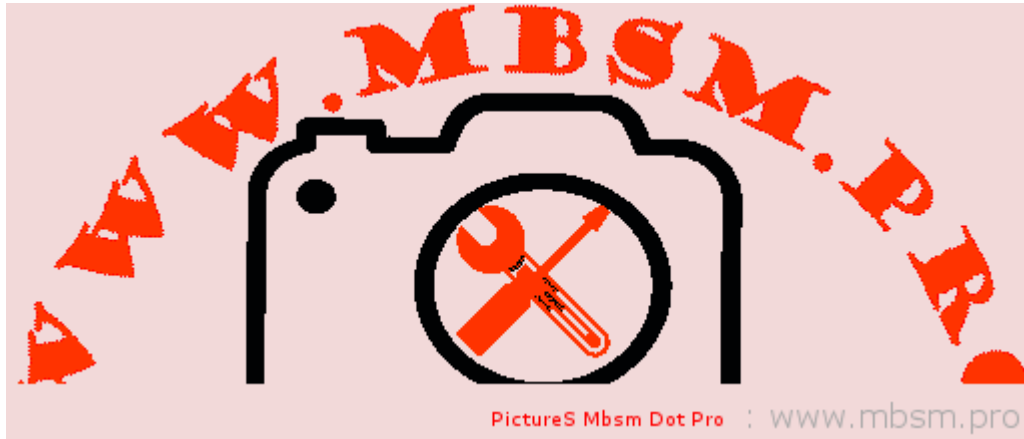


Tableau de conversion d'unités

Category: Technologie

written by www.mbsm.pro | 25 April 2020



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 = 2.491×10⁻¹⁰ mile²

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 (Int) = 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) = 2.9979×10^9 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 = 3.6×10^6 J = 3.671×10^5 kpm = 859.9 kcal = 2.656×10^6 ft lbf =
 3.412×10^3 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 = 1.0544×10^{10} erg = 0.293 watt
hour = 0.999331 Btu (Int Steam Tab) = 0.998560 Btu (mean) = 25020.1 foot-
poundal = 107.514 kg force meter = 1.0751×10^7 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^{-4} kcal = 1.285×10^{-3} Btu

1 hp h (horse power hour) = 2.6846×10^6 J = 0.7457 kWh

1 erg = 1 (g cm²)/s² = 10^{-7} J

1 eV = 1.602×10^{-19} J

1 Q = 1018 Btu = 1.055×10^{21} 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 = 4.448×10^5 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 = 3.6×10^6 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^{-3} hp = 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 = 2.043×10^4 J/m²K

1 Btu/ ft² h = 3.1525 W/m²

1 Btu/ft² oF = 4.88 kcal/m²K = 2.043×10^4 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 = 3.73×10^4 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 = 1×10^9 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^{-5} mile

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 = 1×10^8 Angstrom = 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 = 1×10^7 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 Angstrom = 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 = 1.496×10^8 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 = 9.46073×10^{12} kilometer = 5.8786×10^{12} mile (US statute) = 0.306601 parsec

Luminous Emittance (Illuminance)

1 lumen/sq ft = 1 foot candle = 1×10^4 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 = 1×10^{-6} gram = 1 microgram = 1×10^{-9} tesla

1 gauss = 0.9997 gauss (Int) = 1×10^5 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^{-8} weber/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 = 6.416×10^5 calorie/hr (termo) = 6.412×10^5 calorie (IST)/hr = 6.4069×10^5 calorie(mean)/hr = 10694 calorie/min (thermo) = 10686 calorie

(IST)/min = 10678 calorie (mean)/min = 10.686 calorie, kg/min (IST) =

7.457×10^9 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

$1 \text{ horsepower (boiler)} = 33445.6 \text{ Btu (mean)/hr} = 140671.6 \text{ calorie/min (thermo)}$
 $= 140469.4 \text{ calorie (mean)/min} = 140742.3 \text{ calorie (20oC)/min}$
 $9.8095 \times 10^{10} \text{ erg/sec} = 434107 \text{ foot-pound-force/min} = 13.1548 \text{ horsepower (mech)}$
 $= 13.1495 \text{ horsepower (electric)} = 13.3372 \text{ horsepower (metric)} = 13.1487$
 $\text{horsepower (water)} = 9809.5 \text{ joule/sec} = 9.8095 \text{ kilowatt}$

