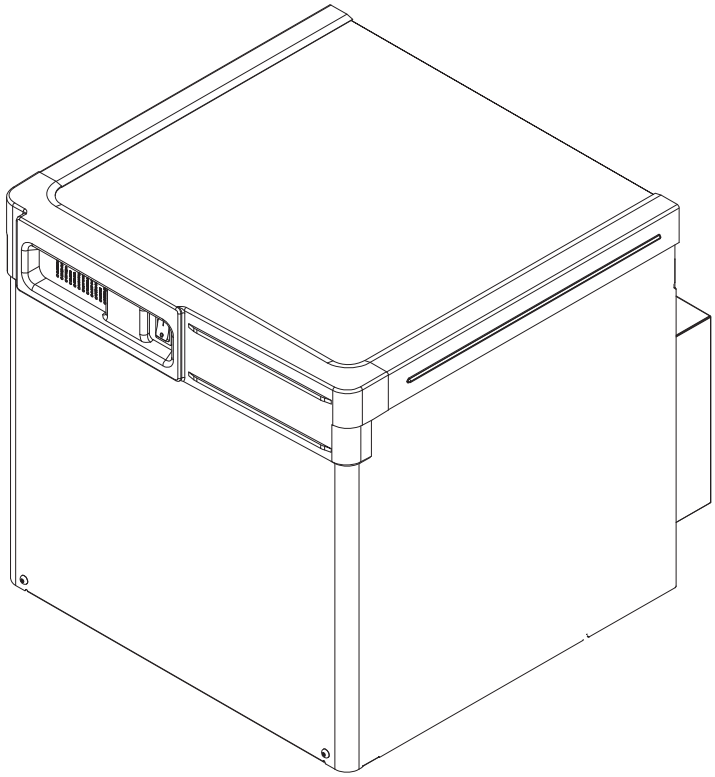
Horizon Elite™ D1012R, D1412R Ice Machines (Remote Condensing)

User Guide

Please visit *www.follettice.com/technicaldocuments* for the Operation and Service manual for your unit.



Welcome to Follett

Follett equipment enjoys a well-deserved reputation for excellent performance, long-term reliability and outstanding after-the-sale support. To ensure that this equipment delivers that same degree of service, review this guide carefully before you begin your installation.

Should you need technical help, please call our Technical Service group at (877) 612-5086 or (610) 252-7301.

Please have your model number, serial number and complete and detailed explanation of the problem when contacting Technical Service.

Getting Started

After uncrating and removing all packing material, inspect the equipment for concealed shipping damage. All freight is to be inspected upon delivery. If visible signs of damage exist, please refuse delivery or sign your delivery receipt "damaged." Follett Customer Service must be notified within 48 hours. Wherever possible, please include detailed photos of the damage with the original packaging so that we may start the freight claim process.

801 Church Lane • Easton, PA 18040, USA
Toll free (877) 612-5086 • +1 (610) 252-7301
www.follettice.com

Installation and Service Videos:
www.follettice.com/servicevideolibrary

01519115R06

⚠ CAUTION

- Installation and service must be performed in accordance with all federal, state and local laws. It is the responsibility of the technician to ensure that these requirements are met.
- Risk of electric shock. Placing switch in OFF position does not de-energize all loads.
- Warranty does not cover exterior or outside installations.
- Moving parts. Do not operate with front cover removed.
- Hot parts. Do not operate with cover removed.
- To reduce risk of shock, disconnect power before servicing.
- Drain line must not be vented.
- Water supply must have particle filtration.
- Most ice machine cleaners contain citric or phosphoric acid, which can cause skin irritation. Read caution label on product and follow instructions carefully.
- Ice is slippery. Maintain counters and floors around dispenser in a clean and ice-free condition.
- Ice is food. Follow recommended cleaning instructions to maintain cleanliness of delivered ice.
- Follett recommends a Follett water filter system be installed in the ice machine inlet water line.

Specifications

Electrical

Separate circuit and equipment ground required.

Evaporator unit

Standard electrical: 115/60/1
Maximum fuse: 15A
Amperage: 3.5A

Condensing unit

	C1012CU Single-Phase	F1012CU 3-Phase	C1412CU Single-Phase	F1412CU 3-Phase
Electrical	208-230 V, 60 Hz			
Max Circuit HVACR breaker size	15 A	15 A	20 A	15 A
Min Circuit Ampacity	11A	10 A	13 A	11 A

Plumbing

⚠ WARNING

This equipment to be installed with adequate backflow protection to comply with applicable federal, state, and local codes.

Notes:

- Follett does not recommend the use of water softeners or bowl scale inhibitors.
- The potable water total dissolved solids (TDS) content must be greater than 10 ppm for the water control system to function properly. If using reverse osmosis water filtration system, ensure TDS level is greater than 10 ppm.

Evaporator plumbing

- 3/8" OD push-in water inlet - 3/8" OD tubing required.
- Water shut-off recommended within 10 feet (3 m).

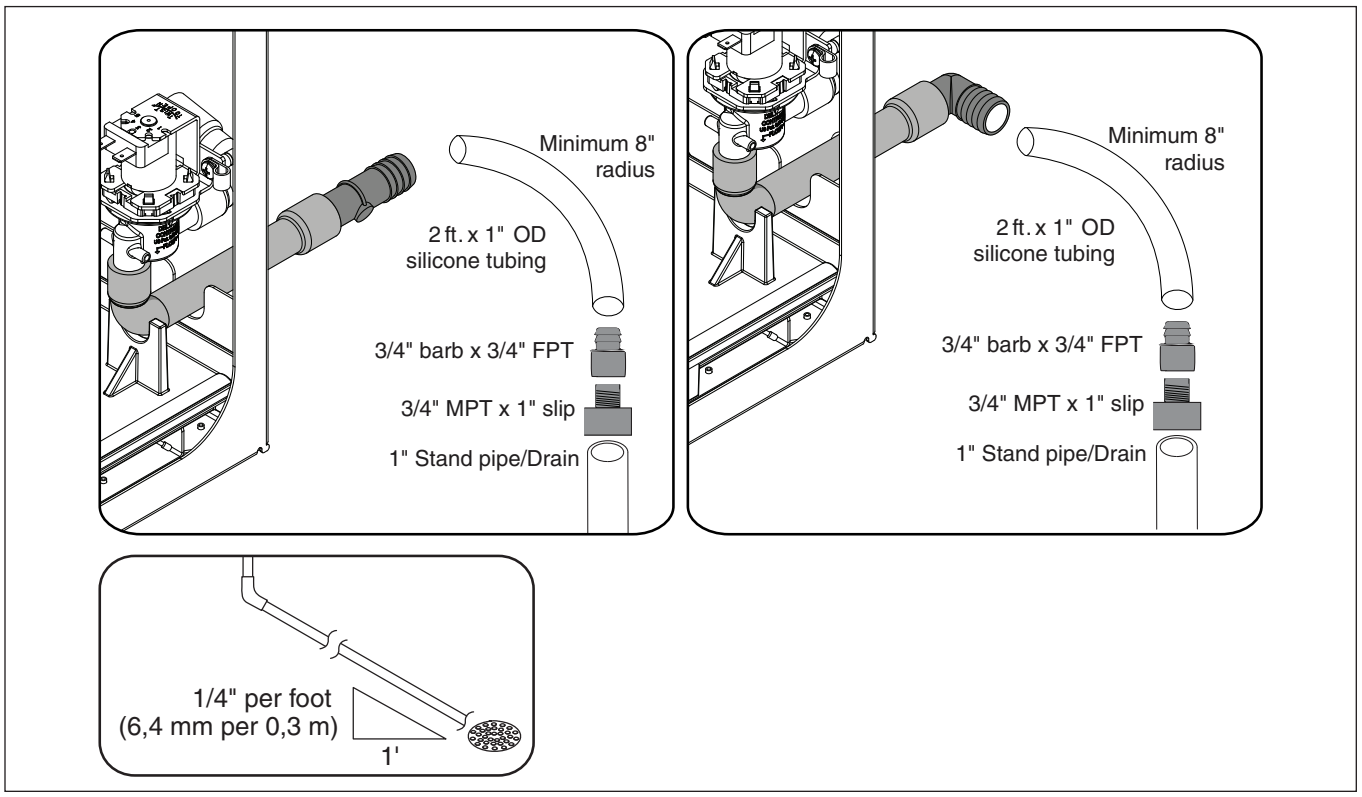
Flush drain plumbing

- Attach either the provided straight 3/4" barb adapter or a 90 degree adaptor. Connect the supplied 2' (0.61 m) silicone hose to the 3/4" drain barb.
- It is recommended that the silicone hose be routed down into a 1.5" or 2" standpipe/drain. The minimum drain size for the ice machine is 1".

  Note: 3/4" to 1" PVC adapter fittings are provided if a larger drain size is not possible.

