

Hilphoenix.

an Emerson company

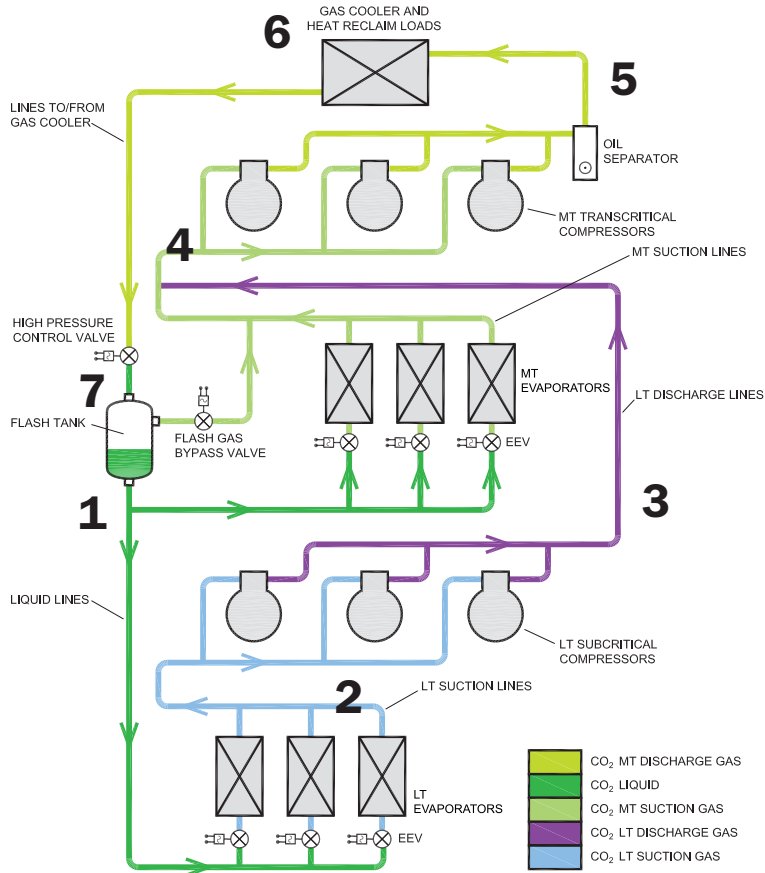
Industrial Refrigeration

Hillphoenix®

A  DOVER COMPANY

The Hillphoenix® name is synonymous with innovative, sustainable and extremely efficient refrigeration systems in a variety of business segments. While much of the company's reputation has been built as the primary choice in the Retail Supermarket category, Hillphoenix brings identical and considerable benefits to industrial refrigeration. Cold Storage, Industrial Refrigeration, Pharma and even Ice Rinks are all prime markets for the Hillphoenix expertise with DX and CO₂ refrigeration systems. No other refrigeration systems supplier can match the years of significant investment in R&D, the commitment to flexible and custom design and the sheer number of solution options available underneath the Hillphoenix name.