$1 \text{ horsepower (electric)} = 2547.16 \text{ Btu/hr (thermo)} = 2545.46 \text{ Btu (IST)/hr} =$
 $2543.49 \text{ Btu (mean)/hr} = 178.298 \text{ calorie/sec (thermo)} = 641.87 \text{ calorie, kg/hr}$
 $(\text{thermo}) = 7.46 \times 10^9 \text{ erg/sec} = 33013 \text{ foot pound-force/min} = 550.2 \text{ foot pound-}$
 $\text{force/sec} = 1.0004 \text{ horsepower (mech)} = 0.07605 \text{ horsepower (boiler)} = 1.01428$
 $\text{horsepower (metric)} = 0.99994 \text{ horsepower (water)} = 746 \text{ joule/sec} = 0.746$
 $\text{kilowatt} = 746 \text{ watt}$

$1 \text{ horsepower (metric)} = 2511.3 \text{ Btu/hr (thermo)} = 2509.6 \text{ Btu (IST)/hr} = 2507.7$
 $\text{Btu (mean)/hr} = 6.328 \times 10^5 \text{ calorie/hr (thermo)} = 6.324 \times 10^5 \text{ calorie (IST)/hr} =$
 $6.319 \times 10^5 \text{ calorie (mean)/hr} = 7.35 \times 10^9 \text{ ergs/sec} = 32548.6 \text{ foot pound-force/min}$
 $= 542.476 \text{ foot pound-force/sec} = 0.9863 \text{ horsepower (mech)} = 0.07498 \text{ horsepower}$
 $(\text{boiler}) = 0.9859 \text{ horsepower (electric)} = 0.98587 \text{ horsepower (water)} = 75 \text{ kg-}$
 $\text{force meter/sec (kg m/s)} = 0.7355 \text{ kilowatt} = 735.499 \text{ W} = 75 \text{ kg m/s}$

$1 \text{ horsepower (water)} = 33015 \text{ foot pound-force/min} = 1.00046 \text{ horsepower (mech)}$
 $= 0.07605 \text{ horsepower (boiler)} = 1.00006 \text{ horsepower (electric)} = 1.01434$
 $\text{horsepower (metric)} = 0.746043 \text{ kilowatt}$

$1 \text{ refrigeration Ton} = 12,000 \text{ Btu/h cooling} = 3.516 \text{ kW} = 3,025.9 \text{ k Calories/h}$

$1 \text{ cooling tower Ton} = 15,000 \text{ Btu/h} = 3,782 \text{ k Calories/h}$

$1 \text{ ft lb/s} = 1.3558 \text{ W}$

$1 \text{ Btu/s} = 1055.1 \text{ W}$

$1 \text{ Btu/h} = 1 \text{ Btuh} = 0.293 \text{ W} = 0.001 \text{ MBH}$

$1 \text{ cheval vapeur (French)} = 0.98632 \text{ horsepower}$

Power per unit area

$1 \text{ W/m}^2 = 0.3170 \text{ Btu/(h ft}^2) = 0.85984 \text{ kcal/(h m}^2)$

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 $1 \text{ atm} = 101.325 \text{ kN/m}^2 = 1.01325 \text{ bar} = 101.325$
 $\text{kPa} = 14.7 \text{ psia} = 0 \text{ psig} = 29.92 \text{ in Hg} = 760 \text{ torr} = 33.95 \text{ Ft.H}_2\text{O} = 407.2$

