	76.8	51.69	Japanese	IIJ 300x150
300	200	12.0	8.0	56.80	38.22	Japanese	IWF 300 X 200
300	300	19.0	11.0	117.0	78.74	Wide Medium	IPB 300
310	288	33.0	18.5	189.00	127.20	Heavy Wide	IPBv 280
310	300	15.5	9.0	97.6	65.70	Light Wide	IPB-1 320
320	131	17.3	11.5	61.00	41.05	Narrow Flange	IPN 320
320	300	20.5	11.5	127.0	85.47	Wide Medium	IPB 320
320	305	29.0	16.0	177.00	119.12	Heavy Wide	IPBv 320/305
330	160	11.5	7.5	49.1	32.97	Medium Flange	IPE 330
330	300	16.5	9.5	105.00	70.66	Light Wide	IPB-1 340
340	137	18.3	12.2	68.0	45.76	Narrow Flange	IPN 340
340	300	21.5	12.0	134.00	90.18	Wide Medium	IPB 340
340	310	39.0	21.0	238.0	160.17	Heavy Wide	IPBv 300
350	150	15.0	9.0	58.50	39.37	Japanese	IIJ 350x150
350	150	15.0	9.0	58.5	39.37	Japanese	IIJ 300x150
350	150	24.0	12.0	87.20	58.68	Japanese	IIJ 350x150
350	150	24.0	12.0	87.2	58.68	Japanese	IIJ 300x150
350	300	17.5	10.0	112.00	75.38	Light Wide	IPB-1 360
359	309	40.0	21.0	245.0	164.89	Heavy Wide	IPBv 320
360	143	19.5	13.0	76.10	51.15	Narrow Flange	IPN 360
360	170	12.7	8.0	57.1	38.43	Medium Flange	IPE 360
360	300	22.5	12.5	142.00	95.56	Wide Medium	IPB 360
377	309	40.0	21.0	248.0	166.90	Heavy Wide	IPBv 340
380	149	20.5	13.7	84.00	56.53	Narrow Flange	IPN 380
390	300	19.0	11.0	125.0	84.13	Light Wide	IPB-1 400
395	308	40.0	21.0	250.00	168.25	Heavy Wide	IPBv 360
400	150	18.0	10.0	72.0	48.46	Japanese	IIJ 400x150
400	150	18.0	10.0	72.00	48.46	Japanese	IIJ 400x150
400	150	25.0	12.5	95.8	64.39	Japanese	IIJ 400x150
400	150	25.0	12.5	95.80	64.39	Japanese	IIJ 400x150
400	155	21.6	14.4	92.4	62.19	Narrow Flange	IPN 400
400	180	13.5	8.6	66.30	44.62	Medium Flange	IPE 400
400	300	24.0	13.5	155.0	104.31	Wide Medium	IPB 400
425	163	23.0	15.3	104.00	69.99	Narrow Flange	IPN 425
432	307	40.0	21.0	256.0	172.30	Heavy Wide	IPBv 400
440	300	21.0	11.5	140.00	94.22	Light Wide	IPB-1 450
450	170	24.3	16.2	115.0	77.40	Narrow Flange	IPN 450
450	190	14.6	9.4	77.60	55.23	Medium Flange	IPE 450
450	300	26.0	14.0	171.0	115.08	Wide Medium	IPB 450
475	178	25.6	17.1	128.00	86.14	Narrow Flange	IPN 475
478	307	40.0	21.0	263.0	176.90	Heavy Wide	IPBv 450

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h mm	b mm	t mm	s mm	kg/m	lb/ft	Description	U SECTION #
490	300	23.0	12.0	155.00	104.31	Light Wide	IPB-1 500
500	185	27.0	18.0	141.0	94.89	Narrow Flange	IPN 500
500	200	16.0	10.2	90.70	61.04	Medium Flange	IPE 500
500	300	28.0	14.5	187.0	125.85	Wide Medium	IPB 500
524	306	40.0	21.0	270.00	181.70	Heavy Wide	IPBv 500
540	300	24.0	12.5	166.0	111.72	Light Wide	IPB-1 550
550	200	30.0	19.0	166.00	111.72	Narrow Flange	IPN 550
550	210	17.2	11.1	106.0	71.34	Medium Flange	IPE 550
550	300	29.0	15.0	199.00	133.92	Wide Medium	IPB 550
572	306	40.0	21.0	278.0	187.10	Heavy Wide	IPBv 550
590	300	25.0	13.0	178.00	119.79	Light Wide	IPB-1 600
600	215	32.4	21.6	199.0	133.93	Narrow Flange	IPN 600
600	220	19.0	12.0	122.00	82.10	Medium Flange	IPE 600
600	300	30.0	15.5	212.0	142.67	Wide Medium	IPB 600
620	305	40.0	21.0	285.00	191.80	Heavy Wide	IPBv 600
640	300	26.0	13.5	190.0	127.87	Light Wide	IPB-1 650
650	300	31.0	16.0	225.00	151.43	Wide Medium	IPB 650

Metric Stainless Steel I Beams



STAINLESS STEEL

IPE, IPB, 304, 1.4301, DIN 1025-2&5, DIN 17400, EN 10088-3, EN 10034

h mm	b mm	t mm	s mm	kg/m	lb/ft	Description	U SECTION #
100	55	6	6	9.50	6.93	Medium Flange	IPE-304
100	120	10	9	35.04	23.58	Medium Flange	IPE-304
100	100	8	6	15.23	10.25	Wide Flange	IPB-304
100	100	10	6	20.40	13.73	Wide Flange	IPB-304
120	64	6	4	10.40	7.00	Medium Flange	IPE-304
120	114	8	5	19.90	13.39	Wide Flange	IPB-304
120	120	11	7	27.70	18.64	Wide Flange	IPB-304
140	73	7	5	13.12	8.80	Medium Flange	IPE-304
160	82	7	5	15.50	10.43	Medium Flange	IPE-304
160	152	9	6	30.40	20.46	Wide Flange	IPB-304
180	160	13	8	42.90	28.87	Wide Flange	IPB-304
180	180	14	8	51.20	34.46	Wide Flange	IPB-304
190	91	8	5	18.80	12.65	Medium Flange	IPE-304
200	100	8	6	21.40	14.40	Medium Flange	IPE-304
200	200	12	8	49.00	32.98	Wide Flange	IPB-304
220	110	20	15	56.80	38.22	Medium Flange	IPE-304
220	210	16	11	69.70	46.91	Wide Flange	IPB-304
250	250	14	9	75.20	50.61	Wide Flange	IPB-304
300	300	16	10	98.60	66.36	Wide Flange	IPB-304

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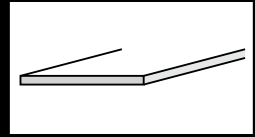
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Metric Hot Rolled Mild Structural Plates



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A36, ASTM A572 GRADE 50, S235JR, S355J, ST37-2, ST52-3, S355MC, S700MC, DIN 1543, EN 10029, EN 10051, EN 10025-2, EN 10149-2

ALLOY STEEL

4140 ANNEALED, 42CrMo4,
ASTM A29, EN 10083-1

STAINLESS STEEL

304,304L, 316, 316L, ASTM A240/A240M, DIN/EN
10028-7, EN 10088-2, 1D FINISH (Multiply weight below by 1.0100)

TITANIUM

Grade 2, Grade 5 (6Al4V), Grade 7, ASTM B348
(Multiply wghts below by .5750)

NICKEL ALLOYS

Hastelloy C276, ASTM B574, Inconel 600,601,625 ASTM
B166, B446, Incoloy 825 ASTM B425,
Monel 400 ASTM B164, Nickel 200/201 ASTM B160
(Weight per foot on Nickel Alloys see page 59)

ALUMINUM

6061 T6, ASTM B209M, 5754, H22/H111, EN 485/10204
(Multiply weights below by 0.35)

BRASS

CuZn37/Cw508L, EN 1652 (Similar to 272)
(Mult. weights below by 1.084)

COPPER

(E-Cu57) C110, ASTM B124, DIN EN 13601 (Multiply weights below by 1.1440)

THICKNESS mm	2000 x 1000	2500 x 1250	3000 x 1500	3660 x 1830	4000 x 2000	5000 x 2500	6000 x 2000	6000 x 2500	6000 x 3000	8000 x 2000	8000 x 2500	EST. LBS. PER SQ. FT.
3	●	●	●	●	●							4.82
4	●	●	●	●	●							6.43
5	●	●	●	●	●			●				8.04
6	●	●	●	●	●		●	●		●	●	9.65
7	●	●	●									11.25
8	●	●	●	●	●		●	●			●	12.86
9	●	●	●									14.47
10	●	●	●	●	●	●	●	●	●	●	●	16.08
11	●	●	●									17.69
12	●	●	●	●				●	●			19.29
12.5	●	●	●	●	●	●	●		●			20.10
13	●	●	●									20.90
14	●	●	●									22.51
15	●	●	●		●	●	●	●	●			24.12
16	●	●	●		●	●						25.72
18	●	●	●									28.94
20	●	●	●		●	●	●	●	●			32.16
22	●	●	●									35.37
22.5	●	●	●		●	●						36.18
25	●	●	●		●	●		●	●			40.19
30	●	●	●		●	●		●	●			48.23
32	●	●	●		●	●						51.45

- continued on next page -

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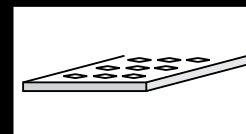
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THICKNESS mm	2000 x 1000	2500 x 1250	3000 x 1500	3660 x 1830	4000 x 2000	5000 x 2500	6000 x 2000	6000 x 2500	6000 x 3000	8000 x 2000	8000 x 2500	EST. LBS. PER SQ. FT.
35	●	●	●		●	●						56.27
40	●	●	●		●	●		●	●			64.31
45	●	●	●		●	●		●	●			72.35
50	●	●	●		●	●	●	●	●			80.39
55	●	●	●									88.43
60	●	●	●		●	●						96.47
65	●	●	●		●	●						104.51
70	●	●	●		●	●						111.77
75	●	●	●		●	●						120.58
80	●	●	●		●	●						128.62
100	●	●	●		●	●						160.78

Metric Hot Rolled Floor Plates

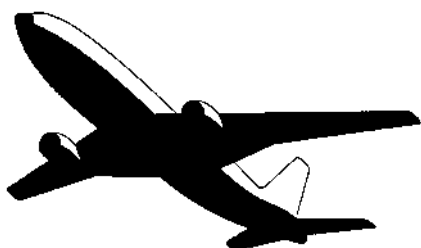


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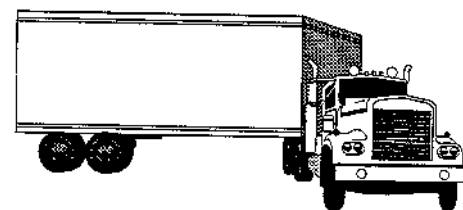
S235JR, S355J, ST37-2, ST52-3, EN 10025-2, DIN 59220, TEAR DROP PATTERN

● = Commonly available

THICKNESS mm (ON PLAIN)	2000 x 1000	2500 x 1250	3000 x 1500	4000 x 1750	EST. LBS. PER SQ. FT.
3	●	●	●		5.36
4					7.15
4.5	●	●	●	●	7.56
5					8.93
6	●	●	●	●	9.97
8	●	●	●	●	13.19
10	●	●	●	●	16.41
12.5	●	●	●		20.42



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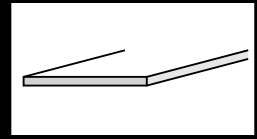
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Metric Cold Rolled Sheets



CARBON STEEL

1005, 1008, 1010, DC01, DIN 1541, DIN 1623, EN 10130

● = Commonly available

STAINLESS STEEL

304,304L, 316, 316L, 2B FINISH, 430 2R FINISH, EN 10088-2, ASTM A240/A240M
(Multiply weights below by 1.0110)

ALUMINUM

5754, H22/H111, EN 485/10204 (Multiply weights below by 0.3462)

BRASS

MS63 (Similar to C274), DIN 17660 (Multiply weights Below by 1.084)

TITANIUM

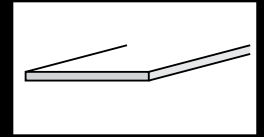
Grade 2, Grade 5 (6Al4V), Grade 7, ASTM B348 (Multiply weights below by .5750)

NICKEL ALLOYS

Hastelloy C276, ASTM B574, Inconel 600,601,625 ASTM B166, B446, Incoloy 825 ASTM B425, Monel 400
ASTM B164, Nickel 200/201 ASTM B160 (Weight per foot on Nickel Alloys see page 59)

THICKNESS mm	2000 x 1000	2500 x 1250	3000 x 1500	EST. LBS. PER SQ. FT.
0.5	●			0.81
0.6	●			0.97
0.7	●	●	●	1.13
0.8	●	●		1.29
0.9				1.45
1.0	●	●		1.61
1.1	●		●	1.77
1.2	●	●		1.93
1.25				2.01
1.4	●	●	●	2.24
1.5				2.42
1.6	●	●		2.57
1.8				2.89
2.0	●	●		3.22
2.2				3.53
2.5	●	●	●	4.02
3.0	●	●		4.82

Metric Electro Galvanized Sheets

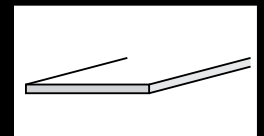


CARBON STEEL
DC01+ZE, EN 10152, DIN 59232

● = Commonly available

THICKNESS mm	2000 x 1000	2500 x 1250	3000 x 1500	EST. LBS. PER SQ. FT.
1.0	●	●		1.61
1.2	●	●		1.93
1.5	●	●		2.42
1.6	●	●		2.57
2.0	●	●		3.22

Metric Galvanized Sheets



CARBON STEEL
DX51D+Z, EN 10142, DIN 59232, DIN 17162

● = Commonly available

THICKNESS mm	2000 x 1000	2500 x 1250	3000 x 1500	EST. LBS. PER SQ. FT.
0.8	●	●		1.29
1.0	●	●		1.61
1.2	●	●		1.93
1.6	●	●		2.57
2.0	●	●		3.22

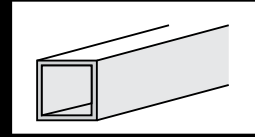


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WELDED – ST37-2, S235JR, DIN 2395, EN 10305-5, EN 10025, DIN 17100, JIS G3466 (KS D3568), STKMR, SS400, STKR400

HOLLOW SECTIONS – ST52-3, S355J2, HRS -EN 10210, CRS – EN 10219, DIN 59410, DIN 59411, JIS G3466 (KS D3568), STKMR, SS400, STKR 400

STAINLESS STEEL

304,304L, 316, 316L, 316Ti, EN 10088-1&2, EN 10217-7, EN 10028-1&7

ALUMINUM

6060 T6, AlMgSi05, EXTRUDED, EN 755, EN 573, DIN 1748

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
10 x 10 x 1.00	0.282	0.19	Welded	25 x 25 x 1.00	0.751	0.51	Welded
1.25	0.342	0.23	Welded	1.25	0.922	0.62	Welded
1.50	0.385	0.26	Welded	1.50	1.092	0.73	Welded
12 x 12 x 1.00	0.339	0.23	Welded	2.00	1.442	0.97	Welded
1.25	0.411	0.28	Welded	2.50	1.763	1.19	Welded
1.50	0.479	0.32	Welded	3.00	2.07	1.39	Welded
15 x 15 x 1.00	0.433	0.29	Welded	30 x 30 x 1.00	0.904	0.61	Welded
1.25	0.529	0.36	Welded	1.25	1.118	0.75	Welded
1.50	0.621	0.42	Welded	1.50	1.327	0.89	Welded
2.00	0.815	0.55	Welded	1.60	1.424	0.96	Hollow
16 x 16 x 1.50	0.668	0.45	Welded	30 x 30 x 2.00	1.756	1.18	Welded
2.00	0.877	0.59	Welded	2.50	2.156	1.45	Welded
18 x 18 x 1.00	0.517	0.35	Welded	2.60	2.233	1.50	Hollow
1.50	0.775	0.52	Welded	3.00	2.54	1.71	Welded
2.00	1.003	0.67	Welded	4.00	3.261	2.19	Welded
20 x 20 x 1.00	0.59	0.40	Welded	34 x 34 x 1.50	1.516	1.02	Welded
1.25	0.725	0.49	Welded	2.00	1.983	1.33	Welded
1.50	0.856	0.58	Welded	2.50	2.431	1.66	Welded
1.60	0.922	0.62	Hollow	3.00	2.86	1.92	Welded
2.00	1.127	0.76	Welded	35 x 35 x 1.25	1.314	0.88	Welded
2.50	1.372	0.92	Welded	1.50	1.2	1.05	Welded
3.0	1.607	1.08	Welded	2.00	1.56	1.38	Welded
22 x 22 x 1.50	0.95	0.64	Welded	2.50	2.548	1.71	Welded
2.00	1.229	0.83	Welded	3.00	3.01	2.02	Welded

