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June 18-19, 2014 - San Francisco

First North America Built CO_2 Booster Transcritical Rack with Copeland Compressors

By Andre Patenaude C.E.T.

Director – CO_2 Business Development

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Sobeys IGA – Magog, Quebec

First North America Built CO_2 Booster
Transcritical Rack with Copeland Compressors

Opening March 2014

- OEM – Systemes LMP
- 11 Copeland Transcritical Comp.
- 4 Copeland Subcritical Comp.
- 15 Emerson Oil Level Controls
- 7 Emerson Heat Reclaim valves

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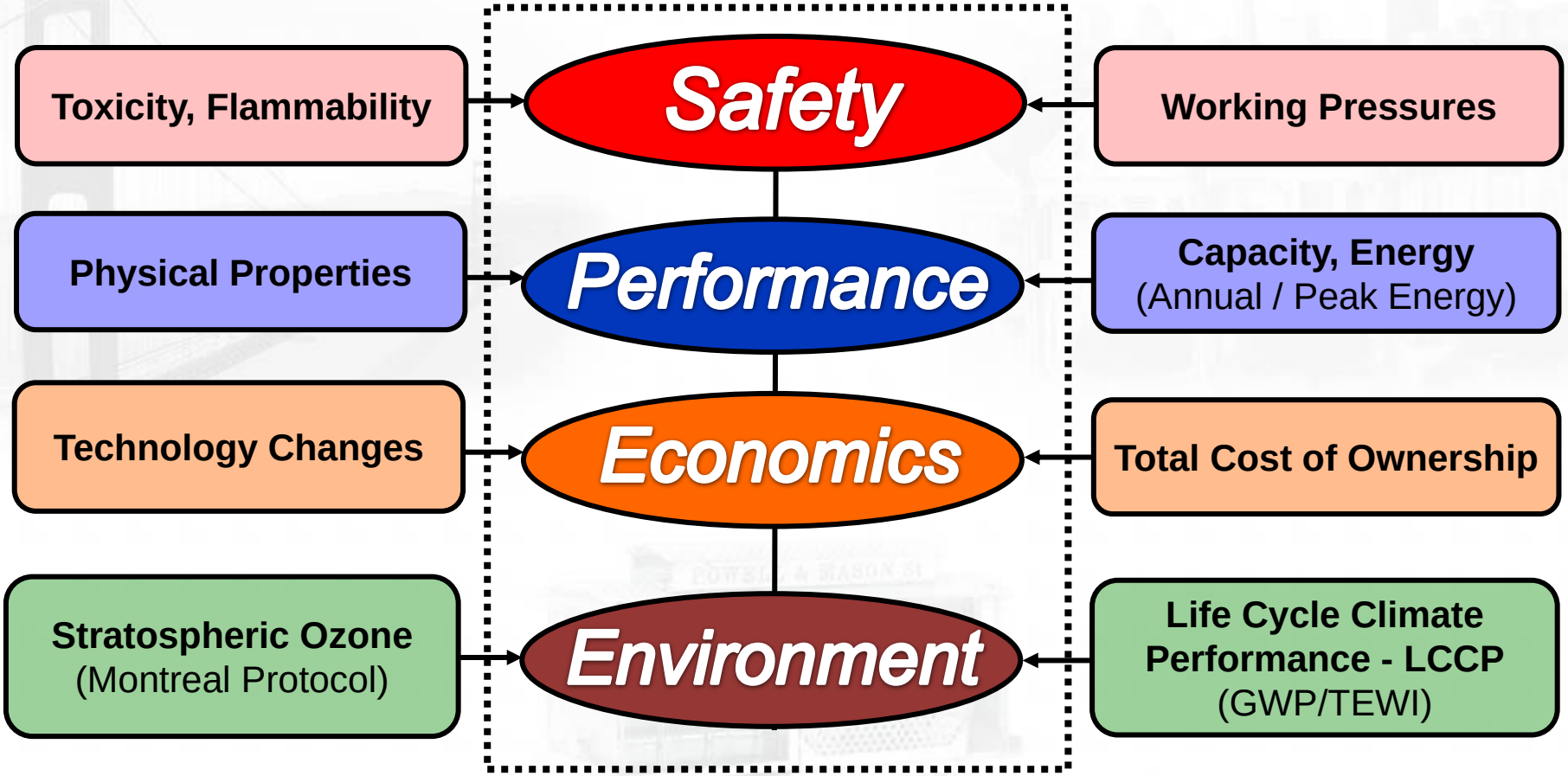
Holistic Approach To Evaluating Choices Can Minimize Unintended Consequences



