



AUTOMATIC DEFROST vs. COLD WALL MANUAL DEFROST





1. PURPOSE & OPTIONS

All refrigerated units, including ice merchandisers, require a defrost system - either manual or automatic. Without one, even under proper operation, frost would continuously build up inside the unit. Frost can be located on the interior walls, doors, or the packaged ice itself. Frost is caused from moisture in the air, from either the door opening or from the ice, coming in contact with the cold surfaces inside the ice merchandiser and freezing. Leer offers merchandisers with two different defrost methods.

Option 1: Automatic Defrost Units

Option 2: Cold Wall Manual Defrost Units.

2. COLD WALL MANUAL vs. AUTOMATIC DEFROST

The decision between Automatic Defrost and Cold Wall merchandisers is essentially determining the style and location of the evaporator. In Auto Defrost units, the interior roof of the Merchandiser contains an evaporator assembly that contains fans to circulate the air. This is where the frost will build on Automatic Defrost units. The Automatic Defrost system will follow calculated parameters to periodically run a heating cycle to warm the evaporator and melt any frost build-up. The melted frost is channeled to the rear of the Merchandiser, where a drain tube is located. On outdoor units, its common to allow the water to drain directly onto the ground. On indoor units, a condensate evaporator pan is provided. The condensate evaporator pan holds the water and uses a heating element to quickly evaporate the water.

In Cold Wall units, the inside of the wall of the merchandiser contains copper tubing, which is the evaporator. The tubing is strategically positioned around the entire unit to evenly remove heat. The frost will build on the portions of the interior wall where the tubing is present. To melt any frost build-up, all contents of the Merchandiser must be removed, and the refrigeration system turned off. This allows the ambient heat to melt off the frost. You may add heat during this process or very carefully use a plastic scraper to speed up this process. The melted frost will puddle at the bottom of the merchandiser. On outdoor units, its common to drain the water directly onto the ground via the drain plug. On indoor units, the water must be fully absorbed with a towel or wet vac to ensure it does not refreeze when the refrigeration is powered back on.

3. ADVANTAGES & DISADVANTAGES

A. ADVANTAGES OF AUTOMATIC DEFROST:

- Ease of Maintenance - the defrost process is done automatically with no manual steps required.
- Shorter Recovery - when the doors are opened and hot air enters the merchandiser, Automatic Defrost units recover to the proper temperature faster due to the fans forcing the air through the evaporator coils.
- Impact on Packaged Ice - the packaged ice in the merchandiser does not need to be removed for defrost.

B. DISADVANTAGES OF AUTOMATIC DEFROST:

- Additional Moving Parts - the evaporator fans, evaporator heat element, defrost termination safety switch and condensate evaporator (if used) introduce additional parts that can wear or become damaged.
- Consistent Drip - Water from the melted frost will continuously drip out of the back of the unit onto the ground on outdoor units or a condensate evaporator pan is required on indoor units to capture and heat the water to evaporation.
- Slightly Increased Energy Costs - due to the defrost heating cycles removing the frost buildup, Auto Defrost units have higher energy consumption and amperage draw than similar sized Cold Wall units.
- Slightly Decreased Capacity – the evaporator fan and air ducts circulating the air consume some space.
- Higher Cost - on most models, the cost of this system is minimally higher.

C. ADVANTAGES OF COLD WALL MANUAL DEFROST:

- Fewer Moving Parts - the evaporator copper coils are foamed in place and have no moving parts.
- Less Replacement Parts - there are no automatic defrost system parts to wear or become damaged.
- No Drip - there isn't continuous drainage from melted frost.

- Slightly Decreased Energy Costs - without the heating cycles of Automatic Defrost systems, Cold Wall units have lower energy consumption and amperage draw than similar sized Auto Defrost units.
- Slightly Increased Capacity – there are no evaporator fans or air ducts to consume space.
- Lower Cost – on most models, the cost of this system is less expensive.

D. DISADVANTAGES OF COLD WALL MANUAL DEFROST:

- Additional Labor - the defrost process is done manually with no automatic assistance.
- Longer Recovery - due to the lack of an evaporator fan, the merchandiser typically takes longer to recover to the proper temperature after the doors were opened.
- Impact on Packaged Ice - the packaged ice in the merchandiser must be removed for defrost.

4. RECOMMENDATIONS

Ultimately, choosing between an Automatic Defrost and Cold Wall Manual Defrost system is a personal preference. There are some use cases where one version is generally recommended over the other.

- Humidity – High humidity locations should generally opt for the Automatic Defrost System, as the defrost control settings are adjustable to minimize the increased frost.

- Capacity – Locations looking to use every cubic foot of space should opt for the Cold Wall, as with this system there are no interior fans or air ducts taking up space.

5. HOW TO TELL WHICH OPTION YOU HAVE

In addition to being identified on the serial tag, both Automatic Defrost and Cold Wall Manual Defrost units have distinctive features to help identify which system the Merchandiser contains.

A. AUTOMATIC DEFROST

- Evaporator housing that has fans on the interior roof of the merchandiser.
- Drain tube and/or condensate evaporator pan on the inside and rear of the merchandiser.
- Air ducts on the inside walls.



Pic. 1: Air Ducts



Pic. 2: Evaporator Housing & Fans

B. COLD WALL MANUAL DEFROST

- Will not contain an evaporator housing on the interior roof.
- Will not contain a drain tube on the inside and rear of the merchandiser.
- Will not contain air ducts on the inside walls.
- An identifiable frost pattern on the interior walls will form.