- continued on next page

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
40 x 40 x 1.50	1.798	1.21	Welded	4.00	6.398	4.30	Welded
1.60	1.927	1.30	General Purpose	5.00	7.842	5.27	Welded
2.00	2.359	1.59	Welded	60 x 60 x 1.50	2.752	1.85	Welded
2.30	2.719	1.83	General Purpose	1.60	2.931	1.97	Hollow
2.50	2.94	1.98	Machine	2.00	3.645	2.45	Welded
2.60	3.04	2.04	General Purpose	2.30	4.151	2.79	Hollow
2.90	3.375	2.27	Hollow	2.50	4.508	3.03	Welded
3.00	3.481	2.34	Welded	2.60	4.672	3.14	Hollow
40 x 40 x 3.20	3.693	2.48	Welded	2.90	5.193	3.49	Hollow
4.00	4.25	3.04	General Purpose	3.00	5.357	3.60	Welded
4.00	4.516	3.04	Machine	3.20	5.699	3.83	Hollow
5.00	3.952	3.69	Welded	3.50	6.205	4.17	Welded
45 x 45 x 1.50	2.034	1.37	Welded	4.00	7.023	4.66	Welded
2.00	2.69	1.81	Welded	5.00	8.616	5.79	Welded
2.50	3.331	2.24	Welded	5.50	5.5	6.32	Hollow
3.00	3.952	2.66	Welded	6.00	10.163	6.83	Hollow
4.00	5.144	3.46	Welded	65 x 65 x 6.00	11.104	7.46	Hollow
5.00	6.273	4.22	Welded	70 x 70 x 2.00	4.26	2.87	Welded
50 x 50 x 1.50	2.269	1.53	Welded	2.50	5.297	3.56	Welded
1.60	2.428	1.63	Hollow	70 x 70 x 3.00	6.309	4.24	Welded
2.00	3.01	2.02	Welded	3.20	6.64	4.51	Hollow
2.30	3.44	2.31	Hollow	4.00	8.288	5.51	Welded
2.50	3.724	2.50	Welded	5.00	10.193	6.85	Welded
2.60	3.865	2.60	Hollow	6.00	12.038	8.09	Hollow
2.90	4.284	2.88	Hollow	75 x 75 x 1.60	3.69	2.48	Hollow
3.00	4.422	2.97	Welded	2.30	5.238	3.52	Hollow
3.20	4.696	3.16	Hollow	2.50	5.684	3.82	Hollow
3.50	5.104	3.43	Welded	3.20	7.202	4.84	Hollow
4.00	5.77	3.88	Welded	4.50	9.955	6.69	Hollow
4.00	5.77	3.88	Hollow	6.00	12.991	8.73	Hollow
5.00	7.058	4.74	Welded	9.00	18.631	12.52	Hollow
5.00	7.058	4.74	Hollow	80 x 80 x 2.00	4.895	3.29	Welded
6.30	3.318	5.80	Hollow	2.30	5.61	3.77	Hollow
55 x 55 x 2.00	3.301	2.23	Welded	2.50	6.042	4.07	Welded
2.50	4.079	2.75	Welded	2.60	6.309	4.24	Hollow
3.00	4.881	3.28	Welded	3.00	7.247	4.87	Welded

- continued on next page

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
3.20	7.705	5.18	Hollow	6.30	20.491	13.77	Hollow
3.60	8.616	5.79	Hollow	8.00	25.595	17.20	Hollow
4.00	9.538	6.41	Welded	10.00	31.369	21.08	Hollow
4.50	10.654	7.16	Welded	120 x 120 x 3.20	11.726	7.88	Hollow
5.00	11.755	7.90	Welded	4.00	14.553	9.78	Welded
5.60	13.065	8.78	Hollow	4.50	16.308	10.96	Welded
6.00	13.928	9.36	Hollow	5.00	18.035	12.12	Welded
6.30	14.533	9.78	Hollow	5.60	12.011	13.50	Hollow
7.10	16.235	10.91	Hollow	6.00	21.458	14.42	Hollow
8.0	18.065	12.14	Hollow	6.30	22.47	15.10	Hollow
8.80	19.657	13.21	Hollow	8.00	28.11	18.89	Hollow
90 x 90 x 3.00	8.184	5.50	Welded	120 x 120 x 10.00	34.509	23.19	Hollow
3.20	8.72	5.86	Hollow	125 x 125 x 3.20	12.232	8.22	Hollow
3.60	9.761	6.56	Hollow	4.50	17.008	11.43	Hollow
4.00	10.798	7.25	Welded	6.00	23.395	15.05	Hollow
90 x 90 x 4.50	12.068	8.11	Hollow	11.00	39.33	26.43	Hollow
5.00	13.333	8.96	Welded	140 x 140 x 4.00	17.068	11.47	Hollow
5.56	14.717	9.89	Hollow	5.00	21.175	14.23	Hollow
6.00	15.803	10.62	Hollow	5.60	23.601	15.86	Hollow
7.10	18.467	10.84	Hollow	6.30	24.428	17.76	Hollow
8.0	22.41	15.06	Hollow	7.10	29.598	19.89	Hollow
10.0	25.089	16.86	Hollow	8.00	33.125	22.26	Hollow
100 x 100 x 2.00	6.145	4.13	Welded	8.80	36.22	23.34	Hollow
2.50	7.633	5.13	Welded	10.00	40.733	27.40	Hollow
100 x 100 x 3.00	9.122	6.13	Welded	12.50	49.985	33.59	Hollow
3.20	9.717	6.53	Hollow	16	62.232	41.82	Hollow
4.00	11.95	8.09	Welded	150 x 150 x 4.00	18.313	12.31	Hollow
4.50	13.482	9.06	Welded	4.50	20.535	13.80	Hollow
5.00	14.895	10.01	Welded	5.00	22.738	15.28	Hollow
6.00	17.692	11.89	Hollow	6.00	27.098	18.21	Hollow
6.30	18.511	12.44	Hollow	6.30	28.392	19.08	Hollow
8.00	23.08	15.51	Hollow	8.00	35.639	23.95	Hollow
10.00	28.229	18.97	Hollow	10.00	43.913	29.51	Hollow
12.5	34.315	23.06	Hollow	160 x 160 x 4.00	19.568	13.15	Hollow
110 x 110 x 4.00	13.303	8.94	Hollow	5.00	24.315	16.34	Hollow
5.00	16.473	11.07	Hollow	6.00	28.988	19.48	Hollow

- continued on page 31-

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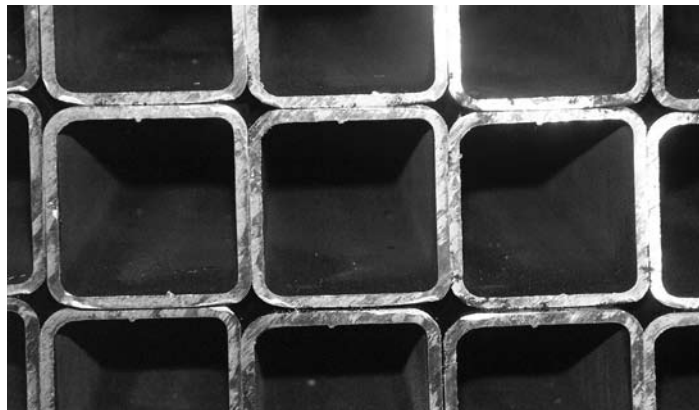
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By the way, if you have any friends or associates that would like one of our Reference Guides, just fill out this postcard and mail it to us. We'll get a Reference Guide out to them in the return mail.

Parker Steel Company

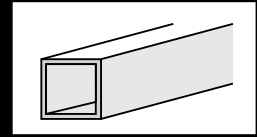
P.O. Box 2883
Toledo, Ohio 43606-2883

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
160 x 160 x 6.30	30.372	20.41	Hollow	12.50	81.369	54.68	Hollow
8.00	38.14	25.63	Hollow	220 x 220 x 14.20	91.666	61.60	Hollow
10.00	47.053	31.62	Hollow	16.00	102.38	68.80	Hollow
12.50	57.842	38.87	Hollow	250 x 250 x 5.00	38.422	25.82	Hollow
14.20	64.94	43.64	Hollow	6.30	48.154	32.36	Hollow
175 x 175 x 6.00	31.815	21.38	Hollow	8.00	60.729	40.81	Hollow
6.30	33.333	22.40	Hollow	10.00	75.282	50.59	Hollow
180 x 180 x 4.00	22.083	14.84	Hollow	12.50	93.125	62.58	Hollow
5.00	27.455	18.45	Hollow	260 x 260 x 7.10	56.324	37.85	Hollow
6.30	34.33	23.07	Hollow	8.80	69.33	46.59	Hollow
8.00	43.169	29.01	Hollow	11.00	85.908	57.73	Hollow
8.80	47.262	31.76	Hollow	14.20	109.47	73.57	Hollow
10.00	53.333	35.84	Hollow	16.00	122.45	82.29	Hollow
12.50	65.684	44.14	Hollow	17.50	133.11	89.45	Hollow
14.20	73.854	49.63	Hollow	280 x 280 x 6.30	54.09	36.35	Hollow
200 x 200 x 5.00	30.58	20.55	Hollow	8.00	62.25	45.87	Hollow
6.30	38.273	25.72	Hollow	10.00	84.7	56.92	Hollow
8.00	48.169	32.37	Hollow	12.50	104.89	70.49	Hollow
10.00	59.598	40.05	Hollow	300 x 300 x 6.30	58.03	39.00	Hollow
12.50	73.527	49.41	Hollow	8.00	73.27	49.24	Hollow
14.20	82.768	55.62	Hollow	10.00	90.96	61.13	Hollow
16.00	92.351	62.06	Hollow	320 x 320 x 10.00	97.25	65.35	Hollow
220 x 220 x 6.30	42.232	28.38	Hollow	12.50	120.5	81.03	Hollow
8.00	53.199	35.75	Hollow	16.00	152.57	102.53	Hollow
10.00	65.878	44.27	Hollow	320 x 350 x 10	106.65	71.67	Hollow



Our square tubing have small radii on the corners, except our aluminum tubes (aluminum extruded tubes have sharp corners).

Metric Square Aluminum Tubing



ALUMINUM

6060 T-6 (Extruded) EN 573-3, EN755-2, EN 755-9

SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.	SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.	SIZE mm	WEIGHT kg/m	EST. LBS. PER FT.
10 x 10 x 1	0.092	.062	35 x 35 x 3	1.056	0.711	70 x 70 x 4	2.904	1.954
15 x 15 x 1.5	0.233	0.150	40 x 40 x 2	0.836	0.563	80 x 80 x 2	1.716	1.155
2	0.286	0.192	2.5	1.031	0.694	3	2.541	1.710
20 x 20 x 1.5	0.305	0.205	3	1.221	0.822	4	3.344	2.251
2	0.396	0.267	4	1.584	1.066	5	4.125	2.776
3	0.561	0.378	45 x 45 x 2	0.946	0.637	6	4.884	3.287
25 x 25 x 1.5	0.388	0.261	50 x 50 x 2	1.056	0.711	90 x 90 x 4	3.784	2.547
2	0.506	0.341	2.5	1.306	0.879	100 x 100 x 2	2.156	1.451
3	0.726	0.489	3	1.551	1.044	3	3.201	2.154
30 x 30 x 2	0.616	0.415	4	2.024	1.362	4	4.224	2.843
3	0.891	0.560	5	2.475	1.665	5	5.225	3.516
4	1.149	.772	60 x 60 x 2	1.276	0.859	120 x 120 x 5	6.325	4.257
34 x 34 x 2	0.704	0.474	3	1.881	1.266	150 x 150 x 5	7.975	5.367
3	1.023	0.688	4	2.464	1.658			
35 x 35 x 2	0.726	0.489	70 x 70 x 2	1.496	1.007			



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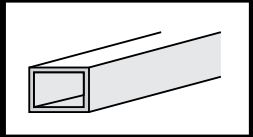
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Fax: 1-419-471-2655

Toll Free: 1-800-333-4140 In Mexico: 001-866-896-8905

email: sales@metricmetal.com

Metric Rectangular Welded and Hollow Tubing



CARBON STEEL

WELDED – ST37-2, S235JR, DIN 2395, EN 10305-5, EN 10025, DIN 17100, JIS G3466 (KS D3568), STKM370, SS400, STKR400

HOLLOW SECTIONS – ST52-3, S355J2, HRS -EN 10210, CRS – EN 10219, DIN 59410, DIN 59411, JIS G3466 (KS D3568), STKM370, SS400, STKR400

STAINLESS STEEL

304,304L, 316, 316L, 316Ti, EN 10088-1&2, EN 10217-7, EN 10028-1&7

ALUMINUM

6060 T6, AIMgSi05, EXTRUDED, EN 755, EN 573, DIN 1748

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
15 x 10 x 1.50	0.565	0.38	Welded	30 x 15 x 1.25	0.831	0.55	Welded
20 x 10 x 1.00	0.438	0.29	Welded	1.50	0.985	0.66	Welded
1.25	0.537	0.36	Welded	2.00	1.280	0.85	Welded
1.50	0.632	0.42	Welded	30 x 20 x 1.00	0.752	0.51	Welded
2.00	0.810	0.53	Welded	1.20	0.910	0.611	Hollow
20 x 15 x 1.00	0.516	0.34	Welded	3 1.25	0.930	0.62	Welded
1.25	0.635	0.42	Welded	1.50	1.100	0.73	Welded
1.50	0.750	0.5	Welded	2.00	1.440	0.95	Welded
2.00	0.967	0.64	Welded	2.50	1.724	1.16	Welded
25 x 10 x 1.00	0.511	0.34	Welded	3.00	2.070	1.39	Welded
1.25	0.627	0.42	Welded	30 x 25 x 1.50	1.222	0.82	Welded
1.50	0.738	0.5	Welded	2.00	1.563	1.05	Welded
2.00	0.946	0.64	Welded	34 x 20 x 1.50	1.186	0.8	Welded
25 x 15 x 1.00	0.595	0.4	Welded	2.00	1.543	1.04	Welded
1.25	0.699	0.47	Welded	35 x 15 x 1.50	1.092	0.73	Welded
1.25	0.738	0.49	Welded	2.00	1.417	0.95	Welded
1.50	0.985	0.58	Welded	35 x 20 x 1.50	1.209	0.81	Welded
2.00	1.280	0.74	Welded	2.00	1.574	1.06	Welded
25 x 20 x 1.50	0.974	0.66	Welded	35 x 25 x 1.50	1.327	0.89	Welded
2.00	1.260	0.85	Welded	2.00	1.731	1.16	Welded
30 x 10 x 1.00	0.595	0.4	Welded	3.00	2.390	1.61	Welded
1.25	0.733	0.49	Welded	40 x 10 x 1.50	1.092	0.73	Welded
1.50	0.868	0.58	Welded	2.00	1.417	0.95	Welded
2.00	1.120	0.74	Welded	40 x 15 x 1.50	1.209	0.81	Welded
30 x 15 x 1.00	0.673	0.45	Welded	2.00	1.574	1.06	Welded

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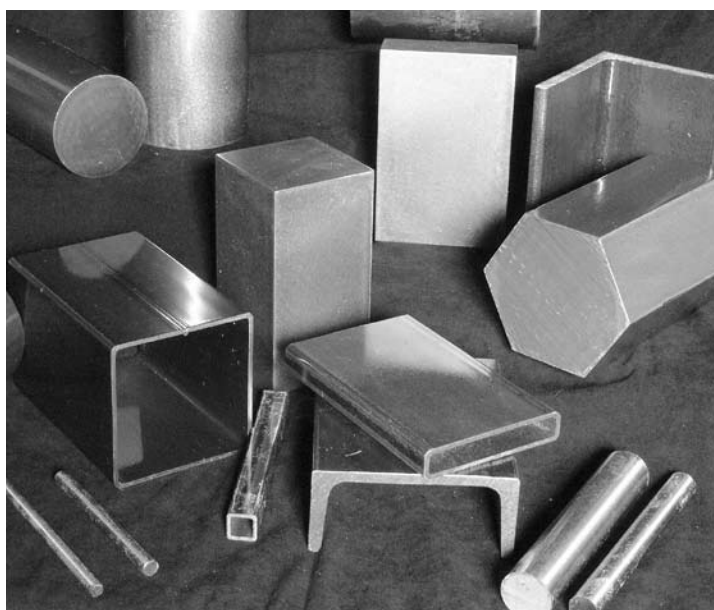
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email: sales@metricmetal.com

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
40 x 20 x 1.00	0.910	0.61	Welded	2.00	2.045	1.38	Welded
1.25	1.118	0.75	Welded	2.50	2.509	1.69	Welded
1.50	1.340	0.89	Welded	50 x 10 x 1.50	1.327	0.89	Welded
2.00	1.750	1.16	Welded	50 x 20 x 1.25	1.314	0.88	Welded
2.50	2.150	1.42	Welded	1.50	1.570	1.05	Welded
2.60	2.100	1.41	Hollow	1.60	1.681	1.13	Hollow
40 x 20 x 3.00	2.390	1.67	Welded	2.00	2.070	1.38	Welded
40 x 25 x 1.25	1.216	0.82	Welded	2.30	2.333	1.57	Hollow
1.50	1.460	0.97	Welded	2.50	2.540	1.71	Welded
2.00	1.910	1.27	Welded	3.00	2.860	1.93	Welded
2.50	2.340	1.56	Welded	50 x 25 x 1.50	1.680	1.13	Welded
3.00	2.630	1.77	Welded	2.00	2.202	1.48	Welded
40 x 30 x 1.50	1.570	1.05	Welded	2.50	2.705	1.82	Welded
2.00	2.070	1.38	Welded	3.00	3.189	2.15	Welded
2.50	2.540	1.69	Welded	50 x 30 x 1.50	1.810	1.21	Welded
3.00	2.860	1.99	Welded	1.60	1.880	1.27	Hollow
45 x 20 x 1.50	1.445	0.97	Welded	2.00	2.380	1.59	Welded
2.00	1.888	1.27	Welded	2.30	2.692	1.81	Hollow
2.50	2.313	1.56	Welded	2.50	2.930	1.95	Welded
45 x 25 x 1.50	1.563	1.05	Welded	2.60	2.920	1.97	Hollow

- continued on next page -



We have many sizes and shapes available.

