

INDUSTRIAL REFRIGERATION



EVAPCOLD®

FACTORY ASSEMBLED
LOW CHARGE AMMONIA REFRIGERATION SYSTEMS
Innovative and Energy Efficient



Since its founding in 1976, EVAPCO, Inc. has become an industry leader in the engineering and manufacturing of quality heat transfer products around the world. EVAPCO's mission is to provide first class service and quality products for the following markets:

- **Industrial Refrigeration**
- Commercial HVAC
- Industrial Process
- Power

EVAPCO Global Headquarters, Taneytown, Maryland USA

These quality products for the industrial refrigeration market include: refrigerant condensers, cooling towers, closed circuit coolers, evaporators, hygienic air handlers, **packaged low charge ammonia systems**, transcritical CO₂ rack systems, ASME pressure vessels and packages, water conservation and treatment systems, and controls and automation.

EVAPCOLD® THROUGH THE YEARS

The EVAPCO Wilson E. Bradley Research & Development Center

Since Evapcold's beginning in 2014, we have never stopped **INNOVATING.**

The Wilson E. Bradley Research & Development Center features a state-of-the-art, low-temperature, insulated environmental test chamber and a fully functional ammonia refrigeration system. Designed to operate at suction temperatures as low as -60°F, the EVAPCO Research & Development Center enables us to find ground breaking solutions for the industry's biggest challenges. The newest addition to EVAPCO's R&D center is an enhanced CO₂ testing capability.

The Evapcold product line is designed by industry experts with over 300 years of combined experience. Each system uses patent-pending technology and high-quality components, ensuring efficient operation with minimal refrigerant. EVAPCO enhances reliability by conducting full-scale tests in a wide range of temperatures, from -35°F to 100°F, at their R&D center. Testing covers thermal performance, energy use, refrigerant charge, and more. Evapcold systems offer a low-charge ammonia solution with single-source responsibility for design, assembly, and testing, ensuring ease of installation, reliable operation, and safety. All of these EVAPCO capabilities have led to a diverse Evapcold product line with low ammonia charges ranging from 1 to 6 lbs/TR depending on the model.



First LCR-P Penthouse factory tested and installed in Ogden, UT.



Dual compressor and air-cooled technology expansions to LCR-P and LCR-C product lines.



LCR-S Split System continued product line expansion and installations.



2014

2016

2022

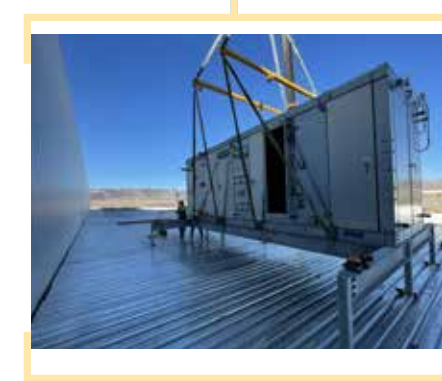
2024

2015

Low charge ammonia product line conceived and launched at EVAPCO World Headquarters under LCR (Low Charge Refrigeration) category.



LCR-C Chiller product line tested and launched.



LCR-S Split System product launch and first installation.

KNOW YOUR OPTIONS

Evapcold® is the *Natural Leader* in pre-engineered, factory assembled, packaged low charge ammonia refrigeration systems. Evapcold's three product lines - the adaptable LCR-S VersaSplit, plug & play LCR-P Penthouse, and secondary glycol LCR-C Chiller - all provide single source responsibility for design, performance & operation. Allow EVAPCO to select and optimize the right packaged refrigeration equipment for every application with **Evapcold - the natural evolution of ammonia refrigeration.**

Applications include, but not are limited to:

- Cold Storage
- Distribution Facilities
- Food Processing Facilities
- Dairies and Wineries
- Juice and Beverage Production
- Ice Rinks
- Industrial Process
- Pharmaceutical
- Petrochemical

LCR-C CHILLER



The LCR-C Chiller is a pre-engineered, factory assembled ammonia-to-glycol chiller package that meets the demands of any secondary fluid application. Ice rinks, chemical process loads, tank cooling for dairies or wineries, banana & ripening applications, or simply room cooling for process areas or docks - the LCR-C Chiller can do it all. Depending on configuration, units can be skidded and mounted in machinery rooms - ideal for synthetic refrigerant replacement applications - or manufactured with an optional enclosure and mounted outdoors. (See pages 6 & 7 for details).