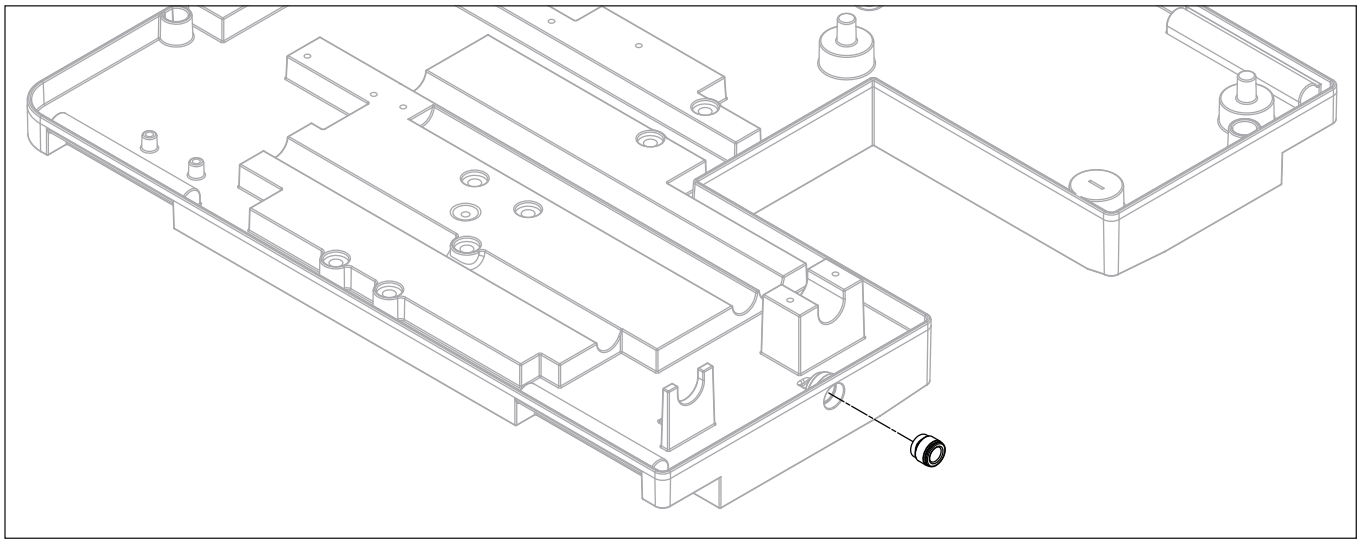
  Note: Minimum 8" radius on silicone drain line. Drain line from the ice machine must have at least 1/4" per foot pitch (6.4 mm/0.3 m).

  Note: Standpipe/drain provided by others. All other components provided with ice machine.



Chassis drain plumbing

- Route 3/8" OD drain tubing (preferably copper) through rear of docking station and fully insert into chassis base push-in fitting. Route into drain standpipe.
- Gravity drain. Drain must slope 1/4" inch per foot (6 mm per 30,4 cm). Ensure 3/8" OD tubing slopes down into drain standpipe without forming a trap.



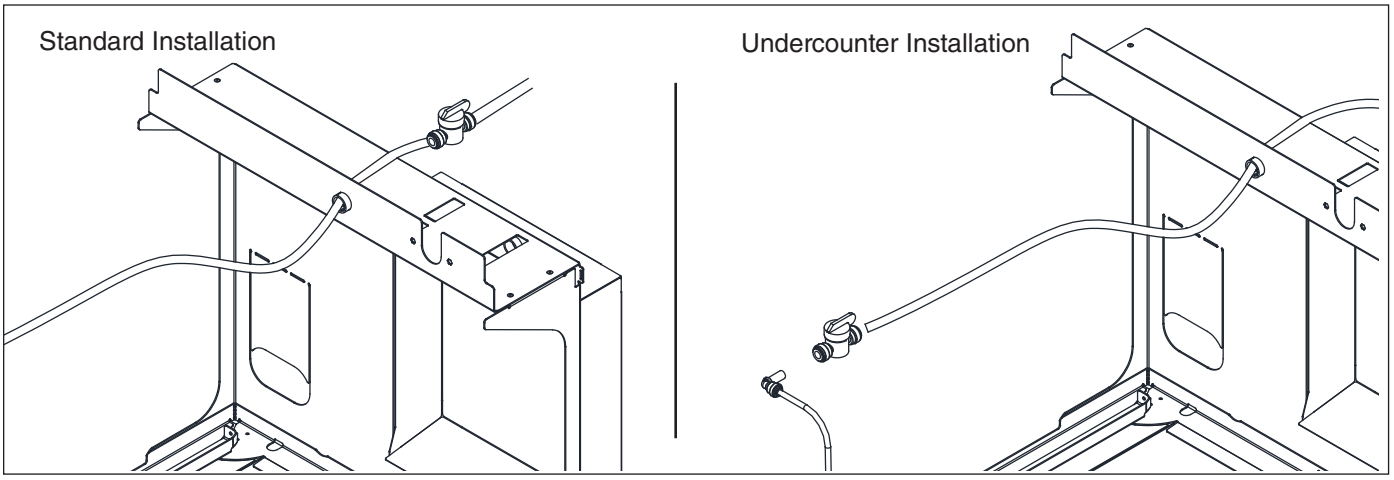
Shut-off Valve

Standard Installations

Locate the shut-of valve outside and at the back of the ice machine.

Undercounter Installations

Locate the shut-of valve *inside* the ice machine. This method of installation provides access to the water shut-off valve for service or in case of an emergency.



Ambient

Evaporator unit

Air temperature	100 F/38 C max.	50 F/10 C min.
Water temperature	90 F/32 C max.	45 F/7 C min.
Water pressure	70 psi max. (483 kPa)	10 psi min. (69 kPa)

Condenser unit

Air temperature 120 F/49 C max. –20F/–29C min.

Refrigeration

- R449A
- 3/8" liquid line
- 7/8" suction line

Note: Not compatible with rack system. Consult Technical Service at (877) 612-5086 or (610) 252-7301.

Refrigeration Pressure

Air-cooled condensers (air)	50 F 10 C	60 F 16 C	70 F 21 C	80 F 27 C	90 F 32 C	100 F 38 C	110 F 43 C	120 F 49 C
Discharge Pressure (psig)	182	186	189	211	233	270	307	344
Discharge Pressure (kpa)	1,255	1,282	1,303	1,455	1,607	1,862	2,117	2,372
Suction Pressure (psig)	22	23	23	25	27	28	28	29
Suction Pressure (kpa)	152	159	159	172	186	193	193	200

Weight

Evaporator unit: D1012R - 130 lbs (59 kg), D1412R - 134 lbs (61 kg)

Condensing unit:

	D1012CU single phase	F1012CU 3-phase	D1412CU single phase	F1412CU 3-phase
Approximate ship weight	268 lbs (122 kg)	268 lbs (122 kg)	271 lbs (123 kg)	271 lbs (123 kg)
Approximate net weight	205 lbs (93 kg)	205 lbs (93 kg)	208 lbs (94 kg)	208 lbs (94 kg)

Ice production

D1012R ice machine capacity/24 hrs.

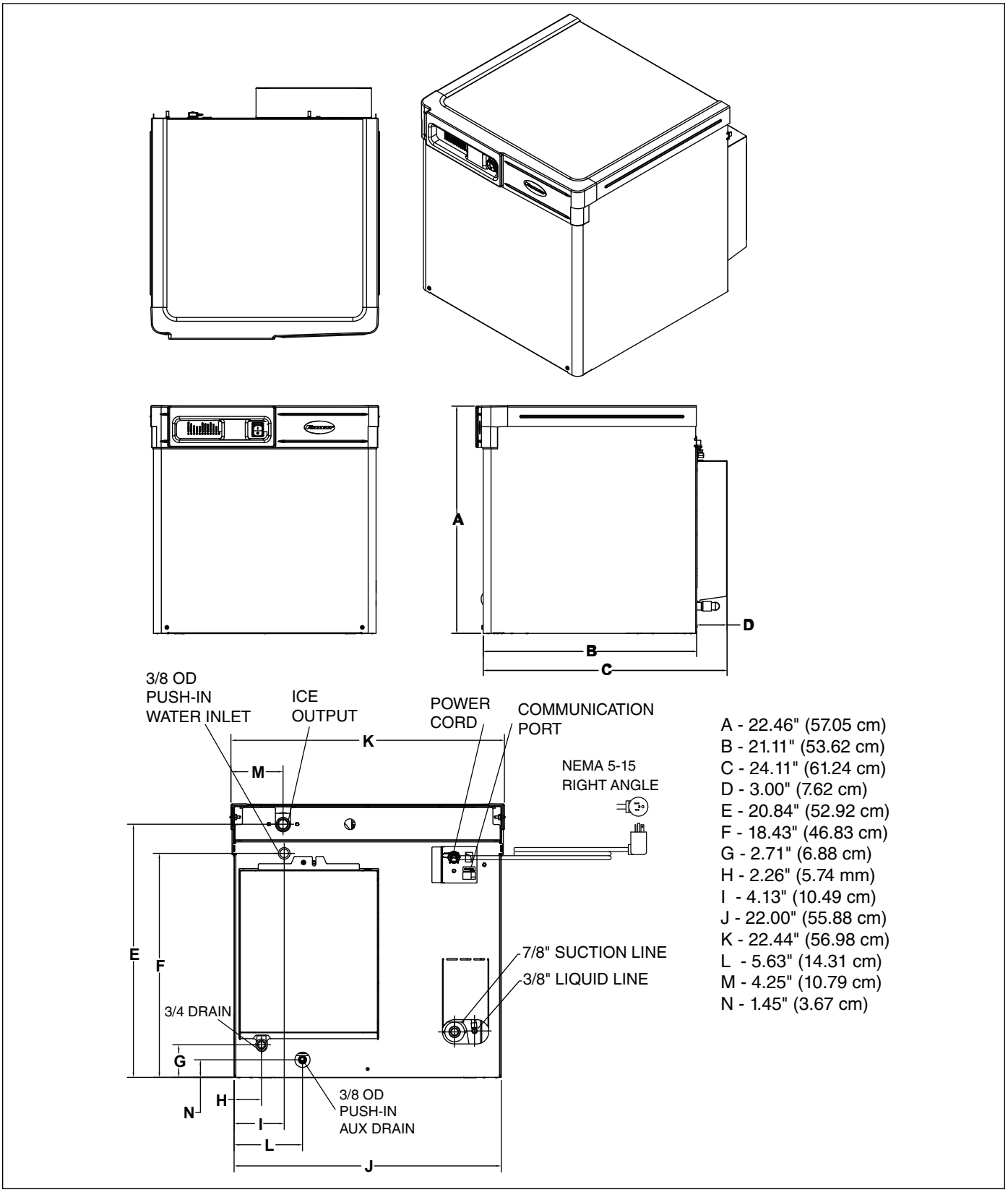
Ambient Air Temperature F/C							
Evap Potable Water Temperature F/C	F/C	50/10	60/16	70/21	80/27	90/32	
	50	1128	1089	1051	1021	991	**lbs**
	10	512	494	477	463	450	**kg**
	60	1040	1012	984	962	940	**lbs**
	16	472	459	446	436	426	**kg**
	70	953	935	917	903	889	**lbs**
	21	432	424	416	410	403	**kg**
	80	896	883	869	851	832	**lbs**
	27	406	401	394	386	377	**kg**
	90	839	830	821	798	775	**lbs**
	32	381	376	372	362	352	**kg**

