

R290 Packaged Systems

Hermetic & Scroll Compressors

Condensing Units

Flow Controls

Electronic Controls

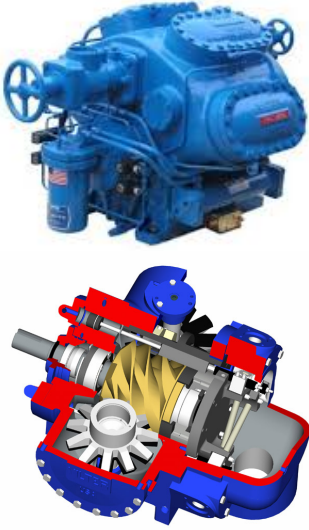


Emerson Natural Refrigerant Options

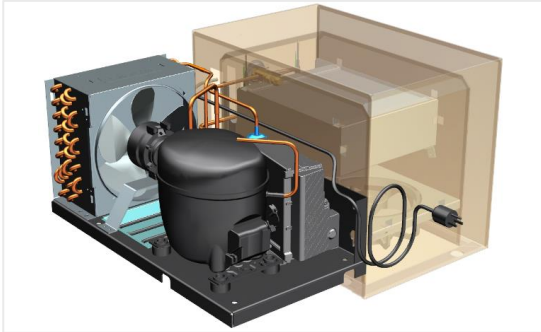
CO₂ Transcritical



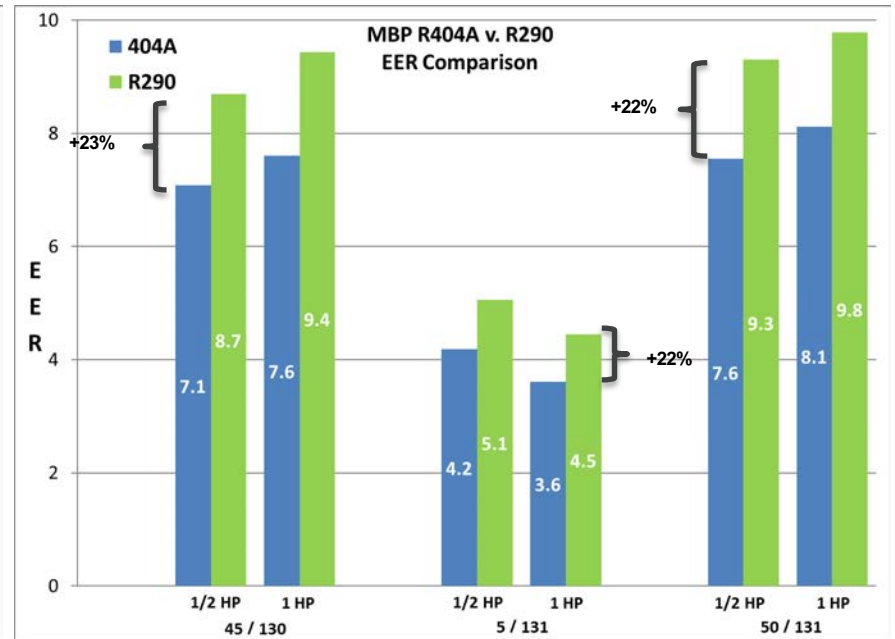
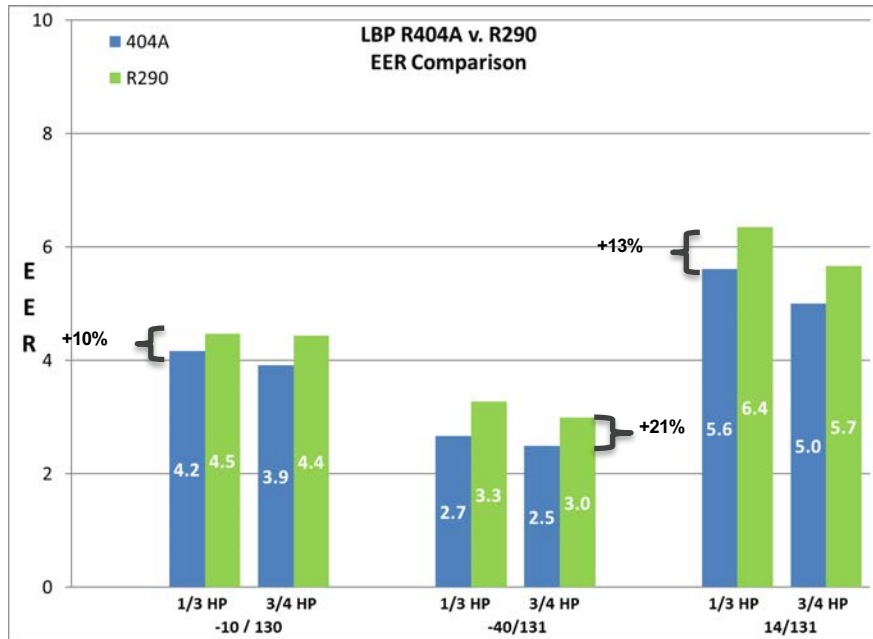
Ammonia – Systems



