CAPSULE PAK ECO™

REFRIGERATION

SYSTEMS

INSTALLATION

MANUAL

RSG™
Refrigerated Solutions Group®

8/23 Rev. G 171551

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RECEIVING INSPECTION

Congratulations on your purchase of a quality-built refrigeration system. When properly installed and maintained, this product will give many years of trouble-free service. It was shipped using trusted carriers with a history of careful handling, good customer service and prompt delivery.

Even with all of these precautions, occasionally accidents may happen which result in shipping damage. When the product is picked up by the carrier, they assume responsibility for the product until they deliver it to you. Thus, any claims for shipping damages must be filed with the delivering carrier.

Always thoroughly inspect the delivery for visible damages and shortages. Should any damages or shortages be found, be sure to note them in detail on the delivery receipt before you sign it. Make sure the driver signs and dates the delivery receipt acknowledging the damages. This is critical in protecting yourself should a claim need to be filed. Consult the carrier's website for their specific claim procedures. Remember, it is your responsibility to file a claim with the carrier.

In the case of concealed damages that are not discovered in the initial inspection but are found upon removing packaging, time is critical. You should unpack and inspect the unit as soon as possible. If concealed damage is found, stop unpacking and contact the delivering carrier immediately to alert them of the damages and get a claim number. Save all packaging for inspection by the carrier. Consult the carrier website for details in filing a concealed damage claim.

Please remember, the carrier is your only source for reclaiming freight damages. The manufacturer should not be contacted to attempt a return of the product. No returns are accepted without a prior authorization

SAFETY INFORMATION

This manual may contain notices that identify situations that could cause death, serious injury and /or damage to the appliance or property.

Please make note of the following definitions;

! WARNING Indicates a hazardous situation which could result in death or serious injury.

NOTICE Indicates a situation which could result in damage to the appliance or property.

IMPORTANT Indicates important information about the use and care of the appliance.

! WARNING
This appliance should be applied only for the use for which it has been expressly intended. Any other use would be considered improper and therefore dangerous. The manufacturer cannot be held responsible for injury or damage resulting from improper, incorrect and unreasonable use. Failures to install, operate, or maintain the appliance in accordance with this manual will adversely affect safety, performance, component life and warranty coverage.

To reduce the risk of death, electric shock, serious injury or fire, follow basic precautions including but not limited to the following:

- Only qualified service technicians should install and service this appliance.
- This appliance must be installed in accordance with applicable national, state and local codes and regulations.
- To reduce the risk of electrical shock, do not touch the appliance or plug with wet hands.
- Disconnect the appliance from power before servicing.
- The appliance requires an independent power supply of proper capacity that matches the power cord plug

supplied. See the appliance nameplate for electrical specifications. Failure to use an independent power supply of proper capacity can result in a tripped breaker, blown fuse, damage to existing wiring or component failure. This could lead to heat generation or fire.

- The appliance must be properly grounded. This appliance is equipped with a NEMA 5-15P, 5-20P or 6-20P three prong grounded plug to reduce the risk of potential electrical shock hazards. It must be connected to a properly grounded, independent 3 prong wall outlet. Do not remove the ground prong from the appliance plug and do not use and adapter plug. Failure to follow these instructions may result in death, electrical shock or fire.
- Do not use an extension cord to supply power to the appliance.
- Do not use the appliance should the power cord become damaged. The power cord should not be altered, jerked, pinched, bundled and/or used to hang objects from. Such actions could result in electrical shock or fire. To disconnect the unit from power, be sure to grasp and pull on the plug, not the cord.
- Should the power cord require replacement or service, use only the manufactures replacement parts and be sure to connect the green ground wire to the appliance in the same manner the original wire was connected.
- Do not spray or splash water on the appliance as this may cause short circuits, electrical shock, corrosion or failure.
- Do not make alterations or modifications to the appliance as these could result in electric shock, injury, fire or damage to the appliance.
- Children must be properly supervised around this appliance.
- 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 or instruction concerning its use by a person responsible for their safety.
- Do not climb, stand, or hang on or into the appliance or its components. Death or serious injury could occur or the appliance could be damaged.
- Use caution when opening doors or lids and keep fingers out of pinch points areas.
- Do not use combustible sprays or aerosols around the appliance as they may catch fire.
- Do not store gasoline or other flammable substances in or near the appliance as they may catch fire.
- Keep the area around the appliance clean. Dirt, dust or insects around the appliance could cause harm to individuals or damage to the equipment.
- Do not block air inlets or outlets as this would cause cooling performance to be reduced.
- Do not overload the storage capacity of the appliance. Allow space between stored items for air flow.
- Do not load warm or hot items into the appliance. Allow them to cool first or they will raise the cabinet temperature and could hasten the deterioration of other foods stored in the cabinet.
- This appliance is designed for the temporary storage to food products. Use proper sanitation practices.
- All food products should be covered or stored in sealed containers. Open foods may dry up, pass their smell to other foods and increase cross contamination. Some food products may accelerate corrosion of the evaporator resulting in failure of the appliance to cool.
- Component parts must be replaced with manufacturer original equipment parts.
- The Capsule Pak ECO refrigeration system must be paired with a Master-Bilt or Norlake UL listed ignition protected walk-in.

