Tableau de conversion d’unités

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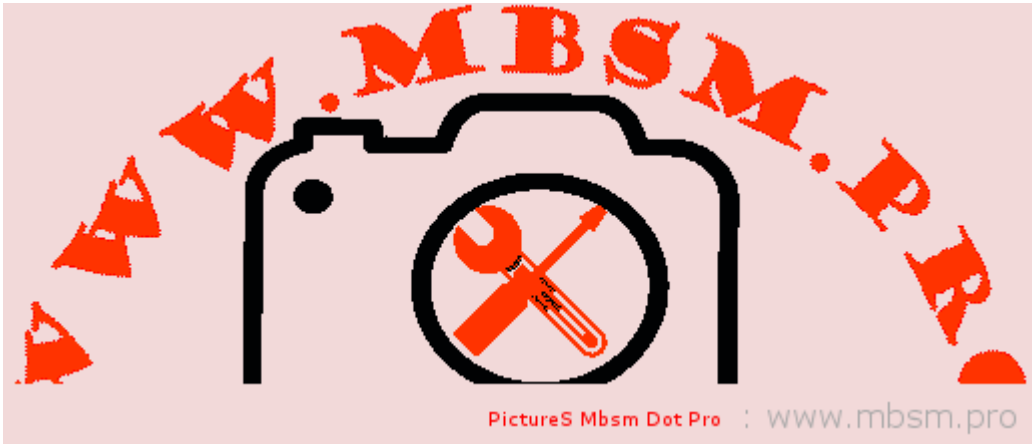

1.
2.
3. Tableau de conversion d’unités
   Acceleration
   foot/second2, meter/second2, gal, galileo, inch/second2
   1 m/s2 = 3.28084 ft/s2 = 100 cm/s2 = 39.37 inch per second squared (inch/s2)
   1 ft/s2 = 0.3048 m/s2 = 30.48 cm/s2
   1 g = 9.80665 m/s2 = 32.17405 ft/s2
   Angle
   1 circle = 360 degrees = 400 grades = 21600 minutes = 6.28318 radians = 12 signs
   1 circumference = 360 degrees = 6.28318 radians
   1 radian = 0.15915 circumference = 57.29578 degree = 3437.747 minute = 0.63662 quadrant = 0.15915 revolution = 206265 second
   Area
   acre, are, barn, sq.ft., sq.in., foot2, hectare, inch2, mile2, section, meter2, township, yard2, hectares
   1 m2 = 1550 in2 = 10.764 ft2 = 1.1968 yd2 = 3.861×10-7 mile2
   1 ft2 = 0.0929 m2 = 144 in2 = 0,1111 yd2 =

3.587×10-8 mile2
1 in2 = 6.452 cm2 = 6.452×10-4 m2 = 6.944×10-3 ft2 = 7.716×10-4 yd2 = 2.491×10-10mile2
1 yd2 = 0.8361 m2 = 1,296 in2 = 9 ft2 = 0.3228×10-6 mile2
1 mile2 = 2.590×106 m2 = 0.4015×1010 in2 = 2.788×107 ft2 = 3.098×106 yd2=640 Acres
1 acre = 1/640 square mile = 0.404686 ha (Hectares) = 4,046.86 m2 = 43,560.174 Sq.Ft. (Int) = 43,560 Sq.Ft. (US Survey) = 4840 Sq.Yds. = 40.46873 are
1 km2 = 102 ha2 = 106 m2 = 1010 cm2 = 1012 mm2
1 ha (Hectare) = 104 m2 = 108 cm2 = 1010 mm2 = 2.471 Acres
1 cm2 = 10-4 m2 = 0.155 in2
1 mm2 = 1.55×10-3in2
1 township = 36 square mile = 23040 acre = 36 section = 9.323957 107 m2 = 9324 hectare = 93.24 square kilometer
1 section = 1 square mile = 2.59 106 m2 = 2.59 square kilometer = 259 hectare = 3.0976 106 square yards = 640 acre =
1 are = 0.024711 acre (Int) = 1 sq dekameter = 1076.39 sq foot = 100 sq meter = 3.86102×10-5 sq mile = 119.599 sq yard
1 barn = 1×10-24 sq cm
1 centiare = 0.01 are = 10.764 sq foot = 1550 sq inch = 1 sq meter = 1.19599 sq yard
1 circular mil = 1×10-6 circular inch = 5.06707×10-6 sq cm = 7.85398×10-7 sq inch = 0.000507 sq mm = 0.7854 sq mill
1 hectare = 2.471 acre 0 100 are = 1×108 sq cm = 107639.1 sq foot = 10000 sq meter = 0.00386 sq mile = 395.367 sq rod
Capacitance
1 abfarad = 1×109 farad = 1×1015 microfarad = 8.98755×1020 statfarad
1 farad = 1×10-9 abfarad = 1.00049 farads (Ínt) = 1×106 microfarad = 8.98755×1011statfarad

