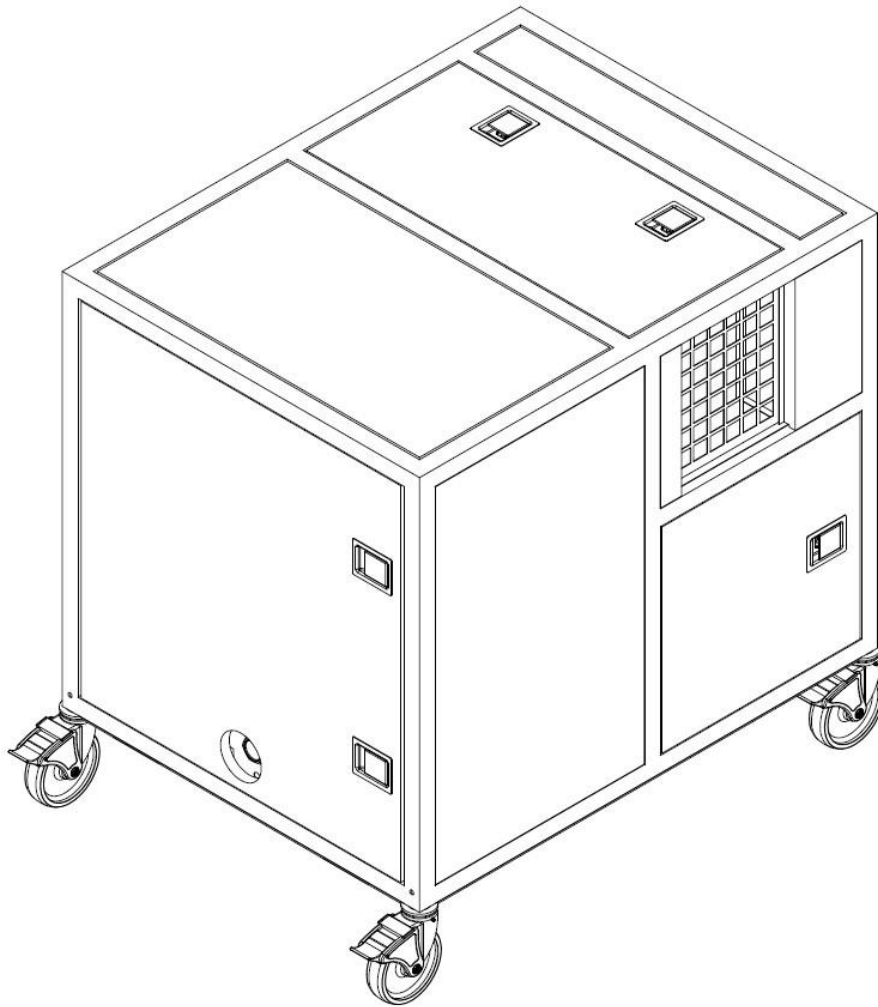


AWG800

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS



AWG Contracting™
ATMOSPHERIC WATER GENERATION TECHNOLOGY

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I. IMPORTANT

A. CODES AND REGULATIONS

- a. This product is designed and manufactured to permit installation in accordance with National Codes.
- b. It is the installers responsibility to install in accordance with National and Prevailing codes.
- c. The Manufacturer assumes no responsibility for equipment installed in violation.

