

# lamaPLC Calculations

## lamaPlc calc

vice	versa
<b>Liter, m<sup>3</sup> (volume)</b>	
<b>1 l = 1 dm<sup>3</sup> = 1000 cm<sup>3</sup> = 0,001 m<sup>3</sup></b>	
<b>1 cm<sup>3</sup> = 1 ml = 0,001 l</b>	
1 l = 0,2642 gal (US Gallon)	1 gal (US Gallon) = 3,7854 l
1 l = 0,2199 gal (UK Gallon)	1 gal (UK Gallon) = 4,54609 l
1 l = 0,008386 bbl (US Barrel)	1 bbl (US Barrel) = 119.2405 l
1 l = 0,00611 bbl (UK Barrel)	1 bbl (UK Barrel) = 163,65924 l
1 l = 2,1133 pt (US Pint)	1 pt (US Pint) = 0,4732 l
1 l = 1,7599 pt (UK Pint)	1 pt (UK Pint) = 0,5682 l
1 l = 4,2265 cup (US Cup)	1 cup (US Cup) = 0,2366 l
1 l = 3,5198 cup (UK Cup)	1 cup (UK Cup) = 0,2841 l
1 l = 61,0237 in <sup>3</sup> (Cubic inch)	1 in <sup>3</sup> (Cubic inch) = 0,016387 l
1 l = 0,0353 ft <sup>3</sup> (Cubic Foot)	1 ft <sup>3</sup> (Cubic Foot) = 28,31685 l
1 l = 0,001308 yd <sup>3</sup> (Cubic Yard)	1 yd <sup>3</sup> (Cubic Yard) = 764,5549 l
1 gal (US Gallon) = 8 pt (US Pint)	1 pt (US Pint) = 0,125 gal (US Gallon)
1 pt (US Pint) = 2 cup (US Cup)	1 cup (US Cup) = 0,5 pt (US Pint)
1 gal (US Gallon) = 16 cup (US Cup)	1 cup (US Cup) = 0,0625 gal (US Gallon)
1 bbl (US Barrel) = 31,5 gal (US Gallon)	1 gal (US Gallon) = 0,0317 bbl (US Barrel)
1 gal (UK Gallon) = 160 fl oz (UK Fluid ounce)	1 fl oz (UK Fluid ounce) = 0,00625 gal (UK Gallon)
1 bbl (UK Barrel) = 36 gal (UK Gallon)	1 gal (UK Gallon) = 0,0277 bbl (UK Barrel)
1 cm <sup>3</sup> = 0,0338 fl oz (US Fluid ounce)	1 fl oz (US Fluid ounce) = 29.5735 cm <sup>3</sup>
1 ft <sup>3</sup> (Cubic Foot) = 0,037037037 yd <sup>3</sup> (Cubic Yard)	1 yd <sup>3</sup> (Cubic Yard) = 27 ft <sup>3</sup> (Cubic Foot)
1 ft <sup>3</sup> (Cubic Foot) = 7,4805 gal (US Gallon)	1 gal (US Gallon) = 0,1337 ft <sup>3</sup> (Cubic Foot)
<b>Kilogram (weight)</b>	
1 kg = 35,274 oz (Ounce)	1 oz (Ounce) = 0,02835 kg
1 kg = 2,205 lb (Pound)	1 lb (Pound) = 0,4536 kg
1 kg = 0,1575 (Stones)	1 st (Stones) = 6,35 kg
1 lb (Pound) = 16 oz (Ounce)	1 oz (Ounce) = 0,0625 lb (Pound)
1 st (Stones) = 14 lb (Pound)	1 lb (Pound) = 0,0714 st (Stones)
1 st (Stones) = 224 oz (Ounce)	1 oz (Ounce) = 0,00446 st (Stones)
<b>Meter (distance)</b>	
1 inch = 25,4 mm	1 mm = 0,394 inch
1 foot = 0,3048 m	1 m = 3,28 foot
1 yard = 0,9144 m	1m = 1,0936 yard
1 mile = 1,6093 km	1 km = 0,6213 mile
<b>Watt (power)</b>	
1 W = 3,41 BTU/h (British Thermal Unit)	1 BTU/h = 0,2930710702 W
1 W = 1 J/s	1 J/s = 1W
1 W = 0,001 kJ/s	1 kJ/s = 1000 W

