Manitowoc





R Model
Cube Ice Machines

Technician's Handbook

This manual is updated as new information and models are released.
Visit our website for the latest manual. www.manitowocfsg.com

America's #1 Selling Ice Machine

Part Number STH16 6/10

Read These Before Proceeding:

⚠ Caution

Proper installation, care and maintenance are essential for maximum performance and trouble-free operation of your Manitowoc equipment. If you encounter problems not covered by this handbook, do not proceed, contact Manitowoc Foodservice Group. We will be happy to provide assistance.

Important

Routine adjustments and maintenance procedures outlined in this handbook are not covered by the warranty.

⚠ Warning

PERSONAL INJURY POTENTIAL

Do not operate equipment that has been misused, abused, neglected, damaged, or altered/modified from that of original manufactured specifications.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision concerning use of the appliance by a person responsible for their safety.

We reserve the right to make product improvements at any time. Specifications and design are subject to change without notice.

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General Information

MODEL NUMBERS

Self Storage Air-Cooled	Self Storage Water-Cooled	Modular Air-Cooled	Modular Water-cooled
RG3316A	RG3316W		
RG4216A	RG4216W		
RG4625A	RG4625W		
RG6540A	RG6540W		
RG8055A	RG8055W		
RG9055A	RG9055W		
RC1365A	RC1365W		
RG1365A	RG1365W		
RV1365A	RV1365W		
RC1565A	RC1565W		
RG1565A	RG1565W		
RV1565A	RV1565W		
		RC0155A	RC0155W
		RG0155A	RG0155W
		RV0155A	RV0155W
		RC0300A	RC0300W
		RG0300A	RG0300W
		RV0300A	RV0300W

MODEL/SERIAL NUMBER

These numbers are required when requesting information from your local Manitowoc Distributor, or Manitowoc Ice. The model and serial number are listed on the MODEL/SERIAL NUMBER DECAL affixed to the ice machine.

MANITOWOC CLEANER AND SANITIZER

Manitowoc Ice Machine Cleaner and Sanitizer are available in 16 oz. (473 ml) bottles. These are the only cleaners and sanitizer approved for use with Manitowoc products.

Cleaner Part Number		Sanitizer Part Number	
16 oz.	000000084	16 oz.	9405653
1 gal	N/A	1 gal.	9405813

Installation

LOCATION OF ICE MACHINE

The location selected for the ice machine must meet the following criteria. If any of these criteria are not met, select another location.

- The location must be free of airborne and other contaminants.
- The location must not be near heat-generating equipment or in direct sunlight.
- The location must be capable of supporting the weight of the ice machine and a full bin of ice.
- The location must allow enough clearance for water, drain and electrical connections in the rear of the ice machine.
- The location must not obstruct airflow through or around the ice machine.

INSTALLATION REQUIREMENTS

- The air temperature must be at least 10°C, but must not exceed 43°C.
- The water temperature must be at least 4°C, but must not exceed 32°C.
- The ice machine and bin must be level
- Vent the ice machine and bin drains separately
- Bin drain termination must have an air gap
- A backflow preventer is required on water inlet lines
- Routine adjustments and maintenance procedures outlined in this manual are not covered by the warranty.

POTABLE WATER REQUIREMENTS

- Plumbing must conform to local codes
- Do not connect the ice machine to a hot water supply. Be sure all hot water restrictors installed for other equipment are working. (Check valves on sink faucets, dishwashers, etc.)
- If water pressure exceeds maximum pressure (6 bar) obtain a water pressure regulator from your Manitowoc distributor.
- A union for both the ice making and condenser water lines is required
- Water inlet lines require insulation to prevent condensation.

DRAIN CONNECTIONS

- Drain lines must have a 1.5 inch drop per 5 feet of run (2.5 cm per meter), and must not create traps
- The floor drain must be large enough to accommodate drainage from all drains.
- Separate insulated bin and water-cooled condenser drain lines are required
- The bin and ice machine drains require a vent.

ICE MACHINE CLEARANCE REQUIREMENTS

	Air-Cooled	Water-Cooled
Top/Sides	5" (13 cm)	5" (13 cm)
Back	8" (20 cm)	8" (20 cm)

COOLING TOWER APPLICATIONS (WATER-COOLED MODELS ONLY)

A water cooling tower installation does not require modification of the ice machine. The water regulator valve for the condenser continues to control the refrigeration discharge pressure.

- Water entering the condenser must not be lower than 3°C or exceed 32°C.
- Water flow through the condenser must not exceed 19 L per minute.
- Allow for a pressure drop of 48 kPa between the condenser water inlet and the outlet of the ice machine.
- Water exiting the condenser must not exceed 43°C.

ELECTRICAL SERVICE

⚠ Warning

All wiring must conform to local and national codes.

Voltage

The maximum allowable voltage variation is ± 10% of the rated voltage on the ice machine model/serial number plate at compressor start-up.

Fuse/Circuit Breaker

A separate fuse/circuit breaker must be provided for each ice machine.

⚠ Warning

The ice machine must be grounded in accordance with national and local electrical codes.

Ground Fault Interrupter Circuit (GFIC)

A GFCI/GFI circuit protection is not recommended with our equipment. If a GFCI/GFI is required by code a GFCI/GFI breaker rather than outlet must be used to avoid intermittent nuisance trips.

Maintenance

Clean and sanitize the ice machine every six months for efficient operation. If the ice machine requires more frequent cleaning and sanitizing, consult a qualified service company to test the water quality and recommend appropriate water treatment.

An extremely dirty ice machine must be taken apart for cleaning and sanitizing.

⚠ Caution

Use only approved Ice Machine Cleaner and Sanitizer. Read and understand all labels printed on bottles before use. Do not mix Ice Machine Cleaner and Sanitizer solutions together.

⚠ Warning

Wear rubber gloves and safety goggles (and/or face shield) when handling Ice Machine Cleaner or Sanitizer

CLEANING & SANITIZING PROCEDURE

Ice machine cleaner is used to remove lime scale or other mineral deposits. Sanitizer is used to remove algae or slime.

Mix 4 liters of water with 500 ml of cleaner in a plastic or stainless container.

Cleaner	Water
500 ml (16 oz)	4 l (1 gal)

Step 1 Move the toggle switch to the OFF position at the end of a Harvest Cycle, after ice releases from the evaporator. Or, move the switch to the OFF position and allow the ice to melt off the evaporator.

⚠ Caution

Never use anything to force ice from the evaporator. Damage may result.

Step 2 Remove all ice from the bin.

Step 3 Drain water sump trough.

Step 4 Remove all parts for cleaning.

Step 5 Take all components to sink and with 2 liters Cleaner/Water mixture clean all components with a soft nylon brush. Disassemble spray bar and soak for 5 minutes. For heavily scaled parts, soak in solution for 15–20 minutes. Rinse all components with clean water.

Step 6 While components are soaking; use nylon brush to scrub inside of ice bin. Scrub inside of door, door track, bin, sump trough, and evaporator moldings. With clean water, rinse all of these areas thoroughly.

Step 7 Pour remaining 2 liters of cleaner/water solution into the water sump. Replace all parts.

Step 8 Move the toggle switch to the WASH position, wait 10 minutes then move the toggle switch to OFF.

Step 9 Drain all cleaner/water solution from the water sump trough then refill sump with 2 liters of water. Move the toggle switch to WASH and circulate for 10 minutes.

Step 10 Move the toggle switch to the OFF position and drain the rinse water from the water sump trough.

Step 11 Mix 60 ml of sanitizer with 12 l of water in a plastic or stainless steel container.

Sanitizer	Water
60 ml (2 oz)	12 l (3 gal)

Step 12 Remove all parts for sanitizing.

Step 13 Take all components to sink and with 10 liters Sanitizer/Water mixture sanitize all components with a soft nylon brush or cloth. Do not rinse components.

Step 14 Use brush or cloth to sanitize the inside of ice bin. Scrub inside of door, door track, bin, water sump trough, water distribution assembly and evaporator moldings. Do not rinse.

Step 15 Pour remaining 2 liters of sanitizer/water solution in the sump trough. Replace all parts.

Step 16 Move the toggle switch to the WASH position, wait 10 minutes then move the toggle switch to OFF..

Step 17 Drain all sanitizer/water solution from the water sump trough then refill sump with 2 liters of water.

Step 18 Place toggle switch in the ice position.

CLEANING THE CONDENSER

⚠ Warning

Disconnect electric power to the ice machine at the electric service switch before cleaning the condenser. The condenser fins are sharp. Use care when cleaning them.

Air-Cooled Condenser

Clean the condenser at least every six months. Follow the steps below.

1. Shine a flashlight through the condenser to check for dirt between the fins. Blow compressed air through the condenser fins from the inside or use a commercial condenser coil cleaner. Follow the directions and cautions supplied with the cleaner.
2. Straighten any bent condenser fins with a fin comb.
3. Carefully wipe off the fan blades and motor with a soft cloth. Do not bend the fan blades. If the fan blades are excessively dirty, wash with warm, soapy water and rinse thoroughly.

⚠ Warning

If you are cleaning the condenser fan blades with water, cover the fan motor to prevent water damage.

REMOVAL FROM SERVICE/WINTERIZATION

⚠ Caution

If water is allowed to remain in the ice machine in freezing temperatures, severe damage to some components could result. Damage of this nature is not covered by the warranty.

Follow the procedure below.

