



The EVAPCOLD penthouse product line (LCR-P) has many features that provide significant advantages over other package system providers as outlined below.

1. **HOT GAS DEFROST:** The Evapcold units are designed with Hot Gas Defrost as standard. This is the most efficient method of defrosting a coil and significantly reduces operating costs versus electric defrost. In fact, the Evapcold unit has two (2) – 50% evaporators to provide refrigeration with one evaporator while the other coil is in defrost, allowing for superior room temperature control during defrost.

Evapcold – Hot Gas Defrost of one coil while the other coil continues to refrigerate the room:



2. **EVAPORATOR RATINGS:** The Evapcold evaporators are guaranteed and rated in accordance with AHRI Standard 420. AHRI 420 ratings provide properly sized evaporators based on the temperature difference between the coil evaporating temperature and the inlet air temperature to the coil (actual TD) rather than the average room temperature (DTM). This significantly saves on system operating costs versus non-certified evaporators.



3. **ACCESS DOORS:** The Evapcold evaporator penthouse has 4 exterior doors for operator access (2 on each side as shown below). This avoids having to access the evaporators by coming through the machine room, and avoids being trapped in the evaporator section if there were a leak in the machine room.

Evapcold – Penthouse Exterior Access Doors



- 4. **INSULATED FLOOR:** The Evapcold Machinery Room has an insulated superfloor. This allows the unit to be mounted directly on the warehouse roof steel along with the penthouse. In the absence of having this insulated floor the competitors unit must be elevated above the roof on a structural steel platform.

[Evapcold – 5” Insulated superfloor in Machinery Room](#)

[View from underneath](#)



- 5. **AIR SUPPLY PLENUM:** Evapco routinely designs & supplies the prefabricated Supply Air Plenum ductwork as part of the penthouse product line. This option provides the necessary air distribution to the room below. The air supply plenum is available for all Evapcold models. Each plenum section is manufactured in the Greenup manufacturing plant along with the Evapcold units.



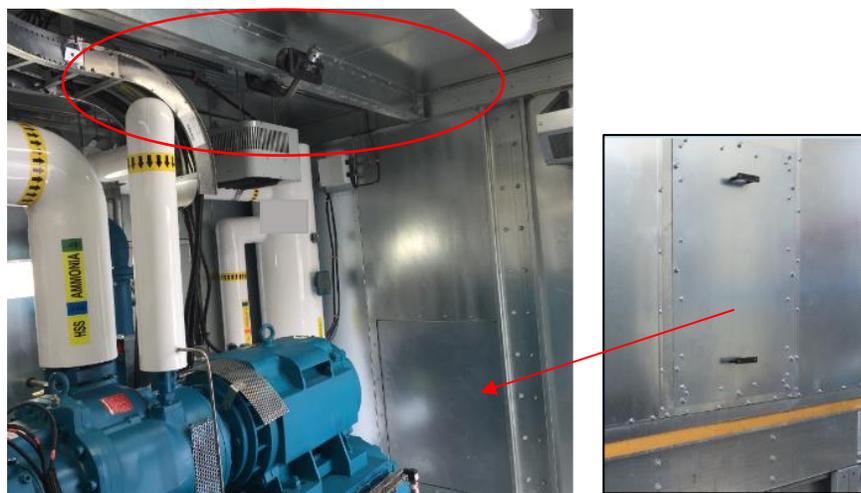
- 6. **Evaporator Fan Removal:** The Evapcold evaporator penthouse design is based on Evapco’s very successful legacy SSTP product line, which has hundreds (over 800 to-date) of units running in the field over the last 15 years. This proven design has been carried over into the Evapcold product. This includes the efficient layout of the supply air fans being located in the floor of the penthouse. This allows for efficient air flow to the room below and easy access to the fans and fan motors. The fan motors have sealed bearings so no greasing is required. However, in the event there is a motor or fan problem, the Evapcold design allows for easy access to these components for service, removal and replacement. As shown in the photos below, a removable grading and motor/fan davit (included) can be easily positioned to lift the motor and fan and place them onto the adjacent floor. Since the fan motors (and fans) weigh between 100 to 200 lbs, this is an important feature that allows for safe material handling.

Evapcold – Easy Evaporator Fan Service & Maintenance.