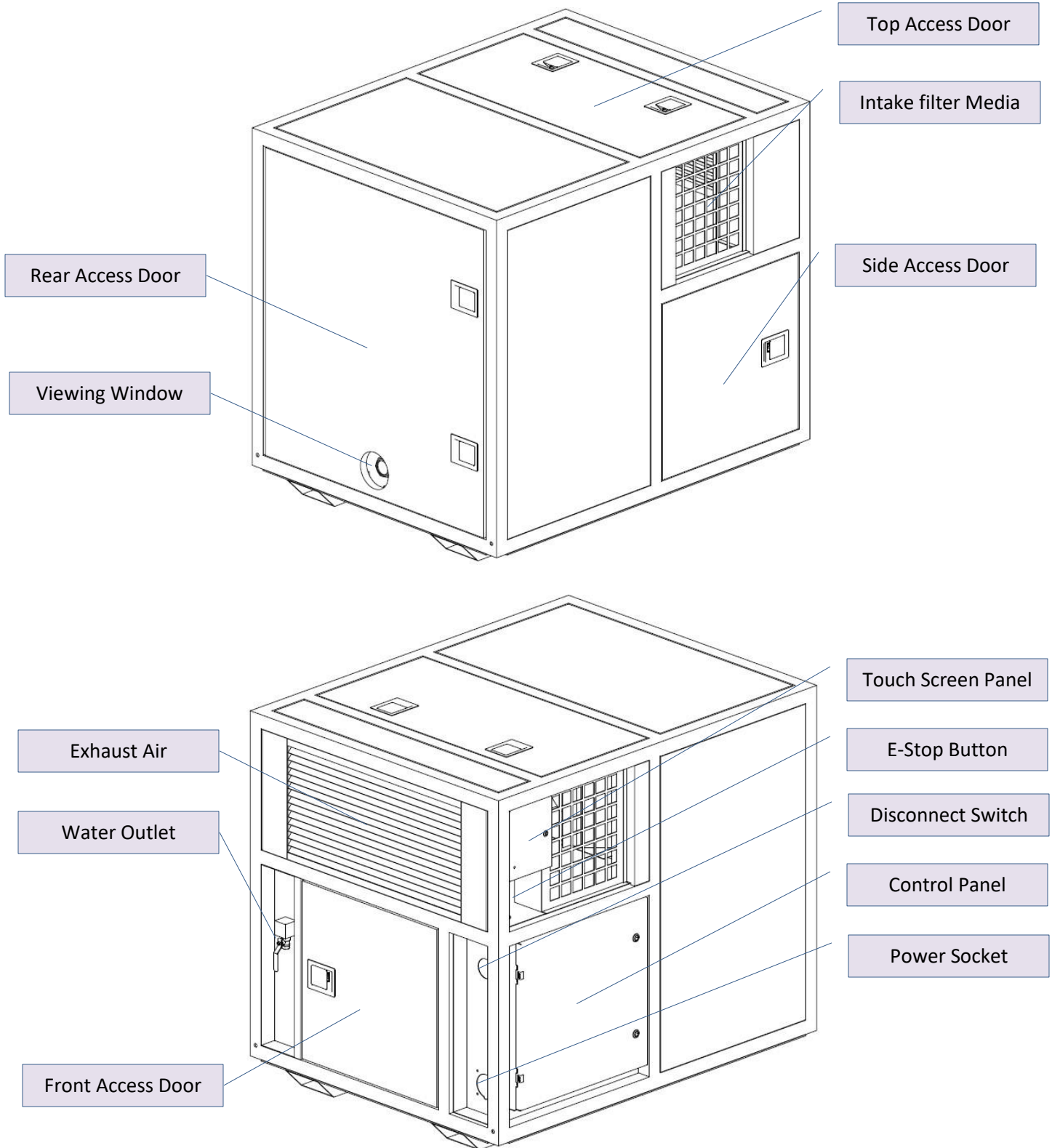
B. SAFTEY CONSIDERATIONS

- a. Installation, start-up, Operation and serving of this equipment can be hazardous due to system pressures, electrical components. Only trained, qualified personal should service this equipment.
 - i. Follow all safety codes.
 - ii. Wear safety glassed and working gloves.
 - iii. Use care in handling electronic components.
 - iv. Always use common sense.
 - v. Do not operate this machine with any guard removed.
 - vi. Do not tamper with or bypass safety devices.
 - vii. Machine must be placed on level surface.

C. WARNING

- a) Drinking water can discharge from water outlet without warning. Ensure hose or piping is properly attached and the outlet valve is in the open position.

II. OUTER COMPONENT IDENTIFICATION



III. INSTALLATION

A. MOVEMENT AND RIGGING

- a. The preferred method of movement of the machine is with a forklift or pallet jack.
- b. For overhead rigging, spreader bars above the unit are required to prevent damage.
- c. Maneuvering of the machine must be done with care to prevent damage to the panels or the internal components.

B. PLACEMENT

- d. Level the unit to ensure proper operation.
- e. Select a location with adequate air circulation that is dust free as possible. With a minimum of 3 ft. space for service and airflow on all sides.

C. ELECTRICAL POWER AND CONNECTIONS

- f. Power supply and field wiring must comply with all codes.
- g. 230V, 3 Phase, 60 Hertz power is required for this machine.
- h. Connect provided cord to power supply.
- i. Unscrew weather cap and plug into machine Power Socket.
 - i. Rotate lock ring on socket unit firm and ensure proper attachment.
- j. 3 Phase Monitoring
 - i. Rotation (3 Phase) is Clockwise (A-B-C)
 - ii. Phase unbalance is set @ < 5%
 - iii. Undervoltage Trip is set @ < 90%
 - iv. Trip Delay is set @ 5 seconds.
 - v. Restart Delay is set @ 15 seconds.

D. FREEZE PROTECTION

- k. Protection of system components from freezing is of the utmost importance. Freezing can occur from the external ambient or internal system temperatures.
- l. The chilled fluid characteristics need to have a freeze point that is well below any operational setpoint or storage temperature (*See Glycol*)
- m. When ambient temperatures will be below freezing the water system must be properly winterized to prevent damage
 - i. Water collection pan needs to empty.
 - ii. Plug removed under inspection site glass.
 - iii. Strainer needs to be empty.
 - iv. Water pump (P-2) need to have its suction and discharge quick connections removed and empty.
 - v. (3) pc Filter housing must be empty.
 - vi. Water outlet valve must be in the open position.