1. Disconnect the electric power at the circuit breaker or the electric service switch.
2. Turn off the water supply.
3. Disconnect and drain the incoming ice-making water line at the rear of the ice machine.
4. Disconnect drain tubing and drain water into container and discard.
5. Make sure water is not trapped in any of the water or drain lines.
6. Water cooled - Use compressed air to remove all water from the condenser.

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Ice Making Sequence of Operation

RG3316 - RG4216 - RG4625

Priming the Water system

The water inlet valve on this machine energizes in the harvest sequence, therefore priming the system with water will allow the system to start up with a full reservoir of water. To prime system add 2 liters of water into the water trough.

1. **Freeze Cycle**

Turn the toggle switch to ON. The compressor, and water pump will energize, starting the freeze cycle. The pump sprays water into the inverted cups. The water freezes layer by layer, until an ice cube forms in each cup.

The freeze cycle continues and the evaporator thermostat reaches the adjusted set point.

The thermostat energizes the timer motor and the cam starts to turn. When the cam cycles through the preset freeze time the relays change position and the harvest cycle starts.

2. **Harvest Cycle**

The compressor continues to operate and the water pump is de-energized. The hot gas valve energizes, allowing hot gas to enter and warm the evaporator. The water valve is also energized, aiding with harvest, as well as filling up the sump with fresh water for a new freeze cycle.

The ice falls from the cups and drops into the bin. The harvest cycle continues until the preset harvest time expires.

The hot gas valve and water valve de-energize. If ice cubes are not contacting the bin thermostat, a new freeze cycle is initiated and the water pump energizes and sprays water into the cups.

3. **Automatic Shut-Off**

When the storage bin is full, ice will contact the bin thermostat inside the bin. If the bin thermostat opens during a freeze cycle the ice machine will finish the freeze cycle and stop when it enters the harvest cycle.

The ice machine remains off until enough ice has been removed from the storage bin to allow the ice to fall clear of the bin thermostat probe. As the ice clears the probe, the bin thermostat warms up and the machine starts another freeze cycle.

RG6540 - RG8055 - RG9055 - RG1365 - RG1585

Priming the Water system

The water inlet valve on this machine energizes in the harvest sequence, therefore priming the system with water will allow the system to start up with a full reservoir of water. To prime system add 2 liters of water into the water trough.

1. **Freeze Cycle**

Turn the toggle switch to ON. The compressor, condenser fan motor and water pump will energize, starting the freeze cycle. The pump sprays water into the inverted cups. The water freezes layer by layer, until an ice cube forms in each cup.

The freeze cycle continues and the evaporator thermostat reaches the adjusted set point.

The thermostat energizes the timer motor and the cam starts to turn. When the cam cycles through the preset freeze time the relays change position and the harvest cycle starts.

2. **Harvest Cycle**

The compressor continues to operate and the condenser fan motor and water pump de-energize. The hot gas valve energizes, allowing hot gas to enter and warm the evaporator. The water valve is also energized, aiding with harvest, as well as filling up the sump with fresh water for a new freeze cycle.

The ice falls from the cups and drops into the bin. The harvest cycle continues until the preset harvest time expires.

The hot gas valve and water valve de-energize. If ice cubes are not contacting the bin thermostat, a new freeze cycle is initiated and the water pump energizes and sprays water into the cups and the condenser fan motor energizes.

3. **Automatic Shut-Off**

When the storage bin is full, ice will contact the bin thermostat inside the bin. If the bin thermostat opens during a freeze cycle the ice machine will finish the freeze cycle and stop when it enters the harvest cycle.

The ice machine remains off until enough ice has been removed from the storage bin to allow the ice to fall clear of the bin thermostat probe. As the ice clears the probe, the bin thermostat warms up and the machine starts another freeze cycle

RG0155 - RC0300

Priming the Water system

The water inlet valve on this machine energizes in the harvest sequence, therefore priming the system with water will allow the system to start up with a full reservoir of water. To prime system add 2 liters of water into the water trough.

1. **Freeze Cycle**

Power is applied and the bin thermostat is closed. The compressor, condenser fan motor and water pump will energize, starting the freeze cycle. The pump sprays water into the inverted cups. The water freezes layer by layer, until an ice cube forms in each cup.

The freeze cycle continues and the evaporator thermostat reaches the adjusted set point. The thermostat energizes the timer motor and the cam starts to turn. When the cam cycles through the preset freeze time the relays change position and the harvest cycle starts.

2. **Harvest Cycle**

The compressor continues to operate and the condenser fan motor and water pump de-energize. The hot gas valve energizes, allowing hot gas to enter and warm the evaporator. The water valve is also energized, aiding with harvest, as well as filling up the sump with fresh water for a new freeze cycle.

The ice falls from the cups and drops into the bin. The harvest cycle continues until the preset harvest time expires.

The hot gas valve and water valve de-energize. If ice cubes are not contacting the bin thermostat, a new freeze cycle is initiated and the water pump energizes and sprays water into the cups and the condenser fan motor energizes.

3. **Automatic Shut-Off**

When the storage bin is full, ice will contact the bin thermostat inside the bin. If the bin thermostat opens during a freeze cycle the ice machine will finish the freeze cycle and stop when it enters the harvest cycle.

The ice machine remains off until enough ice has been removed from the storage bin to allow the ice to fall clear of the bin thermostat probe. As the ice clears the probe, the bin thermostat warms up and the machine starts another freeze cycle

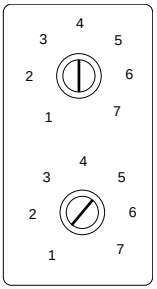
THERMOSTAT SETTINGS

Bin Thermostat:

The bin thermostat sensing bulb is located in holder on the right side of the bin on self storage models. The bin thermostat turns the ice machine on and off as the level of ice in the bin changes. Use the initial setting from the chart and adjust as required.

Evaporator Thermostat:

The evaporator thermostat energizes the timer motor. After the preset time on the timer expires the harvest cycle begins. Refer to chart for correct setting.



Bin Thermostat
Small Numbers = Less ice in bin
Large Numbers = More ice in bin
Start at Chart Setting, then adjust as required

Evaporator Low Temperature
Safety Thermostat
Refer to chart for setting
Incorrect settings will cause ice machine to shut off prematurely

Thermostat Setting Chart

Model	Bin Thermostat Setting	Evaporator Thermostat Setting
RG3316 RG4216 RG4625 RG6540 RG8055 RC1365 RG1365 RV1365 RC1565 RG1565 RV1565	5	4
RC0155 RG0155 RV0155 RC0300 RG0300 RV0300	4	5

Troubleshooting

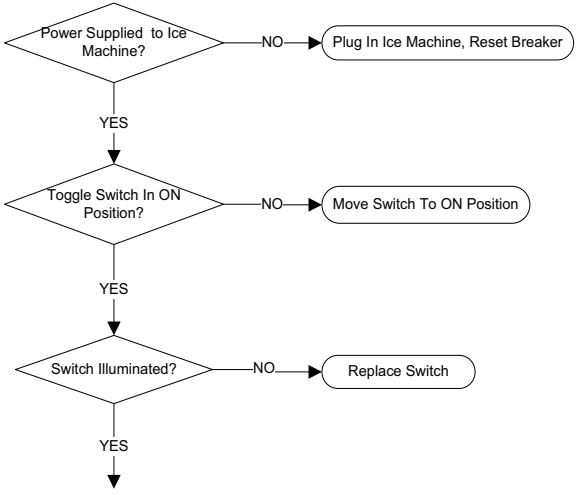
Electrical Flowcharts

Diagnostic troubleshooting for the ice machine involves following flowcharts that are dependant on symptoms of the failed machine.

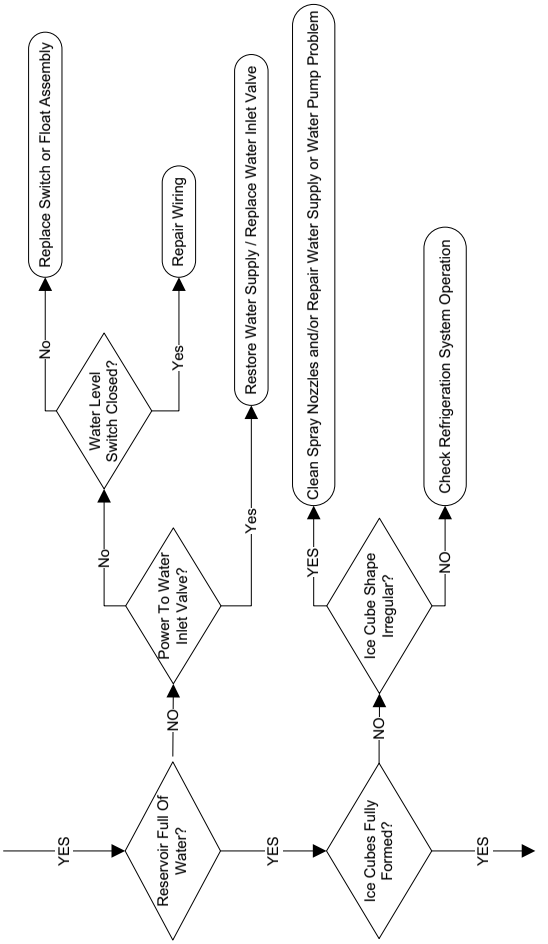
Follow the flowcharts for the failure symptom and model you are working on.

NOTE: Refer to the sequence of operation to determine where in the sequence the ice machine has failed. An example would be an ice machine that energizes the gear motor, but the compressor does not energize. Following the electrical flowchart will quickly and easily eliminate non issues.