R-290 Packaged Systems

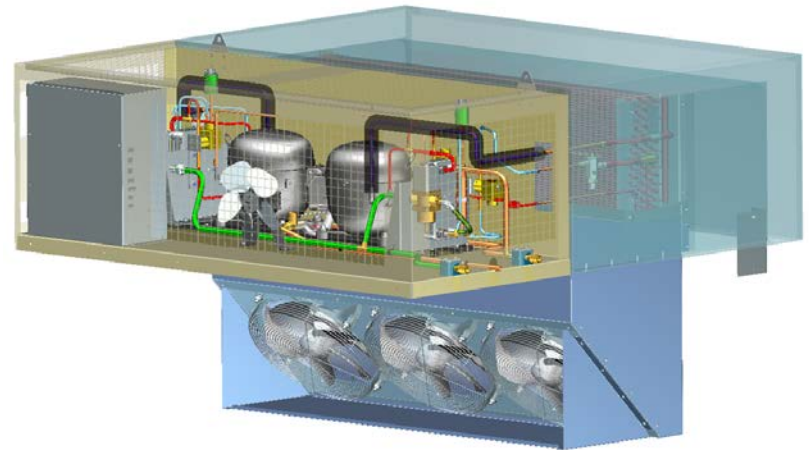
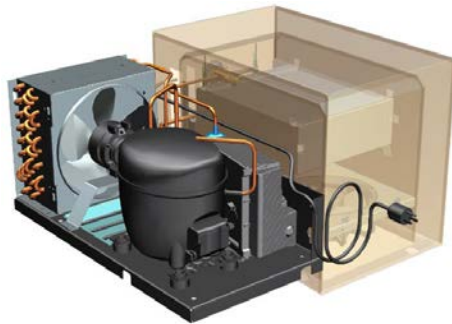


R-404A and R-290 EER Comparison



Results from Emerson's test labs, comparing the Energy Efficiency Ratio (EER) of R-404A to R-290 in medium and low back pressure (MBP), show a significant improvement when using R-290.

Emerson Packaged Systems



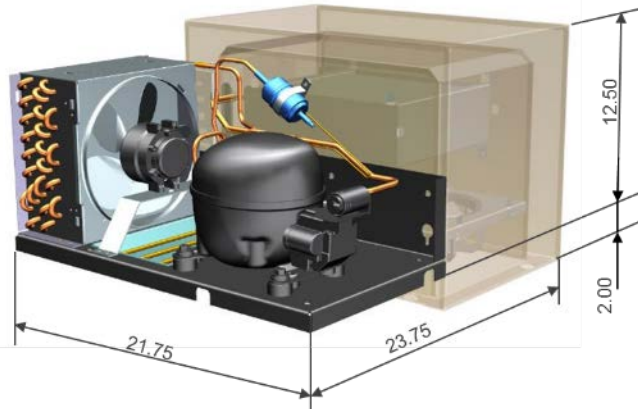


Top Mount Reach In Packaged Systems

Reach-In Packaged Systems Overview (4 SKUs Total)

