

MERCATOR

SERVICE, INSTALLATION AND INSTRUCTION MANUAL



Reach-In Refrigerators

M1R23

M1R23G

Reach-In Refrigerators

M2R49

M2R49G

Reach-In Refrigerators

M3R72

M3R72G

Reach-In Freezers

M1F23

Reach-In Freezers

M2F49

Reach-In Freezers

M3F72

PLEASE READ CAREFULLY

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INTRODUCTION

This user's manual is intended for installing, using and servicing your appliance. It is recommended that this manual be kept in an accessible location. Every machine is designed and manufactured according to the highest standards of safety and performance.

Our company assumes no liability or responsibility of any kind for products manufactured by our company that have been altered in any way, including the use of any parts and/or other components not specifically approved by our company.

Our company reserves the right to make design changes and/or improvements at any time. Specifications and designs are subject to change without notice.

SERIAL NUMBER INFORMATION

- The serial number is located inside the unit on the right side and on the back of the unit on the left side.
- Always have the serial number of your unit available when calling for parts or service.

READ THIS MANUAL IN ITS ENTIRETY

TO HELP FAMILIARIZE YOURSELF WITH YOUR NEW EQUIPMENT BEFORE PROCEEDING.

We have provided many important safety instructions in this manual.

Always read and follow all safety instructions.

Understanding these safety instructions will help you recognize potential hazards and reduce the risk of injury. Always follow the instructions in this manual.

Due to periodic changes in designs, methods, procedures, policies and regulations, the contents of this manual are subject to change without notice. While we exercise good faith efforts to provide information that is accurate, we are not responsible for errors or omissions in information provided or conclusions reached as a result of using this reference manual. By using the information provided rather than simply using it for reference purposes, the user assumes all risks in connection with such use.

RECEIVING AND INSPECTING THE EQUIPMENT

Even though most equipment is shipped crated, care should be taken during unloading so the equipment is not damaged while being moved into the building.

1. Visually inspect the exterior of the package and skid or container. Any damage should be noted and reported to the delivering carrier immediately.
2. If the damage appears minor, open and inspect the contents with the carrier. Take photographs of the packaging before it's opened. If the carrier will not wait for inspection, refuse delivery and return the goods if the damage appears to be more than superficial damage to the external protective packaging.
3. In the event that the exterior is not damaged, yet upon opening, there is concealed damage to the equipment, notify the carrier. Notification should be made verbally as well as in written form.
4. Request an inspection by the shipping company of the damaged equipment. This should be done within 10 days from receipt of the equipment.
5. Be certain to check the compressor compartment housing and visually inspect the refrigeration package. Be sure lines are secure and base is still intact.
6. Freight carriers can supply the necessary damage forms upon request.
7. Retain all crating material until an inspection has been made or waived.

APPLIANCE SAFETY

Always read and follow all safety instructions.



This is the Safety Alert Symbol. This symbol alerts you to potential hazards that may result in injury or death to your and/or others. All safety instructions will follow the Safety Alert Symbol with either the words **“DANGER”**, **“WARNING”** OR **“CAUTION”**.

DANGER

DANGER means that failure to heed this safety statement may result in Death or Severe Personal Injury.

WARNING

WARNING means that failure to heed this safety statement may result in extensive product damage, serious personal injury, or death.

CAUTION

CAUTION means that failure to heed this safety statement may result in minor or moderate personal injury, or property or equipment damage.

Safety messages identify potential hazards, explain how to reduce the risk of injury, and warn what can happen if the instructions are not followed.

SAVE THESE INSTRUCTIONS



NOTE: IMPORTANT SAFETY INSTRUCTIONS

WARNING

To reduce the risk of fire, electric shock or injury, when using your appliance, follow these basic precautions:

- Plug into grounded 3-prong outlet.
- Do not remove grounding prong.
- Do not use an adapter.
- Do not use an extension cord.
- Disconnect power before cleaning.
- Disconnect power before servicing.
- Use 2 or more people to move and install the appliance.

