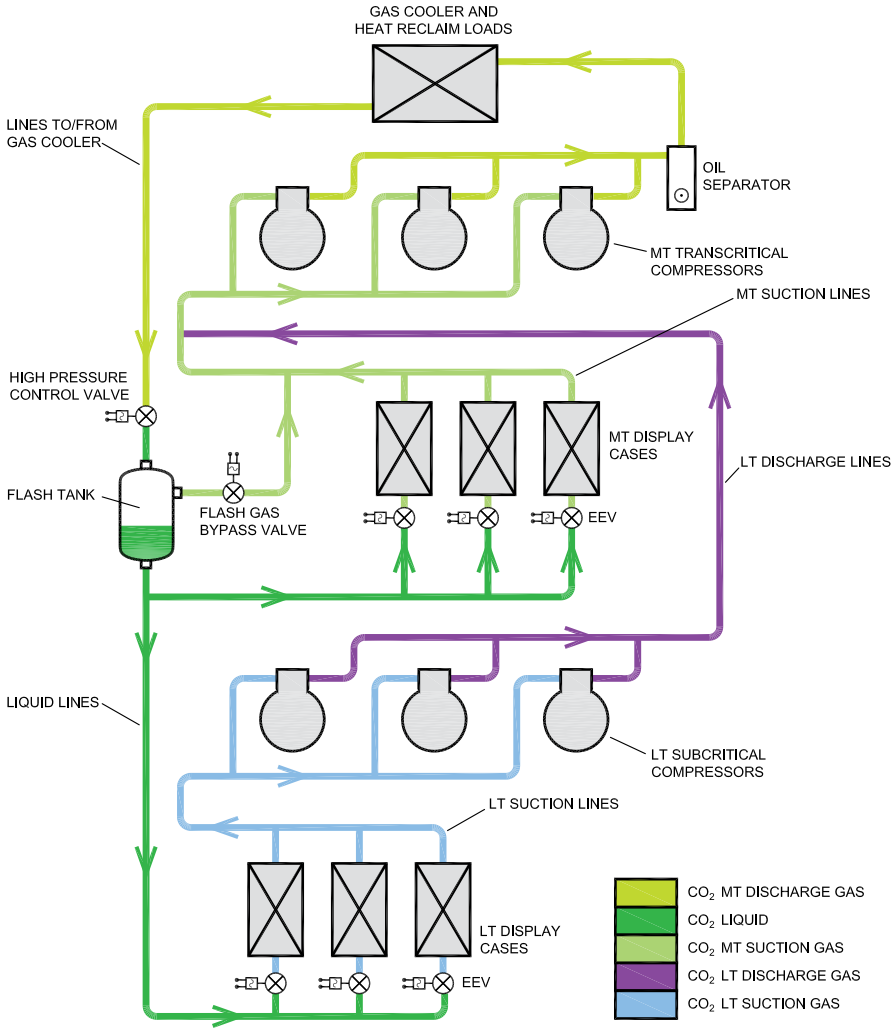

ADVANSOR
PART OF THE SECOND NATURE FAMILY BY HILL PHOENIX.
HILL PHOENIX

Our Hill PHOENIX Second Nature family is proud to introduce Advansor CO_2 booster systems – the newest member of our sustainable line of refrigeration systems. The Advansor CO_2 booster system is an HFC-free refrigeration alternative that utilizes carbon dioxide as the only refrigerant in the system. Now, Hill PHOENIX customers can take advantage of the inherent benefits of CO_2 and combine them with those of Second Nature - reducing direct refrigerant emissions to the lowest level possible.

ADVANSOR™

Basic CO_2 Booster System Design



The Advansor CO_2 booster system is a transcritical CO_2 system that provides both low- and medium-temperature refrigeration to display cases and walk-ins without relying on any HFC refrigerants.

The cooling cycle begins with liquid CO_2 in the flash tank (receiver). The liquid is distributed to coolers, freezers, and cases via a network of copper piping. Electronic expansion valves (EEVs) control the flow of CO_2 into the evaporators which have been specially designed to ensure efficient operation in CO_2 booster systems. 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. Suction gas from the medium-temperature evaporators returns to the rack and is combined with the discharge gas from the low-temperature compressors and with flash gas exiting the flash tank via the flash gas bypass valve. This mixture enters the transcritical compressors and is compressed to high pressure and 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.

From the gas cooler, the CO_2 enters the high-pressure control valve where it is expanded back to subcritical pressures. The CO_2 then enters the flash tank where it is separated into liquid and gas and the cycle begins again.

