PRE-STARTUP CHECKLIST: G&D LOW TEMPERATURE CHILLERS

WARNING: HAZARDOUS VOLTAGE!
Compressor breaker(s) must be OFF for entire pre-startup process.

- ☐ **Chiller positioning**: clearance on all 4 sides of chiller must be equal to one full unit width. Electrical code may dictate greater clearance. No obstructions or roofs above chiller. Refer to "CHILLER PLACEMENT" section of this manual for more details.

- ☐ Your chiller comes with one (1) free year of Tera service for remote control and monitoring. Internet access is needed. **Run an ethernet cable from facility LAN router to electrical enclosure of chiller.**

- ☐ Electrical connections should terminate at distribution blocks in chiller electrical enclosure:
  - o **Chiller Start/Stop door switch must be in the OFF position before connecting live power**
  - o Licensed electrician to ensure all wiring, breakers, and service disconnect are installed per code
  - o Check phase monitor for rotation (CCW arrow indicates backwards rotation)
  - o If needed, swap L1 and L3 to change rotation. **Do not modify factory panel wiring to phase monitor, correct phase reversal at distribution blocks only**
  - o Note: if service has high leg delta, the high leg must connect to the L2 distribution block

- ☐ Install 20 mesh Wye-strainer with purge valve line at chiller.

- ☐ **Ensure all pump isolation valves are open.** Flush all piping lines:
  - o **Compressor breaker(s) inside the control panel must be in the OFF position**
  - o Turn Control Power door switch ON and Chiller Start/Stop door switch ON
  - o If needed, move the pump breaker to the ON position. Verify correct pump rotation
  - o Proceed with flushing the system using distilled or deionized water. Do not use chlorinated tap water
  - o Once all debris have been flushed out of the piping, the water must be fully drained from the system
  - o **Purge using warm compressed air or nitrogen until all traces of water have been removed**

- ☐ **Fill reservoir/loop with Dynalene HC-50. Keep track of the amount of Dynalene HC-50 being added to the system**. Temporarily close the supply valve. Confirm Dynalene pressure shows 30 PSI using both the Carel controller and the manual pressure gauge located on the process pump discharge line. Pump discharge can be adjusted as needed using the manual bypass valve.

- ☐ Open the supply valve, and circulate HC-50 through the facility piping system for at least 30 minutes. **Only use pure, undiluted Dynalene HC-50 as the heat transfer fluid**. The facility piping should be completely dry and free of residual flush water before the HC-50 is circulated through it. More HC-50 may need to be added to keep the reservoir topped up.
  Record final volume of HC-50 contained in system: _____

- ☐ **Send in a representative sample for quality testing** to ensure the Dynalene HC-50 was not diluted during this process. Follow the instructions in the testing kit provided with the chiller, and send a sample to the Dynalene testing laboratory.

- ☐ Turn all door switches to the OFF position.

- ☐ Leave main disconnect to the chiller ON in preparation for the start-up procedure.

**G&D Chillers welcomes any and all questions or concerns. We can be reached at 800-555-0973 or 541-345-3903.*

START-UP PROCEDURE: G&D LOW TEMPERATURE CHILLERS

1. **COMPLETE PRE-STARTUP CHECKLIST BEFORE PROCEEDING. Confirm all following items have been completed successfully:**

- ☐ Chiller has adequate clearance on all sides
- ☐ Ethernet cable installed for remote monitoring
- ☐ Electrical service installed by licensed electrician
- ☐ Wye strainer on return line
- ☐ All piping flushed and any traces of water removed
- ☐ Reservoir filled with Dynalene HC-50
- ☐ Volume of HC-50 added to system recorded
- ☐ Pump discharge pressure set at 30 PSI
- ☐ HC-50 circulated through facility piping
- ☐ Sample of HC-50 sent to Dynalene testing laboratory
- ☐ All door switches in OFF position
- ☐ Main power disconnect left in the ON position

WARNING: DYNALENE HC-50 MIXTURE MUST BE CORRECT FOR SUCCESSFUL CHILLER START-UP

2. **The HC-50 sample test results must be received before proceeding**.
   - ✓ If the HC-50 sample tests within specification, proceed to Step 3.
   - ✗ If there are issues with the HC-50 mixture, perform the corrective actions recommended by the Dynalene laboratory, then complete the following steps. Refer to the *Pre-Startup Checklist* for more details:
     - ☐ Circulate the corrected HC-50 mixture throughout the facility piping for at least 30 minutes
     - ☐ Send another sample to the Dynalene testing laboratory for analysis

3. Using the propylene glycol scale on a refractometer, measure freezing point of the Dynalene HC-50 solution contained in the chiller reservoir.
   Record the refractometer reading: _____
   Contact G&D Chillers Technical Support to verify the refractometer reading before proceeding.

4. Verify all door switches are in the OFF position, and that the **chiller has been supplied with power for at least 4 hours**. This allows the crankcase heaters to boil off any refrigerant that may have accumulated in the compressors. Allowing the chiller to sit with power overnight is recommended.

WARNING: PROPER START-UP IS CRITICAL! Any damage due to improper start-up will not be covered under warranty. To ensure complete warranty coverage, be prepared to send G&D Chillers Tech Support copies of the completed Pre-Startup Checklist, the Dynalene HC-50 sample test results, the refractometer reading from Step 3 above, and the WARRANTY START-UP CHECKLIST below.