ELECTRICAL FLOWCHART -RG3316 - RG4216 - RG4628



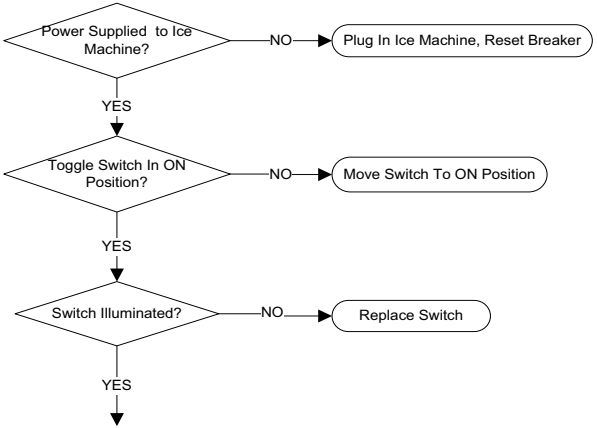
YES
Bin Thermostat Closed?
NO
Ice Contacting Thermostat?
No
Adjusting Closes Thermostat?
No
Replace Thermostat
Yes
Remove Ice - Allow To Warm And Retest
Yes
Verify New Setting Cycles Machine On/Off
YES
Compressor Energized?
No
Line Voltage To Compressor?
NO
Repair Wiring
Yes
YES
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions

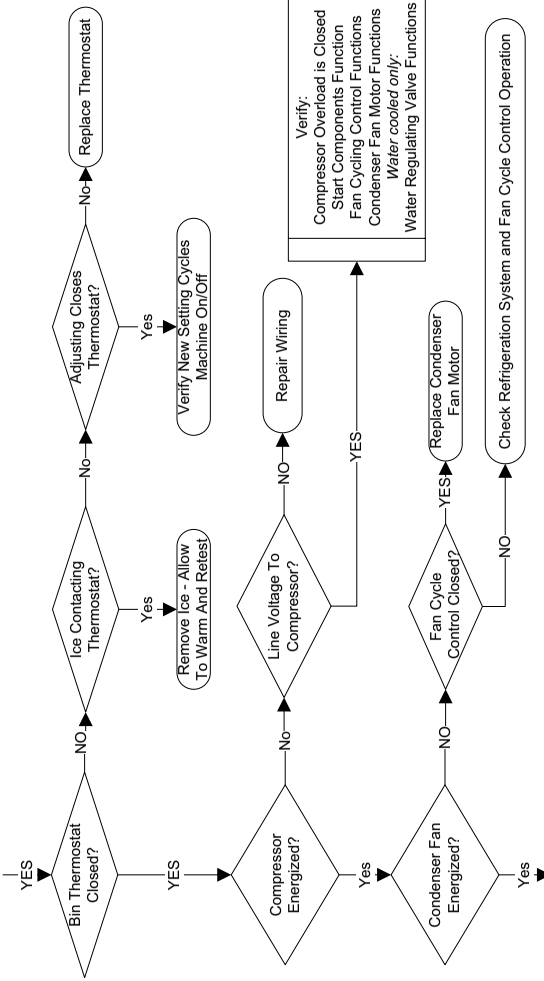

YES
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
No
Water Level Switch Closed?
No
Replace Switch or Float Assembly
Yes
Repair Wiring
Yes
Restore Water Supply / Replace Water Inlet Valve
YES
Ice Cubes Fully Formed?
NO
Ice Cube Shape Irregular?
YES
Clean Spray Nozzles and/or Repair Water Supply or Water Pump Problem
NO
Check Refrigeration System Operation
YES

Harvest Cycle Starts?
YES
Cubes Release?
NO
Water Flow To Evaporator Correct?
NO
Correct Water Problem
YES
Verify Ice Machine Cycles Out Of Harvest
YES
Cubes Melted At End Of Harvest?
YES
Clean Evaporator
NO
Diagnose Refrigeration System
NO
Evaporator Thermostat Closed?
NO
Evaporator Cold?
YES
Adjusting Closes Thermostat?
No
Replace Thermostat
YES
NO
Diagnose Refrigeration System
Yes
Timer Energizes And Turns Cams?

Timer Motor Energized?
NO
Repair Wiring
YES
Cam Turns and Water Pump Turns Off?
NO
Replace Timer
YES
Harvest Valve Energizes?
NO
Replace Harvest Valve
YES
Repeat Freeze & Harvest Cycles to Determine Faulty Component

ELECTRICAL FLOWCHART - RG6540 - RG8055 - RG9055- RC1365 - RV1365



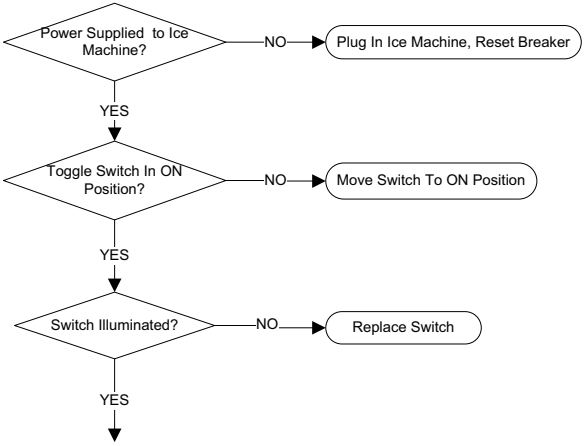

YES
Bin Thermostat Closed?
NO
Ice Contacting Thermostat?
Yes
Remove Ice - Allow To Warm And Retest
No
Adjusting Closes Thermostat?
Yes
Verify New Setting Cycles Machine On/Off
No
Replace Thermostat
YES
Compressor Energized?
No
Line Voltage To Compressor?
NO
Repair Wiring
YES
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions
Yes
Condenser Fan Energized?
NO
Fan Cycle Control Closed?
YES
Replace Condenser Fan Motor
NO
Check Refrigeration System and Fan Cycle Control Operation
Yes

YES
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
No
Water Level Switch Closed?
No
Replace Switch or Float Assembly
Yes
Repair Wiring
Yes
Restore Water Supply / Replace Water Inlet Valve
YES
Ice Cubes Fully Formed?
NO
Ice Cube Shape Irregular?
YES
Clean Spray Nozzles and/or Repair Water Supply or Water Pump Problem
NO
Check Refrigeration System Operation
YES

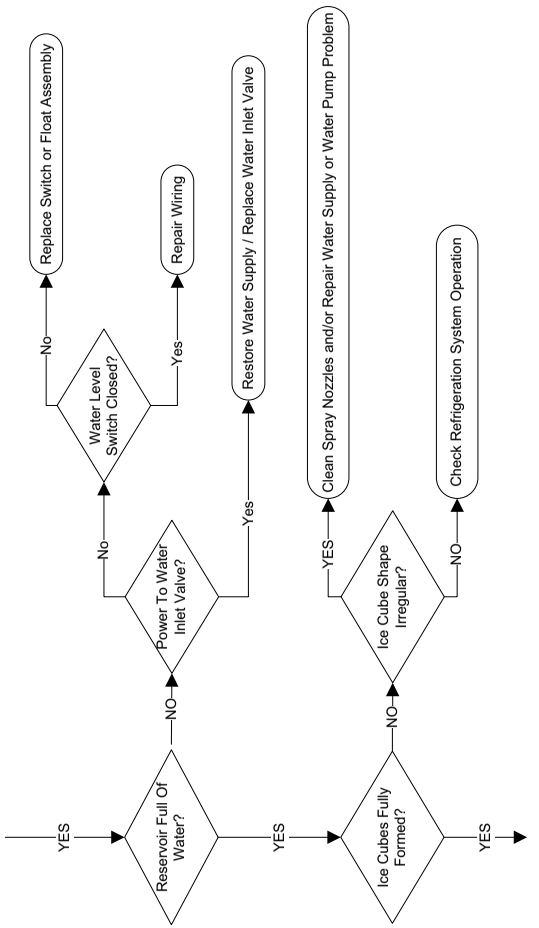
Harvest Cycle Starts?
YES
Cubes Release?
NO
Water Flow To Evaporator Correct?
NO
Correct Water Problem
YES
Verify Ice Machine Cycles Out Of Harvest
YES
NO
Clean Evaporator
YES
Check Fan Cycle Control & Refrigeration System
NO
Condenser Fan Stops?
YES
Cubes Melted At End Of Harvest?
NO
Diagnose Refrigeration System
NO

YES
Evaporator Thermostat Closed?
NO
Evaporator Cold?
YES
Adjusting Closes Thermostat?
No
Replace Thermostat
NO
Diagnose Refrigeration System
Yes
Timer Energizes And Turns Cams?
YES
Timer Motor Energized?
NO
Repair Wiring
YES

ELECTRICAL FLOWCHART RG6540 - RG8055 - RG9055 - RC1365 - RG1365 - RV1365



YES
Bin Thermostat Closed?
NO
Ice Contacting Thermostat?
No
Adjusting Closes Thermostat?
No
Replace Thermostat
Yes
Remove Ice - Allow To Warm And Retest
Yes
Verify New Setting Cycles Machine On/Off
YES
Compressor Energized?
No
Line Voltage To Compressor?
NO
Repair Wiring
Yes
YES
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions

