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Delta
DeWalt
DeWalt/Powers
DeWitt
Diamond Products
Diamond Saw Works
Dickies
Dixie Diamond
Dixon Valve & Coupling
Dotco

Drillco
Ecco
Eklind Tool
Elephant Lifting Products
Empire Level
Enerpac
Engineered Lifting Technologies
EREM
Ergodyne
Ericson
ESMET Inc.
Estwing
Falltech
Fein Power Tools
Flexovit
Fluke
Gear Wrench
General Clamp
General Tools
Gorilla Glue
Green Bull
Green Umbrella
Greenlee
Grinding Wheels
Griphoist
G-Strut
Guardian
Gunnebo Johnson
H.K. Porter
Harrington
Hevi-Haul
Hilman Roller
Hitachi
Honda
Honeywell
Hougen
Howard Leight
Huskie
Igloo Products
Ingersoll Rand
Irwin Industrial Tools
iTOOLco
Jackson Prof. Tools
Jackson Safety
Jacobs
Jameson
Jeamar Winches
Jet
Jobox
Justrite Mfg.
K & F
Ken Forging
Keson
Kett Tool
Kimberly-Clark
Kinco Gloves
Klein Tools
Knaack
Kroil
Lenox
Liquid Wrench
Little Giant Pump

Loctite
Lode Rail
Louisville
Lubrimatic
Lufkin
Lug-All
Lyon Metal
M.K. Diamond
M.K. Morse
Makita
Markal/La-Co
Marshalltown
Master Heater
Master Lock
Master Power
Mayhew Steel
Mayle
MCR Safety
Mechanix Wear
Meltblown Tech.
Metabo
MG Krete/IMCO
Milwaukee
Milwaukee Brush/Pferd
Mi-T-M Corp.
Moldex
Morse Cutting Tools
Morse Mfg
Morse-Starrett
Motorola
Mr. Heater
My-Te
Nicholson
North Safety
OccuNomix
Oldham Saw
Partner/Husqvarna
PB Blaster
Pelican Rope
Petzl
Pewag
PIP
PLS Laser
Poly-America Inc.
Por-Rock
Powers Fastening
Powerteam
Precision Brand Prods.
Protective Gear
Proto
Pyramex
Qualtool
Radians Eyewear
Ramset
Rayovac
Razor-Back
Red Devil
Red Head (ITW)
Reelcraft
Relton Rapid Tap
Renfroe
Ridgid

Rubbermaid
Rust-Oleum
Safehouse Sign
Safe-T-Cart
Safety Clamps
Saint-Gobain Abrasives
Sammy Screw
Samson Rope Technologies
Sherwin Williams
Simple Green
Simpson Strong-Tie
Sioux Tools Inc.
Sipco
Skookum
Slingsmax
SnapOn
Southwire
Spanco
Spray Nine
Spray On
Stanley/Black & Decker
Steiner
STI Firestop
Stihl
Stout Tool
Streamlight
Sumner
Suncor Stainless
Tamco Tools
Tanner Gas
Thern
TPI Corp
Tractel
Triumph Twist Drill
Tsurumi Pump
Tuff Bucket
Union Tools
United Abrasives SAIT
Uniweld
Uvex
Versabar Corp.
Vise Grip
VSM Abrasives
Wallace Forge
Walter Abrasives
WD-40
Weather Guard
Weiler Brush
Weller
Werner
Westchester
Wilton Tool
Wire Rope Corp
Wiss
Workhorse
Wright Tool
Wyeth-Scott
WypAll
Xcelite
Yamaha Motor Corp.
ZRC Products

