

Transformer kVA Calculator

Estimates apparent power and real power for a single-phase or balanced three-phase transformer load from line voltage, current, phase, and power factor.

Generated October 10, 2026

<https://www.elecatrrix.com/power-quality-transformers/transformer-kva-calculator/>

Inputs

Input	Value	Unit
Line voltage	480	V
Line current	100	A
Phase	Balanced three-phase	
Power factor	0.9	PF

Results

Result	Value	Unit
Transformer load	83.1384	kVA
Apparent power	83138.4388	VA
Estimated real power	74.8246	kW
Phase multiplier	1.7321	x

Calculation details

Detail	Value	Unit
Calculation basis	Transformer kVA uses line voltage, line current, and the selected single-phase or balanced three-phase multiplier.	
Selection boundary	Estimate only; no transformer temperature rise, impedance, protection, conductor, enclosure, grounding, utility, manufacturer, or code-compliance selection is made.	

Formulas

$$S_{1\text{phi}} = (V \times I / 1000), \text{kVA}$$

$$S_{3\text{phi}} = \text{fracsqrt}(3) \times V_{LL} \times I_{L1000}, \text{kVA}$$

$$P = S \times \text{PF}, \text{kW}$$

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Warnings and limitations

This transformer kVA estimate uses entered voltage, current, and phase only. It does not select a transformer, apply manufacturer limits, verify protection, or approve an installation.