(5) 60-ampere, 250-volt, 3-phase, 3-pole, 4-wire and intended for use with 60-ampere, 250-volt, 3-phase, 3-pole, 4-wire receptacles and inlets, respectively

Informational Note: See UL 1686-2012, *Pin and Sleeve Configurations*, Figures C2.12 and C2.11, for complete details of the 30-ampere pin and sleeve receptacle configuration for refrigerated containers (TRUs) and for various configurations of 60-ampere pin and sleeve receptacles.

Transport refrigeration units (TRUs) are permitted to be supplied by 208-, 240-, or 480-volt, three-phase branch circuits. The current rating for these branch circuits cannot exceed 60 amperes. The connection to the TRU is accomplished using a flexible cord with a pin-and-sleeve-type cord connector that is connected to a flanged surface inlet mounted on the refrigerated box truck or refrigerated trailer. The flexible cords must be rated for wet locations, sunlight resistance, and extra-hard usage. The cords must have three insulated conductors to supply the three-phase power and one insulated and identified equipment grounding conductor. Section 626.31(C) specifies the type of receptacle(s) required at each truck parking space that is intended to accommodate refrigerated trucks or tractor-trailers.

ARTICLE

630 Electric Welders

Part I. General

630.1 Scope. This article covers apparatus for electric arc welding, resistance welding, plasma cutting, and other similar welding and cutting process equipment that is connected to an electrical supply system.

The two general types of electric welding are resistance welding and arc welding. Resistance welding, or "spot" welding, is the process of electrically fusing two or more metal sheets or parts. The metal parts are placed between two electrodes or welding points, and a high current at a low voltage is passed through the electrodes. The resistance of the metal parts to the flow of current heats them to a molten state, and a weld is made.

Arc welding is the butting of two metal parts, then striking an arc at the joint with a metal electrode (a flux-coated wire rod). The electrode itself is melted and supplies the extra metal necessary for joining the metal parts.

Article 630 also covers electrically supplied equipment associated with plasma cutting operations. This electrically powered equipment controls the flammable gas or gases used for cutting.

630.6 Listing. All welding and cutting power equipment under the scope of this article shall be listed.

N **630.8 Ground-Fault Circuit-Interrupter Protection for Personnel.** All 125-volt, 15- and 20-ampere receptacles for electrical hand tools or portable lighting equipment, supplied by single-phase branch circuits rated 150 volts or less to ground, installed in work areas where welders are operated shall have ground-fault circuit-interrupter protection for personnel.

Part II. Arc Welders

630.11 Ampacity of Supply Conductors. The ampacity of conductors for arc welders shall be in accordance with 630.11(A) and (B).

(A) Individual Welders. The ampacity of the supply conductors shall be not less than the I_{1eff} value on the rating plate. Alternatively, if the I_{1eff} is not given, the ampacity of the supply conductors shall not be less than the current value determined by multiplying the rated primary current in amperes given on the welder rating plate by the factor shown in Table 630.11(A) based on the duty cycle of the welder.

TABLE 630.11(A) *Duty Cycle Multiplication Factors for Arc Welders*

	Multiplier for Arc Welders	
Duty Cycle	**Nonmotor Generator**	**Motor Generator**
100	1.00	1.00
90	0.95	0.96
80	0.89	0.91
70	0.84	0.86
60	0.78	0.81
50	0.71	0.75
40	0.63	0.69
30	0.55	0.62
20 or less	0.45	0.55

(B) Group of Welders. Minimum conductor ampacity shall be based on the individual currents determined in 630.11(A) as the sum of 100 percent of the two largest welders, plus 85 percent of the third largest welder, plus 70 percent of the fourth largest welder, plus 60 percent of all remaining welders.

Exception: Percentage values lower than those given in 630.11(B) shall be permitted in cases where the work is such that a high-operating duty cycle for individual welders is impossible.

Informational Note: Duty cycle considers welder loading based on the use to be made of each welder and the number of welders supplied by the conductors that will be in use at the same time. The load value used for each welder considers both the magnitude and the duration of the load while the welder is in use.

Even under high-production conditions, the loads on transformer arc welders are considered intermittent. Therefore, the minimum ampacity of feeder conductors supplying several transformers (three or more) is permitted to be determined by applying the percentage values specified in 630.11(B). See also 630.31(B). The ampacity of the conductors is based on the I_{1eff} rating on the