

DECIMAL EQUIVALENTS OF MILLIMETER, FRACTIONAL AND NUMBER DRILL SIZES

1 mm = 0.03937 in.
 1 cm = 0.3937 in.
 1 dm = 3.937 in.
 1 m = 39.37 in.
 1 in. = 25.4 mm

1 foot = 0.3048 m
 1 yd = 0.9144 m
 1 sq. in. = 6.452 sq. cm
 1 sq. ft = 929 sq. cm
 1 sq. yd = 0.8361 sq. m

1 sq. cm = 0.155 sq. in.
 1 sq. dm = 15.5 sq. in.
 1 sq. m = 1.196 sq. yd
 1 oz = 31.1035 grams

1 lb = 373.24 grams
 1 qt = 0.9463 liters (liquid)
 1 gal. = 3.7853 liters (liquid)
 1 liter = 1.0567 liquid qt

mm	Dec. In. Equ.	in	mm	Dec. In. Equ.	in	mm	Dec. In. Equ.	in	mm	Dec. In. Equ.	in	mm	Dec. In. Equ.	in
0.10	.0039		1.75	.0689		-	.1570		6.80	.2677		10.72	.4219	27/64"
0.15	.0059		-	.0700		4.00	.1575		6.90	.2716		11.00	.4330	
0.20	.0079		1.80	.0709		-	.1590		-	.2720		11.11	.4375	7/16"
0.25	.0098		1.85	.0728		-	.1610		7.00	.2756		11.50	.4528	
0.30	.0118		-	.0730		4.10	.1614		-	.2770		11.51	.4531	29/64"
-	.0135		1.90	.0748		4.20	.1654		7.10	.2795		11.91	.4687	15/32"
0.35	.0138		-	.0760		-	.1660		-	.2811		12.00	.4724	
-	.0145		1.95	.0767		4.25	.1673		7.14	.2812	9/32"	12.30	.4843	31/64"
0.39	.0156	1/64"	1.98	.0781	5/64"	4.30	.1693		7.20	.2835		12.50	.4921	
0.40	.0157		-	.0785		-	.1695		7.25	.2854		12.70	.5000	1/2"
-	.0160		2.00	.0787		4.37	.1719	11/64"	7.30	.2874	1"	3.00	.5118	
0.45	.0177		2.05	.0807		-	.1730		-	.2900		13.10	.5156	33/64"
-	.0180		-	.0810		4.40	.1732		7.40	.2913		13.49	.5312	17/32"
0.50	.0197		-	.0820		-	.1770		-	.2950		13.50	.5315	
-	.0200		2.10	.0827		4.50	.1771		7.50	.2953		13.89	.5469	35/64"
-	.0210		2.15	.0846		-	.1800		7.54	.2968	19/64"	14.00	.5512	
0.55	.0217		-	.0860		4.60	.1811		7.60	.2992		14.29	.5625	9/16"
-	.0225		2.20	.0866		-	.1820		-	.3020		14.50	.5709	
0.60	.0236		2.25	.0885		4.70	.1850		7.70	.3031		14.68	.5781	37/64"
-	.0240		-	.0890		4.75	.1870		7.75	.3051		15.00	.5906	
-	.0250		2.30	.0905		4.76	.1875	3/16"	7.80	.3071		15.08	.5937	19/32"
0.65	.0256		2.35	.0925		4.80	.1890		7.90	.3110		15.48	.6094	39/64"
-	.0260		-	.0935		-	.1910		7.94	.3125	5/16"	15.50	.6102	
-	.0280		2.38	.0937	3/32"	4.90	.1929		8.00	.3150		15.88	.6250	5/8"
0.70	.0286		2.40	.0945		-	.1935		-	.3160		16.00	.6299	
-	.0292		-	.0960		-	.1960		8.10	.3189		16.27	.6406	41/64"
0.75	.0295		2.45	.0964		5.00	.1968		8.20	.3228		16.50	.6496	
-	.0310		-	.0980		-	.1990		-	.3230		16.67	.6562	21/32"
0.79	.0312	1/32"	2.50	.0984		5.10	.2008		8.25	.3248		17.00	.6693	
0.80	.0315		-	.0995		-	.2010		8.30	.3268		17.06	.6719	43/64"
-	.0320		-	.1015		5.16	.2031	13/64"	8.33	.3281	21/64"	17.46	.6875	11/16"
-	.0330		2.60	.1024		-	.2040		8.40	.3307		17.50	.6890	
0.85	.0335		-	.1040		5.20	.2047		-	.3320		17.86	.7031	45/64"
-	.0350		2.70	.1063		-	.2055		8.50	.3346		18.00	.7087	
0.90	.0354		-	.1065		5.25	.2067		8.60	.3386		18.26	.7187	23/32"
-	.0360		2.75	.1082		5.30	.2086		-	.3390		18.50	.7283	
-	.0370		2.78	.1094	7/64"	-	.2090		8.70	.3425		18.65	.7344	47/64"
0.95	.0374		-	.1100		5.40	.2126		8.73	.3437	11/32"	19.00	.7480	
-	.0380		2.80	.1102		-	.2130		8.75	.3445		19.05	.7500	3/4"
-	.0390		-	.1110		5.50	.2165		8.80	.3465		19.45	.7656	49/64"
1.00	.0394		-	.1130		5.56	.2187	7/32"	-	.3480		19.50	.7677	
-	.0400		2.90	.1141		5.60	.2205		8.90	.3504		19.84	.7812	25/32"
-	.0410		-	.1160		-	.2210		9.00	.3543		20.00	.7874	
1.05	.0413		3.00	.1181		5.70	.2244		-	.3580		20.24	.7969	51/64"
-	.0420		-	.1200		5.75	.2263		9.10	.3583		20.50	.8071	
-	.0430		3.10	.1220		-	.2280		9.13	.3594	23/64"	20.64	.8125	13/16"
1.10	.0433		3.18	.1250	1/8"	5.80	.2283		9.20	.3622		21.00	.8268	
1.15	.0452		3.20	.1260		5.90	.2323		9.25	.3641		21.03	.8281	53/64"
-	.0465		3.25	.1279		-	.2340		9.30	.3661		21.43	.8437	27/32"
1.19	.0469	3/64"	-	.1285		5.95	.2344	15/64"	-	.3680		21.50	.8465	
1.20	.0472		3.30	.1299		6.00	.2362		9.40	.3701		21.83	.8594	55/64"
1.25	.0492		3.40	.1338		-	.2380		9.50	.3740		22.00	.8661	
1.30	.0512		-	.1360		6.10	.2401		9.53	.3750	3/8"	22.23	.8750	7/8"
-	.0520		3.50	.1378		-	.2420		-	.3770		22.50	.8858	
1.35	.0531		-	.1405		6.20	.2441		9.60	.3780		22.62	.8906	57/64"
-	.0550		3.57	.1406	9/64"	6.25	.2460		9.70	.3819		23.00	.9055	
1.40	.0551		3.60	.1417		6.30	.2480		9.75	.3838		23.02	.9062	29/32"
1.45	.0570		-	.1440		6.35	.2500	1/4"	9.80	.3858		23.42	.9219	59/64"
1.50	.0591		3.70	.1457		6.40	.2520		-	.3860		23.50	.9252	
-	.0595		-	.1470		6.50	.2559		9.90	.3898		23.81	.9375	15/16"
1.55	.0610		3.75	.1476		-	.2570		9.92	.3906	25/64"	24.00	.9449	
1.59	.0625	1/16"	-	.1495		6.60	.2598		10.00	.3937		24.21	.9531	61/64"
1.60	.0629		3.80	.1496		-	.2610		-	.3970		24.50	.9646	
-	.0635		-	.1520		6.70	.2638		-	.4040		24.61	.9687	31/32"
1.65	.0649		3.90	.1535		6.75	.2656	17/64"	10.32	.4062	13/32"	25.00	.9843	
1.70	.0669		-	.1540		6.75	.2657		-	.4130		25.03	.9844	63/64"
-	.0670		3.97	.1562	5/32"	-	.2660		10.50	.4134		25.40	1.0000	1"

BOLT SIZING CHART

Nominal opening sizes of Proto® wrenches or sockets in inches to fit standard bolt heads, nuts and screwheads.