IMPORTANT SAFEGUARDS



Before the appliance is used, it must be properly positioned and installed as described in this manual. Read the manual carefully. We strongly recommend that you have a professional install your new machine. The warranty may be affected or voided by an incorrect installation. To reduce the risk of fire, electrical shock or injury when using the appliance, follow basic precautions, including the following:

DANGER

- It is recommended that a separate circuit, serving only your appliance, be provided. Use receptacles that cannot be turned off by a switch or pull chain.
- Please ensure that the required voltage is being supplied at all times.
- The unit should be plugged into a grounded and properly sized electrical outlet with appropriate over-current protection.
- Ensure unit is not resting on or against the electrical cord.
- Do not connect or disconnect the electric plug when your hands are wet.
- Never unplug the appliance by pulling on the power cord. Always grip the plug firmly and pull straight out from the outlet.
- Never clean appliance parts with flammable fluids. Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. The fumes can create a fire hazard or explosion.
- Before proceeding with cleaning and maintenance operations, make sure the power line of the unit is disconnected.
- Unplug the appliance or disconnect power before cleaning or servicing. Failure to do so can result in electrical shock or death.
- If the unit is not in use for a long period of time, it is best to unplug the unit from the outlet.
- After unplugging or in the event of a power outage to the unit, wait at least 10 minutes before plugging it back in. Failure to do so could cause damage to the compressor.
- Do not operate the appliance with a frayed or crimped power cord.
- Do not attempt to repair or replace any part of your appliance unless it is specifically recommended in this manual. A qualified technician should perform all other service or repairs.

IMPORTANT SAFEGUARDS (cont.)

WARNING

- Use two or more people to move and install the appliance. Failure to do so can result in back or other injury.
- This appliance must be properly installed and located in accordance with the Installation Instructions before it is used.
- Do not touch the cold surfaces in the appliance compartment when hands are damp or wet. Skin may stick to very cold surfaces.
- Setting the temperature controls does not remove power from the appliance. Always disconnect power at the circuit breaker or by unplugging the appliance before servicing or cleaning.
- To ensure proper ventilation for your appliance, choose a well-ventilated area with temperatures above 50°F (10°C) and below 86°F (30°C). If unit is in an environment with temperatures between 86 and 104°F (30 to 40°C), use of a fan blowing into the utility compartment or similar auxiliary cooling of that area is required. This unit **MUST** be installed in an area protected from the elements, such as wind, rain, water spray or drips.
- The appliance should not be located next to ovens, grills or other sources of high heat.
- Proper operation requires the appliance to be level. Adjust as necessary to achieve a level position.
- Remove the packing materials and discard them. Keep the work area clean and free of debris. Clean the appliance before using.
- Do not use this unit for anything other than its intended purpose.
- Only trained, qualified personnel should monitor and maintain the appliance.
- Do not attempt to use the shelving as a ladder.

Electrical Connection

Do not, under any circumstances, cut or remove the third (ground) prong from the power cord. For personal safety, this appliance must be properly grounded. The power cord of this appliance has a 3-prong grounding plug that fits a standard 3-prong grounded wall outlet, reducing the risk of electric shock. The wall outlet and circuit should be checked by a qualified electrician to make sure the outlet is properly grounded. The appliance should always be plugged into its own individual electrical outlet which has a voltage rating that matches the rating label on the appliance. This provides the best performance and also prevents overloading house wiring circuits which could create a fire hazard from overheated wires. Immediately repair or replace all power cords that have become frayed or otherwise damaged. Do not use a cord that has been crimped, shows cracks or has frayed insulation abrasion damage along its length or at either end. When moving the appliance, be careful not to damage the power cord.

Power Surges

Connecting the unit to the incorrect voltage or oversized circuit protection (i.e. a breaker rated for over 20 amps) is not covered by the appliance warranty. The appliance warranty does not cover damage caused by a damaged power cord, use of unauthorized electrical components, or modification of the appliance wiring.

It is recommended that the appliance circuit does not use a GFCI (Ground Fault Circuit Interrupter) breaker or outlet. Any issues caused by a GFCI, such as nuisance tripping, are not covered under the appliance warranty.

Refrigerant Disposal

If you are throwing away your old appliance it may have a cooling system that uses “Ozone Depleting” chemicals. Make sure the refrigerant is removed for proper disposal by a qualified service technician.

Appliance Disposal

Follow and comply with all applicable codes and ordinances to prevent misuse of the unit after it has been scrapped. Cut the plug off the electrical power cord, remove the door(s) and discard the shelving.

APPLIANCE INSTALLATION

WARNING

Excessive Weight Hazard
Use two or more persons to move and install appliances.
Failure to do so may result in back or other injury.

Remove Packaging Materials

IMPORTANT:

Do not remove any permanent instruction labels or the data label on your appliance.

- Remove tape and glue from your appliance before using.
- To remove any remaining tape or glue, rub the area briskly with your thumb. Tape or glue residue can also be easily removed by rubbing a small amount of liquid dish soap over the adhesive with your fingers. Wipe with warm water and dry with a soft cloth.
- Do not use sharp instruments, rubbing alcohol, flammable fluids, or abrasive cleaners to remove tape or glue. These products can damage the surface of your appliance.