Conductance
1 abmho = 1000 megamho = 1×109 mho = 8.98755×1020 statmho
Current
1 abampere = 10 ampere = 1.03638×10-4 faraday/sec(chem) = 2.99792×1010statampere = 1 biot
1 ampere = 0.1 abampere = 1.00015 ampere (Int) = 1 coulomb/sec = 1.03638×10-5faraday/sec (chem) 1×106 microampere = 1000 milliampere = 2.99792×109statampere
1 ampere (Int) = 0.99985 ampere
1 biot = 10 ampere
Density
kg/cubic meter, gram/centimeter3, lmb/cubic inch, lbm/cubic foot, slug/cubic foot, kilogram/cubic meter, lbm/gallon (US liq)
Density Water 1,000 kg/m3 = 62.43 Lbs./Cu.Ft = 8.33 Lbs./Gal. = 0.1337 Cu.Ft./Gal.
1 lb/ft3 = 16.018 kg/m3 = 0.016 g/cm3 = 0.00926 oz/in3 = 2.57 oz/gal (Imperial) = 2.139 oz/gal (U.S.) = 0.0005787 lb/in3 = 27 lb/yd3 = 0.161 lb/gal (Imperial) = 0.134 lb/gal (U.S) = 0.0121 ton/yd3
1 slug/ft3 = 515.379 kg/m3
1 kg/l = 62.43 lb/ft3
1 kg/m3 = 0.001 g/cm3 = 0.0005780 oz/in3 = 0.16036 oz/gal (Imperial) = 0.1335 oz/gal (U.S.) = 0.0624 lb/ft3 = 0.000036127 lb/in3 = 1.6856 lb/yd3 = 0.010022 lb/gal (Imperial) = 0.008345 lb/gal (U.S) = 0.0007525 ton/yd3
Electric Charge
1 abcoulomb = 0.00278 ampere-hour = 10 coulomb = 6.24151×1019 electronic charge = 1.03632×10-4 faraday (chem) = 2.99792×1010 statcoulomb
1 ampere hour = 360 abcoulomb = 3600 coulomb = 0.03731 faraday (chem)
1 coulomb = 0.1 abcoulomb = 0.000278 ampere hour = 1 ampere second = 1.00015002 coulomb (Int) =

1.0363×10-5 faraday (chem) = 1.0360×10-5 faraday (phys) = 2.9979×109 statcoulomb

Electromotive Force, Voltage Difference

abvolt = 0.01 microvolt = 1×10-5 millivolt = 1×10-8 volt

Energy

British Thermal Unit (Btu), calorie, joule, kilojoule, electron volt, erg, foot lbf, foot poundal, kilocalorie, kilowatt hour, watt hour,

1 J (Joule) = 0,1020 kpm = 2.778×10-7 kWh = 2.389×10-4 kcal = 0.7376 ft lbf = 1 (kg m2)/s2 = 1 watt second = 1 Nm = 1 ft lb = 9.478×10-4 Btu

1 kpm = 9.80665 J = 2.724×10-6 kWh = 2.342×10-3 kcal = 7.233 ft lbf = 9.295×10-3 Btu

1 kWh = 3.6×106 J = 3.671×105 kpm = 859.9 kcal = 2.656×106 ft lbf = 3.412×103 Btu

1 kJ = 1 kNm = 1kWs = 103 J = 0.947813 Btu = 737.6 ft lbf = 0.23884 kcal

1 Btu (British thermal unit) = 1,055.06 J = 107.6 kpm = 2.92875×10-4 kWh = 251.996 calorie = 0.252 kcal = 777.649 ft lbf = 1.0544×1010 erg = 0.293 watt hour = 0.999331 Btu (Int Steam Tab) = 0.998560 Btu (mean) = 25020.1 foot-poundal = 107.514 kg force meter = 1.0751×107 gram-force cm = 0.000393 hp-hour = 10.456 liter atm = 1054.35 wattsecond

1 cal = 4.186 J

1 kcal = 4186,8 J = 426,9 kp m = 1.163×10-3 kWh = 3.088 ft lbf = 3.9683 Btu = 1,000 cal

1 ft lbf (foot pound force) = 1.3558 J = 0.1383 kp m = 3.766×10-7 kWh = 3.238×10-4kcal = 1.285×10-3 Btu

1 hp h (horse power hour) = 2.6846×106 J = 0.7457 kWh

1 erg = 1 (g cm2)/s2 = 10-7 J

1 eV = 1.602×10-19 J

1 Q = 1018 Btu = 1.055×1021 J

1 Quad = 1015 Btu

1 Therm = 100,000 Btu

1 kg m = 7.233 ft lb = 0.00929 Btu = 9.806 Joule

Energy per unit mass

1 kJ/kg = 1 J/g = 0.4299 Btu/ lbm = 0.23884 kcal/kg
Flow – see Volume flow
Force
dyne, kilogram force (kgf), kilopound force, kip, lbf (pound force), ounce force (avoirdupois), poundal, newton
1 N (Newton) = 0.1020 kp = 7.233 pdl = 7.233/32.174 lbf = 0.2248 lbf = 1 (kg m)/s2 = 105 dyne = 1/9.80665 kgf
1 lbf (Pound force) = 4.44822 N = 0.4536 kp = 32.17 pdl = 4.448×105 dyn
1 dyn = 1 (g cm)/s2
1 kg has a weight of 1 kp
1 kp (Kilopond) = 9.80665 N = 2.205 lbf = 70.93 pdl
1 pdl (Poundal) = 0.13826 N = 0.01409 kp = 0.03108 lbf
Frequency
1 hertz = 1 cycle/sec
Heat flow rate
1 Btu/sec = 1,055.1 W
1 kW (kJ/s) = 102.0 kpm/s = 859.9 kcal/h = 3,413 Btu/h = 1.360 hk = 1.341 hp = 738 ft lb/s = 1,000 J/s = 3.6×106 J/h
1 kpm/s = 9.8067×10-3 kW = 8.432 kcal/h = 32.47 Btu/h = 0.01333 hk = 0.01316 hp = 7.237 ft lb/s
1 kcal/h = 1.163×10-3 kW = 0.1186 kpm/s = 3.969 Btu/h = 1.582×10-3 hk = 1.560×10-3hp = 0.8583 ft lb/s
1 Btu/h = 2.931×10-4 kW = 0.0299 kpm/s = 0.252 kcal/h = 3.986×10-4 hk = 3.939×10-4 hp = 0.2163 ft lb/s
1 kcal/h = 1.16×10-3 kW
1 hk (metric horse power) = 0.735499 kW = 75.00 kpm/s = 632.5 kcal/h = 2,510 Btu/h = 0.9863 hp = 542.8 ft lb/s
1 hp = 0.74570 kW = 76.04 kpm/s = 641.2 kcal/h = 2,545 Btu/h = 1.014 hk = 550.3 ft lb/s
1 ft lb/s = 1.35501 kW = 0.1382 kpm/s = 1.165 kcal/h = 4.625 Btu/h = 1.843×10-3 hk = 1.817×10-3 hp
Heat flux
1 Btu/ft2 = 2.713 kcal/m2 = 2.043×104 J/m2K