Fresh thinking.
Responsible solutions.™

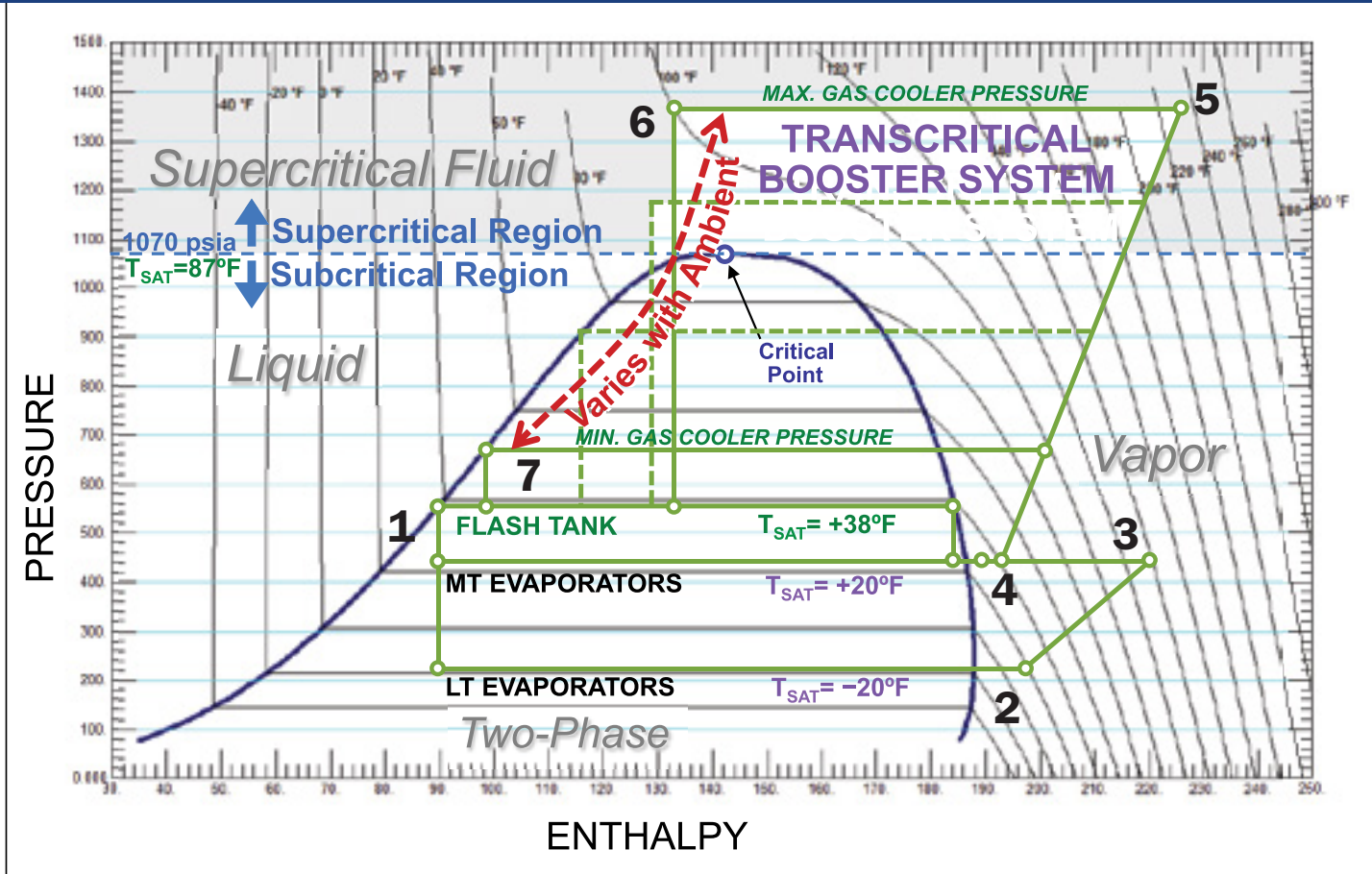


The Advansor CO₂ booster system is defined as a trans-critical CO₂ system that provides both low- and medium-temperature refrigeration evaporators without relying on any other refrigerants.

Here's how it works.

The cooling cycle begins with liquid CO₂ in the flash tank (receiver) **(1)**. A network of pipes distributes the liquid to evaporators specially-designed for optimum operation in CO₂ booster systems. Electronic expansion valves (EEVs) are in place to control the flow of CO₂ into those evaporators **(2)**...Suction gas from the low-temperature evaporators returns to the rack and is compressed by the subcritical compressors to the pressure of the medium-temperature evaporators **(3)**...Suction gas from the medium-temperature evaporators returns to the rack and is combined with discharge gas from the low-temperature compressors and flash gas exiting the flash tank via the flash gas bypass valve **(4)**...This mixture enters the transcritical compressors and is compressed to high pressure **(5)**...From there it is sent to the gas cooler where it is cooled to near ambient temperature — in cooler weather, the CO₂ in the gas cooler condenses similar to conventional systems **(6)**...From the gas cooler, the CO₂ enters the high-pressure control valve where it is expanded back to subcritical pressures **(7)**...The CO₂ then enters the flash tank where it is separated into liquid and gas — and the cycle begins again.