Locate thread diameter of bolt, nut or screw in extreme left or right column. Then move across to box which has proper identification of bolt, nut or screw at top of vertical column. The size in this particular box is the nominal opening size in inches of the Proto® wrench and sockets that will fit.

*Regular Square Bolts only.

Nuts – Wrench or Socket Size				
Thread Diameter Of Nut	Finished Series & Finished Thick Nuts	Regular Series Hex & Square Nuts	Heavy Series Hex & Square Nuts	Machine Screw Nuts & Stove Bolt Nuts
#0 & 1				5/32"
#2 & 3				3/16"
#4				1/4"
#5 & 6				5/16"
#8				11/32"
#10				3/8"
#12				7/16"
1/4"	7/16"	7/16"	1/2"	7/16"
5/16"	1/2"	9/16"	9/16"	9/16"
3/8"	9/16"	5/8"	11/16"	5/8"
7/16"	11/16"	3/4"	3/4"	
1/2"	3/4"	13/16"	7/8"	
9/16"	7/8"	7/8"	15/16"	
5/8"	15/16"	1"	1-1/16"	
3/4"	1 1/8"	1 1/8"	1-1/4"	
7/8"	15/16"	15/16"	1-7/16"	
1"	1-1/2"	1-1/2"	1-5/8"	
1-1/8"	1-11/16"	1-11/16"	1-13/16"	
1-1/4"	1-7/8"	1-7/8"	2"	
1-3/8"	2-1/16"	2-1/16"	2-3/16"	
1-1/2"	2-1/4"	2-1/4"	2-3/8"	
1-5/8"	2-7/16"	2-7/16"	2-9/16"	
1-3/4"	2-5/8"	2-5/8"	2-3/4"	
1-7/8"	2-13/16"	2-13/16"	2-15/16"	
2"	3"	3"	3-1/8"	
2-1/4"	3-3/8"	3-3/8"	3-1/2"	
2-1/2"	3-3/4"	3-3/4"	3-7/8"	
2-3/4"	4-1/8"	4-1/8"	4-1/4"	
3"	4-1/2"	4-1/2"	4-5/8"	
3-1/4"			5"	
3-1/2"			5-3/8"	
3-3/4"			5-3/4"	
4"			6-1/2"	
4-1/4"			6-1/2"	
4-1/2"			6-7/8"	
4-3/4"			7-1/4"	
5"			7-5/8"	
5-1/4"			8"	
5-1/2"			8-3/8"	
5-3/4"			8-3/4"	
6"			9"	

Bolts & Screws – Wrench or Socket Size				
Regular & Finished Series Hex & Square Head Bolts	Heavy Series Hex & Square Head Bolts	Lag Screws	Square Head	Set Screws Thread Diameter Of Bolt Of Screw
				#0 & 1
				#2 & 3
				#4
				#5 & 6
				#8
	5/16"	3/16"		#10
		7/32"		#12
*3/8"-1/4"		3/8"	1/4"	1/4"
1/2"		1/2"	5/16"	5/16"
9/16"		9/16"	3/8"	3/8"
5/8"		5/8"	7/16"	7/16"
3/4"	7/8"	3/4"	1/2"	1/2"
13/16"			9/16"	9/16"
15/16"	11/16"	15/16"	5/8"	5/8"
1-1/8"	1-1/4"	1-1/8"	3/4"	3/4"
1-5/16"	1-7/16"	1-5/16"	7/8"	7/8"
1-1/2"	1-5/8"	1-1/2"	1"	1"
1-11/16"	1-13/16"	1-11/16"	1-1/8"	1-1/8"
1-7/8"	2"	1-7/8"	1-1/4"	1-1/4"
2-1/16"	2-3/16"		1-3/8"	1-3/8"
2-1/4"	2-3/8"		1-1/2"	1-1/2"
2-7/16"	2-9/16"			1-5/8"
2-5/8"	2-3/4"			1-3/4"
2-13/16"	2-15/16"			1-7/8"
3"	3-1/8"			2"
3-3/8"	3-1/2"			2-1/4"
3-3/4"	3-7/8"			2-1/2"
4-1/8"	4-1/4"			2-3/4"
4-1/2"	4-5/8"			3"
4-7/8"				3-1/4"
5-1/4"				3-1/2"
5-5/8"				3-3/4"
6"				4"

CONVERSION FROM FRACTIONAL INCHES TO MILLIMETERS

NOTE: All values in this table are exact.

inch	mm	inch	mm		
1/64	0.0156	0.3968	33/64	0.5156	13.0968
1/32	0.0312	0.7937	17/32	0.5312	13.4937
3/64	0.0468	1.1906	35/64	0.5468	13.8906
1/16	0.0625	1.5875	9/16	0.5625	14.2875
5/64	0.0781	1.9843	37/64	0.5781	14.6843
3/32	0.0937	2.3812	19/32	0.5937	15.0812
7/64	0.1093	2.7781	39/64	0.6093	15.4781
1/8	0.1250	3.1750	5/8	0.6250	15.8750
9/64	0.1406	3.5718	41/64	0.6406	16.2718
5/32	0.1562	3.9687	21/32	0.6562	16.6687
11/64	0.1718	4.3656	43/64	0.6718	17.0656
3/16	0.1875	4.7625	11/16	0.6875	17.4625
13/64	0.2031	5.1593	45/64	0.7031	17.8593
7/32	0.2187	5.5562	23/32	0.7187	18.2562
15/64	0.2343	5.9531	47/64	0.7343	18.6531
1/4	0.2500	6.3500	3/4	0.7500	19.0500
17/64	0.2656	6.7468	49/64	0.7656	19.4468
9/32	0.2812	7.1437	25/32	0.7812	19.8437
19/64	0.2968	7.5406	51/64	0.7968	20.2406
5/16	0.3125	7.9375	13/16	0.8125	20.6375
21/64	0.3281	8.3343	53/64	0.8281	21.0343
11/32	0.3437	8.7312	27/32	0.8437	21.4312
23/64	0.3593	9.1281	55/64	0.8593	21.8281
3/8	0.3750	9.5250	7/8	0.8750	22.2250
25/64	0.3906	9.9218	57/64	0.8906	22.6218
13/32	0.4062	10.3187	29/32	0.9062	23.0187
27/64	0.4218	10.7156	59/64	0.9218	23.4156
7/16	0.4375	11.1125	15/16	0.9375	23.8125
29/64	0.4531	11.5093	61/64	0.9531	24.2093
15/32	0.4687	11.9062	31/32	0.9687	24.6062
31/64	0.4843	12.3031	63/64	0.9843	25.0031
1/2	0.5000	12.7000	1	1.0000	25.4000

CONVERSION FROM MILLIMETERS TO INCHES

NOTE: All values in this table are rounded off.

