Conversion Tables (To convert from A to B, multiply by value in table)

Rotary Inertia

A \ B	gm-cm²	oz-in²	gm-cm-s²	kg-cm²	lb-in²	oz-in-s²	lb-ft²	Kg-cm-s²	lb-in-s²	lb-ft-s² or slug-ft²
gm-cm²	1	$5.46x10^{-3}$	$1.01x10^{-3}$	10^{-3}	$3.417x10^{-4}$	$1.41x10^{-5}$	$2.37x10^{-6}$	$1.01x10^{-6}$	$8.85x10^{-7}$	$7.37x10^{-8}$
oz-in²	182.9	1	0.186	0.182	0.0625	$2.59x10^{-3}$	$4.34x10^{-4}$	$1.86x10^{-4}$	$1.61x10^{-4}$	$1.34x10^{-5}$
gm-cm-s²	980.6	5.36	1	0.9806	0.335	$1.38x10^{-2}$	$2.32x10^{-3}$	10^{-3}	$8.67x10^{-4}$	$7.23x10^{-5}$
Kg-cm²	1000	5.46	1.019	1	0.3417	$1.41x10^{-2}$	$2.37x10^{-3}$	$1.019x10^{-3}$	$8.85x10^{-4}$	$7.37x10^{-5}$
lb-in²	$2.92x10^{3}$	16	2.984	2.926	1	$4.14x10^{-2}$	$6.94x10^{-3}$	$2.98x10^{-3}$	$2.59x10^{-3}$	$2.15x10^{-4}$
oz-in-s²	$7.06x10^{4}$	386.08	72	70.615	24.13	1	0.1675	$7.20x10^{-2}$	$6.25x10^{-2}$	$5.20x10^{-3}$
lb-ft²	$4.21x10^{5}$	2304	429.71	421.40	144	5.967	1	0.4297	0.3729	$3.10x10^{-2}$
Kg-cm-s²	$9.8x10^{5}$	$5.36x10^{3}$	1000	980.66	335.1	13.887	2.327	1	0.8679	$7.23x10^{-2}$
lb-in-s²	$1.129x10^{6}$	$6.177x10^{3}$	$1.152x10^{3}$	$1.129x10^{3}$	386.08	16	2.681	1.152	1	$8.33x10^{-2}$
lb-ft-s² or slug-ft²	$1.355x10^{7}$	$7.41x10^{4}$	$1.38x10^{4}$	$1.35x10^{4}$	$4.63x10^{3}$	192	32.17	13.825	12	1

Torque

A \ B	dyne-cm	gm-cm	oz-in	kg-cm	lb-in	Newton-m	lb-ft	Kg-cm
dyne-cm	1	$1.019x10^{-3}$	$1.416x10^{-5}$	$1.0197x10^{-6}$	$8.850x10^{-7}$	10^{-7}	$7.375x10^{-8}$	$1.019x10^{-8}$
gm-cm	980.65	1	$1.388x10^{-2}$	10^{-3}	$8.679x10^{-4}$	$9.806x10^{-5}$	$7.233x10^{-5}$	10^{-5}
oz-in	$7.061x10^{4}$	72.007	1	$7.200x10^{-2}$	$6.25x10^{-2}$	$7.061x10^{-3}$	$5.208x10^{-3}$	$7.200x10^{-4}$
Kg-cm	$9.806X10^{5}$	1000	13.877	1	0.8679	$9.806X10^{-2}$	$7.233X10^{-2}$	10^{-2}
lb-in	$1.129x10^{6}$	$1.152x10^{3}$	16	1.152	1	0.112	$8.333x10^{-2}$	$1.152x10^{-2}$
Newton-m	10^{7}	$1.019x10^{4}$	141.612	10.197	8.850	1	0.737	0.101
lb-ft	$1.355x10^{7}$	$1.382x10^{4}$	192	13.825	12	1.355	1	0.138
Kg-m	$9.806x10^{7}$	10^{5}	$1.388x10^{3}$	100	86.796	9.806	7.233	1

Material Densities

	oz/in³	lb/in³	gm/cm³
Aluminum	1.57	0.098	2.72
Brass	4.96	0.31	8.6
Bronze	4.72	0.295	8.17
Copper	5.15	0.322	8.91
Plastic	0.64	0.04	1.11
Steel	4.48	0.28	7.75

Mechanism Efficiencies

Acme Screw (Bronze Nut)	0.4
Acme Screw (Plastic Nut)	0.5
Ball Screw	0.9
Helical Gear	0.7
Spur Gear	0.6
Timing Belt/Pulley	0.9

Friction Coefficients

(Sliding)	μ
Steel on Steel	0.58
Steel on Steel (Greased)	0.15
Aluminum on Steel	0.45
Copper on Steel	0.36
Brass on Steel	0.40
Plastic on Steel	0.20
Linear Bearings	0.001