- 7. **COMPRESSOR OR MOTOR REMOVAL:** The Evapcold machinery room includes a **Trolley & Beam** located above the compressor and motor drive line which allows for easy removal of the compressor, motor, or oil separator manway from the compressor package. Also - in addition to the machine room door, there is an access panel in the enclosure at the end of the compressor package to allow easy remove of the item from the Evapcold enclosure.

TROLLEY & BEAM + ACCESS PANEL

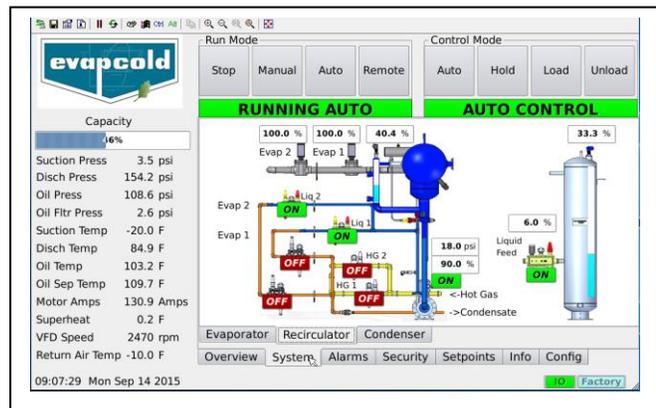


- 8. **PUMPED LIQUID AMMONIA FEED:** The Evapcold product design features a pumped liquid ammonia recirculation system, which is the most common ammonia refrigeration design in the food & beverage industry. Pump liquid systems have a long and successful operating history.

A pumped liquid recirculation system is more efficient and reliable (particularly in a low charge configuration) than a DX system because:

- a. Most efficient heat transfer design for the evaporator.
- b. Can operate in critical & varying applications:
 - i. Great for Convertible Rooms.
 - ii. Variable operating conditions & rigorous duties DX equipment has difficulty with.
 - iii. Designed to handle hot starts and cold starts, and temperature pull down, while providing the necessary liquid management and compressor protection.
 - iv. Liquid carryover protection during power outage & auto restart.

Evapcold – Pumped Liquid Recirculation for efficient & reliable operation:



- OIL SEPARATOR:** The Evapcold screw compressor package contains a very effective oil separator. The Evapcold oil separator is based on the same proven design as the much larger, traditional oil separators associated with the large industrial screw compressors which are common in the ammonia industry. The oil separator is a horizontal, three stage design with an integral sump. The three stages consist of a change in flow direction, reduction in gas velocity and the final oil coalescer cartridge.

Evapcold – 3 stage horizontal oil separator



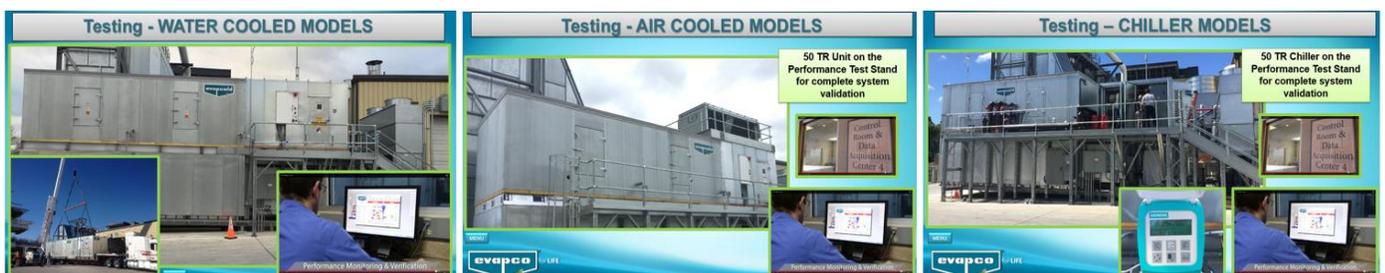
Oil return capability



In addition to the oil separation being more effective in the Evapcold design, we have also included a means to return any oil carryover to the compressor via a small 3/8" metering line from a low point in the recirculator to the compressor suction (see photo above). The oil return line is not insulated so any liquid refrigerant will vaporize before entering the compressor.

