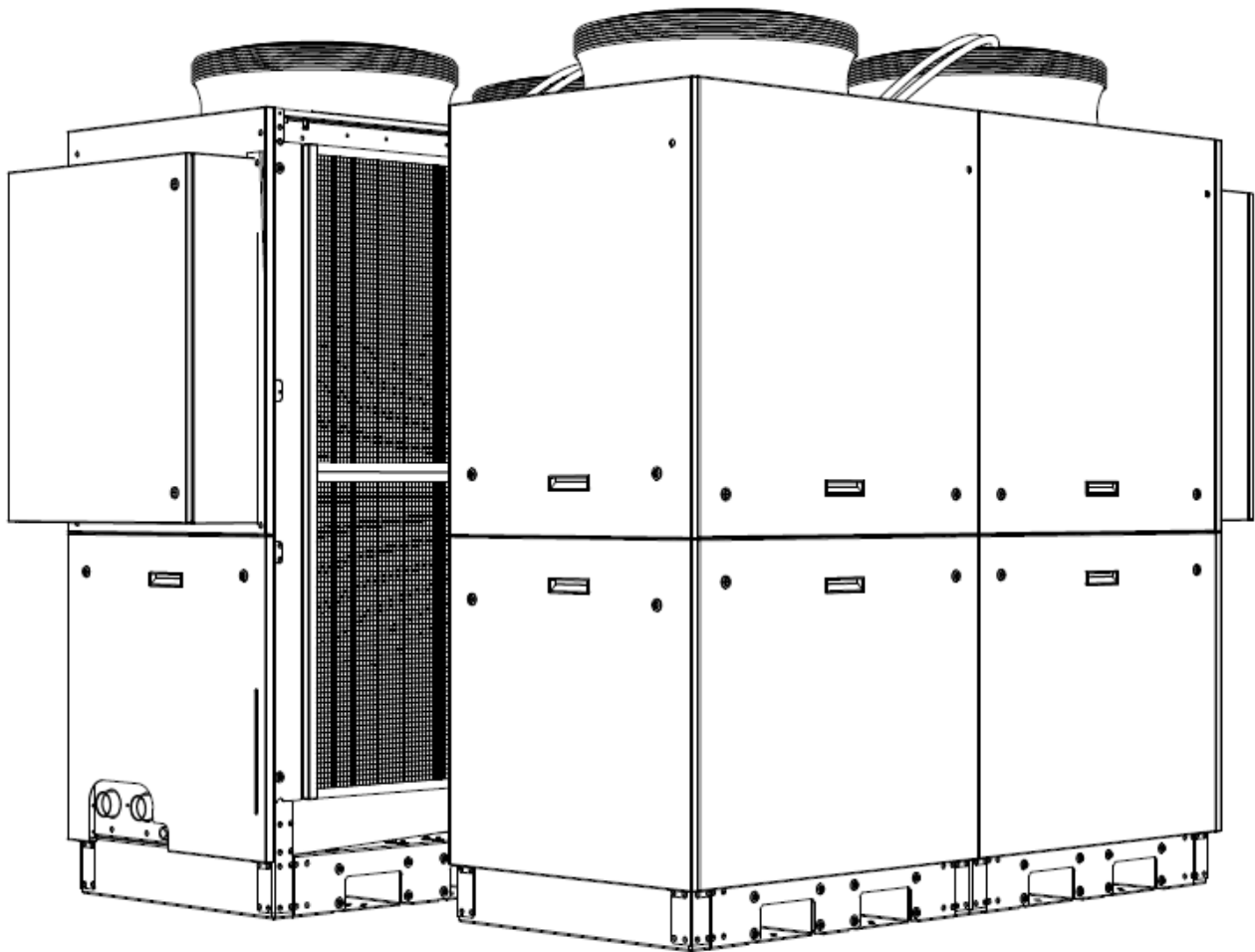

Installation and Operation Manual

GO2-7500

GO2-2-5000

GO2-2-10000



Part Number: _____

Serial Number: _____

ATTENTION

This manual provides the user, installer and maintenance technician the technical information for installation, operation and routine maintenance to ensure smooth operation and long-lasting operation of the CHILLER. This manual has been written with general guidelines and specifications for this platform of chillers. Always refer to your CHILLER's specific drawings that have shipped with the unit. When contacting the factory for service or replacement parts reference your CHILLER's serial and model numbers. These can be found on the data tag on the CHILLER or on the data pack information that shipped with the unit.

Information Subject to Change

While every effort has been made to ensure the accuracy and completeness of the information presented in this document, Dimplex Thermal Solutions assumes no responsibility and disclaims all liability for damages resulting from the use of this information or for any errors or omissions.

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1 Important Safety Instructions

This manual contains important safety instructions that should be followed during the installation and maintenance of the chiller. Read this manual thoroughly before attempting to install or operate this unit. Failure to follow the instructions in this document may damage the equipment, cause hazardous conditions and void the warranty.

Only properly trained and qualified personnel should move, install, operate or service this equipment. Adhere to all warnings, cautions and safety instructions on the unit and in this manual when installing, operating, or maintaining the unit. Follow all operating and user instructions.



WARNING

This unit may present arc flash and electric shock hazards that could cause injury or death.

Open all local electric power disconnect switches and wear protective equipment before working within the chiller cabinet.

Earth ground to unit must be provided, per NEC, CEC and local codes, as applicable. Adhere to all other local codes as applicable.

The only way to isolate all power from the unit is to turn the chiller's main disconnect to its OFF position. This should only be performed when intending to service the unit.



WARNING

The chiller has automatically starting, high-speed fans. Open all electric power disconnect switches before working in the unit. Contact with fans when the chiller is powered can cause injury or death.

Do not operate this unit with upper doors or air filters removed.



CAUTION

Fan and pump motors, compressors, and refrigeration components can become extremely hot during operation. Allow enough time for them to cool before working within the unit. Wear protective gloves and arm protection when working on or near hot components.

Only HVAC/R qualified technicians should be working on refrigeration components.

NOTICE

Improper installation, application, and service practices can result in water leakage from the unit, causing damage to property and equipment.

Do not locate unit directly above any equipment that could sustain water damage.

NOTICE

Improper storage can cause damage to the unit.

Keep the unit upright, protected from moisture, and prevent contact damage.

2 Introduction

These outdoor chillers are designed to supply water/glycol as coolant to remove heat from process equipment and reject it to the air through a vapor compression refrigeration cycle. The chiller features:

- **Dual refrigeration circuits**
 - Over 99% system uptime.
- **Redundant horizontal centrifugal pump**
 - Dual pumps provide complete redundancy in case of pump failure.
 - Automated pump rotation for increased longevity through load sharing.
- **Throttling valve**
 - The Throttling valve adjusts internal pressure drop to compensate for varying connecting pipe lengths while maintaining consistent flow.
- **Tank level switch**
 - Tank level switch prevents the pumps from running dry.
- **Variable speed fans**
 - Fans adjust rotational speed to provide optimal airflow through the condenser.
- **Flow switch**
 - Flow switch ensures flow is maintained while the unit is running.

Table 1: Specifications Summary

Model	Leaving Fluid Temperature Range (°F)	Flow Range (GPM)	Ambient Range (Min°F [°C] / Max°F [°C])	Nominal Capacity (BTU/Hr) / (kW)
GO2-7500-PW-OSP-40-122-454B-IN	40-70	13 - 23.78	-40 [40] / 122 [50]	122,837 / 36 - 153,540 / 45
GO2-7500-PW-NO-40-122-454B-IN				
GO2-2-5000-PW-OSP-40-122-454B-IN		15.85 - 35		167,194 / 49 - 214,956 / 63
GO2-2-5000-PW-NO-40-122-454B-IN				
GO2-2-10000-PW-OSP-40-122-454B-IN		23.78 - 35		320,741/ 94 - 341,200 / 100
GO2-2-10000-PW-NO-40-122-454B-IN				




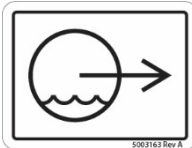



3 Specifications




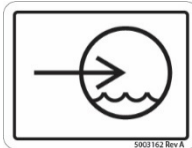



Table 2: Specifications

Model Names	GO2-7500	GO2-2-5000	GO2-2-10000
Input power	460V (+/-10%) 3 Phase 60Hz		
FLA (Amps)	53	75	112
MCA (Amps)	57	78	117
MOPD (Amps)	70	90	125
SCCR (kA)	10	10	10
Number of Compressors	2	4	
Refrigerant	R454B		
Number of Refrigeration Circuits	2		
Number of Pumps	2		
Nominal Flow: GPM (LPM)	20 (75.7)	33 (124.9)	35 (132.4)
Nominal Supply Pressure: PSI (Bar)	70 (4.8)	70 (4.8)	70 (4.8)
Non-Seismic Crated Weight: lbs. (kg)	2034 (922.6)	2159 (979.3)	3107 (1409.3)
Non-Seismic Uncrated Weight: lbs. (kg)	1934 (877.2)	2059 (933.9)	3007 (1363.9)
Non-Seismic Operational Weight: lbs. (kg)	2434 (1104)	2559 (1160.7)	3507 (1590.7)
Seismic Crated Weight: lbs. (kg)	2100 (952.5)	2469 (1119.9)	3339 (1514.5)
Seismic Uncrated Weight: lbs. (kg)	2000 (907.2)	2369 (1074.6)	3239 (1469.2)
Seismic Operational Weight: lbs. (kg)	2500 (1134)	2869 (1301.4)	3739 (1696)
Non-Seismic Length: in (mm)	90.7 (2305)	90.7 (2305)	110.5 (2807)
Non-Seismic Width: in (mm)	37.4 (949)	37.4 (949)	48.3 (1227)
Non-Seismic Height: in (mm)	88.7 (2254)	88.7 (2254)	91.6 (2326)
Seismic Length: in (mm)	88.9 (2259)	88.9 (2259)	108.8 (2764)
Seismic Width: in (mm)	37.4 (949)	37.4 (949)	44.6 (1132)
Seismic Height: in (mm)	89.5 (2274)	89.5 (2274)	92.6 (2352)



4 Labels



Table 3: Labels

Symbol	Description
	Caution Fan Starts Automatically
	Tank Level High
	Tank Level Low
	Fluid Outlet
	Arc Flash Warning
	Made in USA
	A2L Flame Hazard

Symbol	Description
	Do No Remove Guards
	Prop65 Warning
	Tank Drain
	Fluid Inlet
	Electrical Shock Hazard, Do Not Turn Off, Lock Out Tag Out, Refer to Manual
	A2L Consult Repair Manual
	A2L Refrigerant Handling

Labels

	<p>A2L Combined Warnings</p>
	<p>Caution - Risk Of Fire Label</p>

	<p>Caution - Restricted Access Label</p>
	<p>Tank Fill, No Tap Water, Refer to Manual</p>

5 Installation Guidelines

5.1 Warnings

WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources
Example: open flames, an operating gas appliance or an operating electric heater.
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- **WARNING:** Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in.
- For appliances intended for connection to a water supply for cooling purposes, the instructions shall contain information on the maximum permitted temperature of the inlet water consistent with safe operation of the appliance.
- This product shall not be installed within 6,1 m (20 feet) of any building opening.
- Any pressure-relief devices and fusible plugs shall discharge to the atmosphere at a location not less than 4,57 m (15 ft) above the adjoining ground level and not less than 6,1 m (20 ft) from any window, ventilation opening, or exit in any building.

NOTICE

This product is to be installed in accordance with the requirements in ANSI/ASHRAE 15.

Review the schematics provided in the electrical enclosure.

5.2 Exterior Components

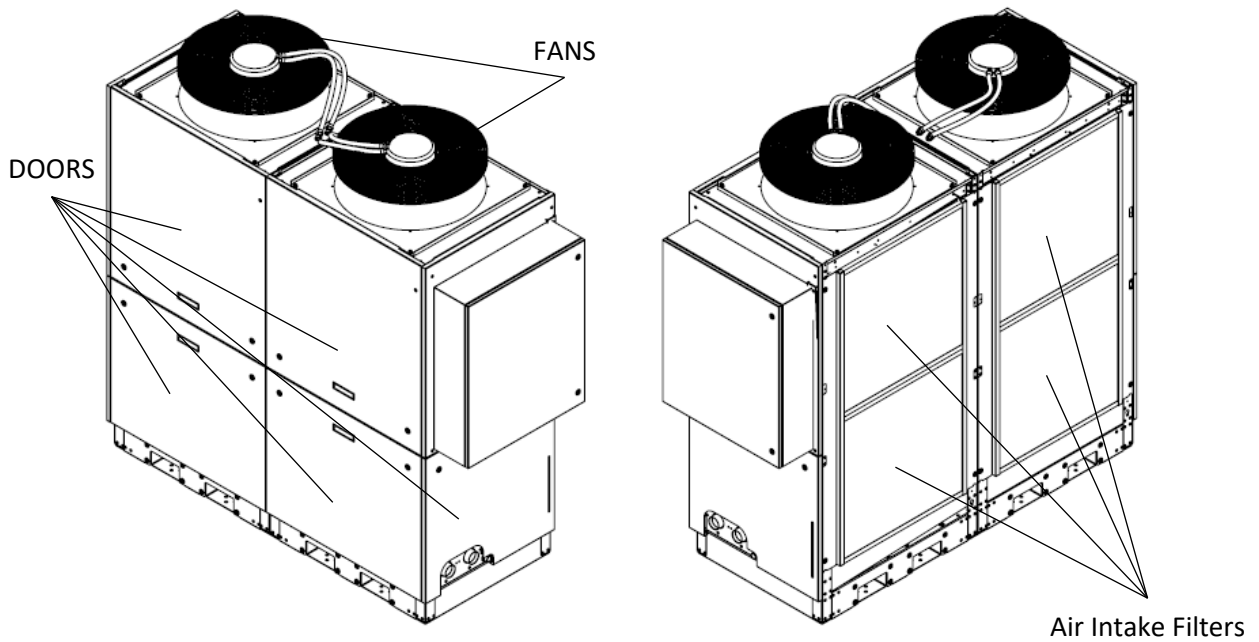


Figure 1: Exterior Components

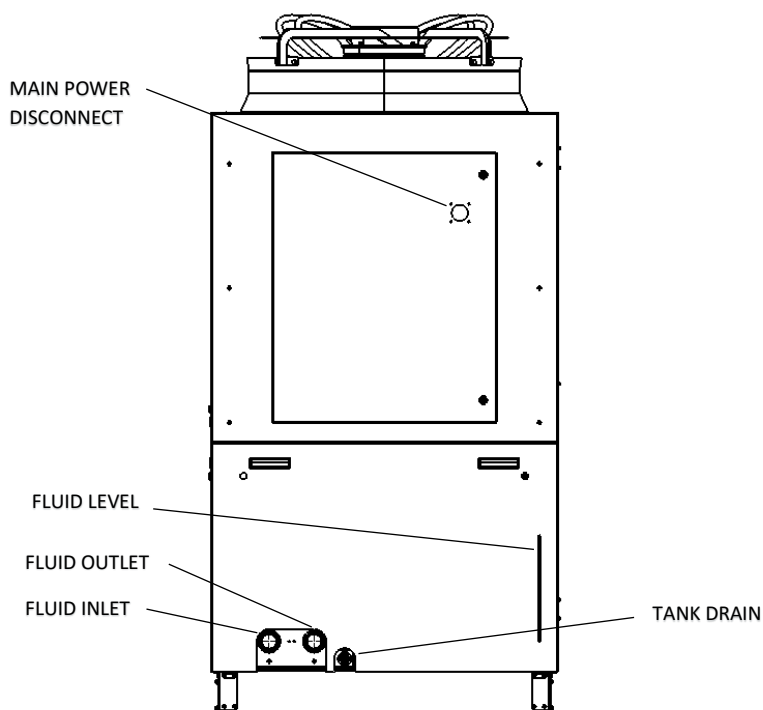


Figure 2: Exterior Components (Electrical Enclosure Side)