NOTICE:

LOSS OR SPOILAGE OF PRODUCTS IN YOUR APPLIANCE IS NOT COVERED BY WARRANTY. After installation, allow the appliance to sit for 24 hours before operating to let the refrigerant oil re-equilibrate. Do not load product until the unit has reached its set temperature.

Location Requirements

- Appliances described in this manual are intended for indoor use only.
- Be sure the location chosen has a floor strong enough to support the total weight of the cabinet and contents as a fully loaded unit can weigh as much as 1500 pounds.
- Reinforce the floor as necessary to provide for maximum loading.
- For the most efficient refrigeration, be sure to provide good air circulation inside and out.

Inside the cabinet:

Do not pack the unit so full that air cannot circulate. Refrigerated air is discharged at the top rear of the unit and flows to the bottom. Proper airflow is essential, as obstructions can cause evaporator coil freeze-ups, temperature loss, or overflow from the evaporator drain pan.

The shelves are designed with a rear lip to help maintain airflow, but it's possible for items placed at the far rear of the cabinet to still block it. Air is drawn into the evaporator coil by fans mounted at the front of the coil.

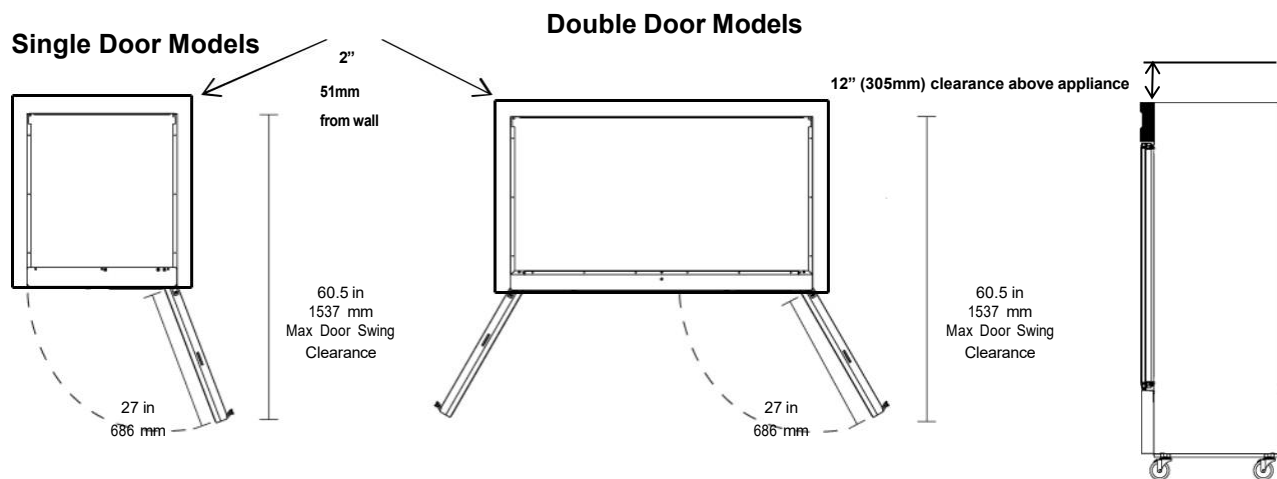
Outside the cabinet:

Ensure the unit has access to ample airflow. Avoid installing it in hot corners or near stoves and ovens.

The unit should be installed at least 2" (51 mm) from any wall, with a maximum door swing clearance of 60.5" (1537 mm), and at least 12" (305 mm) of clearance above the appliance. Proper airflow into the utility compartment (ambient temperature $\leq$ 86° F / 30° C) is required for optimal performance and to extend the life of the appliance.

APPLIANCE INSTALLATION (cont.)

Installation Clearance



Leveling

Ensure the floor where the unit will be installed is level. A slight slope of up to 1/4" (6 mm) from front to rear is acceptable, but the floor must not slope from rear to front.

Stabilizing

All models are supplied with casters for convenience. It is important that the unit be installed on a stable surface, with the front wheels locked during use. Should it become necessary to lay the unit on its side or back for any reason, allow at least 24 hours before start-up to allow compressor oil to flow back into place. Failure to meet this requirement can cause compressor failure and unit damage which isn't covered by the appliance warranty.

NOTICE:

Repairs are not covered under the standard unit warranty if they result from improper installation or the use of an unqualified technician to commission the unit.

Electrical Connection

Refer to the amperage data on the Technical Information table, the serial tag, your local code or the National Electrical Code to be sure that unit is connected to the proper power source.



DANGER

The unit must be turned OFF and disconnected from the power source whenever performing service, maintenance functions or cleaning the refrigerated area. Failure to comply may result in Death or Severe Personal Injury.

