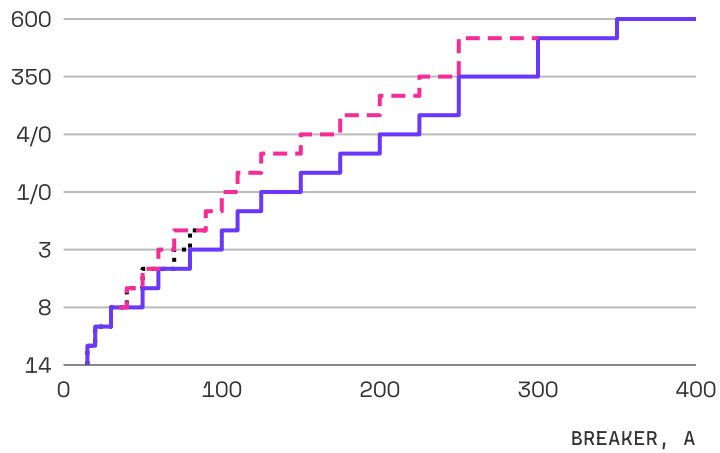
Wire size chart

A 20 amp circuit needs 12 AWG copper, a 30 amp circuit 10 AWG and a 50 amp circuit 8 AWG copper with 75 °C terminations (6 AWG in NM-B cable). The chart lists every standard breaker from 15 to 400 amps.

Wire size by breaker rating: copper in NM-B cable (60 °C) and at 75 °C, aluminum at 75 °C

BREAKER	COPPER NM-B (60 °C)	COPPER 75 °C	ALUMINUM 75 °C
15 A	14 AWG	14 AWG	copper only
20 A	12 AWG	12 AWG	copper only
25 A	10 AWG	10 AWG	copper only
30 A	10 AWG	10 AWG	copper only
35 A	8 AWG	8 AWG	8 AWG
40 A	8 AWG	8 AWG	8 AWG
45 A	6 AWG	8 AWG	6 AWG
50 A	6 AWG	8 AWG	6 AWG
60 A	4 AWG	6 AWG	4 AWG
70 A	4 AWG	4 AWG	3 AWG
80 A	3 AWG	4 AWG	2 AWG
90 A	2 AWG	3 AWG	2 AWG
100 A	not made	3 AWG	1 AWG
110 A	not made	2 AWG	1/0 AWG
125 A	not made	1 AWG	2/0 AWG
150 A	not made	1/0 AWG	3/0 AWG
175 A	not made	2/0 AWG	4/0 AWG
200 A	not made	3/0 AWG	250 kcmil
225 A	not made	4/0 AWG	300 kcmil

BREAKER	COPPER NM-B (60 °C)	COPPER 75 °C	ALUMINUM 75 °C
250 A	not made	250 kcmil	350 kcmil
300 A	not made	350 kcmil	500 kcmil
350 A	not made	500 kcmil	—
400 A	—	600 kcmil	—



Smallest wire size by breaker rating.

How the wire size chart is built

Each size is the smallest conductor whose ampacity, capped by the small-conductor limits, is at least the breaker rating. "Not made" in the NM-B column means NM-B cable is not sold in that size; use the 75 °C column for wire in conduit or SE/SER cable with 75 °C terminations. Aluminum is not used for circuits that need copper smaller than 8 AWG. A dash means no size up to 600 kcmil is enough.

Long runs need larger wire

The chart sizes for heat only. On a long run the voltage drop can call for a bigger wire; the wire size calculator checks both.

SOURCES

- NFPA 70, National Electrical Code (2023): Allowable ampacities of insulated conductors, Table 310.16
- NFPA 70, National Electrical Code (2023): Overcurrent protection of small conductors, Section 240.4(D)

▶ Compared with 6 published documents, last on 2026-11-13

Calculated by Calculate.diy with the method of the National Electrical Code® (NEC®), 2023 edition; not the NEC text. Methodology. For planning only: check local code and use a licensed electrician.