



**Glen
Dimplex**
Thermal
Solutions

**Koolant
Koolers**

Koolant Koolers

WO2-2-5000

WO2-2-7500

WO2-2-10000

User Manual





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 any cabinet panels 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

WO-2-2-() 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
 - 50% capacity remains if one circuit is shut down
- **Redundant horizontal centrifugal pump**
 - Dual pumps provide complete redundancy in case of pump failure
 - Easy access panels and flanged plumbing connections streamline pump replacements
 - Automated pump rotation for increased longevity through load sharing
- **Flow setter valve**
 - Flow setter valve automatically 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: Medical Chiller Capacities

Model	Cabinet Material	Coastal Application? (30 miles) (Yes/No)	Tank and Condenser Heater? (Yes/No)	Ambient Range (Min°F / Max°F)	Capacity at 95°F Ambient kW/ (BTU/Hr)	Capacity at Max Ambient kW/ (BTU/Hr)
WO2-2-5000-2P-NF-L-407C-M	Galvanized	No	No	-22 / 120	60 / 204720	49 / 167188
WO2-2-5000-2P-NF-L-407C-M	Galvanized	No	Yes	-40 / 120	60 / 204720	49 / 167188
WO2-2-5000-2P-NF-L-407C-M	Stainless	Yes	No	-22 / 120	60 / 204720	49 / 167188
WO2-2-7500-2P-NF-L-407C-M	Galvanized	No	No	-22 / 120		70 / 238840
WO2-2-7500-2P-NF-L-407C-M	Galvanized	No	Yes	-40 / 120		70 / 238840
WO2-2-7500-2P-NF-L-407C-M	Stainless	Yes	No	-22 / 120		70 / 238840
WO2-2-10000-2P-NF-L-407C-M	Galvanized	No	No	-22 / 104		94 / 320728
WO2-2-10000-2P-NF-L-407C-M	Galvanized	No	Yes	-40 / 104		94 / 320728
WO2-2-10000-2P-NF-L-407C-M	Stainless	Yes	No	-22 / 104		94 / 320728

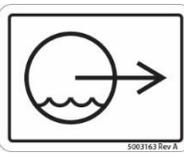
3 Specifications

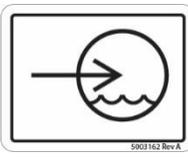
Table 2: Specifications

Criterion	WO2-2-5000 Standard	WO2-2-5000 Low Ambient	WO2-2-7500 Standard	WO2-2-7500 Low Ambient	WO2-2-10000 Standard	WO2-2-10000 Low Ambient
Electrical						
Input power	460V, 3Phase, 60Hz					
FLA	61 A	64 A	89			
MCA	64 A	66 A	93			
MOPD	70 A	70 A	100			
SCCR	5 kA					
Refrigeration						
Number of Compressors	4					
Compressor Motor Power, each	5hp (3.7kW)		7.5hp (5.6kW)		10hp (7.5kW)	
Refrigerant	R407c					
Number of Refrigeration Circuits	2					
Nominal Refrigerant Charge (Each Circuit)	29lb (13.2kg)					
Plumbing						
Number of Pumps	2					
Pump Motor Power	5.5hp (4.1kW)					
Nominal Flow Rate (36gpm Flowsetter Configuration)	35gpm (132LPM)					
Nominal Flow Rate (26gpm Flowsetter Configuration)	26gpm (98LPM)					
Nominal Supply Pressure	70 psi (4.8Bar)					
Physical						
Crated weight	3500lb (1588kg)		3750lb (1701kg)		4000lb (1814kg)	
Uncrated weight	3400lb (1542kg)		3650lb (1656kg)		3900lb (1769kg)	
Operational weigh	4300lb (1950kg)		4550lb (2064kg)		4800lb (2177kg)	
Length	134.5" (3417mm)					
Width	44.0" (1118mm)					
Height	87.7" (2454mm)					

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

Symbol	Description
	Do No Remove Guards
	Prop65 Warning
	Tank Drain
	Fluid Inlet
	Arc Flash Warning

5 Installation Guidelines

5.1 Exterior Components

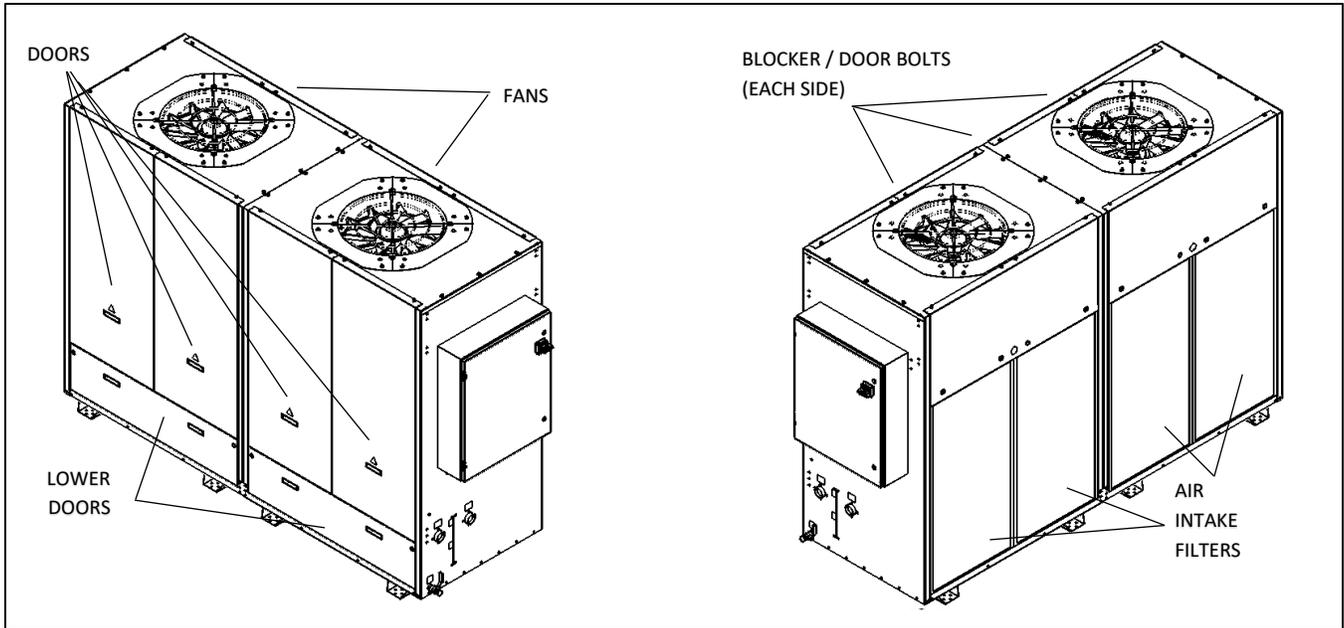


Figure 1: Exterior Components

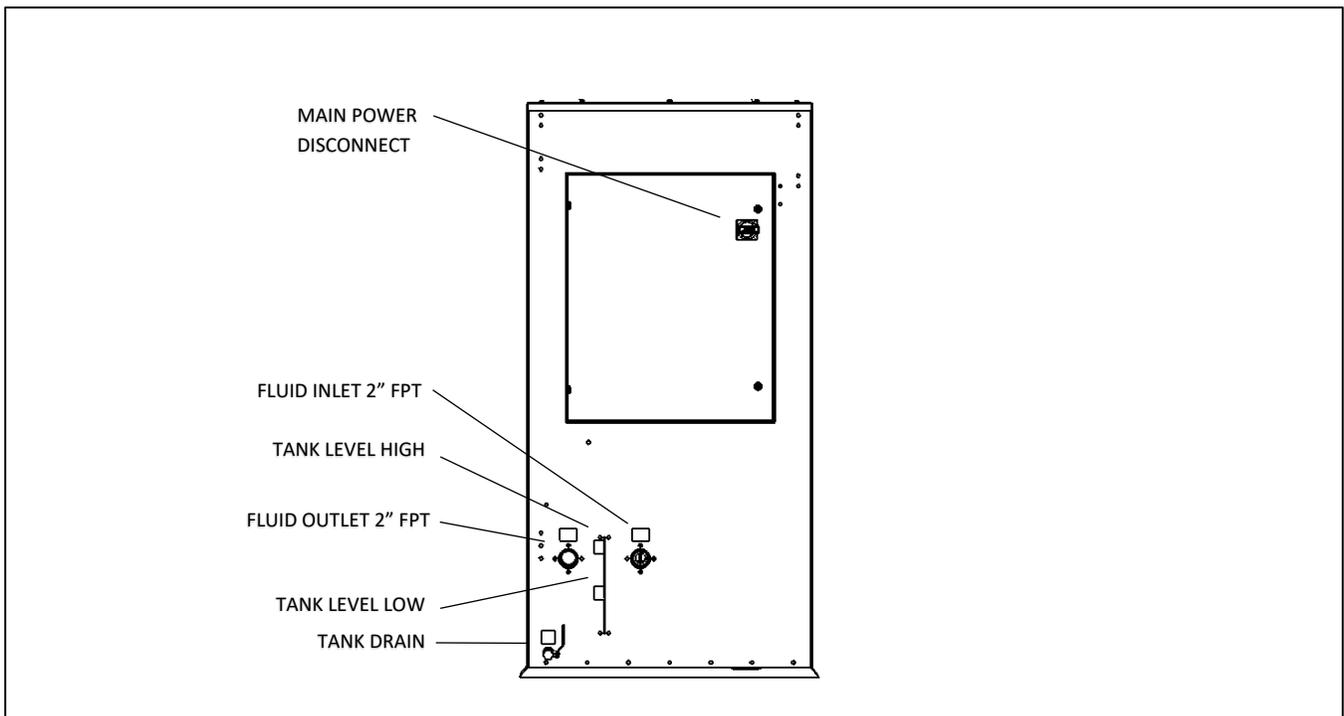


Figure 2: Exterior Components (Electrical Enclosure Side)