1 Btu/ ft2 h = 3.1525 W/m2
1 Btu/ft2 oF = 4.88 kcal/m2K = 2.043×104 J/m2K
1 kcal/m2 = 0.369 Btu/ft2
1 kcal/m2K = 0.205 Btu/ft2oF
Heat generation per unit volume
1 Btu/ft3 = 8.9 kcal/m3 = 3.73×104 J/m3
1 Btu/ft3 h = 10.343 W/m3
1 kcal/m3 = 0.112 Btu/ft3
Heat generation per unit mass
1 Btu/lb = 0.556 kcal/kg = 2,326 J/kg
1 kcal/kg = 1.800 Btu/lb
Heat transfer coefficient
1 Btu/ft2 h oF = 5.678 W/m2 K = 4.882 kcal/h m2 oC
1 W/m2K = 0.85984 kcal/h m2 oC = 0.1761 Btu/ ft2 h oF
1 kcal/h m2 oC = 1.163 W/m2K = 0.205 Btu/ ft2 h oF
Hydraulic Gradients
1 ftH2O/100 ft = 0.44 psi/100 ft = 9.8 kPa/100 m = 1000 mmH2O/100 m
1 psi/100 ft = 2.3 ftH2O/100 ft = 2288 mmH2O/100 ft = 22.46 kPa/100 m
Inductance
abhenry = 1×10-9 henry
nery = 1×109 abhenry = 0.9995 henry (Int) = 1000 millihenry = 1.113×10-12 stathenry
Information Storage
1 bit = 0.125 byte (computers)
1 byte = 8 bit
Length
feet, meters, centimeters, kilometers, miles, furlongs, yards, micrometers, inches,angstrom, cubit, fathom, foot, hand, league, light year, micron, mil, nautical mile, rod,
1 m (meter) = 3.2808 ft = 39.37 in = 1.0936 yd = 6.214×10-4 mile
1 km = 0.6214 mile = 3281 ft = 1094 yds
1 in (inch) = 25.4 mm = 2.54 cm = 0.0254 m = 0.08333 ft = 0.02778 yd = 1.578×10-5mile

1 ft (foot) = 0.3048 m = 12 in = 0.3333 yd = 1.894×10-4 mile = 30.48 cm = 304.8 mm
1 mm = 10-3 m
1 cm = 10-2 m = 0.3937 in = 0.0328 ft = 1×108 Aangstrom = 0.03281 foot = 0.0984 hand (horses) = 0.3937 inch = 1×10-5 kilometer = 0.0497 link (Gunter) = 0.0328 (Ramden) = 1000 micrometer = 1000 micron = 5.3996×10-6 mile (naut) = 6.2137×10-6 mile (US statute) = 10 millimeter = 1×107 millimicron = 393.7 mil = 2.371 picas (printers) 28.4528 point (printers) = 0.00199 rod (US Survey) = 0.01094 yard
1 mm = 0.03937 in
1 Aangstrom = 10-10 m = 1×10-8 cm = 3.937×10-9 inch = 1×10-4 micrometer = 0.0001 micron = 0.1 millimicron
1 mile = 1.6093 km = 1,609.3 m = 63,346 in = 5,280 ft = 1,760 yd
1 mil (Norway and Sweden) = 10 kilometres
1 nm (nautical mile, sea mile) = 1,852 metres = 1.151 mile = 6076.1 feet = 0.016667 degree of latitude
1 yd (yard) = 0.9144 m = 36 in = 3 ft = 5.682×10-4 mile
1 Furlong = 660 feet = 40 rods = 1/8 mile
1 rod = 5.5 yards
1 land league = 3 miles
1 Fathom = 6 feet = 1.828804 meters
1 astronomical unit = 1.496×108 kilometer
1 cable (UK) = 0.00167 degree latitude = 185.37 meter
1 cable length (US Survey) = 120 fathom (US Survey) = 720 foot (US Survey) = 219.456 meter
1 caliber = 0.01 inch = 0.254 mm
1 chain (Gunter or US Survey) = 2011.7 centimeter = 66.00013 foot = 66 foot (US Survey) = 0.1 Furlong (US Survey) = 792 inch (US Survey) = 100 link (Gunter) = 66.00013 link (Ramden) = 20.117 meter = 0.0125 mile (US statute) = 4 rod (US Survey) = 22 yard (US Survey)
1 light year = 63241.08 astronomical unit = 9.46073×1012 kilometer = 5.8786×1012 mile (US statute) = 0.306601 parsec