5.3 Location Considerations

The chiller must be installed with enough clearance for service and for unrestricted air intake and exhaust. The chiller must be located sufficiently close to the process to ensure adequate flow rate of coolant by not exceeding the capabilities of the chiller's pumps. The following sections outline recommended installation practices. The chiller has potential for misuse that could result in unplanned downtime. Ensure the chiller is installed in a location that is not accessible to the general public. The chiller's air intake and exhaust clearances must adhere to the following:

Table 4: Chiller Air Intake and Exhaust Requirements

Criterion	Value
Vertical clearance	≥ 8ft (2.4m)
Horizontal clearance (Door, Enclosure, and Rear Sides)	≥ 3ft (.9m)
Horizontal clearance (Air intake side)	≥ 6ft (1.8m)

Exhaust air must be freely discharged by the chiller's fans. This air must not be recirculated to the air intake side of the chiller. Avoid installing deflectors that redirect air to the air intake side of the chiller or installing ducting that directly connects to the chiller's top. The chiller uses axial fans that are not compatible with exhausting air through ducting. Ducting increases the pressure drop of the fans severely and lowers the volumetric air flow.

NOTICE

Improper air intake and exhaust clearances can lead to reduced capacity, thermal overloading of the fan motors and/or compressors, high pressure refrigeration faults, and/or rendering the chiller inoperable.

If ducting must be installed at the chiller's location a suitable duct auxiliary fan must be provided. Consult the factory for guidelines and recommendations.

Make sure the unit is placed on a level, firm surface. The chiller must be level or less than ½ inch of slope per 10 feet. Use shims to correct level if needed. If the chiller is mounted on a concrete slab, the slab should be 4-inch thick and at least 5 feet x 10 feet. If the chiller is roof mounted, two I-beam runners are typically provided to support the chiller feet at both ends. For rooftop mounting, the chiller should be anchored through the mounting holes provided in the feet. When the chiller is mounted above an office space, optional vibration mounting springs can be used to isolate the chiller from the building structure.

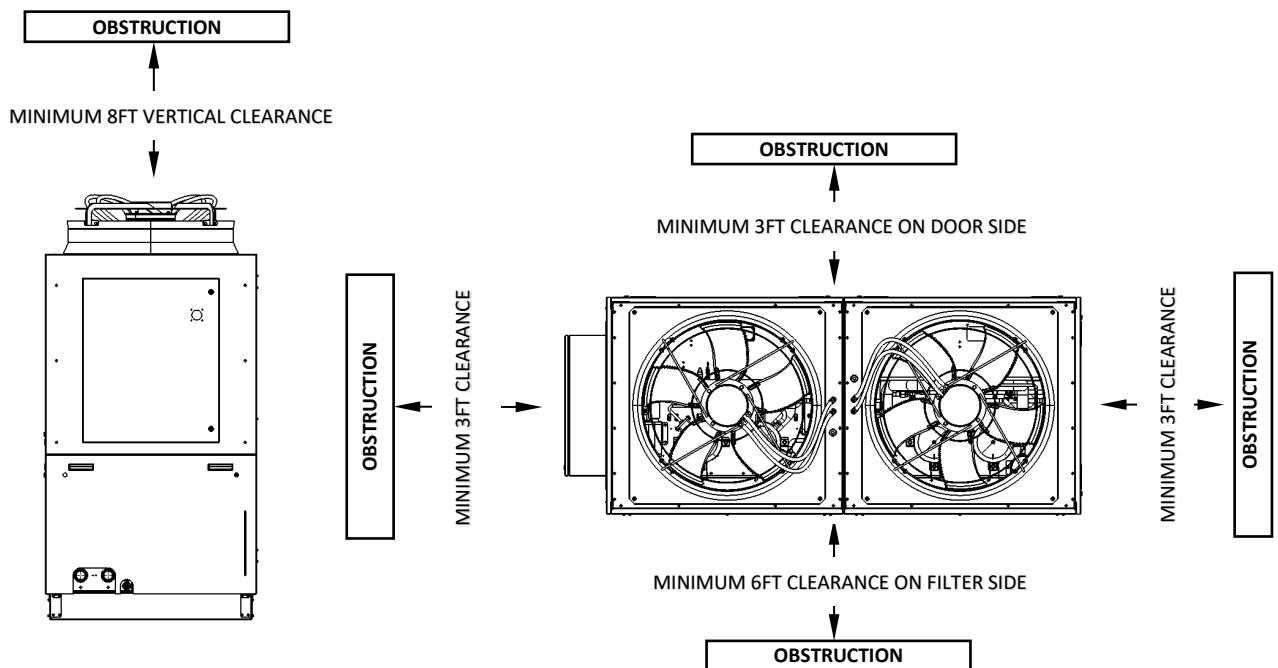


Figure 3: Required Clearances

5.4 Checking for Shipping Damage

Upon delivery of the chiller, verify that the shipment matches the bill of lading. Inspect the chiller immediately for signs of shipping damage both visible and concealed. Damaged crating likely indicates damage to the chiller and may require the removal of the panel and/or air filter(s) for further inspection. Any damage must be reported to the shipping carrier and a copy of the damage claim submitted to your sales representative.

5.5 Transportation

The chiller is shipped with protective packing and wrapping that should remain in place until the unit is transported to its final installation location. It is recommended that the chiller (crated or uncrated) be moved with a forklift.



WARNING

The chiller is heavy and there is risk of tilting or falling when moved. Transportation of the chiller must only be performed by trained and qualified personnel using appropriate equipment.

Ensure that the chiller is securely positioned (tines of forklift spread as far as permitted along the chiller's long edge and extend thoroughly through the opposite lifting face) before moving the chiller.

Improper handling or insecure lifting of the chiller during transportation can cause it to tip and fall leading to injury or death.

5.6 Uncrating

The chiller is secured to the skid during shipping with screws. To remove the chiller from its skid:

1. Move the crated chiller as close as practical to its installation location.
2. Cut or unwrap the plastic shrink-wrap from the unit.
3. Uncrate the chiller by removing the screws holding the chiller to the skid.
4. Use a forklift to lift the chiller until its feet clear the top boards of the skid.
5. Pull the skid from under the chiller.
6. Lower the chiller onto the floor.

