

Power Factor Calculator

Review power factor and reactive power from real power in kW and apparent power in kVA. This is a screening formula, not a power-quality study.

Generated October 10, 2026

<https://www.elecatrix.com/power-energy-cost/power-factor-calculator/>

Inputs

Input	Value	Unit
Real power	120	kW
Apparent power	150	kVA

Results

Result	Value	Unit
Power factor	0.8	PF
Power factor	80	%
Reactive power	90	KVAR
Phase angle	36.8699	deg
Apparent power used	150	kVA
Real power used	120	kW

Calculation details

Detail	Value	Unit
Calculation basis	Power factor is real power divided by apparent power. Reactive power uses the right-triangle relationship between kW, kVA, and kVAR.	
Boundary	Power-quality estimate only; no harmonic, capacitor-bank, utility-billing, equipment-rating, switching, resonance, protection, or code-compliance decision is made by this calculator.	

Formulas

Power factor = (real power (kW)/apparent power (kVA))

Power factor percent = 100 x power factor

Reactive power (KVAR) = $\sqrt{\text{apparent power}^2 - \text{real power}^2}$

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Phase angle = $\cos^{-1}(\text{power factor})$

Warnings and limitations

This is a power-quality screening estimate. It does not evaluate harmonics, resonance, capacitor switching, utility penalties, metering method, equipment ratings, or final correction equipment.