Luminous Emittance (Illuminance)
1 lumen/sq ft = 1 foot candle = 1×104 lux = 1 phot
1 lux = 0.0929 foot candle = 1 lumen /sq meter = 0.0001 phot
Luminous Flux
1 candle power = 12.566 lumen
1 lumen = 1 candela steradian = 0.07958 candle power (spherical) = 0.0015 watt
Luminous Intensity
1 candela = 1.091 hefner candle (Germ) = 1 lumen/steradian
Magnetic Flux Density
1 gamma flux = 1×10-5 gauss = 1 x10-6 gram = 1 microgram = 1×10-9 tesla
1 gauss = 0.9997 gauss (Int) = 1×105 gamma = 1 gilbert/cm = 1 maxwell/sq cm = 1 line/sq cm = 6.4516 line/sq inch = 1×10-4 tesla = 1×10-8 weber/sq cm = 6.452×10-8weber/sq inch = 1×10-4 weber/sq meter
Magnitude of a Physical Quantity (Power or intensity relative to a specified or implied reference level)
1 bel = 10 decibel
1 decibel = 0.1 bel
Mass, Weight
pounds, kilograms, grams, ounces, grains, tons (long), tons (short), tons (metric), carat, grain, ounce mass, pound mass (lbm), slug, tonne
1 kg = 1,000 gram = 2.2046 lb = 6.8521×10-2 slug
1 lb = 16 oz = 0.4536 kg = 453.6 g = 7000 grains = 0.03108 slug
1 slug = 14.594 kg = 32.174 lbm
1 grain = 0.000143 lb = 0.0648 g
1 g = 15.43 grains = 0.0353 oz = 0.002205 lb
1 qt = 0.9464 liters
1 metric ton (or tonne) = 1 tonne métrique = 1000 kg = 106 g = 109 mg = 0.907 short tons
1 short ton = 2000 lbs = 907.18474 kg
1 long ton = 2240 pounds = 1,016.0469088 kg

1 oz (ounce) = 28.35 g = 437.5 grains = 0.0625 lb = 0.0000279 long ton (UK) = 0.00003125 long ton (US) = 0.000558 long hundredweight (UK) = 0.000625 long hundredweight (US) = 0.004464 stone = 16 dram
1 troy pound = 12 troy ounces
1 scruple = 20 grains
1 dram = 3 scruples
1 apothecary ounce = 8 drams
1 apothecary pound = 12 apothecary ounces
1 pennyweight = 24 grains
1 Gal. H2O = 8.33 Lbs. H2O
1 cental (US) = 45.359 kilogram = 100 pound
1 carat (metric) = 3.0865 grain = 0.2 gram = 200 milligram
1 hectogram = 100 gram = 0.26769 pound (apoth or troy) = 0.2205 pound (avdp)
Density, Specific Weight and Specific Gravity – An introduction and definition of density, specific weight and specific gravity. Formulas with examples.
Mass flow rate
1 lb/h = 1.26×10-4 kg/s
1 lb/s = 0.4536 kg/s
1 lb/min = 7.56×10-3 kg/s = 27.216 kg/s
1 kg/s = 3,600 kg/h = 132.28 lb/min
1 kg/h = 2.778×10-4 kg/s = 3.67×10-2 lb/min
Moment of Inertia
1 kg m2 = 10000 kg cm2 = 54675 ounce in2 = 3417.2 lb in2 = 23.73 lb ft2
Power
horsepower, kilowatt, watt,btu/second, calorie/second, foot lbf/second, kilocalorie/second
1 W = 1 kg m2/s3 = 1 Nm/s = 1 J/s
1 kW = 1,000 Watts = 3,412 Btu/h = 737.6/550 British hp = 1.341 British hp = 103/9.80665 kgf m/s = 737.6 ft lbf/s = 103/(9.80665 75) metric hp
1 hp (English horse power) = 745.7 W = 0.746 kW = 550 ft lb/s = 2,545 Btu/h = 33.000 ft lb/m = 1.0139 metric

horse power ~= 1.0 KVA
1 horsepower (mech) = 2542.47 Btu (mean)/hr = 42.375 Btu (mean)/min = 0.7062 Btu (mean)/sec = 6.416×105 calorie/hr (termo) = 6.412×105 calorie (IST)/hr = 6.4069×105calorie(mean)/hr = 10694 calorie/min (thermo) = 10686 calorie (IST)/min = 10678 calorie (mean)/min = 10.686 calorie, kg/min (IST) = 7.457×109 erg/sec = 1980000 foot pound-force/hr = 33000 foot pound-force/min = 550 foot pound-force/sec = 0.076 horsepower (boiler) = 0.9996 horsepower (electric) = 1.0139 horsepower (metric) = 745.7 joule/sec = 0.7457 kilowatt = 0.7456 kilowatt (Int) = 0.212 ton of refrigeration = 745.7 watt
1 horsepower (boiler) = 33445.6 Btu (mean)/hr = 140671.6 calorie/min (thermo) = 140469.4 calorie (mean)/min = 140742.3 calorie (20oC)/min 9.8095×1010 erg/sec = 434107 foot-pound-force/min = 13.1548 horsepower (mech) = 13.1495 horsepower (electric) = 13.3372 horsepower (metric) = 13.1487 horsepower (water) = 9809.5 joule/sec = 9.8095 kilowatt
1 horsepower (electric) = 2547.16 Btu/hr (thermo) = 2545.46 Btu (IST)/hr = 2543.49 Btu (mean)/hr = 178.298 calorie/sec (thermo) = 641.87 calorie, kg/hr (thermo) = 7.46×109 erg/sec = 33013 foot pound-force/min = 550.2 foot pound-force/sec = 1.0004 horsepower (mech) = 0.07605 horsepower (boiler) = 1.01428 horsepower (metric) = 0.99994 horsepower (water) = 746 joule/sec = 0.746 kilowatt = 746 watt
1 horsepower (metric) = 2511.3 Btu/hr (thermo) = 2509.6 Btu (IST)/hr = 2507.7 Btu (mean)/hr = 6.328×105 calorie/hr (thermo) = 6.324×105 calorie (IST)/hr = 6.319×105calorie (mean)/hr = 7.35×109 ergs/sec = 32548.6 foot pound-force/min = 542.476 foot pound-force/sec = 0.9863 horsepower (mech) = 0.07498 horsepower (boiler) = 0.9859 horsepower (electric) = 0.98587 horsepower (water) = 75 kg-force meter/sec (kg m/s) = 0.7355 kilowatt = 735.499 W = 75

