APAR CABLE SOLUTIONS · REFERENCE

MCB Rating to Wire-Size Chart

Match the circuit-breaker (MCB) rating to the correct copper house-wire size.

The golden rule: **the wire's current rating must be equal to or greater than the MCB rating**, so the breaker trips before the cable overheats. Use this chart to match a circuit breaker to the minimum copper wire size.

Minimum copper size whose current rating meets or exceeds the MCB, for wire enclosed in conduit at ~40°C. Size up for long runs, high temperature or bunched circuits.

MCB rating	Minimum copper wire	Typical circuit
6 A	1.0 sq mm	Lighting
10 A	1.0 - 1.5 sq mm	Lighting, fans
16 A	2.5 sq mm	Power sockets
20 A	2.5 - 4 sq mm	Sockets, small appliances
25 A	4 sq mm	Geyser, air conditioner
32 A	6 sq mm	Large AC, kitchen
40 A	10 sq mm	Sub-mains
50 A	16 sq mm	Sub-mains / mains
63 A	16 - 25 sq mm	Mains

Why it matters: if the wire is under-sized for the breaker, the cable can overheat at currents the MCB still considers "normal" - a genuine fire risk. The breaker must protect the cable, not the other way round. Cross-check the wire rating with the ampacity chart and apply derating factors. For exact figures, confirm against the APAR datasheet and IS 732.