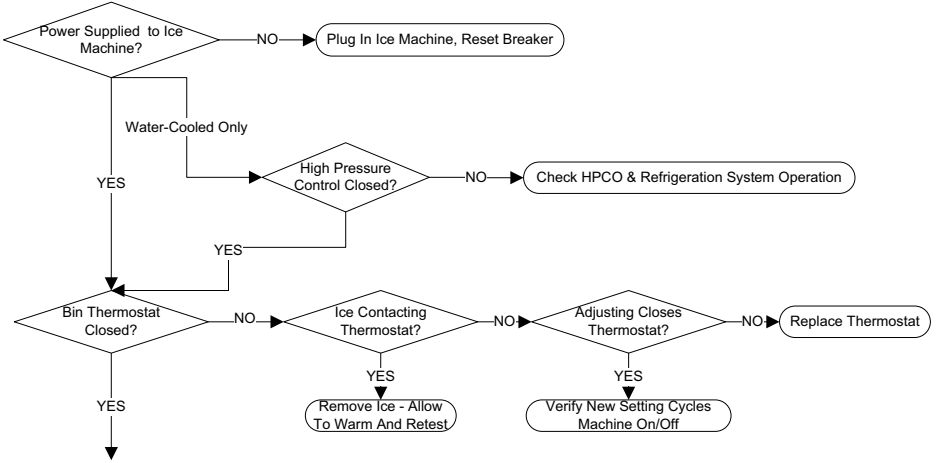

YES
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
No
Water Level Switch Closed?
No
Replace Switch or Float Assembly
Yes
Repair Wiring
Yes
Restore Water Supply / Replace Water Inlet Valve
YES
Ice Cubes Fully Formed?
NO
Ice Cube Shape Irregular?
YES
Clean Spray Nozzles and/or Repair Water Supply or Water Pump Problem
NO
Check Refrigeration System Operation
YES

Harvest Cycle Starts?
YES
Cubes Release?
NO
Water Flow To Evaporator Correct?
NO
Correct Water Problem
YES
Verify Ice Machine Cycles Out Of Harvest
NO
YES
Clean Evaporator
YES
Check Fan Cycle Control & Refrigeration System
NO
Condenser Fan Stops?
YES
Cubes Melted At End Of Harvest?
NO
Diagnose Refrigeration System
NO

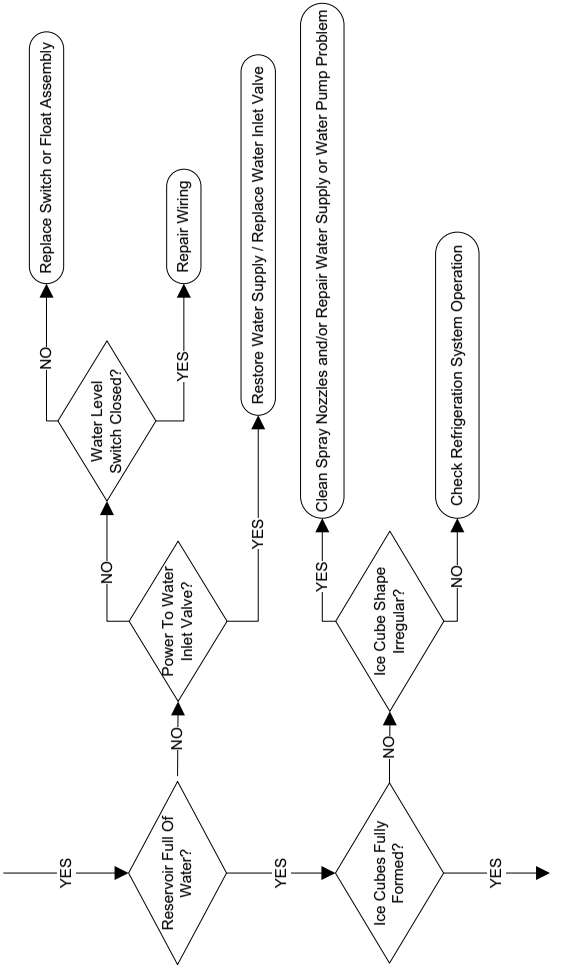
YES
Evaporator Thermostat Closed?
NO
Evaporator Cold?
YES
Adjusting Closes Thermostat?
No
Replace Thermostat
NO
Diagnose Refrigeration System
Yes
Timer Energizes And Turns Cams?
YES
Timer Motor Energized?
NO
Repair Wiring
YES

YES
Timer Advances?
NO
Replace Timer
YES
Water Pump Turns Off?
NO
YES
Harvest Valve Energizes?
NO
Replace Timer or Harvest Valve As Required
YES
Repeat Freeze & Harvest Cycles to Determine Faulty Component

ELECTRICAL FLOWCHART - RC0155 - RG0155 - RV0155



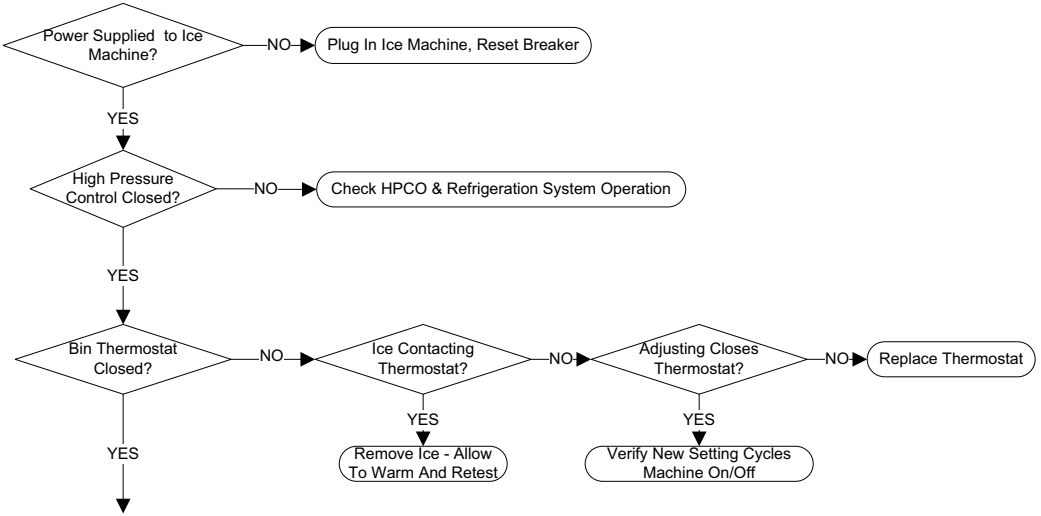
YES
Compressor Contactor Energized?
NO
Line Voltage To Contactor Coil?
YES
Contactor Closed?
NO
Replace Contactor
YES
NO
Repair Wiring
NO
Line Voltage At Contactor Contacts?
YES
YES
Compressor Energized?
NO
Line Voltage To Compressor?
NO
Repair Wiring
YES
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions
YES


YES
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
NO
Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES
Repair Wiring
YES
Restore Water Supply / Replace Water Inlet Valve
YES
Ice Cubes Fully Formed?
NO
Ice Cube Shape Irregular?
YES
Clean Spray Nozzles and/or Repair Water Supply or Water Pump Problem
NO
Check Refrigeration System Operation
YES

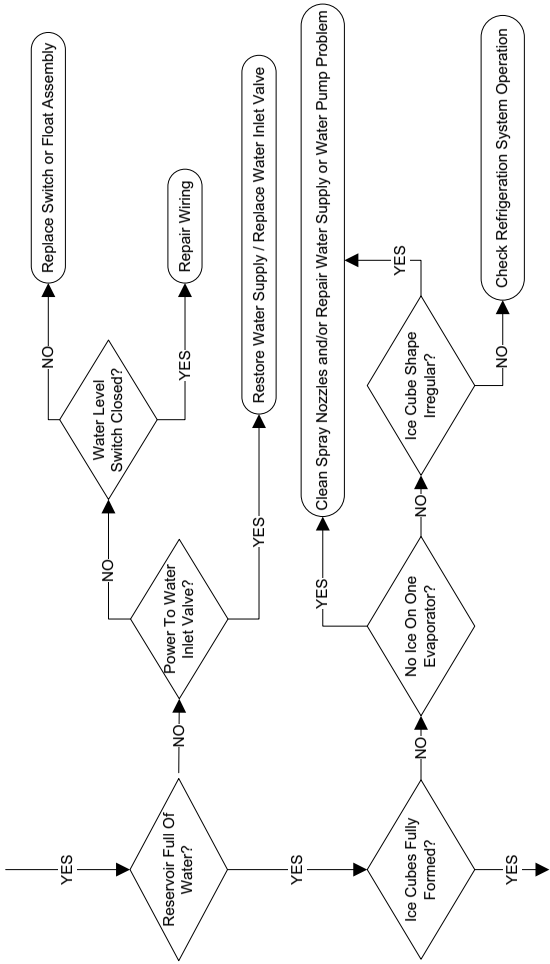
Harvest Cycle Starts?
YES
Cubes Release?
NO
Water Flow To Evaporator Correct?
NO
Correct Water Problem
YES
Verify Ice Machine Cycles Out Of Harvest
YES
Cubes Melted At End Of Harvest?
YES
Clean Evaporator
NO
Diagnose Refrigeration System
NO
Evaporator Thermostat Closed?
NO
Evaporator Cold?
YES
Adjusting Closes Thermostat?
NO
Replace Thermostat
YES
NO
Diagnose Refrigeration System
YES
Timer Energizes And Turns Cams?