System focused approach to evaluating refrigerants using a standard method of comparison is important

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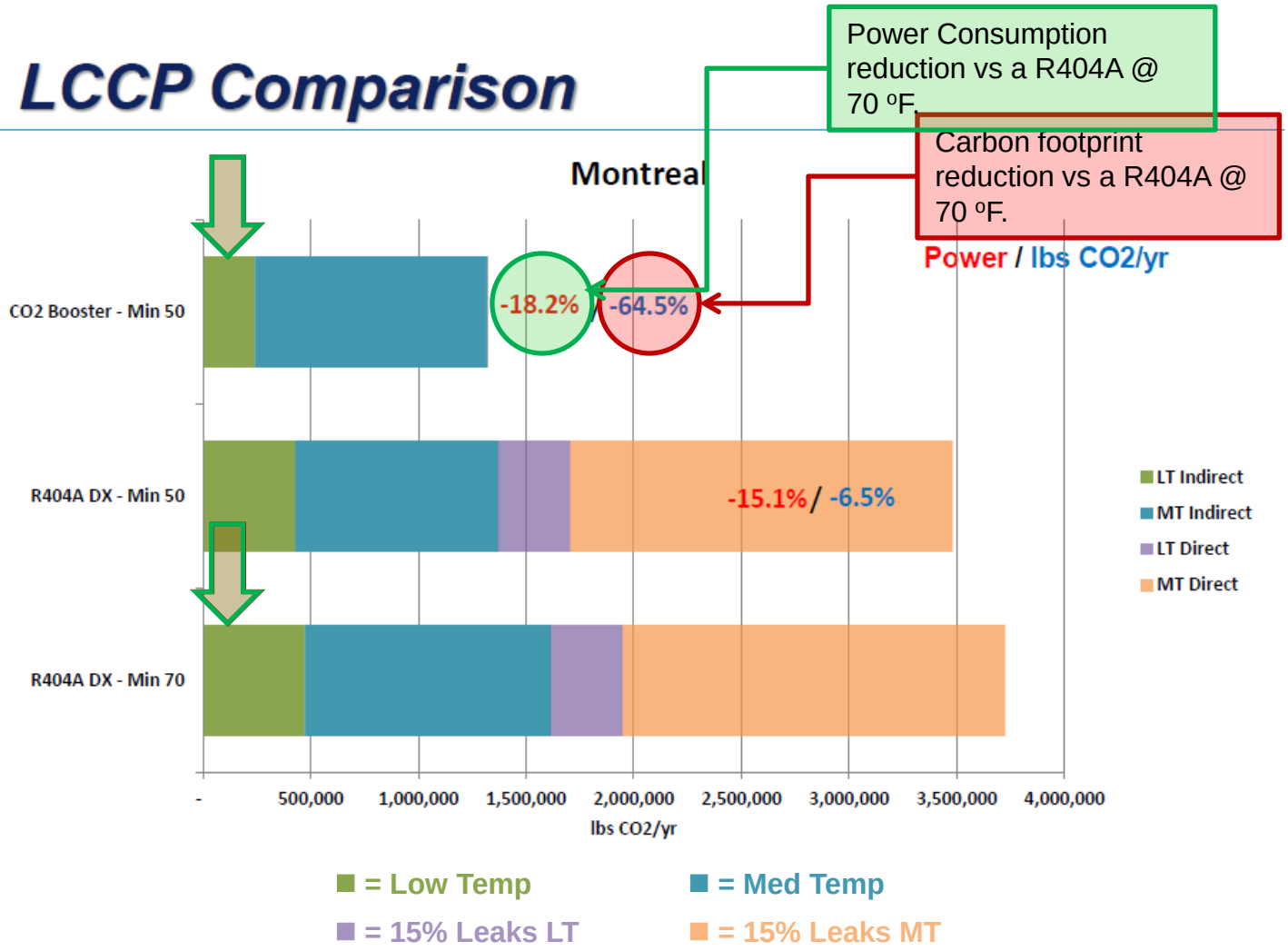
Life Cycle Climate Performance

