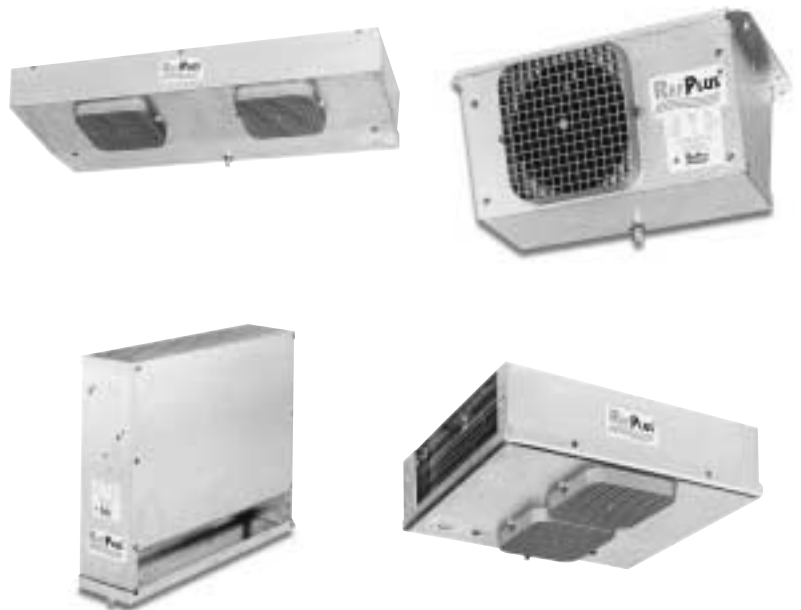




REACH-IN COOLERS
EUROLINE
SERIES US-UD



REACH-IN COOLERS
SERIES ED-ES-EC-EW



INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

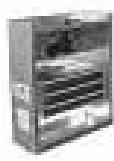
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Standard downflow units may be field modified into upflow units by removing the 4 screws that hold the plenum and by flipping the plenum upside down. Re-insert and tighten the screws back into place.



DOWNFLOW
(STANDARD UNIT)



UPFLOW
(FIELD MODIFIED)

NOMENCLATURE

	E	S	A	1 0 2	1	—	1
U = Euroline							1 = 120/1/60
E = Evaporator							2 = 240/1/60
C = Compact Reach-In							
D = Dual Flow Reach-In							
S = Single Flow Unit Cooler							
W = Wall Mount Reach-In							
A = Air Defrost							
E = Electric Defrost							

Product Generation

Unit Capacity @ 10°F T.D. 1000 BTU/HR

SAFETY CONSIDERATIONS

Installing, starting up, and servicing equipment can be hazardous due to system pressures, electrical components and equipment location (roofs, elevated structures, etc.). Only trained, qualified installers and service mechanics should install, start up, and service this equipment.

When working on the equipment, observe precautions in the literature and on the tags, stickers, and labels attached to the equipment.

Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloths and fire extinguisher nearby when brazing. Use care in handling, rigging, and setting bulky equipment.

WARRANTIES

RefPlus Inc. warrants the labeled (serial number) new RefPlus Inc. equipment and all parts thereof, to be free from defects in workmanship and material at the time of purchase. Applies to original purchaser only (nontransferable).

Under this warranty RefPlus Inc. shall be limited to repairing or exchanging any parts, without charge FOB factory or nearest authorized parts wholesalers, which may prove defective to the satisfaction of RefPlus Inc. within one year from date of start up, not to exceed eighteen (18) months from date of shipment from the factory.

The warranties to repair or replace above recited, are the only warranties, express, implied, or statutory, made by RefPlus Inc. No express or implied warranties as to merchantability or fitness for a particular purpose or use. RefPlus Inc. neither assumes, nor authorizes any person to assume for it, any other obligation or liability in connection with the sale of said equipment or any part thereof.

WARRANTY EXCLUSIONS

THIS WARRANTY SHALL NOT APPLY TO LOSS OF FOOD OR REFRIGERANT DUE TO FAILURE FOR ANY REASON.

REFPLUS INC. SHALL NOT BE LIABLE:

1. For any repairs or replacement by buyer without the written consent of RefPlus Inc., or when the equipment is installed or operated in a manner contrary to the instructions covering installation and service which accompanied such equipment.
2. For any damages, delays, or losses, direct or consequential, caused by defects, nor for damages caused by short or reduced supply of materials, fire, flood, strikes, acts of God, or circumstances beyond its control.
3. When the failure or defect of any part or parts is incidental to ordinary wear, accident, abuse or misuse; or when the serial number of the equipment has been removed, defaced, altered, or tampered with.
4. When this equipment is operated on low or improper voltages.
5. For payment of any removal or installation charges of parts or units.
6. When this equipment is moved to different location other than the original installation.

WARNING

Before installation, always check to be sure main power to systems is OFF. Electrical shock can cause personal injury or death.