OPERATION

Refrigerated cycle

Refrigerators: During the refrigeration cycle, the evaporator fans will run continuously when doors are closed, and the evaporator fans will stop when one or more doors are open. The door switch will activate the lights when opened on solid door models only. Glass door models lights are turned on manually using a switch located next to the main power switch.

1. Every 4 hours, the unit will turn off and to allow the evaporator coil to defrost by compressor stop working.

The controller now displays defrost symbol. The maximum defrost time is 90 minutes, or until the evaporator probe temperature reaches 46°F, whichever occurs first.

2. Anti-condensation heaters on door frames work in conjunction with the compressor.
3. Recommended holding temperature range: 33° to 41°F (1° to 5°C).
4. Comes factory set to 36°F (2°C).

Freezers: During the refrigeration cycle, the evaporator fans will run continuously when doors are closed, and the evaporator fans will stop when one or more doors are open. Fans will be cycle off during a defrost period. The door switch will activate the lights when opened.

1. Every 4 hours, the unit will turn off and electric heater will turn on to defrost. The controller now displays the defrost symbol. When the coil temperature reaches 54°F (12°C) or after 35 minutes of defrost, and after the drip time delay of 5minutes, the unit will turn on again.
2. Anti-condensation heaters on door frames work in conjunction with the compressor.
3. Recommended holding temperature range: -10° to 10°F (-23° to -12°C).
4. Comes factory set to -6°F (-21°C).

Power Switch:

The power switch is located on the front of the bottom panel. When the unit is on, the switch will glow green.

THERMOSTAT DESCRIPTIONS

Please refer to the additional insert: "Digital Controller Installation and Operating Instructions".

TIPS FOR PROPER OPERATION, CLEANING AND MAINTENANCE

1. The unit should be cleaned daily as well as being tested for the proper holding temperature by measuring the content temperature and comparing it to the temperature displayed on the controller. They should be within 3°F of each other.
2. When cleaning the exterior surface always use a soft cloth or microfiber towel. If a stiff bristle brush, scouring pad or scraper is used, the protective chromium oxide barrier will be penetrated allowing the appliance to show signs of rust.
3. When cleaning the interior or exterior of the appliance always use a mild detergent solution or warm soapy water. This won't harm the plastic or metallic surfaces and will remove most residual surface dust and grime. If more aggressive cleaning is needed, use a 3M Scotch Brite General Purpose Synthetic Fiber Green Scouring Pad and a solution of Dawn and warm water or a stainless steel cleaner/polishing product.
4. Ensure your gaskets are making a good compression seal and aren't torn or damaged as air entering the unit can increase the appliance's refrigeration system energy usage. In extreme cases, the temperature could fall out of range. When changing a gasket, it is recommended that a dab of gasket adhesive be applied every 10 to 12 inches to help hold the gasket in position. Air escaping from the unit may result in surface condensation.
5. Do not pack the unit so full that air cannot circulate. The refrigerated air is discharged at the bottom rear of the unit. It is important to allow for proper air flow from the top rear to the bottom of the unit.
6. Minimize opening the appliance door, as frequent access can prevent the unit from maintaining the proper temperature.
7. Use shelving provided with rear and side turn up rails to ensure proper air circulation is maintained as this is needed for effective, efficient temperature regulation.
8. Never use an infrared thermometer to monitor the bulk temperature of the unit's contents, as it is not accurate for this application. Use a NIST-traceable thermometer with the correct probe and calibrate it at least three times per year using an ice bath. Digital pocket thermometers may be off by as much as 1.8°F when measuring refrigerated products.
9. For best performance the ambient conditions should be less than 90°F with a relative humidity below 65%.
10. Ensure the automatic defrost cycle is set to keep the evaporator fan coil free of ice with proper air flow or the unit won't maintain the right temperature. The set point for a refrigerator appliance should be between 33° and 41°F (freezer appliances should be between -10 and +10°F) to preserve the shelf life and freshness of your stored products without needing to worry about a frozen evaporator.
11. Periodically inspect the displayed appliance temperature and measure steady state product temperature with a calibrated high-quality digital thermometer. The two readings should agree within 4° F (2° C) and be below the recommended product holding temperature specified by your operating procedures and the applicable food code.
12. The cooling fins are subject to clogging with grease, dust and other particulates even if an air filter is in place. The cooling fins should be cleaned using a commercial vacuum and if necessary, a degreaser at least 3 times a year. Do not use a wire or stiff bristle brush to avoid fin damage.
13. All refrigeration systems generate condensate as air circulates through the appliance. At least twice a year, inspect and test the drain line or condensate evaporator to ensure condensate is being properly managed, and thoroughly clean or descale the system so condensate is effectively removed from the appliance.
14. The refrigeration system comes with a controller or thermostat to regulate the cold compartment temperature. New digital controllers have a differential setting that establishes when the refrigeration system cuts in and out around the selected set point. A 3° or 4°F differential is recommended for most applications to deliver tight temperature regulation without short cycling the compressor.
15. Load the unit only with pre-cooled product at the correct temperature. Introducing warm product may compromise performance or food safety.
16. Do not jerk the door open immediately after closing it. The internal and external pressures must equalize first. Opening the door too quickly can damage the gasket, require its replacement, and allow warm air to enter, potentially raising the unit's holding temperature.

