

Unit Conversion Table



Conversion between international system of units (SI units) and British or US system of units

Physical quantity	British or US system of units to SI units		SI units to British or US system of units	
Acceleration	1 ft/s ²	= 0.30480 m/s ²	1 m/s ²	= 3.28083985 ft/s ²
Area	1 sq in 1 sq ft 1 sq yd 1sq mi	= 0.64516 • 10 ⁻³ m ² = 0.09290304 m ² = 0.83612736 m ² = 2.589988 • 10 ⁶ m ²	1 m ² 1 m ² 1 m ² 1 m ²	= 1.550003 • 10 ³ sq in = 10.76391 sq ft = 1.195990 sq yd = 0.3861022 • 10 ⁻⁶ sq mi
Density	1 lb/ft ³	= 16.01846 kg/m ³	1 kg/m ³	= 0.06242797 lb/ft ³
Dynamic viscosity	1 lbf s/sqft	= 47.88026 Ns/m ²	1 Ns/m ²	= 20.88543 • 10 ⁻³ lbf s/sqft
Energy	1 hp hr 1 PSh 1 BTU 1 lbf-ft	= 2.684520 • 10 ⁶ J = 2.6477955 • 10 ⁶ J = 1055.056 J = 1.355818 J	1 J 1 J 1 J 1 J	= 372.5061 • 10 ⁻⁹ hp hr = 377.6727 • 10 ⁻⁹ PSh = 947.8171 • 10 ⁻⁶ BTU = 737.5621 • 10 ⁻³ lbf-ft
Force	1 pdl 1 lbf = 1 lb wt 1 sh tn 1 l tn	= 138.2550 • 10 ⁻³ N = 4.448222 N = 8896.443 N = 9964.016 N	1 N 1 N 1 N 1 N	= 7.233014 pdl = 224.8089 • 10 ⁻³ lbf; lb wt = 112.4045 • 10 ⁻⁶ sh tn = 100.3611 • 10 ⁻⁶ l tn
Heat conductivity	1 BTU/(in h R) 1 BTU/(ft h R) 1 BTU/(yd h R)	= 20.76882 W/(mK) = 1.730735 W/(mK) = 576.9116 • 10 ⁻³ W/(mK)	1 W/(mK) 1 W/(mK) 1 W/(mK)	= 48.14911 • 10 ⁻³ BTU/(in h R) = 577.7893 • 10 ⁻³ BTU/(ft h R) = 1.73368 BTU/(yd h R)
Heat transfer coefficient	1 BTU/(sq in h R) 1 BTU/(sq ft h R) 1 BTU/(sq yd h R)	= 817.6699 W/(m ² K) = 5.6782633 W/(m ² K) = 630.9181 • 10 ⁻³ W/(m ² K)	1 W/(m ² K) 1 W/(m ² K) 1 W/(m ² K)	= 1.222987 • 10 ⁻³ BTU/(sq in h R) = 176.1102 • 10 ⁻³ BTU/(sq ft h R) = 1.584992 BTU/(sq yd h R)
Length	1 in 1 ft 1 yd 1 mi	= 25.4 • 10 ⁻³ m = 0.3048 m = 0.9144 m = 1609.344 m	1 m 1 m 1 m 1 m	= 39.37008 in = 3.280840 ft = 1.093613 yd = 0.6213712 • 10 ⁻³ mi
Mass (inertia)	1 lb 1 stone 1 quarter 1 long ton (Brit.) 1 short ton (USA)	= 0.45359247 kg = 6.3502932 kg = 12.700586 kg = 1,016.0469 kg = 907.18474 kg	1 kg 1 kg 1 kg 1 kg 1 kg	= 2.204623 lb = 157.47304 • 10 ⁻³ stone = 78.73652 • 10 ⁻³ quarter = 984.2065 • 10 ⁻⁶ long tons (Brit.) = 1.102311 • 10 ⁻³ short tons (USA)
Mass Flow	1 lb/min 1 lb/min 1 lb/min	= 27.2155422 kg/h = 7.55987283 • 10 ⁻³ kg/s = 0.0272155422 t/h	1 kg/h 1 kg/s 1 t/h	= 0.036743710 lb/min = 132.277357 lb/min = 36.743710 lb/min
Power	1 BTU/s 1 hp 1 PS = 1 cv 1 ft Lb/s	= 1055.056 W = 745.6999 W = 735.49875 W = 1.355818 W	1 W 1 W 1 W 1 W	= 947.8171 • 10 ⁻⁶ BTU/s = 1.341022 • 10 ⁻³ hp = 1.359622 • 10 ⁻³ PS; cv = 0.7375621 ft Lb/s