INSTALLATION

STEP 1 - COMPLETE PRE-INSTALLATION CHECKS

Examine for damage incurred during shipment. File a claim immediately with transit company if damage is found. Verify that the nameplate electrical requirements match the available power supply. Check the shipment for completeness.

Cold-storage cabinets must bear a label visible after installation stating: «This equipment is intended for the storage and display of packaged products only.»

STEP 2 - LOCATION

All unit coolers, with the exception of EW unit coolers, should be installed flush against the ceiling. EW unit coolers can also be wall mounted. The unit cooler must be level in all directions to ensure proper drainage of condensate.

When deciding on the location of the unit cooler, consider the following:

- Location of aisle racks
- Location relative to compressor for minimum pipe runs
- Location of condensate drains for minimum run
- The air pattern must cover the entire room
- Allow sufficient space between rear of unit cooler and wall to permit free return of air

ED, ES, EC, EW, US, UD UNIT COOLERS – These unit coolers should be located in the center of the cooler with air discharge toward the back or side wall.

STEP 3 - MOUNTING

Most unit coolers can be mounted with either bolts or rod hangers. Use 5/16 in. bolts and washers for unit coolers weighing up to 250 pounds.

NOTICE

The unit cooler must be mounted level for proper condensate draining. Adequate support must be provided to hold the weight of the unit cooler.

Note: The unit must be sealed to the interior liner of the refrigerating equipment or it shall be located so that the space between the evaporator and the liner is readily accessible for cleaning, in order to comply with National Sanitation Foundation (NSF) Standard 7.

If exposed to potential food splash or spillage, a barrier shall protect the units from being soiled.

STEP 4 – CONNECT DRAIN LINE

ED, EC, EW, ES, US, UD UNIT COOLERS – A 1/2 inch OD removable drain fitting is supplied with each unit cooler. Connect the drain line as follows:

1. Replace the rubber gasket to prevent condensate leakage.
2. Sharply pitch the drain line and exit it through the cooler with a short run.
3. Insulate and seal the drain line where it passes through the wall.
4. Locate the drain traps in a warm ambient air to prevent freeze up.
5. The connections to the drain pan shall not prevent the pan from being accessible for cleaning.

NOTE

If the cooler temperature is below 32°F, a field supplied drain line heater (15 W per foot) may be required. When installing the heater, be sure to avoid overlapping.

Drain traps on low temperature unit coolers must be outside of refrigerated enclosures. In the instance where traps are subject to freezing temperatures, wrap the traps with heat tape and insulation. Always trap drain lines individually to prevent vapor migration.

STEP 5 – REFRIGERANT CONNECTIONS

All refrigerant system components must be installed in accordance with applicable local and national codes using proper engineering practices.

Use top-quality refrigeration tubing that is internally free of dirt, humidity or other contaminants. Unsealed tubing should not be used. Long radius elbows are recommended.

Dry nitrogen must be swept through the lines while joints are brazed to avoid oxidation and carbon deposits.

IMPORTANT

The use of a calibrated pressure gauge and regulator must always be used with nitrogen gas cylinders.

All external piping must be well supported. The unit cooler will not support external piping or valves.

If the condition arises where the suction line must be raised to a point higher than the suction connection on the unit cooler, a suction line trap must be installed on the unit cooler.

Horizontal suction lines should slope away from the evaporator toward the compressor. Leak check and evacuate the system using a two-stage deep vacuum pump. Pull and hold for 24 hours, a 500 micron vacuum.

STEP 6 – EXPANSION VALVE CONNECTION

All unit coolers are supplied with a 1/2 in. OD sweat expansion valve connection. Expansion valves are field supplied.

ED, EC, EW, ES, US, UD unit coolers require the use of an internally equalized expansion valve.

ESA(E) 450, 550 require the use of an externally equalized expansion valve and are provided with a 1/4 equalizer line.

Check the operation of the expansion valve after the system has reached the desired cooler temperature. If the coil is not receiving enough refrigerant, reduce the superheat setting on the expansion valve.

The location and installation of the bulb is very important to ensure proper performance of the system. The bulb should be attached to a horizontal suction line at the evaporator outlet. On suction lines 5/8" and smaller, the bulb may be mounted at any point around the circumference of the tube. However, locating the bulb on the bottom of the line is not recommended. The bulb should be securely fastened to a clean straight section of the suction line to ensure good thermal contacts between the bulb and the suction line for satisfactory expansion valve control.

To ensure unit cooler performance, the expansion valve must be set at the proper superheat and at the lowest temperature in which the system is expected to operate.

STEP 7 – WIRING

All systems wiring must be in compliance with all applicable local and national codes.

All internal wiring of fan motors, tubular heaters and combination defrost termination fan delay control have been factory connected. All wiring connections terminate on a single terminal block in the wiring compartment and are clearly labeled.

CAUTION

Before starting unit cooler, be sure fan guards are secured in place over each fan.

START-UP

LEAK TESTING AND EVACUATION

Leak testing and evacuation must be done in accordance with local and national codes.