Timer Motor Energized?
NO
Repair Wiring
YES
Cam Turns and Water Pump Turns Off?
NO
Replace Timer
YES
Harvest Valve Energizes?
NO
Replace Harvest Valve
YES
Repeat Freeze & Harvest Cycles to Determine Faulty Component

ELECTRICAL FLOWCHART - RC0300 - RG0300 - RV0300



YES
Compressor Contactor Energized?
NO
Line Voltage To Contactor Coil?
YES
Contactor Closed?
NO
Replace Contactor
YES
NO
Repair Wiring
NO
Line Voltage At Contactor Contacts?
YES
YES
Compressor Energized?
NO
Line Voltage To Compressor?
NO
Repair Wiring
YES
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions
YES


YES
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
NO
Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES
Repair Wiring
YES
Restore Water Supply / Replace Water Inlet Valve
YES
Ice Cubes Fully Formed?
NO
No Ice On One Evaporator?
NO
Ice Cube Shape Irregular?
NO
Check Refrigeration System Operation
YES
Clean Spray Nozzles and/or Repair Water Supply or Water Pump Problem
YES
YES

Harvest Cycle Starts?
YES
Cubes Release?
NO
Water Flow To Evaporator Correct?
NO
Correct Water Problem
YES
Verify Ice Machine Cycles Out Of Harvest
YES
Cubes Melted At End Of Harvest?
YES
Clean Evaporator
NO
Diagnose Refrigeration System
NO
Evaporator Thermostat Closed?
NO
Evaporator Cold?
YES
Adjusting Closes Thermostat?
NO
Replace Thermostat
YES
NO
Diagnose Refrigeration System
YES
Timer Energizes And Turns Cams?

Timer Motor Energized?
NO
Repair Wiring
YES
Cam Turns and Water Pump Turns Off?
NO
Replace Timer
YES
Harvest Valve Energizes?
NO
Replace Harvest Valve
YES
Repeat Freeze & Harvest Cycles to Determine Faulty Component

Refrigeration Troubleshooting

If the compressor is not energized refer to Electrical Troubleshooting Refer to Operational Pressure Charts for normal pressures and temperatures				
	Low on Refrigerant	Overcharge of Refrigerant	Non Condensable in System	Restricted Capillary Tube
Discharge Pressure	Low	High	High	Low
Suction Pressure	Low	High	High	Low
Evaporator Inlet Temperature	Normal	Low	High	Low
Evaporator Outlet Temperature	High	Normal	High	Low
Compressor Discharge Line Temperature Normal Range = > 74°C @ 21°C - >99°C @ 43°C	High Increases with run time	Normal	High Increases with run time	High Increases with run time

ICE PRODUCTION/QUALITY CHECK

The amount of ice a machine produces directly relates to the operating water and air temperatures. This means an ice machine with a 20°C outdoor ambient temperature and 10.0°C water produces more ice than the same model ice machine with a 32°C outdoor ambient and 21°C water.

1. Determine the ice machine operating conditions:

   Air temp entering condenser: ____°

   Air temp around ice machine: ____°

   Water temp entering sump trough: ____°

2. Refer to the appropriate 24-Hour Ice Production Chart.
3. Use the operating conditions determined in Step 1 to find published 24 hr. ice production: ____
   - Times are in minutes.
     Example: 1 min., 15 sec. converts to 1.25 min.
     (15 seconds ÷ 60 seconds = .25 minutes)
   - Weights are in grams.
4. Perform an ice production check using the formula below.

1.	_____ Freeze Time	+	_____ Harvest Time	=	_____ Total Cycle Time	
2.	1440 / Minutes in 24 Hrs.		_____ Total Cycle Time		_____ Cycles per Day	
3.	_____ Weight of One Harvest	×	_____ Cycles per Day	=	_____ Actual 24-Hour Production	

Weighing the ice is the only 100% accurate check.

Compare the results of Step 3 with Step 2. Ice production is normal when these numbers match closely. If they match closely, determine if:

- Another ice machine is required.
- Relocating the existing equipment to lower the load conditions is required.

WATER SYSTEM CHECKLIST

A water-related problem often causes the same symptoms as a refrigeration system component malfunction.

Water system problems must be identified and eliminated prior to replacing refrigeration components.

Water area (evaporator) is dirty

- Clean as needed

Water inlet pressure not between 1.4 and 5.5 bar

- Install a water regulator valve or increase the water pressure

Incoming water temperature is not between 1.7°C and 32.2°C

- If too hot, check the hot water line check valves in other store equipment

Water filtration is plugged (if used)

- Install a new water filter

Hoses, fittings, etc., are leaking water

- Repair/replace as needed

Water inlet valve is stuck open or closed

- Clean/replace as needed

Water is spraying out of the sump trough area

- Stop the water spray

Uneven water flow across the evaporator

- Clean the ice machine

DISCHARGE PRESSURE HIGH CHECKLIST

Improper Installation

- Refer to Installation section of this manual

Restricted Condenser Air Flow

- High inlet air temperature
- Condenser discharge air re-circulation
- Dirty condenser fins
- Defective fan motor

Improper Refrigerant Charge

- Overcharged
- Non-condensable in system
- Wrong type of refrigerant

Other

- High side refrigerant lines/component restricted (before mid-condenser)

FREEZE CYCLE DISCHARGE PRESSURE LOW CHECKLIST

Improper Installation

- Refer to Installation section of this manual

Improper Refrigerant Charge

- Undercharged
- Wrong type of refrigerant

Other

- High side refrigerant lines/component restricted (before mid-condenser)

SUCTION PRESSURE HIGH CHECKLIST

Improper Installation

- Refer to Installation section of this manual

Discharge Pressure

- Discharge pressure is too high, and is affecting suction pressure

Improper Refrigerant Charge

- Overcharged
- Wrong type of refrigerant
- Non Condensable in system

Other

- Hot gas valve leaking
- Defective compressor

SUCTION PRESSURE LOW CHECKLIST

Discharge Pressure

- Discharge pressure (ambient temperature) is too low, and is affecting suction pressure - Refer to Installation section of this manual

Improper Refrigerant Charge

- Undercharged
- Wrong type of refrigerant

Other

- Restricted capillary tube
- Collapsed/restricted suction tubing
- Hot gas valve not opening in harvest cycle

Component Specifications

THERMOSTAT SETTINGS

Model	Bin Thermostat Setting	Evaporator Thermostat Setting
RG3316 RG4216 RG4625 RG6540 RG8055 RC1365 RG1365 RV1365 RC1565 RG1565 RV1565	5	4
RC0155 RG0155 RV0155 RC0300 RG0300 RV0300	4	5

HIGH PRESSURE CUTOUT (HPCO) CONTROL SETTINGS

Cut-Out	Cut-In
435 psig ±10 (3000 kPa ±69) 30 bar ±.69	Manual Reset

FAN CYCLE CONTROL SETTINGS

Model	Cut-In (Close)	Cut-Out (Open)
RG3316W	17.8 bar	16.6 bar
RG4216W	16.6 bar	15.4 bar
RG4625W	16.6 bar	15.4 bar
RG6540A	17.8 bar	16.6 bar
RG6540W	16.6 bar	15.4 bar
RG8055A	16.0 bar	14.8 bar
RG8055W	17.2 bar	16.0 bar
RG9055A	16.0 bar	14.8 bar
RG9055W	16.6 bar	15.4 bar
RC1365A RG1365A RV1365A	16.0 bar	14.8 bar
RC1365W RG1365W RV1365W	17.8 bar	16.6 bar
RC1565A RG1565A RV1565A	17.2 bar	16.0 bar
RC0155A RG0155A RV0155A	16.0 bar	14.8 bar
RC0300A RG0300A RV0300A	19.3 bar	18.1 bar

FILTER-DRIERS

The size of the filter-drier is important. The refrigerant charge is critical. Using an improperly sized filter-drier will cause the ice machine to be improperly charged with refrigerant.

Important

Driers are covered as a warranty part. The drier must be replaced any time the system is opened for repairs.

SUCTION CLEANUP FILTER-DRIER

Contaminated systems must have a suction line filter-drier installed to remove contamination. An access valve must be installed on the inlet side of the suction filter to allow pressure drop readings to be obtained.

TOTAL SYSTEM REFRIGERANT CHARGE

Important

This information is for reference only. Refer to the ice machine serial number tag to verify the system charge. Serial plate information overrides information listed on this page.

Model	Refrigerant Charge
RG3316A	260 g
RG3316W	240 g
RG4216A	240 g
RG4216W	240 g
RG4625A	240 g
RG4625W	240 g
RG6540A	310 g
RG6540W	240 g
RG8055A	510 g
RG8055W	350 g
RG9055A	590 g
RG9055W	420 g
RC1365A RG1365A RV1365A	590 g
RC1365W RG1365W RV1365W	460 g
RC1565A RG1565A RV1565A	650 g
RC1565W RG1565W RV1565W	510 g
RC0155A RG0155A RV0155A	650 g
RC0155W RG0155W RV0155W	510 g

Model	Refrigerant Charge
RC0300A RG0300A RV0300A	1300 g
RC0300W RG0300W RV0300W	1150 g

NOTE: All ice machines are charged using R-404A refrigerant.

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Cycle Times/24-Hour Ice Production/ Refrigerant Pressure Charts

These charts are used as guidelines to verify correct ice machine operation.

Accurate collection of data is essential to obtain the correct diagnosis.