D1412R ice machine capacity/24 hrs.

Ambient Air Temperature F/C							
Evap Potable Water Temperature F/C	F/C	50/10	60/16	70/21	80/27	90/32	
	50	1304	1297	1291	1253	1216	**lbs**
	10	591	588	586	568	552	**kg**
	60	1231	1220	1209	1173	1137	**lbs**
	16	558	553	548	532	516	**kg**
	70	1158	1143	1127	1093	1059	**lbs**
	21	525	518	511	496	480	**kg**
	80	1097	1068	1039	1020	1000	**lbs**
	27	498	484	471	463	454	**kg**
	90	1036	994	952	947	942	**lbs**
	32	470	451	432	430	427	**kg**

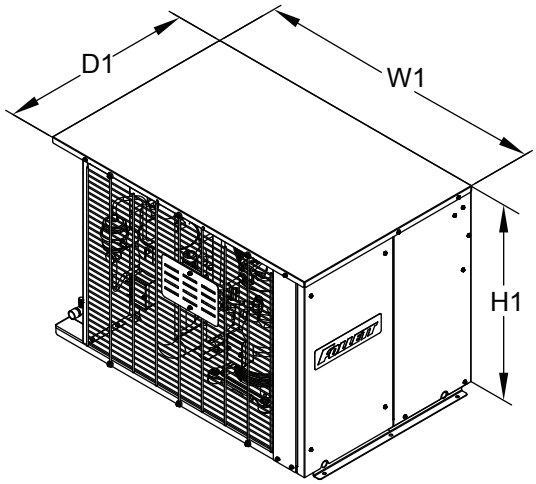
Dimensions and clearances

- Entire front of ice machine must be clear of obstructions/connections to allow removal.
- 1" (26 mm) clearance above ice machine for service.
- 1" (26 mm) minimum clearance on sides.
- 3" (78 mm) minimum clearance at rear.



A - 22.46" (57.05 cm)
B - 21.11" (53.62 cm)
C - 24.11" (61.24 cm)
D - 3.00" (7.62 cm)
E - 20.84" (52.92 cm)
F - 18.43" (46.83 cm)
G - 2.71" (6.88 cm)
H - 2.26" (5.74 mm)
I - 4.13" (10.49 cm)
J - 22.00" (55.88 cm)
K - 22.44" (56.98 cm)
L - 5.63" (14.31 cm)
M - 4.25" (10.79 cm)
N - 1.45" (3.67 cm)

Condensing unit



	C1012CU	F1012CU	C1412CU	F1412CU
W1 Width	39.60"	39.60"	39.60"	39.60"
Width (between mounting holes at base)	38.75"	38.75"	38.75"	38.75"
D1 Depth	34.30"	34.30"	34.30"	34.30"
Depth (at base, without hail guard)	25.80"	25.80"	25.80"	25.80"
H1 Height	26.05"	26.05"	26.05"	26.05"
Electrical	208-230/60/1	208-230/60/3	208-230/60/1	208-230/60/3
Minimum circuit ampacity	11A	10 A	13 A	11 A
Maximum overcurrent protection	15 A	15 A	20 A	15 A
Outdoor condensing unit operating limits (air temperature)	-20°F – 120°F	-20°F – 120°F	-20°F – 120°F	-20°F – 120°F
Maximum refrigerant line run length	100'	100'	100'	100'
Maximum line rise above evaporator	35'	35'	35'	35'
Evaporator mounting above condenser	15'	15'	15'	15'
Maximum refrigeration line drop without oil trap	15'	15'	15'	15'
Charge (R449A)	8 lbs	8 lbs	8 lbs	8 lbs
Ship Weight	268 lbs (122 kg)	268 lbs (122 kg)	271 lbs (123 kg)	271 lbs (123 kg)
Net Weight	205 lbs (93 kg)	205 lbs (93 kg)	208 lbs (94 kg)	208 lbs (94 kg)

Operation

Cleaning/sanitizing and preventive maintenance (all models)

Note: Do not use bleach to sanitize or clean the icemaker.

Preventive maintenance

Periodic cleaning of Follett's icemaker system is required to ensure peak performance and delivery of clean, sanitary ice. The recommended cleaning procedures that follow should be performed at least as frequently as recommended, and more often if environmental conditions dictate.

Cleaning of the condenser can usually be performed by facility personnel. Cleaning of the icemaker system, in most cases, should be performed by your facility's maintenance staff or a Follett authorized service agent. Regardless of who performs the cleaning, it is the operator's responsibility to see that this cleaning is performed according to the schedule below. Service problems resulting from lack of preventive maintenance will not be covered under the Follett warranty.

Weekly exterior care

The exterior may be cleaned with a stainless cleaner such as 3M Stainless Steel Cleaner & Polish or equivalent.

Monthly condenser cleaning (air-cooled icemaker only)

1. Use a vacuum cleaner or stiff brush to carefully clean condenser coils of air-cooled icemakers to ensure optimal performance.
2. When reinstalling counter panels in front of remote icemakers, be sure that ventilation louvers line up with condenser air duct.

Semi-annual evaporator cleaning (every 6 months)

⚠ WARNING

- Wear rubber gloves and safety goggles (and/or face shield) when handling ice machine cleaner or sanitizer.

⚠ CAUTION

- Use only Follett approved SafeCLEAN Plus™ cleaning solution.
- DO NOT USE BLEACH.
- It is a violation of federal law to use these solutions in a manner inconsistent with their labeling.
- Read and understand all labels printed on packaging before use.

Note: Complete procedure for cleaning and sanitizing MUST be followed. Ice must be collected for 15 minutes before putting ice machine back into service.

1. Note position of TDS switch. Set to HIGH for duration of cleaning. Press the CLEAN button. The machine will fill and drain three times (**approximately 5 minutes**). The auger will run for a short time and then stop. Wait for the LOW WATER light to come on.