5.2 Overall Dimensions

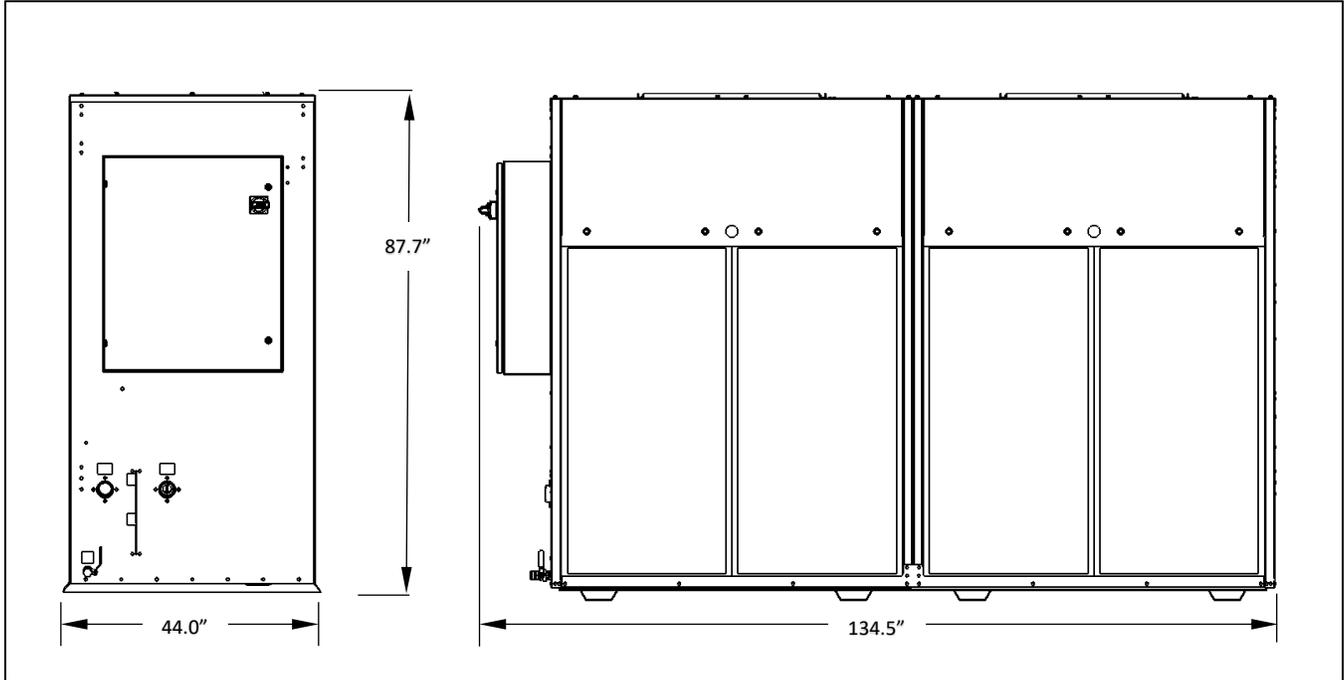


Figure 3: WO2-2-5000 Overall Dimensions

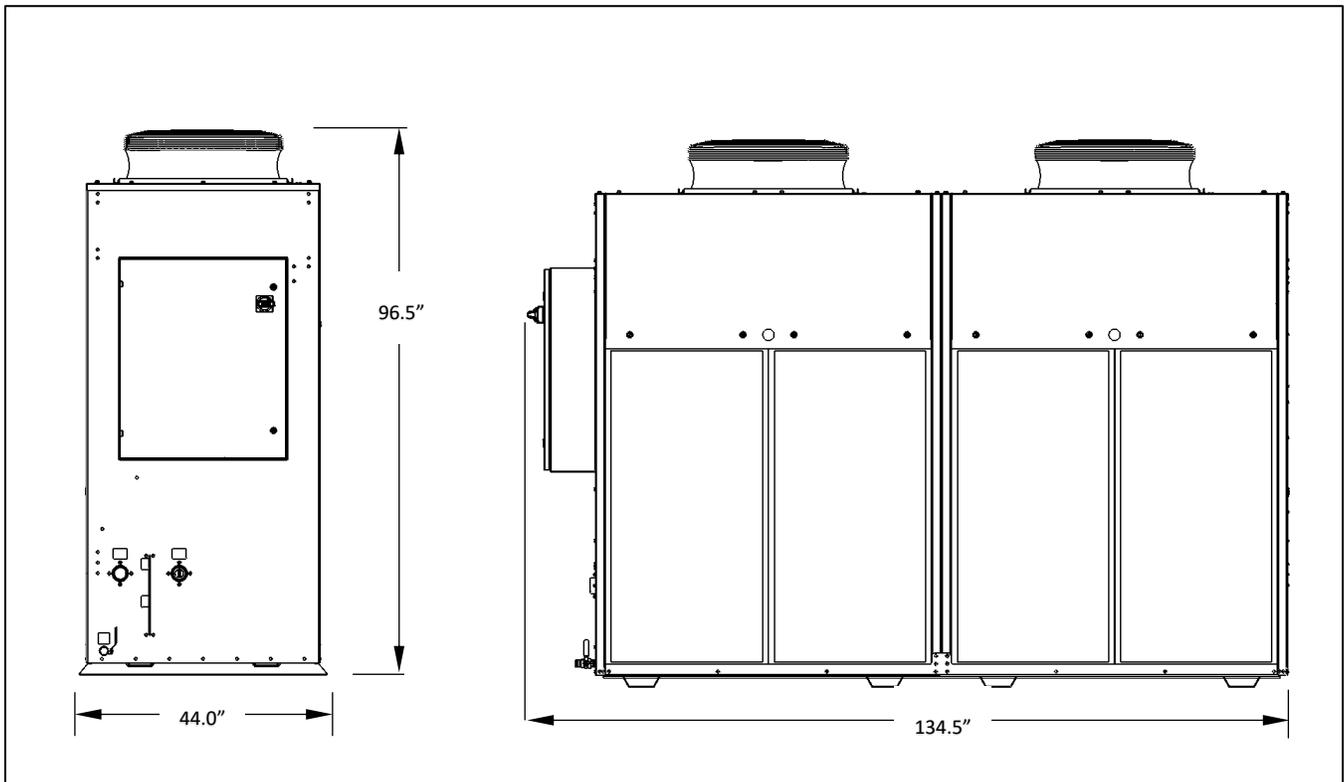


Figure 4: WO2-2-7500 / WO2-2-10000 Overall Dimensions

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. The main disconnect, drain, and field installed service valves can be operated by unauthorized personnel. If unauthorized operation is a concern, then a security fence should be provided to reduce the potential for misuse. Fencing must not obstruct airflow and must leave room or be removable for service. 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, hard 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 12 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, 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.