inch	mm	inch	mm	inch	mm
1	0.0393	36	1.4173	71	2.7952
2	0.0787	37	1.4566	72	2.8346
3	0.1181	38	1.4960	73	2.8740
4	0.1574	39	1.5354	74	2.9133
5	0.1968	40	1.5748	75	2.9527
6	0.2362	41	1.6141	76	2.9921
7	0.2755	42	1.6535	77	3.0314
8	0.3149	43	1.6929	78	3.0708
9	0.3543	44	1.7322	79	3.1102
10	0.3937	45	1.7716	80	3.1496
11	0.4330	46	1.8110	81	3.1889
12	0.4724	47	1.8503	82	3.2283
13	0.5118	48	1.8897	83	3.2677
14	0.5511	49	1.9291	84	3.3070
15	0.5905	50	1.9685	85	3.3464
16	0.6299	51	2.0078	86	3.3858
17	0.6692	52	2.0472	87	3.4251
18	0.7086	53	2.0866	88	3.4645
19	0.7480	54	2.1259	89	3.5039
20	0.7874	55	2.1653	90	3.5433
21	0.8267	56	2.2047	91	3.5826
22	0.8661	57	2.2440	92	3.6220
23	0.9055	58	2.2834	93	3.6614
24	0.9448	59	2.3228	94	3.7007
25	0.9842	60	2.3622	95	3.7401
26	1.0236	61	2.4015	96	3.7795
27	1.0629	62	2.4409	97	3.8188
28	1.1023	63	2.4803	98	3.8582
29	1.1417	64	2.5196	99	3.8976
30	1.1811	65	2.5590	100	3.9370
31	1.2204	66	2.5984		
32	1.2598	67	2.6377		
33	1.2992	68	2.6771		
34	1.3385	69	2.7165		
35	1.3779	70	2.7559		

CONVERSION FROM FT-LBS TO METER-KILOGRAMS

The chart below can be used to convert foot pounds to meter-kilograms. The foot-pound column at the left increases in 10 ft-lb increments from 0 to 110 ft-lbs. For each additional ft-lb, read the top row of numbers.

Example: If you desire 45 ft-lbs, you would look to the number 40 in the left column and the number 5 in the top row. The conversion to meter-kilograms would be 6.22 m-kgs. For your use, the conversion formula is:

$$\text{FT-LBS} \times .1383 = \text{METER-KILOGRAMS}$$

ft-lbs	0	1	2	3	4	5	6	7	8	9
0	0	0.14	0.28	0.42	0.55	0.69	0.83	0.97	1.11	1.25
10	1.38	1.52	1.66	1.80	1.94	2.07	2.21	2.35	2.49	2.63
20	2.77	2.90	3.04	3.18	3.32	3.46	3.60	3.73	3.87	4.01
30	4.15	4.29	4.43	4.56	4.70	4.84	4.98	5.12	5.26	5.39
40	5.53	5.67	5.81	5.95	6.09	6.22	6.36	6.50	6.64	6.78
50	6.92	7.05	7.19	7.33	7.47	7.61	7.75	7.88	8.02	8.16
60	8.30	8.44	8.57	8.71	8.85	8.99	9.13	9.27	9.40	9.54
70	9.68	9.82	9.96	10.09	10.23	10.37	10.51	10.65	10.79	10.92
80	11.06	11.20	11.34	11.48	11.62	11.75	11.89	12.03	12.17	12.31
90	12.45	12.59	12.73	12.86	13.00	13.14	13.28	13.42	13.55	13.69
100	13.83	13.97	14.11	14.25	14.38	14.52	14.66	14.80	14.94	15.08
110	15.21	15.35	15.49	15.63	15.76	15.90	16.04	16.18	16.32	16.46

CONVERSION FROM DECIMAL INCH TO MM

NOTE: All values in this table are exact.

inch	mm	inch	mm	inch	mm
1	25.4	36	914.4	71	1,803.4
2	50.8	37	939.8	72	1,828.8
3	76.2	38	965.2	73	1,854.2
4	101.6	39	990.6	74	1,879.6
5	127.0	40	1,016.0	75	1,905.0
6	152.4	41	1,041.4	76	1,930.4
7	177.8	42	1,066.8	77	1,955.8
8	203.2	43	1,092.2	78	1,981.2
9	228.6	44	1,117.6	79	2,006.6
10	254.0	45	1,143.0	80	2,032.0
11	279.4	46	1,168.4	81	2,057.4
12	304.8	47	1,193.8	82	2,082.8
13	330.2	48	1,219.2	83	2,108.2
14	355.6	49	1,244.6	84	2,133.6
15	381.0	50	1,270.0	85	2,159.0
16	406.4	51	1,295.4	86	2,184.4
17	431.8	52	1,320.8	87	2,209.8
18	457.2	53	1,346.2	88	2,235.2
19	482.6	54	1,371.6	89	2,260.6
20	508.0	55	1,397.0	90	2,286.0
21	533.4	56	1,422.4	91	2,311.4
22	558.8	57	1,447.8	92	2,336.8
23	584.2	58	1,473.2	93	2,362.2
24	609.6	59	1,498.6	94	2,387.6
25	635.0	60	1,524.0	95	2,413.0
26	660.4	61	1,549.4	96	2,438.4
27	685.8	62	1,574.8	97	2,463.8
28	711.2	63	1,600.2	98	2,489.2
29	736.6	64	1,625.6	99	2,514.6
30	762.0	65	1,651.0	100	2,540.0
31	787.4	66	1,676.4		
32	812.8	67	1,701.8		
33	838.2	68	1,727.2		
34	863.6	69	1,752.6		
35	889.0	70	1,778.0		

STANDARD WRENCH SIZING CHART – BOLTS/SCREWS

Nominal opening sizes of Proto® wrenches or sockets in inches to fit standard bolt heads, nuts and screwheads.