Fig. 1

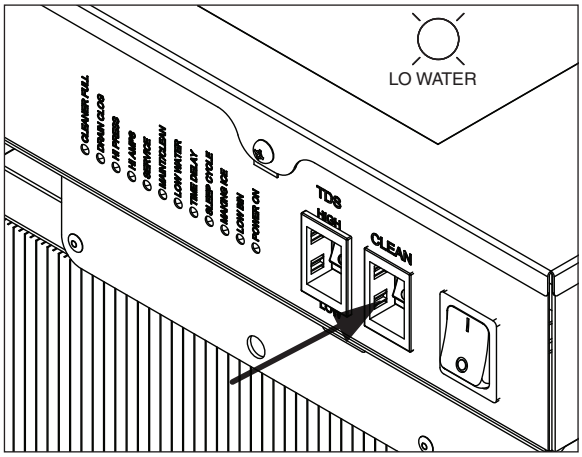
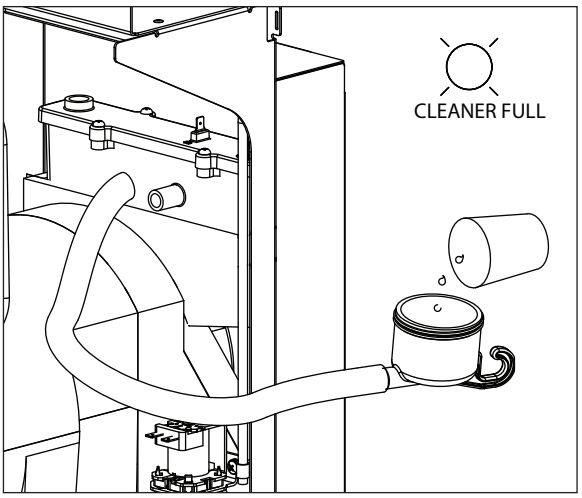


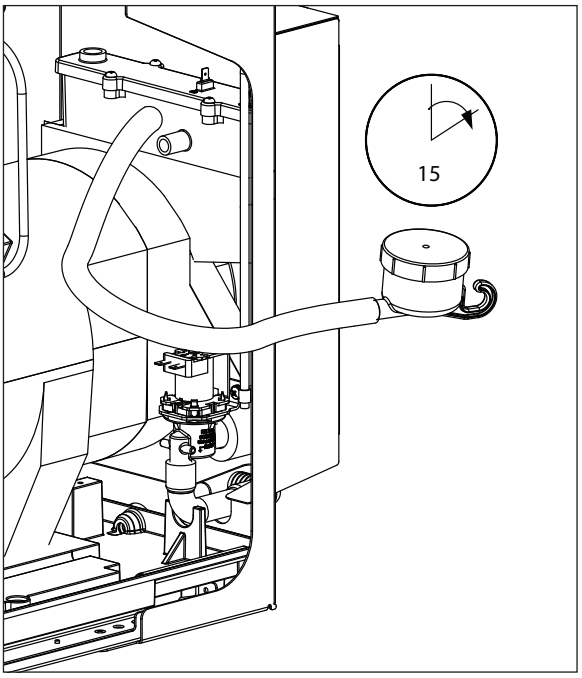
Fig. 2



2. Follow the directions on the SafeCLEAN Plus packaging to mix 1 gal. (3.8 L) of Follett SafeCLEAN Plus solution. Use 120 F (49 C) water.
3. Using a 1 quart (1 L) container, slowly fill cleaning cup until CLEANER FULL light comes on and cleaner just begins to flow from the vent tube.
4. Place plastic plug and four SaniSponge™ cleaning sponges in remaining sanitizing and cleaning solution and retain for Step 8.

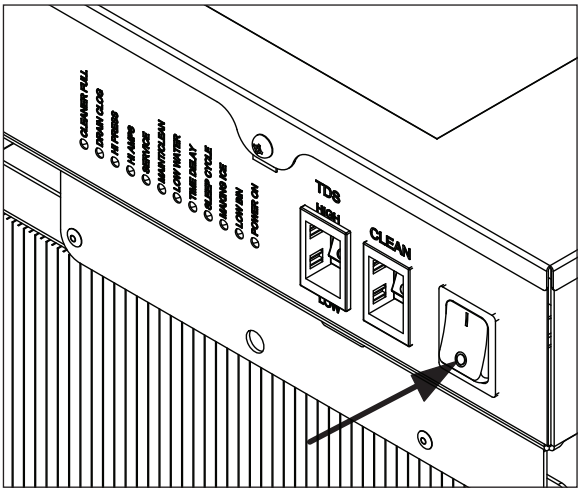
Note: Do not use bleach to sanitize or clean the icemaker.

Fig. 3



5. Replace cover on cleaner cup. Machine will clean, then flush 3 times in approximately 15 minutes. Wait until machine restarts.

Fig. 4



6. To clean/sanitize ice transport tube – Press power switch OFF

7. Disconnect coupling as shown.

Fig. 5

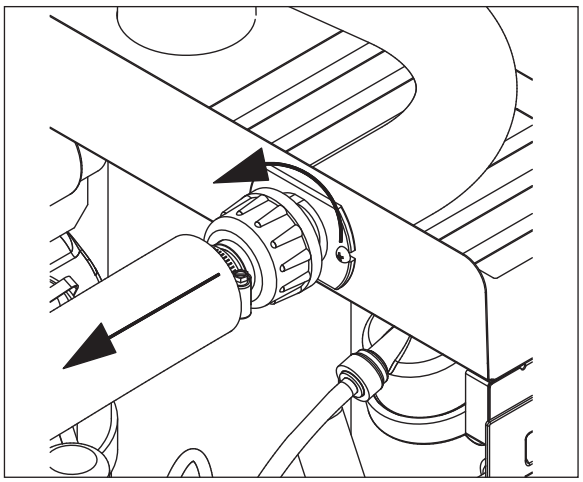


Fig. 6

8. Using disposable foodservice grade gloves, insert red plastic plug (**Fig. 6.1**) followed by four SaniSponges (**Fig. 6.2**) saturated in cleaning solution (from Step 4).

9. Push plug and four SaniSponge cleaning sponges down ice transport tube with supplied pusher tube.

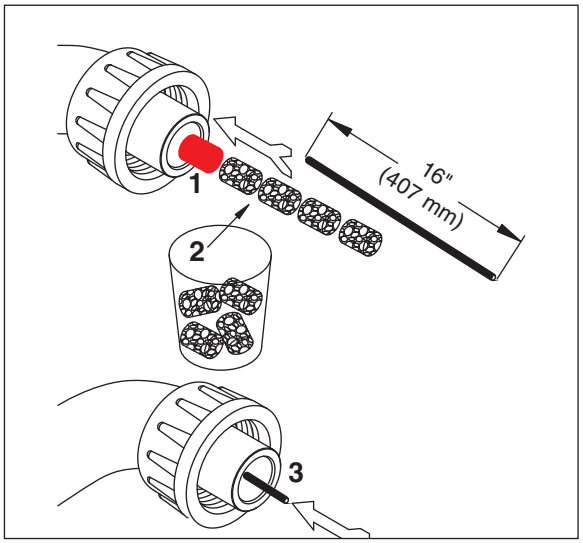
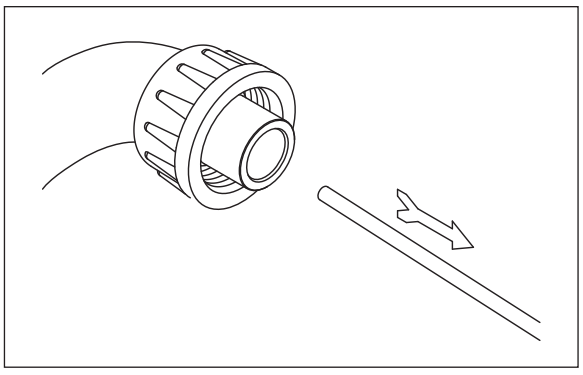


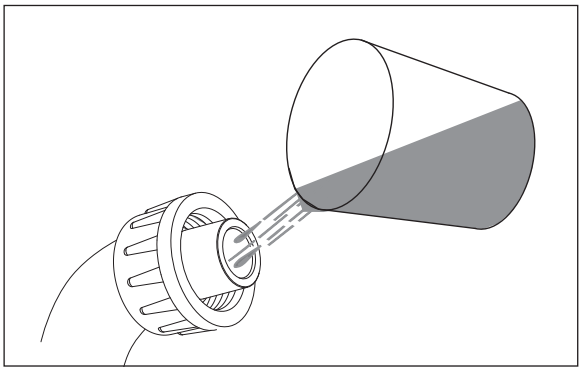
Fig. 7

10. Remove and discard 16" (407 mm) pusher tube.



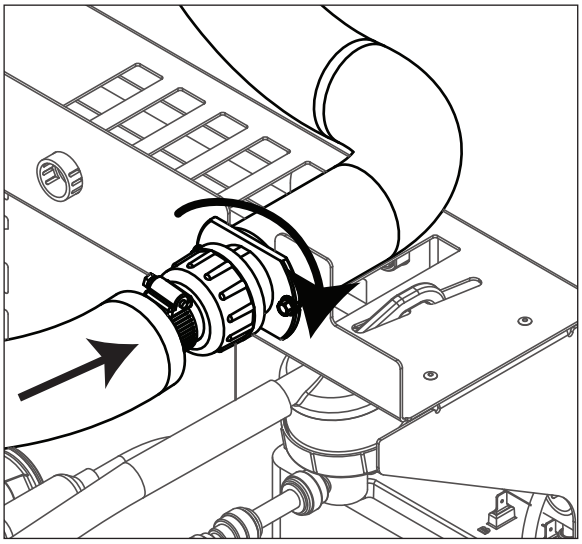
11. Fill internal ice transport tube with remaining cleaning solution.

Fig. 8



12. Reconnect coupling. Press power switch ON. Ice pushes plug and SaniSponge cleaning sponges through ice transport tube.