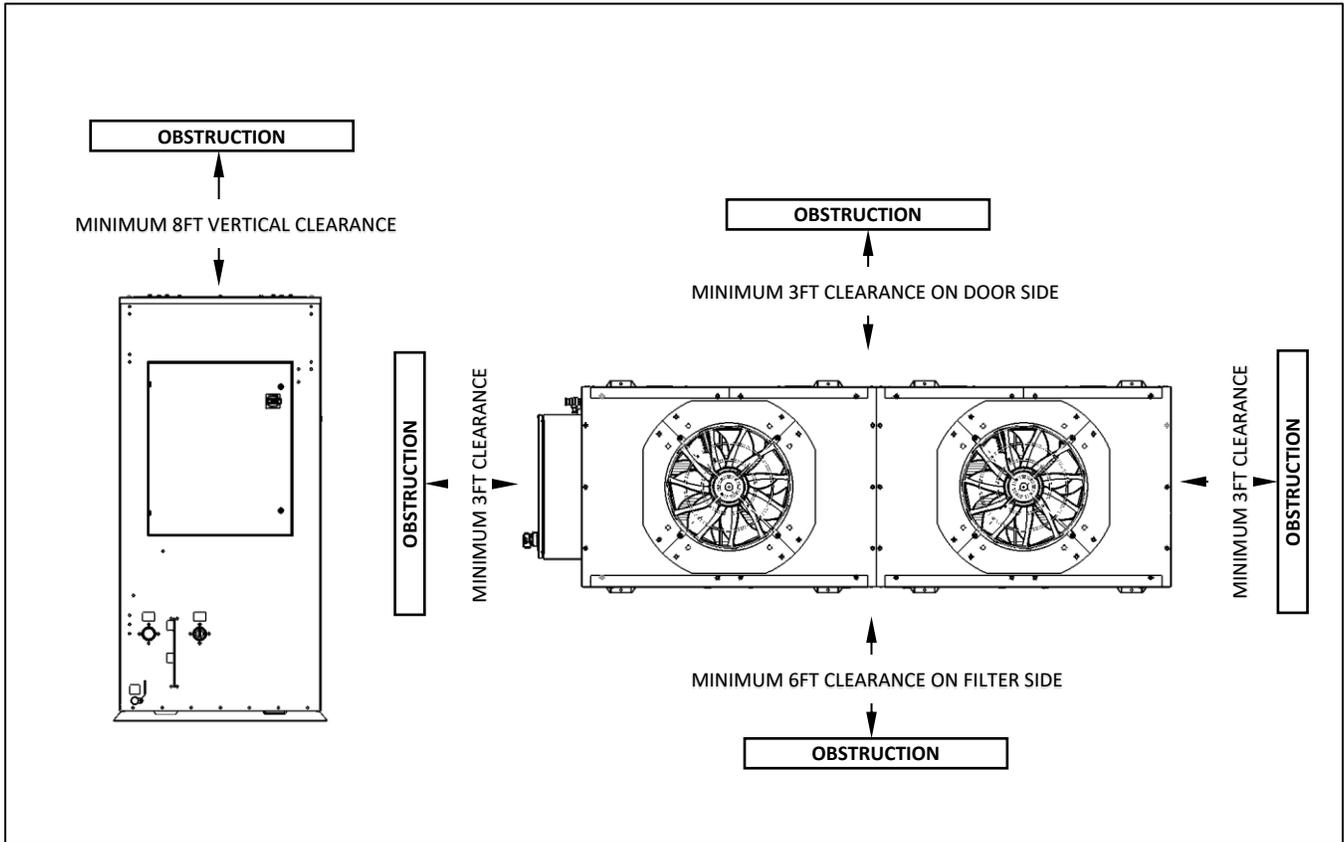


Figure 5: WO2-2-5000 / WO2-2-7500 / WO2-2-10000 Required Clearances



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

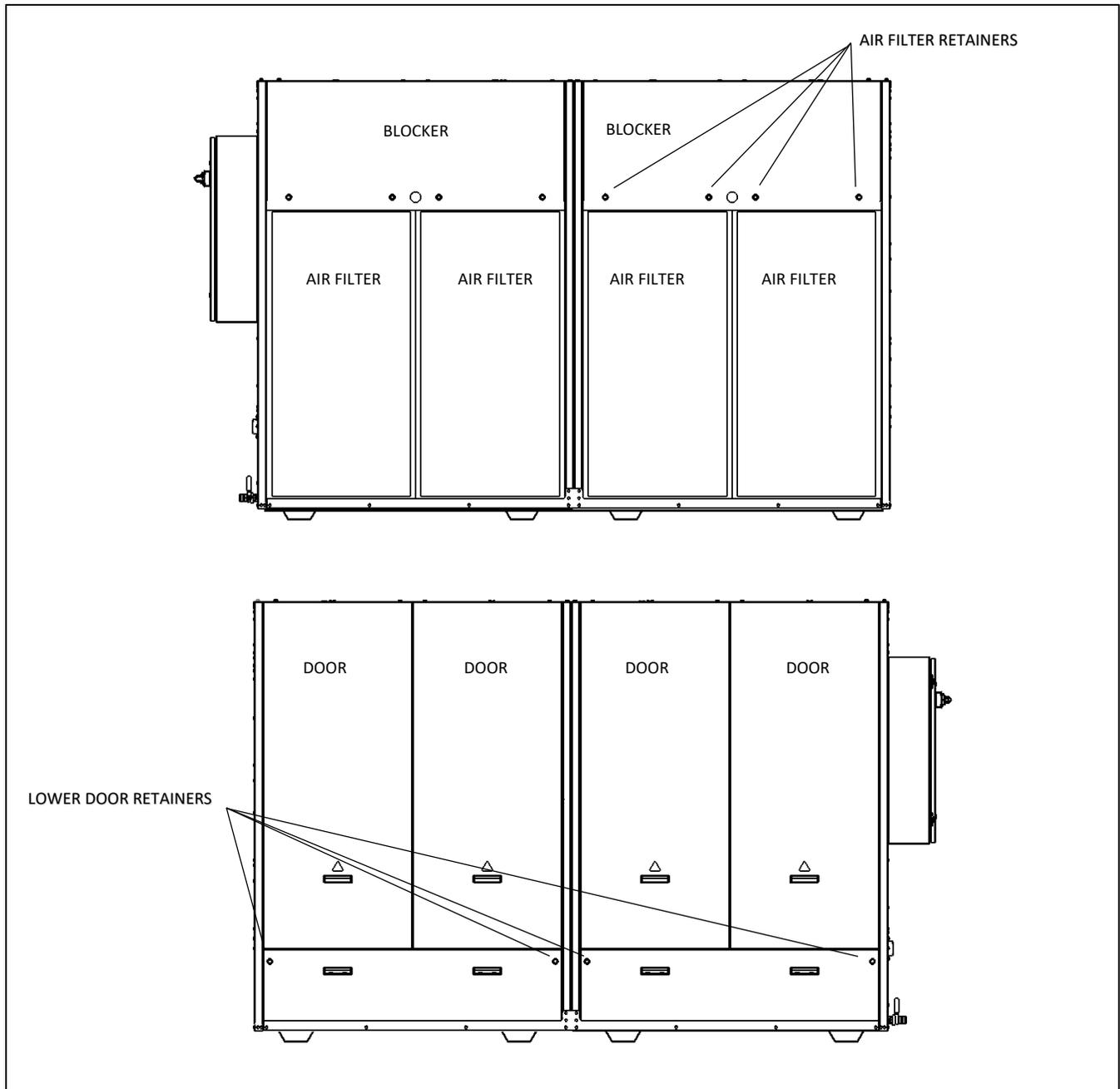
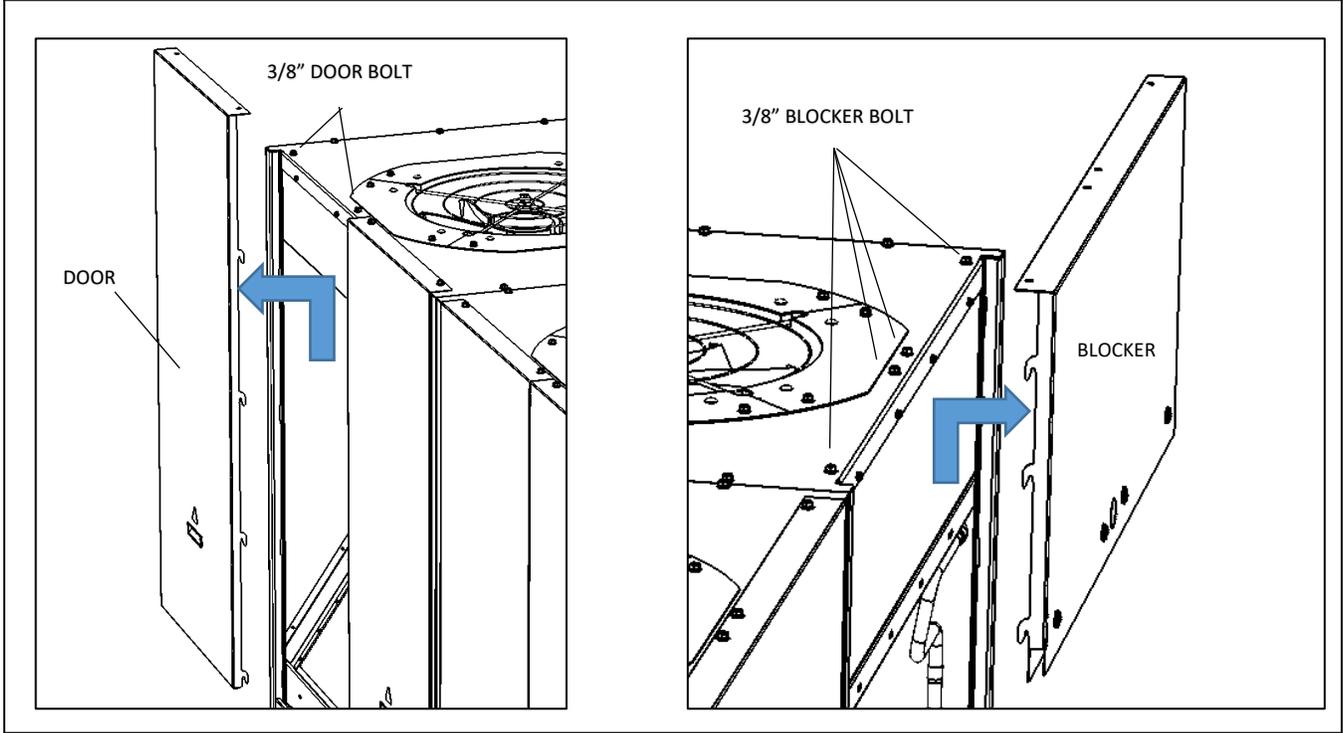


Figure 6: Internal Access



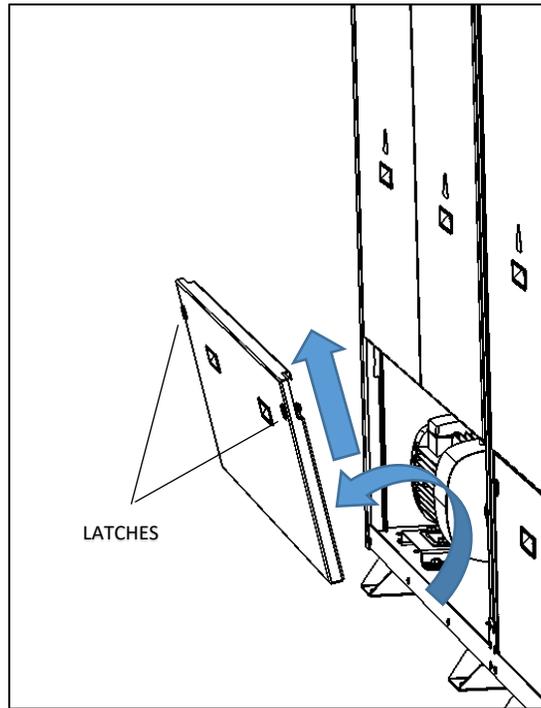


Figure 8: Removal of Lower Doors



To access the chiller's internal components (Refer to, Figure 6, Figure 7, Figure 8):

- **From the air intake/filter side**
 1. Use a slotted screwdriver to turn the quarter-turn *Air Filter Retainer* fasteners above the *Air Filters* counterclockwise.
 2. Gently lift the *Air Filter* upward by its mesh and then pull outward to remove the filter.
 3. For more access:
 - a. Use a wrench or socket to unscrew the *Blocker Bolts* located on the top of the unit. There are four bolts per blocker, two bolts per door.
 - b. Grab the bottom of the *Blocker* and push upwards to disengage the hooks. Once hooks are clear, pull the blocker outward to remove.
 4. Reinstall in the opposite order when access is no longer required.

- **From the door side**
 1. To access the pumps
 - a. Use a slotted screwdriver to turn the *Lower Door Retainer* on the left of the door clockwise, and the *Lower Door Retainer* on the right counterclockwise.
 - b. Gently pull outward and lift to remove lower panels.
 2. To access the coil and fans
 - a. Use a wrench or socket to unscrew the *Door Bolts* located on the top of the unit. There are two bolts per door.
 - 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.

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.



6.2 Connections

6.2.1 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.

6.2.2 Coolant plumbing

The chiller must not be installed more than 65 feet above the heat exchangers and cryo compressor. The chiller pumps can deliver up to 165 feet of head. The heat exchangers and cryo compressor are rated at 230 feet maximum. If the chiller is mounted more than 65 feet above the heat exchangers and cryo compressor, the maximum allowable pressure on the heat exchangers and cryo compressor may be exceeded. Consult the factory for installations requiring the chiller to be installed more than 65 feet above the Heat Exchanger. The maximum equivalent linear feet of 2" piping which may be installed external to the chiller is 500ft.

Table 5: Standard Fitting Losses in Equivalent Feet of Pipe

Fitting Description	Feet of loss
2" 90° Standard Elbow	5.0
2" 90° Street Elbow	8.2
2" 45° Standard Elbow	2.6
2" 45° Street Elbow	4.5
2" Globe Valve	55.0
2" Gate Valve	2.3
2" Angle Valve	24.0

The chiller has the following plumbing connections:

Table 6: Chiller Plumbing Connections

Connection Description	Connection Type
Supply	2" Female NPT
Return	2" Female NPT

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. 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 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.
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 80 gal (300L).
5. Reinstall the reservoir fill port cap and hand tighten.

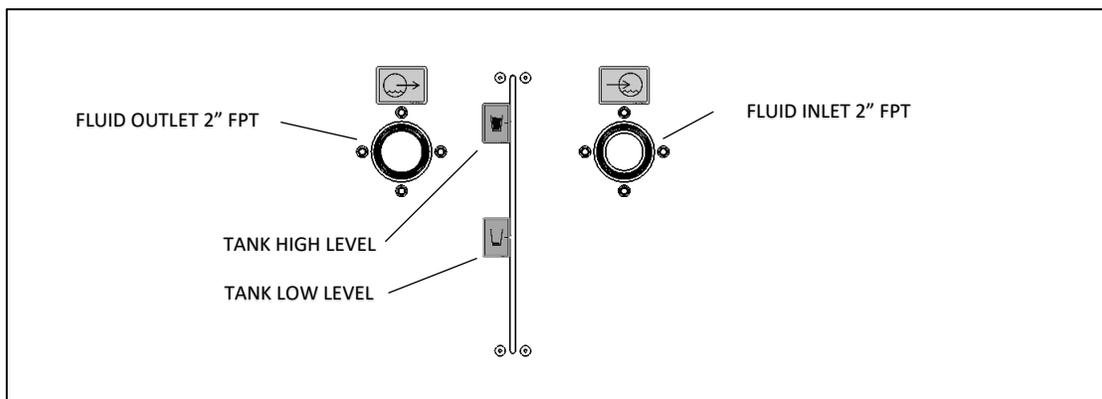


Figure 9: Reservoir Visual Level Indicator Marks



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.



6.4 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.
 - 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.
 - Chiller has been energized (main disconnect turned to ON position) for at least 8 hours prior to first run (refer to section 7.1 Initial Startup for more information).
 - 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. Verify that the coolant reservoir level on the visual indicator is between the high and low levels
5. Enable the main power to the chiller (turn on any breakers or switches upstream of the chiller if required).
6. Allow the chiller to be energized in this state for at least 8 hours prior to commissioning.
7. Phase monitor light must be green and master controller alarms should be clear.
8. If pump motors do not start, check incoming power for correct sequence. If incoming power is present, check any faults on the master controller. Reset any faults which may be present.
9. 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.
10. 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.***

7.1.1 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.

7.2 Controller

7.2.1 Initialization of Controller:

When the unit is first powered up after a download it goes through a self-test and requires a reboot after initialization. Cycle power to the controller if the message in *Error! Reference source not found.* is displayed. When the controller has finished its initial self-test, the Home Page will be displayed. This displays the current time, date, unit #, fluid temperature, setpoint and system status. The page will look like *Error! Reference source not found.*

7.2.2 Starting the System:

The system status displays the current status of the on/off switch. To turn the system on:

- Press the “Prg” key and the Program Main Menu will be displayed over three screens (*Error! Reference source not found., Error! Reference source not found., & Error! Reference source not found.*)
- Highlight the menu labeled “A. ON/OFF Unit” and press the “Enter” key. The next page will look similar to *Error! Reference source not found.*
- Press the “Enter” key again, to move the cursor over the “SWITCH OFF”
- Press the “↑” key to change the status to “SWITCH ON”
- Press the “Enter” key to turn the machine on

7.2.3 Enabling Devices:

The pump and compressors can be individually enabled using the Enable/Disable function. To enable/disable devices:

- Press the “Prg” key to view the main menu.
- Highlight the menu labeled “G. SERVICE” and press the “Enter” key.
- Use the arrow keys to highlight the menu labeled “C. ENABLE/DISABLE” and press the “Enter” key again
- The first page should display the Process Pumps similar to *Error! Reference source not found.*. The three options for process pumps are:

Auto = Selects pump based on time and switches on flow alarm (if enabled) & overload alarm

#1 = Selects only pump #1 to run

#2 = Selects only pump #2 to run

Once the Process Pumps have been selected, press the “↓” arrow key to change the page to Circuit #1. To enable the compressor(s), use the “Enter” key and the arrow keys to change the status from “No” to “Yes”. Complete for any additional circuits on the unit. The number of compressors and circuits will depend on the design of the unit.