E. GLYCOL

- n. Only use food grade propylene glycol.
- o. Verify glycol level via receiver tank level tubing. This is located behind glycol pump (P-1). Level should be about 1" from top connection port, and no lower than 3".
- p. Manual fill will be required. The drain fill valve located directly under level tubing should be used. To vent air from system, remove the upper-level tubing "push-to-connect-fitting".
- q. Glycol concentrations affect cooling performance. As the concentration is increased the heat transfer capabilities and pumping performance will be reduced.
- r. Main Glycol Pump (P-1) should always be in "HIGH".

IV. OPERATION AND STARTUP

A. OPERATION

- a. This machine makes water from the air through the process of condensation. A fan pulls air through a intake filter, cross flow heat exchanger and chilled glycol coil where moisture is condensed out of it. The air is then pushed out of the machine.

B. STARTUP

- a. Verify Installation and electrical requirements have been adhered to.
- b. Ensure that the Intake filters are in place and clean.
- c. Ensure that the exhaust air has no obstructions and blockage.
- d. Rotate the Main Power Disconnect from the “Off” to “On” position.
- e. Open the HMI Panel Access door and wait for the programs to load and complete its power up delay sequence.
- f. From the Main Page press the Mode Switch from “Off” to “Auto”
- g. Operation Sequence page you can view the current state.
 - i. System
 - ii. P-1, Glycol Pump
 - iii. Blower
 - iv. Chiller
 - v. Mixing Valve
 - vi. P-2, Water Pump
- h. System Overview page, you can view all the current values.
 - i. Air Side
 - ii. Blower
 - iii. Mixing Valve
 - iv. Chiller
 - v. Superheat
 - vi. Water Production
 - vii. Power Consumption
- i. Alarms page you can view status with description and actions needed.
- j. Setpoints page will allow the following:
 - i. Ambient Enable SP
 - ii. Dewpoint Offset SP
 - iii. Glycol Low Limit SP
 - iv. Glycol High Limit SP
 - v. Mixing Valve Offset SP
 - vi. P1 Glycol Pump Override
 - vii. P2 Water Pump Override
 - viii. Blower Override with Max Speed Override.

V. TOUCH SCREEN PAGES

AWG Contracting

Hydrating Technology

Quality drinking water out of air for the world

MODE SWITCH

AUTO

SYSTEM OVERVIEW

OPERATION SEQUENCE

ALARM OK

O/R OK

ALARMS

SETPOINTS

AIR SIDE	
OA TEMP	0
OA %RH	0
DEW POINT	0
OFFSET SP	0
BLOWER	
BLOWER %	0
MIXING VALVE	
ACTIVE SP	0
VALVE %	-25
POST COIL TEMP	0
POST COIL %RH	0
WATER PRODUCTION	
ACTIVE LPM	0.00
TOTAL LITERS	0.00
CHILLER	
ACTIVE SP	0
SUMP TEMP	0
RETURN TEMP	0
SUPPLY TEMP	0
R410A LBAR	0
R410A HBAR	0
SUPERHEAT	
ACTIVE SP	0
SUCTION TEMP	0
SUPERHEAT	0
EXV %	0
POWER CONSUMPTION	
ACTIVE AMPS	0.00
ACTIVE KW	0.000

COUNTER RESET

MAIN

OPERATION SEQUENCE

ALARM OK

O/R OK

ALARMS

SETPOINTS

SYSTEM	
3 PHASE MONITOR	
E-STOP	
GLOBAL SENTRY	
HL FLOAT SWITCH	
AMBIENT ENABLE	
MODE SWITCH	
SYSTEM ENABLED	
↓	
(P-1) GLYCOL PUMP	
ASC TIMER	
PUMP REQUEST	
PUMP ON	
↓	
BLOWER	
ASC TIMER	
VFD READY	
VFD REQUEST	
VFD ON	

CHILLER	
R410A LOW LIMIT	
R410A HIGH LIMIT	
COMPRESSOR OL	
ASC TIMER	
COMP REQUEST	
COMPRESSOR ON	
UNLOADED	
↓	
MIXING VALVE	
LOAD READY	
↓	
(P-2) WATER PUMP	
ASC TIMER	
PUMP REQUEST	
PUMP ON	

ALARM RESET

MAIN

SYSTEM OVERVIEW

ALARM OK

O/R OK

ALARMS

SETPOINTS

3 PHASE MONITOR

POWER MONITOR FAULT. VERIFY A B C PHASING, VOLTAGE +/- 10% PHASE IMBALANCE.

