REFRIGERATED CONTAINER SITE PREPARATION

ELECTRICAL SITE PREPARATION FOR ALL-ELECTRIC CONTAINER REFRIGERATION UNITS

modalART
shipping containers

Electrical Requirements

- **Compliance with Local Codes:** Ensure all electrical work on the property adheres to local codes. If there are any questions about system requirements, consult a professional. It's recommended to hire a licensed electrician to complete this work to ensure safe and proper operation of the cold storage container.

Power Specifications

- **Power Needs:** Units require 460/480 VAC, 3-phase, 60 Hz power, with a maximum electrical load of 18.75 kVA under rated conditions and power consumption not exceeding 15 kW.
- **Transformers:** If only 230/240 VAC is available, a step-up power transformer can be used. In either case, the power source must be 3-phase and 60 Hz.
- **Economical Choice:** When installing new electrical service, 460/480 VAC is generally more cost-effective. Units require a step-up transformer for 230 VAC operation, so using non-designated power can cause personal injury, equipment damage, or cargo loss, and any resulting damages and fees will be billed back to the customer. Always have refrigerated containers connected by a professional electrician.

Phase Sequence and Motors

- **Phase Sequence:** The compressor motor, which is the only 3-phase component in the system, can rotate in either direction, so phase sequence does not affect operation. Fan motors are single-phase.

Circuit Breakers in Reefer Units

- **Integrated Circuit Breakers:** Breakers are built into the reefer system.
    - **460/480 VAC** (25-amp breaker) trips at 29 amps.
    - **230/240 VAC** (optional 50-amp breaker) trips at 62.5 amps.

Connection Methods: Hardwiring vs. Receptacles

- **Hardwiring:** This method requires a licensed electrician to connect each of the 3 power legs and a ground connection to the service panel.
- **Receptacles:** For units frequently connected and disconnected, receptacles may be the better option.

Electrical Plug Types

- **Marine Plugs (CEE-17):**
    - **Specifications:** For 460/480 VAC, use a 380/440 VAC, 32-amp, 3-pole, 4-wire plug; for 230/240 VAC, use a 250 VAC, 50-amp, 3-pole, 4-wire plug.
    - **Plug Removal:** Customers who hardwire the unit on-site may ask their electrician to remove the plug upon arrival, but it must be reinstalled upon return. Missing plugs will incur replacement costs.
- **Domestic Plugs:** Typically used with trailer refrigeration systems. Customers requiring domestic plugs should coordinate purchase and installation.
    - **Source for Domestic Plugs:** HUBBELL TWIST-LOCK® devices (3-pole, 4-wire, ground plugs, and receptacles available for 480 VAC, 50A, 3-phase and 250 VAC, 50A, 3-phase).

Land Site Preparation

For grounded operation (without a chassis):

- **Level, Dry Surface:** The site must be level and free of standing water.
- **Distance to Power:** Position the container within 50 feet of a power receptacle or service box.
- **Support Points:** Containers should be supported at all four corner castings. Use railroad ties or paving stones if a level concrete surface isn't available, but do not attempt to support from any other points on the frame.
- **Clearance for Machinery End:** Maintain at least 3 feet of space from walls or obstructions to ensure adequate airflow.
- **Door Clearance:** The unit's bifold rear doors are 4 feet wide; ensure they can fully open.
- **Temperature Requirements:** Operate units in environments with ambient temperatures below 100°F, never exceeding 122°F.

ModalART Reefer Guide:
https://modalart.com/reefers.htm