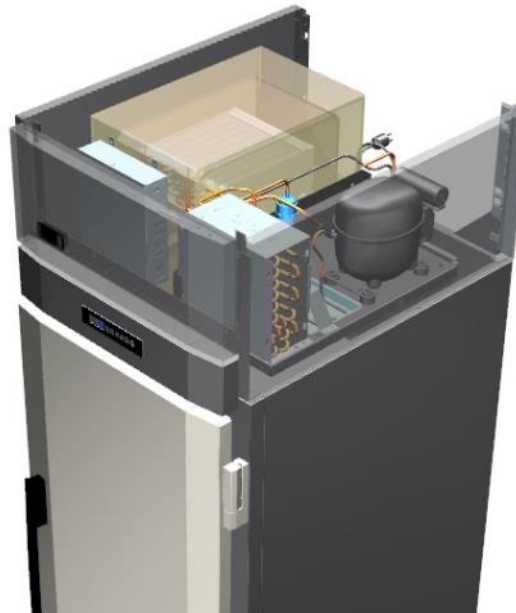
Refrigeration Unit

- Lowest featured unit (non-freezer).
- Capacity to cover up to standard single door cases.



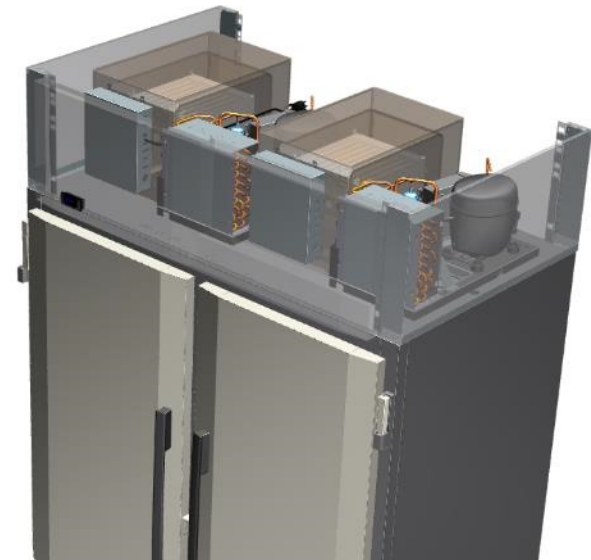
Freezer Unit

- Higher capacity system which operates as a freezer or refrigerator.
- Capacity to cover up to standard single door cases.



Variable Speed Units (2)

- Used on larger single door cases and all multidoor cases.
- Able to run either as a refrigerator or freezer.
- Larger multidoor cases may use more than one unit.

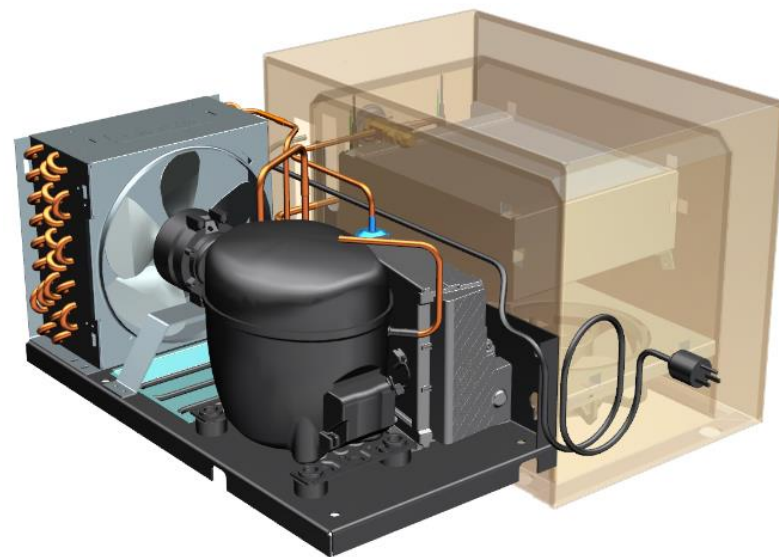


Reach-In Packaged Systems

Current Product Line Features and Benefits

Features	Fixed Speed		Variable Speed	
	✓	✓	✓	✓
Refrigerator	✓	✓	✓	✓
Freezer		✓	✓	✓
Compressor	¼ HP	¾ HP	6cc	13cc
Refrigerant	R-290	R-290	R-290	R-290
Condensate Management	✓	✓	✓	✓
Defrost Heater		✓	✓	✓
TXV		✓	✓	✓
Basic Controller	✓	✓		
Multiplexing Controller			✓	✓
Variable Speed Drive			✓	✓
NSF Compliant*	✓	✓	✓	✓
DOE Compliant*	✓	✓	✓	✓
Energy Star Compliant*	✓	✓	✓	✓

*Regulatory compliance must be validated as a system/case pairing.