7.2.4 Changing the Setpoint:

To change the setpoint:

- Press the “Prg” key and the main menu will be displayed
- Highlight the menu labeled “B. SETPOINT” and press the “Enter” key. The page will look similar to *Error! Reference source not found.*
- Press the “Enter” key again and move the cursor over the fluid setpoint temperature
- Use the “↑” and “↓” keys to change the temperature and press the “Enter” key to accept
- Press the “Esc” key to return to the main menu

7.2.5 Viewing Alarms

When an alarm occurs, the red alarm light on the PGD display will light up (a buzzer will activate if not disabled). To view this alarm, press the “Alarm” key and the alarms will be displayed. To view all active alarms, use the arrow keys to scroll up and down. To clear all inactive alarms, press and hold the “Alarm” key. At the end of the alarms a page similar to *Error! Reference source not found.* will be displayed. Press the “Enter” key and you will be taken to the Alarm Log page where you can view the alarm history.

7.2.6 Sequence of Operation:

Upon system start, with all compressors and pumps enabled, a brief delay will occur and then the pump that didn’t run during the last operation cycle will start first. If flow is established, the pump will continue to run. If no flow is established for the defined flow fault delay time, the opposing pump will automatically start. Pumps will rotate once every 24 hours to balance run time. Once flow is established and cooling demand increases to 25%, the compressor with the least run time will start. As cooling demand increases to 50%, the compressor in the alternate set with the least run time will start. At a cooling demand of 75% and 100% the remaining compressors will stage up. When cooling demand decreases by 25% from a compressor start percentage, a compressor will cycle off. Compressors drop out in a ‘first in - first out’ sequence. The cooling demand signal is proportional and integral driven so the cycling of compressors should slowly correct to be centered about the set point.



Figure 10: Controller Restart Warning



Figure 11: Controller Home Page

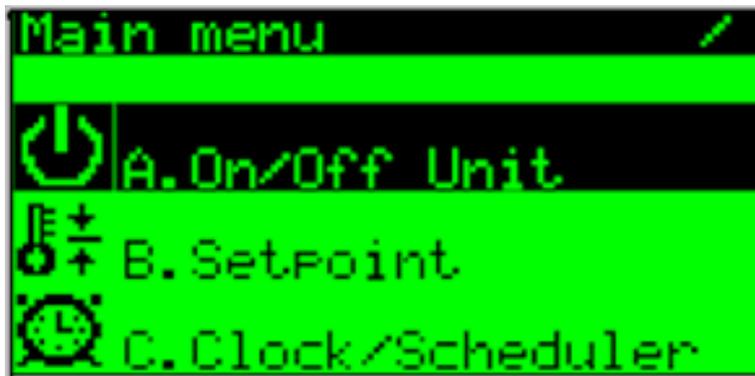


Figure 12: Controller Main Menu Pg1

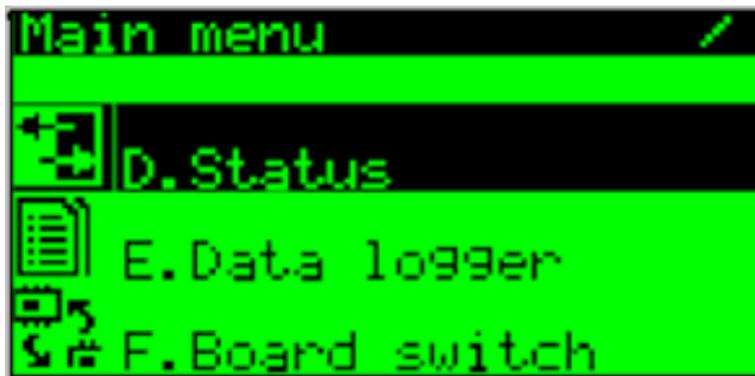


Figure 13: Controller Main Menu Pg2



Figure 14: Controller Main Menu Pg3

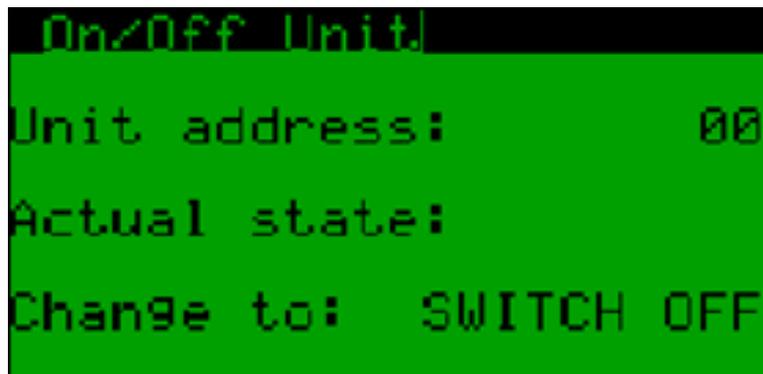


Figure 15: Controller On/Off Menu

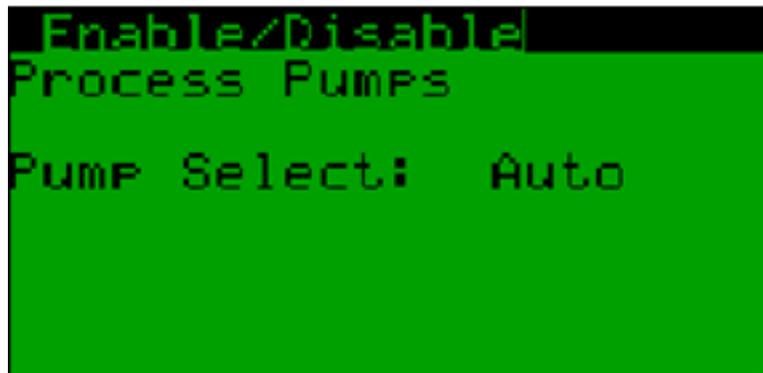


Figure 16: Controller Pump Enable/Disable Menu

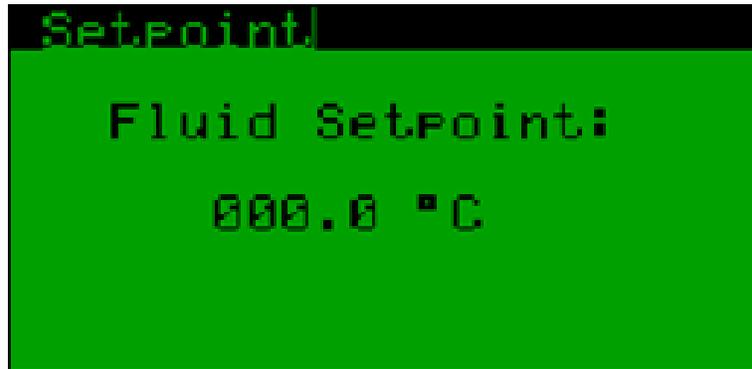


Figure 17: Controller Setpoint Menu



Figure 18: Controller Alarm Menu



7.4 Troubleshooting

Table 7 Troubleshooting Service Guide

Symptoms	Possible Cause
Selector switch is in "ON" position & pump will not start.	<ol style="list-style-type: none"> 1. Open disconnect switch 2. Tripped overloads 3. Phase monitor fault 4. Low tank level
Pump is rotating but no pressure is established.	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1. Compressor is not getting energized 2. Flow switch not activated
Compressor hums but will not start.	<ol style="list-style-type: none"> 1. Low line voltage 2. Motor windings shorted to ground 3. Internal compressor damage 4. Improperly wired
Compressor will not start (no hum).	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. High suction or discharge pressure 2. Low line voltage 3. Bad motor windings
The unit short cycles.	<ol style="list-style-type: none"> 1. Low refrigerant charge 2. Defective expansion valve
High refrigerant pressure fault	<ol style="list-style-type: none"> 1. Dirty air filters 2. Refrigerant overcharge 3. Dirty condenser 4. Malfunction of fan motor 5. Excessive ambient air temperature
Low refrigerant pressure fault	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Pump not running 2. System not filled 3. Air in the system 4. Flow switch paddle stuck
Pump Overload fault	<ol style="list-style-type: none"> 1. Overload setting incorrect 2. Bad motor windings 3. Low pump pressure due to low piping resistance
Phase Monitor fault	<ol style="list-style-type: none"> 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



7.5 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 air intake/filter side (refer to section 6.1).
2. Depress the red reset button until a tactile click is felt.
3. Reinstall the air intake filter(s) before restarting Chiller.

7.6 Maintenance

Establishing a proper maintenance schedule will extend the lifetime of the chiller. A suggested checklist has been provided in section 7.6.1.

7.6.1 Suggested 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.

7.6.1.1 *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.

7.6.1.2 *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.

7.6.1.3 *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.



7.6.1.4 *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.

7.6.1.5 *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.

7.6.1.6 *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.

7.6.1.7 *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 8: Electrical Component Torque

Component	Torque (in-lb)
Pump/fan contactor power term.	22
Pump contactor overload term.	12
Pump/fan contactor control term.	8.9-13
Pump overload power terminals	22
Pump overload control term.	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 Dist. Block - Primary	120
Power Dist. Block - Secondary	25
Power Dist. Block - Sec	20
Control relay socket terminals	5-9
Controller plug screws - large	5
Controller plug screws - small	2