E-STOP

EMERGENCY ESTOP HAS BEEN TRIPPED. RESET TO RESUME OPERATION

HIGH FLOAT ALARM

WATER HAS EXCEEDED HIGH LEVEL FOR 30 SECONDS. VERIFY WATER PUMP, STRAINER AND MICRON FILTER BANK.

BLOWER VFD ALARM

PANEL MOUNTED VFD IS IN ALARM. RECORD AND CORRECT CURRENT FAULT.

COMPRESSOR OIL

PANEL MOUNTED OVER LOAD HAS TRIPPED AND NEEDS TO BE RESET. RESET WITH SYSTEM IN OFF MODE.

R410A LOW PRESSURE

SUCTION PRESSURE HAS DROPPED BELOW SET POINT AND HAS EXCEEDED TIME DELAY. VERIFY PROPER GLYCOL LEVEL AND P1 OPERATION. RESET WITH SYSTEM IN OFF MODE.

R410A HIGH PRESSURE

HEAD PRESSURE HAS EXCEEDED SETPOINT. VERIFY PROPER AIR FLOW WITH INLET FILTERS, CROSS FLOW, EVAPORATOR CONDITION. RESET WITH SYSTEM IN OFF MODE.

ALARM RESET

MAIN

SYSTEM OVERVIEW

OPERATION SEQUENCE

O/R OK

ALARMS

SETPOINTS

AMBIENT ENABLE SP	
ACTIVE SP	0
▲ ▼	
DEWPOINT OFFSET SP	
ACTIVE SP	0
▲ ▼	
GLYCOL LOW LIMIT SP	
ACTIVE SP	0
▲ ▼	
GLYCOL HIGH LIMIT SP	
ACTIVE SP	0
▲ ▼	
MIXING VLV OFFSET SP	
ACTIVE SP	0
▲ ▼	

P1 GLYCOL PUMP "OVERRIDE"

P2 WATER PUMP "OVERRIDE"

BLOWER "OVERRIDE"

MAX SPEED "OVERRIDE"

ALARM RESET

MAIN

SYSTEM OVERVIEW

ALARM OK

O/R OK

ALARMS

OPERATION SEQUENCE

VI. MAINTENANCE, *(Based on 24hrs of operation per day)*

A. WARNING

- a. Only perform maintenance procedure with machine in "Off" and powered down.
- b. Chlorine bleach is highly corrosive. Observe safety precautions on container.
- c. Never use non-recommended cleaning agents. Certain chemicals have acidic properties that could encounter bleach and cause the formation of poisonous Chlorine Gas.
- d. Do not get sanitizer solution or water flush inside Humidity Probes (2) pc. Contact will cause premature failure.

B. DAILY

- a. General visual inspection of machine.
- b. Check intake air filters (2) pc for debris or restriction. Clean or replace as necessary.
- c. Check water strainer for debris or restriction. Remove and clean as necessary.
- d. Follow "Water system cleaning procedure."

C. WEEKLY

- a. Check all water filters for build-up and replace if necessary.

D. MONTHLY

- a. Follow "Crossflow, coil and duct cleaning procedure."