Standard Lineup Available

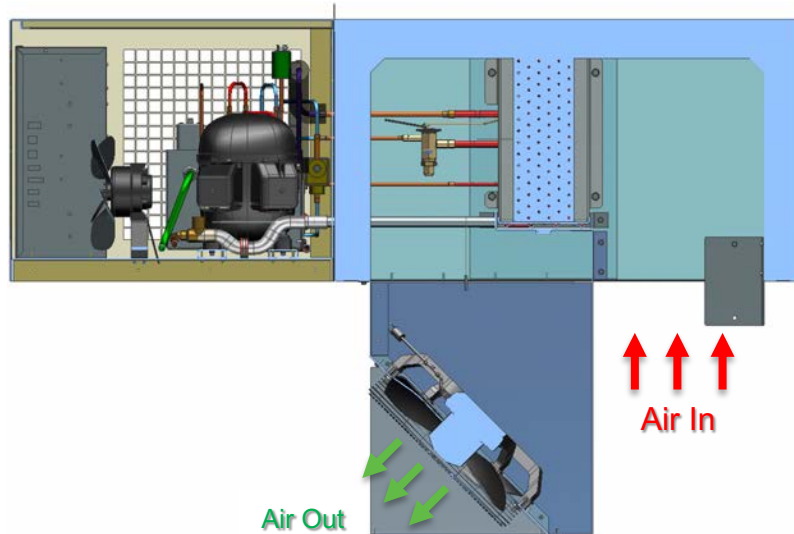
Walk-In Packaged Systems



Walk-in Package System Overview

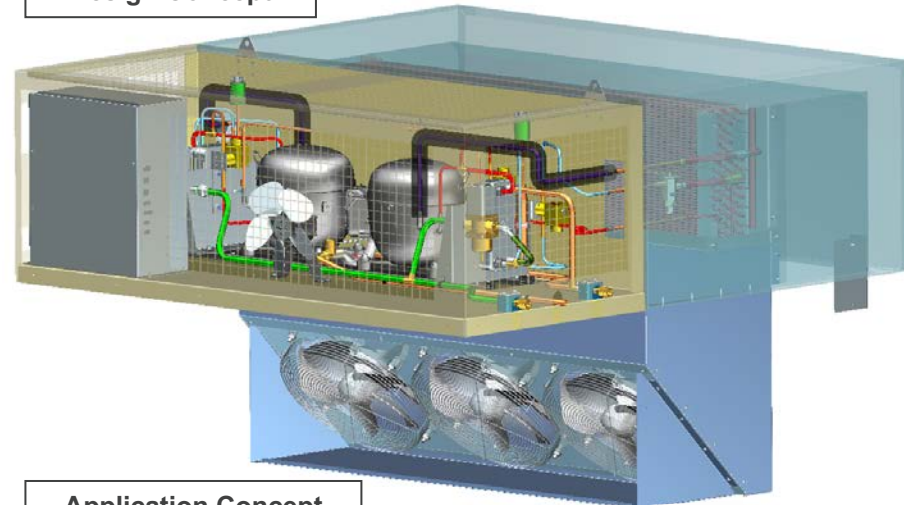
Project Details

- Developed and Built Packaged R290 Systems
 - Medium Temperature System
 - Low Temperature System
 - Water cooled condenser
- Testing
 - Medium Temperature Test
 - Low Temperature Test