LCCP Comparison



Assumed SST & Loads *-30 °F & 220,000 Btu/hr, +20 °F & 1,500,000 Btu/hr*

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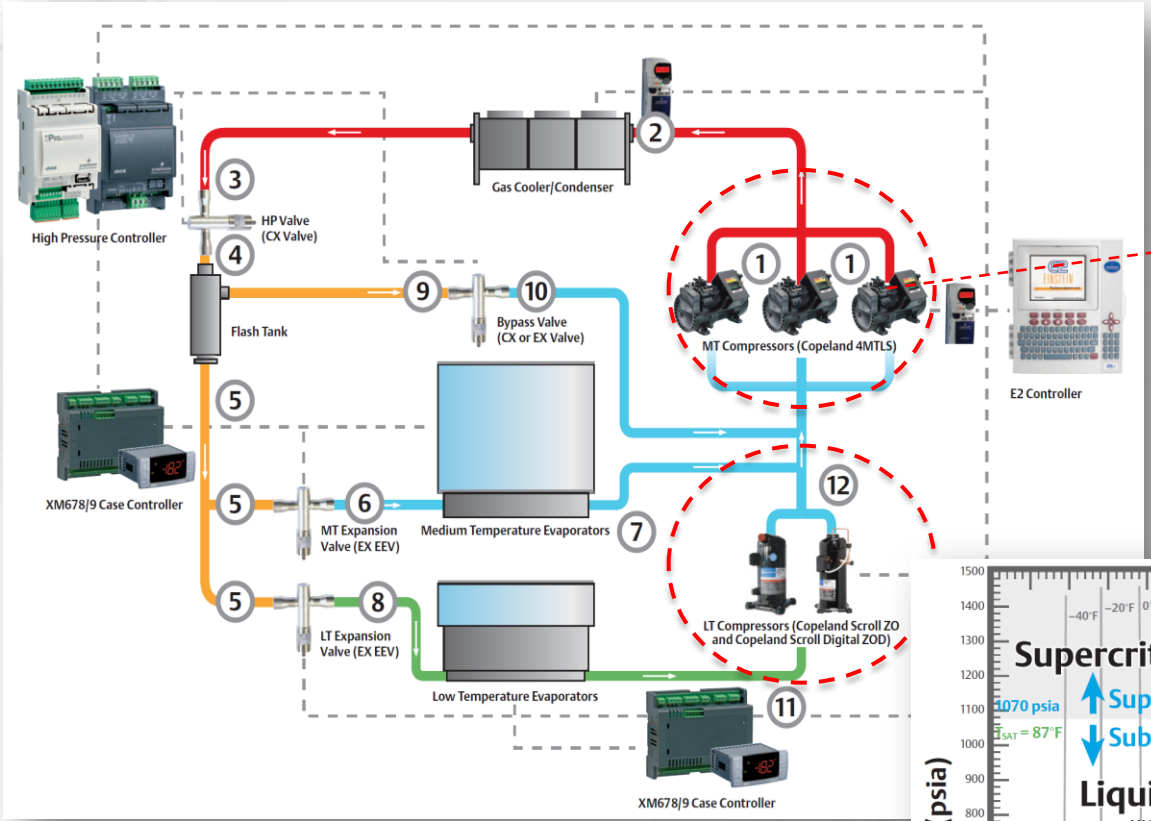
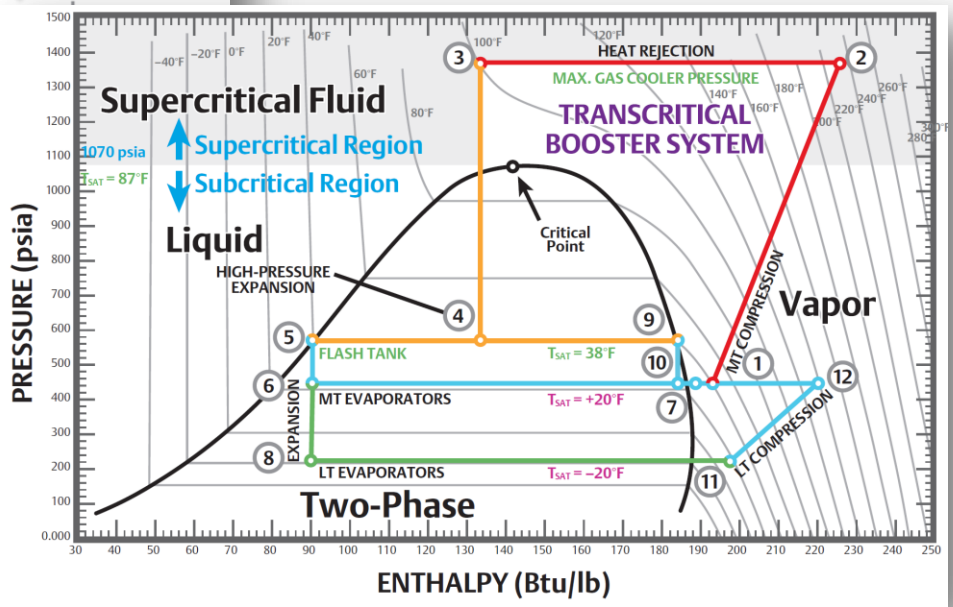
Transcritical & Subcritical Compressors CoreSense Protection