- METRIC RECTANGULAR WELDED AND HOLLOW TUBING continued from previous page -

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
2.90	3.320	2.23	Hollow	60 x 35 x 1.50	2.151	1.45	Welded
3.00	3.330	2.31	Welded	2.00	2.830	1.9	Welded
50 x 30 x 3.20	3.490	2.35	Hollow	60 x 35 x 2.50	3.490	2.35	Welded
4.00	4.250	2.97	Welded	60 x 40 x 1.50	2.269	1.53	Welded
4.00	4.410	2.97	Hollow	2.00	3.010	2.01	Welded
50 x 34 x 1.50	1.892	1.27	Welded	2.50	3.720	2.48	Welded
2.00	2.485	1.67	Welded	2.60	3.730	2.51	Hollow
2.50	3.059	2.06	Welded	2.90	4.230	2.85	Hollow
50 x 35 x 1.50	1.916	1.29	Welded	3.00	4.280	2.94	Welded
2.00	2.516	1.69	Welded	3.20	4.500	3.03	Hollow
2.50	3.098	2.08	Welded	4.00	5.150	3.82	Welded
50 x 40 x 1.50	2.050	1.37	Welded	5.00	6.897	4.64	Welded
2.00	2.690	1.8	Welded	6.30	8.550	5.75	Hollow
2.50	3.330	2.22	Welded	60 x 50 x 2.00	3.320	2.22	Welded
3.00	3.800	2.62	Welded	2.50	4.110	2.75	Welded
55 x 34 x 1.50	2.010	1.35	Welded	3.00	4.750	3.26	Welded
2.00	2.642	1.78	Welded	4.00	6.140	4.24	Welded
3.00	3.760	2.53	Welded	67 x 35 x 2.00	3.050	2.05	Welded
4.00	4.820	3.24	Welded	70 x 20 x 3.00	3.914	2.63	Welded
60 x 20 x 1.50	1.798	1.21	Welded	70 x 30 x 2.00	1.359	2.02	Welded
2.00	2.380	1.59	Welded	3.00	4.286	2.88	Welded
3.00	3.000	2.31	Welded	70 x 35 x 2.00	3.144	2.12	Welded
60 x 25 x 1.50	1.916	1.29	Welded	2.50	3.883	2.61	Welded
2.00	2.516	1.69	Welded	70 x 40 x 2.00	3.320	2.22	Welded
2.50	3.098	2.08	Welded	2.50	4.110	2.75	Welded
60 x 30 x 1.50	2.034	1.37	Welded	2.90	4.690	3.16	Hollow
1.50	2.172	1.46	Welded	3.00	4.750	3.26	Welded
2.00	2.690	1.8	Welded	4.00	6.140	4.24	Welded
2.30	3.049	2.05	Hollow	70 x 50 x 2.00	3.615	2.43	Welded
2.50	3.300	2.22	Welded	2.50	4.472	3.01	Welded
3.00	3.800	2.62	Welded	3.00	5.309	3.57	Welded
3.20	4.152	2.79	Hollow	3.50	6.127	4.12	Welded
60 x 30 x 4.00	4.880	3.28	Welded	4.00	6.926	4.66	Welded
60 x 33 x 2.00	2.768	1.86	Welded	75 x 20 x 2.30	3.227	2.17	Hollow
2.50	3.412	2.3	Welded	1.60	2.306	1.55	Welded
3.00	4.037	2.72	Welded	75 x 45 x 1.6 0	2.931	1.97	Welded

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SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
2.30	4.152	2.79	Welded	3.20	6.640	4.47	Hollow
3.20	5.595	3.76		4.00	8.180	5.51	Hollow
75 x 50 x 2.30	4.298	2.89	Hollow	90 x 50 x 5.00	10.000	6.73	Welded
4.20	7.680	5.16	Welded	6.30	12.300	8.28	Hollow
6.00	10.620	7.14	Welded	7.10	13.700	9.22	Hollow
80 x 20 x 2.00	3.010	2.01	Welded	100 x 20 x 1.60	2.946	1.98	Hollow
3.00	4.280	2.88	Welded	2.00	3.616	2.43	Welded
80 x 30 x 2.00	3.320	2.24	Welded	3.00	5.491	3.69	Welded
3.00	4.000	3.25	Welded	100 x 40 x 2.00	4.260	2.86	Welded
4.00	4.750	4.26	Welded	2.50	5.290	3.54	Welded
80 x 40 x 2.00	3.615	2.43	Welded	3.00	6.160	4.21	Welded
2.60	4.550	3.06	Hollow	4.00	8.020	5.51	Welded
2.50	4.472	3.01	Welded	5.00	9.700	6.53	Welded
2.90	5.140	3.46	Hollow	100 x 50 x 2.00	4.580	3.08	Welded
3.00	5.309	3.57	Welded	2.50	5.680	3.8	Welded
3.20	5.500	3.7	Hollow	3.00	6.630	4.52	Welded
4.00	6.926	4.66	Welded	3.60	7.980	5.37	Hollow
5.00	8.467	5.7	Welded	4.00	8.650	5.79	Welded
6.30	10.400	7	Hollow	4.50	9.830	6.62	Hollow
80 x 50 x 2.00	3.950	2.64	Welded	5.00	10.470	7.05	Welded
2.50	4.900	3.27	Welded	5.60	12.000	8.08	Hollow
2.60	5.370	3.61	Hollow	6.00	12.038	8.09	Hollow
3.00	5.690	3.89	Welded	7.10	14.800	9.96	Hollow
4.00	7.390	4.94	Welded	8.00	16.429	11.04	Hollow
5.00	8.910	6	Welded	100 x 60 x 2.50	6.070	4.07	Welded
80 x 60 x 2.00	4.280	2.86	Welded	3.00	7.100	4.84	Welded
2.50	5.290	3.54	Welded	3.20	7.510	5.05	Hollow
3.00	6.160	4.21	Welded	3.60	8.550	5.754	Hollow
4.00	8.020	5.51	Welded	4.00	9.280	6.35	Welded
5.00	10.037	6.75	Welded	4.50	10.500	7.066	Hollow
6.00	11.101	7.46	Hollow	5.00	11.607	7.81	Welded
6.35	12.545	8.43	Hollow	5.60	12.900	8.681	Hollow
90 x 40 x 4.00	7.381	4.96	Welded	100 x 60 x 6.00	14.622	9.83	Hollow
90 x 45 x 2.30	4.955	3.33	Hollow	6.30	13.500	9.09	Hollow
3.20	6.800	4.57	Hollow	7.10	15.900	10.7	Hollow
90 x 50 x 3.00	6.240	4.19	Welded	8.80	19.200	12.921	Hollow

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SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
100 x 80 x 2.00	5.520	3.72	Welded	4.00	10.500	7.2	Welded
3.00	8.040	5.47	Welded	5.00	13.176	8.87	Welded
4.00	10.500	7.2	Welded	6.00	14.866	9.99	Hollow
5.00	13.177	8.87	Welded	6.30	16.100	10.84	Hollow
6.30	16.370	11.02	Hollow	7.10	17.900	12.05	Hollow
8.00	18.899	12.7	Hollow	120 x 60 x 8.80	21.500	14.47	Hollow
110 x 60 x 3.60	9.050	6.09	Hollow	120 x 80 x 3.00	9.077	6.11	Welded
4.50	11.100	7.47	Welded	3.20	12.100	8.14	Hollow
5.60	13.600	9.15	Hollow	120 x 80 x 4.00	11.950	8.04	Welded
7.10	16.800	11.31	Hollow	5.00	14.747	9.92	Welded
8.80	20.100	13.53	Hollow	6.30	17.500	11.78	Hollow
110 x 70 x 3.00	8.135	5.47	Welded	8.00	23.154	15.51	Hollow
3.20	8.510	5.73	Hollow	125 x 40 x 2.3	5.774	3.88	Hollow
4.00	10.694	7.2	Welded	125 x 75 x 2.30	7.068	4.75	Hollow
5.00	13.177	8.87	Welded	4.5	1.3.332	8.96	Hollow
6.30	15.500	10.43	Hollow	120 x 80 x 6.00	18.191	12.22	Hollow
120 x 40 x 2.00	4.890	3.29	Welded	140 x 40 x 3.00	8.140	5.47	Welded
3.00	7.100	4.84	Welded	140 x 70 x 4.00	12.541	8.43	Welded
4.00	9.280	6.35	Welded	5.00	15.400	10.36	Hollow
5.00	11.617	7.82	Welded	6.30	19.000	12.79	Hollow
120 x 50 x 3.00	7.738	5.2	Welded	7.10	21.200	14.27	Hollow
120 x 60 x 2.00	5.540	3.71	Welded	8.80	25.600	17.23	Hollow
3.00	8.040	5.47	Welded	140 x 80 x 3.20	10.500	7.07	Hollow
3.20	8.510	5.73	Hollow	4.00	13.120	8.82	Hollow



Metric Size tubing stocked in round, square and rectangular shapes.

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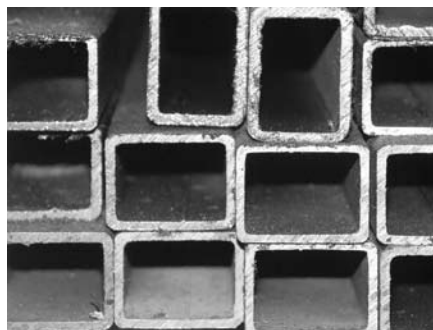
SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
5.00	16.200	10.9	Hollow	6.30	22.400	15.08	Hollow
6.30	20.000	13.46	Hollow	8.00	27.700	18.64	Welded
8.00	24.800	16.69	Welded	10.00	33.646	22.61	Hollow
110.00	30.200	20.32	Welded	160 x 80 x 3.00	10.893	7.32	Hollow
150 x 50 x 3.00	9.023	6.06	Welded	3.20	11.500	7.74	Hollow
4.00	12.024	8.08	Welded	4.00	14.300	9.62	Hollow
5.00	14.745	9.91	Welded	5.00	17.400	11.71	Hollow
6.30	18.467	12.41	Hollow	160 x 80 x 6.30	21.400	14.4	Hollow
150 x 80 x 5.00	17.069	11.47	Hollow	8.00	26.400	17.77	Hollow
150 x 100 x 3.20	12.000	8.08	Hollow	10.00	32.545	21.87	Hollow
4.00	14.092	9.47	Hollow	160 x 90 x 4.50	16.600	11.17	Hollow
150 x 100 x 5.00	18.080	12.15	Hollow	5.60	20.400	13.73	Hollow
6.00	21.473	14.43	Hollow	160 x 90 x 7.10	25.300	17.03	Hollow



We ensure full traceability of all items.

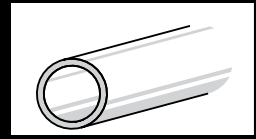
- METRIC REECTANGULAR WELDED AND HOLLOW TUBING continued from previous page -

SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION	SIZE mm	WEIGHT kg/m	EST. LBS. PER. FT.	DESCRIPTION
8.80	30.500	20.53	Hollow	14.20	65.400	44.01	Hollow
10.00	34.100	22.95	Hollow	250 x 150 x 5.00	29.900	20.12	Hollow
180 x 100 x 4.00	16.800	11.31	Hollow	250 x 150 x 6.30	37.300	25.1	Hollow
5.00	20.500	13.8	Hollow	8.00	46.500	31.29	Hollow
5.60	23.000	15.48	Hollow	10.00	56.300	37.89	Hollow
6.30	25.400	17.09	Hollow	12.50	68.300	45.97	Hollow
7.10	28.600	19.25	Hollow	260 x 140 x 6.30	37.500	25.23	Hollow
8.80	34.700	23.35	Hollow	8.00	46.900	31.56	Hollow
10.00	38.800	26.11	Hollow	10.00	57.600	38.76	Hollow
12.50	46.900	31.56	Hollow	12.50	70.400	47.38	Hollow
200 x 100 x 4.00	18.000	12.11	Hollow	14.20	78.800	53.03	Hollow
5.00	22.100	14.2	Hollow	260 x 180 x 6.30	41.500	27.93	Hollow
6.30	27.400	18.44	Hollow	260 x 180 x 8.00	52.000	35	Hollow
8.00	34.000	22.88	Hollow	10.00	63.900	43	Hollow
10.00	40.600	27.32	Hollow	12.50	78.300	52.7	Hollow
200 x 120 x 4.00	19.300	12.99	Hollow	14.20	87.700	59.02	Hollow
5.00	23.700	15.95	Hollow	300 x 100 x 5.00	30.268	20.34	Hollow
.30	29.600	19.92	Hollow	8.00	47.679	32.04	Hollow
8.00	36.500	24.56	Hollow	10.00	58.979	39.63	Hollow
8.80	36.900	24.83	Hollow	300 x 150 x 10.00	67.440	45.32	Hollow
10.00	45.100	31.62	Hollow	300 x 200 x 5.00	37.800	25.44	Hollow
12.50	54.700	38.87	Hollow	6.30	47.100	31.7	Hollow
14.20	60.900	43.64	Hollow	8.00	59.100	39.77	Hollow
220 x 80 x 6.00	26.816	18.02	Hollow	10.00	72.000	48.46	Hollow
220 x 120 x 6.30	31.600	21.27	Hollow	12.00	88.000	59.22	Hollow
8.00	39.400	26.52	Hollow	400 x 200 x 10	90.960	61.13	Hollow
10.00	46.200	31.09	Hollow	450 x 250 x 10	106.650	71.67	Hollow
12.50	58.700	39.51	Hollow				



Rectangular metric tubes.

Metric Round Honed Tubing



CARBON STEEL

Tubes up to 220mm: St 52 BK+S, E355 SR, DIN 2391-C, DIN 2393 and Tubes over 220mm ST 52 BK+S, E355 SR, DIN 2448, Din 1629. All material will also meet EN 10305-1 (See page 54 for specifications.)