Conversion Charts

Drill — Tap Sizes

Decimal Equivalents and Tap Sizes of Fraction, Number, Letter and Metric Sizes

Recommended tap drill sizes for approximately 75% depth of thread

Drill Size	Decimal Inches	Tap Size*	Drill Size	Decimal Inches	Tap Size*	Drill Size	Decimal Inches	Tap Size*	Drill Size	Decimal Inches	Tap Size*	Drill Size	Decimal Inches	Tap Size*
97	.0059		58	.0420		27	.1440		H	.2660		17/32	.5312	5/8-11
.15mm	.0059		57	.0430		3.7mm	.1457		6.8mm	.2677		13.5mm	.5315	
96	.0063		1.1mm	.0433		26	.1470		6.9mm	.2717		35/64	.5469	
.16mm	.0063		1.15mm	.0453		3.75mm	.1476	3/16-24NS	I	.2720	5/16-24NF	14mm	.5512	m16x2
95	.0067		56	.0465		25	.1495	#10-24	7mm	.2756	m8x1	9/16	.5625	
.17mm	.0067		3/64	.0469	#0-80	3.8mm	.1496		J	.2770		14.5mm	.5709	m16x1.5
94	.0071		1.2mm	.0472		24	.1520		7.1mm	.2795		37/64	.5781	3/8-18NF
.18mm	.0071		1.25mm	.0492	m1.6x0.35	3.9mm	.1535		K	.2810		15mm	.5906	3/8-18NPS PIPE
93	.0075		1.3mm	.0512		23	.1540		9/32	.2812	5/16-32NS	19/32	.5938	
.19mm	.0075		55	.0520		5/32	.1562		7.2mm	.2835		39/64	.6094	
92	.0079		1.35mm	.0531		22	.1570	3/16-32NS	7.25mm	.2854		15.5mm	.6102	m18x2.5
.2mm	.0079		54	.0550		4mm	.1575		7.3mm	.2874		5/8	.6250	11/16-16NS
91	.0083		1.4mm	.0551		21	.1590	#10-32	L	.2900		16mm	.6299	m18x2.0
.21mm	.0083		1.45mm	.0571	m1.8x0.35	20	.1610		7.4mm	.2913		41/64	.6406	
90	.0087		1.5mm	.0591		4.1mm	.1614		M	.2950		16.5mm	.6496	
.22mm	.0087		53	.0595	#1-64, 72	4.2mm	.1654	m5x0.8	7.5mm	.2953		21/32	.6562	3/4-10NC
89	.0091		1.55mm	.0610		19	.1660		19/64	.2969		17mm	.6693	
.23mm	.0091		1/16	.0625		4.25mm	.1673		7.6mm	.2992		43/64	.6719	
.24mm	.0094		1.6mm	.0630	m2x0.4	4.3mm	.1693		N	.3020		11/16	.6875	3/4-16NF
88	.0095		52	.0635		18	.1695		7.7mm	.3031		17.5mm	.6890	m20x2.5
.25mm	.0098		1.65mm	.0650		11/64	.1719		7.75mm	.3051	m9x1.25	45/64	.7031	
87	.0100		1.7mm	.0669		17	.1730		7.8mm	.3071		18mm	.7087	m20x2.0
.26mm	.0102		51	.0670	#2-56	4.4mm	.1732		7.9mm	.3110		23/32	.7188	1/2-14NPT PIPE
86	.0105		1.75mm	.0689	m2.2x0.45	16	.1770	#12-24	5/16	.3125	3/8-16NC	18.5	.7283	m20x1.5
.27mm	.0106		50	.0700	#2-64	4.5mm	.1772		8mm	.3150		47/64	.7344	1/2-14NPS PIPE
85	.0110		1.8mm	.0709		15	.1800		O	.3160		19mm	.7480	
.28mm	.0110		1.85mm	.0728		4.6mm	.1811		8.1mm	.3189		3/4	.7500	
.29mm	.0114		49	.0730		14	.1820	#12-28	8.2mm	.3228		49/64	.7656	7/8-9NC
84	.0115		1.9mm	.0748	m2.3x0.4	13	.1850		P	.3230		19.5mm	.7677	m22x2.5
.3mm	.0118		48	.0760		4.7mm	.1850		8.25mm	.3248		25/32	.7812	
83	.0120		1.95mm	.0768		4.75mm	.1870		8.3mm	.3268		20mm	.7874	m22x2.0
.32mm	.0126		5/64	.0781		3/16	.1875		21/64	.3281		51/64	.7969	
82	.0125		47	.0785	#3-48	4.8mm	.1890		8.4mm	.3307		20.5mm	.8071	m22x1.5
.34mm	.0134		2mm	.0787		12	.1890	7/32-32NS	Q	.3320	3/8-24NF	13/16	.8125	7/8-14NF
81	.0135		2.05mm	.0807	m2.5x0.45	11	.1910		8.5mm	.3346	m10x1.5	21mm	.8268	m24x3
.35mm	.0138		46	.0810		4.9mm	.1929		8.6mm	.3386		53/64	.8281	
.36mm	.0142		45	.0820	#3-56	10	.1935		R	.3390	1/8-27NPT PIPE	27/32	.8438	