- FACTORY TESTING.** The Evapcold product has been, and continues to be, rigorously tested in Evapco's industry leading thermal test lab facilities located in Maryland. Come visit us and see firsthand.

Evapcold Water-Cooled, Air-Cooled & Chiller Products All Put through Rigorous Performance Testing



11. **CODES:** The Evapcold LCR penthouse product line has been designed in accordance with the applicable codes, standards and regulations for ammonia refrigeration systems that apply to all 50 states. This includes IBC, IMC, IFC, IIAR, ASHRAE, UMC, CMC, NEC, ANSI, ASME, OSHA, EPA and others. This includes such things as shown here:

- i Exterior controls for electrical disconnect, E-Stop, exhaust fan manual activation and alarm beacon light.
- ii Prescribed ventilation system design
- iii Prescribed ammonia detection
- iv Required relief valve header riser
- v Required seismic rating compliance as required by IBC



Evapcold product includes the above items as shown below:

Evapcold - Exterior Controls:



Evapcold - Prescribed Ventilation System Design:



Evapcold - Prescribed Ammonia Detection:



Evapcold - Required Relief Valve Header Riser:

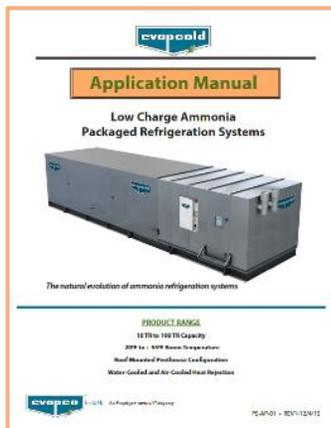


Evapcold - Robust structural design for seismic & wind loading, including third party review.

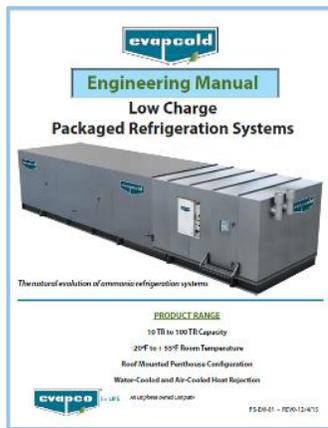


12. **PRODUCT DOCUMENTATION:** Provided with **Evapcold** packages is significant documentation to assist the contractors and end-users with the application, installation and operation of the product.