7.6.1.8 *Schedule planned maintenance services*

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

8 Internal Components

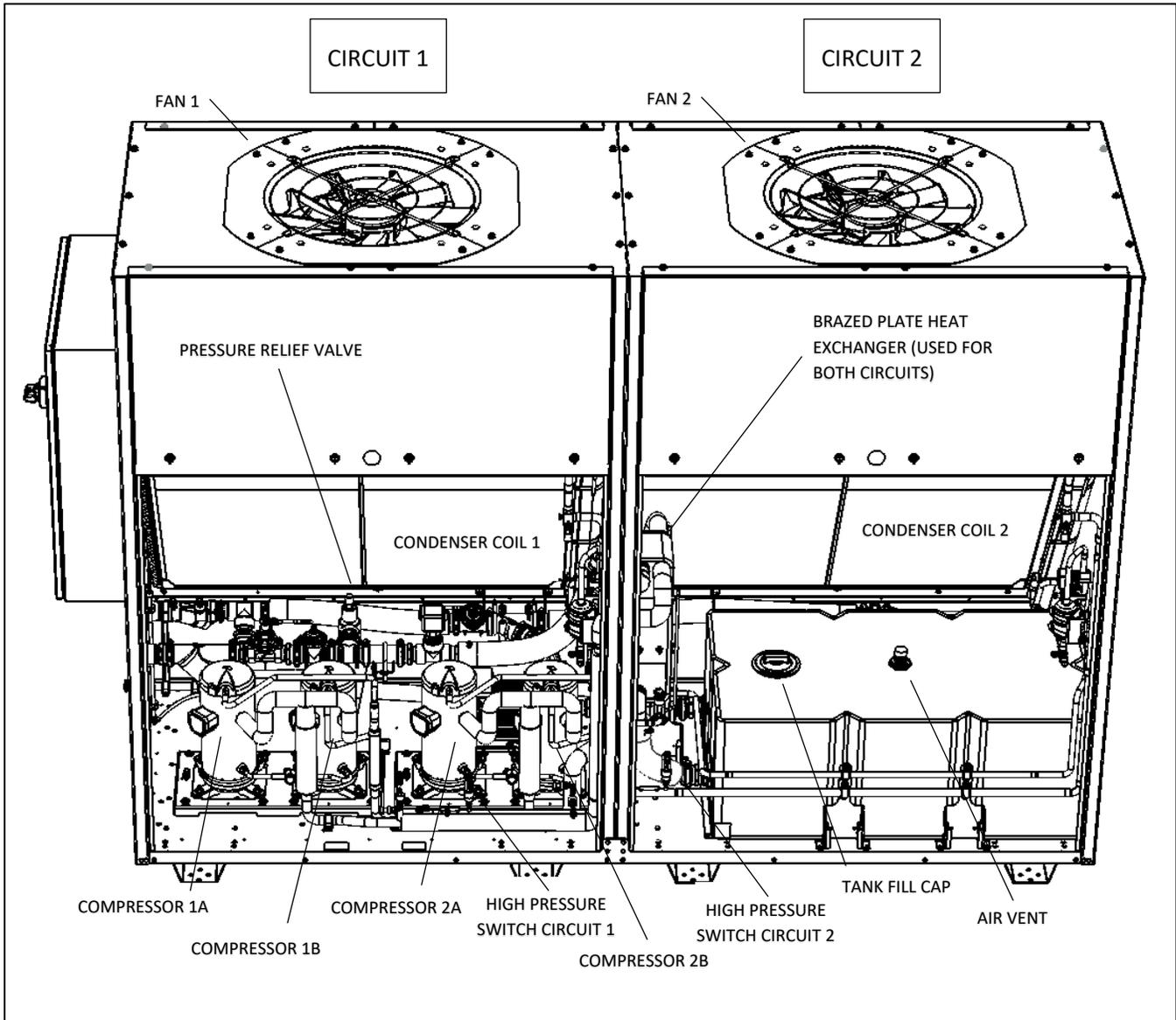


Figure 19: WO2-2-5000 Air Filter Side

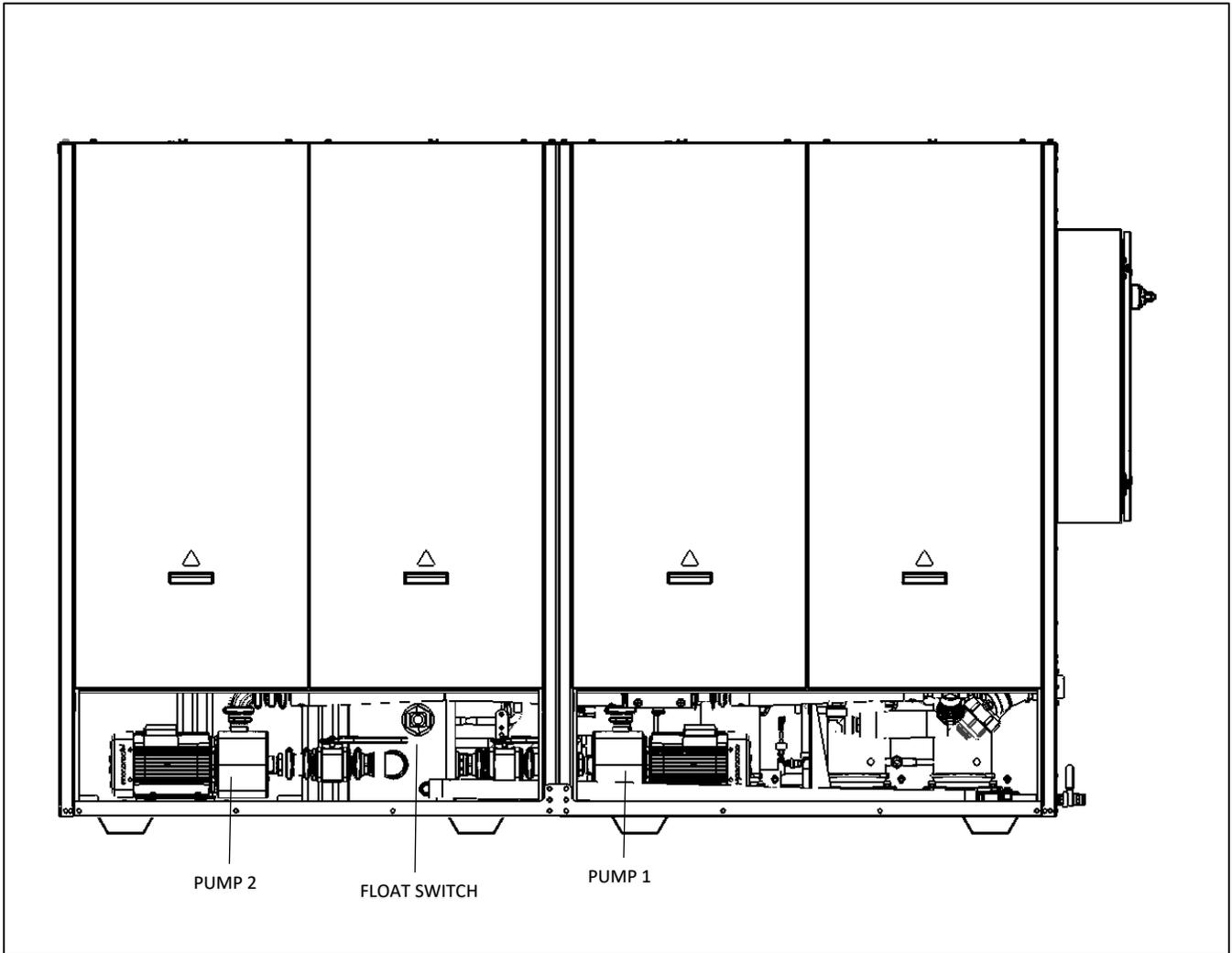


Figure 20: Door Side

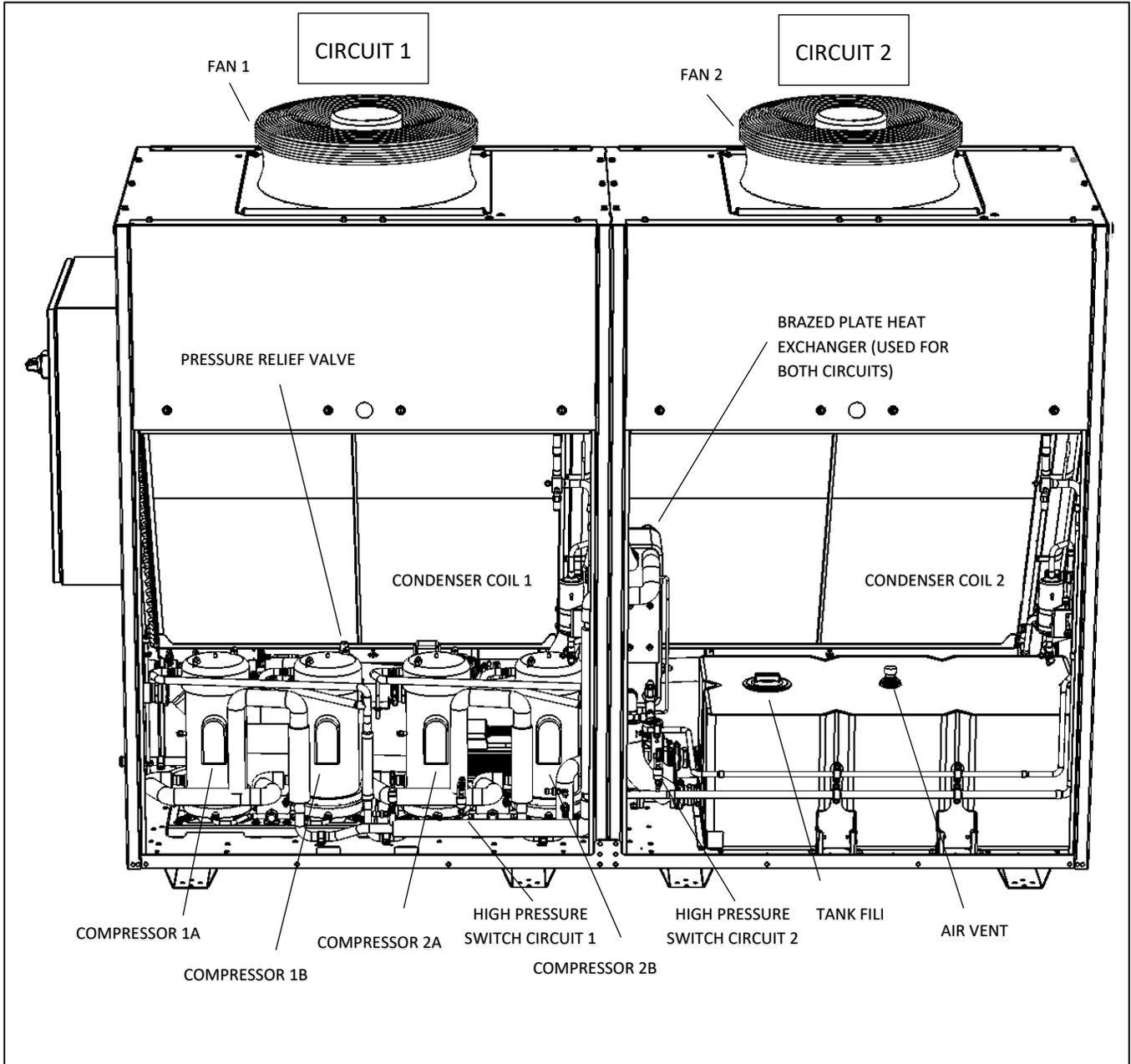


Figure 21: WO2-2-7500 Air Filter Side

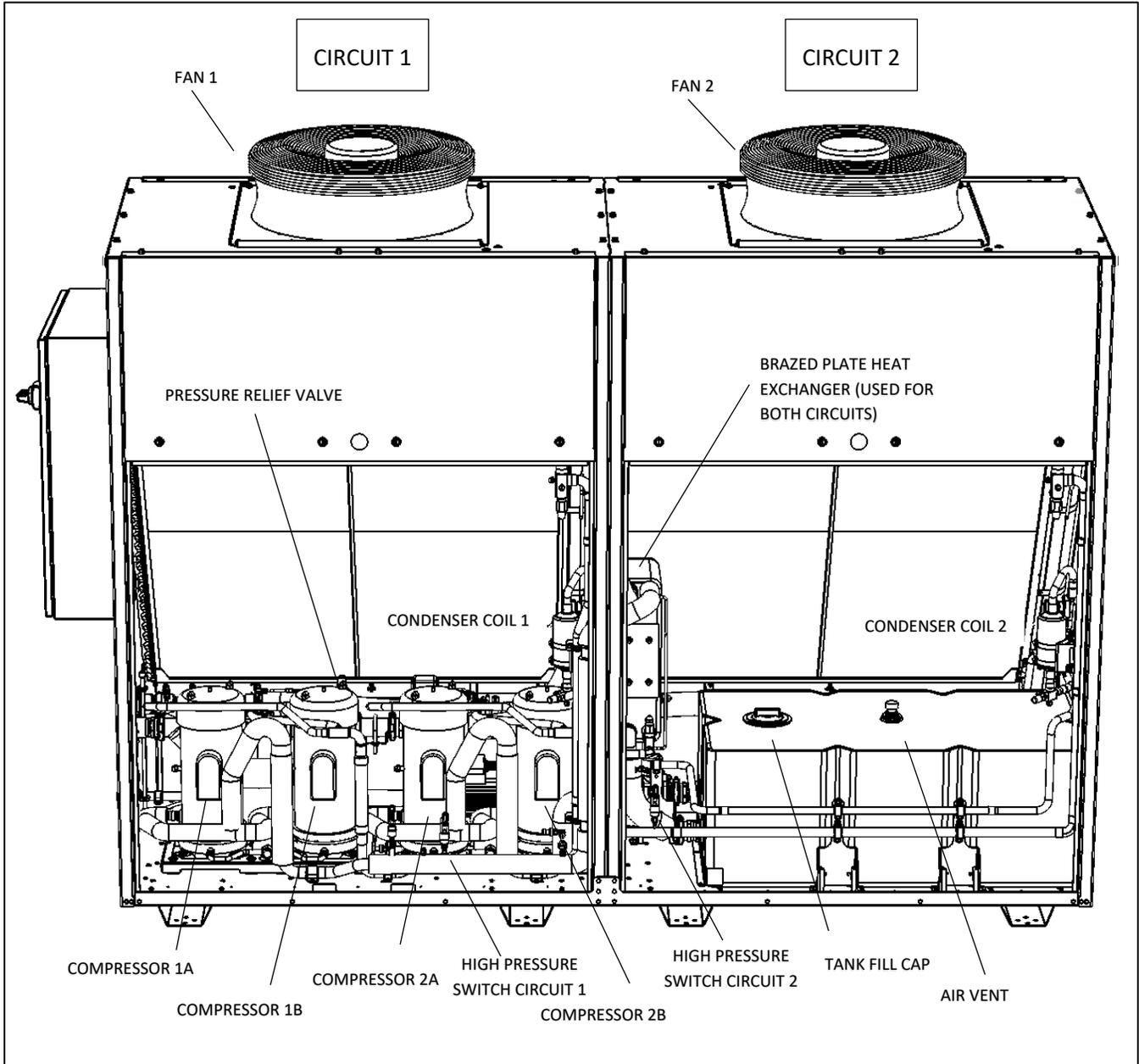


Figure 22: WO2-2-10000 Air Filter Side

8.1 Units Equipped with a Tank Heater

Tank heaters are mounted on the front of the tank with an over temperature switch mounted directly above it.

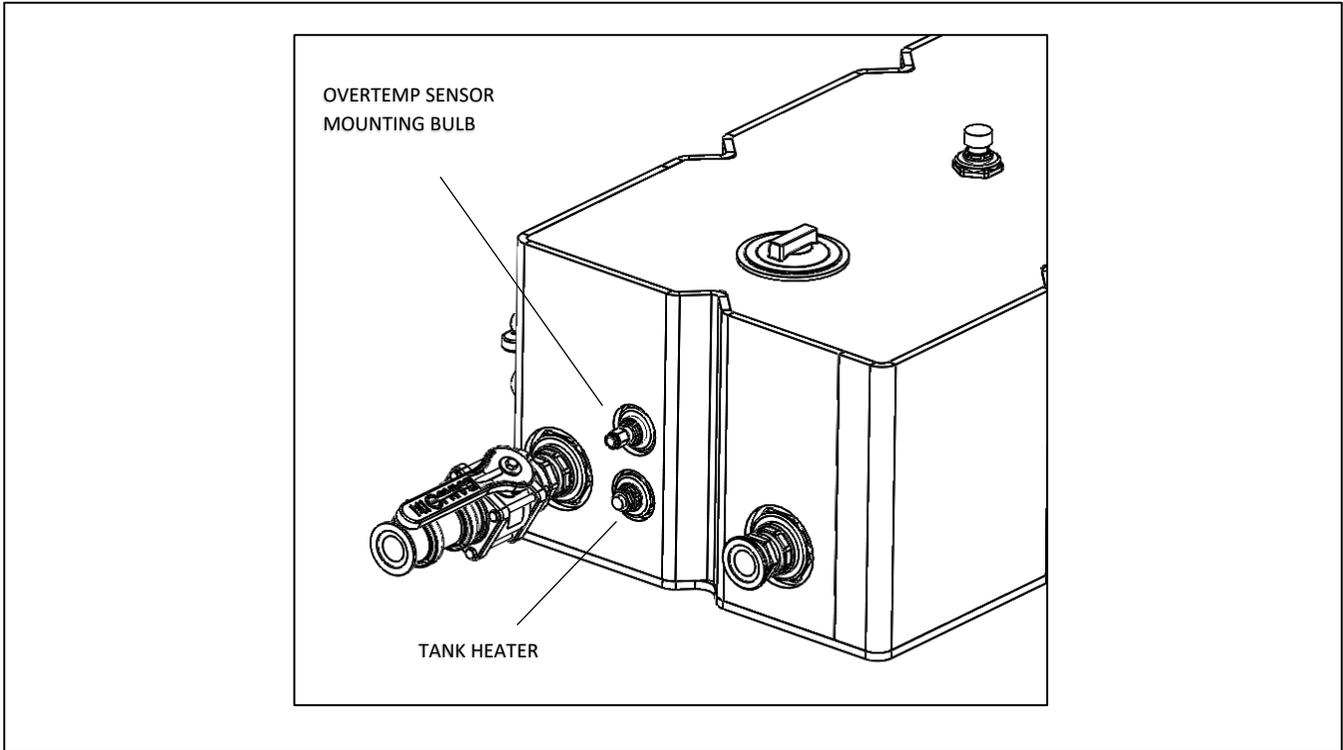


Figure 23: Tank Heater

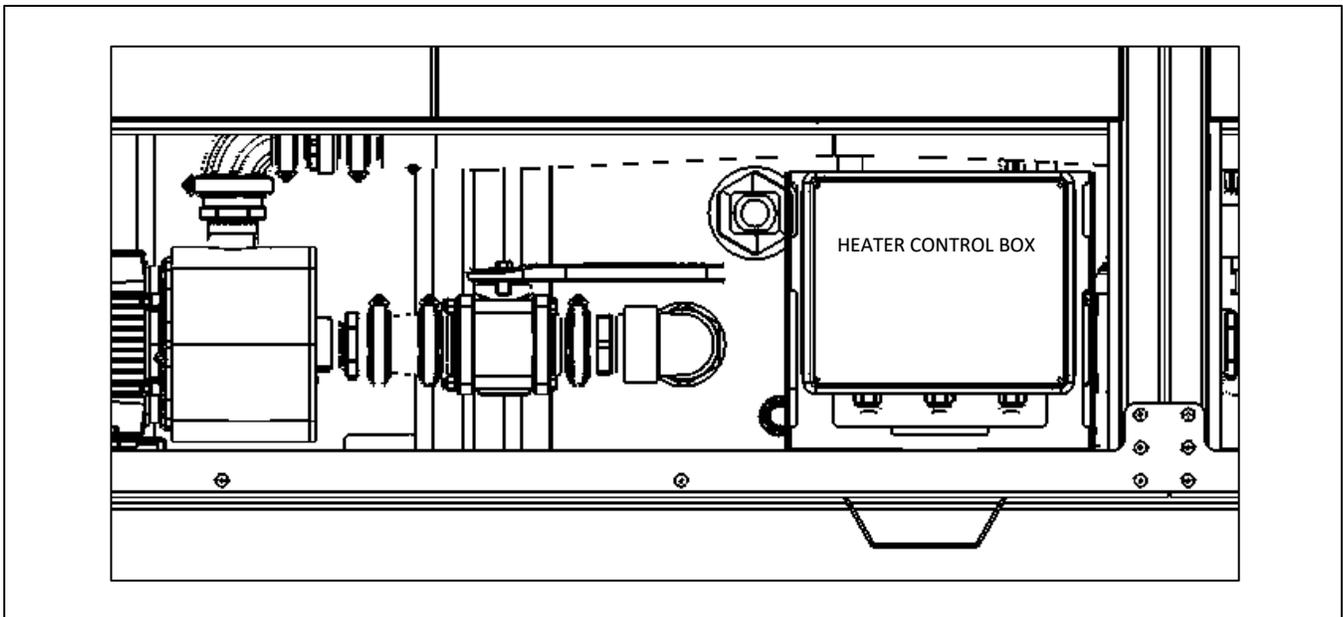


Figure 24: Tank Heater Control Box

9 Spare Parts List

Description	WO2-2-5000 Standard	WO2-2-5000 Low Ambient	WO2-2-7500 Standard	WO2-2-7500 Low Ambient	WO2-2-10000 Standard	WO2-2-10000 Low Ambient
Electrical						
Controller				4807776		
Power Supply				5004669		
Phase Monitor				5000472		
Enclosure Heater				3835107		
2-Pole Relay				5001058		
1-Pole Relay				5001057		
Pump MMP				5001241		
Pump Contactor				5000752		
Compressor MMP	5001243			5001244		5001245
Compressor Contactor	5000754				5000756	