ID mm	OD mm	WALL mm	WEIGHT PER FT.	ID mm	OD mm	WALL mm	WEIGHT PER FT.	ID mm	OD mm	WALL mm	WEIGHT PER FT.
25	35	5	2.4840	63	75	6	6.8558	100	120	10	18.2160
25	40	7.5	4.0365	63	78	7.5	8.7561	100	125	12.5	23.2875
25	45	10	5.7960	63	83	10	12.0888	105	115	5	9.1080
30	40	5	2.8980	65	75	5	5.7960	105	120	7.5	13.9725
30	45	7.5	4.6575	65	80	7.5	9.0045	105	125	10	19.0440
30	50	10	6.6240	65	85	10	12.4200	110	120	5	9.5220
32	42	5	3.0636	70	80	5	6.2100	110	125	7.5	14.5935
35	45	5	3.3120	70	82	6	7.5514	110	130	10	19.8720
35	50	7.5	5.2785	70	85	7.5	9.6255	110	140	15	31.0500
40	50	5	3.7260	70	90	10	13.2480	115	130	7.5	15.2145
40	52	6	4.5706	75	85	5	6.6240	115	135	10	20.7000
40	55	7.5	5.8995	75	90	7.5	10.2465	115	140	12.5	26.3925
40	60	10	8.2800	75	95	10	14.0760	120	130	5	10.3500
45	55	5	4.1400	80	90	5	7.0380	120	135	7.5	15.8355
45	60	7.5	6.5205	80	92	6	8.5450	120	140	10	21.5280
45	65	10	9.1080	80	95	7.5	10.8675	120	145	12.5	27.4275
50	60	5	4.5540	80	100	10	14.9040	120	150	15	33.5340
50	62	6	5.5642	80	105	12.5	19.1475	125	140	7.5	16.4565
50	65	7.5	7.1415	80	110	15	23.5980	125	145	10	22.3560
50	70	10	9.9360	85	95	5	7.4520	125	150	12.5	28.4625
55	65	5	4.9680	85	100	7.5	11.4885	125	155	15	34.7760
55	70	7.5	7.7625	85	105	10	15.7320	130	140	5	11.1780
55	75	10	10.7640	90	100	5	7.8660	130	145	7.5	17.0775
60	70	5	5.3820	90	105	7.5	12.1095	130	150	10	23.1840
60	72	6	6.5578	90	110	10	16.5600	130	155	12.5	29.4975
60	75	7.5	8.3835	100	110	5	8.6940	130	160	15	36.0180
60	80	10	11.5920	100	112	6	10.5322	140	150	5	12.0060
63	73	5	5.6304	100	115	7.5	13.3515	140	155	7.5	18.3195

- continued on next page -

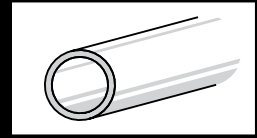
ID mm	OD mm	WALL mm	WEIGHT PER FT.	ID mm	OD mm	WALL mm	WEIGHT PER FT.	ID mm	OD mm	WALL mm	WEIGHT PER FT.
140	160	10	24.8400	160	190	15	43.4700	200	210	5	16.9740
140	165	12.5	31.5675	170	190	10	29.8080	200	215	7.5	25.7715
140	170	15	38.5020	170	200	15	45.9540	200	220	10	34.7760
150	160	5	12.8340	180	200	10	31.4640	200	225	12.5	43.9875
150	165	7.5	19.5615	180	205	12.5	39.8475	200	230	15	53.4060
150	170	10	26.4960	180	210	15	48.4380	200	235	17.5	63.0315
150	180	15	40.9860	180	215	17.5	57.2355	200	240	20	72.8640
160	180	10	28.1520	180	220	20	66.2400				
160	185	12.5	35.7075	190	220	15	50.9220				



Parker Steel is ISO 9001:2008 Certified.



Metric Round Seamless & Hydraulic Tubing



CARBON STEEL

St 35, St 37-4, St 52, S355, E195, E235, EN 10305-1 (DIN 2391), EN10305-4 (DIN 2391-C)

ALLOY STEEL

4140 Modified, 42CrMo, SCM440, ASTM A-29, EN 10083-1

STAINLESS STEEL

304, 304L, 316, 316L, 316 Ti, 321, ASTM A-269, EN 10088-3

TITANIUM

Grade 2, Grade 5 (6Al4V), Grade 7, ASTM B

NICKEL ALLOYS

Nickel 200/201, ASTM B160, Monel 400, ASTM B164, Inconel 600, 601, 625, ASTM B166, B446

ALUMINUM

6060 T-6 (Extruded)

BRASS

CuZn37/CuZn36, CW508L (Similar to 272), Din En 12449

COPPER

ASTM B68, Alloy 122

OUTER DIAMETER D _a		WALL THICKNESS S = NOMINAL SIZE. PERMISSIBLE DEVIATION: NOMINAL SIZE ± 10% THE ECCENTRICITY IS INCLUDED IN THE PERMISSIBLE WALL THICKNESS.														
NOMINAL SIZE	PERMISSIBLE DEVIATION	0.5	0.8	1	1.2	1.5	1.8	2	2.2	2.5	2.8	3	3.5	4	4.5	
4	±0.1	3±0.30	2.4±0.30	2±0.30	1.6±0.30											
5		4±0.30	3.4±0.30	3±0.30	2.6±0.30											
6		5±0.25	4.4±0.25	4±0.25	3.6±0.30	3±0.30	2.4±0.40	2±0.40								
7		6±0.20	5.4±0.20	5±0.25	4.6±0.30	4±0.30	3.4±0.40	3±0.40								
8		7±0.20	6.4±0.20	6±0.20	5.6±0.30	5±0.30	4.4±0.35	4±0.35	3.6±0.40	3±0.40						
9	±0.08	8±0.15	7.4±0.15	7±0.20	6.6±0.25	6±0.25	5.4±0.35	5±0.35	4.6±0.40	4±0.40	3.4±0.45					
10		9±0.15	8.4±0.15	8±0.20	7.6±0.25	7±0.25	6.4±0.30	6±0.30	5.6±0.35	5±0.35	4.4±0.40	4±0.45				
11		10±0.15	9.4±0.15	9±0.15	8.6±0.20	8±0.20	7.4±0.25	8±0.25	7.6±0.30	7±0.30	5.4±0.40	6±0.40	4±0.45	3±0.45		
12		11±0.15	10.4±0.15	10±0.15	9.6±0.20	9±0.20	8.4±0.25	8±0.25	7.6±0.30	7±0.30	6.4±0.40	6±0.40	5±0.45	4±0.45		
13		12±0.08	11.4±0.08	11±0.08	10.6±0.15	10±0.15	9.4±0.20	9±0.20	8.6±0.25	8±0.25	7.4±0.30	7±0.30	6±0.35	5±0.40	4±0.45	
14		13±0.08	12.4±0.08	12±0.08	11.6±0.15	11±0.15	10.4±0.20	10±0.20	9.6±0.25	9±0.25	8.4±0.30	8±0.30	7±0.35	6±0.40	5±0.45	
15		14±0.08	13.4±0.08	13±0.08	12.6±0.08	12±0.15	11.4±0.20	11±0.20	10.6±0.25	10±0.25	9.4±0.30	9±0.30	8±0.35	7±0.35	6±0.40	
16		15±0.08	14.4±0.08	14±0.08	13.6±0.08	13±0.08	12.4±0.15	12±0.15	11.6±0.20	11±0.20	10.4±0.30	10±0.30	9±0.35	8±0.35	7±0.40	
18		17±0.08	16.4±0.08	16±0.08	15.6±0.08	15±0.08	14.4±0.08	14±0.08	13.6±0.20	13±0.20	12.4±0.20	12±0.20	11±0.35	10±0.35	9±0.35	
20		19±0.08	18.4±0.08	18±0.08	17.6±0.08	17±0.08	16.4±0.08	16±0.08	15.6±0.15	15±0.15	14.4±0.15	14±0.20	13±0.30	12±0.35	11±0.35	
22	21±0.08	20.4±0.08	20±0.08	19.6±0.08	19±0.08	18.4±0.08	18±0.08	17.6±0.08	17±0.15	16.4±0.15	16±0.15	15±0.20	14±0.30	13±0.35		
25	24±0.08	23.4±0.08	23±0.08	22.6±0.08	22±0.08	21.4±0.08	21±0.08	20.6±0.08	20±0.08	19.4±0.15	19±0.15	18±0.15	17±0.20	16±0.20		
26	25±0.08	24.4±0.08	24±0.08	23.6±0.08	23±0.08	22.4±0.08	22±0.08	21.6±0.08	21±0.08	20.4±0.15	20±0.15	19±0.15	18±0.15	17±0.20		
28	27±0.08	26.4±0.08	26±0.08	25.6±0.08	25±0.08	24.4±0.08	24±0.08	23.6±0.08	23±0.08	22.4±0.08	22±0.15	21±0.15	20±0.15	19±0.15		
30	29±0.08	28.4±0.08	28±0.08	27.6±0.08	27±0.08	26.4±0.08	26±0.08	25.6±0.08	25±0.08	24.4±0.08	24±0.15	23±0.15	22±0.15	21±0.15		
32	±0.15	31±0.15	30.4±0.15	30±0.15	29.6±0.15	29±0.15	28.4±0.15	28±0.15	27.6±0.15	27±0.15	26.4±0.15	26±0.15	25±0.15	24±0.15	23±0.15	
35		34±0.15	33.4±0.15	33±0.15	32.6±0.15	32±0.15	31.4±0.15	31±0.15	30.6±0.15	30±0.15	29.4±0.15	29±0.15	28±0.15	27±0.15	26±0.15	
38		37±0.15	36.4±0.15	36±0.15	35.6±0.15	35±0.15	34.4±0.15	34±0.15	33.6±0.15	33±0.15	32.4±0.15	32±0.15	31±0.15	30±0.15	29±0.15	
40		39±0.15	38.4±0.15	38±0.15	37.6±0.15	37±0.15	36.4±0.15	36±0.15	35.6±0.15	35±0.15	34.4±0.15	34±0.15	33±0.15	32±0.15	31±0.15	
42	±0.20			40±0.20	39.6±0.20	39±0.20	38.4±0.20	38±0.20	37.6±0.20	37±0.20	36.4±0.20	36±0.20	35±0.20	34±0.20	33±0.20	
45				43±0.20	42.6±0.20	42±0.20	41.4±0.20	41±0.20	40.6±0.20	40±0.20	39.4±0.20	39±0.20	38±0.20	37±0.20	36±0.20	
48				46±0.20	45.6±0.20	45±0.20	44.4±0.20	44±0.20	43.6±0.20	43±0.20	42.4±0.20	42±0.20	41±0.20	40±0.20	39±0.20	
50				48±0.20	47.6±0.20	47±0.20	46.4±0.20	46±0.20	45.6±0.20	45±0.20	44.4±0.20	44±0.20	43±0.20	42±0.20	41±0.20	
55	±0.25			53±0.25	52.6±0.25	52±0.25	51.4±0.25	51±0.25	50.6±0.25	50±0.25	49.4±0.25	49±0.25	48±0.25	47±0.25	46±0.25	
60				58±0.25	57.6±0.25	57±0.25	56.4±0.25	56±0.25	55.6±0.25	55±0.25	54.4±0.25	54±0.25	53±0.25	52±0.25	51±0.25	
65	±0.30			63±0.30	62.6±0.30	62±0.30	61.4±0.30	61±0.30	60.6±0.30	60±0.30	59.4±0.30	59±0.30	58±0.30	57±0.30	56±0.30	
70				68±0.30	67.6±0.30	67±0.30	66.4±0.30	66±0.30	65.6±0.30	65±0.30	64.4±0.30	64±0.30	63±0.30	62±0.30	61±0.30	
75	±0.35			73±0.35	72.6±0.35	72±0.35	71.4±0.35	71±0.35	70.6±0.35	70±0.35	69.4±0.35	69±0.35	68±0.35	67±0.35	66±0.35	
80				78±0.35	77.6±0.35	77±0.35	76.4±0.35	76±0.35	75.6±0.35	75±0.35	74.4±0.35	74±0.35	73±0.35	72±0.35	71±0.35	
85	±0.40					82±0.40	81.4±0.40	81±0.40	80.6±0.40	80±0.40	79.4±0.40	79±0.40	78±0.40	77±0.40	76±0.40	
90						87±0.40	86.4±0.40	86±0.40	85.6±0.40	85±0.40	84.4±0.40	84±0.40	83±0.40	82±0.40	81±0.40	
95	±0.45							91±0.45	90.6±0.45	90±0.45	89.4±0.45	89±0.45	88±0.45	87±0.45	86±0.45	

Seamless precision steel tubes DIN 2391, Sheet 2, EN 10305-1 and seamless high pressure steel tubes, 37-4 NBK bonderized (phosphate treated); Qualities: St. 35, St. 52, S355, and others available upon request; Availabilities: BK-bright hard, BKW-bright soft, GBK-bright annealed, NBK-normalised bright annealed

Tolerances above are for carbon and stainless steel only.

Parker Steel Company

Distribution Centers in Toledo, OH & Fresno, CA

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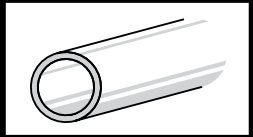
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Metric Round Seamless & Hydraulic Tubing



CARBON STEEL

St 35, St 37-4, St 52, S355, E195, E235, EN 10305-1 (DIN 2391), EN10305-4 (DIN 2391-C)

ALLOY STEEL

4140 Modified, 42CrMo, SCM440, ASTM A-29, EN 10083-1

STAINLESS STEEL

304, 304L, 316, 316L, 316 Ti, 321, ASTM A-269, EN 10088-3

TITANIUM

Grade 2, Grade 5 (6Al4V), Grade 7, ASTM B

NICKEL ALLOYS

Nickel 200/201, ASTM B160, Monel 400, ASTM B164, Inconel 600, 601, 625, ASTM B166, B446

