

# UNITS CONVERSION TABLES

## Overview

These conversion tables are provided for your reference.

## Units Conversion Tables

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**Table 1: Multiples and Submultiples of SI units**

Prefix	Symbol	Multiplying Factor	
exa	E	$10^{18}$	1 000 000 000 000 000 000
peta	P	$10^{15}$	1 000 000 000 000 000
tera	T	$10^{12}$	1 000 000 000 000
giga	G	$10^9$	1 000 000 000
mega	M	$10^6$	1 000 000
kilo	k	$10^3$	1 000
hecto*	h	$10^2$	100
deca*	da	10	10
deci*	d	$10^{-1}$	0.1
centi	c	$10^{-2}$	0.01
milli	m	$10^{-3}$	0.001
micro	u	$10^{-6}$	0.000 001
nano	n	$10^{-9}$	0.000 000 001
pico	p	$10^{-12}$	0.000 000 000 001
femto	f	$10^{-15}$	0.000 000 000 000 001
atto	a	$10^{-18}$	0.000 000 000 000 000 001

\* these prefixes are not normally used

**Table 2: Length Units**

Millimeters	Centimeters	Meters	Kilometers	Inches	Feet	Yards	Miles
mm	cm	m	km	in	ft	yd	mi
1	0.1	0.001	0.000001	0.03937	0.003281	0.001094	6.21e-07
10	1	0.01	0.00001	0.393701	0.032808	0.010936	0.000006
1000	100	1	0.001	39.37008	3.28084	1.093613	0.000621
1000000	100000	1000	1	39370.08	3280.84	1093.613	0.621371
25.4	2.54	0.0254	0.000025	1	0.083333	0.027778	0.000016
304.8	30.48	0.3048	0.000305	12	1	0.333333	0.000189
914.4	91.44	0.9144	0.000914	36	3	1	0.000568
1609344	160934.4	1609.344	1.609344	63360	5280	1760	1

**Table 3: Area Units**

Millimeter square	Centimeter square	Meter square	Inch square	Foot square	Yard square
mm <sup>2</sup>	cm <sup>2</sup>	m <sup>2</sup>	in <sup>2</sup>	ft <sup>2</sup>	yd <sup>2</sup>
1	0.01	0.000001	0.00155	0.000011	0.000001
100	1	0.0001	0.155	0.001076	0.00012
1000000	10000	1	1550.003	10.76391	1.19599
645.16	6.4516	0.000645	1	0.006944	0.000772
92903	929.0304	0.092903	144	1	0.111111
836127	8361.274	0.836127	1296	9	1

**Table 4: Volume Units**

Centimeter cube	Meter cube	Liter	Inch cube	Foot cube	US gallons	Imperial gallons	US barrel (oil)
cm <sup>3</sup>	m <sup>3</sup>	ltr	in <sup>3</sup>	ft <sup>3</sup>	US gal	Imp. gal	US brl
1	0.000001	0.001	0.061024	0.000035	0.000264	0.00022	0.000006
1000000	1	1000	61024	35	264	220	6.29
1000	0.001	1	61	0.035	0.264201	0.22	0.00629
16.4	0.000016	0.016387	1	0.000579	0.004329	0.003605	0.000103
28317	0.028317	28.31685	1728	1	7.481333	6.229712	0.178127
3785	0.003785	3.79	231	0.13	1	0.832701	0.02381
4545	0.004545	4.55	277	0.16	1.20	1	0.028593
158970	0.15897	159	9701	6	42	35	1

**Table 5: Mass Units**

Grams	Kilograms	Metric tonnes	Short ton	Long ton	Pounds	Ounces
g	kg	tonne	shton	Lton	lb	oz
1	0.001	0.000001	0.000001	9.84e-07	0.002205	0.035273
1000	1	0.001	0.001102	0.000984	2.204586	35.27337
1000000	1000	1	1.102293	0.984252	2204.586	35273.37
907200	907.2	0.9072	1	0.892913	2000	32000
1016000	1016	1.016	1.119929	1	2239.859	35837.74
453.6	0.4536	0.000454	0.0005	0.000446	1	16
28	0.02835	0.000028	0.000031	0.000028	0.0625	1

**Table 6: Density Units**

Gram/milliliter	Kilogram/meter cube	Pound/foot cube	Pound/inch cube
g/ml	kg/m <sup>3</sup>	lb/ft <sup>3</sup>	lb/in <sup>3</sup>
1	1000	62.42197	0.036127
0.001	1	0.062422	0.000036
0.01602	16.02	1	0.000579
27.68	27680	1727.84	1

