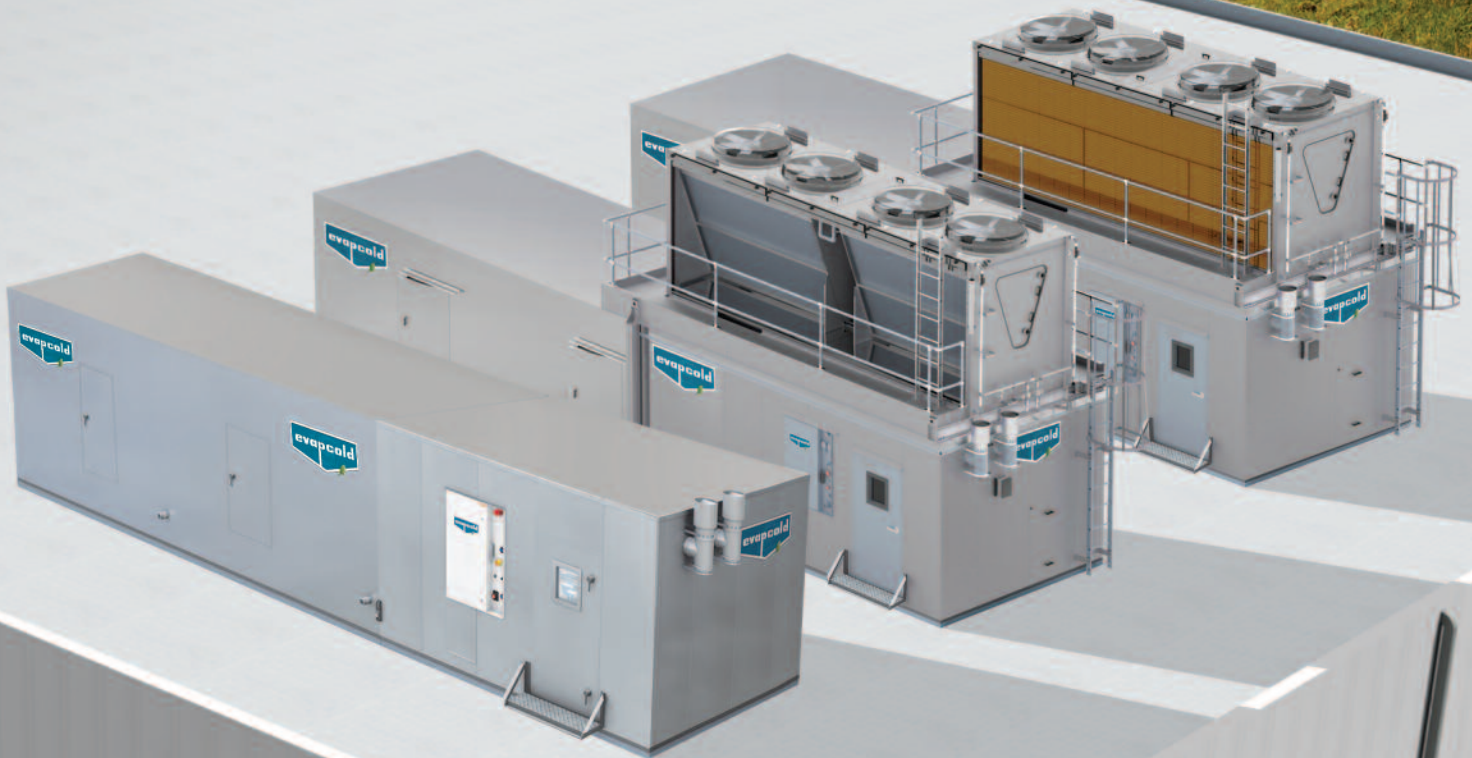




Low Charge Ammonia Refrigeration Systems



The *natural* evolution of ammonia refrigeration



for LIFE

An Employee Owned Company





EVAPCO Global Headquarters, Taneytown, Maryland USA

Since its founding in 1976, EVAPCO, Incorporated 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

Evapcold® is manufactured in Greenup, IL, in a new 100,000 sq. ft. building dedicated to the assembly of all components required for the Evapcold system. The Evapcold manufacturing operation utilizes a lean assembly line process which allows fabrication and assembly at the highest quality and shortest lead time.