kg m/s
1 horsepower (water) = 33015 foot pound-force/min = 1.00046 horsepower (mech) = 0.07605 horsepower (boiler) = 1.00006 horsepower (electric) = 1.01434 horsepower (metric) = 0.746043 kilowatt
1 refrigeration Ton = 12,000 Btu/h cooling = 3.516 kW = 3,025.9 k Calories/h
1 cooling tower Ton = 15,000 Btu/h = 3,782 k Calories/h
1 ft lb/s = 1.3558 W
1 Btu/s = 1055.1 W
1 Btu/h = 1 Btuh = 0.293 W = 0.001 MBH
1 cheval vapeur (French) = 0.98632 horsepower
Power per unit area
1 W/m2 = 0.3170 Btu/(h ft2) = 0.85984 kcal/(h m2)
Pressure
atmosphere, centimeters of mercury, foot of water, bar, barye, centimeter of water, dyne/centimeter2, inch of mercury, inch of water, kgf/centimeter2, kgf/meter2, lbf/foot2, lbf/inch2 (psi), millibar, millimeter of mercury, pascal, torr, newton/meter2
Standard Atmospheric Pressure 1 atm = 101.325 kN/m2 = 1.01325 bar = 101.325 kPa = 14.7 psia = 0 psig = 29.92 in Hg = 760 torr = 33.95 Ft.H2O = 407.2 In.W.G (Water Gauge) = 2116.8 Lbs./Sq.Ft.
1 N/m2 = 1 Pa = 1.4504×10-4 lb/in2 = 1×10-5 bar = 4.03×10-3 in water = 0.336×10-3 ft water = 0.1024 mm water = 0.295×10-3 in mercury = 7.55×10-3 mm mercury = 0.1024 kg/m2 = 0.993×10-5 atm
1 Pa = 10-6 N/mm2 = 10-5 bar = 0.1020 kp/m2 = 1.02×10-4 m H2O = 9.869×10-6 atm = 1.45×10-4 psi (lbf/in2)
1 N/mm2 = 106 Pa = 10 bar = 1.020×105 kp/m2 = 102.0 m H2O = 9.869 atm = 145.0 psi (lbf/in2)
1 mmHg = 1 torr = 0.01934 lb/in2
1 atm = 101,325 Pa (N/m2) = 1.013×102 kN/m2 = 1.033×104 kp/m2 = 1.033 kp/cm2 = 1.013 bar = 14.696 psi (lb/in2) = 407.1 in H2O at 62 0F (16.7 oC) = 33.9 ft H2O

at 62 0F (16.7 oC) = 10.33 m H2O at 62 0F (16.7 oC) = 29.92 in mercury at 62 0F (16.7 oC) = 760 mm mercury at 62 0F (16.7 oC) = 760 torr

1 bar = 1×105 Pa (N/m2) = 0.1 N/mm2 = 10,197 kp/m2 = 10.20 m H2O = 0.98692 atm = 14.5038 psi (lbf/in2) = 1×106 dyne/sq cm = 750 mmHg = 1×106 barye (French) = 75.0062 cm Hg (0oC) = 33.4883 ft H2O (60oF) = 1019.72 gram-force/sq cm = 29.530 in Hg (32oF) = 1.01972 kg-force/sq cm = 1000 millibar = 2088.54 pound-force/sq foot

1 kp/m2 = 9.81 Pa (N/m2) = 9.807×10-6 N/mm2 = 10-3 m H2O = 1 mm H2O = 0.9681×10-4 atm = 1.422×10-3 psi (lb/in2) = 0.0394 in H2O = 0.0736 mm mercury

1 psi (lb/in2) = 144 psf (lbf/ft2) = 6,894.8 Pa (N/m2) = 6.895×10-3 N/mm2 = 6.895×10-2bar = 27.71 in H2O at 62oF (16.7oC) = 703.1 mm H2O at 62oF (16.7oC) = 2.0416 in mercury at 62oF (16.7oC) = 51.8 mm mercury at 62oF (16.7oC) = 703.6 kg/m2 = 0.06895 atm = 2.307 Ft. H2O = 16 ounces

1 psf (lbf/ft2) = 47.88 N/m2 (Pa) = 0.006944 lbf/in2 (psi)

1 dyn/cm2 = 145.04×10-7 lbf/in2

1 in mercury (Hg) = 3,376.8 N/m2= 0.49 lb/in2 = 12.8 in water

1 Ounce = 1.73 In.W.C.

1 Ft.H2O = 0.4335 psi = 62.43 Lbs./Sq.Ft.

1 in water = 248.8 N/m2= 0.0361 lb/in2 = 25.4 kg/m2 = 0.0739 in mercury

1 m H2O = 9806.7 Pa = 9.807×10-3 N/mm2 = 0.0987 bar = 1,000 kp/m2 = 0.09678 atm = 1.422 psi (lbf/in2)

1 mm water = 9.81 Pa (N/m2) = 1 kg/m2 = 0.0736 mm mercury = 0.9677×10-4 atm

1 mm mercury = 0.0193 lb/in2 = 133 N/m2 = 12.8 mm water

1 barye (French) = 1.0 dyne/sq cm = 0.10 newton/sq meter = 0.10 Pascal

Note! When using pressure units based on liquid columns (like mm Water, in Water, mm Hg …) – be aware that

densities of liquids varies with temperature. For more exact conversions consult temperature density sources for the actual liquids.