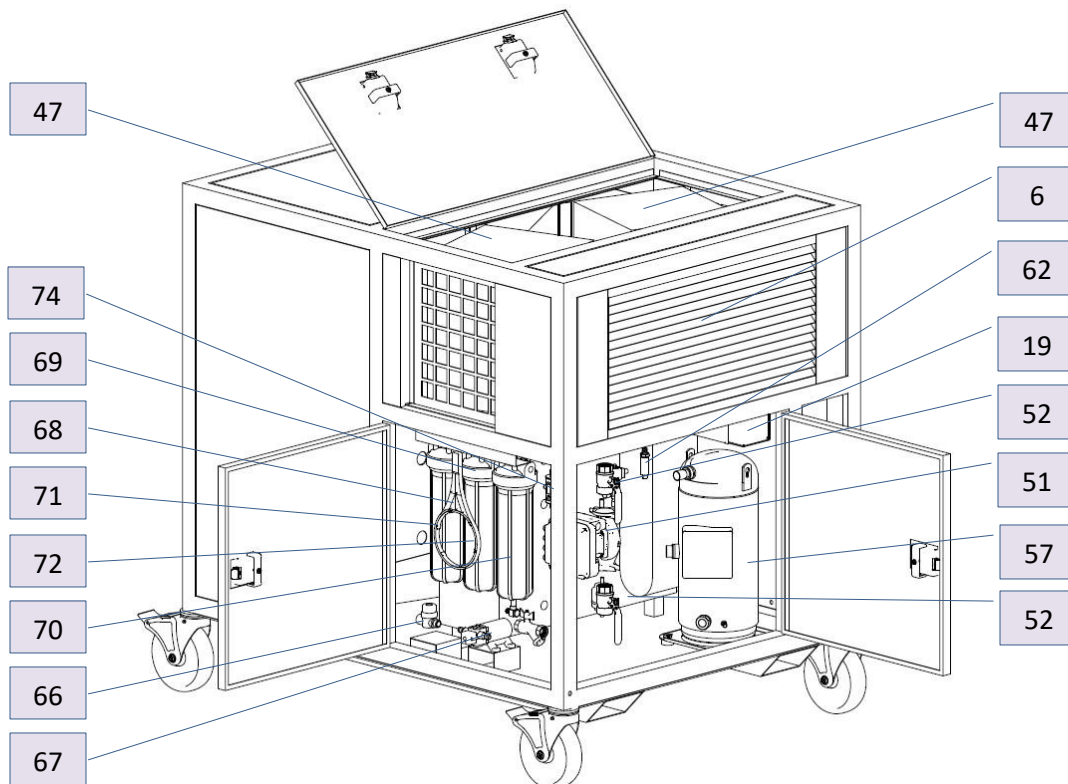
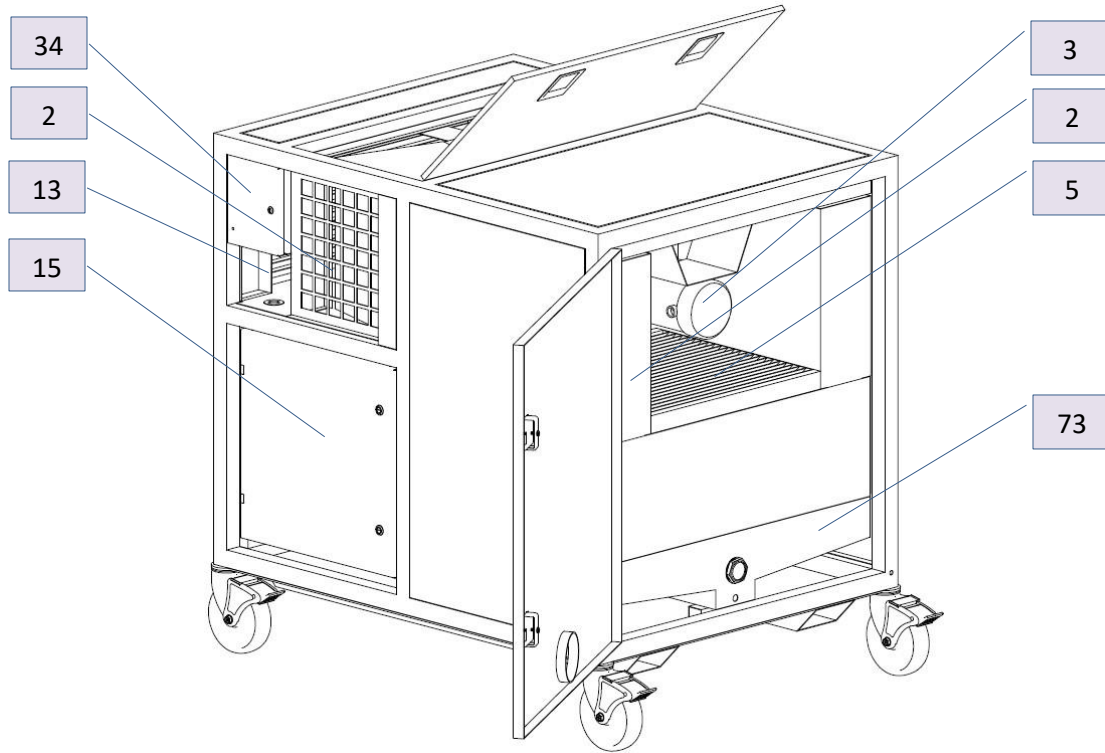
E. WATER SYSTEM CLEANING PROCEDURE