LCR-S VersaSplit™



The LCR-S VersaSplit is a reach-in ammonia split packaged system designed to be mounted anywhere and piped to remote evaporators. Depending on the building needs, the VersaSplit can be set on the roof or at grade and provide high pressure liquid to rooms across the facility. Adaptable to any building layout and configurable with any of EVAPCO's AHRI certified ammonia unit coolers, the VersaSplit brings packaged versatility to every project. (See pages 8 & 9 for details).

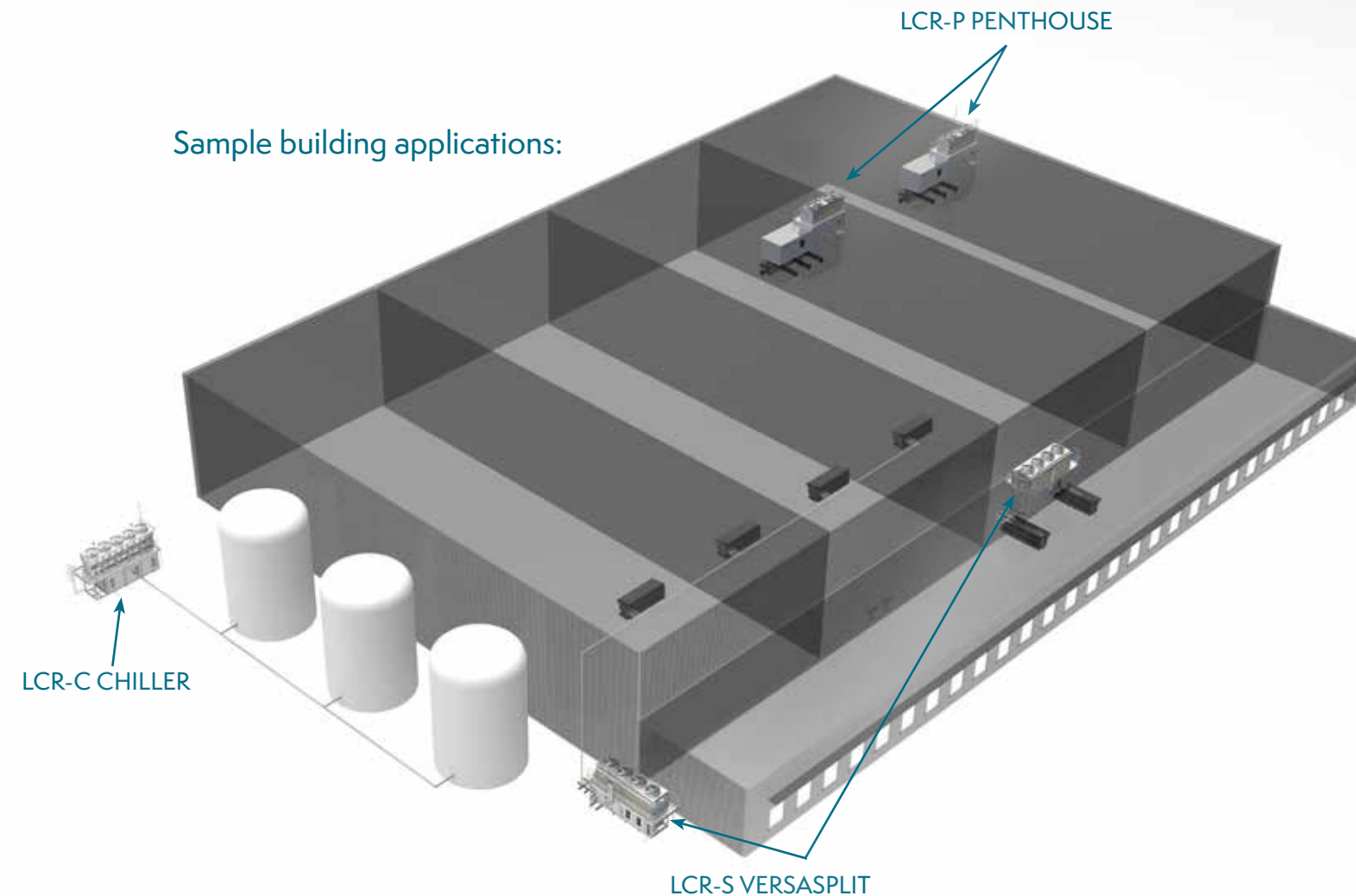
LCR-C, LCR-S & LCR-P

LCR-P PENTHOUSE



The LCR-P Penthouse is a fully modular, factory assembled, low-charge refrigeration system designed to be set directly on building structural steel in one or two piece shipments with minimal field work. The walk-in machinery room complies with all requisite safety and design codes for ammonia refrigeration and the close-coupled penthouse evaporator allows for safe access to all equipment from the building roof. For customers seeking simplified installation and the ultimate in energy efficient technology, the LCR-P Penthouse delivers. (See pages 10 & 11 for details).