Radioactivity

1 becquerel = 2.7027×10-11 curie = 1 disintegration/sec

Resistance, Electrical

1 abohm = 1×10-15 megohm = 0.001 microohm = 1×10-9 ohm

Rotation

revolutions,

1 r/min (rpm) = 0.01667 r/s = 0.105 rad/s

1 r/s = 60 r/min = 6.28 rad/s

1 rad/s = 9.55 r/min (rpm) = 0.159 r/s (rps)

Specific energy, enthalpy, entropy

1 Btu/lbm = 2,326.1 J/kg = 0.55556 kcal/kg = 778.2 ft lbf / lbm = 3.9 10-4 hp hr / lbm = 5.4 lbf/in2 / lbm/ft3 = 0.237 kp m / g = 5.56 10-4 kcal/g = 2.326 kJ/kg

1 J/kg = 4.299×10-4 Btu/lbm = 2.388×10-4 kcal/kg

1 kcal/kg = 1.80 Btu/lbm = 4,187 J/kg

Specific heat capacity

1 J/(kg K) = 2.389×10-4 kcal/(kg oC) = 2.389×10-4 Btu/(lbm oF)

1 kJ/(kg K) = 0.2389 kcal/(kg oC) = 0.2389 Btu/(lbm oF)

1 Btu/(lbm oF) = 4,186.8 J/ (kg K) = 1 kcal/(kg oC)

1 kcal/(kg oC) = 4,186.8 J/ (kg K) = 1 Btu/(lbm oF)

Specific Volume

1 m3/kg = 16.02 ft3/lbm = 27680 in3/lbm = 119.8 US gal/lbm = 1000 liter/kg

1 liter/kg = 0.016 ft3/lbm = 27.7 in3/lbm = 0.12 US gal/lbm = 0.001 m3/kg

1 ft3/lbm = 1728 in3/lbm = 7.48 US gal/lbm = 62.43 liter/kg = 0.062 m3/kg

1 in3/lbm = 0.00058 ft3/lbm = 0.0043 US gal/lbm = 0.036 liter/kg = 0.000036 m3/kg

1 US gal/lbm = 0.134 ft3/lbm = 231 in3/lbm = 8.35 liter/kg = 0.0083 m3/kg

Temperature

celsius, rankine, kelvin, centigrade, fahrenheit,
1 oC = 1.8 oF
1 oF = 0.555 oC
0 oC corresponds to 32 oF, 273.16 K and 491.69 R
1 oR = 5/9 K
T(oF) = [T(oC)](9/5) + 32
T(oF) = [T(K) – 273.15](9/5) + 32
T(oC) = 5/9[T(oF) – 32]
Thermal Conductivity
1 W/(m K) = 0.85984 kcal/(h m oC) = 0.5779 Btu/(ft h oF)
1 Btu/(ft h oF) = 1.731 W/(m K) = 1.488 kcal/(h m oC)
1 kcal/(h m oC) = 1.163 W/(m K) = 0.6720 Btu/(ft h oF)
Thermal Diffusivity
1 ft2 /s = 0.0929 m2/s
1 ft2 /h = 2.581×10-5 m2/s
Thermal resistance
1 (h oF)/Btu = 1.8958 K/W
Time
year, month, day, hour, minute, second, millisecond
1 h = 3600 s = 60 min
1 ms (millisecond) = 10-3 s
1 µs (microsecond) = 10-6 s
1 ns (nanosecond) = 10-9 s
1 day (mean solar) = 1.0027379 day (sidereal) = 24 hour (mean solar) = 24.06571 hour (sidereal) = 0.0027397 year (calendar) = 0.002738 year (sidereal) = 0.002738 year (tropical)
Torque, Moment
foot-pound torque, newton-meter
1 ft lb = 1.356 Nm
Velocity, Speed
foot/second, inch/second, meter/second, kilometer/hour, knot, mile/hour,nautical mile per hour
1 ft/s = 0.3048 m/s
1 ft/min = 5.08×10-3 m/s = 0.0183 km/h = 0.0114 mph
1 mph = 0.44703 m/s = 1.609 km/h = 88 ft/min = 5280 ft/hr = 1.467 Ft./sec. = 0.8684 knots