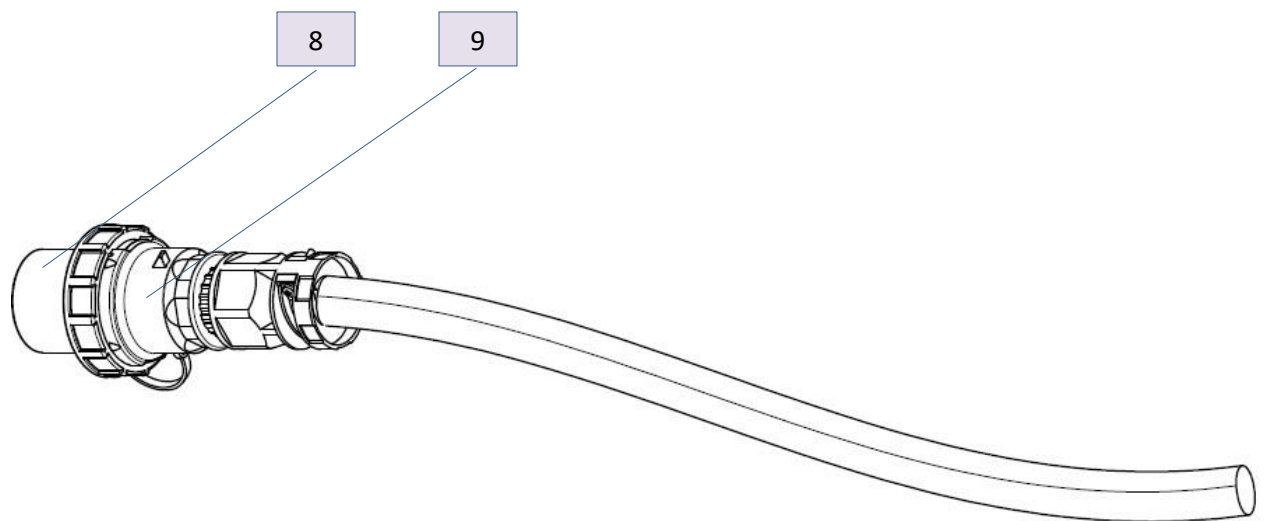
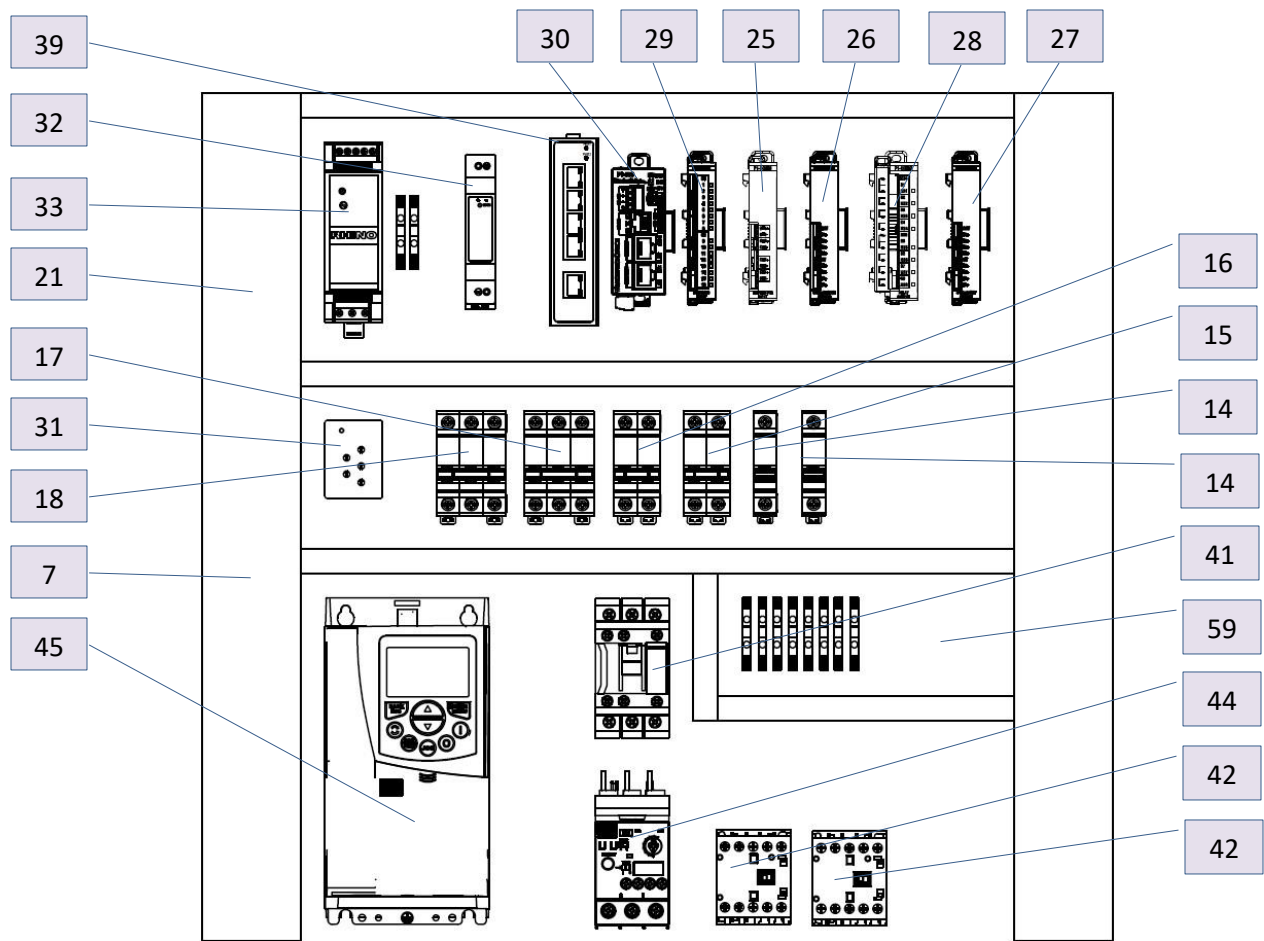
- a. On touch screen main page switch mode switch to "OFF."
- b. Allow unit to go through its shut down process, then turn main disconnect to "OFF."
- c. Open side and rear access doors.
- d. Visually inspect water pan, flush and clean if required.
- e. Inspect and clean water strainer if required.
- f. Use filter wrench to check 25 Micron, 10 Micron and 5 Micron filters, replace if required.
- g. Mix a sanitizing solution in a clean hand pump sprayer, follow mixing instructions and safety precautions on sanitizer container. If using chlorine bleach, mix about 1 tablespoon of bleach per gallon of water.
- h. Spray solution onto all surfaces of water pan, strainer, and filter housings
- i. Let solution soak for minimum of (5) minutes.
- j. Remove and rinse entire system.
- k. If there is a water storage system normally attached to machine, all pipes and hoses that touch potable water should be cleaned and sanitized.