Sample building applications:

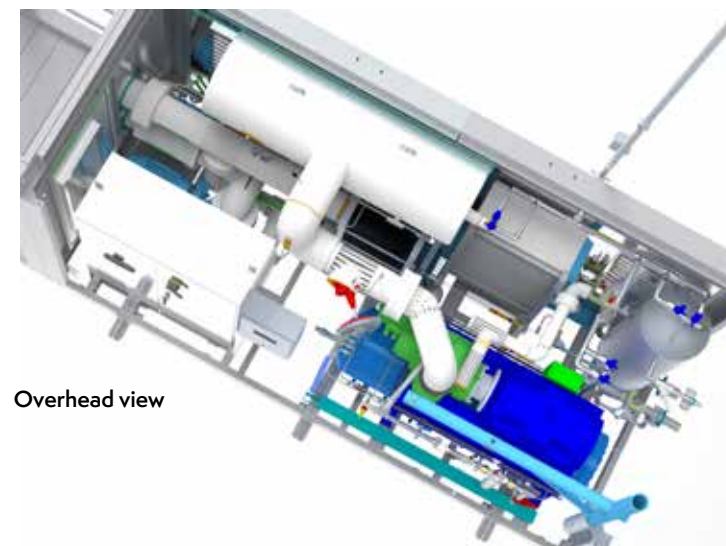




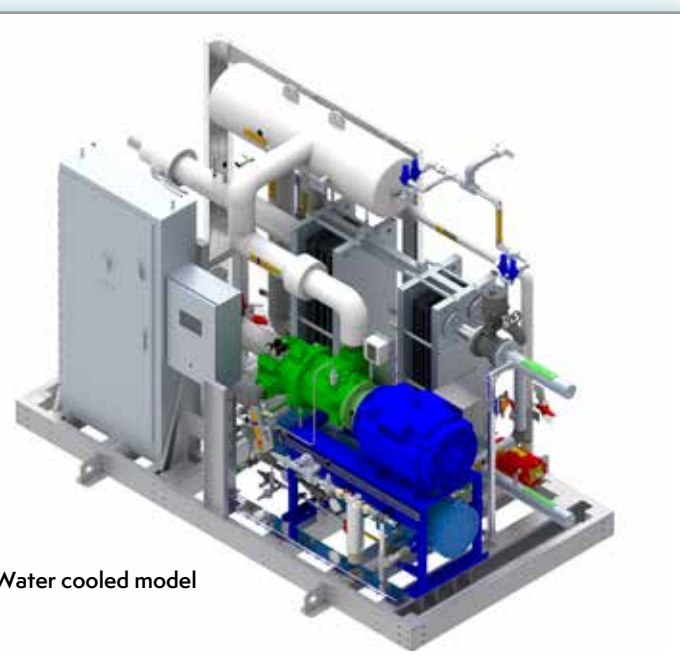
LCR-C CHILLER

The LCR-C Chiller is intended to provide secondary chilled fluid - typically water or glycol - to any cooling load. Air-cooled, adiabatic air-cooled and water-cooled condensing available to suit site and ambient conditions.

20 TR to 400 TR Capacity.
0°F to 50°F Fluid Temperatures.



Overhead view



Water cooled model



Air cooled models

FEATURES & BENEFITS:

- Inherently safer to use – very low NH₃ charge - most models below 500 lbs.
- Environmentally friendly NH₃ refrigerant - zero ozone depletion potential and zero global warming potential.
- Eliminates ammonia in refrigerated space.
- Great for docks, coolers, process cooling, dairies, wineries, ice rinks & HVAC.
- Cost-effective means to serve multiple rooms or cooling loads.
- IIAR-2 code compliant and fully tested by EVAPCO.
- Robust industrial grade construction including stainless steel piping and galvanized structural steel.