1 m/s = 3.6 km/h = 196.85 ft/min = 2.237 mph
1 km/h = 0.2778 m/s = 54.68 ft/min = 0.6214 mph = 0.5396 knot
1 knot (nautical mile per hour) = 0.514444444 m/s = 1.852 kilometers per hour = 1.1515 miles per hour= 1 nautical miles per hour
1 League = 3.0 Miles
1 cm/sec = 1.9685 foot/min = 0.0328 foot/sec = 0.036 km/hr = 0.0194 knots (Int) = 0.6 meter/min = 0.02237 mile/hr = 0.000373 mile/min
Viscosity Dynamic
1 lb/(ft s) = 1.4879 Pa s = 14.88 P = 1,488 cP = 0.1517 kp s/m2
1 cP (Centipoise) = 10-3 Pa s = 0.01 Poise = 1.020×10-4 kp s/m2 = 6.721×10-4 lb/(ft s) = 0.00100 (N s)/m2 = 0.01 gram/(cm sec) = 2.4191 lb/(ft hr)
1 kg/(m s) = 1 (N s)/m2 = 0.6720 lbm/(ft s) = 10 Poise
1 P (Poise) = 0.1 Pa s = 100 cP = 1.020×10-2 kp s/m2 = 6.721×10-2 lb/(ft s) = 0.1 kg/ms
1 Pa s (N s/m2) = 10 P (Poise) = 103 cP = 0.1020 kp s/m2 = 0.6721 lb/(ft s)
1 kp s/m2 = 9.80665 Pa s = 98.07 P = 9,807 cP = 6.591 lb/(ft s)
1 reyns = 1 1bf s/in2 = 6894.76 Pa s
Dynamic, Absolute and Kinematic Viscosity – An introduction to dynamic, absolute and kinematic viscosity and how to convert between CentiStokes (cSt), CentiPoises (cP), Saybolt Universal Seconds (SSU) and degree Engler.
Viscosity Kinematic
1 ft2/s = 0.0929 m2/s
1 ft2/ h = 2.581×10-5m2/s
1 St (Stokes) = 1×10-4 m2/s = 100 cSt = 1.076×10-3 ft2/s
1 m2/s = 104 St = 106 cSt = 10.764 ft2/s= 38750 ft2/h
1 cSt (Centistoke) = 10-6 m2/s = 0.01 Stokes = 1.076×10-5 ft2/s = 1 square mm/sec
Volume

barrel, gallon, cubic centimeter (cm3), cubic feet (foot3), cubic inch (inch3), cubic meter (meter3), cubic yard (yard3), quarts, liters, acre foot, board foot, bushel, cord, cup, dram, fluid ounce, peck, pint, quart, tablespoon, teaspoon,

1 ft3 = 0.02832 m3= 28.32 dm3 = 0.03704 yd3 = 6.229 Imp. gal (UK) = 7.481 gal (US) = 1,728 cu inch = 2.296×10-5 acre foot = 12 board foot (timber) = 0.7786 bushel (UK) = 0.8036 bushel (US, dry) = 0.00781 cord (firewood) = 0.0625 cord foot (timber) = 28316.8 cu centimeter = 6.42851 gallon (US, dry) = 7.48052 gallon (US, liq) = 28.3168 liter = 996.614 ounce (UK, liq) = 957.506 ounce (US, liq) = 51.4281 pint (US, dry) = 59.84442 pint (US, liq) = 25.714 quart (US, dry) = 29.922 quart (US, liq)

1 in3 = 1.6387×10-5 m3 = 1.639×10-2 dm3 (liter) = 16.39 cm3 = 16390 mm3 = 0.000579 ft3

1 Gallon (U.S.) = 3.785×10-3 m3 = 3.785 dm3 (liter) = 231 in3 = 0.13368 ft3 = 4.951×10-3yd3 = 0.8327 Imp. gal (UK) = 4 Quarts = 8 Pints

1 Imp. gallon (UK) = 4.546×10-3 m3 = 4.546 dm3 = 0.1605 ft3 = 5.946×10-3 yd3 = 1.201 gal (US)

1 dm3 (Liter) = 10-3 m3 = 0.03532 ft3 = 1.308×10-3 yd3 = 0.220 Imp gal (UK) = 0.2642 Gallons (US) = 1.057 Quarts = 2.113 Pints

1 yd3 = 0.7646 m3 = 764.6 dm3 = 27 ft3 = 168.2 Imp. gal (UK) = 202.0 gal (US) = 46,656 Cu.In. = 1616 Pints = 807.9 Quarts = 764.6 Liters

1 pint (pt) = 0.568 dm3 (liter) = 16 fl. oz. (fluid ounce) = 28.88 in3

1 km3 = 109 m3 = 1012 dm3 (liter) = 1015 cm3 = 1018 mm3

1 cm3 = 0.061 in3 = 0.00042 board foot = 2.7496×10-5 bushel (UK) = 2.8378×10-5bushel (US, dry) = 3.5315×10-5 cu foot = 0.06102 cu inch = 1×10-6 cu meter = 1.308×10-6 cu yard = 0.28156 drachm (UK, liq) = 0.27051 dram (US, liq) = 0.000227 gallon (UK) = 0.00027 gallon (US, dry) = 0.000264 gallon (US, liq) = 0.0074

