

Motor Efficiency Calculator

Estimates ideal motor efficiency and power loss from electrical input power and mechanical output power.

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<https://www.elecatrix.com/motors-starters/motor-efficiency-calculator/>

Inputs

Input	Value	Unit
Input power	1000	W
Output power unit	Kilowatts	
Output power	0.746	

Results

Result	Value	Unit
Output power	746	W
Efficiency	74.6	%
Estimated losses	254	W

Calculation details

Detail	Value	Unit
Calculation basis	Power-ratio arithmetic using entered input power and converted mechanical output power.	
Motor boundary	No nameplate, operating-point, power-factor, harmonic, temperature, measurement, motor-standard, manufacturer, or code-compliance result is included in this efficiency estimate.	

Formulas

$$\text{Output power (W)} = \text{Output power (kW)} \times 1000, \text{ \&kw inputOutput power (hp)} \times 746, \text{ \&hp input}$$

$$\text{Efficiency (\%)} = (\text{Output power (W)} / \text{Input power (W)}) \times 100$$

$$\text{Losses (W)} = \text{Input power (W)} - \text{Output power (W)}$$

Warnings and limitations

This motor efficiency estimate uses entered input and output power. It does not verify nameplate data, operating point, load profile, power factor, harmonics, temperature, motor standards, measurement accuracy, or code compliance.