AIR COOLED UNITS:

- Zero water usage with air-cooled technology – or minimize water usage with alternate adiabatic technology.
- Many product configurations through EVAPCO's unique eco-Air™ condenser selections and ALCOIL® microchannel condensers for small models.
- Roof mounted condenser minimizes footprint - a great solution for space restricted sites! Also available to be mounted separately.

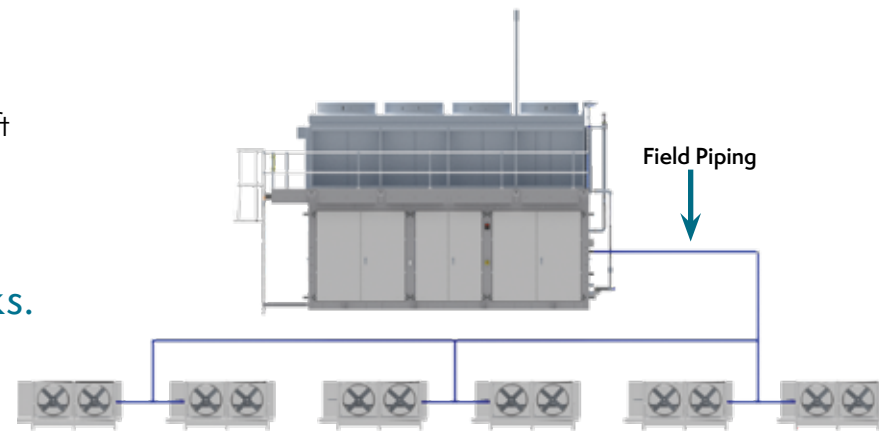


LCR-S Versa Split™

A direct expansion ammonia condensing unit, ground or roof mounted and piped to multiple DX evaporators. High pressure subcooled NH₃ liquid allows for long pipe runs and generous lift capabilities for maximum installation flexibility.

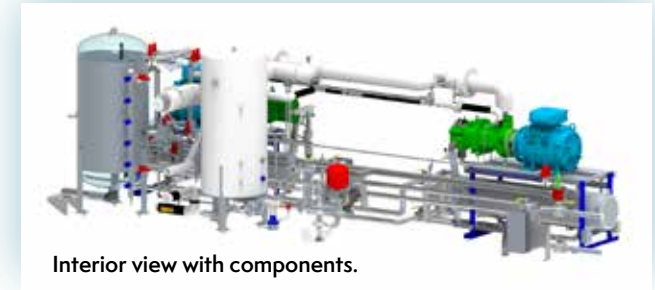
Up to 130 TR for Freezers.
Up to 200 TR for Coolers/Docks.

Air-cooled, adiabatic or water-cooled condensing options available.



Can be piped to many different types of evaporators:

Unit coolers, workroom, penthouse, CPA coils, MPC packages, and more.



Interior view with components.

FEATURES & BENEFITS:

- High pressure receiver sized to hold entire system charge for maximum serviceability and reliability.
- Suction accumulator to ensure liquid free compressor suction during upset conditions.
- Welded plate DX liquid economizer/subcooler maximizing system capacity.
- Dual compressors available for increased redundancy and capacity.
- Glycol-cooled oil cooling for maximum system efficiency, reliability and easy waste heat recovery.
- On air-cooled units, oil cooling load is rejected to the condenser.
- Engineered in accordance with industry codes, including: IIAR, IBC, IMC, OSHA, NEC, ASME, CSA and CRN.
- Extensive documents package delivered with each unit reducing customer compliance scope and regulatory burden.



LCR-P PENTHOUSE

A fully close-coupled unit with a walk-in machine room and penthouse evaporator, designed to be set directly on building structural steel open to the refrigeration space below.

Up to 70 TR for Freezers.
Up to 100 TR for Coolers/Docks.

Air-cooled, adiabatic or water-cooled condensing options available.



IIAR-2 compliant walk-in machinery room with ventilation, ammonia detection, access requirements, and safety controls for occupied space compliance.

Optional supply air-plenums customized to provide air coverage for any room or racking layout.



Unique close-coupled modules ship in one or two pieces for quick plug and play installation with minimal on-site assembly.