CLEANING AND MAINTENANCE



DANGER

The unit must be turned off and disconnected from the power source whenever performing service, maintenance functions or when cleaning the refrigerated area. Failure to comply may result in death or severe personal injury.

NOTE

Regular preventative maintenance, repairs, and cleaning will help preserve the unit's performance, maintain product quality and freshness, and extend the life of the appliance.

Exterior and Interior Cleaning of Appliances

Clean using soap and warm water. If this does not remove all residue, try ammonia or a degreasing detergent (like Dawn) and water or a nonabrasive multi-surface liquid cleaner (like Formula 409). When cleaning the exterior, always rub with the "grain" of the stainless steel to avoid marring the finish.

- Do not use an abrasive cleaner. Abrasive cleaners will scratch the stainless steel and plastic and can damage the breaker strips and gaskets.

Cleaning the Condenser Coil

Regular cleaning is recommended every 90 days. In some instances, you may find that there is a large amount of debris and dust or grease accumulated prior to the 90-day time frame. In these cases, the condenser coil should be cleaned every 30 days.

If the buildup on the coil consists of only light dust and debris, the condenser coil can be cleaned with a simple brush.

If dust buildup is heavy, clean the condenser coil using a vacuum or compressed air to remove debris.

If heavy grease is present, there are de-greasing agents available for refrigeration use and specifically for use on condenser coils. The condenser coil may require cleaning with a degreasing agent, followed by clearing with compressed air or CO₂.

Failure to maintain a clean condenser coil can initially cause high temperatures and excessive run times. Continuous operation with dirty or clogged condenser coils can result in compressor failures. Failure to clean the condenser coil will void the warranty on the compressor and any costs associated with its replacement.

- For efficient operation, keep the condenser surface free of dust, dirt, and lint.
- We recommend cleaning the condenser coil at least once per quarter or more often in a greasy/dusty environment.
- Clean the condenser with a commercial condenser coil cleaner and a soft brush, available from any commercial refrigeration equipment retailer, or vacuum the condenser with a shop vac or use CO₂.



CAUTION

Never use high-pressure water for cleaning as water can damage the electrical components located near the condenser coil.

To maintain proper refrigeration performance, the condenser fins must be regularly cleared of dust, dirt and grease. It is recommended that this be done at least every three to four months. If the condenser is totally or significantly blocked in three months, the frequency of cleaning should be increased. Clean the condenser with a vacuum cleaner or stiff brush. If extremely dirty, a commercial-grade condenser cleaner may be required.

CLEANING AND MAINTENANCE (cont.)

Stainless Steel Care and Cleaning

To prevent rust or discoloration on stainless steel several important steps need to be taken. First, one must understand the properties of stainless steel. Stainless steel contains 70-80% iron which will rust. It also contains 12-30% chromium which forms an invisible passive film over the steel surface which acts as a shield against corrosion. As long as the protective layer is intact, the metal is still stainless. If the film is broken or contaminated, outside elements can begin to break down the steel and begin to form rust or discoloration. Treating a surface showing rust with CitriSurf 2310 will help restore the protective chromium oxide layer as well as removing most of the surface rust when done as soon as any oxidation is noticed. At least every six weeks, clean and treat all stainless steel surfaces using a stainless steel cleaner/polish such as products from Weiman, 3M, Magic, or Therapy.

If hard water containing minerals such as iron is used, wipe the surfaces dry immediately to prevent staining or corrosion. Treating or softening the water supply is recommended



CAUTION

Proper cleaning of stainless steel requires soft cloths or plastic scouring pads. Never use steel pads, wire brushes or scrapers! Use a 3M pad or a soft cloth – non-woven fabric works well.

Cleaning solutions need to be alkaline based or non-chloride based. Any cleaner containing chlorides will damage the protective film of the stainless steel and are not recommended. Routine cleaning of stainless steel can be done with soap and water. Stubborn stains or grease should be cleaned with a non-abrasive cleaner and plastic scrub pad. Always rub in the direction of the grain of the steel. There are stainless steel cleaners available which can restore and preserve the finish of the steel's protective layer.