**Table 7: Volumetric Liquid Flow Units**

Liter/second	Liter/minute	Meter cube/hour	Foot cube/minute	Foot cube/hour	US gallons/minute	US barrels (oil)/day
L/sec	L/min	M <sup>3</sup> /hr	ft <sup>3</sup> /min	ft <sup>3</sup> /hr	gal/min	US brl/d
1	60	3.6	2.119093	127.1197	15.85037	543.4783
0.016666	1	0.06	0.035317	2.118577	0.264162	9.057609
0.277778	16.6667	1	0.588637	35.31102	4.40288	150.9661
0.4719	28.31513	1.69884	1	60	7.479791	256.4674
0.007867	0.472015	0.02832	0.01667	1	0.124689	4.275326
0.06309	3.785551	0.227124	0.133694	8.019983	1	34.28804
0.00184	0.110404	0.006624	0.003899	0.2339	0.029165	1

**Table 8: Volumetric Gas Flow Units**

Normal meter cube/hour	Standard cubic feet/hour	Standard cubic feet/minute
Nm <sup>3</sup> /hr	scfh	scfm
1	35.31073	0.588582
0.02832	1	0.016669
1.699	59.99294	1

**Table 9: Mass Flow Units**

Kilogram/hour	Pound/hour	Kilogram/second	Ton/hour
kg/h	lb/hour	kg/s	t/h
1	2.204586	0.000278	0.001
0.4536	1	0.000126	0.000454
3600	7936.508	1	3.6
1000	2204.586	0.277778	1

**Table 10: High Pressure Units**

Bar	Pound/square inch	Kilopascal	Megapascal	Kilogram force/centimeter square	Millimeter of mercury	Atmospheres
bar	psi	kPa	MPa	kgf/cm <sup>2</sup>	mm Hg	atm
1	14.50326	100	0.1	1.01968	750.0188	0.987167
0.06895	1	6.895	0.006895	0.070307	51.71379	0.068065
0.01	0.1450	1	0.001	0.01020	7.5002	0.00987
10	145.03	1000	1	10.197	7500.2	9.8717
0.9807	14.22335	98.07	0.09807	1	735.5434	0.968115
0.001333	0.019337	0.13333	0.000133	0.00136	1	0.001316
1.013	14.69181	101.3	0.1013	1.032936	759.769	1

**Table 11: Low Pressure Units**

Meter of water	Foot of water	Centimeter of mercury	Inches of mercury	Inches of water	Pascal
mH <sub>2</sub> O	ftH <sub>2</sub> O	cmHg	inHg	inH <sub>2</sub> O	Pa
1	3.280696	7.356339	2.896043	39.36572	9806
0.304813	1	2.242311	0.882753	11.9992	2989
0.135937	0.445969	1	0.39368	5.351265	1333
0.345299	1.13282	2.540135	1	13.59293	3386
0.025403	0.083339	0.186872	0.073568	1	249.1
0.000102	0.000335	0.00075	0.000295	0.004014	1

**Table 12: Speed Units**

Meter/second	Meter/minute	Kilometer/hour	Foot/second	Foot/minute	Miles/hour
m/s	m/min	km/h	ft/s	ft/min	mi/h
1	59.988	3.599712	3.28084	196.8504	2.237136
0.01667	1	0.060007	0.054692	3.281496	0.037293
0.2778	16.66467	1	0.911417	54.68504	0.621477
0.3048	18.28434	1.097192	1	60	0.681879
0.00508	0.304739	0.018287	0.016667	1	0.011365
0.447	26.81464	1.609071	1.466535	87.99213	1

**Table 13: Torque Units**

Newton meter	Kilogram force meter	Foot pound	Inch pound
Nm	kgfm	ftlb	inlb
1	0.101972	0.737561	8.850732
9.80665	1	7.233003	86.79603
1.35582	0.138255	1	12
0.112985	0.011521	0.083333	1

**Table 14: Dynamic Viscosity Units**

Centipoise*	Poise	Pound/foot-second
cp	poise	lb/(ft·s)
1	0.01	0.000672
100	1	0.067197
1488.16	14.8816	1

**Table 15: Kinematic Viscosity Units**

Centistoke*	Stoke	Foot square/second	meter square/second
cs	St	ft <sup>2</sup> /s	m <sup>2</sup> /s
1	0.01	0.000011	0.000001
100	1	0.001076	0.0001
92903	929.03	1	0.092903
1000000	10000	10.76392	1

\*note: centistokes x specific gravity = centipoise

**Table 16: Temperature Conversion Formulas**

Degree Celsius (°C)	(°F - 32) x 5/9
	(K - 273.15)
Degree Fahrenheit (°F)	(°C x 9/5) + 32
	(1.8 x K) - 459.67
Kelvin (K)	(°C + 273.15)
	(°F + 459.67) ÷ 1.8