THE FOLLOWING STEPS MUST ONLY BE PERFORMED BY A QUALIFIED REFRIGERATION TECHNICIAN

5. Verify there is a visible oil level in compressor sight glass(es). **Do not proceed until the oil level is confirmed.**

6. **Open all service valves/refrigerant ball valves in chiller marked with tags**: Suction/discharge of each compressor and refrigerant ball valves at receivers. Models with remote condensers will have additional valves. Contact us for more details as needed: 800-555-0973.

7. **Ensure pump isolation valves are open**. Turn chiller Start/Stop door switch to the RUN position. Compressors should start to run. Fans to follow shortly.

8. Adjust setpoints with the Carel controller. Press the Up/Down arrows until SET displays in bottom right corner. Press enter and change the temperature to desired setpoint.

PLEASE VISIT GDCHILLERS.COM TO VIEW OUR INSTALLATION VIDEOS & FAQS

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2. PRE-INSTALLATION CONSIDERATIONS

CHILLER PLACEMENT

LOCATION

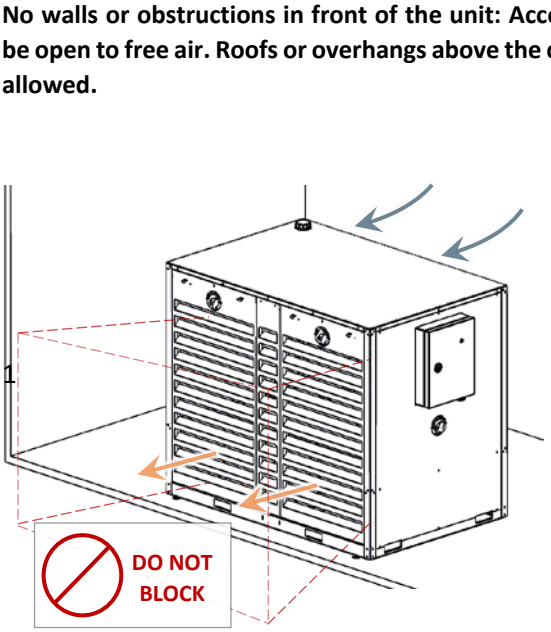
Air-cooled units must sit outside and be anchored to a solid level surface. A concrete pad is recommended. Location should be free of grass and other debris that could plug condenser fins.

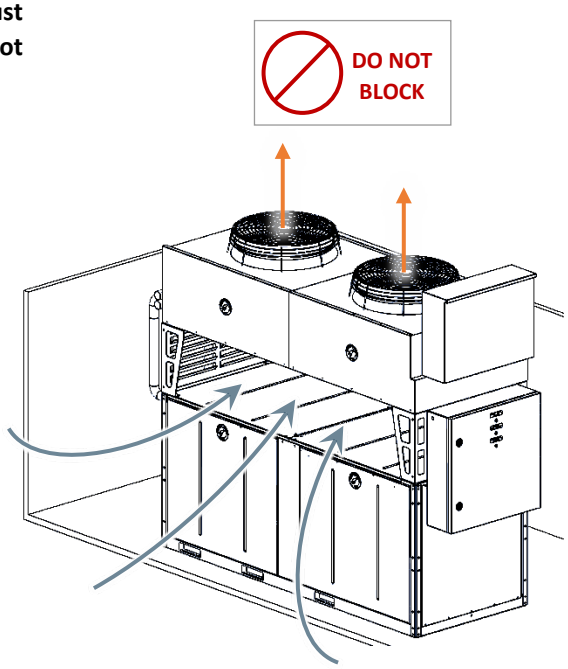
Liquid-cooled chillers may be installed on a concrete pad outdoors. A properly sized pump and liquid cooling system for the chiller condenser must be supplied by the end user. Contact G&D Chillers for additional information and assistance with sizing.

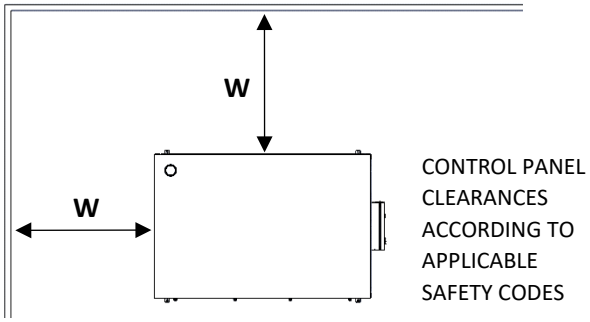
Ensure minimum clearance requirements* between condenser intake side and any buildings, walls, control panel, etc.

No walls or obstructions in front of the unit: Access side must be open to free air. Roofs or overhangs above the chiller are not allowed.

*MINIMUM CLEARANCE REQUIREMENTS (W)	
W = 48"	GD-14H-2LC, 20H-2LC, 30H-1LC, 40H-2LC, 60H-2LC
W = 45.25”	GD-7H-1LC-HA, 10H-1LC-HA







CONTROL PANEL CLEARANCES ACCORDING TO APPLICABLE SAFETY CODES