Evapcold Manufacturing, Greenup, Illinois



The Perfect Solution

Owners recognize the many benefits of Evapcold, the factory assembled, low charge ammonia refrigeration system that sets the bar for safety, sustainability and operation. Requiring just a fraction of the refrigerant charge associated with traditional field-built systems, each Evapcold unit is expertly crafted as a single-source, optimized solution by EVAPCO, a leader in Research & Development and heat transfer technology. The entire system offers a simple "plug-and-play" installation and a rapid commissioning process which requires significantly less on-site labor than field-built alternatives.

Evapcold products include several state-of-the-art innovations in heat transfer technology, energy efficiency and control for reliable low charge operation. EVAPCO continues to invest in developing new models and configurations under the "Evapcold" brand.

The Evapcold LCR product line (denoting Low Charge Refrigeration) features the highest quality, industry-recognized components and new innovative technologies engineered specifically for low charge package systems. Evapcold Penthouse Systems represent the first in a series of low charge refrigeration products which EVAPCO is developing to meet the current and future needs of the industrial refrigeration industry.

The growing Evapcold product family is another example of EVAPCO's commitment to use its industry leading research and development capabilities to develop product solutions which make life simpler, more reliable and more sustainable for you.

PRODUCT APPLICATIONS

- 10 TR to 100 TR Capacity
- (-)20 F° to (+)55 F° Room Temperature
- Water-Cooled, Air-Cooled or Adiabatic Condensing
- Roof Mounted Penthouse Evaporator Design for Efficient Cooling and Easy Accessibility. Ground Mounted Configurations also Available.

Evapcold LCR Penthouse (LCR-P) Applications Include:

- Cold storage, distribution facilities and refrigerated buildings
 - Designed with a 100% Evapcold LCR solution
 - Designed with a hybrid system utilizing Evapcold LCR's and a smaller field-erected system to optimize energy efficiency, charge and cost
- Facility expansions
 - Eliminates need to expand existing machine room
 - Adds maximum capacity for the minimum additional charge

LCR-P Water Cooled Design



Water Cooled Design Benefits

- Provides maximum energy efficiency and lowest refrigerant charge
- Lowest modular weight
- Lowest overall height



LCR units shown with condenser water piping from fluid cooler (additional roof piping shown serves a separate system)

LCR-P Air Cooled or Adiabatic Design



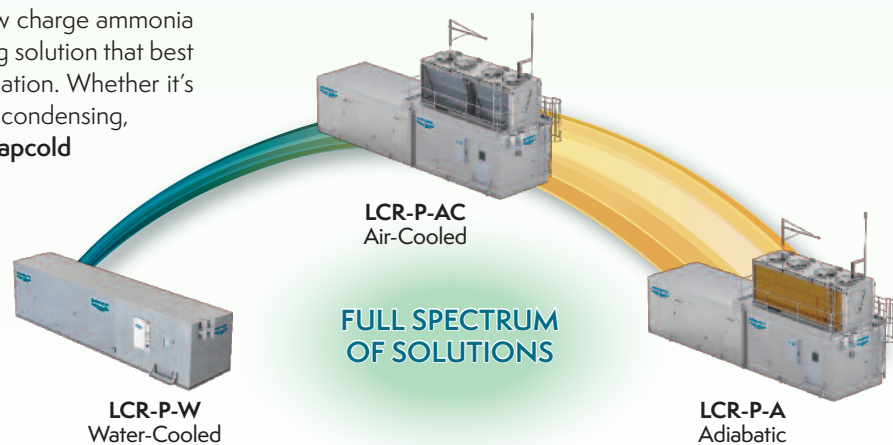
Air Cooled Design Benefits

- Zero water usage
- Eliminates cooling tower and associated water piping
- Complete self-contained units
- Optional adiabatic condensing technology available for improved efficiency in exchange for minimal water usage



The ability to match the Evapcold low charge ammonia package with the optimum condensing solution that best fits your facility is a powerful combination. Whether it's water-cooled, air-cooled or adiabatic condensing, you have the ability to optimize the **Evapcold Full Spectrum of Solutions**.

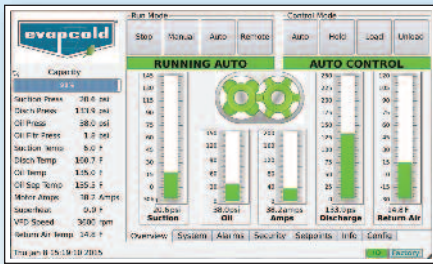
Pick your condensing method and determine the best solution to optimize water usage, energy consumption, and ammonia charge for your site, while reducing regulatory compliance and experience the many other benefits that Evapcold offers!