6 Installation

6.1 Internal Access

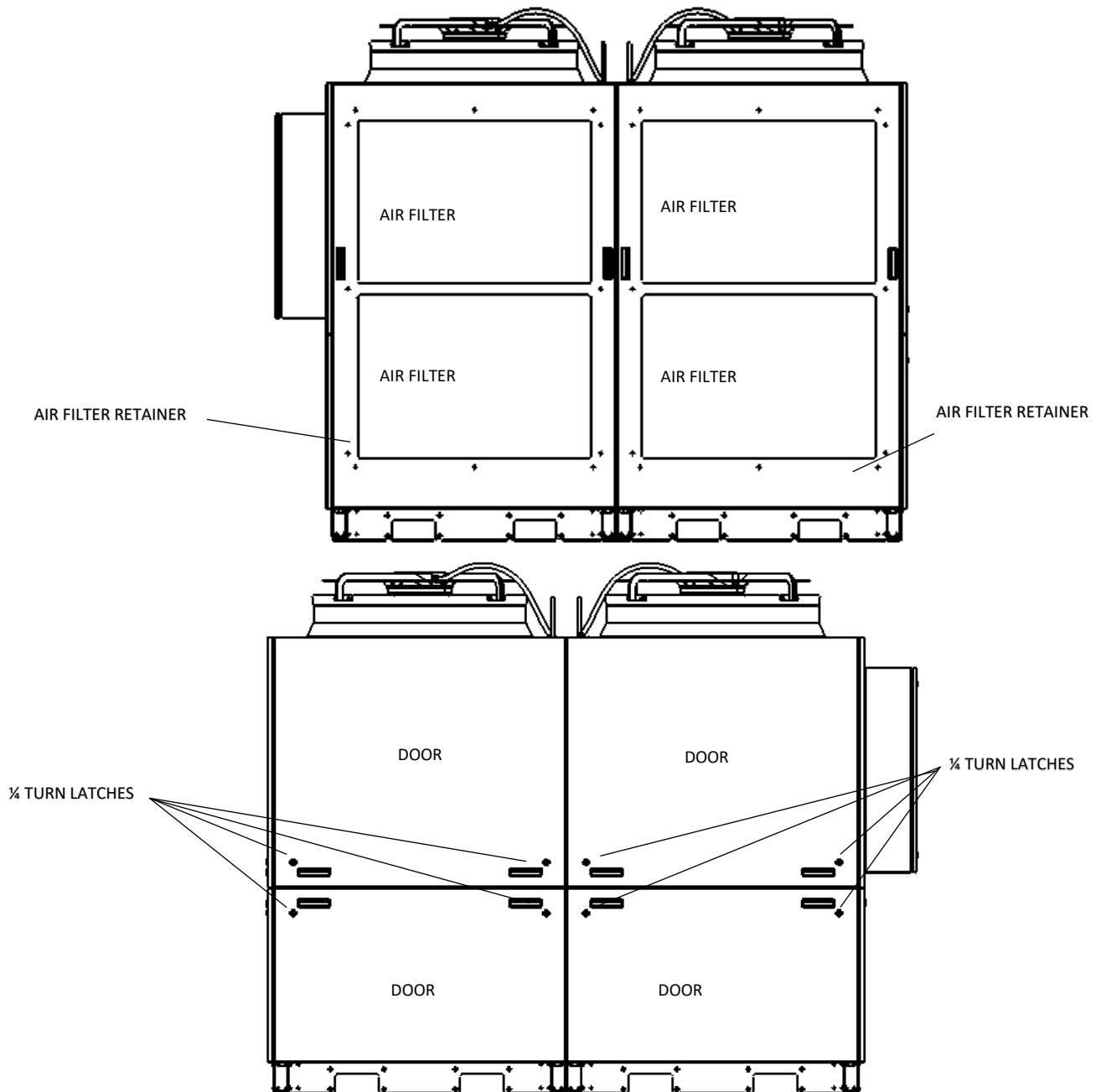


Figure 4: Internal Access Non-Seismic

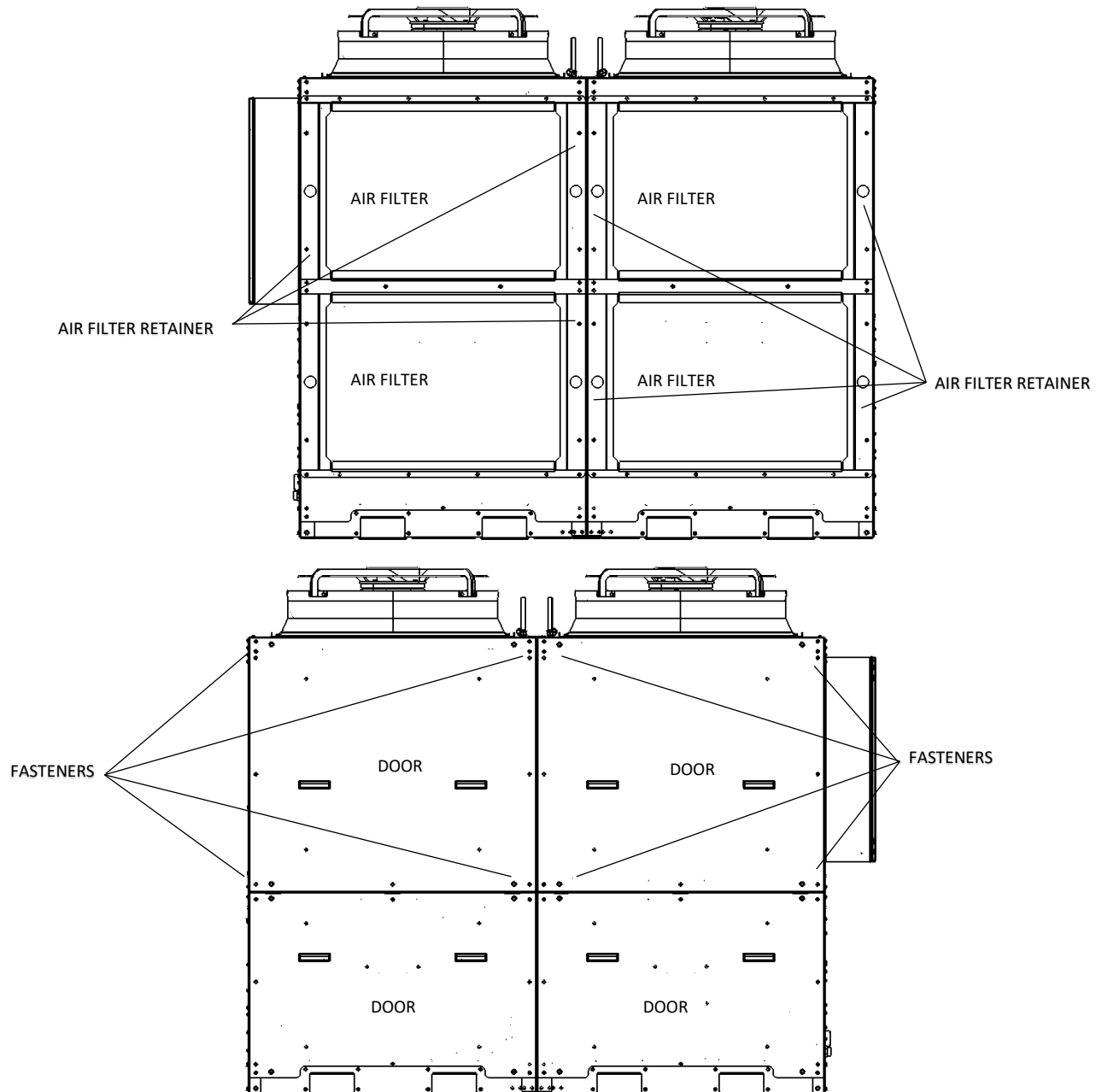


Figure 5 Internal Access Seismic

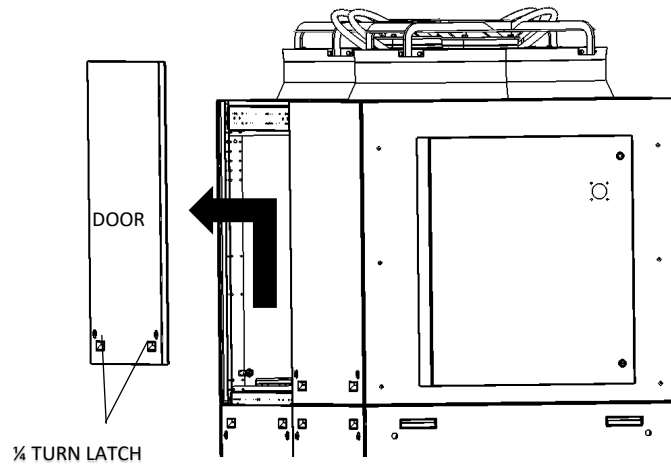


Figure 6 Removal of Doors & Blockers Non-Seismic

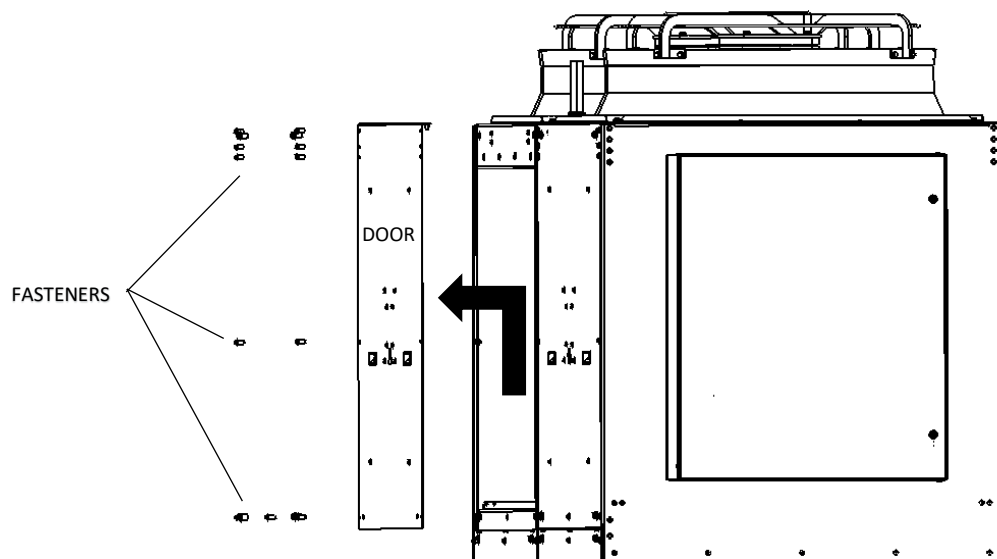


Figure 7: Remove of Doors & Blockers Seismic

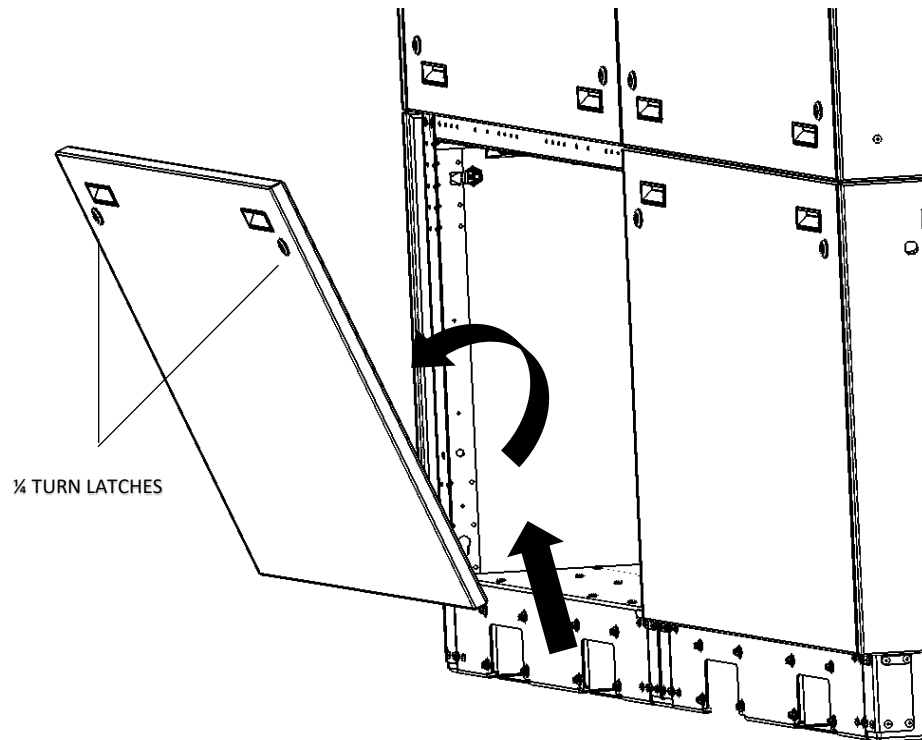


Figure 8: Removal of Lower Doors Non-Seismic

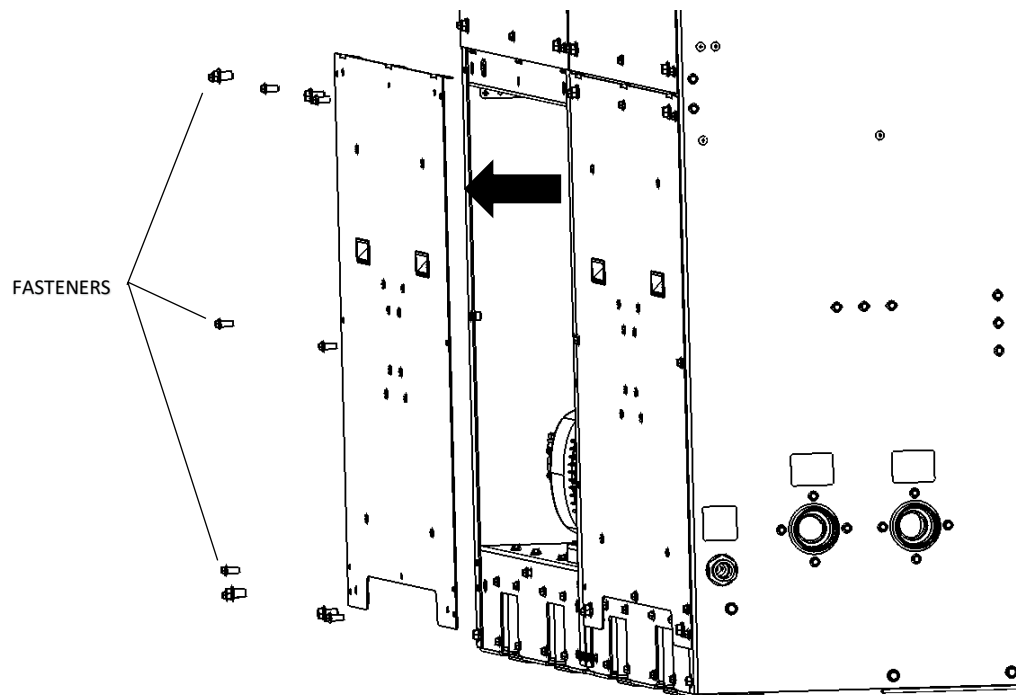


Figure 9: Removal of Lower Doors Seismic

- **From the air intake/filter side (Non-Seismic)**
 1. Use a 3/8" socket wrench to remove the fasteners holding the filter retainer in place.
 2. Gently lift the filter retainer from the machine. Take care to apply force to the air filters so they do not fall out onto the ground as the filter retainer is being removed.
 3. Reinstall in the opposite order when access is no longer required.
- **From the air intake/filter side (Seismic)**
 1. Use a 3/8" socket wrench to remove the bolts from the air filter retainer on the left side of the air filter closest to the electrical enclosure. If removing the one farthest from the electrical enclosure remove the right-side air filter retainer.
 2. Once the retainer is removed pull the filter to the left to remove it.
Reinstall in the opposite order when access is no longer required.
- **From the door side (Non-Seismic)**
 - To access the lower door
 - a. Use a slotted screwdriver to turn both *Lower Door Retainer* on the left of the door clockwise, both the *Lower Door Retainer* on the right counterclockwise.
 - b. Gently pull outward and lift to remove lower panels.
 - To access the upper door
 - a. Use a slotted screwdriver to turn both *Lower Door Retainer* on the left of the door clockwise, both the *Lower Door Retainer* on the right counterclockwise.
 - b. Lift the *Door* upward to disengage the hooks. Once the hooks are disengaged, pull the door outward to remove the door.
 - c. Reinstall in the opposite order when access is no longer required.
- **From the door side (Seismic)**
 - To access the lower door
 - a. Use a 9/16" and 3/8" socket wrench to remove the bolts from the door.
 - b. Doors are heavy and may require two people to remove and reinstall.
 - c. Gently pull outward and lift to remove lower panels.
 - To access the upper door
 - a. Use a 9/16" and 3/8" socket wrench to remove the bolts from the door.
 - b. Doors are heavy and may require two people to remove and reinstall.
 - c. Lift the *Door* upward to disengage the hooks. Once the hooks are disengaged, pull the door outward to remove the door.
 - d. Reinstall in the opposite order when access is no longer required.

NOTICE

The chiller must have all air filters and panels properly and securely installed when operating. Failure to do so can result in refrigeration circuit faults that will interrupt cooling to the system. When changing a pump, it is permissible to remove the lower door while the unit is running if the pump has been disabled.

Electrical

**WARNING**

This procedure involves a risk of electric shock that could cause property damage, injury and/or death.

All electrical connections should be performed only by properly trained and certified electricians wearing proper protective gear and using properly insulated tools.

Before attempting to make any electrical connections or disconnections to the chiller:

- Verify that the chiller's main disconnect handle is in the OFF position.
- Verify that the incoming power to the chiller has been turned off.
- Lock out and tag out main electrical connecting points.
- Use a voltmeter to verify there is no incoming power to the chiller.

Ensure that the supply power is enough to meet the chiller electrical requirements as found on the unit's data tag. The data tag is found on the front of the electrical enclosure. If a remote display is provided with the unit, install the provided 150-foot communications cable between the chiller electrical panel and the remote display location. For distances over 150 feet, an optional Long Distance Remote Display kit is required.

Connect power as follows:

1. Open the electrical enclosure by turning the main disconnect handle to the OFF position and releasing the quarter-turn latches using a flathead screwdriver.
2. Use a step bit or knockout punch to install appropriate conduit fittings in the electrical enclosure.

**WARNING**

Take care to prevent any metal chips from falling on the electrical components in the enclosure while installing conduit fittings. Metal chips can cause shorts in electrical components and introduce arc flash hazards.

3. Wire mains power to the main disconnect. Wire the ground lead to the provided ground lug.
4. Close the electrical enclosure and fasten the quarter-turn latches.

6.2 Coolant plumbing

The equivalent linear feet of total piping which may be installed external to the GO2-7500 & GO2-2-5000 chiller is 500' using 1-1/2" plumbing. This is total piping which includes the supply and return lines. The GO2-2-10000 chiller has a length of 500' using 2" plumbing. Contact the factory if lengths exceed 500'.

Table 5: Standard Fitting Losses in Equivalent Feet of Pipe

Fitting Description	Feet of loss
1-1/2" 90° Standard Elbow:	4.0'
1-1/2" 90° Street Elbow:	6.3'
1-1/2" 45° Standard Elbow:	2.1'
1-1/2" 45° Street Elbow:	3.4'
1-1/2" Globe Valve	43.0'
1-1/2" Gate Valve	1.8'
1-1/2" Angle Valve	18.0'

The chiller has the following connections:

Table 6: Chiller Connections

Connection Description	Connection Type
	GO2-7500 & GO2-2-5000 & GO2-2-10000
Plumbing Inlet	2" Female NPT
Plumbing Outlet	2" Female NPT
Pressure Relief Outlet	5/8" OD Copper Pipe

NOTICE

Exceeding recommended plumbing lengths can increase system pressure beyond the capabilities of the pumps and can cause the pumps to supply less than the required flow rate for proper operation. The need for a booster begins when the chiller is 70 feet above the MRI. There may be other situations when a booster pump is required. Consult the factory if recommended lengths are to be exceeded.

NOTICE

Do not allow the fluid pumps to run dry. This will damage the pump seals and will not be covered under warranty.

To install connecting plumbing between the chiller and process:

1. Remove all caps at each plumbing port on the chiller.
2. Pipe installation should adhere to ASME B1.20.1 for best practices.
3. Ensure that all plumbing is routed in an orderly fashion and free of kinks.

4. Fully open all valves (if present) on plumbing lines.

**WARNING**

All plumbing connections should be performed only by properly trained and certified operators wearing proper protective gear and using appropriate tools. Failure to correctly install plumbing fittings can lead to leaks, loss of coolant, and/or water damage to nearby equipment.

NOTICE

Ferrous and galvanized steel fittings are incompatible with the coolant. Brass, plastic or stainless-steel fittings are recommended. The use of incompatible materials will lead to excessive corrosion.

6.3 Refrigerant Pressure Relief Valve Discharge Piping

NOTICE

This product is to be installed in accordance with the requirements in ANSI/ASHRAE 15.

On top of the chiller are the pressure relief valves outlets. They must be connected to refrigerant rated piping (See “Table 6: Chiller Connections” for size), and the field piping must be in accordance with ANSI/ASHRAE 15. Specifically discharged to the atmosphere at a location not less than 4.57 m (15 ft) above the adjoining ground level and not less than 6.1 m (20 ft) from any window, ventilation opening, or exit in any building. Ensure the outlets of the field connections are pointing down so rainwater does not accumulate in them.