Wrench or Socket Size		Square & Hex Bolts, Cap Screws & Square & Hex Lag Screws	Heavy Hex Bolts & Screws	Hex Flange Screws	Tapping Screws	Hex Washer Head Tapping Screws	Hex Head Machine Screws	Hex Washer Head Machine Screws	Square Head Set Screws
Imperial	Metric								
1/8"	0.1250	-	-	-	#1 & 2	#2 & 3	#1 & 2	#2 & 3	-
5/32"	0.1562	-	-	-	-	-	-	-	-
3/16"	0.1875	-	-	-	#3,4,5	#4 & 5	#3,4,5	#4 & 5	#10
1/4"	0.2500	-	-	-	#6,7,8	#6,7,8	#6 & 8	#6 & 8	1/4"
9/32"	0.2812	#10	-	-	-	-	-	-	-
5/16"	0.3125	-	-	-	#10 & 12	#10 & 12	#10 & 12	#10 & 12	5/16"
11/32"	0.3438	-	-	-	-	-	-	-	-
3/8"	0.3750	1/4"	-	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"
7/16"	0.4375	1/4"	-	-	-	-	-	-	7/16"
1/2"	0.5000	5/16"	-	5/16"	5/16"	5/16"	5/16"	5/16"	1/2"
9/16"	0.5625	3/8"	-	3/8"	3/8"	3/8"	3/8"	3/8"	9/16"
5/8"	0.6250	7/16"	-	7/16"	-	-	-	-	5/8"
11/16"	0.6875	-	-	-	-	-	-	-	-
3/4"	0.7500	1/2"	-	1/2"	-	-	-	-	3/4"
13/16"	0.8125	9/16"	-	9/16"	-	-	-	-	-
7/8"	0.8750	-	1/2"	-	-	-	-	-	7/8"
15/16"	0.9375	5/8"	-	5/8"	-	-	-	-	-
1"	1.0000	-	-	-	-	-	-	-	1"
1-1/16"	1.0625	-	5/8"	-	-	-	-	-	-
1-1/8"	1.1250	3/4"	-	3/4"	-	-	-	-	1-1/8"
1-1/4"	1.2500	-	3/4"	-	-	-	-	-	1-1/4"
1-5/16"	1.3125	7/8"	-	-	-	-	-	-	-
1-3/8"	1.3750	-	-	-	-	-	-	-	1-3/8"
1-7/16"	1.4375	-	7/8"	-	-	-	-	-	-
1-1/2"	1.5000	1"	-	-	-	-	-	-	1-1/2"
1-5/8"	1.6250	-	1"	-	-	-	-	-	-
1-11/16"	1.6875	1-1/8"	-	-	-	-	-	-	-
1-13/16"	1.8125	-	1-1/8"	-	-	-	-	-	-
1-7/8"	1.8750	1-1/4"	-	-	-	-	-	-	-
2"	2.0000	-	1-1/4"	-	-	-	-	-	-
2-1/16"	2.0625	1-3/8"	-	-	-	-	-	-	-
2-3/16"	2.1875	-	1-3/8"	-	-	-	-	-	-
2-1/4"	2.2500	1-1/2"	-	-	-	-	-	-	-
2-3/8"	2.3750	-	1-1/2"	-	-	-	-	-	-
2-7/16"	2.4375	1-5/8"	-	-	-	-	-	-	-
2-9/16"	2.5625	-	1-5/8"	-	-	-	-	-	-
2-5/8"	2.6250	1-3/4"	-	-	-	-	-	-	-
2-3/4"	2.7500	-	1-3/4"	-	-	-	-	-	-
2-13/16"	2.8125	1-7/8"	-	-	-	-	-	-	-
2-15/16"	2.9375	-	1-7/8"	-	-	-	-	-	-
3"	3.0000	2"	-	-	-	-	-	-	-
3-1/8"	3.1250	-	2"	-	-	-	-	-	-
3-3/8"	3.3750	2-1/4"	-	-	-	-	-	-	-
3-1/2"	3.5000	-	2-1/4"	-	-	-	-	-	-
3-3/4"	3.7500	2-1/2"	-	-	-	-	-	-	-
3-7/8"	3.8750	-	2-1/2"	-	-	-	-	-	-
4-1/8"	4.1250	2-3/4"	-	-	-	-	-	-	-
4-1/4"	4.2500	-	2-3/4"	-	-	-	-	-	-
4-1/2"	4.5000	3"	-	-	-	-	-	-	-
4-5/8"	4.6250	-	3"	-	-	-	-	-	-
4-7/8"	4.8750	3-1/4"	-	-	-	-	-	-	-
5"	5.0000	-	3-1/4"	-	-	-	-	-	-
5-1/4"	5.2500	3-1/2"	-	-	-	-	-	-	-
5-3/8"	5.3750	-	3-1/2"	-	-	-	-	-	-
5-5/8"	5.6250	3-3/4"	-	-	-	-	-	-	-
5-3/4"	5.7500	-	3-3/4"	-	-	-	-	-	-
6"	6.0000	4"	-	-	-	-	-	-	-
6-1/8"	6.1250	-	4"	-	-	-	-	-	-
6-1/2"	6.5000	-	4-1/4"	-	-	-	-	-	-
6-7/8"	6.8750	-	4-1/2"	-	-	-	-	-	-
7-1/4"	7.2500	-	4-3/4"	-	-	-	-	-	-
7-5/8"	7.6250	-	5"	-	-	-	-	-	-
8"	8.0000	-	5-1/4"	-	-	-	-	-	-
8-3/8"	8.3750	-	5-1/2"	-	-	-	-	-	-
8-3/4"	8.7500	-	5-3/4"	-	-	-	-	-	-
9-1/8"	9.1250	-	6"	-	-	-	-	-	-

STANDARD WRENCH SIZING CHART – NUTS

Nominal opening sizes of Proto® wrenches or sockets in inches to fit standard bolt heads, nuts and screwheads.

Wrench or Socket Size		Square Nuts & Heavy Square Nuts	Track, Heavy Hex & Square, Flat & Jam Nuts	Square Machine Screw Nuts	Hex Nuts & Flat Castle, Slotted & Ham Hex Nuts	Hex Flange Nuts	Track Bolt Nuts	Hex Lock Nuts
Imperial	Metric							
1/8"	0.1250	-	-	-	-	-	-	-
5/32"	0.1562	-	-	#0 & 1	-	-	-	-
3/16"	0.1875	-	-	#2 & 3	-	-	-	-
1/4"	0.2500	-	-	#4	-	-	-	#4
9/32"	0.2812	-	-	-	-	-	-	-
5/16"	0.3125	-	-	#5 & 6	-	#6	-	#6
11/32"	0.3438	-	-	#8	-	#8	-	#8
3/8"	0.3750	-	-	#10	-	#10	-	#10
7/16"	0.4375	1/4"	-	#12 & 14	1/4"	#12 & 14	-	#12 & 14
1/2"	0.5000	1/4"	1/4"	-	5/16"	5/16"	-	5/16"
9/16"	0.5625	5/16"	5/16"	5/16"	3/8"	3/8"	-	3/8"
5/8"	0.6250	3/8"	-	3/8"	-	-	-	-
11/16"	0.6875	3/8"	3/8"	-	7/16"	7/16"	-	7/16"
3/4"	0.7500	7/16"	7/16"	-	1/2"	1/2"	-	1/2"
13/16"	0.8125	1/2"	-	-	-	-	-	-
7/8"	0.8750	1/2"	1/2"	-	9/16"	9/16"	-	9/16"
15/16"	0.9375	-	9/16"	-	5/8"	5/8"	-	5/8"
1"	1.0000	5/8"	-	-	-	-	-	-
1-1/16"	1.0625	5/8"	5/8"	-	-	-	-	-
1-1/8"	1.1250	3/4"	-	-	3/4"	3/4"	-	3/4"
1-1/4"	1.2500	3/4"	3/4"	-	-	-	3/4" & 13/16"	-
1-5/16"	1.3125	7/8"	-	-	7/8"	-	-	7/8"
1-3/8"	1.3750	-	-	-	-	-	-	-
1-7/16"	1.4375	7/8"	7/8"	-	-	-	7/8"	-
1-1/2"	1.5000	1"	-	-	1"	-	15/16" & 1"	1"
1-5/8"	1.6250	1"	1"	-	-	-	1" & 1-1/16"	-
1-11/16"	1.6875	1-1/8"	-	-	1-1/8"	-	1-1/8"	1-1/8"
1-13/16"	1.8125	1-1/8"	1-1/8"	-	-	-	1-1/8"	-
1-7/8"	1.8750	1-1/4"	-	-	1-1/4"	-	-	-
2"	2.0000	1-1/4"	1-1/4"	-	-	-	-	-
2-1/16"	2.0625	1-3/8"	-	-	1-3/8"	-	-	-
2-3/16"	2.1875	1-3/8"	1-3/8"	-	-	-	-	-
2-1/4"	2.2500	1-1/2"	-	-	1-1/2"	-	-	-
2-3/8"	2.3750	1-1/2"	1-1/2"	-	-	-	-	-
2-7/16"	2.4375	-	-	-	-	-	-	-
2-9/16"	2.5625	-	1-5/8"	-	-	-	-	-
2-5/8"	2.6250	-	-	-	-	-	-	-
2-3/4"	2.7500	-	1-3/4"	-	-	-	-	-
2-13/16"	2.8125	-	-	-	-	-	-	-
2-15/16"	2.9375	-	1-7/8"	-	-	-	-	-
3"	3.0000	-	-	-	-	-	-	-
3-1/8"	3.1250	-	2"	-	-	-	-	-
3-3/8"	3.3750	-	-	-	-	-	-	-
3-1/2"	3.5000	-	2-1/4"	-	-	-	-	-
3-3/4"	3.7500	-	-	-	-	-	-	-
3-7/8"	3.8750	-	2-1/2"	-	-	-	-	-
4-1/8"	4.1250	-	-	-	-	-	-	-
4-1/4"	4.2500	-	2-3/4"	-	-	-	-	-
4-1/2"	4.5000	-	-	-	-	-	-	-
4-5/8"	4.6250	-	3"	-	-	-	-	-
4-7/8"	4.8750	-	-	-	-	-	-	-
5"	5.0000	-	3-1/4"	-	-	-	-	-
5-1/4"	5.2500	-	3-1/2"	-	-	-	-	-
5-3/8"	5.3750	-	3-1/2"	-	-	-	-	-
5-5/8"	5.6250	-	3-3/4"	-	-	-	-	-
5-3/4"	5.7500	-	3-3/4"	-	-	-	-	-
6"	6.0000	-	4"	-	-	-	-	-
6-1/8"	6.1250	-	4"	-	-	-	-	-
6-1/2"	6.5000	-	-	-	-	-	-	-
6-7/8"	6.8750	-	-	-	-	-	-	-
7-1/4"	7.2500	-	-	-	-	-	-	-
7-5/8"	7.6250	-	-	-	-	-	-	-
8"	8.0000	-	-	-	-	-	-	-
8-3/8"	8.3750	-	-	-	-	-	-	-
8-3/4"	8.7500	-	-	-	-	-	-	-
9-1/8"	9.1250	-	-	-	-	-	-	-