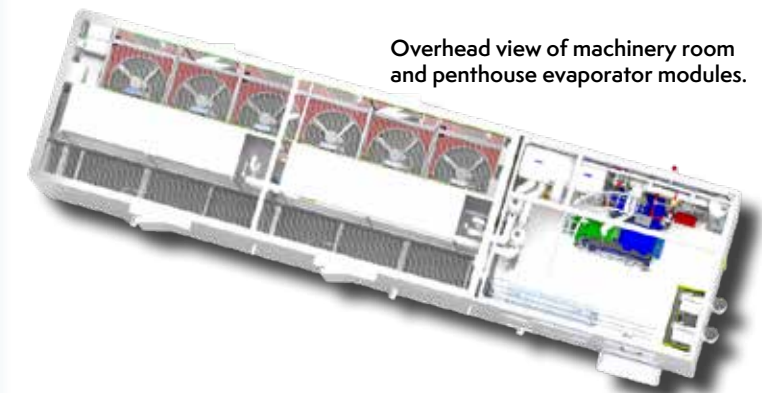


Air-cooled units provided with roof mounted microchannel condenser for reduced charge, lower weight, improved capacity and lower horsepower.



FEATURES & BENEFITS:

- Innovative walk-in machine room design incorporates safety & access requirements.
- High quality screw compressors, valves, controls and piping (95% of system piping is Type 304 stainless steel).
- Low 1.2 : 1 recirculation rate for optimum evaporator performance, minimum charge and reliability.
- Pumped ammonia liquid feed design for reliable and stable operation, with superior energy efficiency.
- Variable speed screw compressor operation for maximum efficiency.
- System control with industry leading EvapCore™ PLC designed specifically for low charge refrigerant systems.
- Extensive documents package delivered with each unit, reducing customer compliance scope through IIAR's ARM-Low Charge Program.



Overhead view of machinery room and penthouse evaporator modules.

EVAPORATOR MODULE DETAILS:

- Penthouse module features evaporators with EVAPCO low charge technology.
- Evaporator performance fully rated in accordance with AHRI Standard 420.
- Two 50% capacity coils provided in Low & Medium temperature models for efficient hot gas defrost control.

CONTROLS

Evapcold® units are outfitted with EvapCore™ Programmable Logic Control Panels by EVAPCO SelectTech, providing fully programmed, tested and validated package controls. Each panel is remotely viewable through VNC and easily communicates via Modbus TCP or Ethernet I/P protocol. Unit sequencing, kW peak shaving, historical trending, maintenance scheduling, remote alarm notification and much more can be accomplished with a building supervisory system (also available from EVAPCO SelectTech).



EvapCORE™

By: **evapco**
selectTECH™

CONDENSING OPTIONS

All Evapcold systems are available in three condensing varieties to match any ambient conditions - water-cooled, adiabatic, and air cooled. Design your project with water-cooled units if optimal energy efficiency is your goal, select air-cooled systems to eliminate water usage, or choose adiabatic units for the best of both worlds.



Air-cooled



Water-cooled



Adiabatic

SAMPLE APPLICATIONS

Evapcold® units are recognized as one of the most energy efficient and reliable designs in the industrial refrigeration market, but what specific applications do they excel at? Here are some examples of unique projects where low charge ammonia packages are the perfect fit.



Optimize building energy efficiency with Evapcold ammonia systems matching every suction level with room temperature on large distribution centers.

Minimize roof loading, provide room temperature convertibility, and easily meter energy with VersaSplit units on tenant cold storage buildings.

Eliminate pumping efficiency loss, maximize available racking space, and optimize air distribution with LCR-Penthouse units on high rise cold storages.

Improve site safety and minimize regulatory burden with Evapcold systems located near population centers.



Maximize available refrigerated space and eliminate the need for a field-built machinery room with Evapcold packages on restricted space sites.

Existing building retrofits or prefabricated buildings can utilize side mounted LCR-Penthouses or ground mounted VersaSplit units.