79	.0145		2.1mm	.0827		9	.1960		8.7mm	.3425		21.5mm	.8465	
.38mm	.0150		2.15mm	.0846	m2.6x0.45	5mm	.1969	m6x1	11/32	.3438		55/64	.8594	
1/64	.0156		44	.0860	#4-36	8	.1990		8.75mm	.3445	m10x1.25	22mm	.8661	m24x2
.4mm	.0157		2.2mm	.0866		5.1mm	.2008		8.8mm	.3465		7/8	.8750	1-8NC
78	.0160		2.25mm	.0886		7	.2010	1/4-20	S	.3480	1/8-27NPS PIPE	22.25mm	.8760	
.42mm	.0165		43	.0890	#4-40	13/64	.2031		8.9mm	.3504		22.5mm	.8858	m24x1.50
.44mm	.0173		2.3mm	.0906		6	.2040		9mm	.3543	m10x1.00	57/64	.8906	
.45mm	.0177		2.35mm	.0925		5.2mm	.2047		T	.3580		23mm	.9055	
77	.0180		42	.0935	#4-48	5	.2055		9.1mm	.3583		29/32	.9062	
.46mm	.0181		3/32	.0938		5.25mm	.2067	m6x0.75	23/64	.3594		59/64	.9219	3/4-14NPT PIPE
.48mm	.0189		2.4mm	.0945		5.3mm	.2087		9.2mm	.3622		23.5mm	.9252	
.5mm	.0197		41	.0960		4	.2090	1/4-24	9.25mm	.3642		15/16	.9375	3/4-14NF
76	.0200		2.45mm	.0965		5.4mm	.2126		9.3mm	.3661		24mm	.9449	m27x3
.55mm	.0217		40	.0980		3	.2130	1/4-28	U	.3680	7/16-14NC	61/64	.9531	
74	.0225		2.5mm	.0984	m3x0.5	5.5mm	.2165		9.4mm	.3701		24.5mm	.9646	
.6mm	.0236		39	.0995		7/32	.2188		9.5mm	.3740	m11x1.50	31/32	.9688	
73	.0240		38	.1015	#5-40	5.6mm	.2205		3/8	.3750		25mm	.9843	m27x2
.72	.0250		2.6mm	.1024		2	.2210		V	.3770		63/64	.9844	1-1/8-7NC
.65mm	.0256		37	.1040	#5-44	5.7mm	.2244		9.6mm	.3780		1	1.0000	
71	.0260		2.7mm	.1063		5.75mm	.2264		9.7mm	.3819		25.5mm	1.0039	
.7mm	.0276		36	.1065	#6-32	1	.2280		9.75mm	.3839		1-1/64	1.0156	
70	.0280		2.75mm	.1083		5.8mm	.2283		9.8mm	.3858		26mm	1.0236	
.69	.0292		7/64	.1094		5.9mm	.2323		W	.3860		1-1/32	1.0312	
.75mm	.0295		35	.1100		A	.2340		9.9mm	.3898		26.5mm	1.0433	m30x3.5
68	.0310		2.8mm	.1102		15/64	.2344		25/64	.3906	7/16-20	1-3/64	1.0469	1-1/8-12NF
1/32	.0312		34	.1110		6mm	.2362	m7x1	10mm	.3937	m12x1.75	1-1/16	1.0625	
.8mm	.0315		33	.1130	#6-40	B	.2380		X	.3970		27mm	1.0630	
.67	.0320		2.9mm	.1142	m3.5x0.6	6.1mm	.2402		Y	.4040		1-5/64	1.0781	
.66	.0330		32	.1160		C	.2420		13/32	.4062		27.5mm	1.0827	
.85mm	.0335		3mm	.1181		6.2mm	.2441		Z	.4130		1-3/32	1.0938	
.65	.0350		31	.1200		D	.2460	1/16-27NPT PIPE	10.5mm	.4134	m12x1.25	28mm	1.1024	m30x2.0
.9mm	.0354		3.1mm	.1220	5/32-32NS	6.25mm	.2461		27/64	.4219	1/2-13	1-7/64	1.1094	1-1/4-7NC
.64	.0360		1/8	.1250		6.3mm	.2480		11mm	.4331		28.5mm	1.1220	
.63	.0370		3.2mm	.1260		E	.2500	1/16-27NPS PIPE	7/16	.4375	1/4-18NPT PIPE	1-1/8	1.1250	
.95mm	.0374		3.25mm	.1280		1/4	.2500		11.5mm	.4528	1/4-18NF	1-9/64	1.1406	
.62	.0380		30	.1285	5/32-36NS	6.4mm	.2520		29/64	.4531	1/4-18NF	29mm	1.1417	
.61	.0390		3.3mm	.1299	m4x0.7	6.5mm	.2559		15/32	.4688		1-5/32	1.1562	1-11/2NPT PIPE
1mm	.0394		3.4mm	.1339		F	.2570	5/16-18NC	12mm	.4724	m14x2	29.5mm	1.1614	
.60	.0400		29	.1360	#8-32	6.6mm	.2598		31/64	.4844	9/16-12	1-11/64	1.1719	1-1/4-12NF
.59	.0410		3.5mm	.1378		G	.2610		12.5mm	.4921	m14x1.5			
1.05mm	.0413		28	.1405		6.7mm	.2638		1/2	.5000				
			9/64	.1406		17/64	.2656		13mm	.5118	m14x1.25			
			3.6mm	.1417		6.75mm	.2657	m8x1.25	33/64	.5156	9/16-18			