ALUMINUM

6060 T-6 (Extruded)

BRASS

CuZn37/CuZn36, CW508L (Similar to 272), Din En 12449

COPPER

ASTM B68, Alloy 122

OUTER DIAMETER D_o		WALL THICKNESS S = NOMINAL SIZE. PERMISSIBLE DEVIATION: NOMINAL SIZE \pm 10% THE ECCENTRICITY IS INCLUDED IN THE PERMISSIBLE WALL THICKNESS.													
NOMINAL SIZE	PERMISSIBLE DEVIATION	5	5.5	6	7	8	9	10	12	14	16	18	20	22	25
4	± 0.1														
5															
6															
7															
8															
9															
10	± 0.08														
11															
12															
13															
14															
15		5 \pm 0.45													
16		6 \pm 0.40	5 \pm 0.45	4 \pm 0.45											
18		8 \pm 0.35	7 \pm 0.40	6 \pm 0.40											
20		10 \pm 0.35	9 \pm 0.35	8 \pm 0.35	6 \pm 0.35										
22		12 \pm 0.35	11 \pm 0.35	10 \pm 0.35	8 \pm 0.35										
25	15 \pm 0.30	14 \pm 0.30	13 \pm 0.30	11 \pm 0.35	9 \pm 0.35										
26	16 \pm 0.30	15 \pm 0.30	14 \pm 0.30	12 \pm 0.35	10 \pm 0.35										
28	18 \pm 0.30	17 \pm 0.30	16 \pm 0.30	14 \pm 0.30	12 \pm 0.35										
30	20 \pm 0.15	19 \pm 0.30	18 \pm 0.30	16 \pm 0.30	14 \pm 0.30	12 \pm 0.30	10 \pm 0.35								
32	22 \pm 0.15	21 \pm 0.30	20 \pm 0.30	18 \pm 0.30	16 \pm 0.30	14 \pm 0.30	12 \pm 0.30								
35	± 0.15	25 \pm 0.15	24 \pm 0.20	23 \pm 0.20	21 \pm 0.20	19 \pm 0.25	17 \pm 0.30	15 \pm 0.30							
38		28 \pm 0.15	27 \pm 0.15	26 \pm 0.15	24 \pm 0.20	22 \pm 0.25	20 \pm 0.25	18 \pm 0.30							
40		30 \pm 0.15	29 \pm 0.15	28 \pm 0.15	26 \pm 0.20	24 \pm 0.25	22 \pm 0.30	20 \pm 0.30							
42	± 0.20	32 \pm 0.20	31 \pm 0.20	30 \pm 0.20	28 \pm 0.20	26 \pm 0.20	24 \pm 0.20	22 \pm 0.30							
45		35 \pm 0.20	34 \pm 0.20	33 \pm 0.20	31 \pm 0.20	29 \pm 0.20	27 \pm 0.20	25 \pm 0.25							
48		38 \pm 0.20	37 \pm 0.20	36 \pm 0.20	34 \pm 0.20	32 \pm 0.20	30 \pm 0.20	28 \pm 0.20							
50		40 \pm 0.20	39 \pm 0.20	38 \pm 0.20	36 \pm 0.20	34 \pm 0.20	32 \pm 0.20	30 \pm 0.20							
55	± 0.25	45 \pm 0.25	44 \pm 0.25	43 \pm 0.25	41 \pm 0.25	39 \pm 0.25	37 \pm 0.25	35 \pm 0.25	31 \pm 0.25						
60		50 \pm 0.25	49 \pm 0.25	48 \pm 0.25	46 \pm 0.25	44 \pm 0.25	42 \pm 0.25	40 \pm 0.25	36 \pm 0.25						
65	± 0.30	55 \pm 0.30	54 \pm 0.30	53 \pm 0.30	51 \pm 0.30	49 \pm 0.30	47 \pm 0.30	45 \pm 0.30	41 \pm 0.30	37 \pm 0.30					
70		60 \pm 0.30	59 \pm 0.30	58 \pm 0.30	56 \pm 0.30	54 \pm 0.30	52 \pm 0.30	50 \pm 0.30	46 \pm 0.30	42 \pm 0.30					
75	± 0.35	65 \pm 0.35	64 \pm 0.35	63 \pm 0.35	61 \pm 0.35	59 \pm 0.35	57 \pm 0.35	55 \pm 0.35	51 \pm 0.35	47 \pm 0.35	43 \pm 0.35				
80		70 \pm 0.35	69 \pm 0.35	68 \pm 0.35	66 \pm 0.35	64 \pm 0.35	62 \pm 0.35	60 \pm 0.35	56 \pm 0.35	52 \pm 0.35	48 \pm 0.35				
85	± 0.40	75 \pm 0.40	74 \pm 0.40	73 \pm 0.40	71 \pm 0.40	69 \pm 0.40	67 \pm 0.40	65 \pm 0.40	61 \pm 0.40	57 \pm 0.40	53 \pm 0.40				
90		80 \pm 0.40	79 \pm 0.40	78 \pm 0.40	76 \pm 0.40	74 \pm 0.40	72 \pm 0.40	70 \pm 0.40	66 \pm 0.40	62 \pm 0.40	58 \pm 0.40				
95	± 0.45	85 \pm 0.45	84 \pm 0.45	83 \pm 0.45	81 \pm 0.45	79 \pm 0.45	77 \pm 0.45	75 \pm 0.45	71 \pm 0.45	67 \pm 0.45	63 \pm 0.45	59 \pm 0.45			

Seamless precision steel tubes DIN 2391, Sheet 2, EN 10305-1 and seamless high pressure steel tubes, 37-4 NBK bonderized (phosphate treated); Qualities: St. 35, St. 52, S355, and others available upon request; Availabilities: BK-bright hard, BKW-bright soft, GBK-bright annealed, NBK-normalised bright annealed

Tolerances above are for carbon and stainless steel only.

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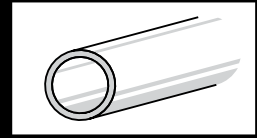
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email: sales@metricmetal.com

Metric Round Seamless & Hydraulic Tubing



CARBON STEEL

St 35, St 37-4, St 52, S355, E195, E235, EN 10305-1 (DIN 2391), EN10305-4 (DIN 2391-C)

ALLOY STEEL

4140 Modified, 42CrMo, SCM440, ASTM A-29, EN 10083-1

STAINLESS STEEL

304, 304L, 316, 316L, 316 Ti, 321, ASTM A-269, EN 10088-3

TITANIUM

Grade 2, Grade 5 (6Al4V), Grade 7, ASTM B

NICKEL ALLOYS

Nickel 200/201, ASTM B160, Monel 400, ASTM B164, Inconel 600, 601, 625, ASTM B166, B446

ALUMINUM

6060 T-6 (Extruded)

BRASS

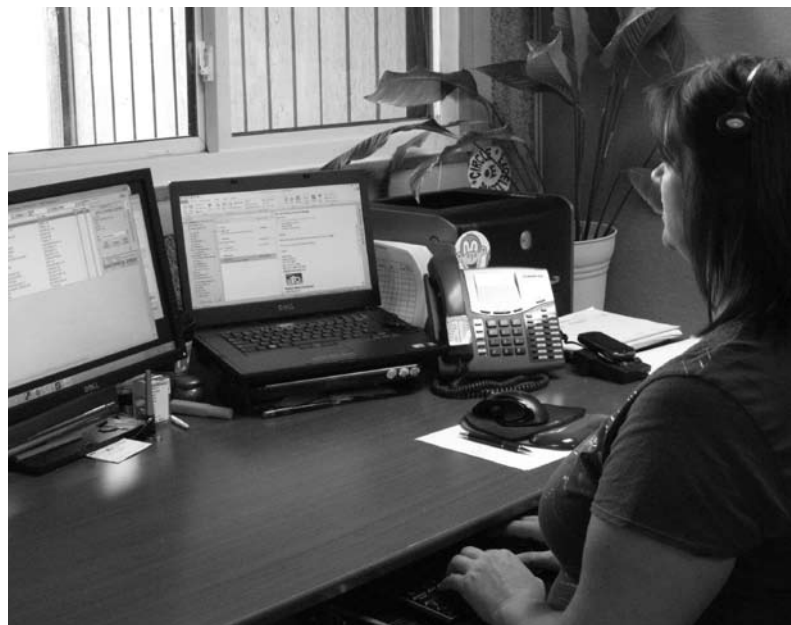
CuZn37/CuZn36, CW508L (Similar to 272), Din En 12449

COPPER

ASTM B68, Alloy 122

OUTER DIAMETER D _a		WALL THICKNESS S = NOMINAL SIZE. PERMISSIBLE DEVIATION: NOMINAL SIZE ± 10% THE ECCENTRICITY IS INCLUDED IN THE PERMISSIBLE WALL THICKNESS.													
NOMINAL SIZE	PERMISSIBLE DEVIATION	0.5	0.8	1	1.2	1.5	1.8	2	2.2	2.5	2.8	3	3.5	4	4.5
100	±0.45							96±0.45	95.6±0.45	95±0.45	94.4±0.45	94±0.45	93±0.45	92±0.45	91±0.45
110	±0.50							106±0.50	105.6±0.50	105±0.50	104.4±0.50	104±0.50	103±0.50	102±0.50	101±0.50
120								116±0.50	115.6±0.50	115±0.50	114.4±0.50	114±0.50	113±0.50	112±0.50	111±0.50
130	±0.70									125±0.70	124.4±0.70	124±0.70	123±0.70	122±0.70	121±0.70
140										135±0.70	134.4±0.70	134±0.70	133±0.70	132±0.70	131±0.70
150	±0.80											144±0.80	143±0.80	142±0.80	141±0.80
160												154±0.80	153±0.80	152±0.80	151±0.80
170	±0.90											164±0.90	163±0.90	162±0.90	161±0.90
180													173±0.90	172±0.90	171±0.90
190	±1.00												183±1.00	182±1.00	181±1.00
200													193±1.00	192±1.00	191±1.00
220	±1.20														211±1.20
240															231±1.20
260	±1.30														

Tolerances above are for carbon and stainless steel only.



Call toll free 1-800-333-4140 or 1-419-473-2481 M-F, 7:30 a.m. to 7:30 p.m. EST.
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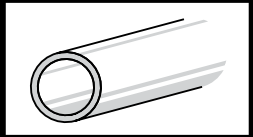
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Metric Round Seamless & Hydraulic Tubing



CARBON STEEL

St 35, St 37-4, St 52, S355, E195, E235, EN 10305-1 (DIN 2391), EN10305-4 (DIN 2391-C)

ALLOY STEEL

4140 Modified, 42CrMo, SCM440, ASTM A-29, EN 10083-1

STAINLESS STEEL

304, 304L, 316, 316L, 316 Ti, 321, ASTM A-269, EN 10088-3

TITANIUM

Grade 2, Grade 5 (6Al4V), Grade 7, ASTM B

NICKEL ALLOYS

Nickel 200/201, ASTM B160, Monel 400, ASTM B164, Inconel 600, 601, 625, ASTM B166, B446

ALUMINUM

6060 T-6 (Extruded)

BRASS

CuZn37/CuZn36, CW508L (Similar to 272), Din En 12449

COPPER

ASTM B68, Alloy 122

OUTER DIAMETER D _a		WALL THICKNESS S = NOMINAL SIZE. PERMISSIBLE DEVIATION: NOMINAL SIZE ± 10% THE ECCENTRICITY IS INCLUDED IN THE PERMISSIBLE WALL THICKNESS.													
NOMINAL SIZE	PERMISSIBLE DEVIATION	5	5.5	6	7	8	9	10	12	14	16	18	20	22	25
100	±0.45	90±0.45	89±0.45	88±0.45	86±0.45	84±0.45	82±0.45	80±0.45	76±0.45	72±0.45	68±0.45	64±0.45			
110	±0.50	100±0.50	99±0.50	98±0.50	96±0.50	94±0.50	92±0.50	90±0.50	86±0.50	82±0.50	78±0.50	74±0.50			
120		110±0.50	109±0.50	108±0.50	106±0.50	104±0.50	102±0.50	100±0.50	96±0.50	92±0.50	88±0.50	84±0.50			
130	±0.70	120±0.70	119±0.70	118±0.70	116±0.70	114±0.70	112±0.70	110±0.70	106±0.70	102±0.70	98±0.70	94±0.70			
140		130±0.70	129±0.70	128±0.70	126±0.70	124±0.70	122±0.70	120±0.70	116±0.70	112±0.70	108±0.70	104±0.70			
150	±0.80	140±0.80	139±0.80	138±0.80	136±0.80	134±0.80	132±0.80	130±0.80	126±0.80	122±0.80	118±0.80	114±0.80	110±0.80		
160		150±0.80	149±0.80	148±0.80	146±0.80	144±0.80	142±0.80	140±0.80	136±0.80	132±0.80	128±0.80	124±0.80	120±0.80		
170	±0.90	160±0.90	159±0.90	158±0.90	156±0.90	154±0.90	152±0.90	150±0.90	146±0.90	142±0.90	138±0.90	134±0.90	130±0.90		
180		170±0.90	169±0.90	168±0.90	166±0.90	164±0.90	162±0.90	160±0.90	156±0.90	152±0.90	148±0.90	144±0.90	140±0.90		
190	±1.00	180±1.00	179±1.00	178±1.00	176±1.00	174±1.00	172±1.00	170±1.00	166±1.00	162±1.00	158±1.00	154±1.00	150±1.00	146±1.00	
200		190±1.00	189±1.00	188±1.00	186±1.00	184±1.00	182±1.00	180±1.00	176±1.00	172±1.00	168±1.00	164±1.00	160±1.00	156±1.00	
220	±1.20	210±1.20	209±1.20	208±1.20	206±1.20	204±1.20	202±1.20	200±1.20	196±1.20	182±1.20	188±1.20	184±1.20	180±1.20	176±1.20	170±1.20
240		230±1.20	229±1.20	228±1.20	226±1.20	224±1.20	222±1.20	220±1.20	216±1.20	212±1.20	208±1.20	204±1.20	200±1.20	196±1.20	190±1.20
260	±1.30	250±1.30	249±1.30	248±1.30	246±1.30	244±1.30	242±1.30	240±1.30	236±1.30	232±1.30	228±1.30	224±1.30	220±1.30	216±1.30	210±1.30

Seamless precision steel tubes DIN 2391, Sheet 2, EN 10305-1 and seamless high pressure steel tubes, 37-4 NBK bonderized (phosphate treated); Qualities: St. 35, St. 52, S355, and others available upon request; Availabilities: BK-bright hard, BKW-bright soft, GBK-bright annealed, NBK-normalised bright annealed

Tolerances above are for carbon and stainless steel only.



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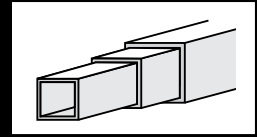
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Metric Square Telescopic Tubing



CARBON STEEL

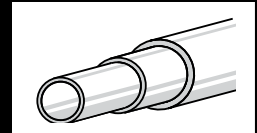
E195, E235, (1002/1010), EN 10305-5, DIN 2395 (Weld bead removed from OD and ID)

ALUMINUM

6060 T6, AlMgSi05, EXTRUDED, EN 755-2, EN 573-3, DIN 1748 (Multiply weight below by .3462)
(Tolerances listed below do not include Extruded Aluminum material.)

SIZE mm	WEIGHT kg/m	EST. WEIGHT PER FT.	SIZE mm	WEIGHT kg/m	EST. WEIGHT PER FT.
15 x 15 x 2	0.278	0.187	35 x 35 x 2	2.045	1.38
20 x 20 x 2	0.381	0.256	40 x 40 x 2	2.359	1.59
25 x 25 x 2	1.417	0.95	50 x 50 x 2	2.987	2.01
30 x 30 x 2	1.731	1.16			

Metric Round Telescopic Tubing



ALLOY

4140 Modified, 42CrMo4, SCM440, En 10083-1, JIS

STAINLESS STEEL

304, 304L, 316, 316L, ASTM A269, EN 10088-3

ALUMINUM

6060 T6 Temper (Extruded), EN 755 (Tolerances listed below do not include Extruded Aluminum material.)

OUTSIDE TUBE	ID TOLERANCE	INSIDE TUBE	O.D. TOLERANCE	SIZE mm	WEIGHT kg/m	EST. WEIGHT PER FT.
15 OD x 2 wall	+/- .20mm	10 OD x 2	+/- .08mm	60 OD x 2 wall	+/- .25mm	55 OD x 2 +/- .25mm
20 OD x 2 wall	+/- .08mm	15OD x 2	+/- .08mm	65 OD x 2 wall	+/- .30mm	60 OD x 2 +/- .25mm
25 OD x 2 wall	+/- .08mm	20 OD x 2	+/- .08mm	70 OD x 2 wall	+/- .30mm	65 OD x 2 +/- .30mm
30 OD x 2 wall	+/- .08mm	25 OD x 2	+/- .08mm	75 OD x 2 wall	+/- .35mm	70 OD x 2 +/- .40mm
35 OD x 2 wall	+/- 1.5mm	30 OD x 2	+/- .08mm	80 OD x 2 wall	+/- .35mm	75 OD x2 +/- .35mm
40 OD x 2 wall	+/- 1.5mm	35 OD x 2	+/- 1.5mm	85 OD x 2 wall	+/- .40mm	80OD x 2 +/- .35mm
45 OD x 2 wall	+/- .20mm	40 OD x 2	+/- 1.5mm	90 OD x 2 wall	+/- .40mm	85 OD x 2 +/- .40mm
50 OD x 2 wall	+/- .20mm	45 OD x 2	+/- 1.5mm	95 OD x 2 wall	+/- .45mm	90OD x 2 +/- .40mm
55 OD x 2 wall	+/- .25mm	50 OD x 2	+/- .20mm	100 OD x 2 wall	+/- .45mm	95OD x 2 +/- .45mm

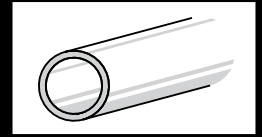
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Capillary Tubing



STAINLESS STEEL

304, 316, 316L, 321, ASTM A213, ASTM A-269, DIN 17458 CLASS 1, DIN 2462-1
 Tolerance: Permissible variations in OD +/- .005" (.13 mm), Wall Thickness +/- 15%

I.D. listed in center area.