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Pressure	1 psi 1 psi 1 psf 1 in H ₂ O 1 in Hg 1 ft H ₂ O 1 ft Hg	= 6894.757 N/m ² (Pa) = 0.06895 bar = 47.88026 N/m ² (Pa) = 249.08891 N/m ² (Pa) = 3386.379 N/m ² (Pa) = 2989.067 N/m ² (Pa) = 40636.55 N/m ² (Pa)	1 N/m ² (Pa) 1 bar 1 N/m ² (Pa) 1 N/m ² (Pa) 1 N/m ² (Pa) 1 N/m ² (Pa) 1 N/m ² (Pa)	= 145.04 · 10 ⁻⁶ psi = 14.504 psi = 20.88543 · 10 ⁻³ psf = 4.014631 · 10 ⁻³ in H ₂ O = 295.3007 · 10 ⁻⁶ in Hg = 334.5526 · 10 ⁻⁶ ft H ₂ O = 24.60839 · 10 ⁻⁶ ft Hg
Specific Enthalpy	1 BTU/lb	= 2326 J/kg	1 J/kg	= 429.9226 · 10 ⁻⁶ BTU/lb
Specific heat capacity	1 BTU/(lb R)	= 4186.8 J/(kg K)	1 J/(kg K)	= 238.8459 · 10 ⁻⁶ BTU/(lb R)
Temperature	T (°F) 0 K	= 9/5 · T (°C) + 32 = - 273.15 °C	T (°C) 0 °C	= 5/9 · (T (°F) – 32) = 273.15 K
Torque	1 in lbf 1 ft lbf	= 0.11300 Nm = 1.35582 Nm	1 Nm 1 Nm	= 8.8496 in lbf = 0.73756 ft lbf
Velocity	1 ft/min 1 mph	= 0.00508 m/s = 1.609344 km/h	1 m/s 1 km/h	= 196.85039 ft/min = 0.62137119 mph
Volume	1 cu in 1 cu ft 1 cu yd 1 gal (Brit.) 1 gal (USA)	= 16.38706 · 10 ⁻⁶ m ³ = 0.02831685 m ³ = 0.7645549 m ³ = 4.54609 · 10 ⁻³ m ³ = 3.785411784 · 10 ⁻³ m ³	1 m ³ 1 m ³ 1 m ³ 1 m ³ 1 m ³	= 61.02374 · 10 ³ cu in = 35,31467 cu ft = 1.307951 cu yd = 219.96925 gal (Brit.) = 264.17205 gal (USA)
Volume Flow	1 gal/min (USA) 1 gal/min (Brit.) 1 ft ³ /s 1 ft ³ /s	= 0.22712 m ³ /h = 0.272766 m ³ /h = 101.940648 m ³ /h = 0.02831685 m ³ /s	1 m ³ /h 1 m ³ /h 1 m ³ /h 1 m ³ /s	= 4.40288 gal/min (USA) = 3.6661 gal/min (Brit.) = 9.809629 · 10 ⁻³ ft ³ /s = 35.3146667 ft ³ /s

Unit conversion table

Physical quantity	Equivalent units in the metric system
Force	1 N = 1 J/m = 1 m kg/s ²
Mass	1 t = 10 ³ kg = 1 Mg; 1 g = 10 ⁻³ kg
Mass flow	1 t/h = 3.6 ⁻¹ kg/s; 1 kg/h = 3600 ⁻¹ kg/s
Pressure	1 Pa = 1 N/m ² = 1 kg/(m s ²); 1 bar = 10 ⁵ Pa
Velocity	1 km/h = 3.6 ⁻¹ m/s
Volume	1 l = 1 dm ³ = 10 ⁻³ m ³
Volume flow	1 m ³ /h = 3600 ⁻¹ m ³ /s; 1 l/min = 60,000 ⁻¹ m ³ /s

Conversion factors

Power of ten	Prefix	Symbol
10 ⁶	mega	M
10 ³	kilo	k
10 ²	Hecto	h
10 ⁻¹	deci	d
10 ⁻³	milli	m
10 ⁻⁶	micro	μ
10 ⁻⁹	nano	n

Prefixes and Symbols

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