*To be used with drills as indicated

Conversion Charts

Metric – Fraction Conversion Chart

Conversion Chart Showing Millimeter Sizes, Fractional and Decimal Inch Sizes

Milli-Meter	Dec. Equiv.	Frac-tional	Milli-Meter	Dec. Equiv.	Frac-tional	Milli-Meter	Dec. Equiv.	Frac-tional	Milli-Meter	Dec. Equiv.	Frac-tional	Milli-Meter	Dec. Equiv.	Frac-tional
.1	.0039		1.8	.0709		4.1	.1614		—	.2770		12.0	.4724	
.15	.0059		1.85	.0728		4.2	.1654		7.1	.2795		12.30	.4843	31/64
.2	.0079		—	.0730		—	.1660		—	.2811		12.5	.4921	
.25	.0098		1.9	.0748		4.25	.1673		7.14	.2812	9/32	12.7	.5000	1/2
.3	.0118		—	.0760		4.3	.1693		7.2	.2835		13.0	.5118	
—	.0135		1.95	.0767		—	.1695		7.25	.2854		13.10	.5156	33/64
.35	.0138		1.98	.0781	5/64	4.37	.1719	11/64	7.3	.2874		13.49	.5312	17/32
—	.0145		—	.0785		—	.1730		—	.2900		13.5	.5315	
.39	.0156	1/64	2.0	.0787		4.4	.1732		7.4	.2913		13.89	.5469	35/64
.4	.0157		2.05	.0807		—	.1770		—	.2950		14.0	.5512	
—	.0160		—	.0810		4.5	.1771		7.5	.2953		14.29	.5625	9/16
.45	.0177		—	.0820		—	.1800		7.54	.2968	19/64	14.5	.5709	
—	.0180		2.1	.0827		4.6	.1811		7.6	.2992		14.68	.5781	37/64
.5	.0197		2.15	.0846		—	.1820		—	.3020		15.0	.5906	
—	.0200		—	.0860		4.7	.1850		7.7	.3031		15.08	.5937	19/32
—	.0210		2.2	.0866		4.75	.1870		7.75	.3051		15.48	.6094	39/64
.55	.0217		2.25	.0885		4.76	.1875	3/16	7.8	.3071		15.5	.6102	
—	.0225		—	.0890		4.8	.1890		7.9	.3110		15.88	.6250	5/8
.6	.0236		2.3	.0905		—	.1910		7.94	.3125	5/16	16.0	.6299	
—	.0240		2.35	.0925		4.9	.1929		8.0	.3150		16.27	.6406	41/64
—	.0250		—	.0935		—	.1935		—	.3160		16.5	.6496	
.65	.0256		2.38	.0937	3/32	—	.1960		8.1	.3189		16.67	.6562	21/32
—	.0260		2.4	.0945		5.0	.1968		8.2	.3228		17.0	.6693	
—	.0280		—	.0960		—	.1990		—	.3230		16.06	.6719	43/64
.7	.0276		2.45	.0964		5.1	.2008		8.25	.3248		16.46	.6875	11/16
—	.0292		—	.0980		—	.2010		8.3	.3268		17.5	.6890	
.75	.0295		2.5	.0984		5.16	.2031	13/64	8.33	.3281	21/64	17.86	.7031	45/64
—	.0310		—	.0995		—	.2040		8.4	.3307		18.0	.7087	
.79	.0312	1/32	—	.1015		5.1	.2047		—	.3320		18.26	.7187	23/32
.8	.0315		2.6	.1024		—	.2055		8.5	.3346		18.5	.7283	
—	.0320		—	.1040		5.25	.2067		8.6	.3386		18.65	.7344	47/64
