Advanced Refrigeration Technologies from Hill PHOENIX
Advanced Refrigeration Technologies

Design Impact on Refrigerant Requirements

Current Direct Expansion

Direct Expansion Distributed

MT Secondary/LT DX

MT Secondary/LT CO2 Secondary
Advanced Refrigeration Technologies

Design Impact on Refrigerant Requirements

Compact Chiller MT and LT
Distributed Systems

- Locate multiple systems closer to refrigerated loads
- Reductions in copper piping, refrigerant charge, and leak rates
Second Nature MT

- Medium-Temperature Secondary Coolant System
- Circulates propylene glycol in sales area through ABS piping network
- Refrigerant confined to mechanical room
- 60-80% charge reduction
- Up to 90% reduction with modular water-cooled condensers
Second Nature LT Secondary

- Low-Temperature Carbon-Dioxide Secondary Coolant System
- CO2 pumped through sales area
- Primary refrigerant confined to mech. room
- 60-80% HFC charge reduction
- Up to 90% reduction with modular water-cooled condensers
Advanced Refrigeration Technologies

Second Nature LT CO2 DX Cascade

- Low-Temperature Carbon-Dioxide Direct Expansion Cascade System
- CO2 piping in sales area
- EEVs on evaporators
- Primary refrigerant confined to mechanical room
- 60-80% HFC charge reduction
- Up to 90% reduction with modular water-cooled condensers
Second Nature Compact Chiller

- Secondary Coolant System
- Primary system is modular ultra-low-charge: Less than 120 lbs. for typical MT system
- Reliable scroll compressors close-coupled to heat exchanger
- 95% charge reduction
- Ultra-low leak rate
- Pre-charged from factory