

Engine calculation formulas

To find:	Calculate
Power	$(2p \cdot T \cdot N) / 1000$ kW
Torque	$1000 \cdot P / (2p \cdot N)$ Nm
Mean effective pressure (PME)	$2 \cdot P / (V \cdot N)$ Mpa

P=Power (kW). T=Torque (Nm). V=Displacement (liter). N= Engine speed rpm/60 (rps).

Conversion factors

	Metric to U.S. or IMP. conversion factors:			U.S. or IMP. to metric conversion factors:		
	To convert			To convert		
	From	To	Multiply by	From	To	Multiply by
Length	mm	inch	0.03937	inch	mm	25.40
	cm	inch	0.3937	inch	cm	2.540
	m	foot	3.2808	foot	m	0.304
Area	mm ²	sq.in.	0.00155	sq. in.	mm ²	645.2
	m ²	sq. ft.	10.76	sq. ft.	m ²	0.093
Volume	cm ³	cu. in.	0.06102	cu. in.	cm ³	16.388
	litre, dm ³	cu. ft.	0.03531	cu. ft.	litre, dm ³	28.320
	litre, dm ³	cu. in.	61.023	cu. in.	litre, dm ³	0.01639
	litre, dm ³	imp. gallon	0.220	imp. gallon	litre, dm ³	4.545
	litre, dm ³	U.S. gallon	0.2642	U.S. gallon	litre, dm ³	3.785
	m ³	cu. ft.	35.315	cu.ft.	m ³	0.0283
Force	N	lbf	0.2248	lbf	N	4.448
Weight	kg	lb.	2.205	lb.	kg	0.454
Power	kW	hp (metric)	1.36	hp (metric)	kW	0.735
	kW	bhp	1.341	bhp	kW	0.7457
	kW	BTU/min	56.87	BTU/min	kW	0.0176
Torque	Nm	lbf ft	0.738	lbf ft	Nm	1.356
Pressure	MPa	psi	145.038	psi	MPa	0.0069
	Pa	mm H ₂ O	0.102	mm H ₂ O	Pa	9.807
	Pa	in H ₂ O	0.004	in H ₂ O	Pa	249.098
	KPa	in H ₂ O	4.0	in H ₂ O	KPa	0.24908
	mWg	in H ₂ O	39.37	in H ₂ O	mWg	0.0254
	bar	kPa	100	kPa	bar	0.01
Energy	kJ/kWh	BTU/hph	0.697	BTU/hph	kJ/kWh	1.435
Work	kJ/kg	BTU/lb	0.430	BTU/lb	kJ/kg	2.326
	MJ/kg	BTU/lb	430	BTU/lb	MJ/kg	0.00233
	kJ/kg	kcal/kg	0.239	kcal/kg	kJ/kg	4.184
Fuel	g/kWh	g/hph	0.736	g/hph	g/kWh	1.36
Consump.	g/kWh	lb/hph	0.00162	lb/hph	g/kWh	616.78
Inertia	kgm ²	lbft ²	23.734	lbft ²	kgm ²	0.042
Flow, gas	m ³ /h	cu.ft./min.	0.5886	cu.ft./min.	m ³ /h	1.699
Flow, liquid	m ³ /h	U.S. gal/min	4.403	U.S. gal/min	m ³ /h	0.2271
Speed	m/s	ft.per/min.	196.85	ft.per min.	m/s	0.00508
Temp.	°F=9/5 x °C+32			°C=5/9 x (°F-32)		