F. CROSSFLOW, DUCT AND COIL CLEANING PROCEDURE

- a. On touch screen main page switch mode switch to "OFF."
- b. Allow unit to go through its shut down process, then turn main disconnect to "OFF."
- c. Open top, side, and rears access doors
- d. Remove rear and top access panels and save all hardware for re-installation.
- e. Remove (2) pc crossflow heat exchanger by pulling straight up to remove.
- f. Wash with low pressure water and dish soap solution from hand sprayer.
- g. Rinse with low pressure water.
- h. Mix a sanitizing solution in a clean hand pump sprayer, follow mixing instructions and safety precautions on sanitizer container. If using chlorine bleach, mix about 1 tablespoon of bleach per gallon of water.
- i. Spray solution onto all stainless interior surfaces of water pan, ducting, crossflow exchangers, chilled glycol coil form both sides. Avoid contact with humidity probes and blower fan.
- j. Let solution soak for minimum of (5) minutes.
- k. Drian and rinse entire system.
- l. Reinstall all components, access panels, and close doors.
- m. Resume system operation

VII. NUMBERED COMPONENT ID





VIII. TROUBLESHOOTING

SYMPTON AND PROBABLE CAUSE	PROBABLE REMEDY
3 PHASE MONITOR FAULT	
1. Verify A, B, C phasing	1. Check phasing, clockwise is required. Change if necessary.
2. Incorrect input voltage	1. Check for proper inlet voltage +/- 10%
3. Phasing imbalance	1. Check for phase imbalance +/- 5%
E-STOP FAULT	
1. E-Stop has been pushed	1. Twist and reset E-Stop located below touch screen panel.
HIGH FLOAT ALARM	
1. High float has exceeded its setpoint for 30 seconds.	<ol style="list-style-type: none"> 1. Verify water outlet valve is open. 2. Verify water piping external to machine is not plugged or restricted. 3. Check and clean water strainer. 4. Check operation of P-2 water pump. 5. Check all filters for blockage. 6. Verify water level in sump.
BLOWER VFD ALARM	
1. Panel mounted VFD is in alarm.	<ol style="list-style-type: none"> 1. Record and Correct VFD Alarm. 2. Reset Alarm via VFD
COMPRESSOR O/L FAULT	
1. Panel mounted overload has tripped.	<ol style="list-style-type: none"> 1. Turn Mode Switch to "Off". 2. Ohm compressor leads L1, L2, L3 and to ground. 3. Check terminal connections. 4. Check compressor plug connection 5. Reset O/L.
R410 LOW PRESSURE FAULT	
1. Suction pressure has exceeded setpoint and time delay.	<ol style="list-style-type: none"> 1. Turn Mode Switch to "Off". 2. Verify clean inlet filters. 3. Check glycol tank level. 4. Verify P-1 operation and in high speed. 5. Verify EXV operation. 6. Check filter drier. 7. Verify system charge @ 2.5kg, 5.5lbs
R410 HIGH PRESSURE FAULT	
1. Head pressure has exceeded setpoint and time delay.	<ol style="list-style-type: none"> 1. Turn mode switch to "Off". 2. Verify clean inlet filters. 3. Verify P-1 operation and in High Speed. 4. Verify EXV Operation. 5. Check filter drier. 6. Verify system charge @ 2.5kg, 5.5lbs