gill (UK) = 0.00845 gill (US) = 0.001 liter = 0.035195 ounce (UK, liq) = 0.033814 ounce (US, liq) = 0.00182 pint (US, dry) = 0.00211 pint (US, liq) = 0.00088 quart (UK) = 0.00091 quart (US, dry) = 0.00106 quart (US, liq)
1 m3 = 103 dm3 (liter) = 35.31 ft3 = 1.3093 yd3 = 220.0 Imp. gal (UK) = 264.2 gal (US) = 61,023 Cu.In. = 35.31 Cu.Ft = 0.1 decistere
1 Hogshead = 63 gallon = 8.42184 Cu.Ft
1 barrel (UK) = 1.5 bag (UK) = 1.41541 barrel (US, dry) = 1.37251 barrel (US, liq) = 4.5 bushel (UK) = 4.64426 bushel (US, dry) = 5.77957 cu ft = 0.16366 cu meter = 36 gallon (UK) = 163.6592 liter
1 barrel beer = 31.5 gallons beer
1 barrel (US, oil) = 1.33 barrel (US, liq) = 5.61458 cu foot = 42 gallons (US, liq) = 158.9873 liter
1 barrel (US, dry) = 0.969696 barrel (US, liq) = 3.28122 bushel (US, dry) = 4.0833 cu ft = 7056 cu inch = 0.11563 cu meter = 104.999 quart (US, dry)
1 barrel (US, liq) = 1.03125 barrel (US, dry) = 0.75 barrel (US, oil) = 4.2109 cu foot = 7276.5 cu inch = 0.11924 cu meter = 26.22924 gallon (UK) = 31.5 gallon (US, liq) = 119.24 liter =
1 bushel = 1.2445 Cu.Ft. = 32 Quarts (Dry) = 64 Pints (dry) = 4 Pecks
1 bushel (UK) = 0.3333 bag (UK) = 1.03206 bushel (US) = 36368.7 cu cm = 1.28435 cu foot = 2219 cu inch = 8 gallon (UK) = 36.3687 liter
1 bushel (US, dry) = 0.30476 barrel (US, dry) = 0.96894 bushel (UK) = 35239.07 cu cm = 1.24446 cu foot = 2150.42 cu inch = 0.03524 cu meter 0.04609 cu yard = 8 gallon (US, dry) = 9.30918 gallon (US, liq) = 35.23907 liter = 1191.57 ounce (US, liq) = 4 peck (US) = 64 pint (US, dry) = 32 quart (US, dry) = 37.23671 quart (US, liq)
1 quart (qt) = 2 pints = 57.75 in3 = 1/8 dry quarts
1 fluid ounce (fl. oz.) = 2 tablespoons = 1.805 in3 = 29.574 milliliters
1 cord (firewood) = 128 cu foot = 8 cord foot (timber) =

3.6246 cu meter
1 cord foot (timber) = 0.125 cord (firewood) = 16 cu foot
1 peck = 8 dry quarts
1 cup = 8 fl.oz. (fluid ounce)
1 cup (metric) = 200 milliliter
1 cup, tea = 0.25 pint = 142.06 milliliter
1 board foot = piece of lumber 1 foot wide x 1 foot long x 1 inch thick = 2359.74 cu cm = 0.083333 cu foot = 144 cu inch
1 acre foot = 43560 cu foot = 1233.482 cu meter = 1613.33 cu yard = 3.259×105 gallon (US liquid)
1 acre inch = 3630 cu foot = 102.7901531 cu meter = 134.44 cu yard = 27154.286 gallon (US)
1 bucket (UK) = 18184.35 cu cm = 4 gallon (UK)
1 butt (UK. liq) = 16.2549 bushel (US) = 20.2285 cu foot = 0.57281 cu meter = 151.3197 gallon (US)
1 chaldron (UK, liq) = 36 bushel (UK)
1 dram (US, liq) = 3.6967 cu cm = 0.225586 cu inch = 1.04084 drachm (UK, liq) = 0.03125 gill (US) = 3.69669 millimeter = 60 minim (US) = 0.125 ounce (US, liq) = 0.0078125 pint (US, liq)
1 fifth (US, liq) = 17.067 jigger (US, liq) = 0.75708 liter = 25.6 ounce (US, liq) = 1.6 pint (US, liq) = 25.6 pony (US, liq) = 0.8 quartt (US, liq) = 25.6 shot (US, liq)
1 firkin (UK) = 1.125 bushel (UK) = 40914.8 cu cm = 1.44489 cu foot = 1.20095 firkin (US) = 9 gallon (UK) = 40.91481 liter = 72 pint (UK)
1 hectoliter = 2.7496 bushel (UK) = 2.8378 bushel (US, dry) = 1×105 cu cm = 3.5315 cu foot = 26.417 gallon (US, liq) = 100 liter = 3381.4 ounce (US, liq) = 11.351 peck (US)
Volume Flow
1 dm3/s (kg/s water) = 13.20 Imp. gal (UK)/min
1 m3/s = 3,600 m3/h = 1,000 dm3(liter)/s = 35.32 ft3/s = 2,118.9 ft3/min = 13,200 Imp.gal (UK)/min = 15,852 gal

(US)/min
1 m3/h = 2.7778×10-4 m3/s = 0.2778 dm3(litre)/s = 9.810×10-3 ft3/s = 0.5886 ft3/min (cfm) = 3.667 Imp.gal (UK)/min = 4.403 gal (US)/min
1 m3/h = 103 dm3(litre)/h = 16.67 dm3(litre)/min = 0.27878 dm3(litre)/s
1 ft3/min = 1.7 m3/h = 0.47 l/s = 62.43 Lbs.H2O/Min.
1 dm3(litre)/s = 10-3 m3/s = 3.6 m3/h = 0.03532 ft3/s = 2.1189 ft3/min (cfm) = 13.200 Imp.gal (UK)/min = 15.852 gal (US)/min = 792 Imp. gal (UK)/h
1 dm3(litre)/s = 60 litre/min = 3,600 litre/h
1 ft3/s = 0.0283168 m3/s = 101.9 m3/h = 28.32 dm3(litre)/s = 60 ft3/min = 373.7 Imp.gal (UK)/min = 448.9 gal (US)/min
1 Imp.gal (UK)/min = 7.57682×10-5 m3/s = 0.273 m3/h = 0.0758 dm3(litre)/s = 2.675×10-3 ft3/s = 0.1605 ft3/min = 1,201 gal (US)/min
1 gal (US)/min =6.30888×10-5 m3/s = 0.227 m3/h = 0.06309 dm3(litre)/s = 2.228×10-3 ft3/s = 0.1337 ft3/min = 0.8327 Imperial gal (UK)/min

Documentation DOC
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