METRIC WRENCH SIZING CHART

Nominal opening sizes of Proto® wrenches or sockets in inches to fit standard bolt heads, nuts and screwheads.

Locate thread diameter of bolt, nut or screw in extreme left or right column. Then move across to box which has proper identification of bolt, nut or screw at top of vertical column. The size in this particular box is the nominal opening size in inches of the Proto® wrench and sockets that will fit.

American Standards Association—ASA B18.2, Appendix I

BOLTS: Use Wrench or Socket Size Shown Below

Wrench or Socket Size Across Flats	Hex Bolts	Heavy Hex Bolts	Heavy Hex Structural Bolts
3.20	—	—	—
4.00	—	—	—
5.00	—	—	—
5.50	—	—	—
6.00	—	—	—
7.00	—	—	—
8.00	M5 x 0.8	—	—
10.00	M6 x 1	—	—
13.00	M8 x 1.25	—	—
15.00	M10 x 1.5	—	—
16.00	M10 x 1.5	—	—
18.00	M12 x 1.75	—	—
21.00	M14 x 2	M12 x 1.75	—
24.00	M16 x 2	M14 x 2	—
27.00	—	M16 x 2	M16 x 2
30.00	M20 x 2.5	—	—
34.00	—	M20 x 2.5	M20 x 2.5
36.00	M24 x 3	—	M22 x 2.5
41.00	—	M24 x 3	M24 x 3
46.00	M30 x 3.5	—	M27 x 3
50.00	—	M30 x 3.5	M30 x 3.5
55.00	M36 x 4	—	—
60.00	—	M36 x 4	M36 x 4
65.00	M42 x 4.5	—	—
70.00	—	—	—
75.00	M48 x 5	—	—
80.00	—	—	—
85.00	M56 x 5.5	—	—
90.00	—	—	—
95.00	M64 x 6	—	—
100.00	—	—	—
105.00	M72 x 6	—	—
110.00	—	—	—
115.00	M80 x 6	—	—
120.00	—	—	—
130.00	M90 x 6	—	—
135.00	—	—	—
145.00	M100 x 6	—	—
150.00	—	—	—

NUTS: Use Wrench or Socket Size Shown Below

Hex Nuts Style 1	Hex Nuts Style 1	Slotted & Ham Hex Nuts	Heavy Hex Nuts	Wrench or Socket Size Across Flats
M16 x 0.35	-	-	-	3.20
M2 x 0.4	-	-	-	4.00
M2.5 x 0.45	-	-	-	5.00
M3 x 0.5	M3 x 0.5	-	-	5.50
M3.5 x 0.6	M3.5 x 0.6	-	-	6.00
M4 x 0.7	M4 x 0.7	-	-	7.00
M5 x 0.8	M5 x 0.8	M5 x 0.8	-	8.00
M6 x 1	M6 x 1	M6 x 1	-	10.00
M8 x 1.25	M8 x 1.25	M8 x 1.25	-	13.00
M10 x 1.5	M10 x 1.5	M10 x 1.5	-	15.00
M10 x 1.5	M10 x 1.5	M10 x 1.5	-	16.00
M12 x 1.75	M12 x 1.75	M12 x 1.75	-	18.00
M14 x 2	M14 x 2	M14 x 2	M12 x 1.75	21.00
M16 x 2	M16 x 2	M16 x 2	M14 x 2	24.00
-	-	-	M16 x 2	27.00
M20 x 2.5	M20 x 2.5	M20 x 2.5	-	30.00
-	-	-	M20 x 2.5	34.00
M24 x 3	M24 x 3	M24 x 3	M22 x 2.5	36.00
-	-	-	M24 x 3	41.00
M30 x 3.5	M30 x 3.5	M30 x 3.5	M27 x 3	46.00
-	-	-	M30 x 3.5	50.00
M36 x 4	M36 x 4	M36 x 4	-	55.00
-	-	-	M36 x 4	60.00
-	-	-	-	65.00
-	-	-	M42 x 4.5	70.00
-	-	-	-	75.00
-	-	-	M48 x 5	80.00
-	-	-	-	85.00
-	-	-	M56 x 5.5	90.00
-	-	-	-	95.00
-	-	-	M64 x 6	100.00
-	-	-	-	105.00
-	-	-	M72 x 6	110.00
-	-	-	-	115.00
-	-	-	M80 x 6	120.00
-	-	-	-	130.00
-	-	-	M90 x 6	135.00
-	-	-	-	145.00
-	-	-	M100 x 6	150.00

STANDARD TORQUE VALUE CHART FOR METRIC FASTENERS (TORQUE—KILO-NEWTON) CONVERSION GUIDANCE

Class 4.6 is approximately equal to SAE Grade 1, and ASTM A307, Grade A.

Class 5.8 is approximately equal to SAE Grade 2.

Class 8.8 is approximately equal to SAE Grade 5, and ASTM A449.

Class 9.8 has properties approximately 9 percent stronger than SAE Grade 5, and ASTM A449.

Class 10.9 is approximately equal to SAE Grade 8, and ASTM A354, Grade BD.

Class	4.6	4.8	5.8	8.8	9.8	10.9	12.9
Proof Load MPA	225	310	380	600	650	830	970
M1.6x0.35 (0.063)		0.39			0.83		1.23
M2x0.4 (0.079)		0.64			1.35		2.01
M2.5x0.45 (0.098)		1.05			2.20		3.29
M3x0.5 (0.118)		1.56			3.27		4.88
M3.4x0.6 (0.138)		2.10			4.41		6.58
M4x0.7 (0.157)		2.72			5.71		8.52
M5x0.8 (0.197)	3.20	4.40	5.40		9.23	11.80	13.80
M6.3x1 (0.248)	2.09	7.01	8.59		14.70	18.80	21.90
M8x1.25 (0.315)	8.24	11.30	13.90		23.80	30.40	35.50
M10x1.5 (0.394)	13.10	18.00	22.00		37.70	48.10	56.30
M12x1.75 (0.472)	19.00	26.10	32.00		54.80	70.00	81.80
M14x2 (0.551)	25.90	35.70	43.70		74.80	95.40	112.00
M16x2 (0.630)	35.30	48.70	59.70	94.20	120.00	130.00	152.00
M20x2.5 (0.787)	55.10		93.10	147.00		203.00	238.00
M24x3 (0.945)	79.40		134.00	212.00		293.00	342.00
M30x3.5 (1.181)	126.00			337.00		466.00	544.00
M36x4 (1.417)	184.00			490.00		478.00	792.00

NEWTON METER TORQUE VALUE CONVERSIONS

NOTE: The International Metric System measures torque in Newton meters (Nm).
A Newton is defined as the force necessary to move one kilogram one meter per second.