Fig. 9

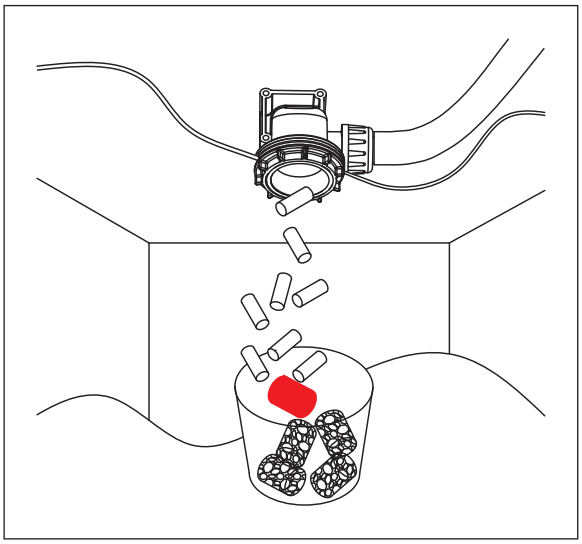


13. Place a sanitary (2 gal. or larger) container in bin or dispenser to collect the plug, SaniSponge cleaning sponges and ice for 15 minutes* *after the Sani-Sponges come out*.

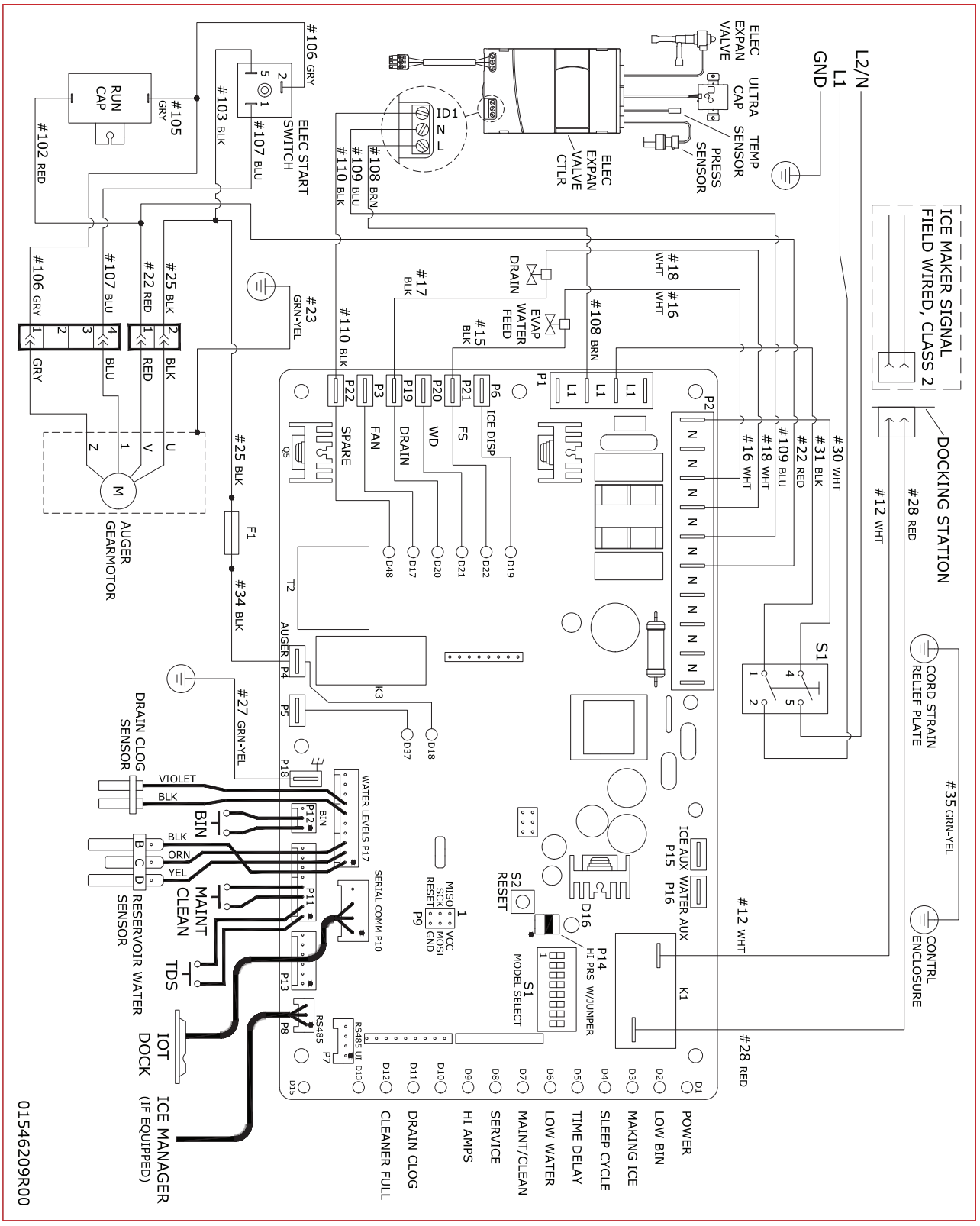
* If cleaning a 700 series ice maker with an ice transport tube run that exceeds 20 feet, the ice must be collected for 30 minutes to ensure proper sanitization of the ice transport tube.