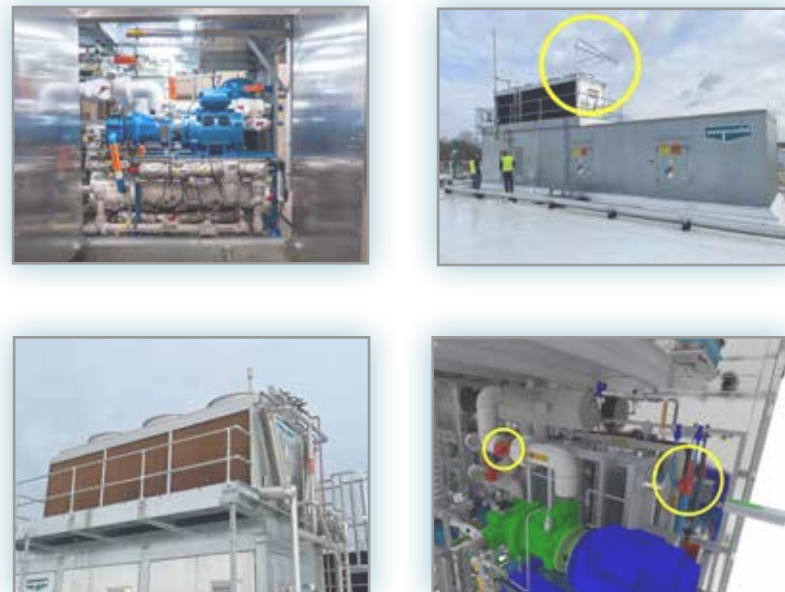
Feed EVAPCO CPA or EDF coils with Evapcold units for hygienic or process applications and receive single source responsibility from EVAPCO for the complete system.

Replace existing synthetic refrigerant equipment with a future-proof, natural refrigerant solution.

OPTIONAL ACCESSORIES

Maintenance & Access:

Evapcold systems come standard with many service features and can be further accessorized to improve maintainability with compressor/motor removal davits, eco-Air™ condenser catwalk access platforms for dry or adiabatic units, service valve packages and custom designs when required by local codes or unique end-user standards.



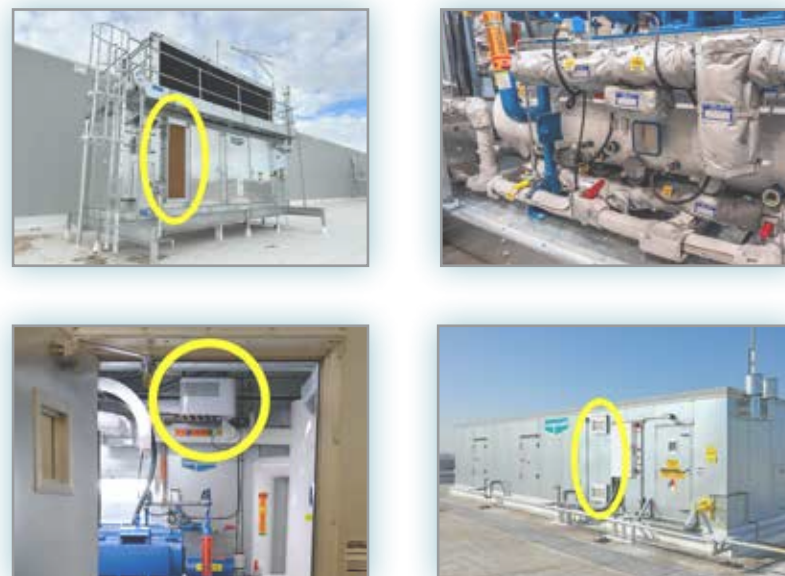
Heat Reclaim:

Today, energy efficiency is paramount in every project application. Improve overall building efficiency with convenient heat reclaim systems, available on every model. Useful for underfloor warming, evaporator reheat or defrost, ice rink melt pits, boiler preheat, and more.



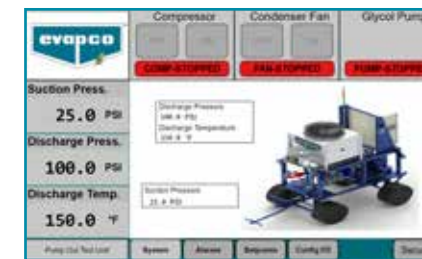
Ambient Packages:

Outfit units for operation in any outdoor conditions with room heaters, enclosure coolers, panel ventilation, lubrication oil line insulation, heat trace, and more.