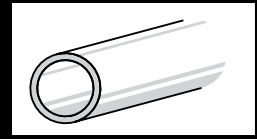
O.D. mm	Wall mm																												
	.025	.075	.080	.090	.100	.125	.130	.150	.175	.200	.225	.250	.300	.350	.375	.400	.450	.500	.600	.75	0.80	0.85	1.00	1.25	1.50	2.00	2.50		
0.10	0.05																												
0.20			0.04																										
0.30		0.15	0.14		0.10																								
0.40					0.20																								
0.50					0.30			0.20																					
0.55					0.37																								
0.60					0.40		0.34																						
0.62								0.32																					
0.70						0.45		0.40																					
0.80								0.50	0.45			0.30		0.10															
0.90										0.50																			
1.00					0.80			0.70		0.60		0.50	0.40	0.30															
1.10										0.70																			
1.20										0.80							0.30												
1.30											0.85	0.80																	
1.40										1.00																			
1.50							1.20		1.10		1.00		0.80		0.70		0.50												
1.60									1.20			1.00					0.60		0.10										
1.70									1.30																				
1.80											1.30				1.00														
1.90											1.40																		
2.00					1.80				1.60		1.50	1.40					1.00												
2.20												1.60								0.50									
2.40																1.60													
2.50									2.10		2.00	1.90					1.50												
2.60												2.00																	
2.80																2.00													
3.00									2.60		2.50						2.00		1.50				1.00						
3.20									2.80							2.40													
3.25																										0.75			
3.50															2.75		2.50	2.30											
4.00												3.50					3.00	2.50					2.00	1.50	1.00				
4.50												4.00					3.50												
5.00								4.70		4.60	4.50						4.00	3.50					3.00		2.00				
5.30											4.80																		
5.50																											3.50		
6.00								5.70				5.50					5.20	5.00	4.50	4.40			4.00		3.00	2.00	1.00		

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Metric Round Tubing / Pounds Per Lineal Foot Chart



OUTSIDE DIAMETER mm	WALL THICKNESS mm																																	
	0.5	0.8	1	1.2	1.5	1.8	2	2.2	2.5	2.8	3	3.5	4	4.5	5	5.5	6	7	8	9	10	12	14	16	18	20	22	25						
4	0.03	0.04	0.05	0.06	0.06	0.07																												
5	0.04	0.06	0.07	0.08	0.09	0.10	0.10																											
6	0.05	0.07	0.08	0.10	0.11	0.13	0.13	0.14	0.14	0.15																								
7	0.05	0.08	0.10	0.12	0.14	0.16	0.17	0.17	0.19	0.19	0.20																							
8	0.06	0.10	0.12	0.14	0.16	0.18	0.20	0.21	0.23	0.24	0.25	0.26																						
9	0.07	0.11	0.13	0.16	0.19	0.21	0.23	0.25	0.27	0.29	0.30	0.32	0.33																					
10	0.08	0.12	0.15	0.17	0.21	0.24	0.26	0.28	0.31	0.33	0.35	0.38	0.40	0.41																				
12	0.10	0.15	0.18	0.21	0.26	0.30	0.33	0.36	0.39	0.43	0.45	0.49	0.53	0.56	0.58	0.59																		
14	0.11	0.17	0.22	0.25	0.31	0.36	0.40	0.43	0.48	0.52	0.55	0.61	0.66	0.71	0.75	0.77	0.79																	
15	0.12	0.19	0.23	0.27	0.34	0.39	0.43	0.47	0.52	0.57	0.60	0.67	0.73	0.78	0.83	0.87	0.89	0.93																
16	0.13	0.20	0.25	0.29	0.36	0.42	0.46	0.50	0.56	0.61	0.65	0.72	0.79	0.86	0.91	0.96	0.99	1.04																
18	0.14	0.23	0.28	0.33	0.41	0.48	0.53	0.58	0.64	0.70	0.75	0.84	0.93	1.01	1.08	1.14	1.19	1.28	1.32															
20	0.16	0.25	0.31	0.37	0.46	0.54	0.60	0.65	0.72	0.80	0.84	0.96	1.06	1.16	1.24	1.32	1.39	1.51	1.59	1.64														
22	0.18	0.28	0.35	0.41	0.51	0.60	0.66	0.72	0.81	0.89	0.94	1.07	1.19	1.30	1.41	1.50	1.59	1.74	1.85	1.94	1.99													
25	0.20	0.32	0.40	0.47	0.58	0.69	0.76	0.83	0.93	1.03	1.09	1.25	1.39	1.53	1.66	1.78	1.89	2.09	2.25	2.38	2.48	2.58												
26	0.21	0.33	0.41	0.49	0.61	0.72	0.79	0.87	0.97	1.08	1.14	1.30	1.46	1.60	1.74	1.87	1.99	2.20	2.38	2.53	2.65	2.78												
28	0.23	0.36	0.45	0.53	0.66	0.78	0.86	0.94	1.06	1.17	1.24	1.42	1.59	1.75	1.90	2.05	2.19	2.43	2.65	2.83	2.98	3.18												
30	0.24	0.39	0.48	0.57	0.71	0.84	0.93	1.01	1.14	1.26	1.34	1.54	1.72	1.90	2.07	2.23	2.38	2.67	2.91	3.13	3.31	3.58	3.71											
32	0.26	0.41	0.51	0.61	0.76	0.90	0.99	1.09	1.22	1.35	1.44	1.65	1.85	2.05	2.24	2.41	2.58	2.90	3.18	3.43	3.64	3.97	4.17											
35	0.29	0.45	0.56	0.67	0.83	0.99	1.09	1.19	1.35	1.49	1.59	1.83	2.05	2.27	2.48	2.69	2.88	3.25	3.58	3.88	4.14	4.57	4.87	5.03										
38	0.31	0.49	0.61	0.73	0.91	1.08	1.19	1.30	1.47	1.63	1.74	2.00	2.25	2.50	2.73	2.96	3.18	3.59	3.97	4.32	4.64	5.17	5.56	5.83	5.96									
40	0.33	0.52	0.65	0.77	0.96	1.14	1.26	1.38	1.55	1.72	1.84	2.12	2.38	2.65	2.90	3.14	3.38	3.83	4.24	4.62	4.97	5.56	6.03	6.36	6.56									
42		0.68	0.81		1.01	1.20	1.32	1.45	1.64	1.82	1.94	2.23	2.52	2.79	3.06	3.32	3.58	4.06	4.50	4.92	5.30	5.96	6.49	6.89	7.15	7.29								
45		0.73	0.87		1.08	1.29	1.42	1.56	1.76	1.96	2.09	2.41	2.72	3.02	3.31	3.60	3.88	4.40	4.90	5.37	5.80	6.56	7.19	7.68	8.05	8.28	8.38							
48		0.78	0.93		1.16	1.38	1.52	1.67	1.88	2.10	2.24	2.58	2.91	3.24	3.56	3.87	4.17	4.75	5.30	5.81	6.29	7.15	7.88	8.48	8.94	9.27	9.47							
50		0.81	0.97		1.20	1.44	1.59	1.74	1.97	2.19	2.33	2.70	3.05	3.39	3.73	4.05	4.37	4.98	5.56	6.11	6.62	7.55	8.35	9.01	9.54	9.94	10.20							
55		0.89	1.07		1.33	1.59	1.76	1.92	2.17	2.42	2.58	2.98	3.38	3.76	4.14	4.51	4.87	5.56	6.23	6.86	7.45	8.54	9.51	10.33	11.03	11.59	12.02	12.42						
60		0.98	1.17		1.45	1.73	1.92	2.11	2.38	2.65	2.83	3.27	3.71	4.14	4.55	4.96	5.37	6.14	6.89	7.60	8.28	9.54	10.66	11.66	12.52	13.25	13.84	14.49						
65		1.06	1.27		1.58	1.88	2.09	2.29	2.59	2.88	3.08	3.56	4.04	4.51	4.97	5.42	5.86	6.72	7.55	8.35	9.11	10.53	11.82	12.98	14.01	14.90	15.67	16.56						
70		1.14	1.37		1.70	2.03	2.25	2.47	2.79	3.12	3.33	3.85	4.37	4.88	5.38	5.87	6.36	7.30	8.21	9.09	9.94	11.53	12.98	14.31	15.50	16.56	17.49	18.63						
75		1.23	1.47		1.83	2.18	2.42	2.65	3.00	3.35	3.58	4.14	4.70	5.25	5.80	6.33	6.86	7.88	8.88	9.84	10.76	12.52	14.14	15.63	16.99	18.22	19.31	20.70						
80		1.31	1.57		1.95	2.33	2.58	2.83	3.21	3.58	3.83	4.43	5.03	5.63	6.21	6.79	7.35	8.46	9.54	10.58	11.59	13.51	15.30	16.96	18.48	19.87	21.13	22.77						
85					2.07	2.48	2.75	3.02	3.42	3.81	4.07	4.72	5.37	6.00	6.62	7.24	7.85	9.04	10.20	11.33	12.42	14.51	16.46	18.28	19.97	21.53	22.95	24.84						
90					2.20	2.63	2.91	3.20	3.62	4.04	4.32	5.01	5.70	6.37	7.04	7.70	8.35	9.62	10.86	12.07	13.25	15.50	17.62	19.61	21.46	23.18	24.77	226.91						
95									3.83	4.28	4.57	5.30	6.03	6.74	7.45	8.15	8.84	10.20	11.53	12.82	14.08	16.49	18.78	20.93	22.96	24.84	26.60	28.98						
100									4.04	4.51	4.82	5.59	6.36	7.12	7.87	8.61	9.34	10.78	12.19	13.56	14.90	17.49	19.94	22.26	24.44	26.50	28.42	31.05						
110									4.45	4.97	5.32	6.17	7.02	7.86	8.69	9.52	10.33	11.94	13.51	15.05	16.56	19.47	22.26	24.91	27.42	29.81	32.06	35.19						
120									4.86	5.43	5.81	6.75	7.68	8.61	9.52	10.43	11.33	13.10	14.84	16.54	18.22	21.46	24.58	27.56	30.40	33.12	35.70	39.33						
130									5.28	5.90	6.31	7.33	8.35	9.35	10.35	11.34	12.32	14.26	16.16	18.03	19.87	23.45	26.89	30.21	33.38	36.43	39.35	43.47						
140									5.69	6.36	6.81	7.91	9.01	10.10	11.18	12.25	13.31	15.42	17.49	19.52	21.53	25.44	29.21	32.86	36.37	39.74	42.99	47.61						
150													9.67	10.84	12.01	13.16	14.31	16.58	18.81	21.01	23.18	27.42	31.53	35.50	39.35	43.06	46.63	51.75						
160													10.33	11.59	12.83	14.07	15.30	17.74	20.14	22.51	24.84	29.41	33.85	38.15	42.33	46.37	50.28	55.89						
170													11.00	12.33	13.66	14.98	16.30	18.89	21.46	24.00	26.50	31.40	36.17	40.80	45.31	49.68	53.92	60.03						
180													11.66	13.08	14.49	15.89	17.29	20.05	22.79	25.49	28.15	33.38	38.49	43.45	48.29	52.99	57.56	64.17						
190													12.32	13.82	15.32	16.80	18.28	21.21	24.11	26.98	29.81	35.37	40.80	46.10	51.27	56.30	61.21	68.31						
200													12.98	14.57	16.15	17.72	19.28	22.37	25.44	28.47	31.46	37.36	43.12	48.75	54.25	59.62	64.85	72.45						
220																	16.06	17.80	19.54	21.26	24.69	28.09	31.45	34.78	41.33	47.65	54.25	60.21	66.24	72.14	80.73			
240																	17.55	19.46	21.36	23.25	27.01	30.74	34.43	38.09	45.31	52.40	59.35	66.17	72.86	79.42	89.01			
260																					21.11	23.18	25.24	29.33	33.38	37.41	41.40	49.28	57.03	64.65	72.14	79.49	86.71	97.29

Metric Conversions

TO CONVERT	INTO	MULTIPLY BY
Feet (ft.)	Meters (m)	0.3048
Gallons (U.S.)	Liters (l)	3.7853
Inches (in.)	Millimeters (mm)	25.4
Kilograms (kg)	Pounds (lbs.)	2.2046
Kilograms/Meters (kg/m)	Pounds/Feet (lbs./ft.)	0.673
Liters (l)	Gallon (gal)	0.2641720
Megapascals (MPa)	Newtons per square millimeter (N/mm ²)	1.000
Megapascals (MPa)	Pounds per square inch (psi)	145.04
Megapascals (MPa)	KIPS square inch (ksi)	0.14504
Meters (m)	Feet (ft.)	3.2808
Meters (m)	Inches (in.)	39.37008
Millimeters (mm)	Inches (in.)	0.03937
Newtons per square millimeter (N/mm ²)	Pounds per square inch (psi)	145.04
Newtons per square millimeter (N/mm ²)	Megapascals (MPa)	1.000
Pounds (lbs.)	Kilograms (kg)	0.4536
Pounds/Feet (lbs./ft.)	Kilograms/Meters (kg/m)	1.4881
Pounds per square inch (psi)	Newtons per square millimeter (N/mm ²)	0.006895
Pounds per square inch (psi)	Megapascals (MPa)	0.006895
Square millimeters (mm ²)	Square Feet (ft. ²)	0.000010759
Square inches (in. ²)	Square millimeters (mm ²)	645.16
Square meters (m ²)	Square feet (ft. ²)	10.7639
Square feet (ft. ²)	Square meters (m ²)	0.0929
Square inches (in. ²)	Square meters (m ²)	0.00064516
BAR	Pounds per square inch (psi)	14.5038
Pounds per square inch (psi)	BAR	.068947

Inches to Millimeters Conversion Chart (Small Numbers)

INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
.0005	0.0127	.006	0.1524	.016	0.4064	.035	0.8890	.100	2.5400
.001	0.0254	.007	0.1778	.018	0.4572	.040	1.0160	.125	3.1750
.0015	0.0381	.008	0.2032	.020	0.5080	.045	1.1430	.250	6.3500
.002	0.0508	.009	0.2286	.022	0.5588	.050	1.2700	.500	12.7000
.0025	0.0635	.010	0.2540	.024	0.6096	.060	1.5240	.750	19.0500
.003	0.0762	.011	0.2794	.025	0.6350	.0625	1.5875	1.00	25.4000
.0035	0.0889	.012	0.3048	.026	0.6604	.070	1.7780	1.25	31.7500
.004	0.1016	.013	0.3302	.028	0.7112	.075	1.9050	1.50	38.1000
.0045	0.1143	.014	0.3556	.030	0.7620	.080	2.0320	1.75	44.4500
.005	0.1270	.015	0.3810	.032	0.8128	.090	2.2860	2.00	50.8000

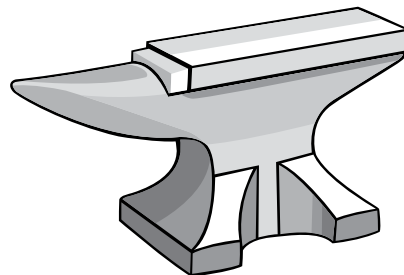
Millimeters to Inches Conversion Chart (Small Numbers)

mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES
0.010	0.00039	0.090	0.00354	0.250	0.00984	0.950	0.03740	8.000	0.31496
0.015	0.00059	0.095	0.00374	0.260	0.01024	1.000	0.03937	9.000	0.35433
0.020	0.00079	0.100	0.00394	0.280	0.01102	1.100	0.04331	10.000	0.39370
0.025	0.00098	0.105	0.00413	0.300	0.01181	1.200	0.04724	11.000	0.43307
0.030	0.00118	0.110	0.00433	0.350	0.01378	1.250	0.04921	12.000	0.47244
0.035	0.00138	0.115	0.00453	0.400	0.01575	1.500	0.05906	13.000	0.51181
0.040	0.00157	0.120	0.00472	0.450	0.01772	2.00	0.07874	14.000	0.55118
0.045	0.00177	0.125	0.00492	0.500	0.01969	2.500	0.09843	15.000	0.59055
0.050	0.00197	0.130	0.00512	0.550	0.02165	3.000	0.11811	16.000	0.62992
0.055	0.00217	0.140	0.00551	0.600	0.02362	3.500	0.13780	17.000	0.66929
0.060	0.00236	0.150	0.00591	0.650	0.02559	4.000	0.15748	18.000	0.70866
0.065	0.00256	0.160	0.00630	0.700	0.02756	4.500	0.17717	19.000	0.74803
0.070	0.00276	0.180	0.00709	0.750	0.02953	5.000	0.19685	20.000	0.78740
0.075	0.00295	0.200	0.00787	0.800	0.03150	5.500	0.21654	25.000	0.98425
0.080	0.00315	0.220	0.00866	0.850	0.03346	6.000	0.23622		
0.085	0.00335	0.240	0.00945	0.900	0.03543	7.000	0.27559		