—	.0330		2.7	.1063		5.3	.2086		—	.3390		19.0	.7480	
.85	.0335		—	.1065		—	.2090		8.7	.3425		19.05	.7500	3/4
—	.0350		2.75	.1082		5.4	.2126		8.73	.3437	11/32	19.45	.7656	49/64
.9	.0354		2.78	.1094	7/64	—	.2130		8.75	.3445		19.5	.7677	
—	.0360		—	.1100		5.5	.2165		8.8	.3465		19.84	.7812	25/32
—	.0370		2.8	.1102		5.56	.2187	7/32	—	.3480		20.0	.7874	
.95	.0374		—	.1110		5.6	.2205		8.9	.3504		20.24	.7969	51/64
—	.0380		—	.1130		—	.2210		9.0	.3543		20.5	.8071	
—	.0390		2.9	.1141		5.7	.2244		—	.3580		20.64	.8125	13/16
1.0	.0394		—	.1160		5.75	.2263		9.1	.3583		21.0	.8268	
—	.0400		3.0	.1181		—	.2280		9.13	.3594	23/64	21.03	.8281	53/64
—	.0410		—	.1200		5.8	.2283		9.2	.3622		21.43	.8437	27/32
1.05	.0413		3.1	.1220		5.9	.2323		9.25	.3641		21.5	.8465	
—	.0420		3.18	.1250	1/8	—	.2340		9.3	.3661		21.83	.8594	55/64
—	.0430		3.2	.1260		5.95	.2344	15/64	—	.3680		22.0	.8661	
1.1	.0433		3.25	.1279		6.0	.2362		9.4	.3701		22.23	.8750	7/8
1.15	.0452		—	.1285		—	.2380		9.5	.3740		22.5	.8858	
—	.0465		3.3	.1299		6.1	.2401		9.53	.3750	3/8	22.62	.8906	57/64
1.19	.0469	3/64	3.4	.1338		—	.2420		—	.3770		23.0	.9055	
1.2	.0472		—	.1360		6.2	.2441		9.6	.3780		23.02	.9062	29/32
1.25	.0492		3.5	.1378		6.25	.2460		9.7	.3819		23.42	.9219	59/64
1.3	.0512		—	.1405		6.3	.2480		9.75	.3838		23.5	.9252	
—	.0520		3.57	.1406	9/64	6.35	.2500	1/4	9.8	.3858		23.81	.9375	15/16
1.35	.0531		3.6	.1417		6.4	.2520		—	.3860		24.0	.9449	
—	.0550		—	.1440		6.5	.2559		9.9	.3898		24.21	.9531	61/64
1.4	.0551		3.7	.1457		—	.2570		9.92	.3906	25/64	24.5	.9646	
1.45	.0570		—	.1470		6.6	.2598		10.0	.3937		24.61	.9687	31/32
1.5	.0591		3.75	.1476		—	.2570		—	.3970		25.0	.9843	
—	.0595		—	.1495		6.6	.2598		—	.4040		25.03	.9844	63/64
1.55	.0610		3.8	.1496		—	.2610		10.32	.4062	13/32	25.4	1.000	1
1.59	.0625	1/16	—	.1520		6.7	.2638		—	.4130		—	—	—
1.6	.0629		3.9	.1535		6.75	.2656	17/64	10.5	.4134		—	—	—
—	.0635		—	.1540		6.75	.2657		10.72	.4219	27/64	—	—	—
1.65	.0649		3.97	.1562	5/32	—	.2660		11.0	.4330		—	—	—
1.7	.0669		—	.1570		6.8	.2677		11.11	.4375	7/16	—	—	—
—	.0670		4.0	.1575		6.9	.2716		11.5	.4528		—	—	—
1.75	.0689		—	.1590		—	.2720		11.51	.4531	29/64	—	—	—
—	.0700		—	.1610		7.0	.2756		11.91	.4687	15/32	—	—	—