The Natural Leader in Complete Self-Con

Single-Source Responsibility for Complete System Design, Factory Assembly, Operation and Safety



Touch Screen HMI Control Panel



Main Control Panel – Interior View



Exterior Service Panel

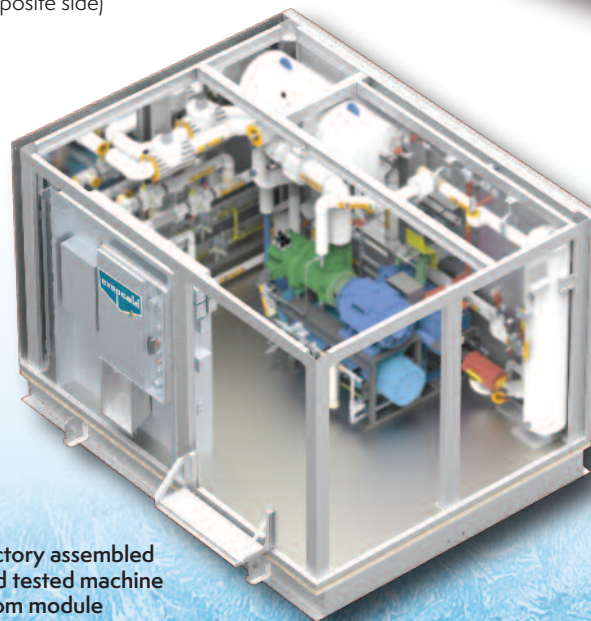
Water-Cooled & Air-Cooled Models Available

(Air-Cooled Shown: Model # LCR-60P-L20-2-H-W)



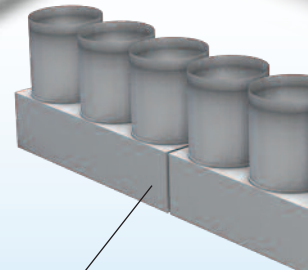
Four Penthouse Access Doors for safety and convenience (two doors not shown on opposite side)