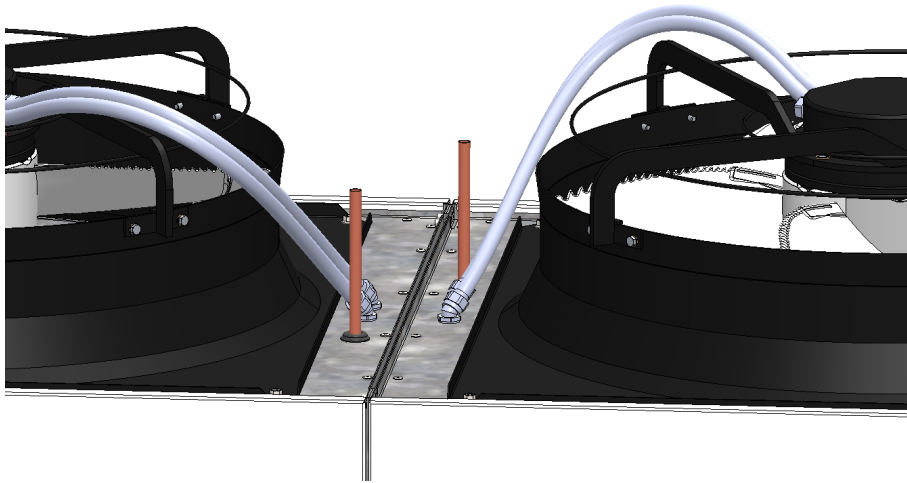


Figure 10 Pressure Relief Valve Connection

6.4 Coolant Reservoir Filling

When the chiller's plumbing connections have been completed the reservoir must be filled with 50% water and 50% glycol.

To fill the chiller's coolant reservoir:

1. Remove the tank fill port cap. Located in the top cabinet of the rear of the chiller. That is the farthest away from the electrical enclosure. See Figure 11 and Figure 11 Fill Port Non-Seismic Figure 12.

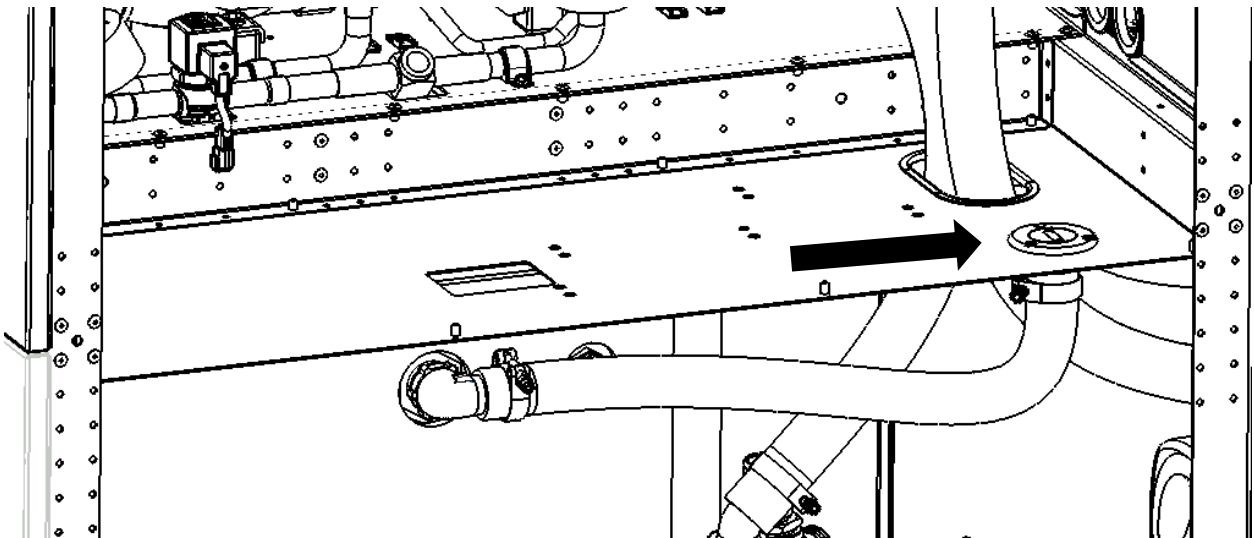


Figure 11 Fill Port Non-Seismic

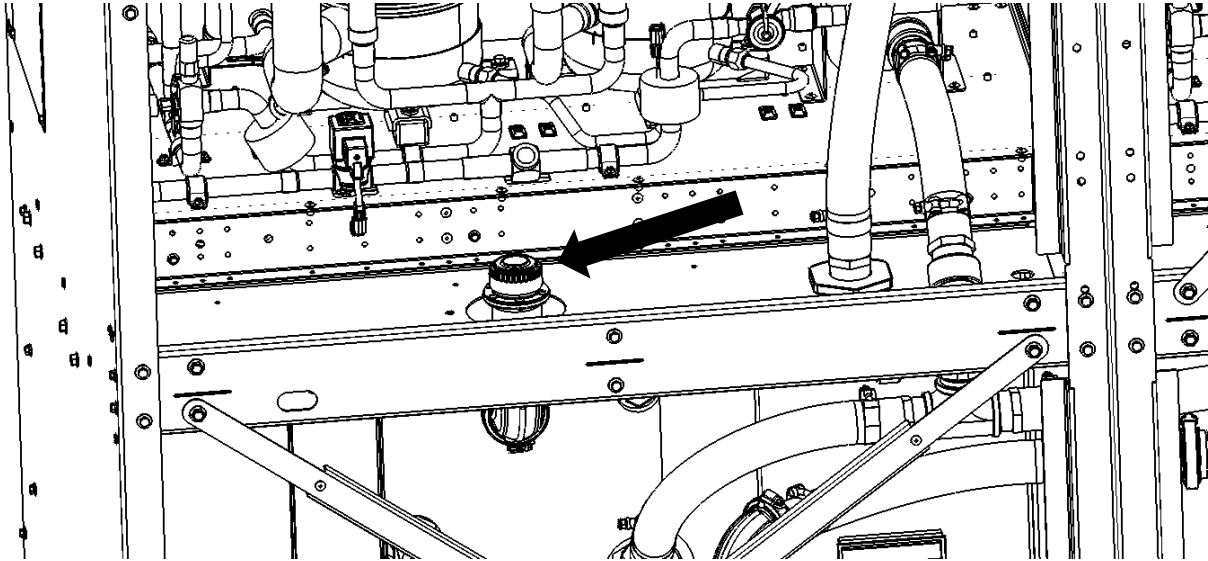


Figure 12 Fill Port Seismic

2. Fill the reservoir with 50% water / 50% glycol. The fluid level should be between the high and low tank level labels.
3. The tank low level mark is the “break” point for the float switch.
4. The chiller’s reservoir capacity is 62gal (234.7L).
5. Reinstall the reservoir fill port cap and hand tighten.

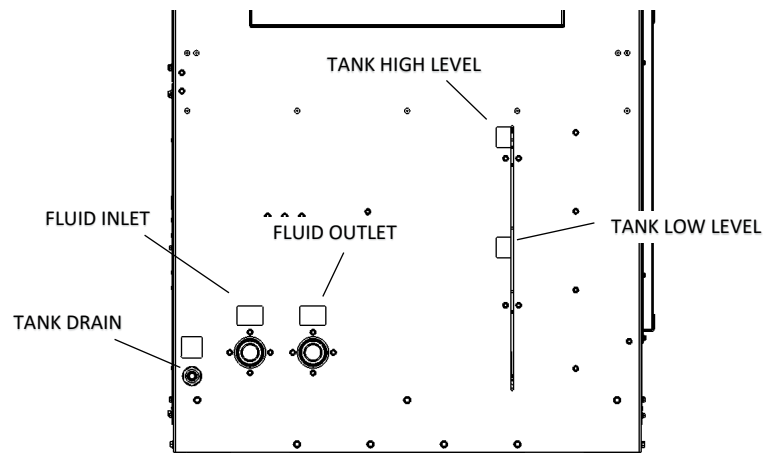


Figure 13: Reservoir Visual Level Indicator Marks

NOTICE

The chiller will require more coolant than the volumes listed above to fill the connecting hoses and the chillers internal plumbing components.

Additional coolant will most likely be required if the chiller is being commissioned for the first time after the pumps have begun running as this coolant will fill any empty plumbing components.

6.5 Installation Checklist

• Transport and Location of Chiller

- ☐ Chiller has been unpacked and inspected for visual damage from shipping.
- ☐ Required clearance for intake and exhaust air has been maintained around the chiller.
- ☐ Piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ANSI/ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.
- ☐ The installation of pipe-work shall be kept to a minimum.
- ☐ Provisions shall be made for expansion and contraction of long runs of piping.
- ☐ Protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects. For example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
- ☐ Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.
- ☐ Flexible pipe elements shall be protected against mechanical damage, excessive stress by torsion, or other forces, and that they should be checked for mechanical damage annually.
- ☐ Precautions shall be taken to avoid excessive vibration or pulsation.
- ☐ The indoor equipment and pipes shall be securely mounted and guarded such that accidental rupture of equipment cannot occur from such events as moving furniture or reconstruction activities.
- ☐ An unventilated area where the appliance using FLAMMABLE REFRIGERANTS is installed shall be so constructed that in the event of any refrigerant leak, it will not stagnate to create a fire or explosion hazard.

This shall include:

- a) A warning that the non-FIXED APPLIANCE shall be stored in an area where the room size corresponds to the room area as specified for operation.
- b) A warning that the non-FIXED APPLIANCE shall be stored in a room without continuously operating open flames (for example an operating gas appliance) or other potential ignition sources (for example an operating electric heater, hot surfaces).

- ☐ Required clearance for service access has been maintained around the chiller.

• Electrical

- ☐ Supply voltage, current, phase and frequency match chiller's requirement.
- ☐ Incoming main power is wired correctly.

- ☐ Incoming power ground wire is connected to ground lug on electrical panel.
- ☐ Retighten main power and ground wire connections.
- ☐ Chiller has been energized (main disconnect turned to ON position) for at least 8 hours prior to first run.
- ☐ Electrical service conforms to all applicable national and local codes.
- **Plumbing**
 - ☐ Supply and return connections are correct.
 - ☐ Plumbing is not dead-headed: no kinks in hoses, valves between chiller and process are fully opened, etc.)
 - ☐ Plumbing has been checked for leaks.
 - ☐ Coolant reservoir is filled with the correct quality and to the correct level.

7 Operation

7.1 Initial Startup



WARNING

Risk of improper startup. Failing to complete the installation checklist could cause damage to the chiller.

The following startup procedures must be adhered to in sequence. This outline should be used as a checklist for the initial startup and for subsequent startups if the chiller is taken out of service for a prolonged period.

1. Verify that the main power source to the chiller meets the requirements on the chiller's data tag (located on the electrical enclosure).
2. Verify that all electrical connections have been correctly and securely wired.
3. Verify that all process plumbing connections between the chiller and process are installed correctly, securely, free of leaks and are not dead headed (no kinks in hoses, valves fully opened, etc.).
4. Prime the pumps by opening the bleed port. Use a 10mm Hex wrench.
5. The port does not have to be completely removed. It will need to be loosened enough to let the air be trapped inside out.
6. When no more air is leaving the port ensure to tighten the port closed.
7. This will ensure the pump is fully primed before turning on. (See Figure 14)
8. Verify that the coolant reservoir level on the visual indicator is between the high and low levels.
9. Enable the main power to the chiller (turn on any breakers or switches upstream of the chiller if required).
10. Allow the chiller to be energized in this state for at least 8 hours prior to commissioning.
11. Phase monitor light must be green and master controller alarms should be clear.
12. If pump motors do not start, check incoming power for correct sequence. If incoming power is present, check for any faults on the master controller. Reset any faults which may be present.
13. Proceed to run the chiller pump for five minutes or more to allow any air in the system to be vented. Check the fluid level after the air has been purged from the piping and refill the reservoir as needed.
14. Ensure the pump is operating at the designed pressure of 70psi. (See 7.1.1)
15. Check the controller for fault messages. Clear faults that may have occurred during startup procedure. If faults do not re-occur, the system is ready for continuous duty.

NOTICE

The chiller must be powered (supplied with incoming power and main disconnect handle turned to the ON position) for at least 8 hours before being started for the first time. (Power can be off for 30 minutes without observing the 8-hour pre-heat requirement) This is required to energize the compressor's crankcase heaters to vaporize any liquid refrigerant in the compressor crankcase. ***Starting the chiller with liquid refrigerant in the compressor crankcase will damage the compressor***

and eventually lead to failure of the compressor and refrigeration circuit. This will also void the warranty.

The priming plug is a hex with a size of 10mm.

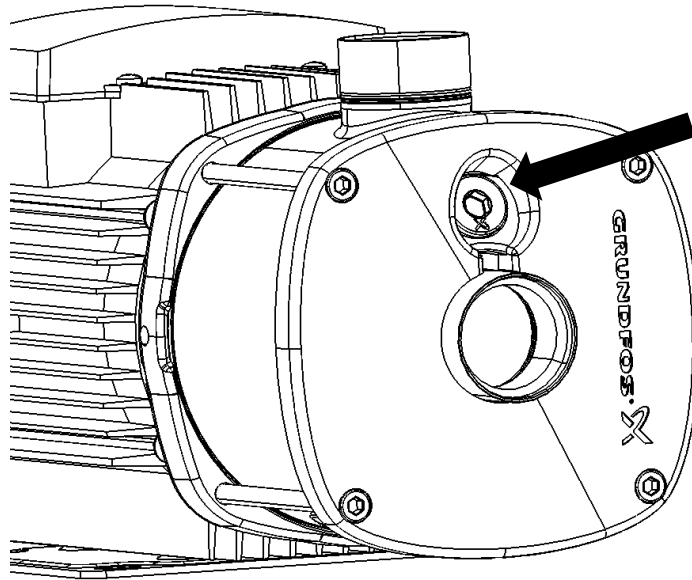


Figure 14: Pump Bleed Port Location

7.1.1 Setting Pump Throttling valve

The chiller contains a pressure relief valve and a ball valve. These are set at the factory to provide 70PSI at the chillers rated flow rate. If needed the throttling valve can be adjusted to ensure the pump provides the designed 70 psi. This pressure can be observed on the chiller's controller.