Early signs of stainless steel corrosion may include small pits or cracks. If this occurs, clean the surface thoroughly and begin applying a stainless steel cleaner or polish to help restore the steel's passive layer.



CAUTION

Never use an acid based cleaning solution! Many food products are acidic and can deteriorate the finish. Be sure to clean the stainless steel surfaces of all food products.

Gasket Maintenance

Gaskets require regular cleaning to prevent mold and mildew build up and to maintain the elasticity of the gasket. Gaskets can be cleaned with warm soapy water. Avoid using full strength or harsh cleaning products on gaskets. Do not use sharp tools or knives to scrape or clean the gasket.

Gaskets can easily be replaced and don't require the use of tools or authorized service technicians. The gaskets are "Dart" style and can be pulled out of the grove in the door and replaced by pressing the new one back into place. Do not continue to operate the unit if the gasket is torn or not sealing properly. Replace the gasket immediately. Gaskets and other wear parts will wear over time and are not covered under the appliance warranty.

Doors/Hinges

If the door is beginning to sag, tighten the screws that mount the hinge brackets to the frame of the unit. If the doors are loose or sagging, this can cause the hinge to pull out of the frame which may damage both doors and door hinges. If the door and hinge assembly becomes loose due to wear, reinforcement of the mounting area may be required to allow proper tightening without stripping the cabinet structure.

TROUBLESHOOTING GUIDE

BEFORE CALLING FOR SERVICE

If the unit appears to be malfunctioning, read through the OPERATION section of this manual first. If the problem persists, see the Troubleshooting chart below. The problem may be something simple that can be corrected without a service call. Always check this chart to see if it describes the problem, identifies the cause, and provides a solution.

