

**TABLE 610.14(B)** *Secondary Conductor Rating Factors*

Time in Seconds		Ampacity of Wire in Percent of Full-Load Secondary Current
On	Off	
5	75	35
10	70	45
15	75	55
15	45	65
15	30	75
15	15	85
Continuous Duty		110

**TABLE 610.14(D)** *Minimum Contact Conductor Size Based on Distance Between Supports*

Minimum Size of Wire (AWG)	Maximum Distance Between End Strain Insulators or Clamp-Type Intermediate Supports
6	9.0 m (30 ft) or less
4	18 m (60 ft) or less
2	Over 18 m (60 ft)

**(3) Multiple Cranes or Hoists on a Common Conductor System.**

For multiple cranes, hoists, or both, supplied by a common conductor system, calculate the motor minimum ampacity shall be calculated for each crane as defined in 610.14(E), added them together, and the sum multiplied by the appropriate demand factor from Table 610.14(E)(3).

**TABLE 610.14(E)(3)** *Demand Factors*

Number of Cranes or Hoists	Demand Factor
2	0.95
3	0.91
4	0.87
5	0.84
6	0.81
7	0.78

**(F) Other Loads.** Additional loads, such as heating, lighting, and air conditioning, shall be provided for by application of the appropriate sections of this *Code*.

**(G) Nameplate.** Each crane, monorail, or hoist shall be provided with a visible nameplate marked with the manufacturer's name, rating in volts, frequency, number of phases, and circuit amperes as calculated in 610.14(E) and (F).

**610.15 Common Return.** Where a crane or hoist is operated by more than one motor, a common-return conductor of proper ampacity shall be permitted.

**Part III. Contact Conductors**

**610.21 Installation of Contact Conductors.** Contact conductors shall comply with 610.21(A) through (H).

**(A) Locating or Guarding Contact Conductors.** Runway contact conductors shall be guarded, and bridge contact conductors shall be located or guarded in such a manner that persons cannot inadvertently touch energized current-carrying parts.

**(B) Contact Wires.** Wires that are used as contact conductors shall be secured at the ends by means of approved strain insulators and shall be mounted on approved insulators so that the extreme limit of displacement of the wire does not bring the latter within less than 38 mm (1½ in.) from the surface wired over.

**(C) Supports Along Runways.** Main contact conductors carried along runways shall be supported on insulating supports placed at intervals not exceeding 6.0 m (20 ft) unless otherwise permitted in 610.21(F).

Such conductors shall be separated at not less than 150 mm (6 in.), other than for monorail hoists where a spacing of not less than 75 mm (3 in.) shall be permitted. Where necessary, intervals between insulating supports shall be permitted to be increased up to 12 m (40 ft), the separation between conductors being increased proportionately.

**(D) Supports on Bridges.** Bridge wire contact conductors shall be kept at least 65 mm (2½ in.) apart, and, where the span exceeds 25 m (80 ft), insulating saddles shall be placed at intervals not exceeding 15 m (50 ft).

**(E) Supports for Rigid Conductors.** Conductors along runways and crane bridges, that are of the rigid type specified in 610.13(B) and not contained within an approved enclosed assembly, shall be carried on insulating supports spaced at intervals of not more than 80 times the vertical dimension of the conductor, but in no case greater than 4.5 m (15 ft), and spaced apart sufficiently to give a clear electrical separation of conductors or adjacent collectors of not less than 25 mm (1 in.).

**(F) Track as Circuit Conductor.** Monorail, tram rail, or crane runway tracks shall be permitted as a conductor of current for one phase of a 3-phase, ac system furnishing power to the carrier, crane, or trolley, provided all of the following conditions are met:

- (1) The conductors supplying the other two phases of the power supply are insulated.
- (2) The power for all phases is obtained from an insulating transformer.
- (3) The voltage does not exceed 300 volts.
- (4) The rail serving as a conductor shall be bonded to the equipment grounding conductor at the transformer and also shall be permitted to be grounded by the fittings used for the suspension or attachment of the rail to a building or structure.

Crane runway tracks are permitted as a current-carrying conductor where part of a 3-phase system is furnishing power to the