14. Discard ice, Sani-Sponges and plug. Return TDS switch to the original position.

Fig. 10

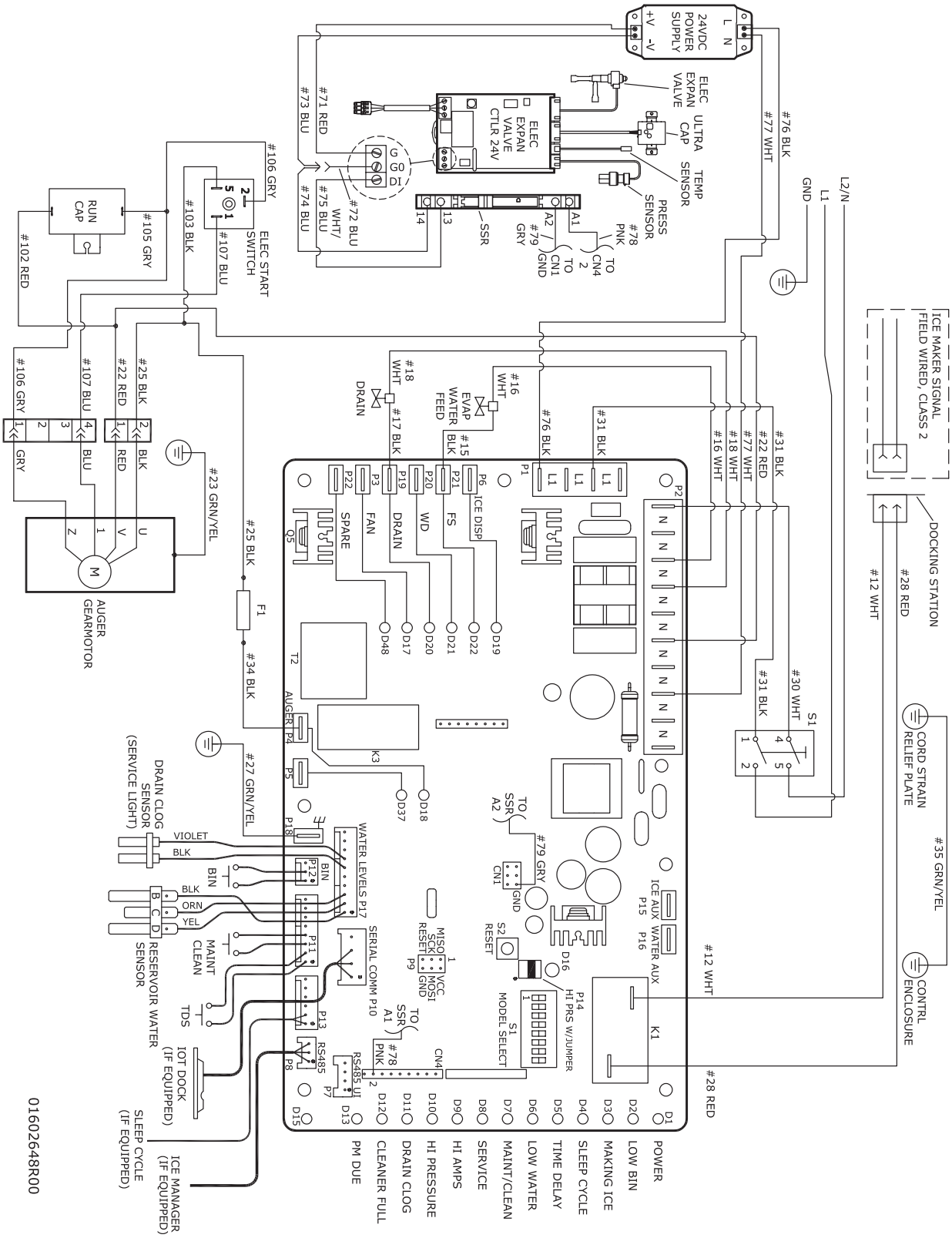


Electrical schematic, EEV Controller with Screen, 120 VAC



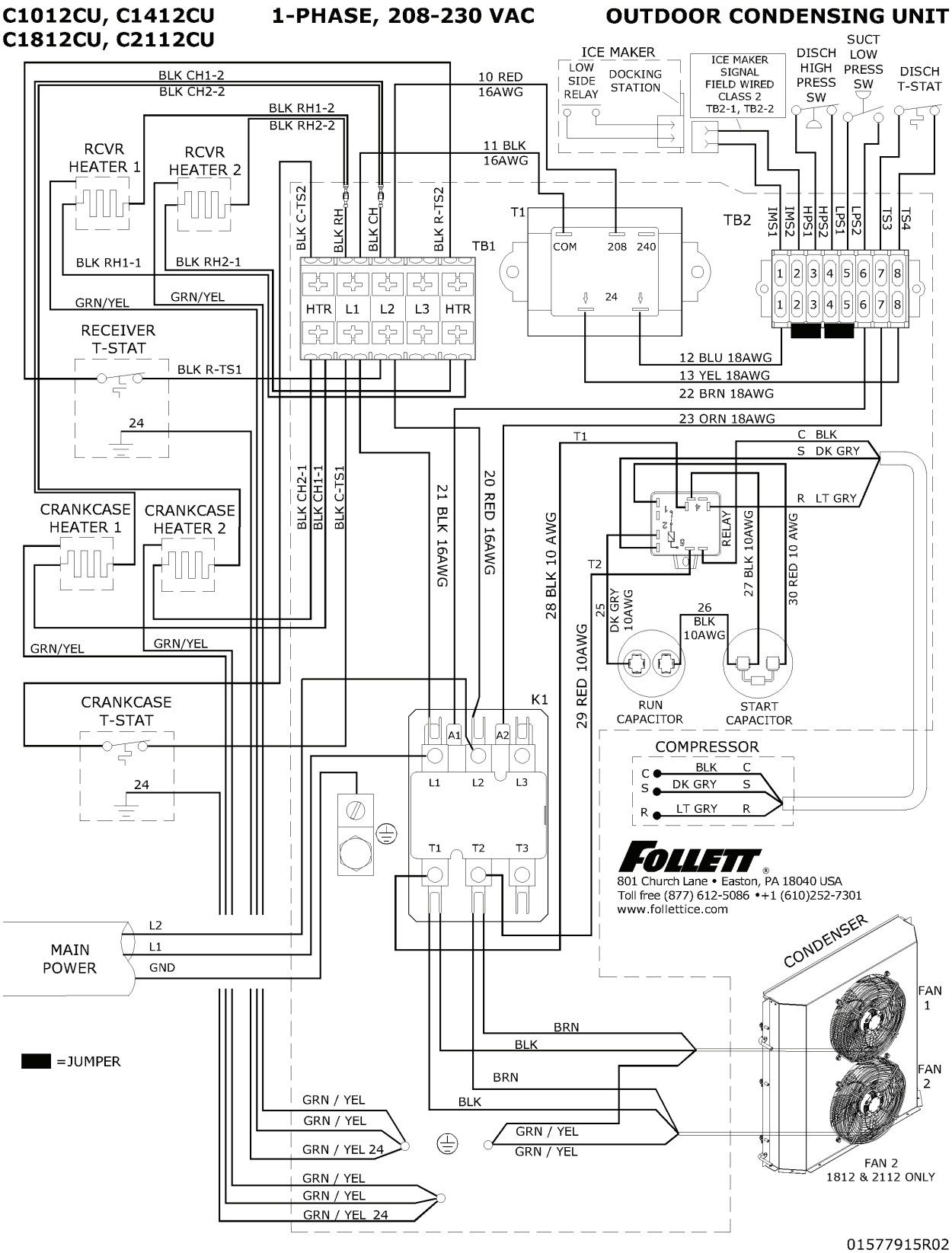
Gearmotor data		**Resistance of windings**
Gearmotor current	Power Electric: 2.6A @ 115 V Brother: 2.6A @ 115 V	**115 vac gearmotor (Brother):** White to Black: 3Ω White to Red: 3Ω Red to Black: 6Ω
Gearmotor torque-out (high amp) trip point:	7A	

Electrical schematic, EEV Controller without Screen, 24 VAC

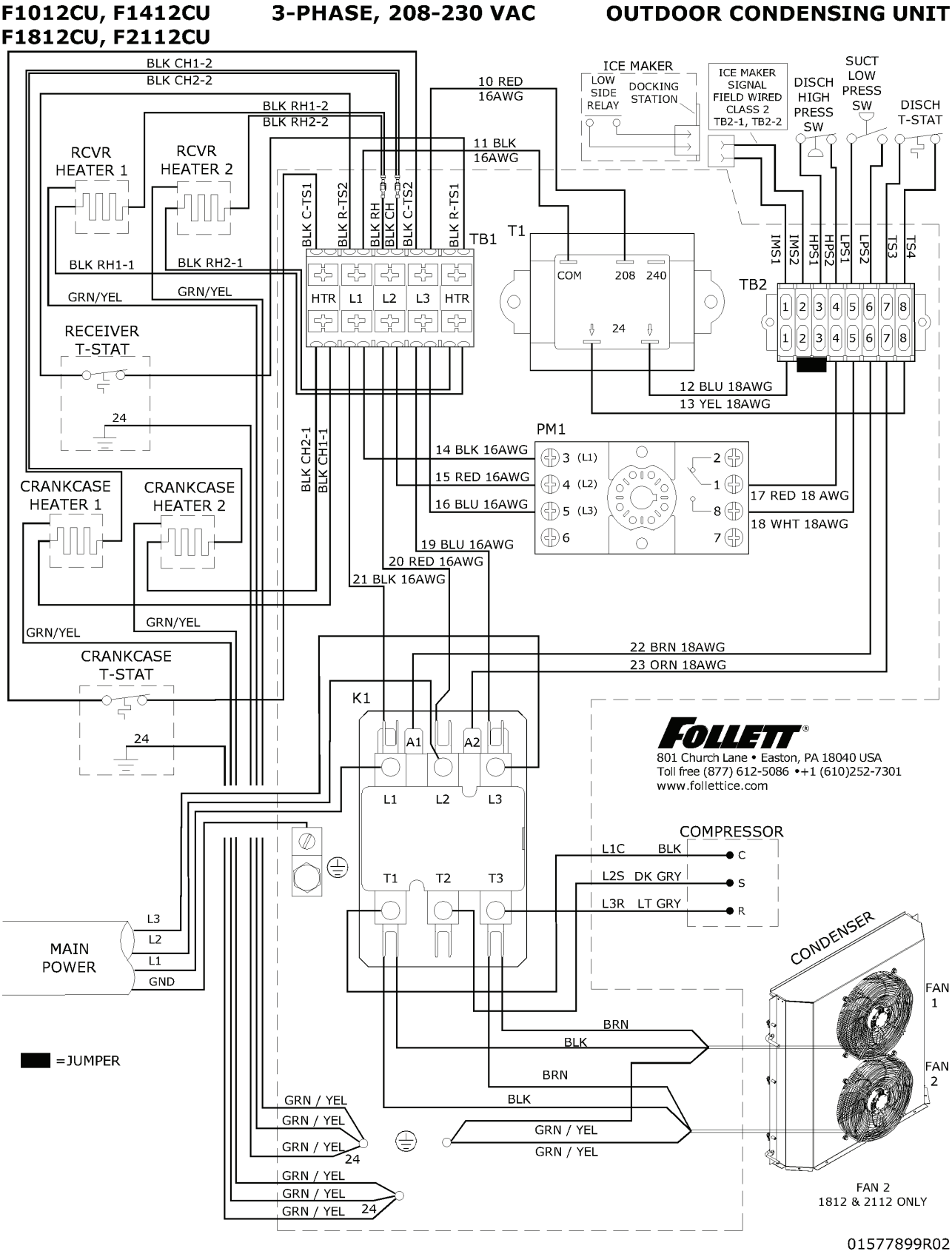


Gearmotor data		Resistance of windings
Gearmotor current	Power Electric: 2.6A @ 115 V Brother: 2.6A @ 115 V	**115 vac gearmotor (Brother):** White to Black: 3Ω White to Red: 3Ω Red to Black: 6Ω
Gearmotor torque-out (high amp) trip point:	7A	