IX. PARTS LIST

AWG 800 Bill of Materials				
System	Item	Manufacturer	Part #	Description
Blower	1	Global	B879517	Backward Inclined Wheel
	2	Senva	HT1D-3FUX	Humidity Duct NTC
	3	Weg	00118ET3	Blower Motor
Coil	4	Heresite	NDF/ANSI	Coating
	5	Modine	CW58S08S06	Evaporator Coil
	6	Modine	CD38S08S13	Condenser Coil
Controls	7	AcuAmp	ACT050-10-S	Current Transformer
	8	Bryant	CC560	Closure Cap
	9	Bryant	BRY460P9W	60Amp, 250VAC, 4-Wire, Sleeve Plug
	10	Bryant	BRY460R9W	60Amp, 250VAC, 4-Wire, Sleeve Receptacle
	11	C-More	EA9-T7CL-R	Touch Screen HMI
	12	Direct Wire	MTW	MTW UL Cable
	13	Fuji	AR22VOR-01R	E-Stop Pushbutton
	14	Gladiator	GMCB	Supplementary Protector 3A, 1 Pole
	15	Gladiator	GMCB	Supplementary Protector 3A, 2 Pole
	16	Gladiator	GMCB	Supplementary Protector 4A, 2 Pole
	17	Gladiator	GMCB	Supplementary Protector 8A, 3 Pole
	18	Gladiator	GMCB	Supplementary Protector 30A, 3 Pole
	19	Hammond	C1FC75LES	General Purpose Transformer
	20	Hammond	DNGL	Ground Lug
	21	Iboco	GS1	I-Flex Electrical Tubing
	22	Iboco	T1E	Open Slot Narrow Finger Wire Mold
	23	Konnect-it	KN	Single-level feedthrough terminal block
	24	Murrelektronik	CD12M	M12 Cable
	25	Productivity	P1-04NTC	Temperature Input
	26	Productivity	P1-08ADL	Analog Input
	27	Productivity	P1-08DAL	Analog Output
	28	Productivity	P1-08TRS	Digital Output
	29	Productivity	P1-16NE3	Discrete Input
	30	Productivity	P1-550	CPU
	31	Prosense	PMRU-1C	Phase Monitor
	32	Rhino	PSL-05-010	5VDC Power Supply
	33	Rhino	PSM24-090	24VDC Power Supply
	34	Signaw	SCE-1008ELJ	Enclosure HMI
	35	Signaw	SCE-24EL2408	Enclosure Main
	36	Socomec	148D1111	Rotary Handle
	37	Socomec	22003008	80A, Disconnect
	38	Socomec	22993409	Door Mount

Controls	39	Stride	SE2-SW5U	Ethernet Switch
	40	Weg	BLB-11	Aux Contact
	41	Weg	CWB38-11	IEC Contactor 38A
	42	Weg	CWC012	IEC Contactor 12A
	43	Weg	RCCO	Surge Protector
	44	Weg	RWB40-3	Overload Relay
	45	Weg	15574655	CFW500 High Performance Drive
	46	Z+F	V30A	8mm Ferrule
Cross Flow	47	InnergyTech	ICS1-0.1	Cross Flow Heat Exchanger
Glycol	48	ACI	A-3K	Temperature NTC
	49	Belimo	B325	Valve Body
	50	Belimo	LRB24-SR-US	Actuator 24V, Mod
	51	Taco	0034E	ECM High Efficiency Circulator
	52	Webstone	51404	Swt Uni-Flange Isolator Ball Valve
Insulation	53	K-Flex	3F416	NBR/PVC Insulation
	54	Vera Foam	#50 HFO	High Density Closed Cell
Refrigeration	55	ACI	A-3K	Temperature NTC
	56	Bell & Gossett	BPR415-56-LCA	Brazed Plate Heat Exchanger
	57	Copeland	ZPS91-KCE-TF5	HFC Scroll 2-Stage Compressor
	58	Copeland	91800	Crankcase Htr
	59	KE2	KE2 SIB	Interface Board
	60	KE2	20711	Pressure Transducer
	61	KE2	20712	Pressure Transducer
	62	KE2	21529	RSV-400 EXV
	63	Mars	A31004	Access Valve
	64	Sporlan	C-165S	Filter Drier
	65	Sporlan	SA-15S	See All
Water	66	FloJet	0174002G	Inline Strainer
	67	FloJet	03626049C	Pump
	68	Pentair	150416-75	Housing Wrench
	69	Pentair	158319-75	Filter Housing
	70	Pentair	555217-75	25 Micron
	71	Pentair	555245-75	5 Micron
	72	Pentair	555441-75	10 Micron
	73	Prosense	FLS-HS-100	Float Switch
	74	Prosense	FMM50-1001	Liquid Flow Meter