GENERAL INSTALLATION INSTRUCTIONS

This section contains general instructions for installing the ceiling mounted Capsule Pak ECO refrigeration system.

Note:
- Proper temporary support of the ceiling panel with the cut out must be added prior to the installation of the Capsule Pak ECO refrigeration system on the ceiling.
- Due to the weight of these systems (up to 250 pounds), it is highly recommended that proper lifting equipment such as a forklift or material lift be utilized during installation. Be sure to work in teams to prevent injury and damage to the equipment.
- The Capsule Pak ECO refrigeration system must be paired with a Master-Bilt or Norlake UL listed ignition protected walk-in.

Be sure to allow sufficient airflow to the condenser. Allow a minimum clearance of 24" on each side of the system for installation and operation. Consideration should be given to accessibility for service.

Capsule Pak ECO systems are designed for indoor applications only and should be operated in the controlled environment of an air conditioned space. The ambient conditions should be at or below 75°F and 55% RH. Higher humidity may result in condensate issues. High humidity and/or unusual usage may require control adjustments to defrost parameters not covered by warranty per the warranty statement.

If multiple units are located in the same area, be sure they do not exhaust hot air into one another. The minimum distance between units should be the width of the largest unit. If units are placed end to end, the minimum distance should be 4 feet.

In addition to allowing for proper airflow, considerations should be given to the final mounting location of the system relative to the customer location to avoid and possible risk of noise impacting the customer experience.

Once the Capsule Pak ECO has been lifted to the top of the walk-in, it will need to be positioned over the hole in the ceiling panel. Before moving the Capsule Pak ECO into position, remove the diffuser panel that covers the ceiling panel hole on the inside of the walk-in (see figures 1 and 2).

Figure 1

Figure 2

When moving the Capsule Pak ECO into position, use caution not to damage the gasket material underneath the evaporator section. It is recommended to slide the Capsule Pak ECO on a sheet of cardboard over the top of the walk-in until it is in the desired location. The cover over the evaporator section of the Capsule Pak ECO may be removed to assist with locating the Capsule Pak ECO over the hole in the ceiling panel.

Once the Capsule Pak ECO is located over the ceiling hole it should be secured in place by the four latches in the ceiling panel hole (see figure 3).

Seal the seam between the Capsule Pak ECO and the ceiling panel with the silicone supplied (see figure 4).

Replace the diffuser panel. When re-installing the diffuser panel, make sure the divider section on the panel seals against the black gasket on the bottom middle of the Capsule Pak ECO. Some adjustment may be required by simply bending the divider slightly forward or backward so it contacts the black gasket. This will prevent any re-circulation of air and improve the efficiency of the Capsule Pak ECO.

Figure 3

Figure 4

SET-UP AND INSTALLATION

CEILING MOUNTED SELF-CONTAINED CAPSULE PAK ECO™ REFRIGERATION SYSTEM

CAUTION
This unit uses a flammable refrigerant. Use care when handling and operating to avoid damaging the refrigerant tubing or increasing the risk of a leak.