Fan MMP	5001570				5001572	
Refrigeration						
Compressors	1450064			1450077		1450106
Fan	5005778				5006484	
Crank Case Heater				709679		
High P-Switch				708124		
Low P-Switch				710959		
Discharge Temp Sensor				712641		
Liquid Line Temp Sensor				712641		
Suction Line Temp Sensor				5002920		
Liquid Line P-Transducer				4807739		
Suction Line P-Transducer				4807736		
Filter Dryer	2730006			2730005		2730039
Liquid Line Sol Valve	2710006			2710008		2610004
Liquid Line Sol Coil		2710109				2640017
Liquid Line Sol Coil Pigtail				712017		
Expansion Valve	2760105			2760112		2760008
Plumbing						
Pump				710854		
Suction Ball Valve				7408939		
Check Valve				5003906		
Discharge P-Transducer				4807736		
Fluid Sol Valve				710351		
Fluid Temp Sensor				711551		
Flow Switch				4807303		
Float Switch				3896118		
Tank Heater	N/A	3890103	N/A	3890103	N/A	3890103

Table 9: Spare Parts List

10 Maintenance

10.1 Pump Removal

To remove pump:

1. Ensure power is disconnected
2. Access pumps from lower doors
3. Remove wiring
4. Close ball valve
5. Remove flange clamps
6. Remove 3/8" mounting bolts
7. Slide pump assembly out from retention tabs and remove

