

Residential Well Pump Electrical Load Calculator

Enter nameplate or measured running-current data to review a private-well pump's operating electrical load. The result is not a pump selector or final circuit-sizing value.

Generated October 10, 2026

<https://www.elecatrix.com/residential-load-service/residential-well-pump-electrical-load-calculator/>

Inputs

Input	Value	Unit
Pump type	Submersible	
Supply voltage	240	V
Phase	Single-phase	
Running current	12	A
Power factor	85	%
Motor efficiency	80	%
Manufacturer or model note	Record pump, motor, controller, and manual revision separately.	

Results

Result	Value	Unit
Apparent power	2.88	kVA
Estimated real power	2.448	kW
Estimated shaft power	1.9584	kW
Phase multiplier	1	x

Calculation details

Detail	Value	Unit
Calculation basis	Running apparent power uses voltage, current, and phase multiplier. Real power uses the entered power factor, and shaft power is a rough efficiency-adjusted screen.	

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Pump boundary

Well-pump running-load screen only;
verify exact pump/motor/controller
model, starting current, feeder,
protection, voltage drop,
water-system duty, and local
requirements separately.

Formulas

$$S_{kVA} = \frac{M_{\phi} \times V \times I}{1000}$$

$$P_{kW} = S_{kVA} \times PF$$

$$P_{shaft} = P_{kW} \times \eta_{motor}$$

$$M_{3\phi} = \sqrt{3}, \text{quad } M_{1\phi} = 1$$

Warnings and limitations

This is a residential well-pump running-load estimate. It does not infer locked-rotor current, select a breaker or conductor, verify voltage drop, size a pump, or prove code compliance.