For more information, contact us at: 770.285.3264 or Hillphoenix.com.





The Advansor CO₂ Booster System



Industrial Refrigeration systems have traditionally relied upon two refrigeration coolant technologies for decades. Ammonia has been the de facto standard for very large systems. Synthetic halocarbon refrigerants – in use since the 1920s – account for the rest. Regulations put in place to control the usage of both—ammonia for its safety issues and the synthetics for their ozone depletion and global warming concerns—have made the two coolant technologies extremely problematic.

Enter CO₂ and Advansor by Hillphoenix.

The Advansor Trans-critical booster system utilizes only one refrigerant—the abundantly available, completely sustainable and economical CO₂. CO₂ is neither flammable nor toxic, making it ideal in terms of installation and system operation. Further, all Advansor booster systems are carefully manufactured to achieve optimal, safe, and service-friendly operation. State-of-the-art oil control, flash gas control, and pressure regulation systems make Advansor the most reliable and energy-efficient CO₂ refrigeration system on the market.

Business owners preparing to invest in a new refrigeration system must weigh all factors that impact their Total Cost of Ownership. Environmental impact and compliance – or lack of compliance – must loom large in those considerations. Supplier credibility is just as important—and Hillphoenix has over a decade of experience and over 1500 trans-critical CO₂ systems installed worldwide. Hillphoenix closes the deal with a commitment to provide guidance and training in the newest innovations and installation and maintenance best practices through the Hillphoenix Learning Center.

Benefits

- Easier to operate than NH₃ systems.
- More cost-efficient TCO (total cost of ownership) than NH₃ in terms of equipment, installation, and service.
- Quick and simple commissioning.
- CO₂ in cold storage areas and processing areas is safer for product and people than NH₃.
- Systems are lighter weight and command a smaller footprint.
- 100% HFC free.
- High quality heat reclaim opportunities for under-floor heating and process heating loads.
- More efficient than HFC refrigerant systems in certain climates.

Features

- Variable speed drives on lead medium-temp compressor.
- Air-cooled and adiabatic gas coolers with variable speed fans as an option.
- Electronic-controlled high pressure and flash gas bypass valves ensure optimal performance in all ambient conditions.
- Simple electronic oil management system ensures adequate lubrication for longer compressor life.
- Reliable, proven reciprocating compressors.
- Electronic expansion valves provide efficient evaporator operation.

Options

- Can be packaged in HillPhoenix Paratemp or Weatherpac units with factory-piped gas cooler on common frame.
- De-superheater on low temperature compressor discharge for increased energy efficiency.
- Variable frequency drives on low-temperature compressors for increased energy efficiency.



ERIC is the key.

ERIC — Electronic Refrigerant Injection Control — is a patented technology developed for freezers, blast freezers, coolers and temperature controlled environments that reduces the amount of ammonia necessary in a system to only 8 ounces of ammonia per ton! This ultra-low-charge eases regulatory liability and personal safety concerns as well as oversight and staffing needs.

A ton of choices.

NXTCold refrigeration systems come in four distinct series from 5 to 150 tons. They are an extremely cost-effective solution for high and low temp applications. With the looming phase-out of HFC and HCFC systems, the timing is perfect. For new construction, for increasing refrigeration capacity, or to simply improve system performance and reduce operating costs, an ultra-low-charge NXTCOLD ammonia refrigeration system is an ideal choice.