From ft-lb to Nm – ft-lb x 1.3558 = Nm										
ft-lb	0	1	2	3	4	5	6	7	8	9
	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm
0	0	1.36	2.71	4.07	5.42	6.78	8.13	9.49	10.84	12.20
10	13.56	14.91	16.27	17.62	18.98	20.33	21.69	23.05	24.40	25.76
20	27.11	28.47	29.83	31.18	32.54	33.89	35.25	36.61	37.97	39.32
30	40.67	42.02	43.38	44.73	46.09	47.45	48.80	50.16	51.51	52.87
40	54.22	55.58	56.94	58.29	59.65	61.00	62.36	63.71	65.07	66.42
50	67.78	69.14	70.49	71.85	73.20	74.56	75.91	77.27	78.62	79.98
60	81.33	82.69	84.05	85.40	86.76	88.11	89.47	90.83	92.18	93.54
70	94.89	96.25	97.60	98.96	100.31	101.67	103.03	104.38	105.74	107.09
80	108.45	109.80	111.16	112.51	113.87	115.23	116.58	117.94	119.29	120.65
90	122.00	123.36	124.72	126.07	127.43	128.78	130.14	131.49	132.85	134.20
100	135.58									

From Nm to ft-lb – Nm x 0.73756 = ft-lb										
Nm	0	1	2	3	4	5	6	7	8	9
	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb
0	0	0.74	1.48	2.21	2.95	3.69	4.43	5.16	5.90	6.64
10	7.38	8.11	8.85	9.59	10.33	11.06	11.80	12.54	13.28	14.01
20	14.75	15.49	16.23	16.96	17.70	18.44	19.18	19.91	20.65	21.39
30	22.13	22.86	23.60	24.34	25.08	25.81	26.55	27.29	28.03	28.76
40	29.50	30.24	30.98	31.72	32.45	33.19	33.93	34.67	35.40	36.14
50	36.88	37.62	38.35	39.09	39.83	40.57	41.30	42.04	42.78	43.52
60	44.25	44.99	45.73	46.47	47.20	47.94	48.68	49.42	50.15	50.89
70	51.63	52.37	53.10	53.84	54.58	55.32	56.05	56.79	57.53	58.27
80	59.00	59.74	60.48	61.22	61.96	62.69	63.43	64.17	64.91	65.64
90	66.38	67.12	67.86	68.59	69.33	70.07	70.81	71.54	72.28	73.02
100	73.76									

From in-lb to Nm – in-lb x .1130 = Nm										
in-lb	0	1	2	3	4	5	6	7	8	9
	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm
0	0	0.11	0.22	0.33	0.45	0.56	0.67	0.79	0.90	1.02
10	1.13	1.24	1.36	1.47	1.58	1.70	1.81	1.92	2.03	2.15
20	2.26	2.37	2.49	2.60	2.71	2.83	2.94	3.05	3.16	3.28
30	3.39	3.50	3.62	3.73	3.84	3.96	4.07	4.18	4.29	4.41
40	4.52	4.63	4.75	4.86	4.97	5.09	5.20	5.31	5.42	5.54
50	5.65	5.76	5.88	5.99	6.10	6.22	6.33	6.44	6.55	6.67
60	6.78	6.89	7.01	7.12	7.23	7.35	7.46	7.57	7.68	7.80
70	7.91	8.02	8.14	8.25	8.36	8.48	8.59	8.70	8.81	8.93
80	9.04	9.15	9.27	9.38	9.49	9.61	9.72	9.83	9.94	10.06
90	10.17	10.28	10.40	10.51	10.62	10.74	10.85	10.96	11.07	11.19
100	11.30									

From Nm to in-lb – Nm x 8.8507 = in-lb										
Nm	0	1	2	3	4	5	6	7	8	9
	in-lb	in-lb	in-lb	in-lb	in-lb	in-lb	in-lb	in-lb	in-lb	in-lb
0	0	8.85	17.70	26.55	35.40	44.25	53.10	61.95	70.81	79.66
10	88.51	97.36	106.21	115.06	123.91	132.76	141.61	150.46	159.31	168.16
20	177.01	185.86	194.72	203.57	212.42	221.27	230.12	238.98	247.82	256.67
30	265.52	274.38	283.22	292.07	300.92	309.77	318.62	327.48	336.33	345.18
40	354.03	362.88	371.73	380.58	389.43	398.28	407.13	415.98	424.83	433.68
50	442.53	451.36	460.24	469.09	477.94	486.79	495.64	504.49	513.34	522.19
60	531.04	539.89	548.74	557.59	566.44	575.30	584.15	593.00	601.85	610.70
70	619.55	628.40	637.25	646.10	654.95	663.80	672.65	681.50	690.35	699.20
80	708.06	716.91	725.76	734.61	743.46	752.31	761.16	770.01	778.86	787.72
90	796.56	805.41	814.26	823.12	831.97	840.82	849.67	858.52	867.37	876.22
100	885.07									

From in-oz to Nm – in-oz x .00706 = Nm										
in-oz	0	1	2	3	4	5	6	7	8	9
	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm
0	0	.007	.014	.021	.028	.035	.042	.049	.056	.064
10	.071	.078	.085	.092	.098	.106	.113	.120	.127	.134
20	.141	.148	.155	.162	.169	.177	.184	.191	.198	.205
30	.212	.219	.226	.232	.240	.247	.254	.261	.268	.275
40	.282	.289	.297	.304	.312	.318	.324	.332	.339	.346
50	.353	.360	.367	.374	.381	.388	.395	.402	.409	.417
60	.424	.431	.438	.445	.452	.459	.466	.473	.480	.487
70	.494	.501	.508	.515	.522	.530	.537	.544	.551	.558
80	.565	.572	.579	.586	.593	.600	.607	.614	.621	.628
90	.635	.642	.650	.657	.664	.671	.678	.685	.692	.699
100	.706									

From Nm to in-oz – Nm x 141.6119 = in-oz										
Nm	0	1	2	3	4	5	6	7	8	9
	in-oz	in-oz	in-oz	in-oz	in-oz	in-oz	in-oz	in-oz	in-oz	in-oz
0.0	0	1.42	2.83	4.25	5.66	7.08	8.50	9.91	11.33	12.74
0.1	14.16	15.58	16.99	18.41	19.83	21.24	22.66	24.07	25.49	26.91
0.2	28.32	29.74	31.15	32.57	33.99	35.40	36.82	38.23	39.65	41.07
0.3	42.48	43.90	45.32	46.73	48.15	49.56	50.98	52.40	53.81	55.23
0.4	56.64	58.06	59.48	60.89	62.31	63.72	65.14	66.56	67.97	69.39
0.5	70.81	72.22	73.64	75.05	76.47	77.89	79.30	80.72	82.13	83.55
0.6	84.97	86.41	87.80	89.21	90.63	92.05	93.46	94.88	96.30	97.71
0.7	99.13	100.54	101.96	103.38	104.79	106.21	107.62	109.04	110.46	111.87
0.8	113.29	114.70	116.12	117.54	118.95	120.37	121.79	123.20	124.62	126.03
0.9	127.45	128.87	130.28	131.70	133.11	134.53	135.95	137.36	138.78	140.19
1.0	141.61									