! WARNING
This appliance must be installed in accordance with all applicable national, state and local regulations. This appliance is heavy. Use care when lifting and positioning. Work in pairs when needed to prevent injury or damage. This appliance is not intended for outdoor use. The ambient temperature should be at or below 90°F and a relative humidity of 55% or less. At higher temperature or humidity conditions, the performance of these cases may be affected and the capacity diminished. These unit should not be positioned where it is directly exposed to rays of sun or near a direct source of radiant heat or airflow. This will adversely affect the unit and will result in poor performance. Operating conditions range from 45°F to 100°F (7°C to 38°C). Operating this appliance outside its range and installation requirements may affect performance and warranty coverage.

IMPORTANT

- Confirm that the ambient temperatures are within the tolerances allowed.
- Do not locate next to heat generating devices.
- Confirm the unit is level.
- Do not use an extension cord to connect the unit to power. Use of an extension cord will void all warranties.
- Do not tamper with the ground pin on the power cord.
- Confirm that the power receptacle has a properly wired ground connection.
- The unit must be isolated on a power circuit.
- Confirm the power supply matches the require power supply noted on the serial plate.

START-UP AND OPERATION

Once the set-up and installations requirements are complete the Capsule Pak ECO is ready to start-up. Once the power cord is connected to a live power outlet and the power switch on the unit is in the on position the unit will start running. The display will light up immediately but the unit may not start running for 1 minute. On a Low Temperature Capsule Pak ECO the evaporator fans will not run until the evaporator coil has pulled down to 40°F.

Allow the unit to run for a minimum of two (2) hours and verify the walk-in is down to temperature prior to loading with product.

TEMPERATURE CONTROL

Note: It is the installing contractors responsibility to check the operation upon start-up and make any necessary temperature adjustments as required for proper operation.

Capsule Pak ECO systems come equipped with an electronic control. The temperature control display and user interface are located on the side of the system. The control comes pre-set to give walk-in air temperatures of approximately 35°F for coolers and -10°F for freezers. Refer to the accompanying electronic control manual for detailed instructions on adjusting the control parameters. On dual compressor systems, there is a programmed delay from the start of the first compressor and the second to reduce the start-up power surge on the power supply.

COOLER OPERATION

There is a programmed one-minute delay to start the system upon start-up. As noted, coolers come set at 35°F. The control will shut the cooling off when it reaches the set temperature and re-start when the set temperature plus the set differential (5) are reached. There is a minimum set point for the control of 32°F and a maximum set point of 55°F. The control is pre-set to have a timed off cycle defrost every 4 hours. The defrost duration is 25 minutes. The evaporator fans will operate at high speed when the compressors are running and low speed when the compressors are off.

FREEZER OPERATION

There is a programmed one-minute delay to start the system upon start-up. As noted, freezers come set at -10°F. The control will shut the cooling off when it reaches this temperature and re-start when the set temperature plus the set differential (5) are reached. There is a minimum set point of -20°F and a maximum set point of 10°F. The control is pre-set to have a timed electric defrost cycles every 6 hours. The maximum defrost duration is 30 minutes. The defrost is terminated by evaporator temperature first or time if the coil does not teach the temperature. The evaporator fans are off during defrost and start when the evaporator reaches 30°F. The evaporator fans will operate at high speed when the compressors are running and low speed when the compressors are off.

BASIC CONTROL OPERATIONS

To adjust the control set point:
- Push and hold the SET button for 2 seconds until the message “SET” is displayed. The display will then show “SP” followed by the current set point.
- Use the up or down arrow buttons to adjust the set point to the desired level.
- Press the SET button to confirm.
- Press and hold SET until the display reads “----“.

To put unit into manual defrost mode:
- Press and hold the “up” arrow for 4 seconds.
- Upon release the display will show “DEFR” and the unit will be in defrost.

CONDENSATE WATER

Condensate water is collected in the drain pan under the evaporator coil and directed into a condensate evaporator pan in the condensing unit area. The condensate is then evaporated by the warm air off the condenser fan. High humidity and/or use may result in excessive condensate requiring system adjustments, added electric condensate evaporator pans or plumbing to a floor drain. These modifications are not covered by warranty.

LOADING PRODUCT

Once the walk-in has been operating at the desired temperature for a sufficient period of time, product can be loaded into the refrigerated space.