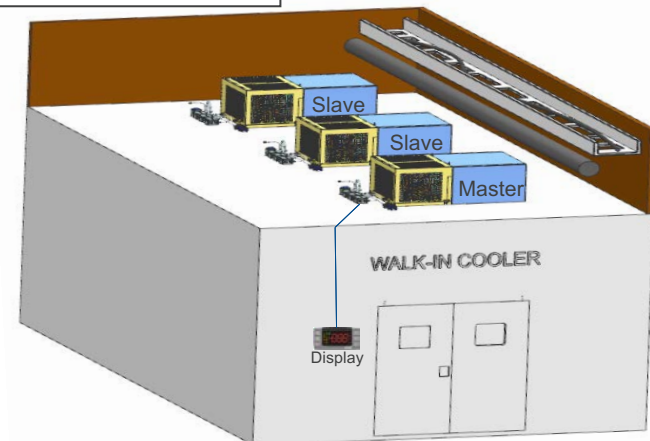


Design Concept

Design Concept

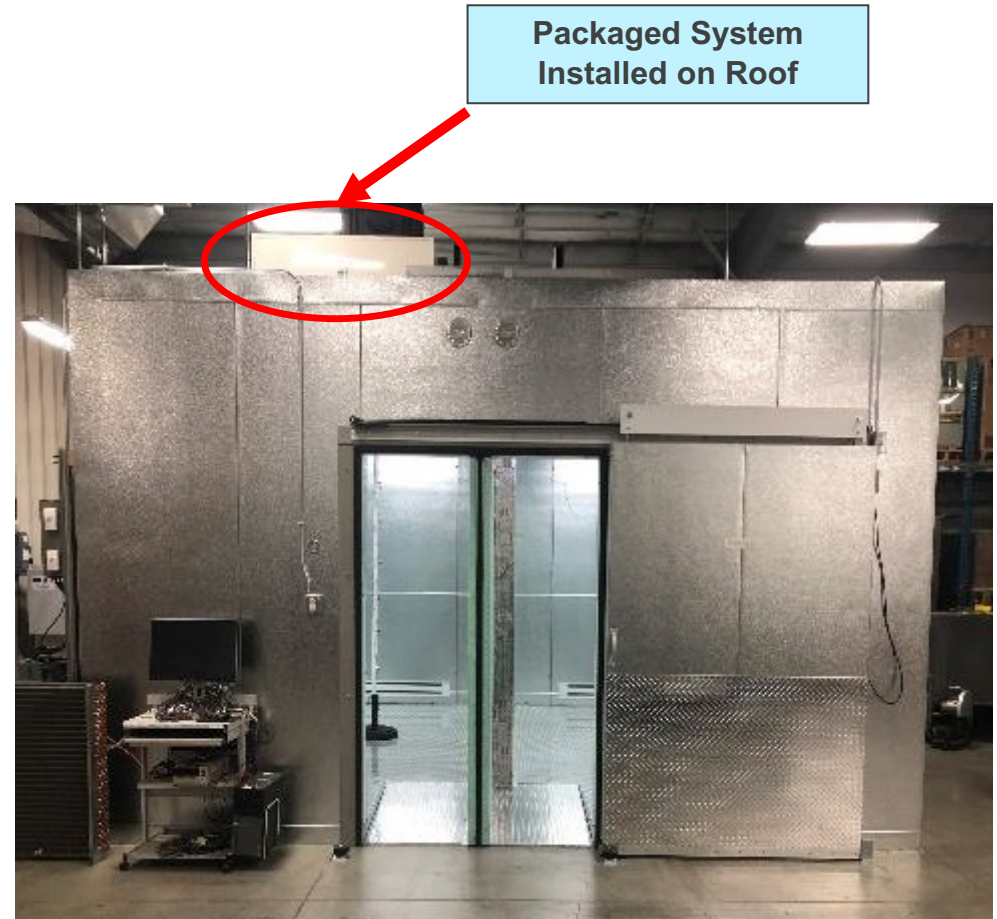


Application Concept



Walk-in Proof of Concept under test

- Walk In Chamber:
 - Overall dimensions 18' x 18' x 10'
 - Able to be separated into 2 rooms (9' x 18' x 10' each)
 - Each room has 1 opening for packaged system on roof
 - Base board heaters used to simulate load

