

## **SECTION VIII**

### **MOTOR AND CONTROLLERS**

#### **1. GENERAL**

Before installing any motor, the customer is to consult with Con Edison regarding the characteristics of the service to be supplied and the manner in which the equipment may be connected. It is important that the characteristics of motors and motor starting equipment, particularly in the matter of inrush currents, shall be such as not to impair the quality of service rendered by the company to any of its customers.

#### **2. MOTOR PROTECTION**

All motors should be equipped with suitable under voltage tripping devices to prevent sustained under voltage operation. Such devices should be of a time delay type, to avoid unnecessary tripping upon momentary voltage disturbances or service interruptions.

All polyphase motors should be equipped with suitable protection to prevent single phase operation, improper direction of rotation and excessive heating due to phase current unbalance.

Con Edison will not be responsible in any way for damage to customer's equipment due to the failure of the customer to provide adequate protection.

#### **3. MOTOR INSTALLATION**

Motors should be suitable for operation on the supply voltage designated for the customer's service. Motors for use on the standard 120/208-volt system shall be manufactured and nameplate rated for 115-volt operation connected line to ground or line to line respectively.

Motors of 1 hp and larger shall be connected to operate on the voltage designated for the service (208/240-volts or higher).

- Motors less than 1 hp may be connected to operate at 120-volts although 3/4 hp air conditioning motors preferably should be connected to operate at 208 or 240-volts.
- Motors of 5 hp or less will generally be supplied single phase in residential areas where single phase service is normal supplied.
- Three phase service will generally be designated where motors larger than 5 hp are specified by the customer. When three phase service is designated, motors 3 hp and larger will be three phase.

**4. INRUSH CURRENT LIMITS**

Considerable latitude in the amount of inrush current is permissible under certain conditions and Con Edison will give a written expression of opinion to any customer as to the acceptability of his proposed installation in this respect. Con Edison, however, shall not be understood at any time as giving any assurance or warranty, expressed or implied, that particular conditions may not later require change, unless inrush currents are within limits specified by Con Edison as acceptable in any case.

The table which follows specifies the values of locked rotor inrush current which are acceptable in any case for motors. The table is not applicable to welders and other equipment having frequently recurring inrush current, such as may be drawn by arc furnaces, or pulsating current drawn by motors driving reciprocating compressor. Such installations are subject to special considerations in each case.

Type of Service to Motor	Amperes-Inrush Frequent Start*	Current Infrequent Start**
120-volt, single phase	50	50
208 or 240- volt, single phase	110	110
208 or 240-volt, three phase		

Rated Horse Power	or	Rated Running Current		
10		25	100	150
15		35	145	220
20		45	190	290
25		65	240	365

- \* The values under frequent start refer to elevator crane or hoist motors and other equipment of similar duty cycles and to equipment automatically controlled by pressure or temperature sensitive or other similar devices.
- \*\* The values under infrequent start refer to equipment whether hand operated or electrically controlled and started not over three times per hour.

When larger motors are being installed or more current is required than the value indicated above, the customer should consult with Con Edison.

Any motor requiring an inrush current during the starting operation in excess of the value permitted by the company shall be equipped with a starter which will not open the circuit during the entire starting operation and which will limit successive steps of currents to the permissible value at not less than one-half second intervals.