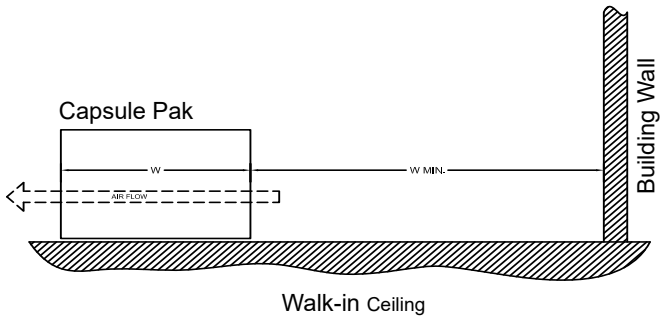
NOTE
- When loading product use caution not to block airflow to achieve maximum cooling performance. Allow 18” of clear space around the diffuser panel to allow proper airflow to cool the stored product.
- Do not load warm product into the unit as it will affect the temperature of previously stored product.
- All product must be in covered containers or wrapped to prevent cross contamination.

LOCATING AND MOUNTING CAPSULE PAK™ SYSTEMS

Capsule Pak systems must be located where there is an unrestricted supply of clean, fresh air. Do not locate units where air discharge from one will enter into the air intake of others nor where the air flow is toward a wall or obstruction. Avoid locating units in restricted spaces where heat will build up and can enter the condenser. There must be room around the unit for regular inspection and service. We recommend 200CFM in any area where a Capsule Pak system may be located. Air flow should be sufficient to maintain an ambient temperature of no more than 90°F.

Walls or Obstructions

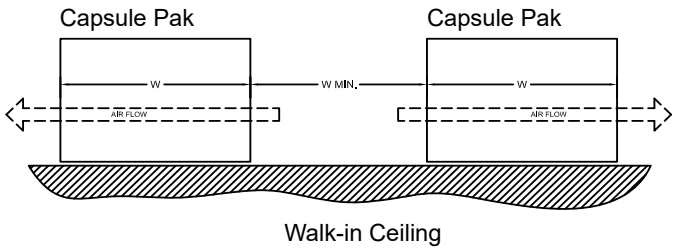
Systems should be located so that air may circulate freely. For proper air flow, all sides of the system should be a minimum of its width away from any wall or obstruction. It is preferred that this distance be increased whenever possible.



Multiple units

For units placed side by side, the minimum distance between systems should be the width of the largest unit. If systems are placed end to end, the minimum distance between them should be 4 feet.

Roof mounted systems must have adequate support for their operating weight. Corrosive atmospheres require custom design condensers.



MAINTENANCE

WARNING: **When servicing any Capsule Pak ECO™ Refrigeration System or performing any maintenance procedure, always disconnect the main power supply.**

All service should be performed by factory authorized personnel. All component parts must be replaced with like components to minimize the risk of possible ignition due to incorrect parts or improper service.

The Condensing Unit is accessible by removing the Condensing Unit Cover (12 screws).

The Evaporator Coil section is accessible by unlatching and removing the cover.

Cleaning the Condenser Coil

The efficiency of the refrigeration system depends on the unrestricted flow of air through the Condenser Coil. Over time dust and debris will collect on the face of the Condenser Coil and will require cleaning. A vacuum cleaner with a soft bristle attachment can be used to clean the coil. If the debris cannot be removed easily, a soft bristle brush can be used to loosen it by gently brushing in the same direction as the fins so as not to damage the coil. Also, compressed air can be used to clean the coil. The air will need to be directed though the coil from the fan side.

RECOMMENDED PREVENTATIVE MAINTENANCE FOR WALK-INS & REFRIGERATION SYSTEMS

This preventative maintenance is recommended to be executed on a quarterly schedule by a certified technician from an Authorized Service Provider.

Walk-In Coolers & Freezers:

- Check door alignment, door closer and hinges.
- Check door gasket for any tears or damage.
- Check and adjust door sweep.
- Inspect heated vent ports for proper operations.
- Check lighting is in working order.
- Inspect door control, alarm and/or thermometer.