Millimeters to Inches Conversion Chart (Large Numbers)

mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES
1	0.0394	21	0.8268	41	1.6142	61	2.4016	81	3.1890
2	0.0787	22	0.8661	42	1.6535	62	2.4409	82	3.2283
3	0.1181	23	0.9055	43	1.6929	63	2.4803	83	3.2677
4	0.1575	24	0.9449	44	1.7323	64	2.5197	84	3.3071
5	0.1969	25	0.9843	45	1.7717	65	2.5591	85	3.3465
6	0.2362	26	1.0236	46	1.8110	66	2.5984	86	3.3858
7	0.2756	27	1.0630	47	1.8504	67	2.6378	87	3.4252
8	0.3150	28	1.1024	48	1.8898	68	2.6772	88	3.4646
9	0.3543	29	1.1417	49	1.9291	69	2.7165	89	3.5039
10	0.3937	30	1.1811	50	1.9685	70	2.7559	90	3.5433
11	0.4331	31	1.2205	51	2.0079	71	2.7953	91	3.5827
12	0.4724	32	1.2598	52	2.0472	72	2.8346	92	3.6220
13	0.5118	33	1.2992	53	2.0866	73	2.8740	93	3.6614
14	0.5512	34	1.3386	54	2.1260	74	2.9134	94	3.7008
15	0.5906	35	1.3780	55	2.1654	75	2.9528	95	3.7402
16	0.6299	36	1.4173	56	2.2047	76	2.9921	96	3.7795
17	0.6693	37	1.4567	57	2.2441	77	3.0315	97	3.8189
18	0.7087	38	1.4961	58	2.2835	78	3.0709	98	3.8583
19	0.7480	39	1.5354	59	2.3228	79	3.1102	99	3.8976
20	0.7874	40	1.5748	60	2.3622	80	3.1496	100	3.9370

**Our metric sizes are hard
metric and not conversions
of inch sizes.**



ISO 286-2 Round Bar Tolerances

ROUND STEEL ISO TOLERANCE "h SERIES" IN MILLIMETERS

NOMINAL SIZE DIAMETER mm	h5	h6	h7	h8	h9	h10	h11	h12
1 to 3	-0.004 (-0.00016")	-0.006 (-0.00024")	-0.01 (-0.00039")	-0.014 (-0.00055")	-0.025 (-0.00098")	-0.04 (-0.00158")	-0.06 (-0.00236")	-0.100 (-0.00394")
Over 3 to 6	-0.005 (-0.00020")	-0.008 (-0.00032")	-0.012 (-0.00047")	-0.018 (-0.00071")	-0.03 (-0.00118")	-0.048 (-0.00189")	-0.075 (-0.00295")	-0.120 (-0.00472")
Over 6 to 10	-0.006 (-0.00024")	-0.009 (-0.00035")	-0.015 (-0.00059")	-0.022 (-0.00086")	-0.036 (-0.00142")	-0.058 (-0.00228")	-0.09 (-0.00354")	-0.150 (-0.00591")
Over 10 to 18	-0.008 (-0.00032")	-0.011 (-0.00043")	-0.018 (-0.00071")	-0.027 (-0.0010")	-0.043 (-0.00169")	-0.07 (-0.00275")	-0.11 (-0.00433")	-0.18 (-0.00709")
Over 18 to 30	-0.009 (-0.00035")	-0.013 (-0.00051")	-0.021 (-0.00083")	-0.033 (-0.00129")	-0.052 (-0.00205")	-0.084 (-0.00331")	-0.13 (-0.00512")	-0.210 (-0.00827")
Over 30 to 50	-0.011 (-0.00043")	-0.016 (-0.00063")	-0.025 (-0.00098")	-0.039 (-0.00153")	-0.062 (-0.00244")	-0.1 (-0.00393")	-0.16 (-0.00630")	-0.250 (-0.00984")
Over 50 to 80	-0.013 (-0.00051")	-0.019 (-0.00075")	-0.03 (-0.00118")	-0.046 (-0.00181")	-0.074 (-0.00291")	-0.12 (-0.00472")	-0.19 (-0.00748")	-0.300 (-0.01181")
Over 80 to 120	-0.015 (-0.00059")	-0.022 (-0.00087")	-0.035 (-0.00138")	-0.054 (-0.00213")	-0.087 (-0.00343")	-0.14 (-0.00551")	-0.22 (-0.00866")	-0.350 (-0.01378")
Over 120 to 180	-0.018 (-0.00071")	-0.025 (-0.00098")	-0.04 (-0.00158")	-0.063 (-0.00248")	-0.1 (-0.00393")	-0.16 (-0.00629")	-0.25 (-0.00984")	-0.400 (-0.01575")
Over 180 to 250	-0.02 (-0.00079")	-0.029 (-0.00114")	-0.046 (-0.00181")	-0.072 (-0.00283")	-0.115 (-0.00453")	-0.185 (-0.00723")	-0.29 (-0.01142")	-0.460 (-0.01811")

Tolerances are all plus 0mm, - mm size. Parenthetical numbers indicate "inches."
Refer to the above chart for the following example:

Example: a 20mm Round h9 will have a tolerance of + 0mm, - 0.052mm which equals + 0", - 0.00205"

Equivalent German Specifications

DIN 668 = h11
DIN 669 = h9
DIN 671 = h9
DIN 175 = h9
DIN 670 = h8

Mechanical Properties of Standard Cold Drawn Steels

These figures are NOT GUARANTEED. These figures show the APROXIMATE range of mechanical properties.

These properties are for 20mm to 30mm round bars. Sizes under 20mm will usually show a strength which is slightly higher than those shown in the tables. The mass effect of larger sections has a direct influence on mechanical properties and results in slightly lower values as the section size increases

THESE FIGURES CANNOT BE USED AS A BASIS OF ACCEPTANCE OR REJECTION OF MATERIAL. It must not be assumed that these properties will be obtained in all cases, as they vary widely with permissible variation in analysis, size of section, rolling condition, grain size, amount of draft taken during cold drawing, and methods of heat treatment.

The properties of turned and polished or turned and ground types of cold finished material will correspond to the hot rolled values. Reliable mechanical properties can only be obtained by exactly controlled heat treatment or special processing

SAE and or AISI	Estimated Tensile Strength PSI	Estimated Yield Strength PSI	Estimated Minimum Values Elongation in 2 in %	Reduction in Area %	Brinell Hardness Average	Rockwell Hardness Average	Average Machinability Rating Cold Drawn 12L14 = 100%
1008 CD	49000	41000	20	45	95	70B	34
1010 CD	53000	44000	20	40	105	75B	34
1018 TG&P	58000	32000	25	50	116	75B	43
1018 CD	64000	54000	15	40	126	87B	43
1020 CD	61000	51000	15	40	121	88B	40
1035 CD	80000	67000	12	35	167	90B	40
1040 CD	85000	71000	12	35	170	92B	37
1045 TG&P	82000	50000	16	40	163	-	34
1045 CD	91000	77000	12	35	179	95B	34
1045 ANN. CD.	85000	73000	12	45	170	90B	40
1050 CD	100000	84000	10	30	197	98B	28
1050 ANN.CD	95000	80000	10	40	189	91B	34
1117 CD	69000	58000	15	40	137	85B	56
1140 CD	88000	74000	12	35	170	93B	43
1141 CD	105000	88000	10	30	212	93B	43
1144 CD	108000	90000	10	30	207	20C	40
1144 STRESS	115000min	100000min	7	20	235	27C	51
1215 CD	78000	60000	10	35	167	90C	84
12L14 CD	78000	60000	10	35	163	87B	100
ALLOY STEEL							
4130 NOR.CD	85000	70000	25	55	187 / 229	21C	43
4140 ANN CD	105000	85000	20	50	187 / 229	22C	40
4140 Q&T	140000	125000	15	60	262 / 321	32C	31
TOOL STEEL							
0-1 SA CD	90000	65000	10	30	200 / 240	95B	24
STAINLESS							
303 ANN CD	100000	60000	45	65	160 / 210	B95	45
304 ANN CD	100000	60000	45	65	150 / 180	B95	28
316 ANN CD	90000	60000	45	60	160 / 190	B98	25

ANN = ANNEALED CD = COLD DRAWN NOR = NORMALIZED Q&T = QUENCH & TEMPERED SA = SPHEROIDIZE ANNEALED
TG&P = TURNED GROUND AND POLISHED STRESS = ASTM 311 CLASS B

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Metric Round Honed Tubing Specifications

Condition and Grade

Tubes up to 250mm in diameter are skived and roller burnished and are produced from cold drawn steel tubes, seamless DIN 2391.C steel, grade St52 or welded DIN 2393. Steel Grade St52 stress relieved condition (BK+S)

Tubes greater than 250mm in diameter are honed steel and are produced from hot rolled according to DIN 2448/1629 and the steel grade is St52.

Chemical Analysis compared to AISI 1018 steel

Steel Grade	C%	Mn%	Si%	P% Max	S% Max
St52	0.20 Max	1.50 Max	0.050 Max	0.025 Max	0.035 Max
AISI 1018	0.15/0.20	0.60/0.90	0.15/0.30	0.040 Max	0.050 Max

Strength – Yield and Tensile

Our cylinder tubes made from DIN 2391 seamless or DIN 2393 welded steel grade St52 BK+S, the yield point for wall thickness is 490MPa (71,050 psi) minimum. The Ultimate Tensile Strength (UTS) is a minimum 600 MPa (87,000 psi). Tubes greater than 250mm in diameter are produced from DIN 2448 hot rolled tubes in steel grade St52 and the minimum yield strength is 345 MPa (50,022 psi) and a minimum UTS of 500 MPa (72,495 psi).

Inside Diameter Tolerance

The tubes are ready to use with inside diameter tolerance of ISO H8. Tubes greater than 250mm in diameter are honed steel and are hot rolled according to DIN 2448/1629 and the steel grade is St52.

Hole Above	Size in Millimeters Up to and Including	ISO 286-2 Minus Zero (-0.0000) for Holes	Capital H 8
6	10	+0.022mm	(+ 0.00086”)
10	18	+0.027mm	(+ 0.0010”)
18	30	+0.033mm	(+ 0.00129”)
30	50	+0.039mm	(+ 0.00153”)
50	80	+0.046mm	(+ 0.00181”)
80	120	+0.054mm	(+ 0.00213”)
120	180	+0.063mm	(+ 0.00248”)
180	250	+0.072mm	(+ 0.00283”)
250	315	+0.081mm	(+ 0.00319”)
315	400	+0.089mm	(+ 0.00350”)

Straightness of Cylinder Tubes

The straightness is better than 0.5mm/1000mm.

I.D. Surface Roughness

All our cylinder tubes have an inside diameter tolerance of H8. The surface smoothness of the inside of the tubes average RMS 12 or better. (Nominal value Ra um less than or equal to 0.20 um for skived and roller burnished and is 0.40 um for honed tubes.)

Formula for Wall Thickness in Millimeters

The formula for wall thickness required for a cylinder tube subject to internal hydraulic pressure is as follows:

$$\text{Wall Thickness in millimeters} = \frac{0.05 * I * P * F}{Y}$$

I = Inside Diameter

P = Pressure in Bar

F = Safety Factor (Should be greater than or equal to 2)

Y = Yield Point

To convert bar into psi multiply by 144.98

To convert psi into bar multiply by 0.0069

See page 60 for Hard Chrome Plated Shafting Specifications.



Metric Size tubing stocked in round, square and rectangular shapes.

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Comparison of USA Standards to International Standards for Chemistry

USA	EUROPE	GERMANY		ENGLAND	ITALY	JAPAN
A.S.T.M. S.A.E. A.I.S.I.	Euronorm	Werkstoff W.-Nr	Kurzname DIN	BS 970	UNI	JIS
CARBON						
1005/1018	S235JRC	1.0037	St37-2	S235JRC	Fe 360BFN	
1018	C15D	1.1141	CK15	040A15	C15	S15
1018	C18D	1.0401	C15	080M15	C16	S15CK
1018		1.0453	C16.8	080A15	1C15	S15C
1018				EN3B		
1045	C45	1.0503	C45	060A47	C45	S45C
1045		1.1191	CK45	080A46	1C45	S48C
1045		1.1193	CF45	080M46	C46	
1045		1.1194	CQ45	EN8D	C43	
1140/1146	35S20	1.0726	35S20	212M40		
1140/1146	45S20	1.0727	45S20	En8M		
1215	11SMn37	1.0715	9SMn28	230M07	CF9SMn28	SUM 25
1215		1.0736	9SMn36	En1A	CF9SMn36	SUM 22
12L14	11SMnPb30	1.0718	9SMnPb28	230M07Leaded	CF9SMnPb28	SUM 22L
12L14	11SMnPb37	1.0737	9SMnPb36	En1A Leaded	CF9SMnPb36	SUM 23L
12L14						SUM 24L
ALLOY						
4130		1.7218	25CrMo4	708A30	25CrMo4 (KB)	SCM 420
4130			GS-25CrMo4	CDS110	30CrMo4	SCM 430
4130					30CrMo4	SCCrM1
4140/4142	42CrMo4	1.7223	41CrMo4	708M40	41CrMo4	SCM 440
4140/4142		1.7225	42CrMo4	708A42	38CrMo4 KB	SCM 440H
4140/4142		1.7227	42CrMoS4	709M40	G40 CrMo4	SNB 7
4140/4142		1.3563	43CrMo4	En19	42CrMo4	SCM 4M
4140/4142				En19C		SCM 4
4340	34CrNiMo6	1.6582	34CrNiMo6	817M40	35NiCrMo6 KB	SNCM 447
4340		1.6562	40 NiCrMo8 4	En24	40NiCrMo7 KB	SNB24-1-5
8620	20NiCrMo2-2	1.6543	21NiCrMo22	805A20	20NiCrMo2	SNCM 220 (H)
8620		1.6523	21NiCrMo2	805M20		
STAINLESS						
303	X8CrNiS18-9	1.4305	X10CrNiS18-9	303S 21	X10CrNiS 18 09	SUS 303
303				En58M		
304		1.4301	X5CrNi 18 9	304S 15	X5CrNi 18 10	SUS 304
304	X2CrNi19-11		X5CrNi 18 10	304S 16		SUS 304-CSP
304	X2CrNi18-10		XCrNi 19 9	304S 18		
304				304S 25		
304				En58E		
304L	X2CrNi19 11	1.4306		304S 11		SUS304L
316	X5CrNiMo17-12-2	1.4401	X5CrNiMo17 12 2	316S 29	X5CrNiMo17 12	SUS 316
316	X5CrNiMo18-14-3	1.4436	X5CrNiMo17 13 3	316S 31	X5CrNiMo17 13	SUS 316TP
316			X5CrNiMo 19 11	316S 33	X8CrNiMo17 13	
316			X5CrNiMo 18 11	En58J		
316L	X2CrNiMo17 12 2	1.4404		316S 11		SUS316L
316Ti		1.4571	X6CrNiMoTi17 12	320S 33		
321		1.4541	X6CrNiTi18 10	321S 31		SUS321
430		1.4016	X6Cr17	430S 17		SUS430
430F		1.4104	X14CrMoS17			SUS430F
TOOL STEEL						
A-2	X100CrMoV5	1.2363	X100CrMoV51	BA 2	X100CrMoV5 1 KU	SKD 12
D-2	X153CrMoV12	1.2379	X155CrVMo12 1	BD 2	X155CrVMo12 1	SKD 11
O-1		1.2510	100MnCrW4	BO 1	95MnWCr 5 KU	

Substitution is only possible after a complete examination of the individual specifications.

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Comparison of USA Standards to International Structural Strengths

QUALITY/STANDARD	TENSILE		MINIMUM YIELD	
	P.S.I.	N/mm ²	P.S.I.	N/mm ²
USA				
ASTM A-36	58,000/80,000	400/550	36,000	250
ASTM A-572 Grade 50	65,000 Min.	450 Min.	50,000	345
Euronorm				
EN 10025 S235JR	52,200/73,950	360/510	34,000	235
S355JO	68,150/91,350	470/630	51,000	355
S355J2	68,150/91,350	470/630	51,000	355
England				
BS 4360 Grade 43A	62,300/74,000	430/510	35,600	245
Grade 50B	72,500/90,000	490/620	50,000	345
Germany				
DIN 17100 RST 37-2	52,000/74,000	360/510	32,500	225
ST 37-2	52,000/74,000	360/510	32,500	225
ST 42-2	62,300/83,500	430/580	38,500	265
ST 52-3	74,000/98,500	510/680	50,000	345
Japan				
JIS-G-3101 SS 400	52,200/73,950	360/510	34,000	235
SS 490	58,150/91,350	470/630	51,000	355
SS 540	72,500/88,500	490/608	51,000	355

Substitution is only possible after a complete examination of the individual specifications.

Sections of over 16mm (0.630") up to and including 25mm (.984") thick, the above figures are a guide and are approximate.

