

kW to Cable Size: Motor & Load Cable Sizing Chart

Convert a load in kilowatts to an approximate current and copper cable size, single and three-phase.

Overview

For motors and larger loads it helps to work from kilowatts to current to cable size. This chart gives approximate copper sizes for common loads at 230 V single-phase and 415 V three-phase (assuming typical power factor).

Load	1-ph current (230 V)	3-ph current (415 V)	Copper cable
1 kW	~4.5 A	—	1.5 sq mm
2 kW	~9 A	—	1.5–2.5 sq mm
3 kW	~13 A	~5 A	2.5 sq mm
5 kW	~22 A	~8 A	4 sq mm
7.5 kW	~33 A	~13 A	6 sq mm
10 kW	~44 A	~17 A	10 sq mm
15 kW	—	~26 A	10–16 sq mm

Three-phase distributes the load across three conductors, so cable sizes are smaller for the same power. Confirm sizing for run length and derating with the calculator.

Guidance only. Figures follow common Indian domestic practice (IS 732 / IS 694), assume copper conductors unless stated, and depend on run length, grouping, ambient temperature and installation. Always have the final design confirmed by a licensed electrician.