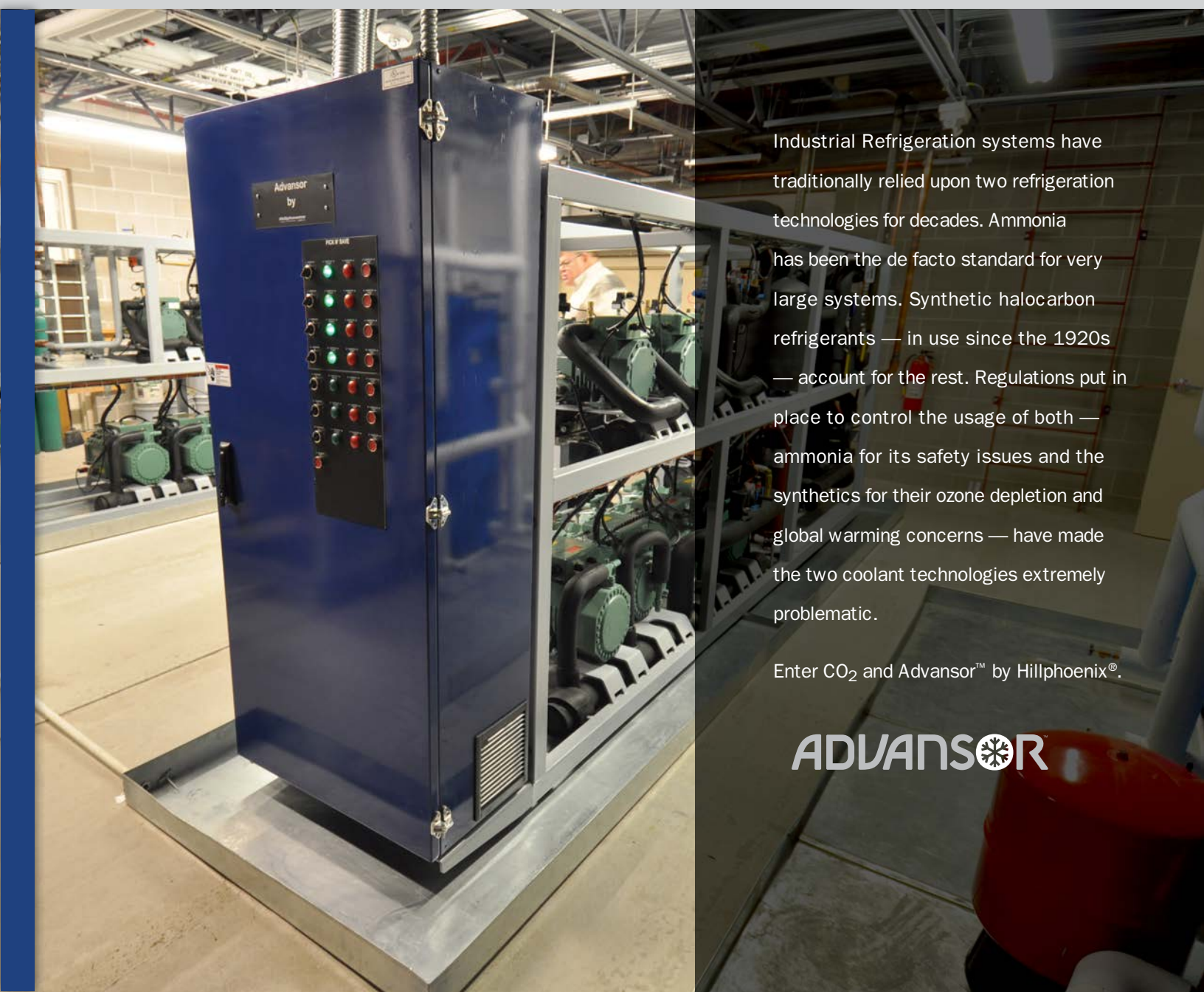
Hillphoenix

Industrial
Refrigation

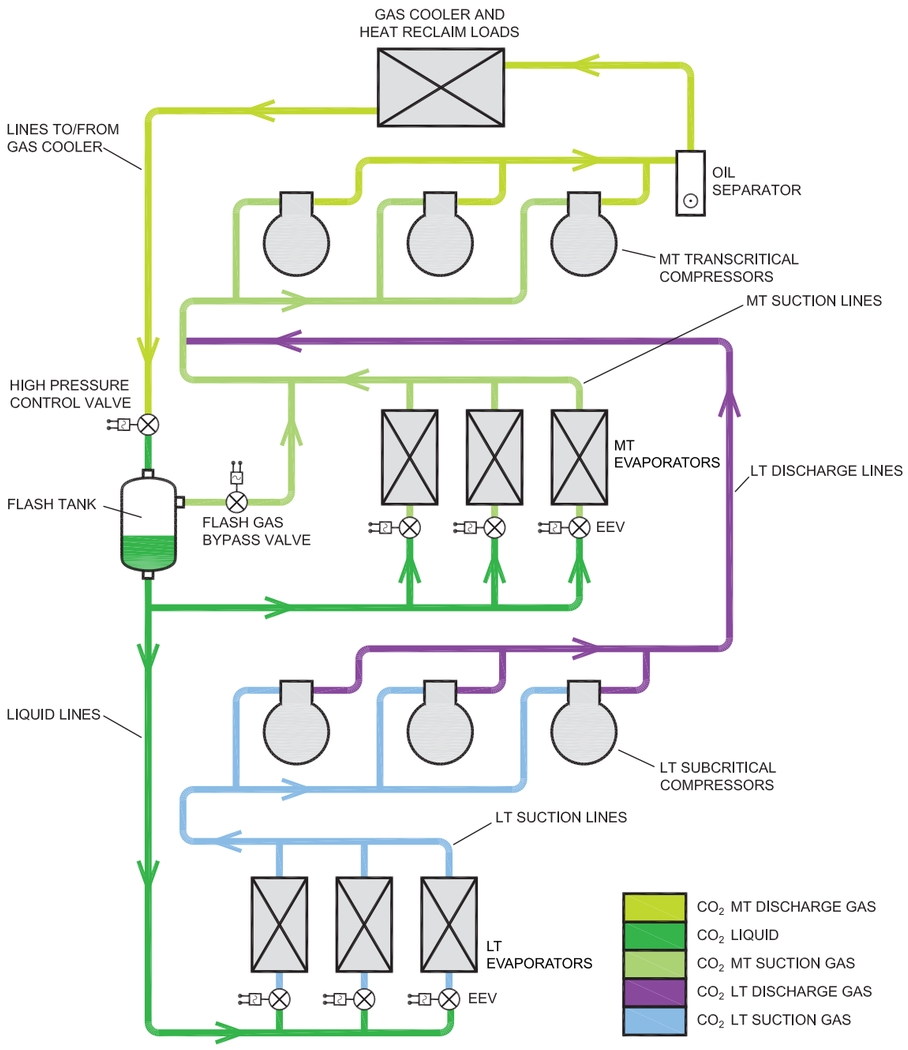
The Advansor CO_2 Transcritical System



Industrial Refrigeration systems have traditionally relied upon two refrigeration 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 CO_2 and Advansor™ by Hillphoenix®.

ADVANSOR™



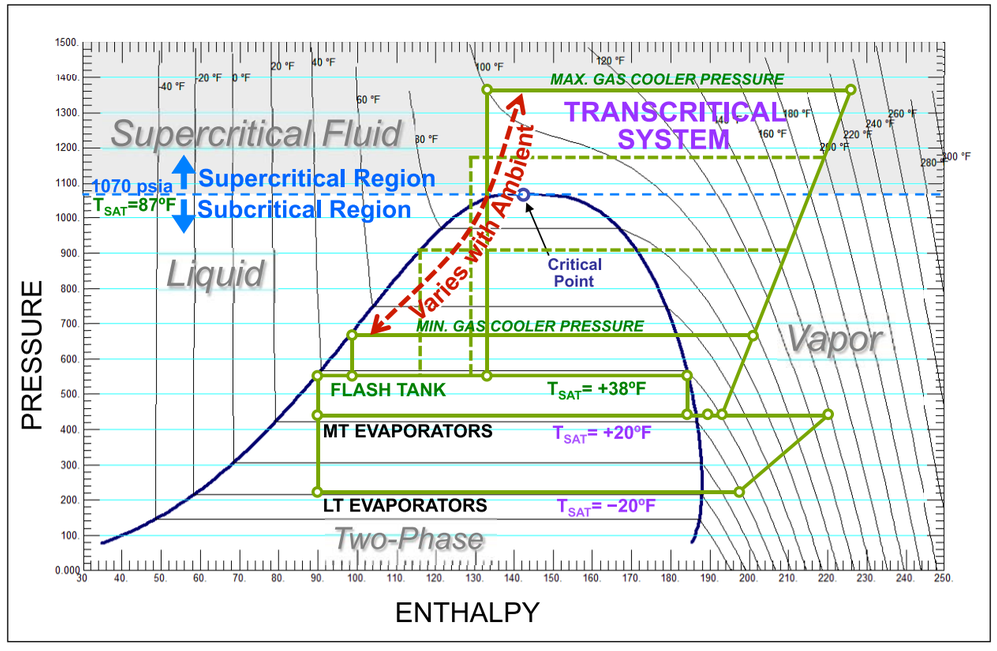
The Advansor transcritical system utilizes only one refrigerant — the abundantly available, completely sustainable and economical CO_2. CO_2 is neither flammable nor toxic, making it ideal in terms of installation and system operation. Further, all Advansor transcritical systems are carefully manufactured 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 CO_2 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 transcritical CO_2 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.

Here's how it works.

The cooling cycle begins with liquid CO_2 in the flash tank (receiver) **(1)** A network of pipes distributes the liquid to evaporators specially designed for optimum operation in CO_2 transcritical systems. Electronic expansion valves (EEVs) are in place to control the flow of CO_2 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 CO_2 in the gas cooler condenses similar to conventional systems **(6)** From the gas cooler, the CO_2 enters the high-pressure control valve where it is expanded back to subcritical pressures **(7)** The CO_2 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.



Benefits

- Easier to operate than NH_3 systems.
- More cost-efficient TCO (total cost of ownership) than NH_3 in terms of equipment, installation, and service.
- Quick and simple commissioning.
- CO_2 in cold storage areas and processing areas is safer for product and people than NH_3.
- 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-temperature 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

- Pre-engineered outdoor enclosure on common frame with or without optional factory-piped gas cooler.
- De-superheater on low-temperature compressor discharge for increased energy efficiency.
- Variable frequency drives on low-temperature compressors for increased energy efficiency.

Hillphoenix

Conyers, GA USA
844.591.5937
hillphoenix.com

DOVER FOOD RETAIL