Once all refrigerant connections are made, leak test all joints before charging the system with refrigerant. After leak testing, all moisture and non-condensable gas must be evacuated from the system. Attach high vacuum line pump and gauge on both high and low pressure sides of the system. A minimum vacuum level of 500 micron is required to effectively remove moisture.

Be sure all valves such as compressor, hot gas, receiver, and liquid solenoid valves are open. Break the vacuum in the system with the refrigerant to be used. Always charge the refrigerant into the system through a new 16 cu. in. drier (field supplied) in the charging manifold line.

(EDE- ESE) FAN DELAY DEFOST TERMINATION CONTROL

This control located on the coil plate senses the coil temperature. To provide fan delay, the defrost thermostat must be turned off.

1. Set thermostat between 20°F and 30°F or above.
2. Adjust defrost timer up to maximum of 45 minutes.
3. Set the thermostat between 55 to 60°F to defrost unit coolers operating between -40 to -20°F.
To defrost unit coolers operating between -10 to 10°F, set the thermostat between 60 to 65°F.

(EDE-ESE) FAN DELAY DRAIN PAN CONTROL

The fan delay drain pan control senses the general coil temperature.

- With temperature rise, the fan delay thermostat de-energizes the fan and energizes the electric pan heaters.
- After defrost cycle, the coil temperature drops and the fan delay thermostat energizes the motor and de-energizes the heaters.
- Defrost timer must be set long enough to completely melt the ice in the unit cooler. Set the thermostat at 20 to 25°F and the differential at minimum.

IMPORTANT

After correcting a faulty defrost cycle, it is essential that the coil, drain pan and unit cooler be free and clear of ice before placing the unit cooler back on automatic operation.

CHECK SUPERHEAT

After the cooler temperature has reached the desired temperature, the unit cooler superheat should be checked and adjustments made if necessary. Generally, systems with a design temperature difference (TD) of 10°F should have a superheat value of 6 to 10°F for maximum efficiency. For systems operating at higher TD, the superheat can be adjusted to 12 to 15°F as required.

NOTE

Minimum compressor suction superheat of 20°F may override these recommendations on some systems with short line runs.

WARNING

If the condensing unit does not have flooded condenser head pressure control, then the condensing unit must have discharge pressure above the equivalent 105°F condensing pressure.

To properly determine the superheat of the unit cooler, follow the steps below:

1. Measure the temperature of the suction line at the point where the bulb is secured.
2. Determine the suction pressure in the suction line at the bulb location by using one of the following methods:
 - a) Placing a gauge in the external equalized line.
 - b) Placing a gauge directly in the suction line near the unit cooler.
3. Convert the pressure reading to saturated unit cooler temperature by using a temperature pressure table.
4. Subtract the saturation temperature from the actual suction line temperature reading. The difference is superheat.

An alternate method to determine superheat of the unit cooler can be used:

1. Measure the temperature of the suction line at the point where the bulb is secured (outlet).
2. Measure the temperature of one of the distributor tubes close to the unit cooler coil (inlet).
3. Subtract the inlet temperature from the outlet temperature. The difference is superheat.

NOTE

This method will yield accurate results as long as the pressure drop through the unit cooler coil is low.

DEFROST SYSTEM

AIR DEFROST UNIT COOLERS: Fan motors run continuously and a defrost time clock or low-pressure setting stops the compressor when defrost is required.

NOTE

The unit cooler must not be in operation more than 16 hours per day.

ELECTRIC DEFROST UNIT COOLER: A time clock starts the defrost process by stopping the fan and energizing the heaters. When defrost thermostat resets the time clock, it de-energizes the heaters and restarts the fan motors.

SERVICE

INSPECTION

After one day of operation, check for any vibration in the unit cooler. All unit coolers should be checked at least once a month for proper defrosting. It may be necessary to periodically change the number of defrost cycles or adjust the duration of defrost.

Under normal usage conditions, proper unit cooler maintenance should be done every six months to include the following:

1. Check all wiring and insulators.
2. Check and tighten all electrical connections.
3. Inspect contactors for proper operation and for worn contact points.
4. Check all fan motors. Tighten motor mount bolts/nuts and tighten fan set screws.
5. Clean condenser coil surface.
6. Check refrigerant and oil level in the system.
7. Check operation of the control system insuring all safety controls are operating properly.
8. Check all defrost controls are functioning properly.
9. Clean the unit cooler coil surface.
10. Clean the drain pan and check the drain pan drain line for proper drainage.
11. Check drain line heater for proper operation, cuts and abrasions.
12. Check and tighten all flare connections.

IMPORTANT

Do not use alkaline or acidic solutions; they will damage the coils. Remove the fan guard to clean the inner face of the fan coil.

CLEANING

The unit cooler should be checked periodically for dirt accumulation. Grease and dust should be removed from the fan, fan guards, and drain pan.

Occasional cleaning of finned surfaces can be done by dusting the fins and then cleaning with a mild detergent and warm water spray. Always pressure-clean in reverse of the air flow.

Specifications are subject to change at any time without notice.



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