From m-kg to Nm – m-kg (or kpm) x 9.80665 = Nm										
m-kg	0	1	2	3	4	5	6	7	8	9
	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm
0	0	9.81	19.61	29.42	39.23	49.03	58.84	68.65	78.45	88.26
10	98.07	107.87	117.68	127.49	137.30	147.10	156.90	166.71	176.52	186.33
20	196.13	205.94	215.75	225.55	235.36	245.17	254.98	264.78	274.59	284.40
30	294.20	304.00	313.81	323.62	333.43	343.23	353.04	362.85	372.65	382.46
40	392.27	402.07	411.88	421.69	431.49	441.30	451.11	460.91	470.72	480.53
50	490.33	500.14	509.95	519.75	529.56	539.37	549.17	558.98	568.79	578.60
60	588.40	598.21	608.01	617.82	627.63	637.43	647.24	657.05	666.86	676.66
70	686.47	696.27	706.08	715.89	725.70	735.50	745.30	755.11	764.92	774.73
80	784.53	794.34	804.15	813.95	823.76	833.57	843.37	853.18	862.99	872.79
90	882.60	892.41	902.21	912.02	921.83	931.63	941.44	951.25	961.05	970.86
100	980.67									

From Nm to m-kg – Nm x .10197 = m-kg (or kpm)										
Nm	0	1	2	3	4	5	6	7	8	9
	m-kg	m-kg	m-kg	m-kg	m-kg	m-kg	m-kg	m-kg	m-kg	m-kg
0	0	0.102	0.204	0.306	0.408	0.510	0.611	0.714	0.816	0.918
10	1.020	1.122	1.224	1.326	1.428	1.530	1.632	1.733	1.835	1.937
20	2.039	2.141	2.243	2.345	2.447	2.549	2.651	2.753	2.855	2.957
30	3.059	3.161	3.263	3.365	3.467	3.569	3.671	3.773	3.875	3.977
40	4.079	4.181	4.283	4.385	4.487	4.589	4.691	4.793	4.895	4.997
50	5.099	5.200	5.302	5.404	5.506	5.608	5.710	5.812	5.914	6.016
60	6.118	6.220	6.322	6.424	6.526	6.628	6.730	6.832	6.934	7.036
70	7.138	7.240	7.342	7.444	7.546	7.648	7.750	7.852	7.954	8.056
80	8.158	8.260	8.362	8.464	8.565	8.667	8.769	8.871	8.973	9.075
90	9.177	9.279	9.381	9.483	9.585	9.687	9.789	9.891	9.993	10.095
100	10.197									

TORQUE VALUE CONVERSIONS

NOTE: One meter kilogram is equal to one meter kilopond (expressed as: 1 m-kg - 1kpm)

From in-lb to in-oz – in-lb x 16 = in-oz

in-lb	0	1	2	3	4	5	6	7	8	9
0	0	16	32	48	64	80	96	112	128	144
10	160	176	192	208	224	240	256	272	288	304
20	320	336	352	368	384	400	416	432	448	464
30	480	496	512	528	544	560	576	592	608	624
40	640	656	672	688	704	720	736	752	768	784
50	800	816	832	848	864	880	896	912	928	944
60	960	976	992	1008	1024	1040	1056	1072	1088	1104
70	1120	1136	1152	1168	1184	1200	1216	1232	1248	1264
80	1280	1296	1312	1328	1344	1360	1376	1392	1408	1424
90	1440	1456	1472	1488	1504	1520	1536	1552	1568	1584
100	1600									

From in-oz to in-lb – in-oz ÷ 16 = in-lb

in-oz	0	1	2	3	4	5	6	7	8	9
0	0	0.063	0.125	0.188	0.250	0.313	0.375	0.438	0.500	0.563
10	0.625	0.688	0.750	0.813	0.875	0.938	1.000	1.063	1.125	1.188
20	1.250	1.313	1.375	1.438	1.500	1.563	1.625	1.688	1.750	1.813
30	1.875	1.938	2.000	2.063	2.125	2.188	2.250	2.313	2.375	2.438
40	2.500	2.563	2.625	2.688	2.750	2.813	2.875	2.938	3.000	3.063
50	3.125	3.188	3.250	3.313	3.375	3.438	3.500	3.563	3.625	3.688
60	3.750	3.813	3.875	3.938	4.000	4.063	4.125	4.188	4.250	4.313
70	4.375	4.438	4.500	4.563	4.625	4.688	4.750	4.813	4.875	4.938
80	5.000	5.063	5.125	5.188	5.250	5.313	5.375	5.438	5.500	5.563
90	5.625	5.688	5.750	5.813	5.875	5.938	6.000	6.063	6.125	6.188
100	6.250									

From ft-lb to in-lb – ft-lb x 12 = in-lb

ft-lb	0	1	2	3	4	5	6	7	8	9
0	0	12	24	36	48	60	72	84	96	108
10	120	132	144	156	168	180	192	204	216	228
20	240	252	264	276	288	300	312	324	336	348
30	360	372	384	396	408	420	432	444	456	468
40	480	492	504	516	528	540	552	564	576	588
50	600	612	624	636	648	660	672	684	696	708
60	720	732	744	756	768	780	792	804	816	828
70	840	852	864	876	888	900	912	924	936	948
80	960	972	984	996	1008	1020	1032	1044	1056	1068
90	1080	1092	1104	1116	1128	1140	1152	1164	1176	1188
100	1200									

From in-lb to ft-lb – in-lb ÷ 12 = ft-lb

in-lb	0	1	2	3	4	5	6	7	8	9
0	0	0.083	0.167	0.250	0.333	0.417	0.500	0.583	0.667	0.750
10	0.833	0.917	1.000	1.083	1.167	1.250	1.333	1.417	1.500	1.583
20	1.667	1.750	1.833	1.917	2.000	2.083	2.167	2.250	2.333	2.417
30	2.500	2.583	2.667	2.750	2.833	2.917	3.000	3.083	3.167	3.250
40	3.333	3.417	3.500	3.583	3.667	3.750	3.833	3.917	4.000	4.083
50	4.167	4.250	4.333	4.417	4.500	4.583	4.667	4.750	4.833	4.917
60	5.000	5.083	5.167	5.250	5.333	5.417	5.500	5.583	5.667	5.750
70	5.833	5.917	6.000	6.083	6.167	6.250	6.333	6.417	6.500	6.583
80	6.667	6.750	6.833	6.917	7.000	7.083	7.167	7.250	7.333	7.417
90	7.500	7.583	7.667	7.750	7.833	7.917	8.000	8.083	8.167	8.250
100	8.333									

From in-lb to cm-kg – in-lb x 1.152 = cm-kg

in-lb	0	1	2	3	4	5	6	7	8	9
0	0	1.15	2.30	3.45	4.60	5.76	6.91	8.06	9.21	10.36
10	11.52	12.67	13.83	14.97	16.13	17.28	18.43	19.59	20.74	21.89
20	23.04	24.19	25.35	26.49	27.65	28.80	29.96	31.07	32.26	33.41
30	34.56	35.71	36.87	38.02	39.17	40.32	41.47	42.62	43.77	44.93
40	46.09	47.23	48.39	49.54	50.69	51.85	52.99	54.14	55.29	56.45
50	57.61	58.75	59.90	61.06	62.21	63.37	64.51	65.66	66.81	67.96
60	69.13	70.27	71.42	72.57	73.73	74.89	76.03	77.18	78.33	79.49
70	80.65	81.79	82.94	84.05	85.21	86.41	87.58	88.75	89.91	91.00
80	92.17	93.32	94.49	95.66	96.83	97.93	99.08	100.20	101.40	102.60
90	103.70	104.90	106.10	107.20	108.30	109.50	110.70	111.80	112.90	114.10
100	115.20									

