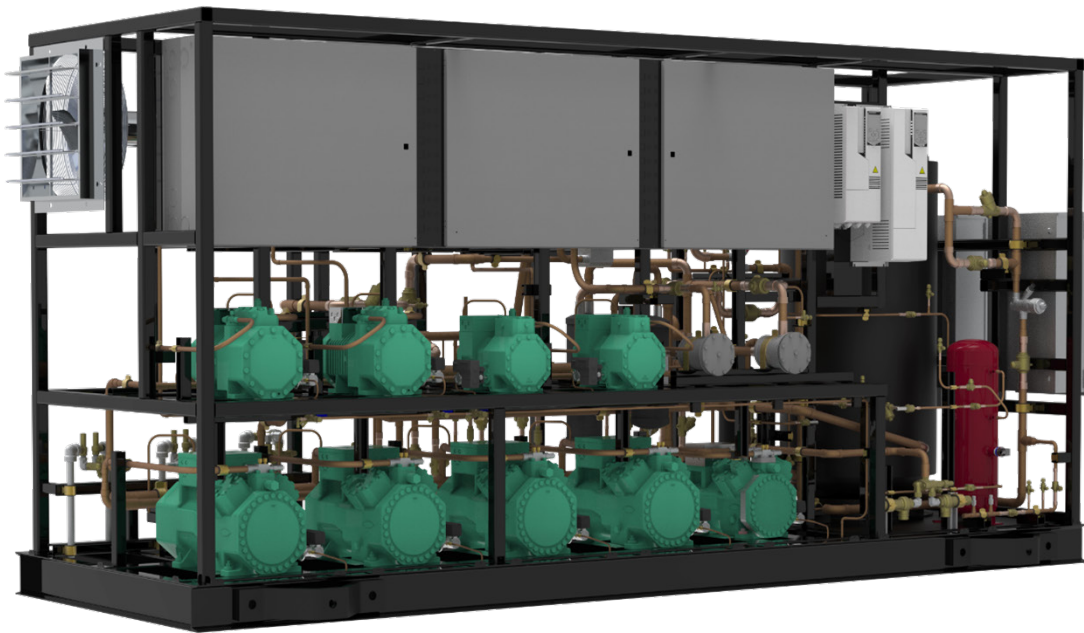


## TRANSCRITICAL CO<sub>2</sub> RACK



### IMPORTANT

Keep in store for future reference!

## Pre-Startup Guide

## CO<sub>2</sub> RACK PRE-STARTUP GUIDE

### Piping, Evacuating, and Charging

- All field-installed piping completed, including cases, walk-ins, gas cooler, heat reclaim, etc.
- Remotely mounted relief valves should be installed per the installation details.
- All piping should be pressure tested per local codes.
- The system should be evacuated as described in the Hussmann Transcritical CO<sub>2</sub> IOM.
- The vacuum on the system should be broken using CO<sub>2</sub> vapor tanks to a pressure of 100 psi to prevent the formation of dry ice, as described in the Hussmann Transcritical CO<sub>2</sub> I/O Manual. Liquid may be used to charge the system once the pressure is above 100 psi. Enough CO<sub>2</sub> should be available on site in both liquid tanks and vapor tanks to fully charge the system. The CO<sub>2</sub> should be Refrigerant Grade CO<sub>2</sub> (99.9% purity) or better.
- Verify that all filters are installed on the rack, including the oil separators, suction filters, and liquid driers (field installed).
- The oil reservoir should be filled with the oil specified by the compressor manufacturer; BSE85K for Bitzer and RH68HB for Copeland. Enough oil should be available on site for the initial startup and first oil change.

### Rack

- All electrical connections in the rack control panel are properly tightened.
- Main power and control power is on, and the voltage is correct.
- All rack control boards are online and communicating with the rack controller.
- All rack temperature sensors are reading correctly in the rack controller.
- All rack pressure transducer shut-off valves are open, and the transducers are reading correctly in the rack controller.
- Compressor crankcase heaters should be turned on 24 hours prior to system start up.
- There should be a minimum of 40% of the rack evaporator load for MT available for the initial startup of the system.
- If equipped, verify that all ejectors are disabled in the rack controller before startup.

### Gas Cooler

- All electrical connections in the gas cooler control panel are properly tightened.
- Power is on and the voltage is correct.
- Verify that the gas cooler fan staging, speed control, and rotation are correct.
- Adiabatic gas coolers should have the water turned on and drain lines completed.
- Gas cooler outlet temperature sensor(s) should be installed, insulated, and wired to the rack controller per the installation details.
- All control wiring for the gas cooler operation is installed as required. This may include wiring for communication, fan speed reference, fan staging, ambient temperature, adiabatic pre-coil temperature, alarm/status outputs, etc. See installation details for specific requirements.
- The gas cooler temperature sensor(s) are reading correctly in the rack controller.
- If equipped, the control boards installed in the gas cooler are online and communicating with the rack controller.

## CO<sub>2</sub> RACK PRE-STARTUP GUIDE

### Cases and Walk-ins

- All case controller communication wiring should be complete.
- The power for the cases and walk-in evap coils should be turned on.
- All case controllers should be addressed and communicating with the rack controller.
- All temperature sensors on the cases and walk-in evaporator coils are reading accurately in the correct case controllers.
- All pressure transducer shut-off valves are open, and the transducers are reading accurately in the correct case controllers.
- Verify operation of all case and walk-in evap coil fans.
- The case drain lines or evac system should be completed.
- All penetrations should be sealed.
- The case controller programming in the rack controllers is complete.
- The walk-in leak detector system should be operational.

### Other

- If the rack is indoors, verify that the machine room leak detection and ventilation is functional.
- All work areas represent a safe work environment and are free of construction debris.
- The customer or contractor must provide competent personnel with proper tools and equipment and be present onsite for the entirety of the Hussmann support visit.
- If equipped, the backup condensing unit and generator should be installed and operational.