<b>vice</b>	<b>versa</b>
1 W = 0,06 kJ/min	1 kJ/min = 16,6666666667 W
1 W = 3,6 kJ/h	1 kJ/h = 0,2777777778 W
1 W = 1 Nm/s	1 Nm/s = 1 W
1 W = 1 V * A (DC)	1 V * A = 1 W (DC)
1 W = 1 V * A * cos φ (AC)	1 V * A * cos φ = 1W (AC)
1 W = 0,2388458966 cal/s	1 cal/s = 4,1868 W
1 W = 14,3307537976 cal/min	1 cal/min = 0,06978 W
1 W = 859,845227859 cal/h	1 cal/h = 0,001163 W
1 W = 0,0013404826 HP (horsepower, electric)	1 HP = 745,6998715823 W
1 kW = 1,36 HP (horsepower, electric)	1 HP ≈ 0,746 kW
1 W = 0,000101942 horsepower (boiler)	1 horsepower (boiler) = 9809,5000000002 W
1 W = 0,001 kV * A	1 kVA = 1000 W
1 W = 0,0002843451 ton (refrigeration)	1 ton (refrigeration) = 3516,8528420667
1 W = 0,7375621493 foot pound-force/second	1 foot pound-force/second = 1,3558179483 W
1 W = 44,2537289567 pound-foot/minute	1 pound-foot/minute = 0,0225969658 W
1 W = 2655,223737402 foot pound-force/hour	1 foot pound-force/hour = 0,0003766161 W
1 W = 10000000 (1.0E7) erg/s	1 erg/s = 1.0E-7 W
<b>Joule (energy)</b>	
<b>J = kg*m<sup>2</sup>*s<sup>-2</sup> = N*m = Pa*m<sup>3</sup> = W*s = C*V</b>	
1 J = 0,0002390057 kcal (th)	1 kcal (th) = 4184 J
1 kJ = 0,2390057361 kcal (th)	1 kcal (th) = 4,184 kJ
1 J = 23,730360 ft-pdl (foot-poundal)	1 ft-pdl (foot-poundal) = 0,0421401100938048 J
<b>N - newton (force)</b>	
1 N = 1 J/m	1 J/m = 1 N
1 N = 1 kg * m/s <sup>2</sup>	1 kg * m/s <sup>2</sup> = 1 N
1 N = 0,1019716213 kgf (Kilogram-force)	1 kgf (Kilogram-force) = 9,80665 N
1 N = 0,2248089431 lbf	1 lbf = 4,4482216153 N
1 N = 100000 dyne	1 dyne = 0,00001 N
<b>Nm - newton-meter (work)</b>	
1 N*m = 1 J	1 J = 1 N*m
1 N*m = 0,7375621493 ft*lbf	1 ft*lbf = 1,3558179483 N*m
1 N*m = 0,0009478171 Btu (IT)	1 Btu (IT) = 1055,05585262 N*m
1 N*m = 0,0002777778 W*h	1 W*h = 3600 N*m
<b>Wh / kWh (energy)</b>	
1 Wh = 0,8598452279 calorie (nutritional)	1 calorie (nutritional) = 1,163 Wh
1 Wh = 3600 Nm	1 Nm = 0.0002777778 Wh
1 kWh ≈ 860 Kcal	
1 kWh = 3,6 Mj	1 Mj = 0,2777 kWh
1 kWh = 85429300 ft*pdl	1 ft*pdl = 0,0117055857884824 kWh
1 kWh = 3.6×10 <sup>13</sup> erg	
<b>cal (nutritional) (energy)</b>	
1 cal (nutritional) = 4186,8 J	1 J = 0,0002388459 calorie (nutritional)
1 calorie (nutritional) = 1,163 Wh	1 Wh = 0,8598452279 calorie (nutritional)

<b>vice</b>	<b>versa</b>
<b>cal (thermochemical) (energy)</b>	
<b>A large calorie (kcal) is the amount of energy required to raise 1 kilogram (kg) of water by 1 °C</b>	
1 Kcal = 4184 J = 4,184 kJ	1 kJ = 0,2390057361 kcal (th)
1 kcal (th) = 3,9683217149 Btu (th)	1 Btu (th) = 0,2519956979 kcal (th)
1 kgf = 1 kp (kilopond) = 1000 p (pond)	
<b>kgf - kilogram-force (unit of force the gravitational) or kilopond (kp)</b>	
1 kf = 1 kp (kilopond) = 1000 p (pond)	
1 kgf = 9,80665 N	1 N = 0,1019716213 kgf
1 kgf = 70,931635284 lb*ft/s <sup>2</sup> (pound foot/square second)	1 lb*ft/s <sup>2</sup> (pound foot/square second) = 0,0140980819 kgf
<b>fuel efficiency</b>	
<b>1 J/kg = 0,001 kJ/kg; 1 kJ/kg = 1000 J/kg</b>	
1 J/kg = 2,777e-10 gram/kilowatt/hour	1 gram/kilowatt/hour = 3600000000 J/kg
1 J/kg = 2,388e-4 cal/g (calorie IT/gram)	1 cal/g (calorie IT/gram) = 4186,8 J/kg
1 J/kg = 2,39e-4 cal (th)/g (calorie th/gram)	1 cal (th)/g (calorie th/gram) = 4184 J/kg
1 J/kg = 4,299e-4 Btu/lb (Btu IT/pound)	1 Btu/lb (Btu IT/pound) = 2326 J/kg
1 J/kg = 4,3021e-4 Btu (th)/lb (Btu th/pound)	1 Btu (th)/lb (Btu th/pound) = 2324,44 J/kg
1 J/kg = 1,68966e-7 pound/horsepower/hour	1 pound/horsepower/hour = 5918352,5016 J/kg

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Fuel	MJ/kg	BTU/lb	kJ/mole	MJ/kg
Hydrogen	141.80	61,000	286	119.96
Methane	55.50	23,900	890	50.00
Ethane	51.90	22,400	1,560	47.62
Propane	50.35	21,700	2,220	46.35
Butane	49.50	20,900	2,877	45.75
Pentane	48.60	21,876	3,509	45.35
Paraffin wax	46.00	19,900		41.50
Kerosene	46.20	19,862		43.00
Jet kerosene	46.42	-		44.1
Diesel fuel	44.80	19,300		43.4
Coal (anthracite)	32.50	14,000		
Coal (lignite -United States)	15.00	6,500		
Wood (Heat of combustion#Accounting for moisture-MAF)	21.70	8,700		
Wood fuel	21.20	9,142		
Peat (dry)	15.00	6,500		
Peat (damp)	6.00	2,500		

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