From cm-kg to in-lb – cm-kg x .8677 = in-lb

cm-kg	0	1	2	3	4	5	6	7	8	9
0	0	.868	1.735	2.603	3.471	4.339	5.206	6.074	6.942	7.809
10	8.677	9.545	10.412	11.280	12.148	13.016	13.883	14.751	15.619	16.486
20	17.354	18.222	19.089	19.957	20.825	21.693	22.560	23.428	24.296	25.163
30	26.031	26.899	27.766	28.634	29.502	30.370	31.237	32.105	32.973	33.840
40	34.708	35.576	36.443	37.311	38.179	39.047	39.914	40.782	41.650	42.517
50	43.385	44.253	45.120	45.988	46.856	47.724	48.591	49.459	50.327	51.194
60	52.062	52.930	53.797	54.665	55.533	56.401	57.268	58.136	59.004	59.871
70	60.739	61.607	62.474	63.342	64.210	65.078	65.945	66.813	67.681	68.548
80	69.416	70.284	71.151	72.019	72.887	73.754	74.622	75.490	76.358	77.225
90	78.093	78.961	79.828	80.696	81.564	82.432	83.299	84.167	85.035	85.902
100	86.770									

From ft-lb to m-kg – ft-lb x .1383 = m-kg

ft-lb	0	1	2	3	4	5	6	7	8	9
0	0	0.138	0.277	0.415	0.553	0.691	0.830	0.968	1.106	1.245
10	1.383	1.521	1.660	1.798	1.936	2.074	2.212	2.351	2.489	2.628
20	2.766	2.904	3.043	3.181	3.319	3.457	3.596	3.734	3.872	4.011
30	4.149	4.287	4.426	4.564	4.702	4.840	4.979	5.117	5.255	5.394
40	5.532	5.670	5.809	5.947	6.085	6.223	6.362	6.500	6.638	6.777
50	6.915	7.053	7.191	7.330	7.468	7.606	7.745	7.883	8.021	8.159
60	8.298	8.436	8.574	8.713	8.851	8.989	9.128	9.266	9.404	9.543
70	9.681	9.819	9.957	10.09	10.23	10.37	10.51	10.65	10.79	10.92
80	11.06	11.20	11.34	11.48	11.62	11.75	11.89	12.03	12.17	12.31
90	12.45	12.59	12.73	12.86	13.00	13.14	13.28	13.42	13.55	13.69
100	13.83									

From m-kg to ft-lb – m-kg x 7.233 = ft-lb

m-kg	0	1	2	3	4	5	6	7	8	9
0	0	7.23	14.47	21.70	28.93	36.17	43.40	50.63	57.86	65.10
10	72.40	79.6	86.8	94.0	101.3	108.5	115.7	123.0	130.2	137.4
20	144.70	151.9	159.1	166.4	173.6	180.8	188.1	195.3	202.5	209.8
30	217.0	224.2	231.5	238.7	245.9	253.2	260.4	267.6	274.9	282.1
40	289.3	296.6	303.9	311.0	318.3	325.5	332.7	340.0	347.2	354.4
50	361.7	368.9	376.1	383.3	390.6	397.8	405.0	412.3	419.5	426.7
60	434.0	441.2	448.4	455.7	462.9	470.1	477.3	484.6	491.8	499.1
70	506.3	513.5	520.8	528.0	535.2	542.5	549.7	556.9	564.2	571.4
80	578.6	585.9	593.1	600.3	607.6	614.8	622.0	629.3	636.5	643.7
90	651.0	658.2	665.4	672.7	679.9	687.1	694.4	701.6	708.8	716.1
100	723.3									

CONVERSION CHARTS

Torque Conversion Chart

Units to be Converted	Imperial		
	ozf-in	lbf-in	lbf-ft
1 OZF-IN.=	1	0.0625	0.005
1LBF-IN.=	16	1	0.083
1LPF-FT.	192	12	1
1MN-M+	0.142	0.009	0.0007
1CN-M=	1.416	0.088	0.007
1N-M.	141.6	8.851	0.738

Units to be Converted	INTERNATIONAL SYSTEM -S.I.		
	mN-m	cN-m	N-m
1 OZF-IN.=	7.062	0.706	0.007
1LBF-IN.=	113	11.3	0.113
1LPF-FT.	1356	135.6	1.356
1MN-M+	1	0.1	0.001
1CN-M=	10	1	0.01
1N-M.	1000	100	1

Torque Conversion Chart

N.m		lbf. ft
1.2	1	0.7
2.7	2	1.5
4.0	3	2.2
5.4	4	3.0
6.8	5	3.7
8.1	6	4.4
9.5	7	5.1
10.9	8	5.9
12.2	9	6.6
13.6	10	7.4
15.0	11	8.1
16.3	12	8.9
17.6	13	9.6
19.0	14	10.3
20.3	15	11.0
21.7	16	11.8
23.0	17	12.5
24.0	18	13.2
25.8	19	14.0
27.1	20	14.8
28.5	21	15.5
29.5	22	16.2
31.5	23	17.0
32.5	24	17.7
33.9	25	18.4

Wire Sizes

AWG	mm ²	Ø mm
30	0.05	0.25
28	0.08	0.30
26	0.12	0.40
24	0.22	0.50
22	0.35	0.60
20	0.5	0.80
18	1.0	1.00
16	1.5	1.30
14	2.5	1.63
12	4.0	2.00
10	6.0	2.60

Temperature Conversion

Celcius	Fahrenheit
$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \div 1.8$	$^{\circ}\text{F} = (^{\circ}\text{C} \times 1.8) + 32$

Hex Versus Thread Size

mm	Metric as per DIN and ISO			
	Germany (FRG) NFE 27-311(69)	France NFE 27-411(69)	Sweden SMS 2164-1967 2175-1971	Metric for high-strength bolts as per DIN 6914-6915
4	2		2u, 2.2	
4.5	2.3			
5	2.5		2.5	
5.5	3	3	3u, 4.5	
6	3.5	3.5		
7	4	4	4u, 3.5	
8	5	5	5	
9	5	5	5	
10	6	6	6	
11	7	7	7	
12				
13	8	8	8	
14				
15	10			
16	(garage)			
17	10	10	10	
18				
19	12	12	12	
20				
21				
22	14	14	14	12
23				
24	16	16	16	

Men's Shoe Sizes

Australia	6	7	8	9	10	11	12
Continent	40	41	42	43	44 ^{1/2}	46	47

Women's Shoe Sizes

Australia	5	5 ^{1/2}	6	6 ^{1/2}	7	7 ^{1/2}	8	8 ^{1/2}	9
Continent	35	36	36	37	37	38	38	39	39

Area

To convert	Multiply by
square inches into square millimetres	645.16
square inches into square centimetres	6.4516
square feet into square centimetres	929.0304
square feet into square metres	0.092903
square yards into square metres	0.836127

Volume and Capacity

To convert	Multiply by
cubic inches into cubic centimetres	16.387064
cubic inches into litres	0.016387
cubic feet into cubic metres	0.0283168
cubic feet into litres	28.316847
cubic yards into cubic metres	0.7645549

Mass

To convert	Multiply by
ounces into grams	28.349523
ounces into kilograms	0.0283495
pounds into kilograms	0.4535924

Whereas we have taken great care in the preparation of this catalogue, we accept no liability for errors. The manufacturers of the products catalogued reserve the right to alter specifications and designs without prior notification.