Conversion Charts

Bolt Sizing Chart Nominal Opening Sizes of Wrenches or Sockets in Inches to Fit Standard Bolt Heads, Nuts and Screw Heads

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 wrenches and sockets that will fit.

NUTS					BOLTS AND SCREWS				
Thread Dia. of Nut	Finished Series and Finished Thick Nuts	Reg. Series Hex and Square Nuts	Heavy Series Hex and Square Nuts	Machine Screw Nuts and Stove Bolt Nuts	Regular and Finished Series Hex and Square Head Bolts	Heavy Series Hex and Square Head Bolts	Lag Screws	Square Head Set Screws	Thread Dia. of Bolt or Screw
Use wrench or socket size shown below					Use wrench or socket size shown below				
#0 & 1				5/32					#0 & 1
#2 & 3				3/16					#2 & 3
#4				1/4					#4
#5 & 6				5/16					#5 & 6
#8				11/32					#8
#10				3/8			5/16	3/16	#10
#12				7/16				7/32	#12
1/4	7/16	7/16	1/2	7/16	3/8-7/16		3/8	1/4	1/4
5/16	1/2	9/16	9/16	9/16	1/2		1/2	5/16	5/16
3/8	9/16	5/8	11/16	5/8	9/16		9/16	3/8	3/8
7/16	11/16	3/4	3/4		5/8		5/8	7/16	7/16
1/2	3/4	13/16	7/8		3/4	7/8	3/4	1/2	1/2
9/16	7/8	7/8	15/16		13/16			9/16	9/16
5/8	15/16	1	1-1/16		15/16	1-1/16	15/16	5/8	5/8
3/4	1-1/8	1-1/8	1-1/4		1-1/8	1-1/4	1-1/8	3/4	3/4
7/8	1-5/16	1-5/16	1-7/16		1-15/16	1-7/16	1-5/16	7/8	7/8
1	1-1/2	1-1/2	1-5/8		1-1/2	1-5/8	1-1/2	1	1
1-1/8	1-11/16	1-11/16	1-13/16		1-11/16	1-13/16	1-11/16	1-1/8	1-1/8
1-1/4	1-7/8	1-7/8	2		1-7/8	2	1-7/8	1-1/4	1-1/4
1-3/8	2-1/16	2-1/16	2-3/16		2-1/16	2-3/16	2-1/16	1-3/8	1-3/8
1-1/2	2-1/4	2-1/4	2-3/8		2-1/4	2-3/8	2-1/4	1-1/2	1-1/2
1-5/8	2-7/16	2-7/16	2-9/16		2-7/16	2-9/16	2-7/16	1-5/8	1-5/8
1-3/4	2-5/8	2-5/8	2-3/4		2-5/8	2-3/4	2-5/8	1-3/4	1-3/4
1-7/8	2-13/16	2-13/16	2-15/16		2-13/16	2-15/16	2-13/16	1-7/8	1-7/8
2	3	3	3-1/8			3	3-1/8	2	2
2-1/4	3-3/8	3-3/8	3-1/2		3-3/8	3-1/2	3-3/8	2-1/4	2-1/4
2-1/2	3-3/4	3-3/4	3-7/8		3-3/4	3-7/8	3-3/4	2-1/2	2-1/2
2-3/4	4-1/8	4-1/8	4-1/4		4-1/8	4-1/4	4-1/8	2-3/4	2-3/4
3	4-1/2	4-1/2	4-5/8		4-1/2	4-5/8	4-1/2	3	3
3-1/4			5		4-7/8		4-7/8	3-1/4	3-1/4
3-1/2			5-3/8		5-1/4		5-1/4	3-1/2	3-1/2
3-3/4			5-3/4		5-5/8		5-5/8	3-3/4	3-3/4
4			6-1/8		6		6	4	4