- Ice production checks that are within 10% of the chart are considered normal.This is due to three factors:
  1. The data listed is an average obtained from testing a group of ice machines.
  2. Freeze/harvest times have been rounded to the nearest whole number
  3. Air and water temperatures will seldom match the charts exactly.
- Zero out manifold gauge set before obtaining pressure readings to avoid misdiagnosis.
- Discharge and suction pressure are highest at the beginning of the cycle and drop thoughout the freeze cycle.
- Water temperature will affect suction and discharge pressure 10°C water temperature will result in pressures on the lower end of the ranges specified. 32°C water temperatures will result in pressures on the upper end of the range specified.

RG-3316A

SELF STORAGE AIR-COOLED

Averages are used for calculations, characteristics will vary depending on your operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	37	38	43	2,30
32	45	48	54	
38	55	57	65	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	33	31,6	27,9
32	26,9	25,2	22,5
38	22,2	21,2	18,8

1 Based on average ice weight of one Freeze/Harvest cycle
21 cubes @ 42 gram average weight = 880 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-13
20	-9
25	-7
30	-5

RG-3316W

SELF STORAGE WATER-COOLED

Averages are used for calculations, characteristics will vary depending on your operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	37	38	43	2,30
32	45	48	54	
38	55	57	65	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	33	31,6	27,9
32	26,9	25,2	22,5
38	22,2	21,2	18,8

1 Based on average ice weight of one Freeze/Harvest cycle
21 cubes @ 42 gram average weight = 880 grams

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-13
20	-10
25	-8
30	-6

RG-4216A

SELF STORAGE AIR-COOLED

Averages are used for calculations, characteristics will vary depending on your operating conditions

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	29	30	34	2,30
32	34	36	42	
38	40	52	46	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	42	40,4	35,7
32	35,7	33,5	29,2
38	30,5	23,8	26,9

1 Based on average ice weight of one Freeze/Harvest cycle
21 cubes @ 42 gram average weight = 880 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-9
25	-7,5
30	-6,5

RG-4216W

SELF STORAGE WATER-COOLED

Averages are used for calculations, characteristics will vary depending on your operating conditions

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	29	30	34	2,30
32	34	36	42	
38	40	52	46	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	42	40,4	35,7
32	35,7	33,5	29,2
38	30,5	23,8	26,9

1 Based on average ice weight of one Freeze/Harvest cycle
21 cubes @ 42 gram average weight = 880 grams

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-10,5
20	-8,5
25	-7
30	-6,5

RG-4625A

SELF CONTAINED AIR-COOLED

Averages are used for calculations, characteristics will vary depending on your operating conditions

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	28	31	2,30
32	31	34	39	
38	37	39	46	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	46	43.6	38,5
32	38,5	36,2	31,5
38	32,9	31,1	26,9

1 Based on average ice weight of one Freeze/Harvest cycle
21 cubes @ 42 gram average weight = 880 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-15
20	-13,5
25	-10,5
30	-9

RG-4625W

SELF-CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	28	31	2,30
32	31	34	39	
38	37	39	46	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	46	43.6	38,5
32	38,5	36,2	31,5
38	32,9	31,1	26,9

1 Based on average ice weight of one Freeze/Harvest cycle
21 cubes @ 42 gram average weight = 880 grams

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-16,5
20	-11,5
25	-10
30	-8,5

RG-6540A

SELF-CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	32	35	39	2,30
32	39	42	48	
38	46	46	55	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	65	60,1	53,1
32	53,1	49,9	44,1
38	46	45,5	38,4

1 Based on average ice weight of one Freeze/Harvest cycle
36 cubes @ 42 gram average weight = 1510 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-11
25	-9,5
30	-8

RG-6540W

SELF-CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	32	35	39	2,30
32	39	42	48	
38	46	46	55	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	65	60,1	53,1
32	53,1	49,9	44,1
38	46	45,5	38,4

1 Based on average ice weight of one Freeze/Harvest cycle
36 cubes @ 42 gram average weight = 1510 grams

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12
20	-10
25	-9
30	-8

RG-8055A

SELF-CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	28	32	2,30
32	31	33	37	
38	36	38	43	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	80	74,3	65,6
32	67,2	63,2	56,1
38	58,5	55,3	49

1 Based on average ice weight of one Freeze/Harvest cycle
36 cubes @ 42 gram average weight = 1510 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-15,5
20	-11,5
25	-10,5
30	-9

RG-8055W

SELF STORAGE WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	28	32	2,30
32	31	33	37	
38	36	38	43	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	80	76,3	65,6
32	67,2	63,2	56,1
38	58,5	55,3	49

1 Based on average ice weight of one Freeze/Harvest cycle
36 cubes @ 42 gram average weight = 1510 grams

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-8
20	-5,5
25	-5
30	-4

RG-9055A

SELF STORAGE AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	24	25	29	2,30
32	28	30	34	
38	33	35	39	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	90	84,4	74,5
32	75,6	71,8	63,8
38	64,7	62	54,8

1 Based on average ice weight of one Freeze/Harvest cycle
36 cubes @ 42 gram average weight = 1510 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-16
20	-12
25	-10,5
30	-8,5

RG-9055W

SELF STORAGE WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	24	25	29	2,30
32	28	30	34	
38	33	35	39	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	90	84,4	74,5
32	75,6	71,8	63,8
38	64,7	62	54,8

1 Based on average ice weight of one Freeze/Harvest cycle
36 cubes @ 42 gram average weight = 1510 grams

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-10,5
25	-9,5
30	-8,5

RC-1365A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	20	21	25	2,30
32	25	26	30	
38	28	30	34	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	130	122	107,7
32	107,7	101,3	89,6
38	93,5	88,3	77,9

1 Based on average ice weight of one Freeze/Harvest cycle
108 cubes @ 18 gram average weight = 1944 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-11,5
20	-10
25	-9
30	-7,5

RG-1365A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	31	33	38	2,30
32	38	40	46	
38	44	46	53	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	130	122	107,7
32	107,7	101,3	89,6
38	93,5	88,3	77,9

1 Based on average ice weight of one Freeze/Harvest cycle
70 cubes @ 42 gram average weight = 2940 grams

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-11,5
20	-10
25	-9
30	-7,5

RV-1365A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	38	41	47	2,30
32	47	50	56	
38	54	57	65	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	130	122	107,7
32	107,7	101,3	89,6
38	93,5	88,3	77,9

1 Based on average ice weight of one Freeze/Harvest cycle 60 cubes @ 60 gram average weight = 3600 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-11,5
20	-10
25	-9
30	-7,5

RC-1365W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	20	21	25	2,30
32	25	26	30	
38	28	30	34	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	130	122	107,7
32	107,7	101,3	89,6
38	93,5	88,3	77,9

1 Based on average ice weight of one Freeze/Harvest cycle 108 cubes @ 18gram average weight = 1944 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12
20	-9,5
25	-8,5
30	-7

RG-1365W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	31	33	38	2,30
32	38	40	46	
38	44	46	53	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	130	122	107,7
32	107,7	101,3	89,6
38	93,5	88,3	77,9

1 Based on average ice weight of one Freeze/Harvest cycle 70 cubes @ 42 gram average weight = 2940 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12
20	-9,5
25	-8,5
30	-7

RV-1365W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	38	41	47	2,30
32	47	50	56	
38	54	57	65	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	130	122	107,7
32	107,7	101,3	89,6
38	93,5	88,3	77,9

1 Based on average ice weight of one Freeze/Harvest cycle 60 cubes @ 60 gram average weight = 3600 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12
20	-9,5
25	-8,5
30	-7

RC-1565A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	17	16	21	2,30
32	20	21	24	
38	22	24	28	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	163,6	126,6
32	129,6	122	108,3
38	116,6	108,3	96,1

1 Based on average ice weight of one Freeze/Harvest cycle 108 cubes @ 18 gram average weight = 1944 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-13,5
20	-12
25	-10
30	-8,5

RG-1565A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	24	32	2,30
32	31	33	38	
38	35	38	43	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	163,6	126,6
32	129,6	122	108,3
38	116,6	108,3	96,1

1 Based on average ice weight of one Freeze/Harvest cycle 70 cubes @ 42 gram average weight = 2940grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-13,5
20	-12
25	-10
30	-8,5

RV-1565A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	32	30	39	2,30
32	39	41	46	
38	43	46	52	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	163,6	126,6
32	129,6	122	108,3
38	116,6	108,3	96,1

1 Based on average ice weight of one Freeze/Harvest cycle 60 cubes @ 60 gram average weight = 3600grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-13,5
20	-12
25	-10
30	-8,5

RC-1565W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	17	16	21	2,30
32	20	21	24	
38	23	24	28	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	163,6	126,6
32	129,6	122	108,3
38	116,6	108,3	96,1

1 Based on average ice weight of one Freeze/Harvest cycle 108 cubes @ 18 gram average weight = 1944 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-11
25	-10
30	-8

RG-1565W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	24	32	2,30
32	31	33	38	
38	35	38	43	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	163,6	126,6
32	129,6	122	108,3
38	116,6	108,3	96,1

1 Based on average ice weight of one Freeze/Harvest cycle 70 cubes @ 42 gram average weight = 2940 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-11
25	-10
30	-8

RV-1565W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	32	30	39	2,30
32	39	41	46	
38	43	46	52	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	163,6	126,6
32	129,6	122	108,3
38	116,6	108,3	96,1

1 Based on average ice weight of one Freeze/Harvest cycle 60 cubes @ 60 gram average weight = 3600 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-11
25	-10
30	-8

