(E) Other Than Continuous Duty. Conductors for a motor used in a short-time, intermittent, periodic, or varying duty application shall have an ampacity of not less than the percentage of the motor nameplate current rating shown in Table 430.22(E), unless the authority having jurisdiction grants special permission for conductors of lower ampacity.

Most motor applications are continuous duty. For motors that are not continuous duty, the motor nameplate currents and Table 430.22(E) are used to determine the branch-circuit ampacity. Branch-circuit conductors for a motor with a rated horsepower used for 5-minute short-time duty service are permitted to be sized smaller than for the same motor with a 60-minute rating, due to the cooling intervals between operating periods. For example, a 5-minute rated motor will run for 5 minutes and then be off for 55 minutes.

See also

Article 100 for definitions of the terms *duty, continuous; duty, intermittent; duty, periodic; duty, short-time*; and *duty, varying*

TABLE 430.22(E) *Duty-Cycle Service*

Classification of Service	Nameplate Current Rating Percentages			
	5-Minute Rated Motor	15-Minute Rated Motor	30- & 60-Minute Rated Motor	Continuous Rated Motor
Short-time duty operating valves, raising or lowering rolls, etc.	110	120	150	—
Intermittent duty freight and passenger elevators, tool heads, pumps, drawbridges, turntables, etc. (for arc welders, see 630.11)	85	85	90	140
Periodic duty rolls, ore- and coal-handling machines, etc.	85	90	95	140
Varying duty	110	120	150	200

Note: Any motor application shall be considered as continuous duty unless the nature of the apparatus it drives is such that the motor will not operate continuously with load under any condition of use.

(F) Separate Terminal Enclosure. The conductors between a stationary motor rated 1 hp or less and the separate terminal enclosure permitted in 430.245(B) shall be permitted to be smaller than 14 AWG but not smaller than 18 AWG, provided they have an ampacity as specified in 430.22.

(G) Conductors for Small Motors. Conductors for small motors shall not be smaller than 14 AWG unless otherwise permitted in 430.22(G)(1) or (G)(2).

(1) 18 AWG Copper. 18 AWG individual copper conductors installed in a cabinet or enclosure, copper conductors that are part of a jacketed multiconductor cable assembly, or copper conductors in a flexible cord shall be permitted, under either of the following sets of conditions:

(1) The circuit supplies a motor with a full-load current rating, as determined by 430.6(A)(1), of greater than 3.5 amperes, and less than or equal to 5 amperes, and all the following conditions are met:
   a. The circuit is protected in accordance with 430.52.
   b. The circuit is provided with maximum Class 10 or Class 10A overload protection in accordance with 430.32.
   c. Overcurrent protection is provided in accordance with 240.4(D)(1)(2).

(2) The circuit supplies a motor with a full-load current rating, as determined by 430.6(A)(1), of 3.5 amperes or less, and all the following conditions are met:
   a. The circuit is protected in accordance with 430.52.
   b. The circuit is provided with maximum Class 20 overload protection in accordance with 430.32.
   c. Overcurrent protection is provided in accordance with 240.4(D)(1)(2).

(2) 16 AWG Copper. 16 AWG individual copper conductors installed in a cabinet or enclosure, copper conductors that are part of a jacketed multiconductor cable assembly, or copper conductors in a flexible cord shall be permitted under either of the following sets of conditions:

(1) The circuit supplies a motor with a full-load current rating, as determined by 430.6(A)(1), of greater than 5.5 amperes, and less than or equal to 8 amperes, and all the following conditions are met:
   a. The circuit is protected in accordance with 430.52.
   b. The circuit is provided with maximum Class 10 or Class 10A overload protection in accordance with 430.32.
   c. Overcurrent protection is provided in accordance with 240.4(D)(2)(2).

(2) The circuit supplies a motor with a full-load current rating, as determined by 430.6(A)(1), of 5.5 amperes or less, and all the following conditions are met:
   a. The circuit is protected in accordance with 430.52.
   b. The circuit is provided with maximum Class 20 overload protection in accordance with 430.32.
   c. Overcurrent protection is provided in accordance with 240.4(D)(2)(2).

430.23 Wound-Rotor Secondary.

(A) Continuous Duty. For continuous duty, the conductors connecting the secondary of a wound-rotor ac motor to its controller shall have an ampacity not less than 125 percent of the full-load secondary current of the motor.