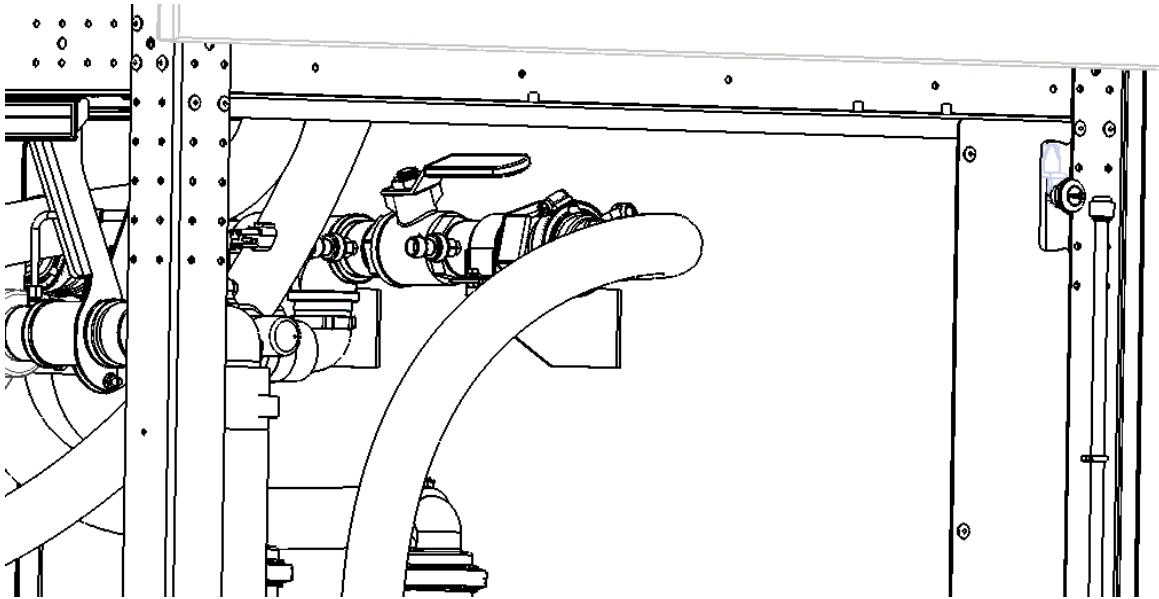


Figure 15 Pump Throttling Valve Non-Seismic

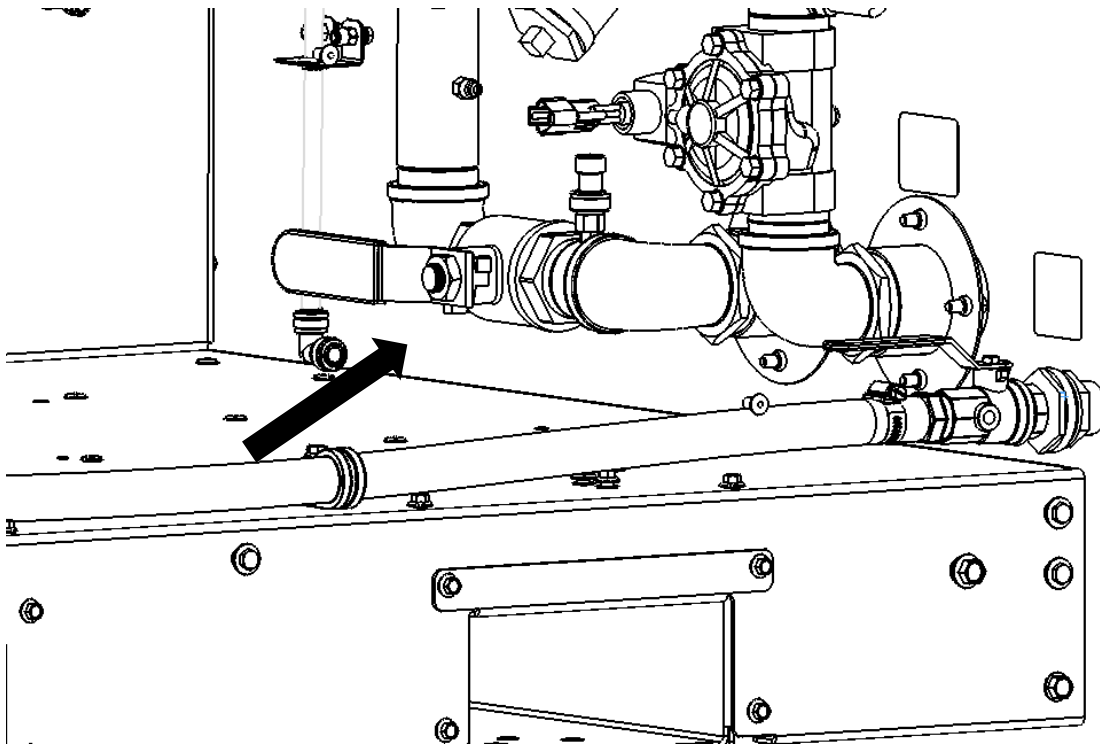


Figure 16 Pump Throttling Valve Seismic

7.1.2 Temperature control

The chiller will maintain coolant supply temperatures to the process according to its set-point. Temperature control over a wide range of heat loads is achieved through closed-loop control mechanisms. No manual intervention is required other than during the occurrence of faults.

8 Controller

8.1 Controller Layout

This system uses 3 controllers to control the chiller. These controllers are located inside the electrical enclosure. The **Main Controller** executes the application logic and hosts the control user interface. All setting changes and program monitoring is done on this controller. **Expansion Modules 1 & 2** provide additional IO needed to control refrigeration circuits 1 & 2. The three controllers are functionally equivalent. In the event of a failure on the **Main Controller** either **Expansion Module** can be swapped in and the system can be operated with only two controllers. In this event only one refrigeration circuit will be operational.

Please contact the Dimplex Thermal Solution's Sales department if interested in Customer Link functionality.

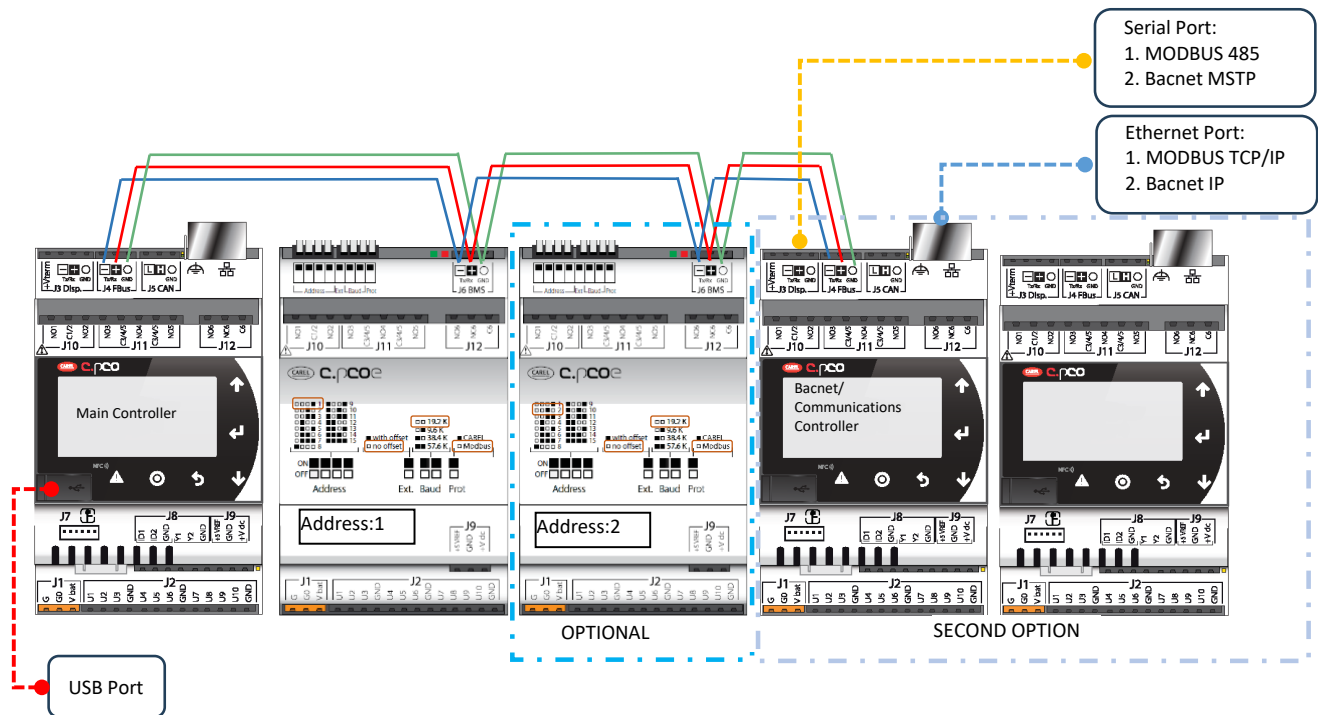


Figure 17: Controller Layout

8.2 Button Layout

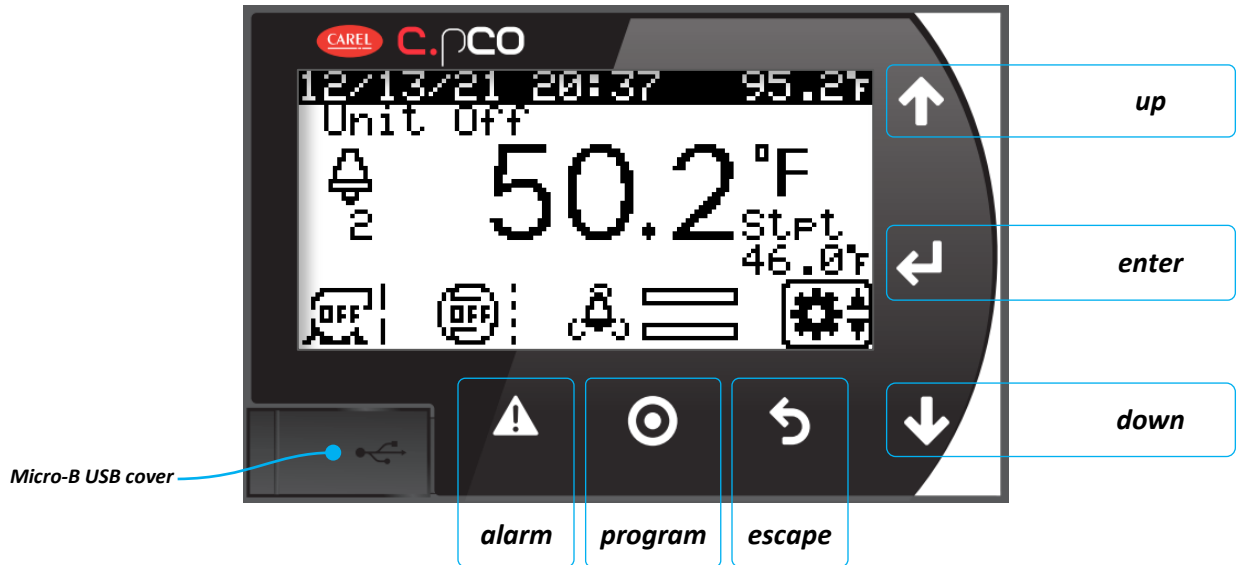


Figure 18: Button Layout on Carel pCO

If accessing the application through a remote display (shown below) the button symbols and functions are the same. Note that the external display is not equipped with a USB port.

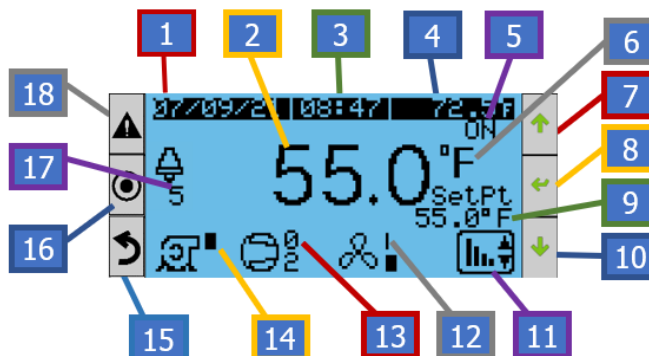






Figure 19: Button Layout on Remote Display

Alarms are logged in the controller's memory based on their time and date of occurrence. (refer to Figure 18).




8.3 Home Screen Quick Start Guide

- 1) Date
- 2) Current Outlet Process Fluid Temperature
- 3) Time
- 4) Ambient Temperature (if sensor installed)
- 5) Status of Chiller (OFF, ON, or INIT)
- 6) Units: °F or °C
- 7) Increase Value or move up selection list
- 8) Enter
- 9) Outlet Process Fluid Temperature Setpoint
- 10) Decrease Value or move down selection list
- 11) Menu Select:





	Configuration Setup Chiller Parameters
	Status of Chiller Information
	Program Version Information
	HMI Chiller Power ON-OFF
SET	Adjust Setpoints of Temperature, Flow, or Pressure
I/O	Configure Sensor Wiring Location and Alarm




12) Fans

	Circuit 1 is used, Fans are OFF Circuit 2 is not used	Running		Any Fan or Compressor has Overload Alarm
	Circuit 1 Fans Running Circuit 2 Fans Running			

13) Compressors Running

No Compressors Running		Circuit 1 Number of Compressors Running Circuit 2 is not used
Only Refrigeration Circuit 2 has Compressors Running		Circuit 1 has 0 Compressors Running Circuit 2 has 2 Compressors Running

14) Process Pumps Running

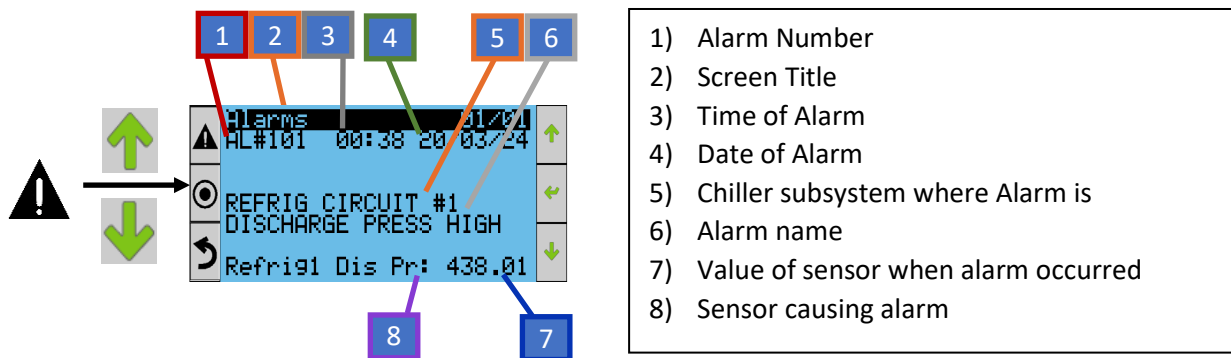
	Pumps Off		Pumps Running		Any Pump has an Overload Alarm
---	-----------	---	---------------	---	--------------------------------

- 15) ↩ Escape key – back out of current screen toward home screen
- 16) ⦿ Program key – Password entry screen (see 2.1.2.1)
- 17) Number of Alarms present
- 18) ⚠ Alarm key – go to Alarm screen

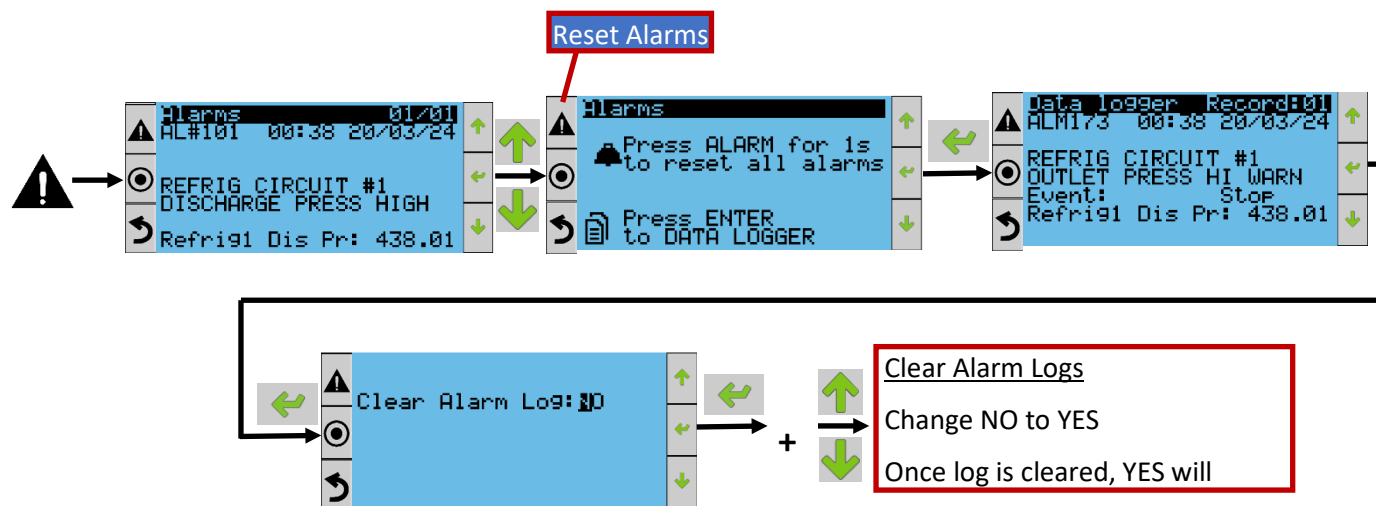
8.3.1 Alarms

8.3.1.1 Active Alarms

Pressing the Alarm key from any screen will bring up the current alarm screen. Use the up and down arrows to scroll through all active alarms.