APPLICATION MANUAL



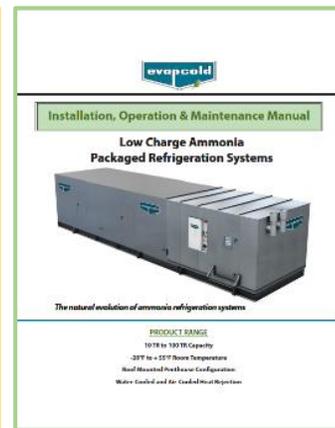
ENGINEERING MANUAL



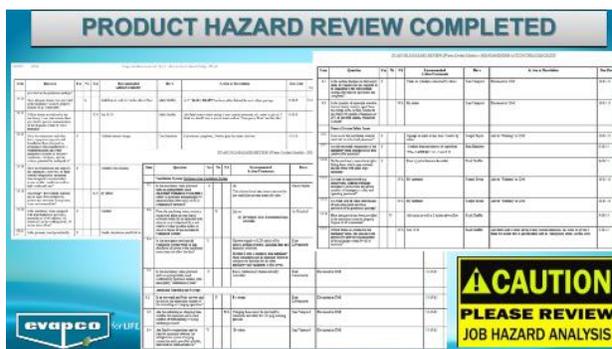
RIGGING MANUAL



IOM



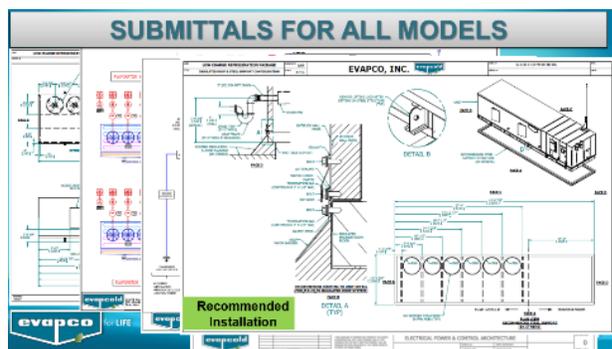
PRODUCT HAZARD REVIEW



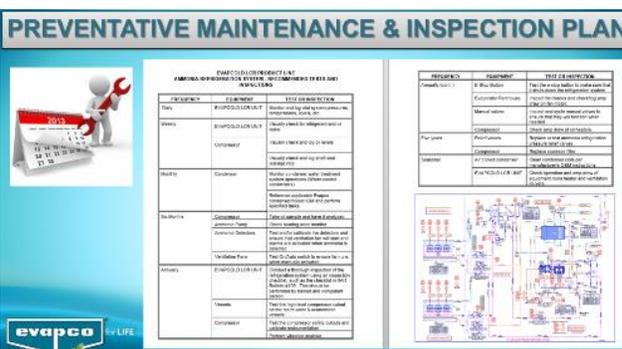
TAGGING, LABELING & SIGNAGE



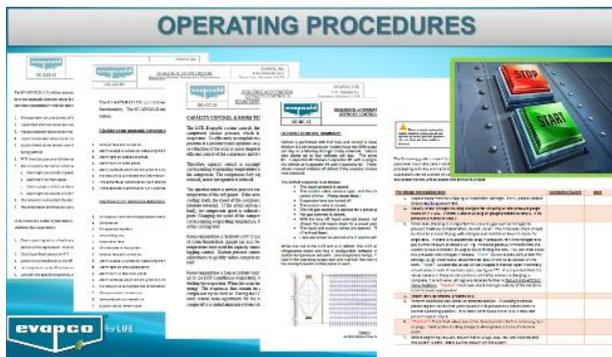
COMPLETE DRAWINGS



PREVENTATIVE MAINTENANCE



OPERATING PROCEDURES



TRAINING



13. **MANUFACTURING:** Evapco self performs 100% of the manufacturing for the **Evapcold** package at its new 100,000 FT² manufacturing plant in Greenup, IL and the process is fully integrated into Evapco's Quality Assurance Program.

Evapcold Product made at the Greenup, IL Manufacturing Complex



270,000 sq. ft. Evaporator & Condenser Manufacturing Facility

New 100,000 sq. ft. state of the art manufacturing facility for Evapcold product line. **Online now!**



- Based on assembly line operation.
- Manufacturing procedures & best practices established.
- Evapco self performs **100% of the work**
- Fully integrated into Evapco's Quality Assurance Program




evapco.com

14. **COOLING TOWERS & FLUID COOLERS:** **Evapcold** water cooled units can be provided with Evapco's industry leading and CTI certified cooling tower or fluid cooler product line, including our superior water treatment products.

COOLING TOWERS

Factory Assembled Induced Draft

AT | Advanced Technology

USS | Ultra Stainless Steel

UT | Ultra Quiet

AXS | Advanced Crossflow Series

eAT | Conithertized Advanced Technology

SUN | Solar Powered Technology

Factory Assembled Forced Draft

LSTE | Low Sound

LPT | Low Sound Low Profile

PMTQ | Ultra Quiet Low Hotspotpower

FIELD ERECTED

Air Cooled Steam Condenser

Evaporative Cooling Tower

CLOSED CIRCUIT COOLERS

Factory Assembled Induced Draft

ATWB | Advanced Technology Series

eATWB | Conithertized Advanced Technology

ESWA | Energy Efficient Low Sound

ESWB | Energy Efficient Low Sound

eco-ATWB | Water-Conserving Advanced Technology

eco-ATWB-E | Water & Energy-Conserving Advanced Technology

Factory Assembled Forced Draft

eco-ATWB-H | Optimum Wet/Dry Technology

eco-LS | Water-Conserving Low Sound

eco-LRW | Water-Conserving Low Sound Low Profile

LSWE | Low Sound

LRWB | Low Sound Low Profile

PMWQ | Ultra Quiet Low Hotspotpower

WATER TREATMENT SYSTEMS

Smart Shield® | Controlled Release Solid Chemical Treatment

Pulse-Pure® | Non-Chemical Treatment

Dolphi WaterCare Systems

ICE COILS

Thermal Storage Systems