RC-0155A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	17	-	-	2,30
32	-	21	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	-	-
32	-	127	-

1 Based on average ice weight of one Freeze/Harvest cycle 108 cubes @ 18 gram average weight = 1944 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-12
25	-10
30	-8,5

RG-0155A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	-	-	2,30
32	-	32	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	-	-
32	-	127	-

1 Based on average ice weight of one Freeze/Harvest cycle 70 cubes @ 42 gram average weight = 2940 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-12
25	-10
30	-8,5

RV-0155A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	32	-	-	2,30
32	-	39	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	-	-
32	-	127	-

1 Based on average ice weight of one Freeze/Harvest cycle 60 cubes @ 60 gram average weight = 3600 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-12
25	-10
30	-8,5

RC-0155W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	17	-	-	2,30
32	-	21	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	-	-
32	-	127	-

1 Based on average ice weight of one Freeze/Harvest cycle 108 cubes @ 18 gram average weight = 1944 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-11
25	-10
30	-8

RG-0155W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	26	-	-	2,30
32	-	32	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	-	-
32	-	127	-

1 Based on average ice weight of one Freeze/Harvest cycle 70 cubes @ 42 gram average weight = 2940 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-11
25	-10
30	-8

RV-0155W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	32	-	-	2,30
32	-	39	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	155	-	-
32	-	127	-

1 Based on average ice weight of one Freeze/Harvest cycle 60 cubes @ 60 gram average weight = 3600 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-12,5
20	-11
25	-10
30	-8

RC-0300A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	17	-	-	2,30
32	-	21	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	300	-	-
32	-	250	-

1 Based on average ice weight of one Freeze/Harvest cycle 216 cubes @ 18 gram average weight = 3888 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-16,5
20	-16
25	-14,5
30	-13

RG-0300A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	27	-	-	2,30
32	-	32	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	300	-	-
32	-	250	-

1 Based on average ice weight of one Freeze/Harvest cycle 140 cubes @ 42 gram average weight = 5880 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-16,5
20	-16
25	-14,5
30	-13

RV-0300A

SELF CONTAINED AIR-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	33	-	-	2,30
32	-	40	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	300	-	-
32	-	250	-

1 Based on average ice weight of one Freeze/Harvest cycle
120 cubes @ 60 gram average weight = 7200 grams.

OPERATING PRESSURES

Air Temperature Entering Condenser °C	Freeze Cycle
	Suction Temperature °C
10	-16,5
20	-16
25	-14,5
30	-13

RC-0300W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	17	-	-	2,30
32	-	21	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	300	-	-
32	-	250	-

1 Based on average ice weight of one Freeze/Harvest cycle 216 cubes @ 18 gram average weight = 3888 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-16
20	13,5
25	-13,5
30	-11,5

RG-0300W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	28	-	-	2,30
32	-	32	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	300	-	-
32	-	250	-

1 Based on average ice weight of one Freeze/Harvest cycle
140 cubes @ 42 gram average weight = 5880 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-16
20	13,5
25	-13,5
30	-11,5

RV-0300W

SELF CONTAINED WATER-COOLED

Characteristics will vary depending on operating conditions.

CYCLE TIMES

Freeze Time + Harvest Time = Total Cycle Time

Air Temp. Entering Condenser °C	Freeze Time			Harvest Time[1]
	Water Temperature °C			
	15	21	32	
21	33	-	-	2,30
32	-	40	-	

1 Times in minutes

24 HOUR ICE PRODUCTION

Air Temp. Entering Condenser °C	Water Temperature °C[1]		
	15	21	32
21	300	-	-
32	-	250	-

1 Based on average ice weight of one Freeze/Harvest cycle 120 cubes @ 60 gram average weight = 7200 grams.

OPERATING PRESSURES

Air Temperature Around Ice Machine °C	Freeze Cycle
	Suction Temperature °C
10	-16
20	13,5
25	-13,5
30	-11,5

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Diagrams

Wiring Diagrams

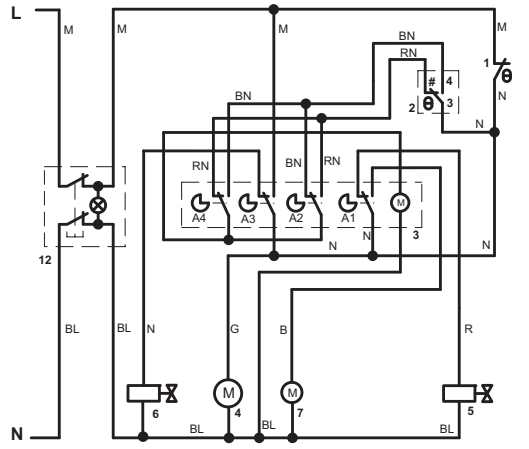
The following pages contain electrical wiring diagrams. Be sure you are referring to the correct diagram for the ice machine you are servicing.

⚠ Warning

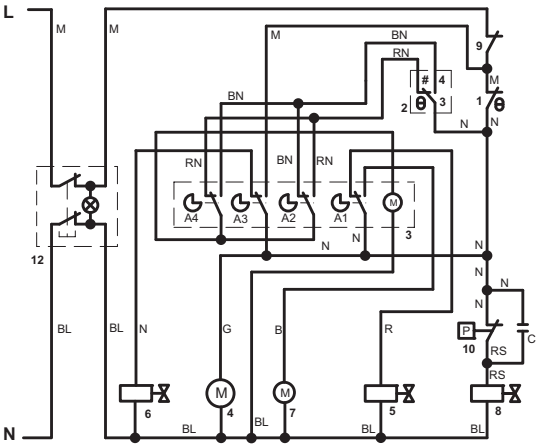
Always disconnect power before working on electrical circuitry.

RG-3316 - RG-4216 - RG-4625

Refer to Nameplate for Voltage Rating



Air-Cooled



Water-Cooled

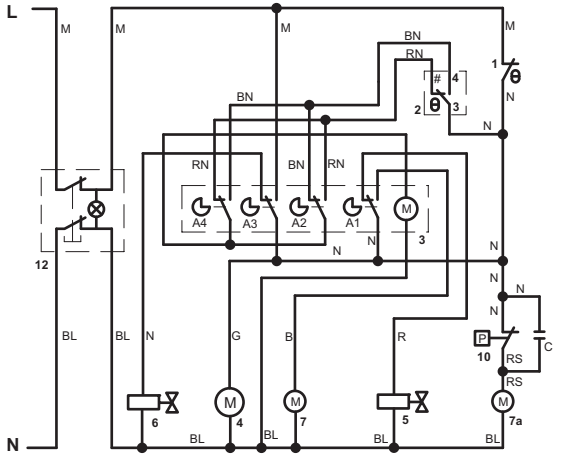
Wiring Diagram Legend

RG-3316 - RG-4216 - RG-4625/

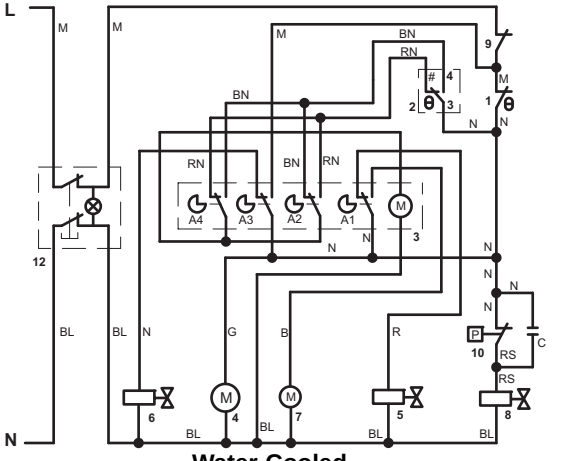
1	Bin Thermostat
2	Evaporator Thermostat
3	Timer
4	Compressor
5	Hot Gas Valve
6	Ice Making Water Inlet Valve
7	Water Pump
8	Water-Cooled Condenser Water Inlet Valve
9	High Temperature Safety Thermostat
10	Fan cycling Control
12	On/OFF Toggle Switch
Wire Color Designation	
B	White
BL	Blue
BN	White/Black
G	Grey
M	Brown
N	Black
R	Red
RN	Red/Black
RS	Pink

RG-6504 - RG-8055 - RG-9055 - RC-1365 - RG-1365 RV-1365

Refer to Nameplate for Voltage Rating



Air-Cooled



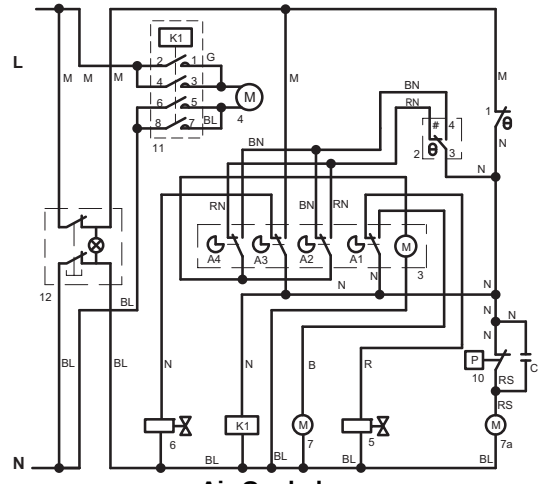
Water-Cooled

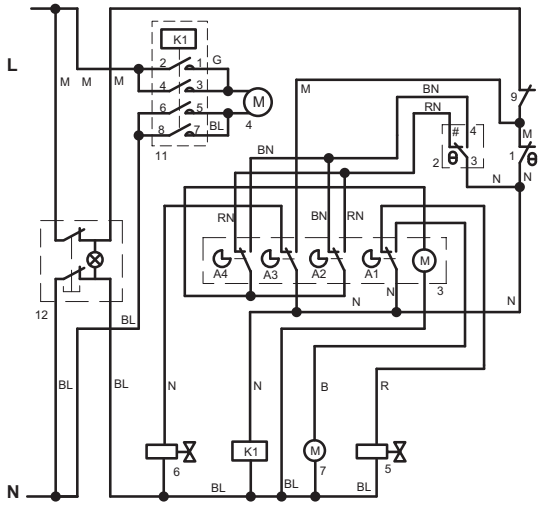
Wiring Diagram Legend RG-6504 - RG-8055 - RG-9055 - RC-1365 - RG-1365 - RV-1365/