Advansor Benefits

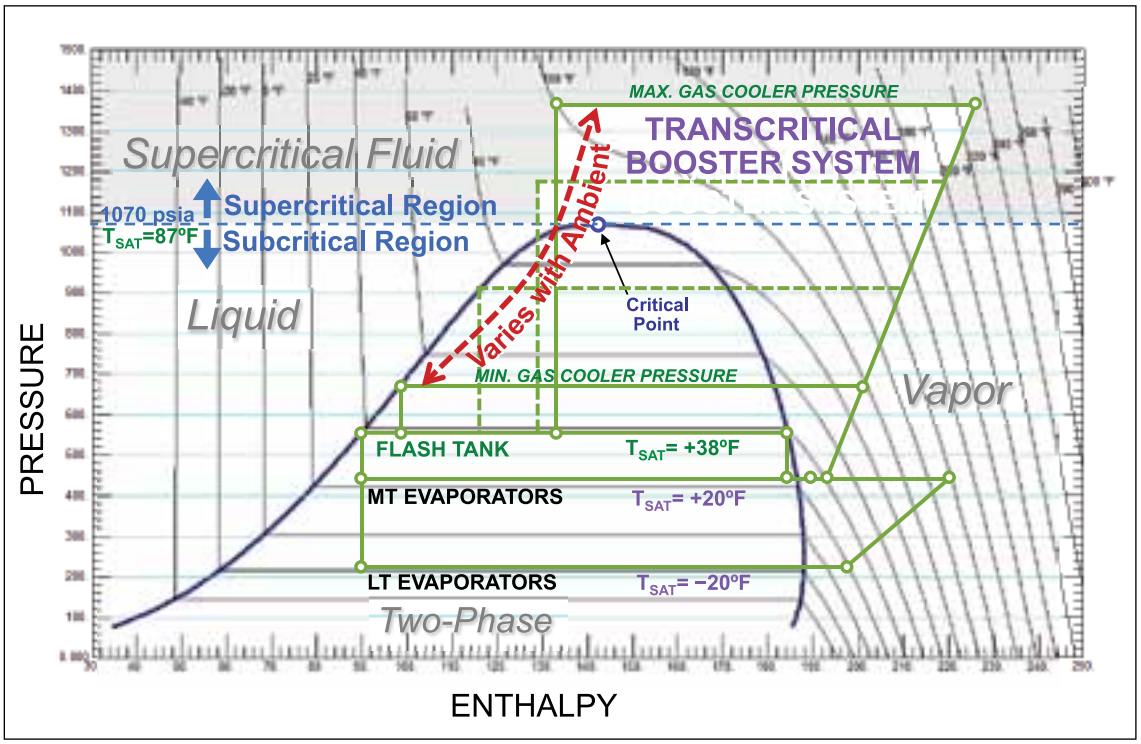
- It's an HFC-free system – CO_2 (R-744) is the only refrigerant used.
- CO_2 is a "natural refrigerant" that is non-ozone-depleting (ODP=0) with almost no global warming potential (GWP=1).
- CO_2 transcritical systems have proven themselves in thousands of installations throughout Europe.
- Advansor technology has a 5-year track record with over 500 installations and counting.
- The system's higher quality heat reclaim opportunities improve store energy performance.
- Advansor systems require a lower CO_2 charge and have a smaller weight and footprint compared to CO_2 secondary systems.
- More efficient than conventional HFC systems in some climates.
- An excellent way to help achieve GreenChill Platinum-Level Certification.

Advansor Features

- Air-cooled gas cooler with variable-speed fans.
- Electronic-controlled, high-pressure control valve and flash gas bypass valve ensure optimal performance at all ambient conditions.
- Simple electronic oil management system ensures adequate lubrication and long compressor life.
- A suction accumulator and heat exchanger protect low-temperature system from liquid flood-back.
- CO_2 reciprocating compressors for both low- and medium-temperature loads have proven themselves in thousands of installations worldwide.
- Specially-designed evaporator coils for CO_2 direct expansion operation provide good oil return back to the system.
- Electronic expansion valves on all evaporators ensure efficient coil operation.

CO_2 Booster Cycle

CO_2 Booster System on P-h Diagram



Advansor Gets Results

Standard Equipment:

- CO_2 reciprocating compressors, which have proven themselves in thousands of installations world wide.
- Variable-frequency drive on lead medium-temperature compressor.
- Cases and walk-in unit coolers equipped with electronic expansion valves and electric defrost.

Optional Equipment:

- Heat reclaim heat exchangers can be factory-mounted.
- Air-cooled, CO_2 discharge gas de-superheater for increased energy efficiency.
- Variable-frequency drive on low-temperature compressor group.
- Factory-piped gas cooler on common frame with Second Nature Advansor CO_2 rack.

Display Cases Complete the Picture:

A full range of standard and specialty display cases with evaporators specifically designed for operation with the Advansor CO_2 booster system are available.

The new Advansor CO_2 booster systems are a welcome addition to the Second Nature family and reflect the Hill PHOENIX commitment to providing a wide range of quality refrigeration solutions to our customers.

For more information about Advansor or any other Hill PHOENIX product, please contact your Hill PHOENIX representative today.

Equipment Options

Hill PHOENIX®
REFRIGERATION SYSTEMS

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