$\text{In.W.G (Water Gauge)} = 2116.8 \text{ Lbs./Sq.Ft.}$

$1 \text{ N/m}^2 = 1 \text{ Pa} = 1.4504 \times 10^{-4} \text{ lb/in}^2 = 1 \times 10^{-5} \text{ bar} = 4.03 \times 10^{-3} \text{ in water} =$
 $0.336 \times 10^{-3} \text{ ft water} = 0.1024 \text{ mm water} = 0.295 \times 10^{-3} \text{ in mercury} = 7.55 \times 10^{-3} \text{ mm}$
 $\text{mercury} = 0.1024 \text{ kg/m}^2 = 0.993 \times 10^{-5} \text{ atm}$

$1 \text{ Pa} = 10^{-6} \text{ N/mm}^2 = 10^{-5} \text{ bar} = 0.1020 \text{ kp/m}^2 = 1.02 \times 10^{-4} \text{ m H}_2\text{O} = 9.869 \times 10^{-6} \text{ atm}$
 $= 1.45 \times 10^{-4} \text{ psi (lbf/in}^2)$

$1 \text{ N/mm}^2 = 106 \text{ Pa} = 10 \text{ bar} = 1.020 \times 10^5 \text{ kp/m}^2 = 102.0 \text{ m H}_2\text{O} = 9.869 \text{ atm} = 145.0$
 $\text{psi (lbf/in}^2)$

$1 \text{ mmHg} = 1 \text{ torr} = 0.01934 \text{ lb/in}^2$

$1 \text{ atm} = 101,325 \text{ Pa (N/m}^2) = 1.013 \times 10^2 \text{ kN/m}^2 = 1.033 \times 10^4 \text{ kp/m}^2 = 1.033 \text{ kp/cm}^2 =$
 $1.013 \text{ bar} = 14.696 \text{ psi (lb/in}^2) = 407.1 \text{ in H}_2\text{O at } 62 \text{ }^\circ\text{F (16.7 }^\circ\text{C)} = 33.9 \text{ ft}$
 $\text{H}_2\text{O at } 62 \text{ }^\circ\text{F (16.7 }^\circ\text{C)} = 10.33 \text{ m H}_2\text{O at } 62 \text{ }^\circ\text{F (16.7 }^\circ\text{C)} = 29.92 \text{ in mercury at}$
 $62 \text{ }^\circ\text{F (16.7 }^\circ\text{C)} = 760 \text{ mm mercury at } 62 \text{ }^\circ\text{F (16.7 }^\circ\text{C)} = 760 \text{ torr}$

$1 \text{ bar} = 1 \times 10^5 \text{ Pa (N/m}^2) = 0.1 \text{ N/mm}^2 = 10,197 \text{ kp/m}^2 = 10.20 \text{ m H}_2\text{O} = 0.98692 \text{ atm}$
 $= 14.5038 \text{ psi (lbf/in}^2) = 1 \times 10^6 \text{ dyne/sq cm} = 750 \text{ mmHg} = 1 \times 10^6 \text{ barye (French)} =$

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 (lbf/in²) = 0.0394 in H₂O = 0.0736 mm mercury

1 psi (lbf/in²) = 144 psf (lbf/ft²) = 6,894.8 Pa (N/m²) = 6.895×10⁻³ N/mm² =
6.895×10⁻² bar = 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 lbf/(ft s) = 10 Poise

1 P (Poise) = 0.1 Pa s = 100 cP = 1.020×10⁻² kp s/m² = 6.721×10⁻² lbf/(ft s) = 0.1 kg/ms

1 Pa s (N s/m²) = 10 P (Poise) = 103 cP = 0.1020 kp s/m² = 0.6721 lbf/(ft s)

1 kp s/m² = 9.80665 Pa s = 98.07 P = 9,807 cP = 6.591 lbf/(ft s)

1 reyns = 1 lbf 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 = 2.581×10⁻⁵ m²/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 = 4.951×10⁻³ yd³ = 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) =

2.8378×10⁻⁵ bushel (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(litre)/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

Mbsm_dot_pro_private_picture_conversion-_unités [Télécharger](#)