



Branch Circuit Breaker Selection & Wire Sizing

Allowable Wire Ampacities (Guidelines for Circuit Breaker Selection)
Based on Table 310.16 (2020) of the National Electrical Code® (NEC) NFPA70®

Calculated Load "Next Size Up" per NEC Branch Circuit Calculation ⁽¹⁾	US Breaker Part # Standard AIC	US Breaker Part # High AIC	Minimum Insulated Copper Wire Size Based on Type (up to 3 Conductors in a raceway or cable) ⁽²⁾		
			60°C (140°F): TW, UF	75°C (167°F): RHW, THHW, THW, THWN, XHHW, ZW	90°C (194°F): FEP, FEPB, MI, RHH, RHW-2, SA, SIS, TBS, THHN, THHW, THW-2, THWN-2, USE-2, XHH, XHHW, XHHW-2, ZW-2
15	ED3C015L	EG3C015L	14 AWG *	14 AWG *	*
20	ED3C020L	EG3C020L	12 AWG *	14 AWG *	14 AWG *
25	ED3C025L	EG3C025L	10 AWG *	12 AWG *	14 AWG *
30	ED3C030L	EG3C030L	10 AWG *	10 AWG *	12 AWG *
35	ED3C035L	EG3C035L	8 AWG	10 AWG *	10 AWG *
40	ED3C040L	EG3C040L	8 AWG	8 AWG	10 AWG *
50	ED3C050L	EG3C050L	6 AWG	8 AWG	8 AWG
60	ED3C060L	EG3C060L	4 AWG	6 AWG	6 AWG
70	ED3C070L	EG3C070L	4 AWG	4 AWG	6 AWG
80	ED3C080L	EG3C080L	3 AWG	4 AWG	4 AWG
90	ED3C090L	EG3C090L	2 AWG	3 AWG	4 AWG
100	ED3C100L	EG3C100L	1 AWG	3 AWG	3 AWG
110	HD3C125L (Set 110A)	HG3C125L (Set 110A)	1 AWG	2 AWG	3 AWG
125	HD3C125L	HG3C125L	1/0 AWG	1 AWG	2 AWG
150	HD3C150L	HG3C150L	3/0 AWG	1/0 AWG	1/0 AWG
175	JD3C175L	JG3C175L	4/0 AWG	2/0 AWG	2/0 AWG
200	JD3C200L	JG3C200L	250 KCMIL	3/0 AWG	3/0 AWG
225	JD3C225L	JG3C225L	300 KCMIL	4/0 AWG	3/0 AWG
250	JD3C250L	JG3C250L	350 KCMIL	250 KCMIL	4/0 AWG
300	DG3C300L	DJ3C300L	500 KCMIL	350 KCMIL	300 KCMIL
350	DG3C350L	DJ3C350L	600 KCMIL	500 KCMIL	350 KCMIL
400	DG3C400L	DJ3C400L	750 KCMIL	600 KCMIL	500 KCMIL
500	LG3C500L	LC3C500L	1500 KCMIL	900 KCMIL	700 KCMIL
600	LG3C600L	LC3C600L	-	1500 KCMIL	1000 KCMIL

Note: The table above is for branch circuit protection and is not designed for motor loads. These are general references to the National Electrical Code® (NEC) NFPA70® to assist standard 80% rated circuit breaker selection. Proper engineering evaluation is required for each customer application.

(1) **Load Calculations** for standard 80% rated protective devices: For Branch-Circuit application up to 600V, referencing NEC 210.19(A) including footnotes & exceptions, select the next standard amperage up after final load calculations and adjustment factors. The load is considered the greater of the following "general rule of thumb" or the maximum load calculation after correction & adjustment factors per NEC 310.15.

$$\text{Total Load} = 125\% \text{ of continuous loads (per NEC 310.14)} + 100\% \text{ of non-continuous loads}$$

Branch-Circuit Load calculations found in Article 220 Part II include the following useful references:

- Section 220.12 Lighting load for non-dwelling occupancies.
- Section 220.14 Other loads - all occupancies.
- Section 220.16 Loads for addition to existing installations.
- Section 310.15 Ampacity tables including but not limited to ambient temperature correction and adjustment factors for conductors.

(2) **Wire Selection** is based on table 310.16 (2020). The following additional NEC references should also be applied:

- *Section 240.4(D) Overcurrent Protection Limitations (unless otherwise specifically permitted elsewhere in the NEC NFPA70® Code, the overcurrent protection for conductor types marked with an asterisk shall not exceed 15A for #14 copper, 20A for #12 copper, or 30A for #10 copper, after any correction factors for ambient temperature and number of conductors have been applied).
- Section 310.15(B) Ampacity correction factors for ambient temperatures other than 30C (86 Deg F).
- Section 310.15(C)(1) Ambient compensation required per for more than 3 current carrying conductors.
- Section 310.16 Conditions of Use: Such as conductor voltages between 0 - 2000V, conductors rated 60C, 75C or 90C, wiring installed in a 30C ambient temp, and having not more than 3 current carrying conductors.