

Transformer Primary Current Calculator

Provides a preliminary transformer primary line-current estimate from rated kVA, primary voltage, and a single-phase or balanced three-phase model.

Generated October 10, 2026

<https://www.elecatrix.com/power-quality-transformers/transformer-primary-current-calculator/>

Inputs

Input	Value	Unit
Transformer rating	75	kVA
Primary line voltage	12470	V
Phase model	Balanced three phase	

Results

Result	Value	Unit
Primary current	3.4724	A
Apparent power used	75000	VA
Transformer rating used	75	kVA
Primary voltage used	12470	V
Phase multiplier	1.7321	x

Calculation details

Detail	Value	Unit
Calculation basis	Primary current equals rated transformer VA divided by primary voltage and the selected phase multiplier.	
Boundary	Screening current arithmetic only. No conductor, overcurrent protection, transformer equipment, temperature, grounding, utility, or code-compliance result is made.	

Formulas

$$S_VA[VA] = S_kVA[kVA] \times 1000$$

$$k_phase=1 \text{ for single-phase; } k_phase=\sqrt{3} \text{ for balanced three-phase}$$

$$I_primary[A] = \frac{S_VA[VA]}{k_phase V_primary[V]}$$

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Warnings and limitations

This is preliminary current arithmetic only. It does not select a transformer, conductor, breaker, fuse, service, grounding method, or installation.