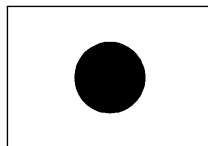
We can supply metric-sized metals in the following foreign standards.



Germany
DIN



Britain
BS



Japan
JIS



France
NF



European Union
EU



Italy
UNI

Inch and Millimeter Equivalency Chart

FRACTION	DECIMAL	MILLIMETERS	FRACTION	DECIMAL	MILLIMETERS	FRACTION	DECIMAL	MILLIMETERS
1/64	0.015625	0.39688	23/64	0.359375	9.12814	45/64	0.703125	17.85941
1/32	0.031250	0.79375	3/8	0.375000	9.52502	23/32	0.718750	18.25629
3/64	0.046875	1.19063	25/64	0.390625	9.92189	47/64	0.734375	18.65316
1/16	0.062500	1.58750	13/32	0.406250	10.31877	3/4	0.750000	19.05004
5/64	0.078125	1.98438	27/64	0.421875	10.71565	49/64	0.765625	19.44691
3/32	0.093750	2.38125	7/16	0.437500	11.11252	25/32	0.781250	19.84379
7/64	0.109375	2.77813	29/64	0.453125	11.50940	51/64	0.796875	20.24067
1/8	0.125000	3.17501	15/32	0.468750	11.90627	13/16	0.812500	20.63754
9/64	0.140625	3.57188	31/64	0.484375	12.30315	53/64	0.828125	21.03442
5/32	0.156250	3.96875	1/2	0.500000	12.70003	27/32	0.843750	21.43129
11/64	0.171875	4.36563	33/64	0.515625	13.09690	55/64	0.859375	21.82817
3/16	0.187500	4.76251	17/32	0.531250	13.49378	7/8	0.875000	22.22504
13/64	0.203125	5.15939	35/64	0.546875	13.89065	57/64	0.890625	22.62192
7/32	0.218750	5.55626	9/16	0.562500	14.28753	29/32	0.906250	23.01880
15/64	0.234375	5.95314	37/64	0.578125	14.68440	59/64	0.921875	23.41567
1/4	0.250000	6.35001	19/32	0.593750	15.08128	15/16	0.937500	23.81255
17/64	0.265625	6.74689	39/64	0.609375	15.47816	61/64	0.953125	24.20942
9/32	0.281250	7.14376	5/8	0.625000	15.87503	31/32	0.968750	24.60630
19/64	0.296875	7.54064	41/64	0.640625	16.27191	63/64	0.984375	25.00318
5/16	0.312500	7.93752	21/32	0.656250	16.66878	1	1.000000	25.40005
21/64	0.328125	8.33439	43/64	0.671875	17.06566			
11/32	0.343750	8.73127	11/16	0.687500	17.46253			

Fahrenheit & Centigrade Temperature Comparisons

U.S.A. DEGREES FAHRENHEIT	EUROPEAN DEGREES CENTIGRADE	U.S.A. DEGREES FAHRENHEIT	EUROPEAN DEGREES CENTIGRADE	U.S.A. DEGREES FAHRENHEIT	EUROPEAN DEGREES CENTIGRADE	U.S.A. DEGREES FAHRENHEIT	EUROPEAN DEGREES CENTIGRADE
-30	-34.4	20	-6.7	60	15.5	90	32.2
-28	-33.3	22	-5.6	61	16.1	91	32.7
-26	-32.2	24	-4.4	62	16.7	92	33.3
-25	-31.6	25	-3.9	63	17.2	93	33.9
-24	-31.1	26	-3.3	64	17.8	94	34.4
-22	-30.0	28	-2.2	65	18.3	95	35.0
-20	-28.9	30	-1.1	66	18.9	96	35.5
-18	-27.8	32	0.0	67	19.4	97	36.1
-16	-26.6	34	1.1	68	20.0	98	36.6
-15	-26.1	35	1.7	69	20.5	99	37.2
-14	-25.5	36	2.2	70	21.1	100	37.7
-12	-24.4	38	3.3	71	21.6	101	38.3
-10	-23.3	40	4.4	72	22.2	102	38.9
-8	-22.2	42	5.6	73	22.8	103	39.4
-6	-21.1	44	6.7	74	23.3	104	40.0
-5	-20.5	45	7.2	75	23.9	105	40.5
-4	-20.0	46	7.8	76	24.4	106	41.1
-2	-18.9	47	8.3	77	25.0	107	41.6
0	-17.8	48	8.9	78	25.5	108	42.2
2	-16.7	49	9.4	79	26.1	110	43.3
4	-15.5	50	10.0	80	26.6	111	43.8
5	-15.0	51	10.5	81	27.2	112	44.4
6	-14.4	52	11.1	82	27.8	113	45.0
8	-13.3	53	11.7	83	28.3	114	45.5
10	-12.2	54	12.2	84	28.9	115	46.1
12	-11.1	55	12.8	85	29.4	116	46.6
14	-10.0	56	13.3	86	30.0	118	47.7
15	-9.4	57	13.9	87	30.5	120	48.8
16	-8.9	58	14.4	88	31.1	122	50.0
18	-7.8	59	15.0	89	31.6	212	100.0

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Weight Conversion for Steel to Other Metals

MULTIPLY STEEL WEIGHT BY		MULTIPLY STEEL WEIGHT BY		MULTIPLY STEEL WEIGHT BY		MULTIPLY STEEL WEIGHT BY		MULTIPLY STEEL WEIGHT BY	
Aluminum		Aluminum		Stainless		Nickel		Hastelloy	
1100	0.3462	5052	0.3427	300 Series	1.0100	600	1.0720	C-276	1.1320
2011	0.3604	5083	0.3392	400 Series	1.0000	625	1.0750	B-2	1.1740
2014	0.3568	6061	0.3462	Nickel		800	1.0120	Titanium	0.5750
2017	0.3568	6063	0.3462	200	1.1320	904L	1.0260	Brass	1.0840
2024	0.3533	7075	0.3568	400	1.1250			Copper	1.1440
3003	0.3498								

Induction Hardened Shafting Specifications

Surface Hardness

The 1045 induction hardened bars have a case hardness of Rockwell C 50/60 and the 1060 induction hardened bars have a case hardness of Rockwell C 60/65.

Depth of Hardness

Our induction hardened bars 1045 and 1060 have a case hardened depth range of 0.060" / 0.090"



Parker Steel's Fresno, California Warehouse.

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Hard Chrome Plated Shafting Specifications

Chrome Plated Shafting

Grade & Strength

Our chrome plated shafting is produced from C45 and C50 steel which is virtually the same as AISI 1045/1050 steel. The yield point is 320MPa (46,400 psi) and the Ultimate Tensile Strength (UTS) is 520 MPa minimum (75,400 psi minimum).

Roundness and Straightness

The out of roundness tolerance is 1/2 of the ISO 286-2 f7 field for shafts greater than 20mm and 1/2 of the ISO 286-2 f8 field for shafts 20mm and smaller. Straightness is better than 0.5mm/2000mm.

Surface Roughness

The surface roughness is RMS 8 or better. (Nominal values Ra less than or equal to 0.2um).

Thickness of Chrome Plating

The chromium layer on shafting 20mm and less in diameter is 14um minimum (0.00055") and greater than 20mm is 20um minimum (0.00078").

Surface Hardness

The Rockwell hardness of the chrome plating itself is HR C66-69.

The Rockwell hardness of the surface of the Non-Induction hardened bars UNDER the chromium overlay on C45/C50 Steel is a Rockwell hardness of B80/99.

The Rockwell hardness of the Induction Hardened bars UNDER the chromium overlay on C45/50 steel is a Rockwell hardness of C54/60.

The surface hardness of DIN 42CrMo4 quench and tempered alloy steel under the chromium layer on the non induction hardened steel is 0.1 Hardness Vickers 620 to 750. This corresponds to RockWell C 32 to 38.

Corrosion Resistance of the Chromium Layer

Corrosion Resistance on carbon, alloy, and induction hardened steel is 200 hour in a neutral salt spray tests with a rating of 9 minimum. The laboratory test is according to ISO 9227 (NSS) and results evaluation are according to ISO10.289.

Depth of Induction Hardening

	Diameters	Metric Tolerances	Inch Tolerances
Greater than	16mm-20mm	1.0mm +/-0.5mm	0.039"+/-0.020"
Greater than	20mm-40mm	1.5mm +/-0.5mm	0.059"+/-0.020"
Greater than	40mm-80mm	2.0mm +/-0.5mm	0.079"+/-0.020"
Greater than	80mm-140mm	2.5mm +/-0.5mm	0.098"+/-0.020"

See page 54 for Metric Round Honed Tubing Specifications.

Chrome Plated Shafting

Diameter Tolerance

The diameter tolerance of the chrome plated shafting 16mm and greater is ISO 286-2 lower case f7 which is a double undersize tolerance. Shafting 20mm or less is lower case f8 tolerance.

Bar Above	Dia. (mm) Up to and Including	ISO 286-2 Lowercase f8 f8 Double undersized for shafting	
	3	6	-0.010mm/-0.028mm (-0.00039"/-0.00110")
	6	10	-0.013mm/-0.035mm (-0.00051"/-0.00137")
	10	18	-0.016mm/-0.043mm (-0.00063"/-0.00169")
	18	20	-0.020mm/-0.053mm (-0.00078"/-0.00209")

Bar Above	Dia. (mm) Up to and Including	ISO 286-2 Lowercase f7 f7 Double undersized for shafting	
	20	30	-0.020mm/-0.041mm (-0.00078"/-0.0016")
	30	50	-0.025mm/-0.050mm (-0.00098"/-0.0026")
	50	80	-0.030mm/-0.060mm (-0.00118"/-0.0024")
	80	120	-0.036mm/-0.071mm (-0.00142"/-0.0028")
	120	180	-0.043mm/-0.083mm (-0.00169"/-0.0033")
	180	250	-0.050mm/-0.096mm (-0.00197"/-0.0038")

High Strength 100,000 min. PSI

This material is produced from Euronorm/DIN 42CrMo4 steel which is very similar to AISI/ASTM 4140 and is quenched and tempered. It is stocked in both the induction hardened and non induction hardened condition.

Mechanical Properties of High Strength Shafting

Diameters	Minimum Yield	U.T.S.
16mm to 120mm	106,000 psi	130,491 to 166,739 psi
120mm to 140mm	100,000 psi	123,242 to 166,739 psi

Chemistry Comparisons

Grade	C%	Mn %	P% Max.	S % Max.	Cr%	Mo%
1045	0.43/0.50	0.60/0.90	0.040	0.050		
C45 & Ck45	0.42/0.50	0.50/0.80	0.035	0.035		
1050	0.48/0.55	0.60/0.90	0.040	0.050		
C50 & Ck50	0.47/0.55	0.60/0.90	0.035	0.035		
4140	0.38/0.43	0.75/1.00	0.035	0.040	0.80/1.10	0.15/0.25
42CrMo4	0.38/0.45	0.60/0.90	0.035	0.035	0.90/1.20	0.15/0.30
SCM 440	0.38/0.43	0.60/0.90	0.030	0.030	0.90/1.20	0.15/0.30
42CrMo	0.38/0.45	0.50/0.80	0.035	0.035	0.90/1.20	0.15/0.25
B7/B7M	0.37/0.49	0.65/1.10	0.035	0.040	0.75/1.10	0.15/0.35

Silicon in 4140, SCM 440, and 42CrMo is 0.15/0.35% and in 42CrMo4, B7 and B7M are 0.40% maximum. The numbers 1045, 1050, 4140, B7 and B7M are American grades SAE/ASTM/AISI. The number letter combinations C45, Ck45, C50, Ck50 and 42CrMo4 are both Euronorm EN10083 and DIN standards. Lower case k stands for cold drawn. SCM 440 is a Japanese JIS G grade and 42CrMo is a Chinese GB grade.

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Pressure Chart for Hydraulic Carbon Steel Tubing

CARBON STEEL

DIN 2445/2, EN 10305-4, Seamless CD Hydraulic, NBK Annealed

Hydraulic Tubing Pressure Chart			
Outside (mm)	Wall (mm)	Pressure in BAR	PSI Safety 2X
4	0.5	277	4017
6	1	377	5467
6	1.5	565	8193
6	2	754	10933
8	1	294	4263
8	1.5	441	6395
8	2	589	8541
10	1	249	3611
10	1.5	374	5423
10	2	499	7236
12	1	207	3002
12	1.5	311	4510
12	2	415	6018
12	3	623	9034
14	1.5	267	3872
14	2	356	5162
14	2.5	445	6453
15	1.5	248	3596
15	2	332	4814
16	1.5	233	3379
16	2	311	4510
16	2.5	389	5641
16	3	467	6772
18	1.5	207	3002
18	2	277	4017
18	3	415	6018
20	1.5	187	2712
20	2	249	3611
20	2.5	311	4510
20	3	374	5423
20	4	499	7236
22	1.5	170	2465
22	2	226	3277
22	2.5	283	4104
22	3	340	4930
25	2	199	2886
25	2.5	249	3611
25	3	299	4336
25	4	399	5786
28	1.5	133	1929
28	2	178	2581
28	2.5	222	3219
28	3	267	3872
28	4	537	7787

Hydraulic Tubing Pressure Chart			
Outside (mm)	Wall (mm)	Pressure in BAR	PSI Safety 2X
30	2	166	2407
30	2.5	207	3002
30	3	249	3611
30	4	332	4814
30	5	415	6018
35	2	142	2059
35	2.5	178	2581
35	3	213	3089
35	4	285	4133
35	5	356	5162
38	2.5	164	2378
38	3	197	2857
38	4	262	3799
38	5	328	4756
42	2	118	1711
42	3	178	2581
42	4	237	3437
42	5	297	4307
48	5	259	3756
48.3	2.6	134	1943
48.3	5	258	3741
48.3	6.3	325	4713
50	3	149	2161
50	5	249	3611
50	6	299	4336
50	8	399	5786
50	10	499	7236
60	3	124	1798
60	5	208	3016
60	6	249	3611
60	8	333	4829
60.3	2.9	120	1740
60.3	6.3	260	3770
60.3	8	331	4800
65	8	307	4452
76.1	2.9	95	1378
76.1	8	263	3814
76.1	10	327	4742
80	10	311	4510
88.9	3.2	89	1291
88.9	10	318	4611
88.9	11.1	327	4742
101.6	14.2	348	5046
114.3	3.6	78	1131

DIN To EN Comparison

Hot Rolled Material

DIN	EN
Flat	DIN 1017 EN 10058
Equal Angle	DIN 1028 EN 10056-2
Unequal Angle	DIN 1029 EN 10056-2
T-Bar	DIN 1024 EN 10055
Round Bar (hot roll)	DIN 1013 EN 10060
Square Bar (hot roll)	DIN 1014 EN 10059
Hot Rolled Plate	Din 1543 EN 10029

Channel & I Beam

DIN	EN
Channel	DIN 1026 EN 10279
INP (IPN)	DIN 1025 part 1 EN 10024
IPE	DIN 1025 part 5 EN 10034
IPB-1	DIN 1025 part 3 EN 10034
IPB	DIN 1025 part 2 EN 10034
IPBv	DIN 1025 part 4 EN 10034

Cold Drawn Material

DIN	EN
Flat	DIN 174 EN 10278
Square	DIN 178 EN 10278
Hexagon	DIN 176 EN 10278
Round	DIN 671 EN 10278 h9
Key Stock	DIN 6880 DIN 6880
Cold Drawn Angle	59370 DIN 59370
Cold Rolled Sheet	1541 EN 10130

Tubes

DIN	EN
Seamless Mechanical Tube	2391 EN 10305-1
Welded Round Tube	2394 EN 10305-3
Seamless Hydraulic Tube	2391-C EN 10305-4
Square & Rectangular Tube	2395 EN 10305-5
HR Hollow Sections	59410 EN 10210
CR Hollow Sections	59411 EN 10219

Material Names

Old Designations

Old Designations	New Designations
DIN 1652-2	EN 10277-2
ST 37-2	S235JR
ST 52-3	S355J
ST 1203	DC 01 AM
C 15	C15
ST 35	E235

Old Designations

Old Designations	New Designations
C 45	C45
Ck 45	C45E
9SMn28	11SMn30
9SMnPb 28	11SMnPb30
16MnCrS 5	16MnCrS5



METRIC SIZE



Metric Metals Reference Guide

Our entire Metric Metals Reference Guide may also be found on our website at www.MetricMetal.com or call us and we'll be happy to send you another printed copy.

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UNI



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