Complete Packaged Machine Room With Patented System Technology

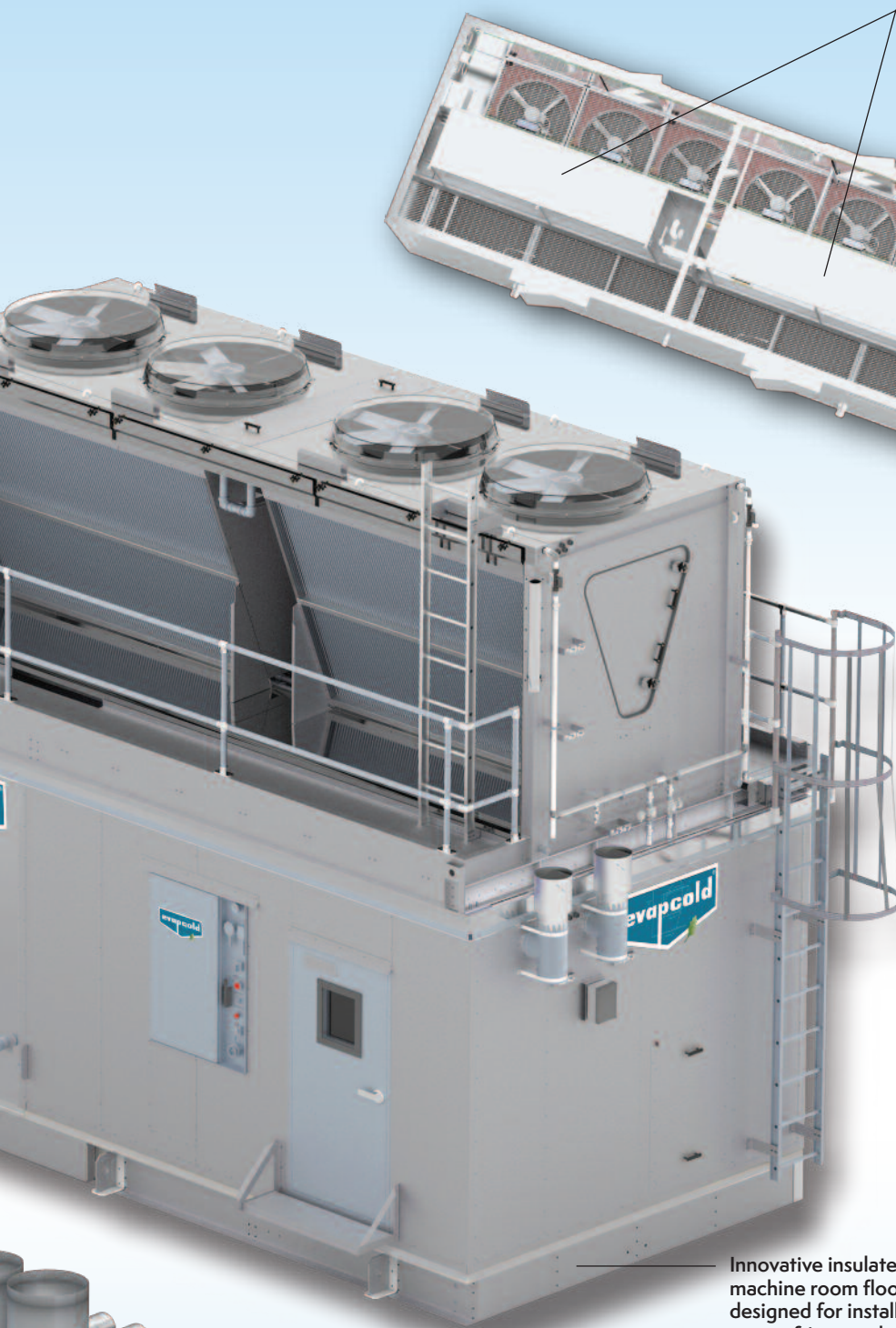


Factory assembled and tested machine room module

Optional Penthouse Ductwork (alternative configurations available)



Maintained Low Charge Ammonia Refrigeration Systems



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

Overhead view of machine room and penthouse modules.

FEATURES AND BENEFITS

- Innovative walk-in machine room design incorporates safety & access requirements.
- High quality screw compressors, valves, controls and piping (95% of system piping is 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.
- Direct ammonia evaporator coils for maximum efficiency.
- Variable speed screw compressor operation for maximum efficiency.
- System control with industry leading microprocessor technology designed specifically for low charge refrigerant systems.

Innovative insulated machine room floor designed for installation over refrigerated space

- Engineered in accordance with industry codes including: IIAR, ASHRAE, IBC, IMC, IFC, UMC, OSHA, NEC and ASME
- True "plug & play" design simplifies installation, start-up and commissioning
- Significantly reduces system ammonia charge to approximately 3-7 lb./TR depending on size and condensing technology
- Compact design reduces piping and eliminates components typically found in high charge systems



Owner & Contractor Benefits

These Benefits Help ALL Stakeholders:

1. Inherently Safer Technology
2. Significantly Lower Regulatory Burden
3. Lower Energy Usage
4. Eliminate Central Machine Room Cost & Space
5. Faster Installation, Commissioning & Owner Occupancy
6. Competitive Cost
7. Reduce Tax Burden with Easier Accelerated Depreciation
8. Lower Life Cycle Costs
9. Incorporates Latest Industrial Refrigeration Technology
10. Single Source Design & Manufacturing



Owners



General Contractors



Refrigeration Contractors



Inherently Safer & Reduced Regulatory Burden

- Stay below OSHA & EPA 10,000 lb. Threshold Quantity
- Fall within IIAR's new ARM-LC (Low Charge) program
- Significantly reduce offsite consequences
- Lower your compliance cost
- Reduce your liability & exposure to fines
- EVAPCO provides operating & maintenance procedures, hazard review, tagging, labeling & signage

Smarter Use of Space

Convert machine room space into profitable space

- Reduce the size or completely **eliminate** your central machine room, saving both cost and space
- Transform machine room space into **revenue generating** product storage, dock doors, production or operations

