

Watts Volts Amps Calculator

Calculate apparent power and current from real power, voltage, phase model, and power factor.

Generated October 10, 2026

<https://www.elecatrix.com/voltage-current-resistance/watts-volts-amps-calculator/>

Inputs

Input	Value	Unit
Real power	10000	W
Voltage	480	V
Phase model	Three phase	
Power factor	0.8	ratio

Results

Result	Value	Unit
Current	15.0352	A
Apparent power	12500	VA
Apparent power	12.5	kVA
Phase multiplier	1.7321	x

Calculation details

Detail	Value	Unit
Calculation basis	Real power is divided by power factor, then apparent power is divided by voltage and the selected phase multiplier.	
Boundary	Mode arithmetic only; verify nameplate, harmonic, demand, conductor, protection, utility, and project conditions separately.	

Formulas

$$S = (P/PF)$$

$$I = \frac{S}{V} \times k_{\text{phase}}$$

$$k_{\text{phase}} = 1 \text{ for single-phase or DC; } \sqrt{3} \text{ for three-phase}$$

Warnings and limitations

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This is power-conversion arithmetic only. Verify equipment data, conductor selection, protection, and the complete design separately.