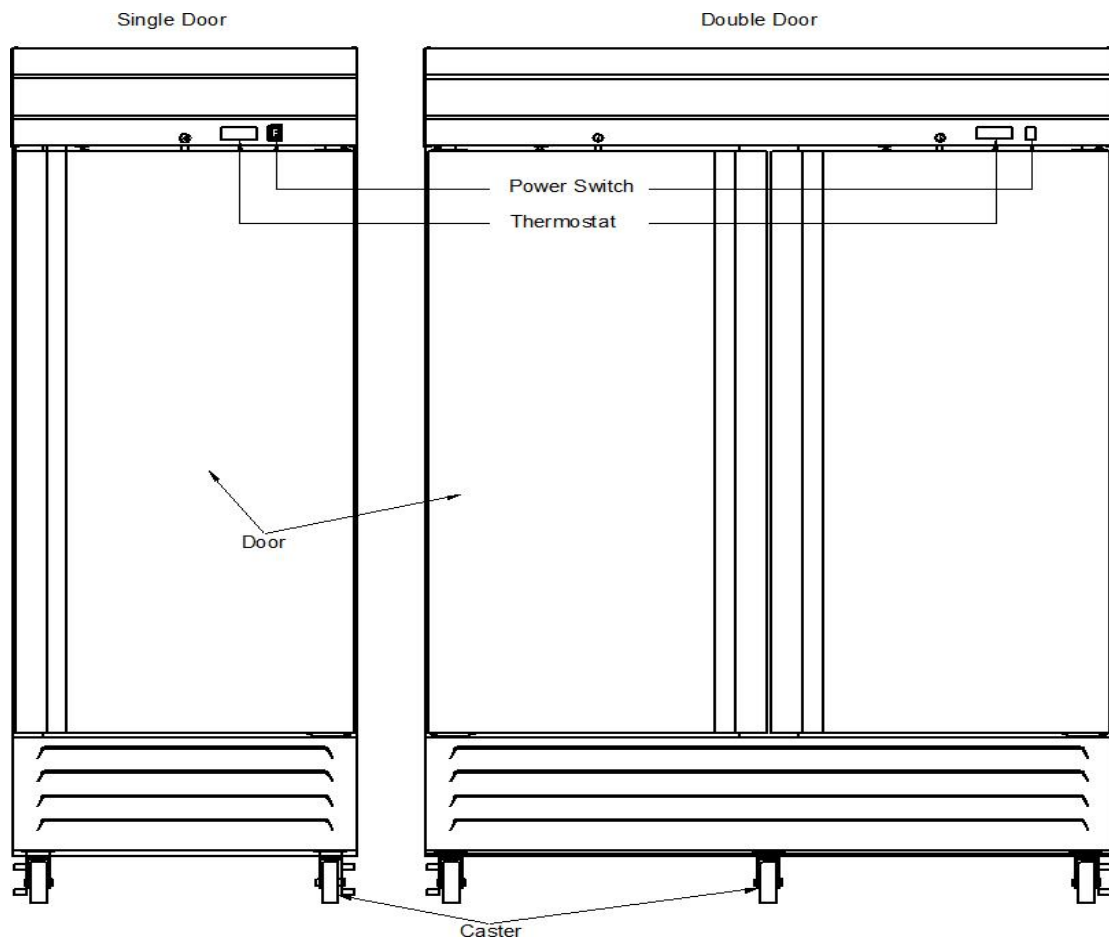
TROUBLESHOOTING CHART

Problem	Possible Cause	Solution
The evaporator is iced over	The unit is exposed to excessive moisture or the auto defrost cycle is set incorrectly	Run the manual defrost cycle or unplug the unit and open the door
Noisy operation	The floor is too weak, or the unit is not level	Check the installation to confirm the unit is level and the floor is adequately reinforced to support the load
	The back of the unit is too close to the wall	Move unit at least 2 inches away from wall
	The tray is not in the correct position	Adjust the tray position
	The fan blade may be obstructed or unbalanced	Clear the fan blade obstruction or replace the fan
Compressor is not running	Fuse blown or circuit breaker tripped	Replace fuse or reset circuit breaker. If replacement of fuse or resetting circuit breaker doesn't correct the problem contact a qualified service technician
	Power cord unplugged	Plug in power cord and check that the corresponding breaker isn't tripped
	Thermostat set too high	Set thermostat to lower temperature
	A ground fault protector has tripped	Reset or eliminate the GFI breaker or receptacle
Cabinet temperature is too warm	Thermostat set too high	Set thermostat to lower temperature
	Airflow is blocked	Re-arrange products to allow for proper air flow. Maintain a minimum clearance of 4 inches (102 mm) from the fan
	Low refrigerant levels	Contact a qualified service technician to check refrigerant levels
	Door is slightly ajar	Make sure door is completely closed
Water is pooling up on the floor near the appliance	The condensate pan is overflowing	Check the hot gas line temperature. Add an additional powered condensate evaporator pan to accommodate the overflow
	If connected to a floor drain the setup has become misaligned and/or the drain line may be clogged	Reposition the drain line so it flows into the floor drain. Clear the drain line
Interior Light is Not Working	Poor switch connection	Turn off light switch and turn it back on.
	Bulb is loose	Make sure the bulb is correctly inserted in the socket.
	Bulb has burned out	Replace the bulb. If replacement of bulb doesn't correct the problem, contact a qualified service technician.
Condensation is collecting on the cabinet or floor	Gasket is not sealing properly	Clean, repair, or replace the gasket as necessary
	High humidity / moisture in the air is causing condensation	Wipe with a dry cloth
Gasket is tearing or being pulled out of its slot	Door was repeatedly reopened before internal and external pressures equalized	Avoid jerking door open and allow enough time for the pressure to equalize
The door does not close tightly	The door is bent	A replacement door may be necessary
	The door gasket has come out	Reposition or replace the gasket
	The unit is not level	Level the unit again
	Hinge has loosened	Tighten the door hinge and ensure it is secure