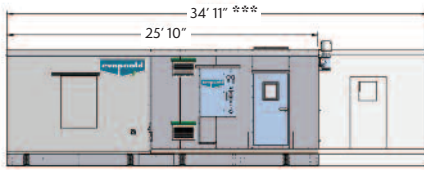


Lower Energy Consumption

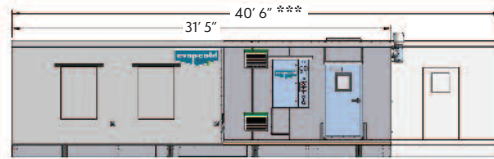
- Eliminates refrigerant piping pressure drops
- Eliminates "house suction levels" – each room has its own suction level
- Optimizes all major equipment with VFD's
- Offers superior facility energy management through better zone control
- Offers easier demand response with your electric utility

- ✓ Remote access
- ✓ Energy management
- ✓ Demand response

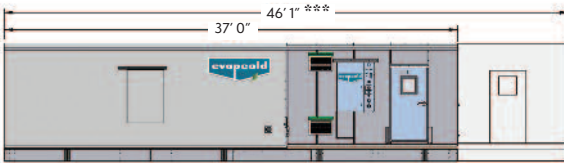




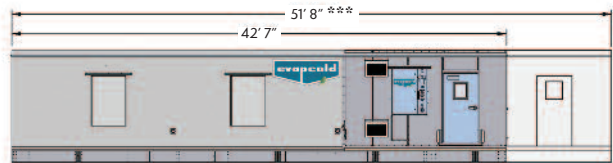
NOMINAL CAPACITIES			LCR MODEL RANGE
Type	TR Range	Room Temp. Range	
HIGH TEMP	10TR to 14TR	38°F to 55°F	LCR-10P-H28 thru LCR-15P-H40



NOMINAL CAPACITIES			LCR MODEL RANGE
Type	TR Range	Room Temp. Range	
HIGH TEMP	15TR to 29TR	38°F to 55°F	LCR-15P-H28 thru LCR-30P-H40
LOW/MED TEMP	10TR to 39TR	-20°F to 35°F	LCR-10P-L30 thru LCR-40P-M25



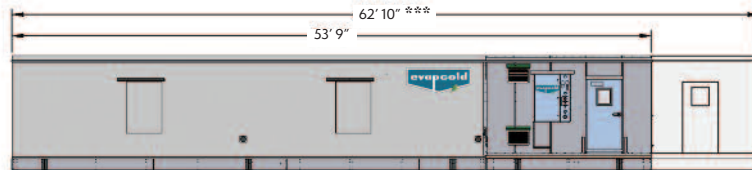
NOMINAL CAPACITIES			LCR MODEL RANGE
Type	TR Range	Room Temp. Range	
HIGH TEMP	30TR to 49TR	38°F to 55°F	LCR-30P-H28 thru LCR-40P-H40



NOMINAL CAPACITIES			LCR MODEL RANGE
Type	TR Range	Room Temp. Range	
HIGH TEMP	50TR to 100TR	38°F to 55°F	LCR-50P-H28 thru LCR-100P-H40
LOW/MED TEMP	40TR to 70TR	-20°F to 35°F	LCR-40P-L30 thru LCR-70P-M25

DIMENSIONS (all units) (ft.-in.)		
L	W	H
(See Unit)	10' 10"	9' 7"

*** Denotes Dual Compressor Penthouse Length



NOMINAL CAPACITIES			LCR MODEL RANGE
Type	TR Range	Room Temp. Range	
LOW/MED TEMP	71TR to 100TR	10°F to 35°F	LCR-80P-M00 thru LCR-100P-M25

The Latest Addition to the LCR-P Penthouse Product Line

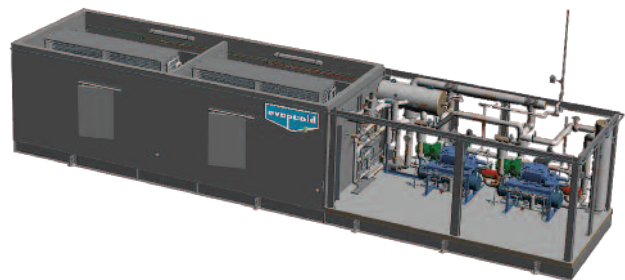


Dual Compressor Penthouse Package



Benefits of Dual Compressors:

- Provides redundancy in Compressor Packages, Evaporators, Condensers & Oil Coolers
- Can eliminate the need for two 50/50 Evapcold packages
- Can reduce roof weight with fewer units
- Reduces individual compressor and motor weights – easier for maintenance
- Very efficient and lower capacity “turn-down”
- Great for Convertible Rooms or Swing Rooms





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Development Center

■ EVAPCO Facilities

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