* Regular Square Bolts Only

Table of Multiples

Circumference of Circle = Diameter x 3.1416

Area of Circle = $\begin{cases} \text{Square of Diameter} \times 0.7854, \text{ or} \\ \text{Square of Radius} \times 3.1416, \text{ or} \\ \text{Square of Circumference} \times 0.07958 \end{cases}$

Area of Triangle = Base x one-half altitude

Surface of Sphere = $\begin{cases} \text{Circumference} \times \text{diameter, or} \\ \text{Square of Diameter} \times 3.1416 \end{cases}$

Volume of Sphere = $\begin{cases} \text{Surface} \times \text{one-sixth diameter, or} \\ \text{Cube of Diameter} \times 0.5236 \end{cases}$

Area of Hexagon = Square of Diameter of Inscribed Circle x 0.866

Area of Octagon = Square of Diameter of Inscribed Circle x 0.828

Engineering Units

1 Horsepower = 33,000 foot pounds per minute
550 foot pounds per second
746 watts
.746 kilowatts

1 Horsepower Hour = .746 kilowatt hours
1,980,000 foot pounds
2,545 heat units (B.T.U.)

1 Kilowatt = 1,000 watts
1.34 horsepower
737.3 foot pounds per second
44,240 foot pounds per minute
56.9 heat units (B.T.U.) per minute

1 Kilowatt Hour = 1,000 watt hours
1.34 horsepower hours
2,654,200 foot pounds
3,412 heat units (B.T.U.)

1 British Thermal Unit = 1,055 watt seconds
778 foot pounds
.000293 kilowatt hour
.000393 horsepower hour

1 Watt = 1 joule per second
.00134 horsepower
3,412 heat units (B.T.U.) per hour
.7373 foot pounds per second
44.24 foot pounds per second

Conversion Charts

Measurements and Weights

Linear Measure

1000 mils	=	1 inch
12 inches	=	1 foot
3 feet	=	1 yard
2 yards	=	$\begin{cases} 1 \text{ fathom} \\ 6 \text{ feet} \end{cases}$
5-1/2 yards	=	$\begin{cases} 1 \text{ rod} \\ 16-1/2 \text{ feet} \end{cases}$
40 rods	=	$\begin{cases} 1 \text{ furlong} \\ 660 \text{ feet} \end{cases}$
8 furlongs	=	$\begin{cases} 1 \text{ mile} \\ 5280 \text{ feet} \end{cases}$
1.15156 miles	=	$\begin{cases} 1 \text{ nautical mile, or knot} \\ 6080.26 \text{ feet} \end{cases}$
3 nautical miles	=	$\begin{cases} 1 \text{ league} \\ 18,240.78 \text{ feet} \end{cases}$

Square Measure

144 square inches	=	1 square foot
9 square feet	=	1 square yard
30-1/4 square yds	=	$\begin{cases} 1 \text{ square rod} \\ 272-1/4 \text{ square feet} \end{cases}$
160 square rods	=	$\begin{cases} 1 \text{ acre} \\ 43,560 \text{ square feet} \end{cases}$
640 acres	=	$\begin{cases} 1 \text{ square mile} \\ 27,878,400 \text{ square feet} \end{cases}$

A circular mil is the area of a circle 1 mil, or 0.001 inch in diameter.

1 square inch = 1,273,239 circular mils

A circular inch is the area of a circle 1 inch in diameter = 0.7854 square inches.

1 square inch = 1.2732 circular inches

Cubic Measure

1728 cubic inches	=	$\begin{cases} 1 \text{ cubic foot} \\ 7.4805 \text{ gallons} \end{cases}$
27 cubic feet	=	1 cubic yard
128 cubic feet	=	1 cord

Liquid Measure

4 gills	=	1 pint
2 pints	=	1 quart
4 quarts	=	$\begin{cases} 1 \text{ gallon} \\ 231 \text{ cubic inches} \\ 134 \text{ cubic feet} \end{cases}$
31-1/2 gallons	=	1 barrel
2 barrels	=	1 hogshead

Dry Measure

2 pints	=	1 quart
8 quarts	=	1 peck
4 pecks	=	$\begin{cases} 1 \text{ bushel} \\ 2150.42 \text{ cubic inches} \\ 1.2445 \text{ cubic feet} \end{cases}$