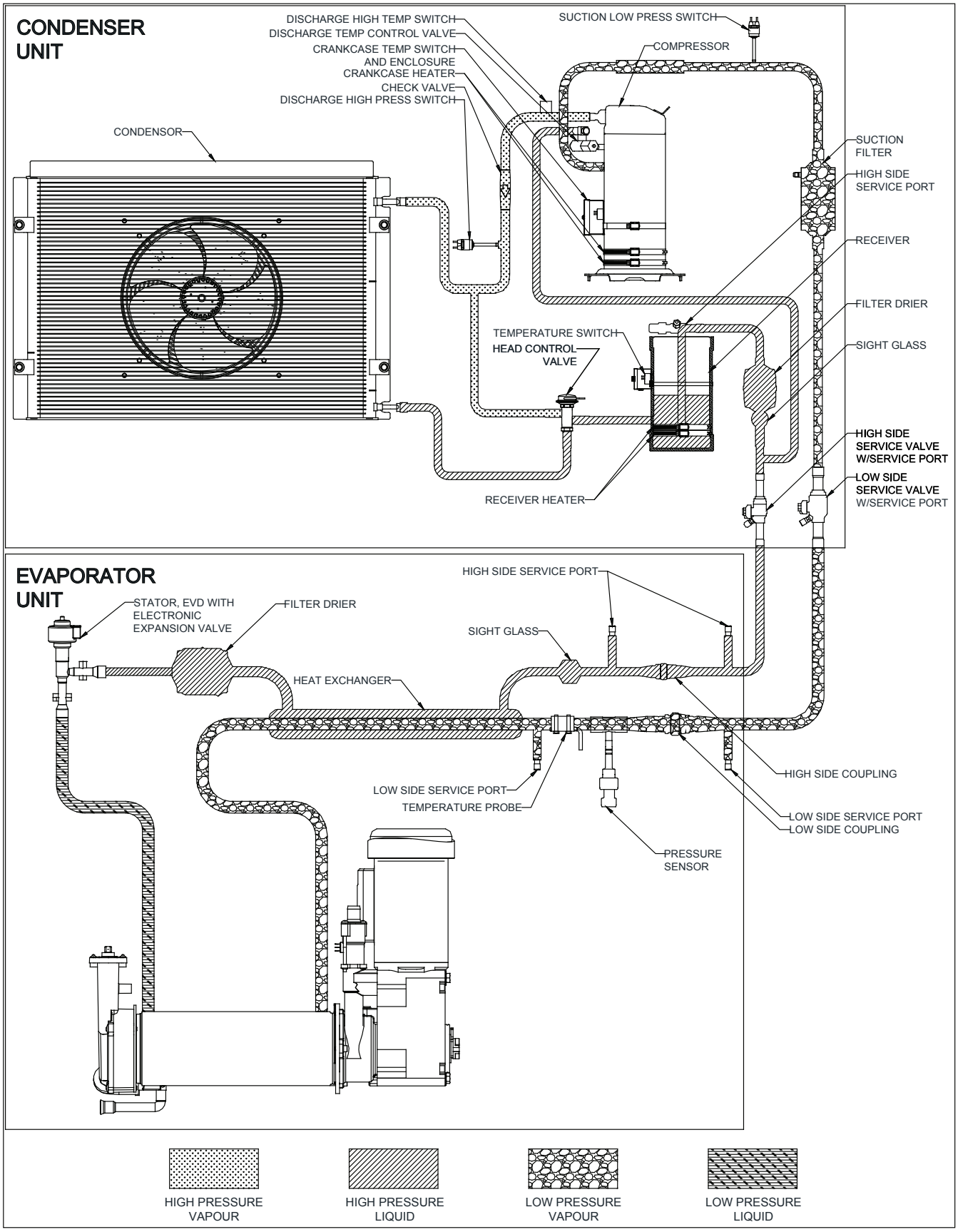
Single-phase condensing unit wiring diagram



3-phase condensing unit wiring diagram



Refrigeration system diagram



Refrigeration charge

All service on refrigeration systems must be performed in accordance with all federal, state and local laws. It is the responsibility of the technician to ensure that these requirements are met. Recharging ice machine to other than factory specifications will void the warranty.

R449A Ice Machine Charge Specifications

Line Run	C1012CU single phase	F1012CU 3-phase	C1412CU single phase	F1412 CU 3-phase
0 - 100' (0 - 30.5 m)	8 lbs (3.63 kg)			
100' + (30.5 m+)	Consult Technical Service at (877) 612-5086 or (610) 252-7301.			

Note: Condensing unit shipped fully charged with 8 lb R449A.

Refrigerant replacement requirements

1. Non-contaminated refrigerant removed from any Follett refrigeration system can be recycled and returned to the same system after completing repairs. Recycled refrigerant must be stored in a clean, approved storage container. If additional refrigerant is required, virgin or reclaimed refrigerant that meets ARI standard 700-88 must be used.
2. In the event of system contamination (for example, a compressor burn out, refrigerant leak, presence of non-condensibles or moisture), the system must be repaired, evacuated and recharged using virgin or reclaimed refrigerant that meets ARI standard 700-88.
3. Follett Products, LLC does not approve of recovered refrigerants. Improper refrigeration servicing procedures will void the factory warranty.

Evacuation

Evacuate the system to a level of 500 microns. When the 500 micron level is reached, close all valves. Allow the system to sit for approximately 20 minutes. During this period the system pressure should not rise. If the system pressure rises and stabilizes there is moisture in the system and further evacuation is needed. If the pressure continues to rise check the system for leaks.

Evaporator Unit Low-side or ice making head

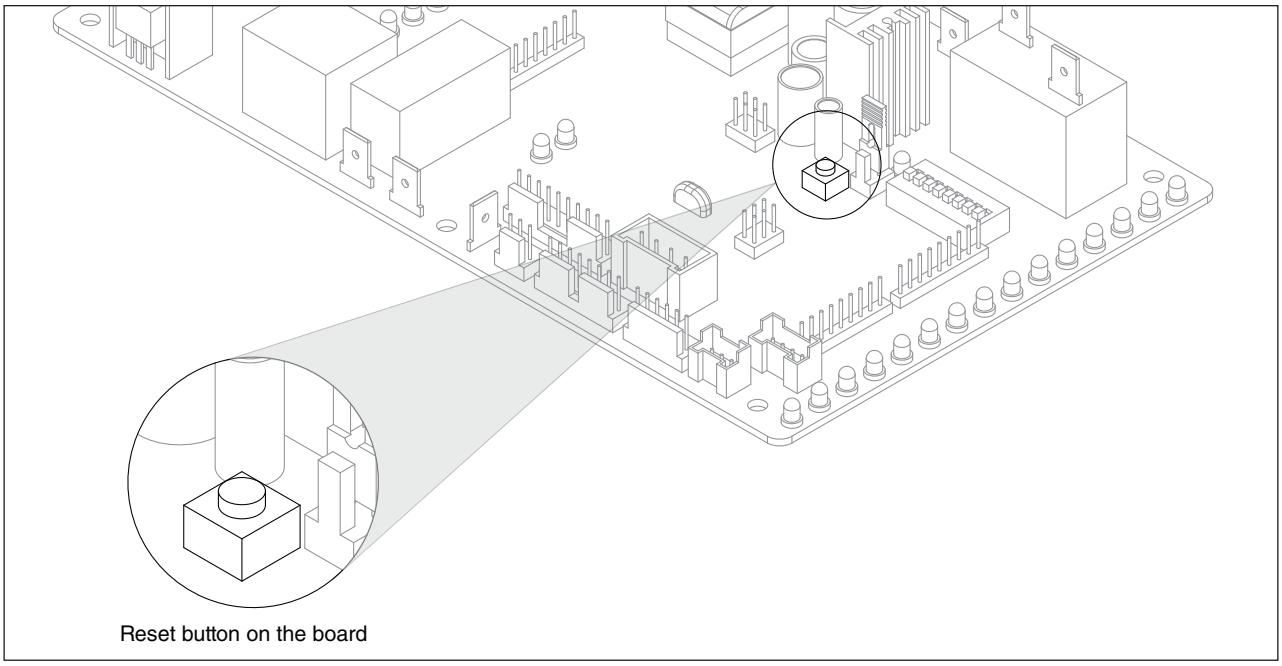
Ambients	Minimum	Maximum
Air temperature	50 F/10 C	100 F/37,8 C
Water temperature[1]	45 F/7 C	90 F/32,2 C

[1]Ambient water temperature is measured in the ice machine water reservoir.

Ice capacity test

Ice machine production capacity can only be determined by weighing ice produced in a specific time period.

1. Replace all panels on ice machine.
2. Run ice machine for at least 15 minutes.
3. Move TDS switch to LOW.
4. Press the reset button on the board.