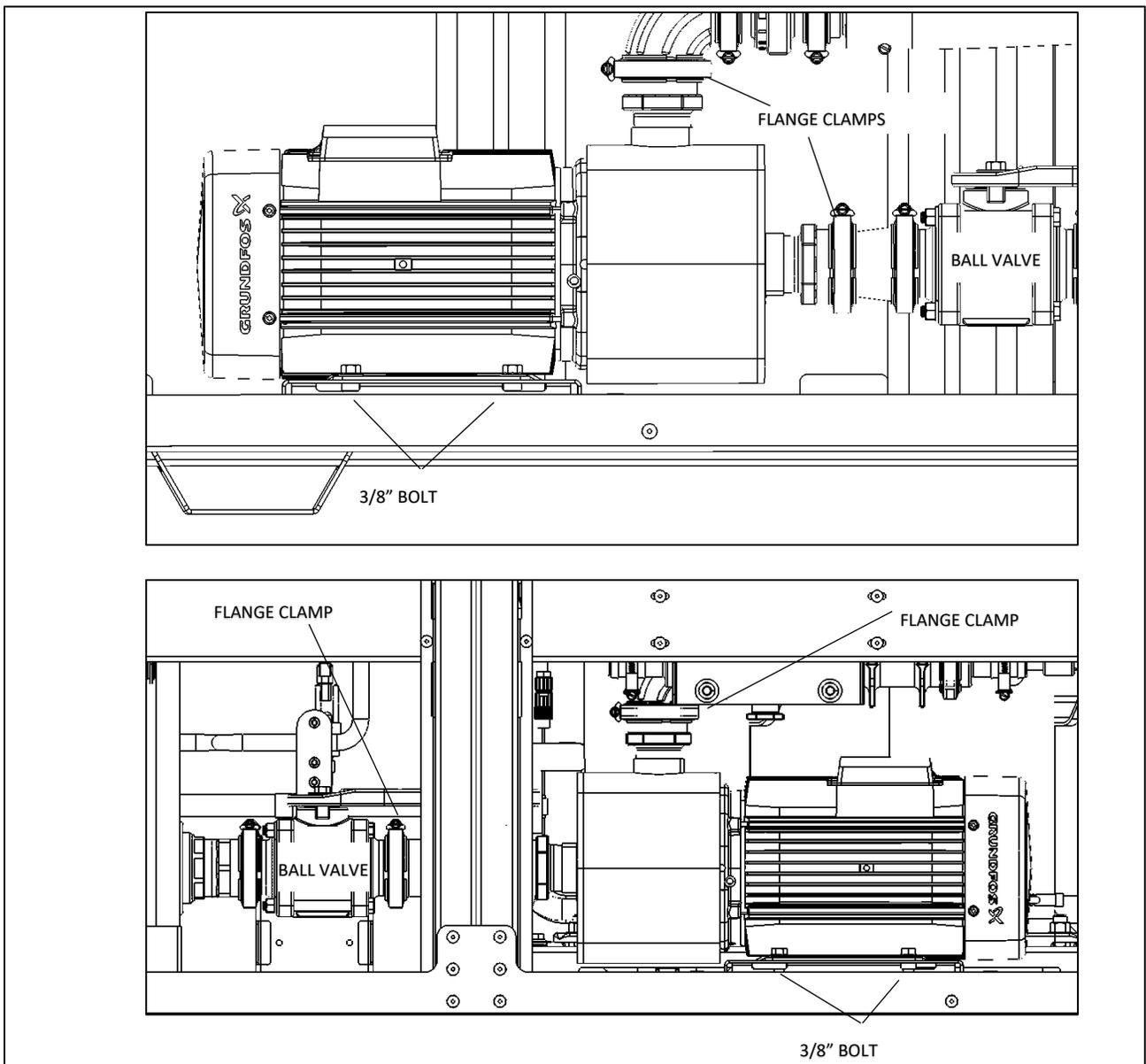
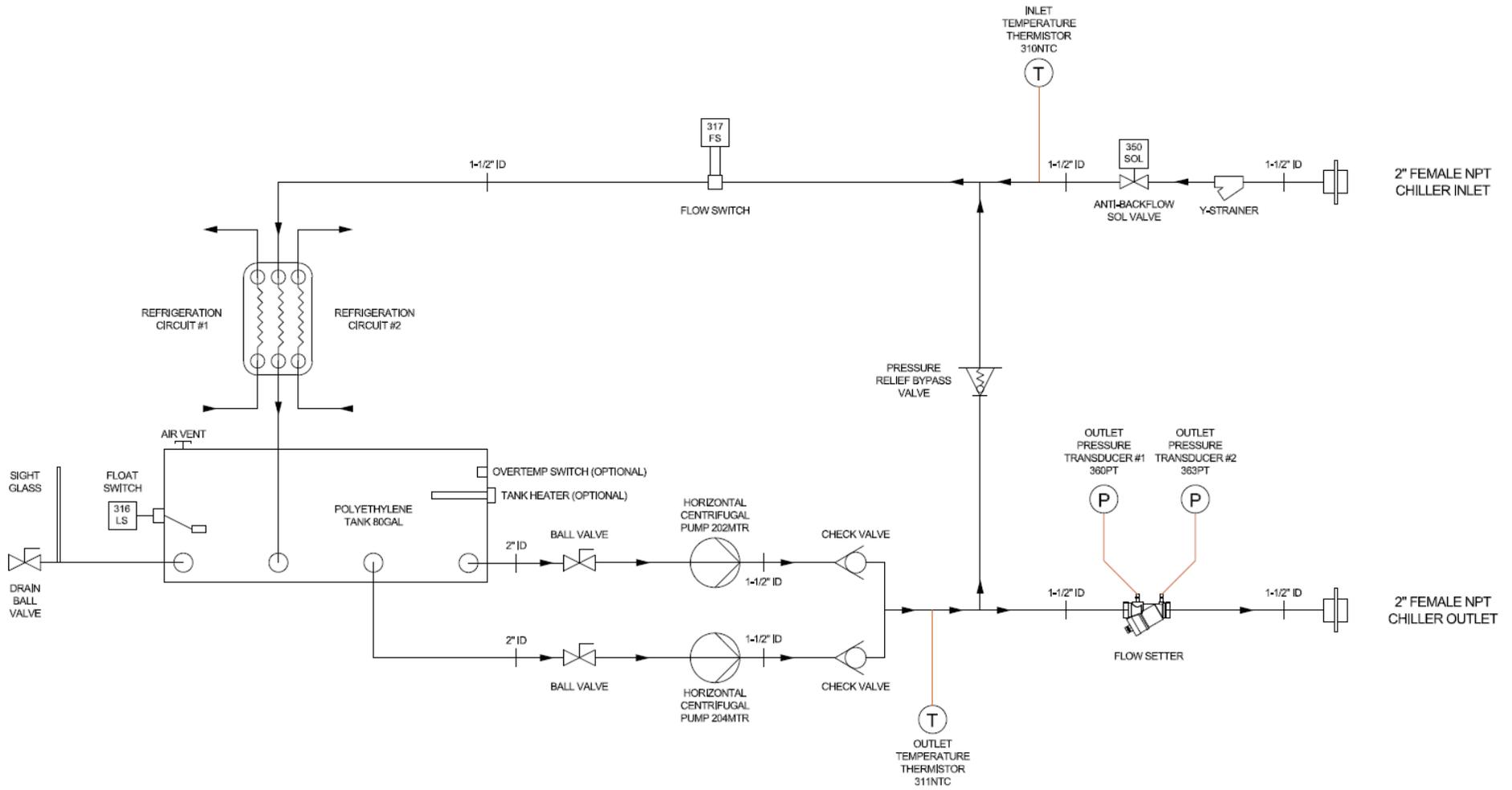
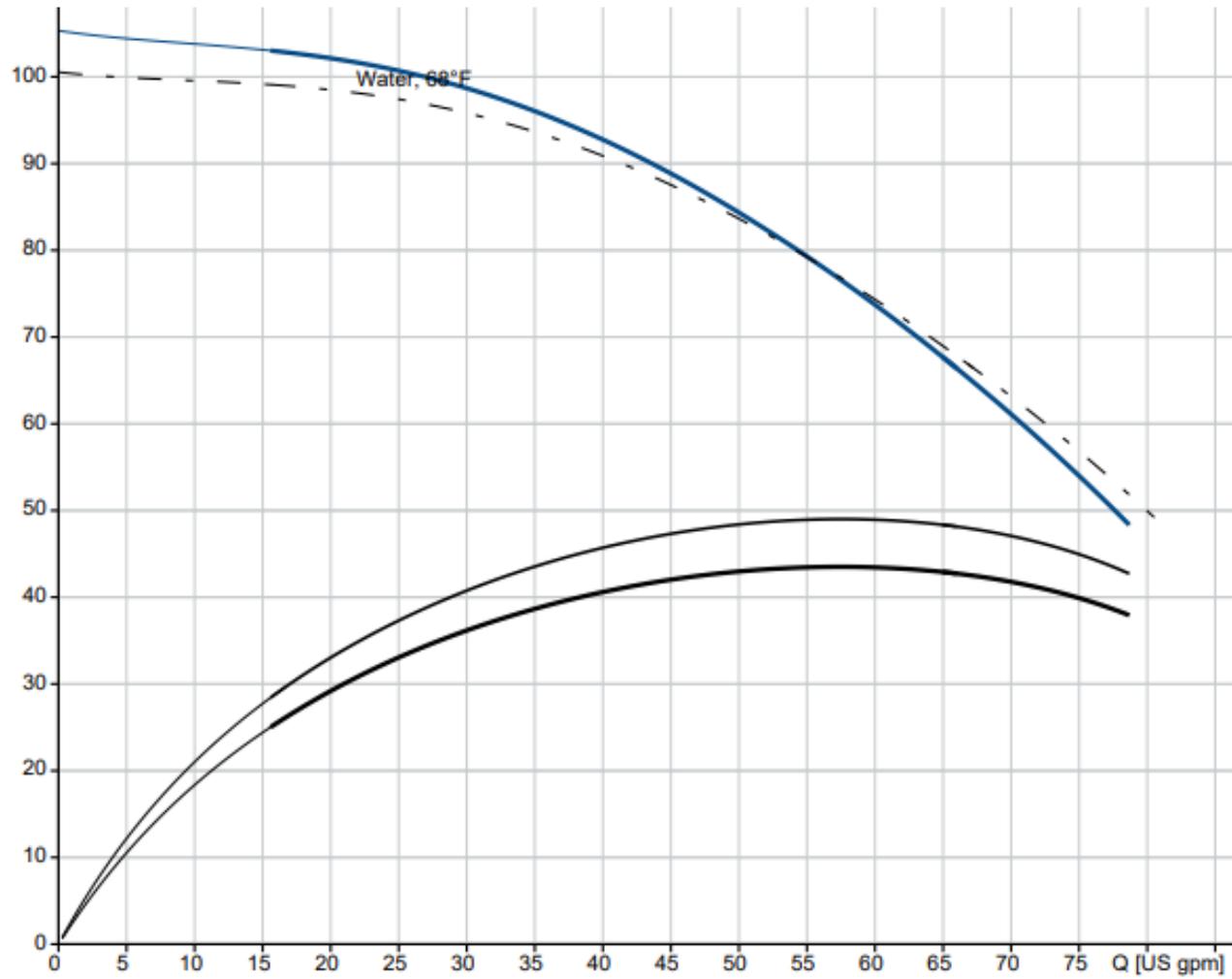