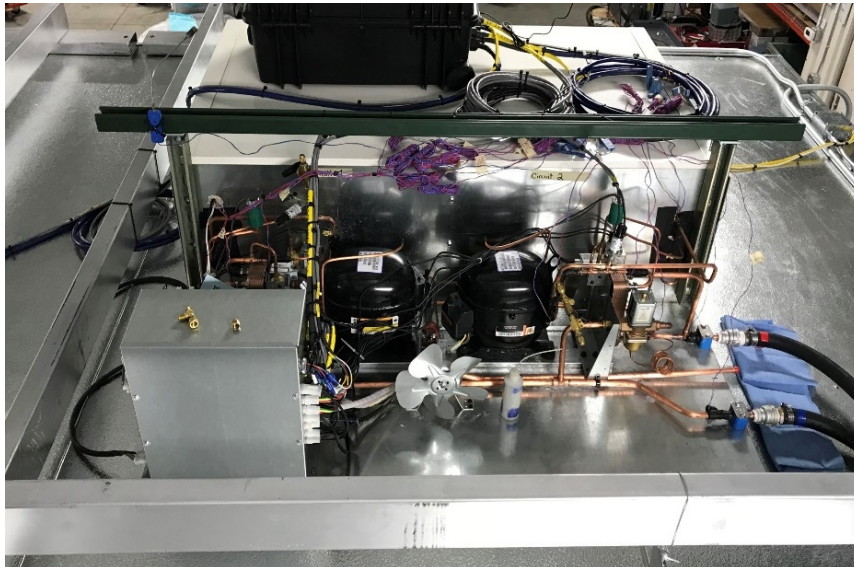


Testing performed with 1 unit on single room (9'x18'x10')

Walk-in Easy Installation

- **Unit installation**

- Ceiling opening for packaged system penetration
- Evaporator blower section drops in opening
- Electrical is plugged in
- Optional: Plumbing attached (water cooled only)

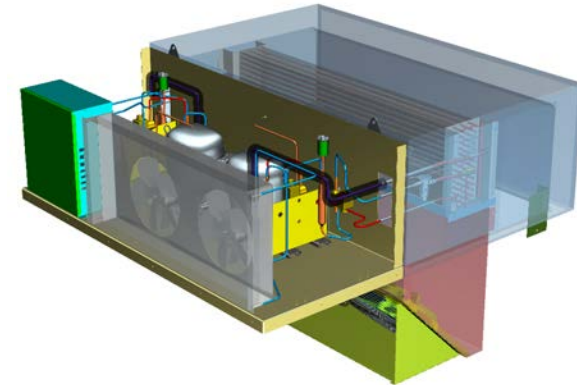
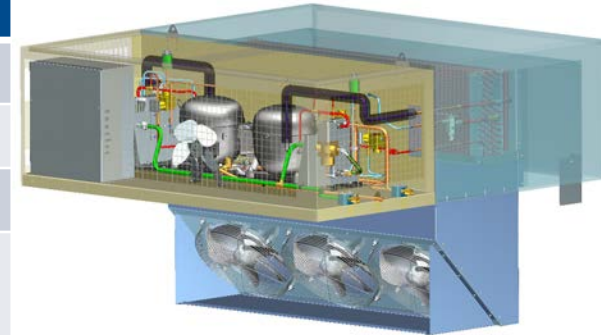


Walk-In Packaged Systems

Potential Product Line Features and Benefits

Features	Water Cooled		Air Cooled	
Refrigerator	✓	✓	✓	✓
Freezer	✓	✓	✓	✓
Refrigerant	HFC	R-290	HFC	R-290
Compressor	Scroll	Multiple Hermetic	Scroll	Multiple Hermetic
Condensate Management	Optional	Optional	Optional	Optional
Defrost Heater	✓	✓	✓	✓
Communications	✓	✓	✓	✓
Variable Speed		Optional		Optional
AWEF	*	*	✓	✓
EPA Compliant	Today	Today & Tomorrow	Today	Today & Tomorrow

*AWEF not applicable on Water Cooled Systems



Multiple Options Available To Support Customer's Applications

Controls and Interface Display Options

- Package Systems Includes Control Of:
 - Compressor
 - Evaporator Fan(s)
 - Condenser Fan(s)
 - Defrost Management
 - Condensate Management
- Poka-yoke Customer Connections
 - Door switch and alarms
 - Lights
 - Face Heaters
 - Anti-Sweat Heaters
 - Displays
 - Communications



GOOD



BETTER



BEST

Integrated Controls Make Systems Plug and Play

Thank You

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