

# UNITS CONVERSION TABLES

## Overview

These conversion tables are provided for your reference.

## Units Conversion Tables

Table 1	Multiples and Submultiples of SI Units
Table 2	Length Units
Table 3	Area Units
Table 4	Volume Units
Table 5	Mass Units
Table 6	Density Units
Table 7	Volumetric Liquid Flow Units
Table 8	Volumetric Gas Flow Units
Table 9	Mass Flow Units
Table 10	High Pressure Units
Table 11	Low Pressure Units
Table 12	Speed Units
Table 13	Torque Units
Table 14	Dynamic Viscosity Units
Table 15	Kinematic Viscosity Units
Table 16	Temperature Conversion Formulas

**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

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