Figure 25: Pump Removal

11 Revisions

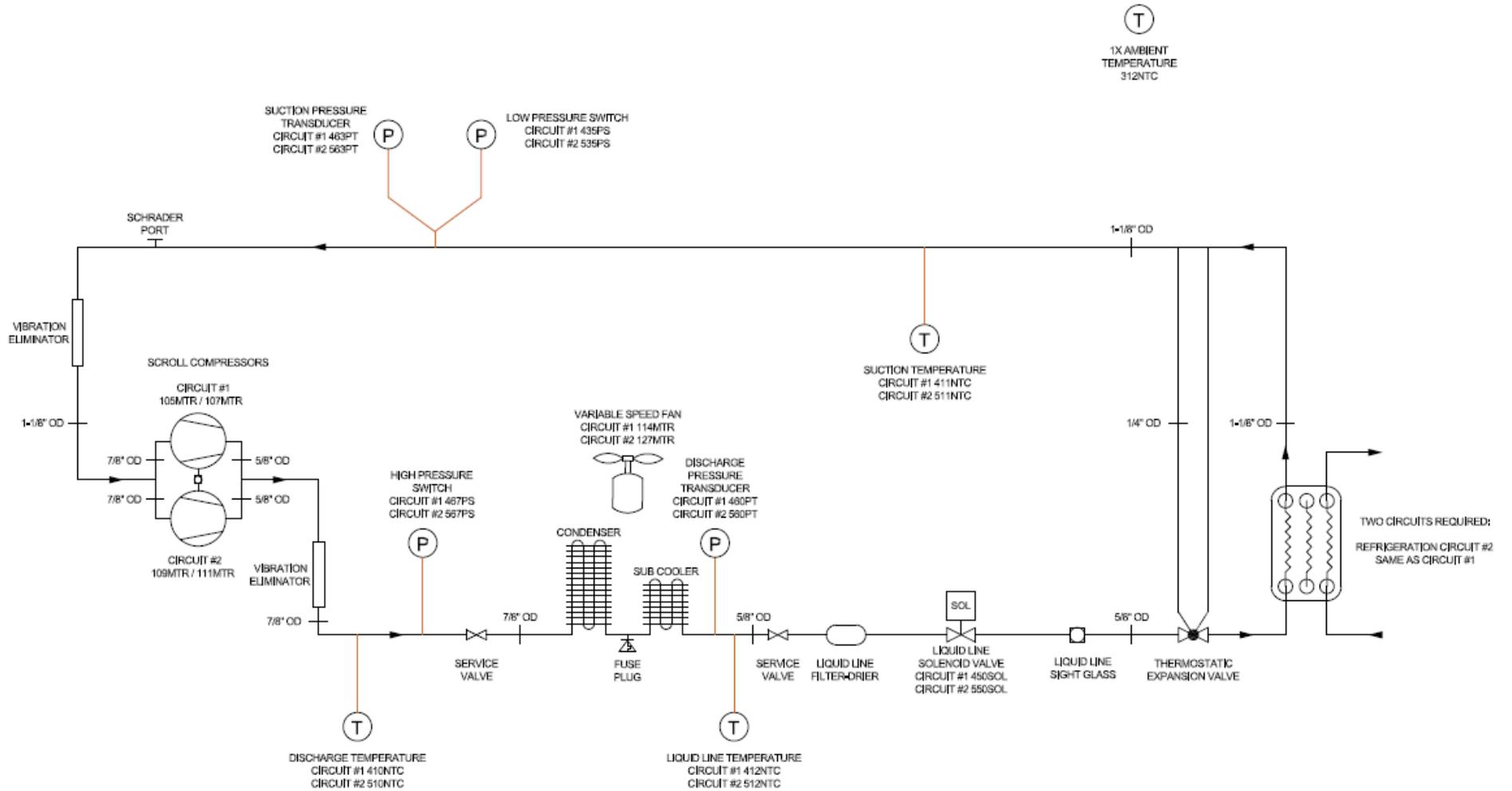
Rev	Description	By	Date
A	Initial Release	B. Post	3/16/21
B	FN063 to ZN063	B. Post	4/27/21
C	Add spare parts list	B. Post	7/15/21
D	Update WO2-2-7500 and WO2-2-10000 images	B. Post	9/16/21



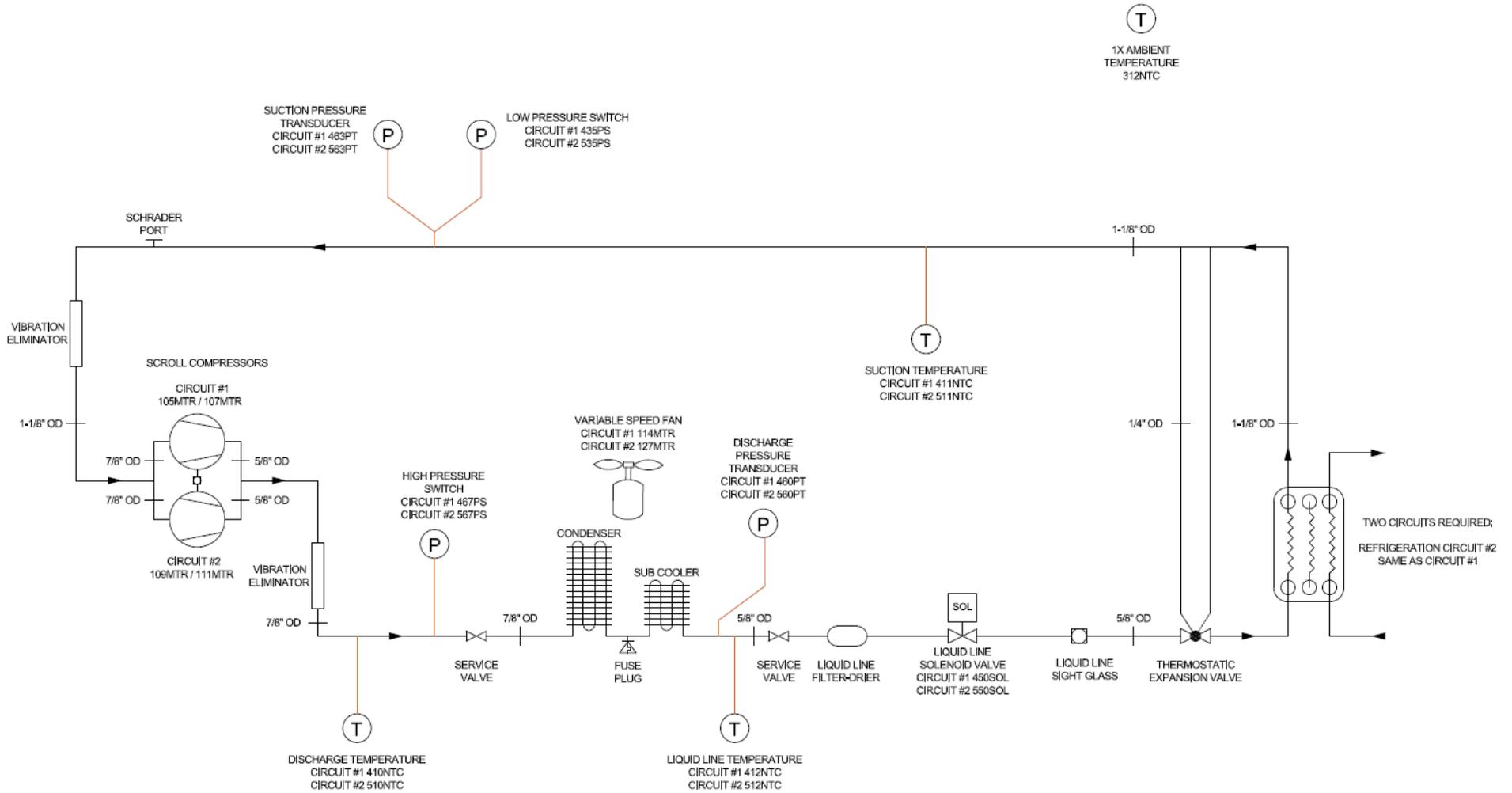




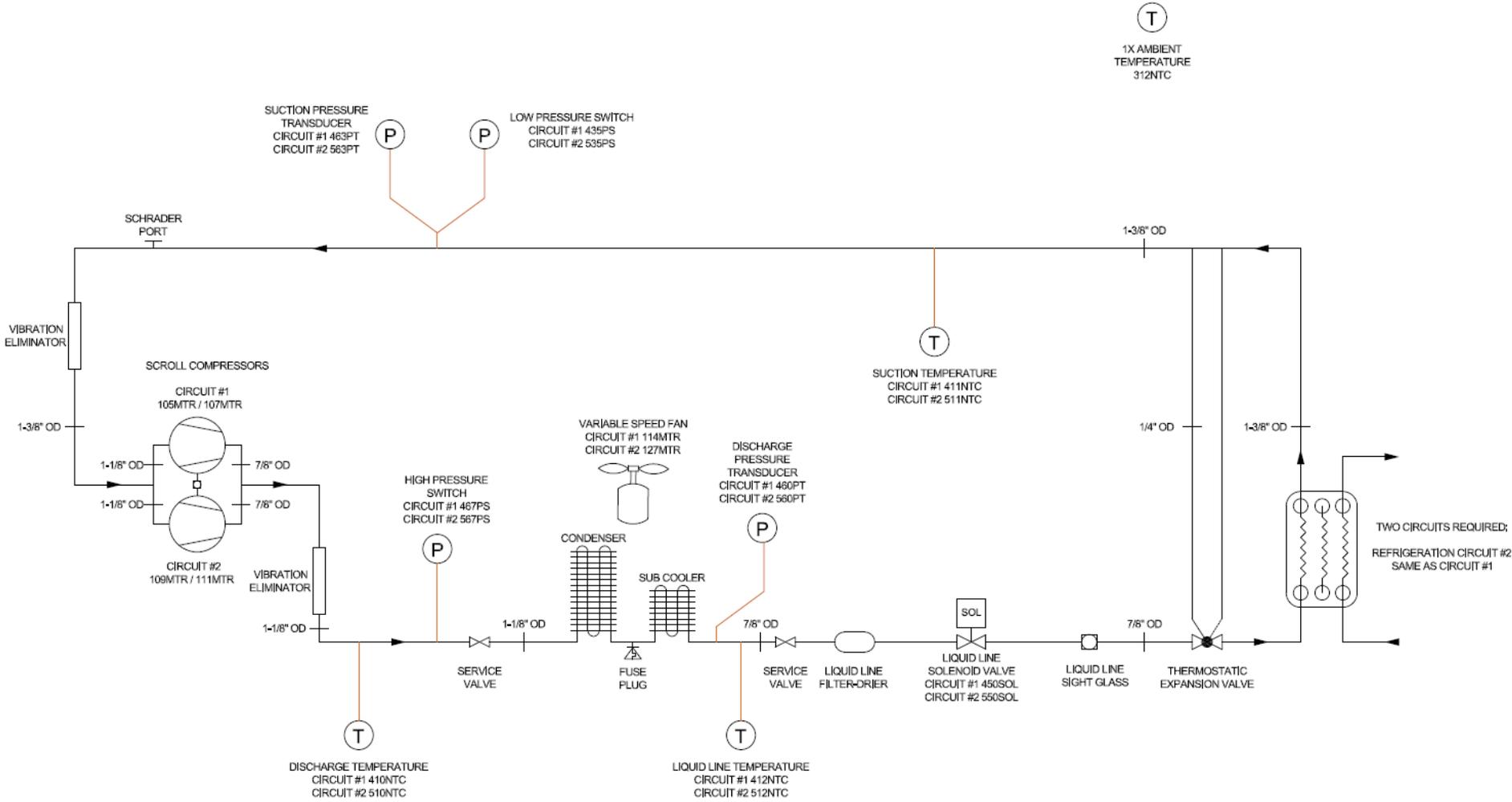
Appendix C (Refrigeration) WO2-2-5000



Appendix C (Refrigeration) WO2-2-7500



Appendix C (Refrigeration) WO2-2-10000





Appendix D (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 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.
- 2 Planned Maintenance (PM) visits to be completed by DTS certified technician at any time during the warranty term.
- Please refer to R-M002 for detailed instructions on the above visits.

What is Not Included

- Any failure that is not related to the chiller. i.e. site power failure, site plumbing leaks, environmental 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.



Appendix E (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 F (Factory Contact)

Appendix F (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

- medicalsevice@dimplexthermal.com
- (800) 968-5665 ext. 710
- (269) 349-6800

Parts Department

- partsdept@dimplexthermal.com
- (800) 968-5665 ext. 709
- (269) 349-6800



Appendix G (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.

Serial Number of Chiller		Model Number of Chiller	
Purchase Information			
OEM/Reseller Company Name			
Contact Name		Contact Position	
Email Address			
Phone Number		Fax Number	
Chiller Location Information			
Installation/Startup Date		Position	
Company Name			
Street Address		Address 2 (Suite/Apt)	
City	State/Province/Region	Country	ZIP/Postal Code
Primary Contact Name		Contact Position	
Email Address			
Phone Number		Fax Number	



Appendix G (Chiller Registration)

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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ENG-MAN-0040