Series:	1ST-1F	1ST-2F	1ST-3F	1ST-4F	1ST-5F
Capacity Range:	5 to 20 TR	10 to 40 TR	30 to 90 TR	50 to 120 TR	70 to 160 TR
Ammonia Charge:	40 to 160 oz	160 to 320 oz	240 to 800 oz	400 to 1,200 oz	560 to 1,280 oz
*Type A Footprint (8'-6"):	7'-3" x 16'-6"	7'-3" x 20'-0"	7'-3" x 23'-6"	7'-3" x 27'-0"	N/A
Type B Footprint (9'-6"):	N/A	11'-11" x 23'-6"	11'-11" x 27'-0"	11'-11" x 31'-0"	11'-11" x 35'-0"
Lowest Capacity Weight:	7,500 lbs	10,000 lbs	12,500 lbs	15,000 lbs	22,500 lbs
Highest Capacity Weight:	15,000 lbs	20,000 lbs	25,000 lbs	30,000 lbs	37500 lbs
Room Temperature Application Range -35 to 50°F					
Convertible Configuration Available	x	x	x	x	x

* Type A Footprint ships in a standard container

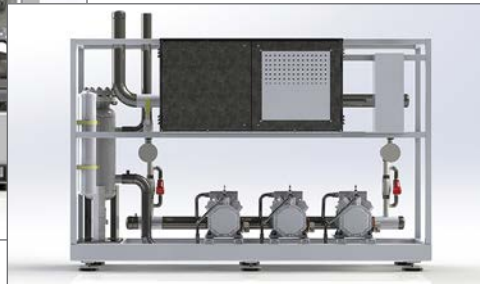
CO₂ Cascade Systems *A Cascade of Benefits!*

Parallel Rack Technology Doubles Down on Efficiency

The Hillphoenix® CO₂ Cascade refrigeration product line combines one of nature's most abundant elements — CO₂ — with a secondary coolant of choice (ammonia, glycol, HFC etc.) in a parallel rack design that increases redundant capacity and refrigeration system availability.

Hillphoenix has spent years developing and refining the compressor technology employed in the CO₂ Cascade systems. The compressors are durable and reliable and will deliver long, uninterrupted operations. But when service is required, the parallel rack design has a distinct, built-in advantage.

Multiple compressors linked in parallel eliminate the costly inconvenience of downtime — scheduled or otherwise — because one compressor can be isolated for maintenance while the others in the system pick up the slack by adjusting their output to match load demands. There will be no interruption or degradation of service whatsoever. Maintenance is a breeze and serviceability enhanced when compressors are linked in a parallel rack configuration.



Save Energy.

Compressors in a Hillphoenix Cascade System are carefully selected to match refrigeration loads precisely so that only a minimal amount of electrical energy will be required at any one time.

Save Space.

Hillphoenix designs its parallel rack systems with integrated power and control enclosures pre-installed which results in a more compact footprint. As a result, valuable floor space is freed up that can be made available for other uses.

Save Hassle.

Every parallel rack assembly is configured, built, installed and tested at the factory before it is shipped. The system is mounted on a skid and the entire, one-piece assembly is shipped right to the job site without hassles or hiccups.

Multiple Applications

End users concerned with reducing the overall operating costs as well as the amounts of refrigerant required by the systems in their cold storage, process cooling, biopharma and ice rink applications will find that benefits and peace of mind go hand-in-hand with a CO₂ Cascade parallel rack system from Hillphoenix.

CO₂ Cascade Systems Rack Specifications

Number of Compressors	2	2	2	3	3	3	4	4
Capacity (Tons of refrigeration)	4	23	43	65	79	98	115	144
Total Brake Horsepower	4	20	36	53	65	81	95	119
L x W x H	96"x48"x80"	96"x48"x80"	96"x48"x80"	120"x48"x80"	120"x48"x80"	120"x48"x80"	144"x48"x80"	144"x48"x80"
Weight	1577	1785	1927	2174	2304	2461	2681	2500

Operating Conditions - R-744 Refrigerant, -20°F saturated suction temp, 20°F condensing temperature, no sub cooling

Hillphoenix.

an AMEREN company

Fresh thinking.
Responsible solutions.™

Conyers, GA USA

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hillphoenix.com