Weight—Avoirdupois or Commercial

437.5 grains	=	1 ounce
16 ounces	=	1 pound
112 pounds	=	1 hundredweight
20 hundredweight	=	$\begin{cases} 1 \text{ gross, or long ton} \\ 2240 \text{ pounds} \end{cases}$
2000 pounds	=	1 net, or short ton
2204.6 pounds	=	1 metric ton

Conversion Charts

Metric System of Measures and Weights

Linear Measure

1 millimeter	=	0.03937 inches
1 centimeter	=	0.3937 inches
1 decimeter	=	3.937 inches
1 meter	=	$\begin{cases} 39.37 \text{ inches} \\ 3.28083 \text{ feet} \\ 1.09361 \text{ yards} \end{cases}$
1 kilometer	=	$\begin{cases} 3280.83 \text{ feet} \\ 1093.61 \text{ yards} \\ 0.62137 \text{ miles} \end{cases}$
1 inch	=	25.4 millimeters
1 inch	=	2.54 centimeters
1 inch	=	.254 decimeters
1 inch	=	.0254 meters
1 foot	=	.3048 meters
1 yard	=	.9144 meters
1 mile	=	1.60935 kilometers

Square Measure

1 square millimeter	=	$\begin{cases} 0.00155 \text{ square inches} \\ 1973.5 \text{ circular mils} \end{cases}$
1 square centimeter	=	0.155 square inches
1 square decimeter	=	15.5 square inches
1 square meter	=	$\begin{cases} 1550 \text{ square inches} \\ 10.7639 \text{ square feet} \\ 1.196 \text{ square yards} \end{cases}$
1 square kilometer	=	$\begin{cases} 0.386109 \text{ square miles} \\ 247.11 \text{ acres} \end{cases}$
1 square myriameter	=	38.6109 square miles
1 square inch	=	645.2 square millimeters
1 square inch	=	6.452 square centimeters
1 square inch	=	0.06452 square decimeters
1 square foot	=	0.0929 square meters
1 square yard	=	0.836 meters

Cubic Measure

1 cubic centimeter	=	0.061 cubic inches
1 cubic decimeter	=	$\begin{cases} 61.0234 \text{ cubic inches} \\ 0.035314 \text{ cubic feet} \end{cases}$
1 cubic meter	=	$\begin{cases} 35.314 \text{ cubic feet} \\ 1.308 \text{ cubic yards} \end{cases}$

Weight

1 gram	=	15.432 grains
1 kilogram	=	2.204622 pounds
1 metric ton	=	$\begin{cases} 2204.6 \text{ pounds} \\ 0.9842 \text{ gross tons} \\ 1.1023 \text{ net tons} \end{cases}$
1000 kilograms	=	
1 grain	=	0.0648 gram
1 pound	=	0.4536 kilogram

Capacity

1 Liter	=	$\begin{cases} 61.0234 \text{ cubic inches} \\ 0.03531 \text{ cubic feet} \\ 0.2642 \text{ gallons} \end{cases}$
1 cubic foot	=	28.317 liters
1 gallon	=	3.785 liters

Compound Units

1 gram per square millimeter	=	1.422 pounds per square inch
1 kilogram per square millimeter	=	1422.32 pounds per square inch
1 kilogram per square centimeter	=	14.2232 pounds per square inch
1 kilogram per square meter	=	$\begin{cases} 0.2048 \text{ pounds per square foot} \\ 1.8433 \text{ pounds per square yard} \end{cases}$
1 kilogram meter	=	7.2330 foot pounds
1 kilogram per meter	=	0.6720 pounds per foot
1 pound per square inch	=	0.07031 kilogram per square centimeter
1 pound per square foot	=	0.0004882 kilogram per square centimeter
1 pound per square foot	=	0.006944 pounds per square inch
1 pound per cubic inch	=	27679.7 kilograms per cubic meter
1 pound per cubic foot	=	16.0184 kilograms per cubic meter
1 kilogram per cubic meter	=	0.06243 pounds per cubic foot
1 foot per second	=	0.30480 meters per second
1 meter per second	=	3.28083 feet per second
1 meter per second	=	2.23693 miles per hour