8.3.1.2 Alarm Reset / Enter Data Logger (Alarm History)/Clear Alarm Log



8.4 Quick Menu Details

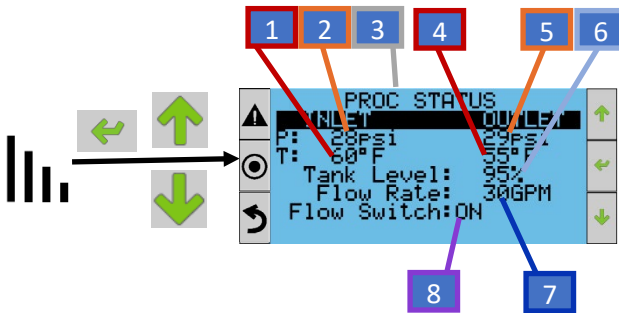
8.4.1 Menu Navigation

Traverse menu items and pages using the **up** and **down** buttons. Press **enter** to navigate into a menu item or to select editable fields. Change field values using the **up** and **down** buttons.

8.4.2 Monitoring

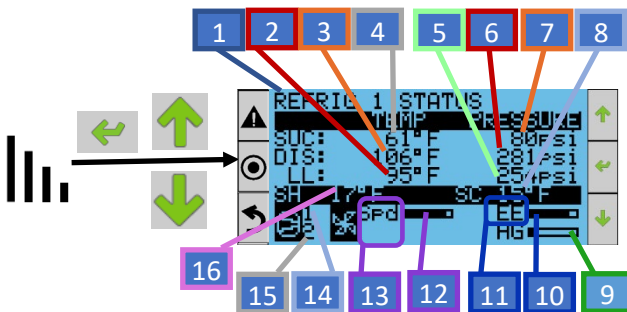
8.4.2.1 Process Status

This status screen is visible when there are no process circuit control loops.



- 1) Process Inlet Temperature (in °F or °C)
- 2) Process Inlet Pressure (in psi or bar)
- 3) Screen Title
- 4) Process Outlet Temperature (in °F or °C)
- 5) Process Outlet Pressure (in psi or bar)
- 6) Tank Level (in percent full)
- 7) Flow Rate (in Gal/Min)
- 8) Evaporator Flow Switch

8.4.2.2 Refrigeration Circuit 1 (and 2) Status

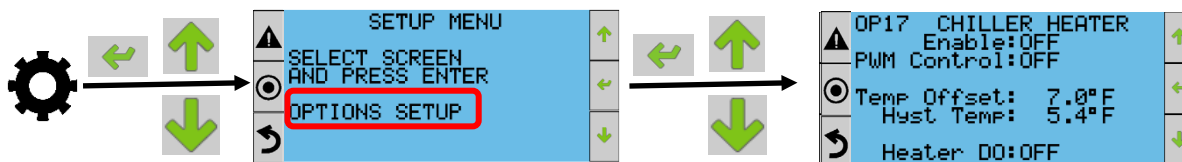


- 1) Screen Title
- 2) Liquid Line Temperature (in °F or °C)
- 3) Discharge Temperature (in °F or °C)
- 4) Suction Temperature (in °F or °C)
- 5) Liquid Line Pressure (in psi or bar)
- 6) Discharge Pressure (in psi or bar)
- 7) Suction Pressure (in psi or bar)
- 8) Sub Cooling (Temperature of gas based on discharge pressure – discharge Temperature)
- 9) Bar graph representing how much the motorized hot gas valve is opened
- 10) Bar graph representing how much the motorized Electronic Expansion Valve (EEV) is opened
- 11) EE = Electronic Expansion
LLV = Liquid Line solenoid valve
- 12) Bar graph representing what percent of full speed the condenser fan is running
- 13) Spd = Variable Speed Fan
LO: ON/OFF = 2 speed fan low speed status
HI: ON/OFF = 2 speed fan high speed status
ON: ON/OFF = fixed speed fan status
- 14) Compressor 1 is running
- 15) Compressor 2 is running
- 16) Superheat (Temperature of gas based on suction pressure – suction Temperature)

8.4.2.3 Pump 1 (and 2) Status

Where in the past this had been a separate screen, the pump status is now shown on the home page. Please reference section [Home Screen Quick Start Guide](#).

8.4.2.4 Simple ON-OFF Digital Heater Control (Tank Heater)



Tank Heater (if equipped)

1. Heater Status
 - a. Heater Status
 - b. On at: Setpoint
 - c. Off at: Setpoint

8.4.2.4.1 Heater Visible

The Chiller Heater (sometimes called a maintenance heater) setup screen will become visible for access when digital output DO89 (Chiller Heater) is configured in the I/O.

8.4.2.4.2 Enable

This is a permissive for the chiller heater control to run.

8.4.2.4.3 PWM Control

This is an optional control to the digital control and is not provided on Medical chillers.

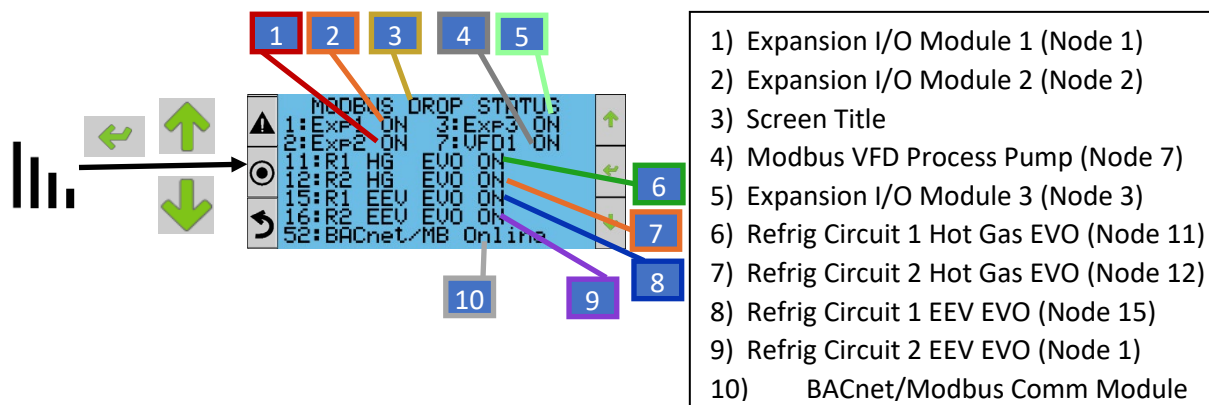
8.4.2.4.4 Temp Offset

This temperature offset is subtracted from the main chiller temperature setpoint to give a modified temperature setpoint lower than the main setpoint for the heater control. In most cases, the heater will be enabled at a lower temperature than the chiller setpoint. When the chiller temperature feedback falls below the modified setpoint, the heater contact (DO89) will turn on.

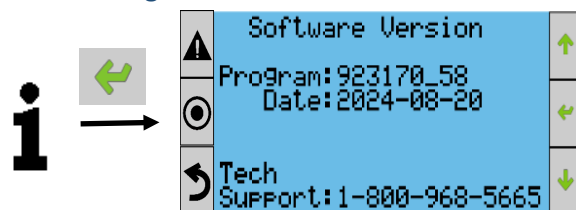
8.4.2.4.5 Hysteresis Temp

This hysteresis temperature will get added to the main chiller temperature with the offset to give a hysteresis offset temperature setpoint that tells when the heater contactor will turn off. When the chiller temperature rises above this hysteresis offset temperature, the heater contactor will turn off until it falls below the offset modified temperature defined above.

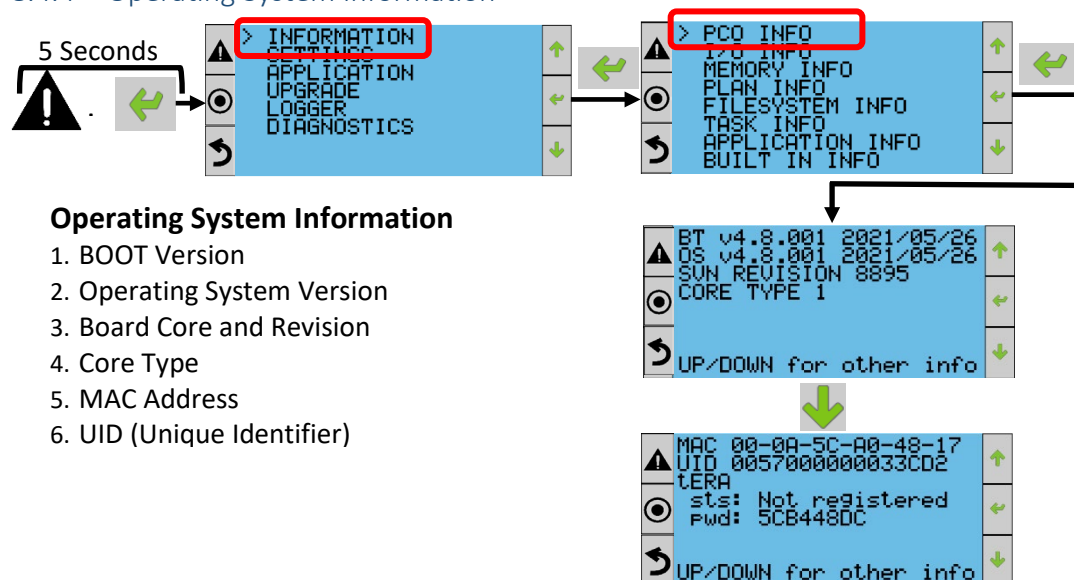
8.4.2.5 Communication (Network) Status



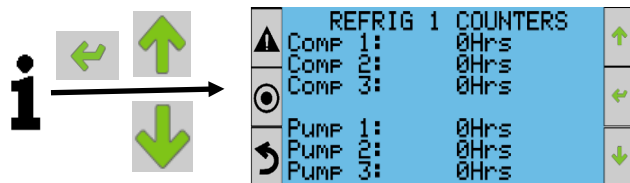
8.4.3 Program Information



8.4.4 Operating System Information

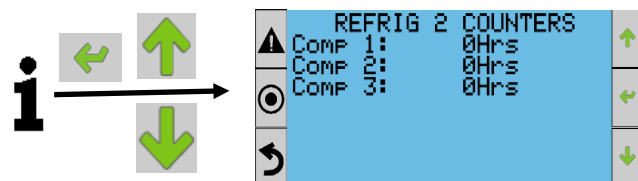


8.4.5 Hours of Operation



Refrigeration Circuit 1 and Process Pump Hours

Time running in hours of refrigeration circuit #1 compressors and process pumps.



Refrigeration Circuit 2 Hours

Time running in hours of refrigeration circuit #2 compressors. (This screen will ONLY be available if two refrigeration circuits are configured in the system setup configuration 3/11 screen.)

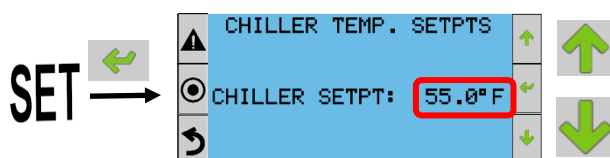
8.4.6 On/Off



“Screen” On/Off Selector (if enabled)

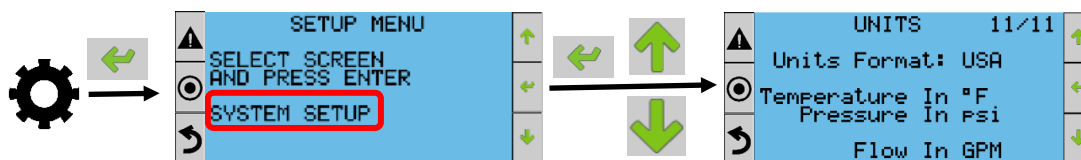
Must be enabled from “User Settings”

8.4.7 User Settings



Temperature Setpoint

1. Temperature Setpoint Control
 - a. Default reference is **Outlet Temperature**.



User Defined Settings/Units

Unit of Measure used in User Interface

Table 7: Controller Units of Measure

	None	SI	USA	UK	CAN	LON	SI (Bar)
Temperature	N/A	°C	°F	°C	°C	-	°C
Pressure	N/A	kPa	psi	bar	psi	-	bar

8.5 Passwords

8.5.1 Levels

There are three levels of passwords that grant different levels of access.

8.5.1.1 *None*

This password level gives access to the main screen, all the status information screens, the screen ON/OFF screen, and the setpoint screen.

8.5.1.2 *User (1010)*

This password level gives access to view all the setup screens. With a few minor exceptions, no setup values can be modified. The operator can scroll through all the different screen but as soon as an attempt is made to modify a setpoint value, the password login screen is displayed with a message to enter the Service password.

8.5.1.3 *Service*

This password gives access to view all screens and modify all setup parameters. Contact DTS service for assistance.

8.5.2 Accessing

There are several ways to access the password login screen.

