of not less than 125 percent of the total connected load. The ampacities for busbars shall be in accordance with 366.23.

669.6 Wiring Methods. Conductors connecting the electrolyte tank equipment to the conversion equipment shall be in accordance with 669.6(A) and (B).

(A) Systems Not Exceeding 60 Volts Direct Current. Insulated conductors shall be permitted to be run without insulated support, provided they are protected from physical damage. Bare copper or aluminum conductors shall be permitted where supported on insulators.

(B) Systems Exceeding 60 Volts Direct Current. Insulated conductors shall be permitted to be run on insulated supports, provided they are protected from physical damage. Bare copper or aluminum conductors shall be permitted where supported on insulators and guarded against accidental contact up to the point of termination in accordance with 110.27.

669.7 Warning Signs. Warning signs shall be posted to indicate the presence of bare conductors. The warning sign(s) or label(s) shall comply with 110.21(B).

669.8 Disconnecting Means.

(A) More Than One Power Supply. Where more than one power supply serves the same dc system, a disconnecting means shall be provided on the dc side of each power supply.

(B) Removable Links or Conductors. Removable links or removable conductors shall be permitted to be used as the disconnecting means.

669.9 Overcurrent Protection. Direct-current conductors shall be protected from overcurrent by one or more of the following:

(1) Fuses or circuit breakers
(2) A current-sensing device that operates a disconnecting means
(3) Other approved means

ARTICLE
670 Industrial Machinery

Δ **670.1 Scope.** This article covers the nameplate data for, overvoltage protection for, and the size and overcurrent protection of supply conductors to industrial machinery.

Informational Note No. 1: See NFPA 79, *Electrical Standard for Industrial Machinery*, for further information.

The equipment and wiring of industrial machinery, for which different component parts may be purchased and assembled at the location of use, must be installed in accordance with the applicable articles in the *NEC*®. Machinery assembled by the manufacturer, in accordance with NFPA 79, *Electrical Standard for Industrial Machinery*, then disassembled for shipping and reassembled at its place of use, comes under only Article 670 and any *NEC* sections referenced herein. In this case, the machinery is treated as a package unit.

The information to be included on the nameplate allows for proper conductor sizing, overcurrent protection of the feeder or branch circuit supplying the industrial machine, and integration of the machine into the facility electrical system.

Informational Note No. 2: See 110.26 for information on the workspace requirements for equipment containing supply conductor terminals.

Informational Note No. 3: See NFPA 79, *Electrical Standard for Industrial Machinery*, for information on the workspace requirements for machine power and control equipment.

Working clearances around control equipment enclosures and compartments containing equipment operating at 1000 volts or less and that are an integral part of an industrial machine are contained in Section 11.5 in NFPA 79. The requirements of NFPA 79 closely parallel those found in 110.26(A), but some requirements in NFPA 79 allow smaller clearances under very specific conditions of operation and equipment construction.

670.3 Machine Nameplate Data.

Informational Note: See 430.22(E) and 430.26 for duty cycle requirements.

Δ **(A) Permanent Nameplate.** A permanent nameplate shall be attached to the outside of the control equipment enclosure or on the machine immediately adjacent to the main control equipment enclosure that is visible after installation. The nameplate shall include the following information:

(1) Supply voltage, number of phases, frequency, and full-load current
(2) Maximum ampere rating of the short-circuit and ground-fault protective device
(3) Ampere rating of largest motor, from the motor nameplate, or load
(4) Short-circuit current rating of the machine industrial control panel based on one of the following:
    a. Short-circuit current rating of a listed and labeled machine control enclosure or assembly
    b. Short-circuit current rating established using an approved method

Informational Note: See UL 508A-2017, *Industrial Control Panels, Supplement SB*, for an example of an approved method.

(5) Electrical diagram number(s) or the number of the index to the electrical drawings

The full-load current shown on the nameplate shall not be less than the sum of the full-load currents required for all motors and other equipment that can be in operation at the same time under normal conditions of use. Where unusual type loads, duty cycles, and so forth require oversized conductors or permit