ROVER PUMPOUT UNIT

The Evapcold® Rover Pumpout Unit (LCR-PO) provides the ability to pump out a full or partial ammonia charge from a packaged low charge system. This gives facility owners, operators and service technicians peace of mind that ammonia can be safely evacuated from their refrigeration system to ensure safe line breaking if necessary. **Specifically designed for use with the Evapcold® Low Charge Refrigeration (LCR) packages, the Rover is also suitable for any ammonia system.**

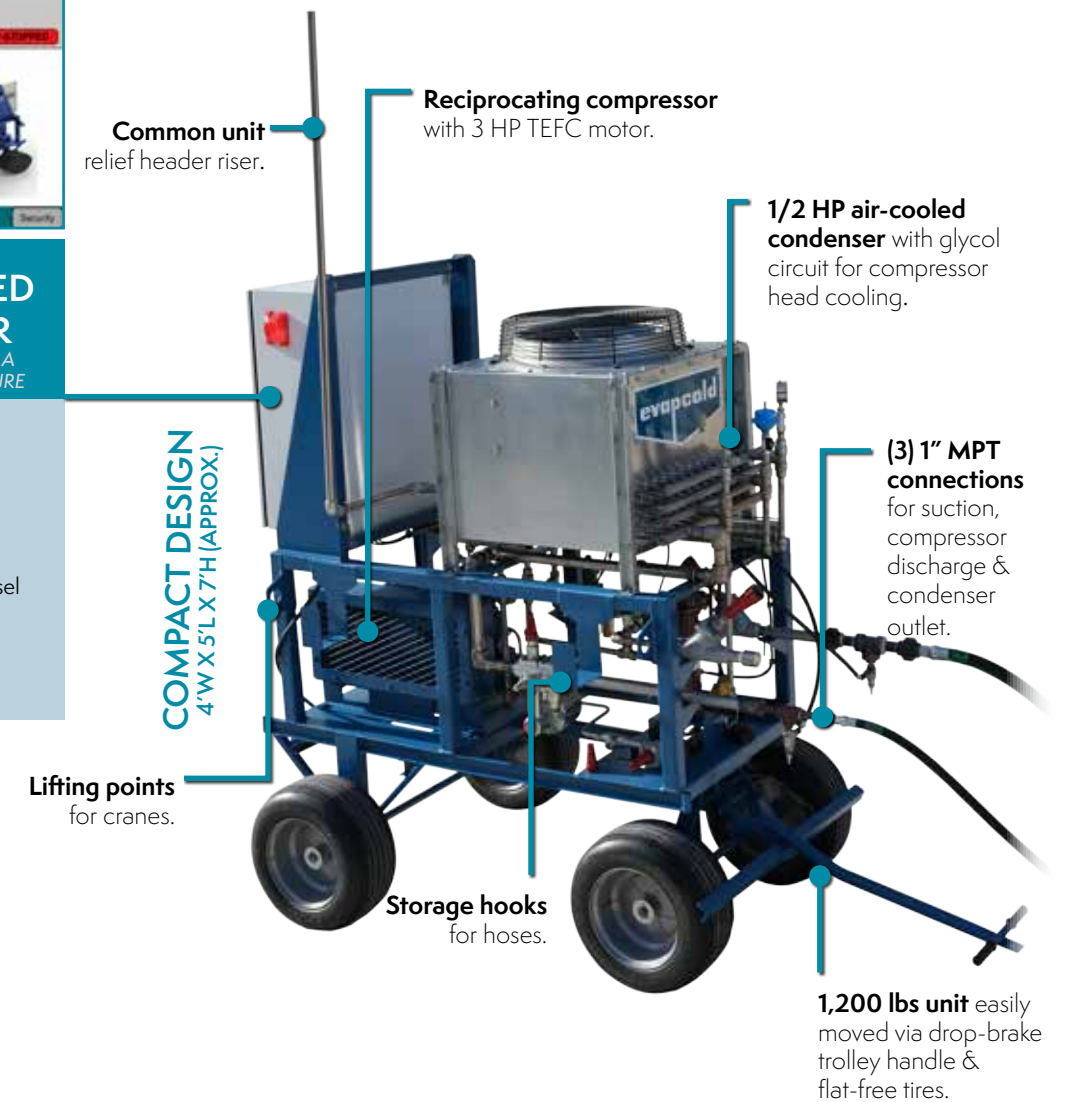


FACTORY MOUNTED PLC CONTROLLER

WITH A COLOR HMI MOUNTED IN A WEATHERPROOF NEMA 4 ENCLOSURE

OFFERS SEVERAL SAFETY FEATURES, INCLUDING:

- High discharge pressure and temperature cutouts
- Low suction pressure cutout
- Plug-in digital input for external vessel high level cutout switch (by others)
- Strobe light and audible horn



The ultimate solution for fast and easy Evapcold® field service in a factory-assembled, mobile package.





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