1	Bin Thermostat
2	Evaporator Thermostat
3	Timer
4	Compressor
5	Hot Gas Valve
6	Ice Making Water Inlet Valve
7	Water Pump
7a	Condenser Fan Motor
8	Water-Cooled Condenser Water Inlet Valve
9	High Temperature Safety Thermostat
10	Fan cycling Control
12	On/OFF Toggle Switch
Wire Color Designation	
B	White
BL	Blue
BN	White/Black
G	Grey
M	Brown
N	Black
R	Red
RN	Red/Black
RS	Pink

RC-1565 - RG1565 - RV1565

Refer to Nameplate for Voltage Rating



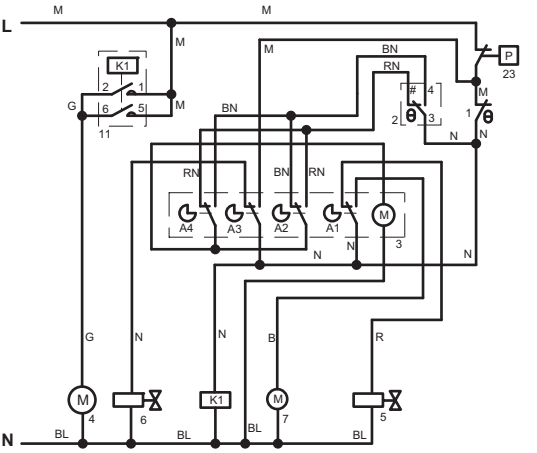


Wiring Diagram Legend RC-1565 - RG1565 - RV1565

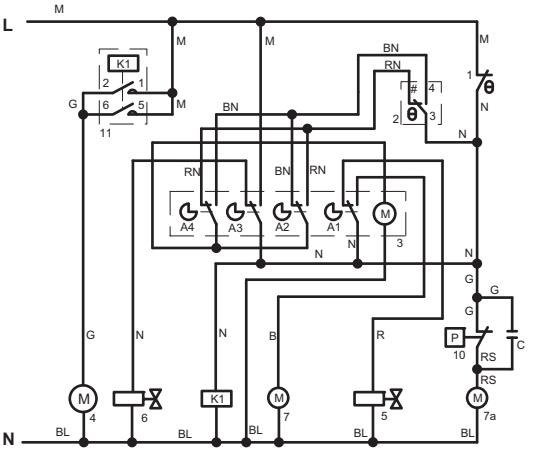
1	Bin Thermostat
2	Evaporator Thermostat
3	Timer
4	Compressor
5	Hot Gas Valve
6	Ice Making Water Inlet Valve
7	Water Pump
7a	Condenser Fan Motor
8	Water-Cooled Condenser Water Inlet Valve
9	High Temperature Safety Thermostat
10	Fan cycling Control
11	Contactor
12	On/OFF Toggle Switch
Wire Color Designation	
B	White
BL	Blue
BN	White/Black
G	Grey
M	Brown
N	Black
R	Red
RN	Red/Black
RS	Pink

RC-0155 - RG-0155 - RV-0155

Refer to Nameplate for Voltage Rating



Air-Cooled



Water-Cooled

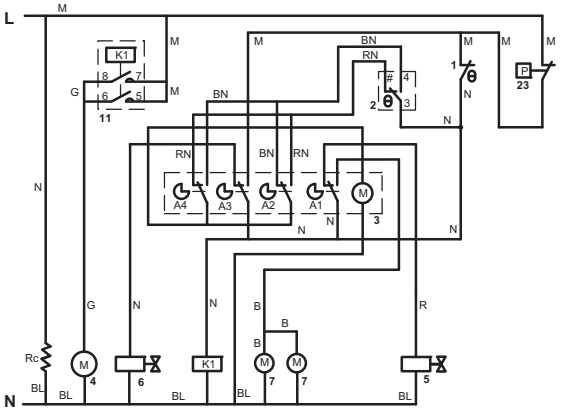
Wiring Diagram Legend RC-0155 - RG-0155

RV-0155

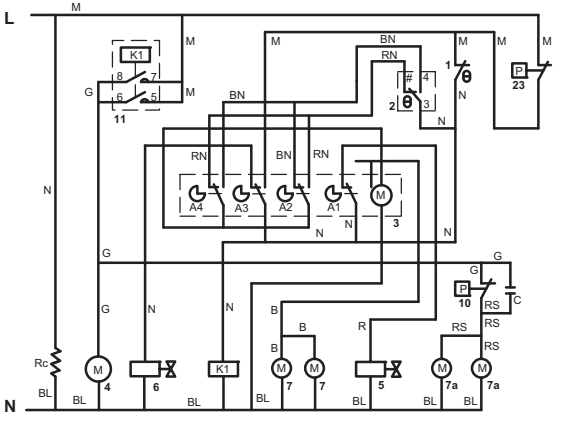
1	Bin Thermostat
2	Evaporator Thermostat
3	Timer
4	Compressor
5	Hot Gas Valve
6	Ice Making Water Inlet Valve
7	Water Pump
7a	Condenser Fan Motor
9	High Temperature Safety Thermostat
10	Fan cycling Control
11	Contactor
23	High Pressure Cut-out Control
RC	Compressor Crankcase Heater
Wire Color Designation	
B	White
BL	Blue
BN	White/Black
G	Grey
M	Brown
N	Black
R	Red
RN	Red/Black
RS	Pink

RC-0300 - RG-0300 - RV-0300

Refer to Nameplate for Voltage Rating



Air-Cooled



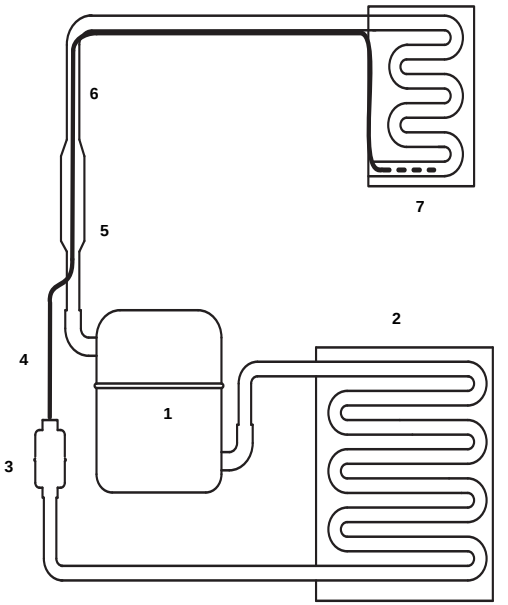
Water-Cooled

Wiring Diagram Legend RC-0300 - RG-0300 RV-0300

1	Bin Thermostat
2	Evaporator Thermostat
3	Timer
4	Compressor
5	Hot Gas Valve
6	Ice Making Water Inlet Valve
7	Water Pump
7a	Condenser Fan Motor
9	High Temperature Safety Thermostat
10	Fan cycling Control
11	Contactor
23	High Pressure Cut-out Control
RC	Compressor Crankcase Heater
Wire Color Designation	
B	White
BL	Blue
BN	White/Black
G	Grey
M	Brown
N	Black
R	Red
RN	Red/Black
RS	Pink

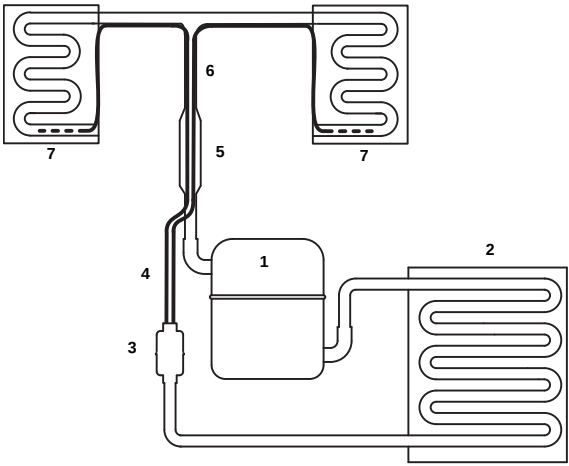
Refrigeration Tubing Schematics

SINGLE EVAPORATOR



1	Compressor
2	Condenser (air or water cooled)
3	Liquid Line Drier
4	Capillary tube
5	Accumulator
6	Heat Exchanger
7	Evaporator

DUAL EVAPORATOR



1	Compressor
2	Condenser (air or water cooled)
3	Liquid Line Drier
4	Capillary tube
5	Accumulator
6	Heat Exchanger
7	Evaporator

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