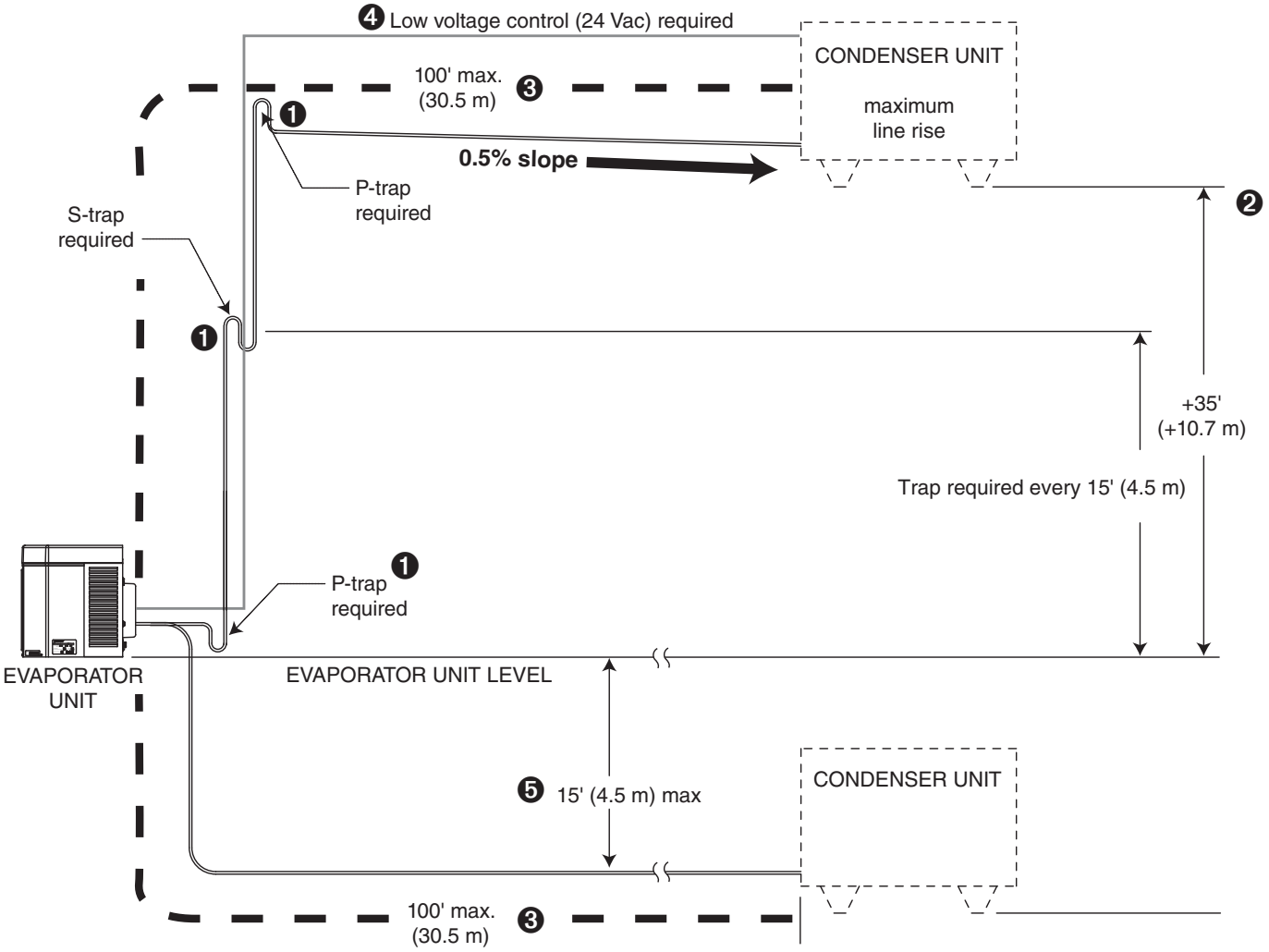
Reset button on the board

5. Weigh and record weight of container used to catch ice.
6. Catch ice for 15 minutes.
7. Weigh harvested ice and record total weight.
8. Subtract weight of container from total weight.
9. Convert fractions of pounds to decimal equivalents (ex. 6 lbs 8 oz = 6.5 lbs).
10. Calculate production using following formula:

$$\frac{\text{1440 min. x wt. of ice produced}}{\text{Total test time in minutes}} = \text{Production capacity/24 hr.}$$

11. Calculated amount per 24 hours should be checked against rated capacity for same ambient and water temperatures in Ice Production Tables.
12. **Move TDS switch to the HI TDS position.**

Condenser installation specifications



Site layout:

- Outdoor ambient temperature range: –20 F to 120 F (–29 C to 49 C)
- A P-trap is required behind the ice machine regardless of the condensing unit eleveation. Installation with condenser unit elevations above 15' (4.5 m) require an S-trap at the midpoint of the rise and a P-trap at the top of the rise ❶
- Maximum line rise must not exceed 35' (10.7 m) ❷
- Maximum line set length must not exceed 100' (30.5 m) ❸
- Low voltage control (24 Vac signal wire) must be connected ❹
- Maximum line drop must not exceed 15' (4.6 m) ❺

Troubleshooting

Ice machine disposition	Possible causes	Corrective action
Legend: ● ON ○ OFF ◐ ON or OFF ⊠ FLASHING		
1. Ice machine is in running condition but not making ice. 	1. Defective compressor. 2. Defective main contactor. 3. No output from PC board. 4. Purge valve stuck open. 5. Low charge.	1. Replace compressor. 2. Replace main contactor. 3. Replace PC board. 4. Replace purge valve. 5. Fix leak, recharge system.
2. Machine in TIME DELAY without full bin. 	1. Ice jamming due to improperly installed transport tube causing a false shuttle. 2. Shuttle stuck in up position. 3. Damaged or improperly installed thermostat (open). 4. Transport tube backed-out of coupling.	1. Correct transport tube routing. 2. Repair or replace shuttle mechanism. 3. Replace or reposition thermostat. 4. Correct coupling installation.
3. Ice machine is not making ice. HI AMPS. 	1. Poor water quality causing ice to jam auger. 2. Damaged shuttle mechanism. 3. Intermittent drive output from PC board. Evaporator will freeze causing a HI AMPS error. 4. Gearmotor is unplugged.	1. Clean ice machine. Increase flushing frequency. Position TDS switch to High TDS setting. 2. Replace or repair shuttle mechanism. 3. Replace PC board. 4. Plug in gearmotor.
4. Ice machine is not making ice. HI PRESSURE. 	1. High ambient temperatures >100 F (38 C). 2. Poor ventilation or air recirculation. 3. Clogged condenser (air-cooled). 4. No water flow through condenser (water-cooled only). 5. Fan not working properly. No air flow. • Blocked fan blades • No fan output from PC board • Faulty fan motor	1. Air condition area to below 100 F (38 C). 2. Reposition ice machine or properly ventilate. Prevent ice machine exhaust from recirculating. 3. Clean condenser/grille (air-cooled). 4. Restore water flow to condenser. Ensure supplied condenser water flow direction is correct. 5. Correct air flow. • Remove any blockage from fan blades • Replace PC board • Replace fan motor
5. Ice machine is not making ice. SERVICE. 	1. Internal water leak touching chassis sensor. 2. Condensation.	1. Identify and repair leak. Clean/dry chassis and sensors and restart machine. 2. Ensure ice machine chassis condensate drain is plumbed and free flowing.
6. Drain clog. 	1. Improper flow in drain system. 2. Failed purge solenoid. 3. No output from PCB to purge solenoid.	1. Correct/clean drain system. 2. Replace purge solenoid. 3. Replace PC board.

Ice machine disposition	Possible causes	Corrective action
Legend: ● ON ○ OFF ◐ ON or OFF ⊗ FLASHING		
7. Ice machine is making ice. Excessive water in bin or coming into bin from transport tube. 	1. Failed water sensors. Processor assumes there is no water when there is water. 2. Blocked reservoir vent. 3. Defective water feed solenoid valve. Stuck in open position. 4. Pressure over 70 psi. 5. Auger jammed with ice. 6. RO water under 10 ppm.	1. Clean or replace water probe assembly. Check wiring connections. 2. Clean or replace vent tubes. 3. Replace water feed solenoid valve. 4. Correct water pressure. 5. Clean ice machine/auger. 6. Correct RO supplied water to >10 ppm.
8. Ice machine is not making ice. Solid Low Water. 	1. Water supply is insufficient. 2. Low water pressure. 3. Defective water feed solenoid valve. Stuck in closed position. 4. No water feed output from PC board. 5. Plugged screen on inlet side of fill solenoid. 6. Plugged check valve.	1. Restore water supply and check water filters. If evaporator was completely empty the reset button may have to be pressed to restart the ice machine. 2. Ice machine will eventually start when water reaches normal low level. • Ensure water pressure to ice machine is >10 psi. 3. Replace water feed solenoid valve. 4. Replace PC board. 5. Remove and clean screen. 6. Replace check valve.
9. Blinking Low Water, power, time delay. 	Machine did not see water consumption while trying to make ice. 1. Lack of refrigeration/low refrigerant charge/leak. 2. Debris shorting reservoir probes.	1. Verify refrigerant pressures, compressor running, sight glass clear. 2. Clean probes and reservoir of debris.
10. Solid PM Due. 	1. Ice machine has been in service for 6 month interval without being cleaned.	1. Clean Ice machine.

ATTENTION!

To prevent circuit breaker overload, wait 5 minutes before restarting this unit.

Warranty Registration and Equipment Evaluation

Thank you for purchasing Follett Products, LLC equipment. Our goal is to earn your complete satisfaction by delivering high-value products and services backed by outstanding customer and technical support.

Please review the installation instructions thoroughly. It is important that the installation be performed to factory specifications so your equipment operates at its maximum efficiency.

Follett Products, LLC will not be liable for any consequential damages, expenses, connecting or disconnecting charges, or any losses resulting from a defect of the machine. For full warranty details, visit our website www.follettice.com/productwarranties.

Registering your equipment helps Follett Products, LLC track your equipment's service history should you need to contact us for technical support, and your feedback helps us improve our products and services. Please visit www.follettice.com/support to complete the Warranty Registration form.

Should you have any questions, please contact Follett's technical support group at (877) 612-5086 or (610) 252-7301 and we will be happy to assist you.

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