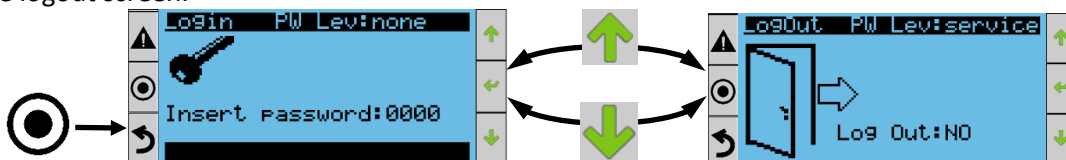
8.5.2.1 Program key

Pressing the program button (center button on the left side) will bring up the login screen.



The current entered password level is shown in the upper right corner of the screen.

The up and down buttons on the right side of the HMI will switch between the login screen and the logout screen.



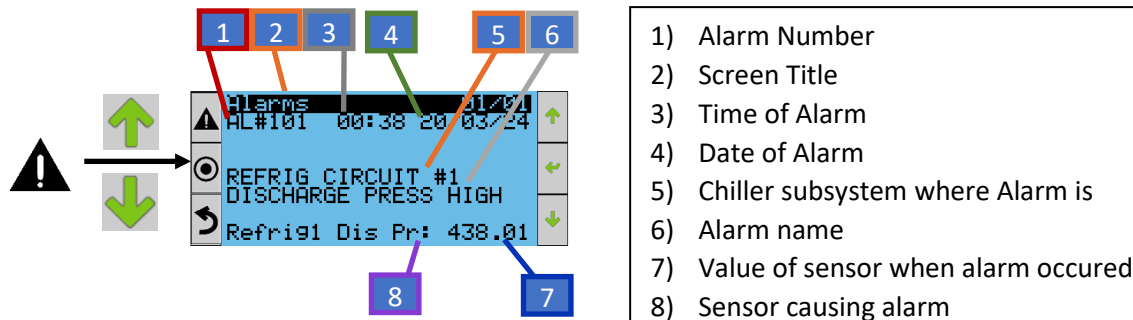
8.6 Power Loss

If power is lost the controllers' state (On/Off) is saved. When power is restored and if no new faults occur. The chiller will restart to the state that it was before power was lost.

8.7 Alarms

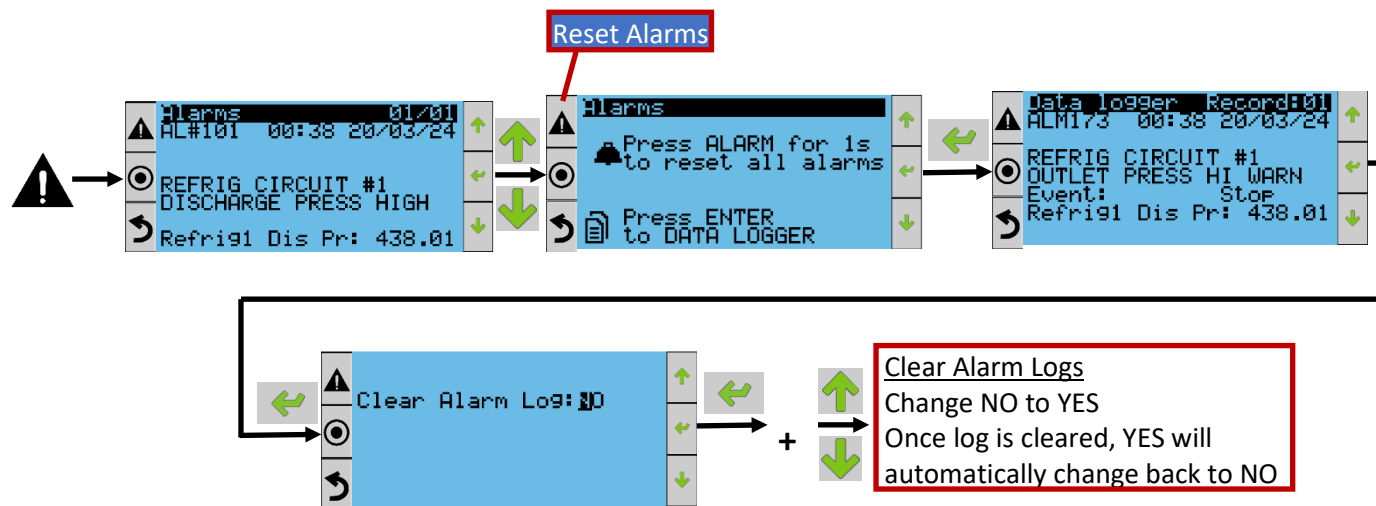
8.7.1 Active Alarms

Pressing the Alarm key from any screen will bring up the current alarm screen. Use the up and down arrows to scroll through all of the active alarms.



8.7.2 Alarm Reset / Alarm History / Clear Alarm Log

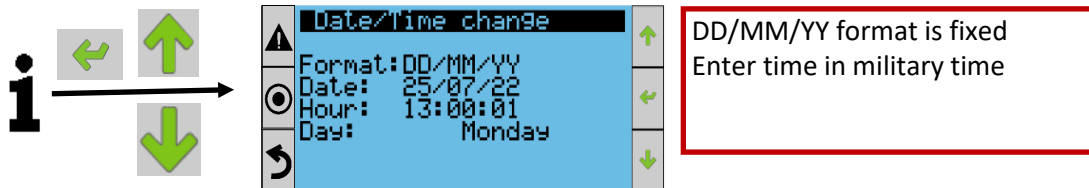
Please note that during the warranty period, Alarm Logs should not be cleared until a Certified Contractor records and provides the information to Dimplex Thermal Solutions.



8.8 Controller Setup

8.8.1 Date & Time Setup

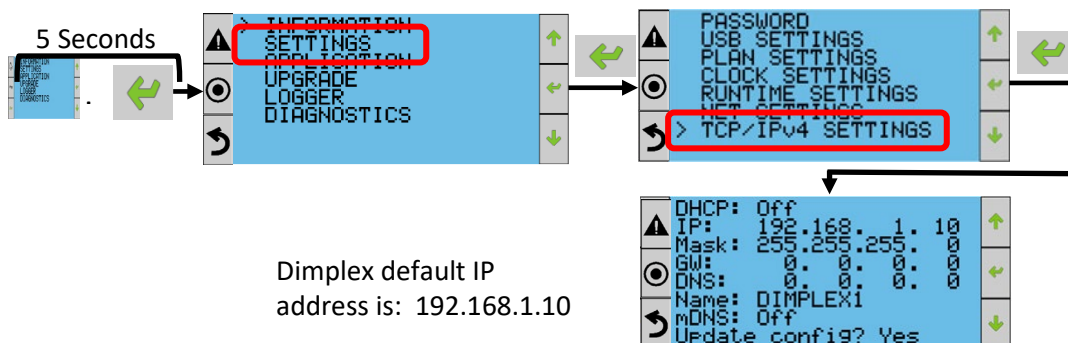
It is highly recommended to set the local date and time during installation. The time is configured to the 24-hour format. To set the date and time press the up and down buttons to get to the **Information Sub-menu** then press **enter** and navigate to the “Date/Time change” screen.



Use the **enter**, **up**, and **down** buttons to set the date (according to Format) and time (HH:MM:SS). The Day will update to show the correct weekday according to the date entered. The values entered are for writing update values only. They will not change as the current time is updated by the controller.

8.8.2 IP Address Setup

The controller is equipped with an ethernet port. This port can be used for Modbus communication (if enabled) or used to access the controller’s web interface for remote monitoring. To set the IP address press the **program** button to navigate to the “Main Menu”. Enter the “User Password” if prompted. From the “Main Menu” press **enter** to navigate into “Machine Settings”. Next use the **down** button to navigate to “Network Settings” and press **enter** to find the “Network Configuration” page. Use the **enter**, **up**, and **down** buttons to configure the network settings. Please contact your IT department for assistance in selecting the appropriate values.



8.9 Application Log Export

The controller is equipped with event and periodic logs that allow data to be captured when certain conditions are triggered or periodically during operation. This is used to capture critical information during certain alarms and record high level state variables periodically throughout the day.



Use the **enter**, **up**, and **down** buttons to select the memory type **USB** and confirm yes to initiate export. The export may take several minutes to complete. Once the export is started a status page will appear.

Press **escape** when export is complete. There should now be several .csv log files on the USB storage device.

8.10 Customer Link

Customer Link (“Cust Link”) is a feature that allows customers to interface with the chiller application over a network. This allows for remote monitoring and remote On/Off and Temperature setpoint control. Refer to DTS document [ENG-SVC-0060](#) for setup and function details.

Please contact the Dimplex Thermal Solution’s sales department for more information.

9 Troubleshooting

9.1 Troubleshooting Guide

Table 8 Troubleshooting Service Guide

Symptoms	Possible Cause
Selector is in "ON" position & pump will not start.	1. Open disconnect switch. 2. Tripped overloads. 3. Phase monitor fault. 4. Low tank level.
Pump is rotating but no pressure is established.	1. Improper rotation. 2. No water in reservoir. 3. Valves not open. 4. No back pressure. 5. Pump suction blocked. 6. Pump seal leaking.
Pump runs properly, but compressor does not start.	1. Compressor is not getting energized-flow switch not activated.
Compressor hums but will not start.	1. Low line voltage. 2. Motor windings shorted to ground. 3. Internal compressor damage. 4. Improperly wired.
Compressor will not start (no hum).	1. Open disconnect. 2. Thermal overload open. 3. Relay not closing to start compressor. 4. Bad motor windings. 5. Loss of refrigerant charge.
Compressor starts but trips on internal protector.	1. High suction or discharge pressure. 2. Low line voltage. 3. Bad motor windings.
The unit short cycles.	1. Low refrigerant charge. 2. Defective expansion valve.
High refrigerant pressure fault.	1. Dirty air filters. 2. Refrigerant overcharge. 3. Dirty condenser. 4. Malfunction of fan motor. 5. Excessive ambient air temperature.
Low refrigerant pressure fault.	1. Extreme low ambient temperature. 2. Refrigerant leak. 3. Lack of fluid flow through heat exchanger. 4. Liquid line solenoid valve stuck or not opening. 5. Expansion valve stuck or lost bulbwell charge.
Fluid flow fault.	1. Pump not running. 2. System not filled. 3. Air in the system. 4. Flow switch paddle stuck.
Pump Overload fault.	1. Overload setting incorrect. 2. Bad motor windings. 3. Low pump pressure due to low piping resistance.
Phase Monitor fault.	1. Incorrect line phasing. 2. Low/High incoming voltage. 3. Voltage imbalance between phases.

Low Tank Level fault.	<ol style="list-style-type: none"> 1. Low/no fluid in Heat Exchanger reservoir. 2. Float switch stuck in the open position.
-----------------------	---

9.2 Refrigeration High Pressure Switch



WARNING

The refrigeration discharge lines may be extremely hot – avoid contact. Resetting of the refrigeration high pressure switch should only be performed by qualified personnel equipped with proper safety gear and tools.

The chiller's refrigeration circuit is equipped with a mechanical, high pressure switch that disengages (trips) the refrigeration circuit when dangerously high pressures occur to prevent damage to the refrigeration system. If the switch has tripped it can be reset by performing the following steps:

1. Access the chiller's refrigeration circuit (refer to section 6.1).
2. Depress the red reset button until a tactile click is felt.
3. Reinstall the door(s) before restarting the chiller.

9.3 Maintenance/Repairs

Before any work (maintenance, service and repairs) on the machine takes place. A DTS approved and qualified personnel must be the only one performing the work. Servicing shall be performed only as recommended by DTS. They must ensure the check list below is adhered to.

1. Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapour being present while the work is being performed.
2. All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
3. The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres.
4. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., nonsparking, adequately sealed, or intrinsically safe.
5. If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available on hand. A dry chemical or CO2 fire extinguisher should be adjacent to the charging area.

6. No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment shall be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.
7. Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
8. Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times, the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.
9. The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed.
10. The ventilation machinery and outlets are operating adequately and are not obstructed.
11. If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
12. Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
13. Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
14. Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment, so all parties are advised.
 - That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
 - That no live electrical components and wiring are exposed while charging, recovering or purging the system;
 - That there is continuity of earth bonding.

15. During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
16. Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
 - Ensure that the apparatus is mounted securely.
 - Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.
17. Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
18. Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
19. Replace components only with parts specified by the manufacturer. Other parts can result in the ignition of refrigerant in the atmosphere from a leak.

*****NOTE** The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.*
20. Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

21. Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

- The following leak detection methods are deemed acceptable for all refrigerant systems.
- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity might not be adequate, or might need recalibration.
- (Detection equipment shall be calibrated in a refrigerant-free area.)
- Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
- Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work.

****NOTE** *Examples of leak detection fluids are*

- *bubble method,*
- *fluorescent method agents.*

- If a leak is suspected, all naked flames shall be removed/extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.
- Removal of refrigerant shall be in accordance with #22.

22. When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration.

- The following procedure shall be adhered to:
 - a) safely remove refrigerant following local and national regulations;
 - b) purge the circuit with inert gas;
 - c) evacuate (optional for A2L);
 - d) purge with inert gas (optional for A2L);
 - e) open the circuit by cutting or brazing.
- The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes.
- For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times.
- Compressed air or oxygen shall not be used for purging refrigerant systems.

- For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L).
 - When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
 - Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.
23. In addition to conventional charging procedures, the following requirements shall be followed.
- a) Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
 - b) Cylinders shall be kept in an appropriate position according to the instructions.
 - c) Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
 - d) Label the system when charging is complete (if not already).
 - e) Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.
 - f) Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.
24. When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
25. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
26. The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

27. The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
28. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Establishing a proper maintenance schedule will extend the lifetime of the chiller. A suggested checklist has been provided in section 9.3.1.

9.3.1 Suggested regular maintenance checklist.

Items in this list should initially be performed on a weekly basis to determine how often they need to be serviced. Time between servicing must be re-established when operating conditions have changed.

9.3.1.1 *Inspect and clean the condenser coil and air intake filter*

Excessive buildup of dirt, oil, and/or other debris on the condenser coil and air intake filters will cause reduced air flow rates for heat dissipation leading to lower capacities. Ensure that the fins of the condenser coil are clean and undamaged. Use compressed air at no more than 120psi (8.3bar) to blow out the condenser coil and air intake filters in the direction opposite to normal air flow. For the condenser coil the cleaning air should enter the discharge side and exit from the intake side. If the air filters cannot be cleaned, then they must be replaced.

9.3.1.2 *Inspect the supply pressures*

Record the supply pressure after the initial startup and then periodically. If plumbing connections between the chiller and process have remain unchanged, the supply pressures should remain constant. An increase in pressure indicates a clogged filter/strainer or buildup of debris in the fittings.