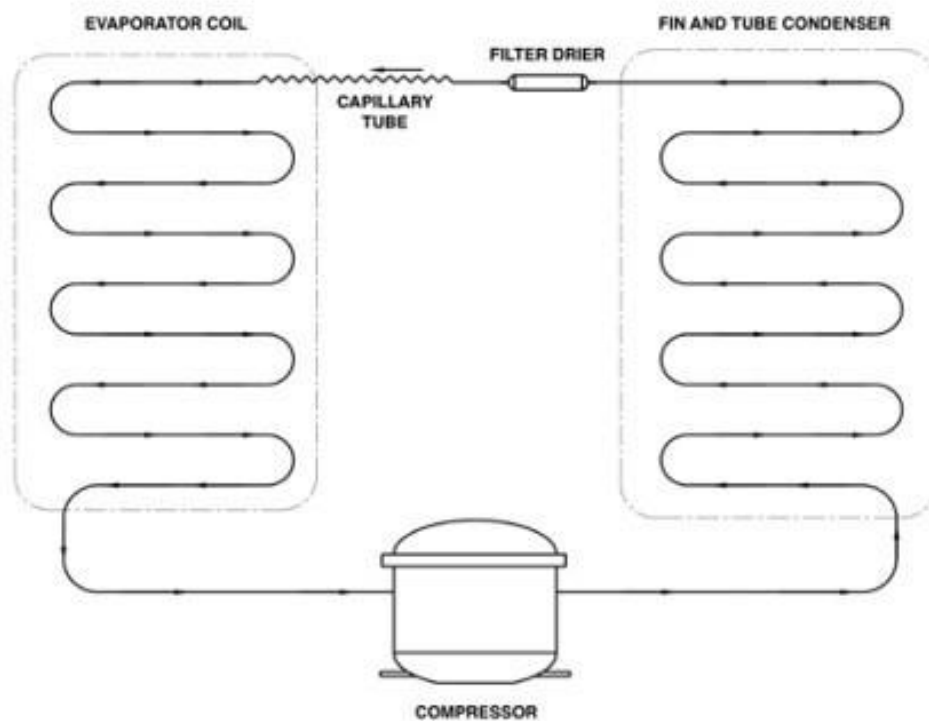
DIMENSIONS AND TECHNICAL INFORMATION

Model	Product Dimension	Volume	Temperature Range
M1R23	27 1/8"x34"x81"/690mmx864mmx2056mm	19.14cuft/542L	33-41°F/1-5°C
M1R23G	27 1/8"x35 1/8"x81"/690mmx891mmx2056mm	19.14cuft/542L	33-41°F/1-5°C
M1F23	27 1/8"x34"x81"/690mmx864mmx2056mm	19.14cuft/542L	-10°-10°F/-23~-12°C
M2R49	54 1/8"x34"x81"/1376mmx864mmx2056mm	42.05cuft/1191L	33-41°F/1-5°C
M2R49G	54 1/8"x35 1/8"x81"/1376mmx891mmx2056mm	42.05cuft/1191L	33-41°F/1-5°C
M2F49	54 1/8"x34"x81"/1376mmx864mmx2056mm	42.05cuft/1191L	-10°-10°F/-23~-12°C
M3R72	81 1/8"x34"x81"/2062mmx864mmx2056mm	65.02cuft/1841L	33-41°F/1-5°C
M3R72G	81 1/8"x35 1/8"x81"/2062mmx891mmx2056mm	65.02cuft/1841L	33-41°F/1-5°C
M3F72	81 1/8"x34"x81"/2062mmx864mmx2056mm	65.02cuft/1841L	-10°-10°F/-23~-12°C

COMPONENT DIAGRAM



REFRIGERATION DIAGRAM



CLIMATE CLASS

Climate class specifies the environmental conditions for which refrigeration appliances are designed and tested to ensure dependable operation. These conditions include ambient temperature and humidity, both of which directly influence cooling performance, energy usage, and condensate production.

Reach-in refrigerators and freezers are constructed to operate effectively under the typical climate conditions found in commercial foodservice settings.

Understanding Climate Class Ratings

Climate class testing is performed in a controlled environmental chamber that replicates real- world operating conditions. Each class corresponds to a specific combination of:

- Dry bulb temperature
- Relative humidity
- Dew point temperature
- Water vapor content in dry air

Higher humidity and vapor content impose greater stress on the refrigeration system and result in increased condensate load.

Test room climate class	Dry bulb temperature °C	Relative humidity %	Dew point °C	Water vapor mass in dry air g/kg
0	20	50	9,3	7,3
1	16	80	12,6	9,1
8	23,9	55	14,3	10,2
2	22	65	15,2	10,8
3	25	60	16,7	12,0
4	30	55	20,0	14,8
6	27	70	21,1	15,8
5	40	40	23,9	18,8
7	35	75	30,0	27,3

NOTE: The amount of water vapor in the air is a key factor affecting the performance and energy consumption of the cabinets. For this reason, the climate class in the table is organized according to the water vapor content.

Why Climate Class Is Important

- High-humidity surroundings lead to greater moisture penetration, more frequent defrosting cycles, and increased condensate formation.
- Elevated ambient air temperatures extend compressor operating cycles and raise overall energy consumption.
- Running the appliance beyond its rated climate class can cause degraded cooling performance, unstable internal temperatures, or excess condensate buildup.

For optimal performance:

- Install the appliance in an indoor space with stable, controlled temperatures.
- Keep the unit away from areas with extreme heat, high humidity, or insufficient ventilation.
- Adhere to the required installation clearances and airflow guidelines provided in the manual.

Important Note

The climate classes listed in the table are arranged according to water vapor mass, a critical variable that directly affects refrigeration efficiency and energy use. As water vapor levels rise, so do the thermal load on the system and the demands for moisture control.

Operator Guidance

Kitchens with frequent door openings, steam-generating appliances, or inadequate ventilation often have higher effective humidity levels than standard room measurements would indicate.