Temperature

$^{o}F = (1.8x\ ^{o}C) + 32$

$^{o}C = .555\ (^{o}F - 32)$

Gravity

(Acceleration Constant)

$g = 386\ in/s^2 = 32.2\ ft/s^2 = 9.8\ m/s^2$

Conversion Tables

(To convert A to B, multiply by value in table)

Length

A \ B	Inch	Feet	Micro Inch	Micron	Millimeter	Centimeter	Meter
Inch	1	8.33×10^{-2}	1.0×10^{6}	2.54×10^{4}	25.4	2.54	2.54×10^{-2}
Feet	12	1	1.2×10^{7}	3.05×10^{5}	305	30.5	0.305
Micro-Inch	1.0×10^{-6}	1.2×10^{4}	1	2.54×10^{-2}	2.54×10^{-5}	2.54×10^{-6}	2.54×10^{-8}
Micron	3.937×10^{-5}	3.28×10^{-6}	39.37	1	0.001	1.0×10^{-4}	1.0×10^{-6}
Millimeter	3.937×10^{-2}	3.28×10^{-3}	3.937×10^{4}	1000	1	0.1	0.001
Centimeter	0.3937	3.28×10^{-2}	3.937×10^{5}	1×10^{4}	10	1	0.01
Meter	39.37	3.28	3.937×10^{7}	1×10^{6}	1000	100	1

Power

A \ B	Watts	Kilowatts	ft.lb/sec	in-lb/sec	Hp (Imperial)	Hp (SI)
Watts	1	1×10^{-3}	0.74	8.85	1.34×10^{-3}	1.33×10^{-3}
Kilowatts	1000	1	738	8850	1.34	1.33
ft-lb/sec	1.35	1.36×10^{-3}	1	12	1.82×10^{-3}	1.81×10^{-3}
in-lb/sec	0.113	1.13×10^{-4}	8.3×10^{-2}	1	1.52×10^{-4}	1.53×10^{-4}
Hp(Imperial)	746	0.746	550	6600	1	0.995
Hp (SI)	750	0.750	553	6636	1.005	1

Mass

A \ B	ozm	lbm	slug	gm	kg
oz-m	1	6.25×10^{-2}	1.94×10^{-3}	28.35	2.835×10^{-2}
Lb-m	16	1	3.11×10^{-2}	453.6	0.453
slug	514.72	32.2	1	14590	14.59
gm	3.53×10^{-2}	2.205×10^{-3}	6.85×10^{-5}	1	0.001
kg	35.274	2.205	6.85×10^{-2}	1000	1

Force

A \ B	ozf	lbf	Newtons	dyne	gmf	Kgf
oz-f	1	6.25×10^{-2}	0.278	2.78×10^{4}	28.35	2.835×10^{-2}
lb-f	16	1	4.448	4.448×10^{5}	453.6	0.4535
Newtons	3.596	0.225	1	1×10^{5}	101.9	0.1019
dyne	3.59×10^{-5}	2.248×10^{-6}	1.0×10^{-5}	1	1.02×10^{-3}	1.02×10^{-6}
gm-f	3.53×10^{-2}	2.205×10^{-3}	9.81×10^{-3}	981	1	0.001
kg-f	35.3	2.205	9.81	9.81×10^{5}	1000	1

Linear Velocity

A \ B	in/sec	feet/sec	mm/sec	cm/sec	meter/sec	inch/min	feet/min	meter/min	km/hour	miles/hour
in/sec	1	0.083	25.4	2.54	2.54×10^{-2}	60	5	1.524	0.091	5.7×10^{-2}
feet/sec	12	1	304.8	30.48	0.3048	720	60	18.29	1.09	0.682
mm/sec	3.937×10^{-2}	3.3×10^{-3}	1	0.1	0.001	2.36	0.197	0.059	3.6×10^{-3}	2.24×10^{-3}
cm/sec	0.3937	3.28×10^{-2}	10	1	0.01	23.62	1.97	0.59	3.6×10^{-2}	2.24×10^{-2}
meter/sec	39.37	3.281	1000	100	1	2362.2	197	60	3.6	2.24
inch/min	0.0167	1.39×10^{-3}	0.42	0.042	4.2×10^{-4}	1	8.33×10^{-2}	2.54×10^{-2}	1.52×10^{-3}	9.5×10^{-4}
feet/min	0.2	0.0167	5.08	0.508	5.08×10^{-3}	12	1	0.3048	1.8×10^{-2}	1.14×10^{-2}
meter/min	0.656	5.46×10^{-2}	16.667	1.67	1.67×10^{-2}	39.4	3.28	1	5.9×10^{-2}	0.37
km/hour	10.936	0.911	277.8	27.78	0.2778	656	54.67	16.67	1	0.62
miles/hour	17.59	1.47	447	44.7	0.447	1056	88	26.8	1.609	1