9.3.1.3 *Inspect and clean fluid strainer*

Fluid strainers protect the brazed plate heat exchanger from becoming clogged. Inspect and clean strainer after first hour of operation, after first week of operation, and annually thereafter.

9.3.1.4 *Inspect the quality of the coolant in the reservoir*

Access the coolant in the reservoir via the access cap. System fluid should be clean and free of contaminants. Test the glycol concentration level to ensure levels are within the rated conditions. Refill tank as needed with pre-mixed glycol to maintain proper concentration. An inhibited glycol solution is recommended to prevent algae and bacteria from growing. If low toxicity glycol is desired or required, use an inhibited propylene glycol.



WARNING

Do not mix brand names or types of glycol as this may result in the inhibitors precipitating out of solution. Do not use automotive antifreeze in the Chiller Unit as it can cause extensive damage to the cooling system. The use of automotive anti-freeze can affect the heat transfer of the system, fluid flow, and attack the pump seals.



WARNING

Galvanized piping is not recommended because the zinc will react with the inhibitor in the fluids, causing precipitate formation, depletion of the inhibitor package, and removal of the protective zinc coating, particularly above 100°F. Precipitation can also lead to localized corrosion.

9.3.1.5 *Inspect fluid system for leaks of loose connections*

Visually check fluid connections for any leaks in the system. Ensure there are no plumbing parts that show any significant wear including chafing or cracking.

9.3.1.6 *Inspect and test refrigeration system for leaks*

Inspect the inside of the chiller for any visual evidence of refrigeration leaks. Spots of oil on the inside of the unit or on the refrigeration lines may signify a potential leak. Have a certified refrigeration technician inspect the unit for proper operation.

9.3.1.7 *Check all wiring for loose connections, chaffing or damage*

Turn off the main disconnect. Check all wiring inside of electrical panel and inside the chiller for loose or damaged wires. Tighten any loose terminals and replace any damaged wires.

Table 9: Electrical Component Torque

Component	Torque (in-lb)
Pump/fan contactor power terminals	22
Pump contactor overload terminals	12
Pump/fan contactor control terminals	8.9-13
Pump overload power terminals	22
Pump overload control terminals	5
Compressor contactor - Power	13.3-22
Compressor contactor - Control	8.9-13
Fused terminal	25
Disconnect wire terminal	35
Disconnect fuse screw	35
Disconnect shaft set screw	12
Fuse block terminal	35
Transformer - Allen Bradley	10
Transformer - Dongan	16-18
Power distribution block - Primary	120

Component	Torque (in-lb)
Power distribution block - Secondary	25
Power distribution block - Secondary	20
Control relay socket terminals	5-9
Controller plug screws - large	5
Controller plug screws - Small	2

9.3.1.8 *Schedule planned maintenance services*

Consult the factory to schedule and perform planned maintenance services on the chiller by qualified refrigeration technicians.

10 Internal Components

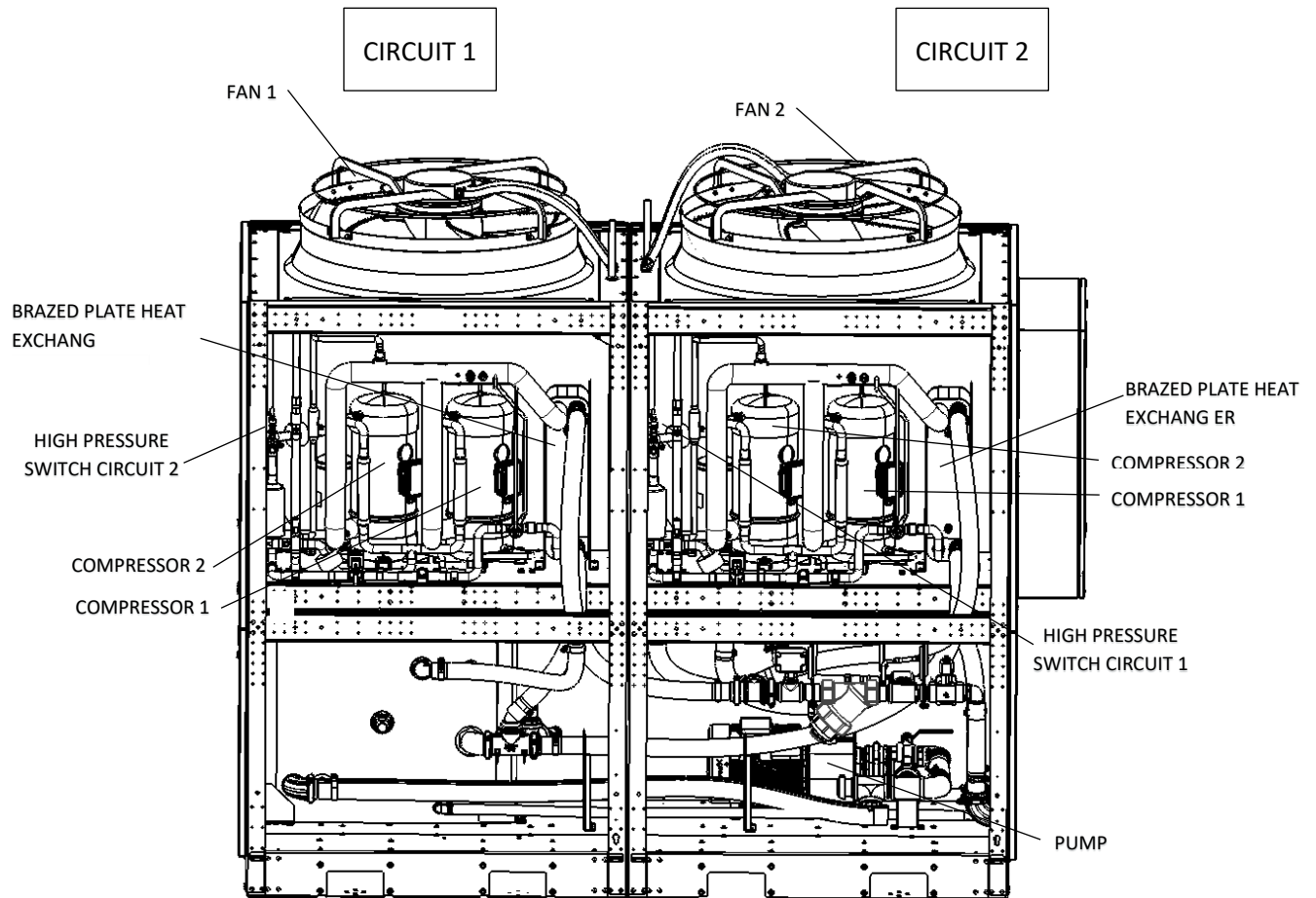


Figure 20: Overview of Internal Components

11 Decommissioning

Review the work procedures in the Maintenance/Repairs section before decommissioning. Ensure the below procedures are followed during decommissioning.

- Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details.
- It is recommended as good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant.
- It is essential that electrical power is available before the task commences.
 - a) Become familiar with the equipment and its operation.
 - b) Isolate the system electrically.
 - c) Before attempting the procedure, ensure that:
 - i. Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
 - ii. All personal protective equipment is available and is being used correctly.
 - iii. The recovery process is supervised at all times by a competent person.
 - iv. Recovery equipment and cylinders conform to the appropriate standards.
 - d) Pump down refrigerant system, if possible.
 - e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
 - f) Make sure that cylinder is situated on the scales before recovery takes place.
 - g) Start the recovery machine and operate in accordance with instructions.
 - h) Do not overfill cylinders (no more than 80 % volume liquid charge).
 - i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
 - j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

- k) Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.
- Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

12 Revisions

Rev	Description	By	Date
A	Initial Release	AM	10/6/25
B	Added chiller capacity table and power loss description.	BP	12/2/25
C	Removed incorrect inlet/outlet connection sizes. Updated specifications table dimensions.	AM	12/8/25
D	Corrected FLA, MCA for G02-2-10000, weights for the Seismic units and dimensions for non-seismic units on the Specifications table. Updated Table 6 to include pressure relief sizing. Added reference in section 6.3. Added pump outlet pressure to start up procedure.	ODW	12/16/25
E	Updated pressure relief valve connection size, minor formatting updates	AM	1/5/26

13 IoT Services

13.1 Overview

Dimplex Thermal Solutions (Dimplex) provides industrial IoT hardware and cloud-based data collection services to support our Process Chillers/Units. The service includes sensor data collection, fault detection, uptime monitoring, product issue identification, and adherence to the data retention policy.

13.2 Scope of Services

- Deployment and maintenance of Dimplex IoT hardware
- Collection, processing, and analysis of sensor data related only to Dimplex' Process Chiller/Unit
- Fault detection and reporting mechanisms
- Uptime monitoring and performance tracking
- Identification of product issues based on collected data
- Remote diagnostics capabilities
- Preventative maintenance indicators
- Compliance with agreed-upon data retention policy

13.3 Data Retention and Security

Data for three (3) years, following industry best practices and compliance requirements.

- Data encryption at rest and during transmission
- Access is restricted to authorized personnel only
- Routine audits for data integrity and privacy compliance

13.4 Data Ownership and Usage

- Dimplex retains ownership of data (real time and historical) generated by the IoT equipment installed on the Dimplex' Process Chiller/Unit.
- Dimplex may use collected data for diagnostics, service recommendations, product improvement, and anonymized trend analysis
- Data will not be shared with third parties without removing customer specific information, except as required by law.

13.5 Limitations

- IoT services are provided Free of Charge for a limited timeframe, not to exceed 18 months from ship date of Dimplex' Process Chiller/Unit from facility. You are without recourse If IoT services stop working or Dimplex elects to discontinue services.
- IoT monitoring is supplemental and does not replace scheduled maintenance or on-site inspections.

- Removal or tampering of IoT equipment by anyone not expressly authorized/directed by Dimplex prior to end of warranty period, could, in the sole discretion of Dimplex, void the warranty for the Process Chiller/Unit
- Dimplex is not responsible for connectivity issues due to site conditions or unit location.
- Dimplex can suspend the service for any reason, such as, but not limited to, end of warranty, end of analysis period, security or policy violations.
- IoT services do not replace your obligation to properly maintain and service Dimplex Process Chiller/Unit.

13.6 Contact Information

For support or questions regarding IoT services, please contact our Service Team at:

medicalservice@dimplexthermal.com

Appendix B (Warranty)

Warranty Coverage

Chiller warranty terms are full parts and labor coverage for 18 months from ship date or 12 months from chiller commissioning, whichever comes first. Parts and labor cover the entire chiller up to the first external piping connection and conduit seal of electrical panel. Any issues with MR operation caused by issues outside of these terms will not be covered under the warranty and will require a service PO for Dimplex to address.

What is Included

- Full parts and labor warranty on chiller related failures as described above.
- 1 chiller startup visit, to be completed by DTS certified technician prior to magnet arrival.
- 1 Planned Maintenance (PM) visit to be completed by DTS certified technician at any time during the warranty term.

What is Not Included

- Any failure that is not related to the chiller. i.e. site power failure, site plumbing leaks, environmentally caused failures, service requests placed in error (i.e. a call to work on the chiller, to find there are no existing issues), issues caused by MRI equipment, etc.
- Startup visits on overtime or exceeding the 4 hour on-site limit due to installation delays and issues.
- Please Note: Any service issues related to the above statements will be billable events to the customer.
- Customer Training – this must be purchased separately to be provided to the customer.
- Additional PMs or startup visits – this must be purchased separately to be provided to the customer.
- Installation of accessories that were purchased as add-ons (i.e. long distance remotes, BACnet cards, etc.) – this must be purchased separately to be provided to the customer.
- Additional Glycol required due to site installation issues or extensive pipe runs.
- Any chiller mounting not part of the original unit or any roof penetrations from mounting or piping runs.
- Any costs associated with equipment required for delivery of parts or components to chiller location, including but not limited to cranes, forklifts, rigging equipment or other mechanical handling devices.
- Any chiller failures resulting from improper application or installation.
- Damage to the chiller or glycol and water lost due to environmental causes, utility failure, facility negligence, or vandalism.
- Cost of service due to the loss of, or fluctuations in, power supplied to chiller.
- Same-day or dedicated vehicle parts delivery service.
- Cost of services due to technician being turned-away, meaning arrived on-site for scheduled event but turned away by Customer, for either a PM and/or scheduled service event
- Cost of services for any calls when the issue is not due to the chiller

Appendix C (General Warranty Procedures)

Warranty Work

Before doing any work on a chiller covered under warranty, call Dimplex Thermal Solutions (DTS) and explain the problem to one of our service technicians who can then determine the best course of action. DTS will not be obligated to pay for warranty service performed without our prior approval.

Please Note: It is the service contractor's responsibility to enclose a service report/work order with each invoice. Unless pre-authorized for special circumstances, DTS will not honor invoices for work done by two or more people at a time, or for overtime labor charges. If the customer requests work that falls into either of these categories, the customer is responsible for the extra charges incurred.

Warranty Parts

All replacement parts under warranty must come from Dimplex Thermal Solutions. When it is necessary for DTS to replace parts which are under warranty, we will issue a Returned Goods Authorization (RGA) for all parts we wish to have shipped back to our factory, freight prepaid. RGAs are valid for a period of thirty (30) days. If DTS has not received the requested parts by the expiration date, the customer will be invoiced for the replacement cost at that time.

Please Note: While DTS is willing to pay freight charges one way for replacement parts, special freight charges, such as next day service, Saturday delivery, etc., are not included. If the customer requests one of these special services, they are responsible for the charges incurred.

Please note DTS standard warranty terms can change and be updated at any time. Please view our website for the most recent version.

Appendix D (Factory Contact)

Hours of operation are 8:00 a.m. to 5 p.m. EST, Monday to Friday.

Website: <https://www.dimplexthermal.com>

Service Support Team

- medicals@service@dimplexthermal.com
- (800) 968-5665
- (269) 349-6800

Parts Department

- partsdept@dimplexthermal.com
- (800) 968-5665
- (269) 349-6800

Appendix E (Chiller Registration)

The registration form must be submitted within 30 days of installation date or warranty coverage will be calculated from the date the chiller was shipped from the factory.

<http://www.dimplexthermal.com/service/register-chiller-location>

Register Your Chiller's Site Location

Why register your chiller?

Dimplex Thermal Solutions chillers are sold across the globe, and often bundled with other manufacturers' equipment. In order to provide a reliable chiller service network across North America, please register the chiller's site location with our inside service team. The team will map your location and make efforts to provide a reliable service experience in your area for years to come.



Service and Parts:

partsdept@dimplexthermal.com

Technical Support:

medicalservice@dimplexthermal.com

Sales Department:

salesdept@dimplexthermal.com

Assembled in USA. | ISO 9001 Certified

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800.968.5665 | 269.349.6800 | dimplexthermal.com



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