

TerraChill DX2

BRINGING BACK THE DX WITHOUT THE GWP

- A natural refrigerant solution.
- Lower HFC charge.
- Subcritical operation.
- Minimal energy impact.



TerraChill DX2 – The CO₂ Cascade Rack.

A natural refrigerant solution.

Hussmann's TerraChill DX2 is a low temperature subcritical direct expansion refrigeration solution using CO₂, a naturally occurring refrigerant. The use of CO₂ as a refrigerant reduces the HFC charge with a minimal impact on energy efficiency to reduce the carbon footprint of the system.

Subcritical operation.

TerraChill DX2 is a subcritical CO₂ system. Unlike CO₂ secondary or liquid recirculation systems, subcritical CO₂ systems use a vapor compression cycle similar to traditional direct expansion systems. Instead of condensing against ambient air or water, the CO₂ condenses against a primary refrigerant such as R404a.



Lower HFC charge.

TerraChill DX2 can reduce HFC charge up to 70% compared to typical central direct expansion systems. TerraChill DX2 is able to do this by using CO₂ as the cooling media in the display cases and unit freezers, while a small amount of HFC is used to condense the CO₂.

Estimated HFC Refrigerant Charge Comparison (LT and MT)

System	Air-Cooled	Water-Cooled
Central DX Rack	2200 Lbs	1900 Lbs
TerraChill DX2	770 Lbs	550 Lbs
% Reduction	65%	71%

Minimal energy impact.

Because of its subcritical operation, TerraChill DX2 will have a minimal increase in energy consumption versus a traditional direct expansion system. The CO₂ compressors are able to cycle on and off with load variations thus saving energy. The cases and unit freezers use electronic expansion valves and case controllers which ensures that the proper superheat is always maintained.

HUSSMANN UNDERSTANDS THE GROWING REFRIGERANT NEEDS REQUIRED FOR TODAY'S MARKETPLACE. THE TERRACHILL DX2 FEATURES A NATURAL REFRIGERANT SOLUTION THAT REDUCES THE HFC CHARGE AND OFFERS A LOWER CARBON FOOTPRINT.

Terrachill DX2 environmental advantages vs. traditional rack systems.

- Use of a lower cost natural refrigerant:
 - GWP of 1 vs. R404a with 3920.
 - Approximately an 80% reduction in total refrigerant cost.
- 60-70% reduction HFC charge:
 - All HFCs are removed from the sales area for low temperature loads.
 - Primary HFC receivers sized for winter flooding charge.
- 50-70% reduction in HFC leak rate:
 - HFCs can only be found in the machine room and the condenser, dramatically reducing the risk of refrigerant leaks.
- 30-50% reduction in carbon footprint:
 - Reduction in the HFC charge.
 - Lower HFC leak rates.
 - Use of CO₂ as refrigerant.
 - Minimal increase in energy consumption.
- Less copper piping required:
 - CO₂ has 7x the volumetric efficiency of R404a which reduces line sizing tremendously.

Other features.

- Standard EEV for cascade condensers:
 - Danfoss, Sporlan, or Emerson.
 - Accurately controls superheat and minimizes CO₂ temperature fluctuations.
- Scroll or reciprocating CO₂ compressors:
 - VFDs available on reciprocating compressors.
 - Digital modulation available on scroll compressors.
- Standard liquid to suction heat exchangers for primary and CO₂ sides:
 - Reduces the risk of liquid reaching the compressors.
- Electric defrost.
- Water heat reclaim de-super heater standard:
 - Improves efficiency and protects the cascade condenser.
 - Air heat reclaim optional.

Operational ranges.

- Saturated suction temperatures from -25°F to -15°F.
- CO₂ condensing temperatures from 22°F to 30°F:
 - 27°F is recommended for optimal efficiency.
- 7°F approach temperature on the cascade condenser.

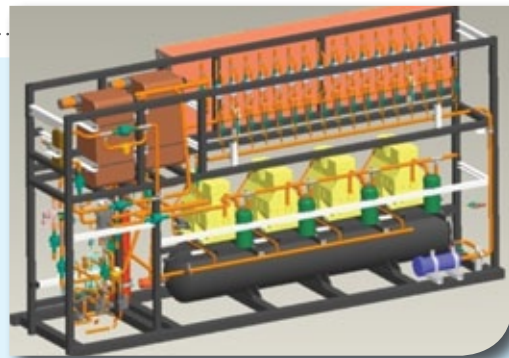


CENTRAL DIRECT FOOTPRINT
10,500 METRIC TONS - 10 YRS.



TERRACHILL DX2 FOOTPRINT
6,300 METRIC TONS - 10 YRS.

**THE TERRACHILL DX2 MAY BE
DESIGNED FOR YOUR SPECIFIC
LOCATION AND NEEDS.**



HUSSMANN®

Hussmann Corporation
12999 St. Charles Rock Rd.
Bridgeton, MO 63044-2483
Ph: 314.291.2000

www.hussmann.com