Refrigeration Systems:

- Cycle unit and check operations of refrigeration and defrost modes.
- Clean and inspect evaporator and condenser coils.
- Inspect and secure all electrical connections.
- Check relays and contactors for wear or pitting.
- Check start components.
- Inspect and clean motors, especially around rear air vents.
- Inspect fan blades, shafts, and bearings.
- Check and tighten any flair, quick connect, and roto lock fittings.
- Ensure sight glass is clear.
- Blow out and flush condensate drains/lines.
- Ensure drain pans are free of debris.
- Inspect drier for restrictions by ensuring there is no temperature drop across it.
- Ensure all covers and panels are securely fastened when completed.

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
Compressor will not start - no hum	1. Unplugged or power off 2. Fuse blown or removed 3. Overload tripped 4. Control stuck open 5. Wiring incorrect	1. Plug in service cord or turn power on 2. Replace fuse 3. Determine reasons and correct 4. Repair or replace 5. Check wiring against the diagram
Compressor will not start - hums but trips on overload protector	1. Improperly wired 2. Low voltage to unit 3. Starting capacitor defective 4. Relay failing to close	1. Check wiring against the diagram 2. Determine reason and correct 3. Determine reason and replace 4. Determine reason, correct or replace
Compressor starts and runs, but short cycles on overload protector	1. Low voltage to unit 2. Overload defective 3. Excessive head pressure 4. Compressor hot — warm ambient conditions	1. Determine reason and correct 2. Check current, replace overload protector 3. Check ventilation or restriction in refrigeration system 4. Check refrigerant charge, fix leak if necessary
Compressor operates long or continuously	1. Short of refrigerant 2. Control contact stuck 3. Evaporator coil iced 4. Restriction in refrigeration system 5. Dirty condenser —warm ambient conditions 6. Warm ambient	1. Fix leak, add charge 2. Repair or replace 3. Determine cause, defrost manually 4. Determine location and remove restriction 5. Clean condenser 6. Address ambient conditions
Compressor runs fine, but short cycles	1. Overload protector 2. Cold control 3. Overcharge 4. Air in system 5. Undercharge	1. Check wiring diagram 2. Differential too close - widen 3. Reduce charge 4. Purge and recharge 5. Fix leak, add refrigerant
Starting capacitor open, shorted or blown	1. Relay contacts stuck 2. Low voltage to unit 3. Improper relay	1. Clean contacts or replace relay 2. Determine reason and correct 3. Replace
Relay defective or burned out	1. Incorrect relay 2. Voltage too high or too low	1. Check and replace 2. Determine reason and correct
Refrigerated space too warm	1. Control setting too high 2. Refrigerant overcharge 3. Dirty condenser 4. Evaporator coil iced 5. Not operating 6. Air flow to condenser or evaporator blocked 7. Warm ambient conditions	1. Reset control 2. Purge refrigerant 3. Clean condenser 4. Determine reason and defrost 5. Determine reason, replace if necessary 6. Remove obstruction for free air flow — no storage on top of walk-in 7. Ambient conditions should be 90° or less
Standard temperature system freezes the product	1. Control setting is too low	1. Reset the control
Objectionable noise	1. Fan blade hitting fan shroud 2. Tubing rattle 3. Vibrating fan blade 4. Condenser fan motor rattles 5. General vibration 6. Worn fan motor bearings	1. Reform or cut away small section of shroud 2. Locate and reform 3. Replace fan blade 4. Check motor bracket mounting, tighten 5. Compressor suspension bolts not loosened on applicable models - loosen them 6. Replace fan motor
Water overflowing from evaporator drain pan or condensate vaporizer pan	1. Air leak between refrigeration system and walk-in panel. 2. Drain line from evaporator drain pan to condensate vaporizer is blocked with foreign material. 3. Drain line from evaporator drain pan to condensate vaporizer is blocked with ice. 4. Walk-in operating in high humidity environment (heavy door usage).	1. Check that refrigeration system is properly set in panel opening. 2. Clean blockage from inside of drain line. 3. Check that drain line heater (on freezers) is working and repair or replace as required. 4. Plumb drain line from evaporator to floor drain or replace high gas vaporizer with electric vaporizer. Consult factory for further information.

Thank you for purchasing Refrigerated Solutions Group equipment!
Please visit the links below to complete your
WARRANTY REGISTRATION.

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800-388-5253 Norlake Parts/Service
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800-647-1284 Master-Bilt Sales
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