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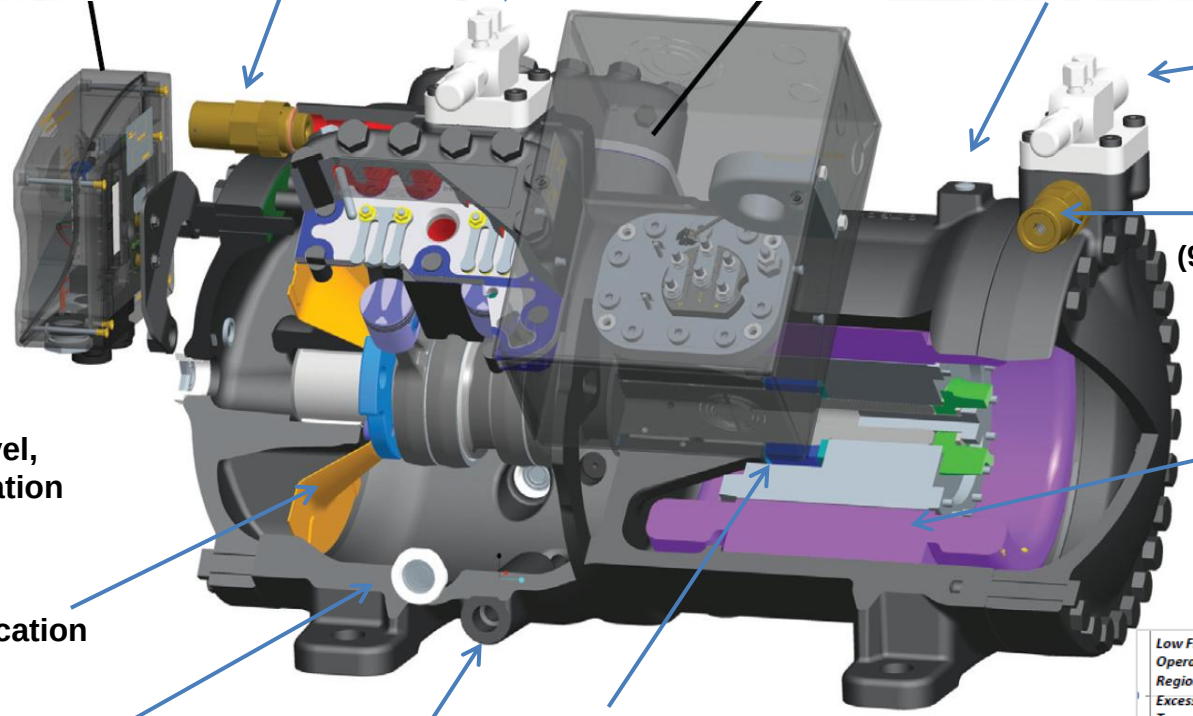
Typical Transcritical Compressor

Operating Pressure 120bar (1740 psig)



Discharge Steel Valve (360° Rotation) Welded, Swagelock

HP PRV (135bar) 1958 pig

CoreSense Protection

Electrical Box

2 Lift Hook locations

Suction Steel Valve (360° Rotation) Welded, Swagelock

LP PRV (90 bar, 66 bar (957psig) for UL)

Low Oil Carryover

Low Sound Level, Vibration & Pulsation

High Efficiency Motor

Oil Flinger Lubrication

RL68HB Lubricant

1 of 3 Sight Glasses 1-1/8" 18 NPTF

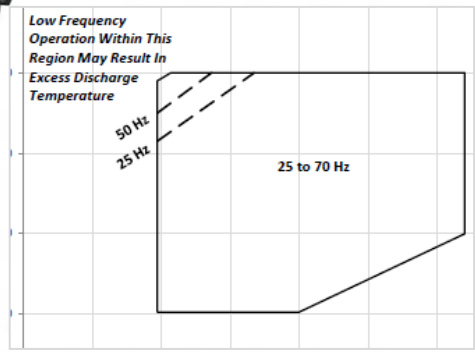
Oil Equalization Port / Oil Fill ½-14 NPTF

Optimized Bearings

Footprint Matching Other Compressors

Crankcase Heater

VFD Rated, 25 to 70 Hz



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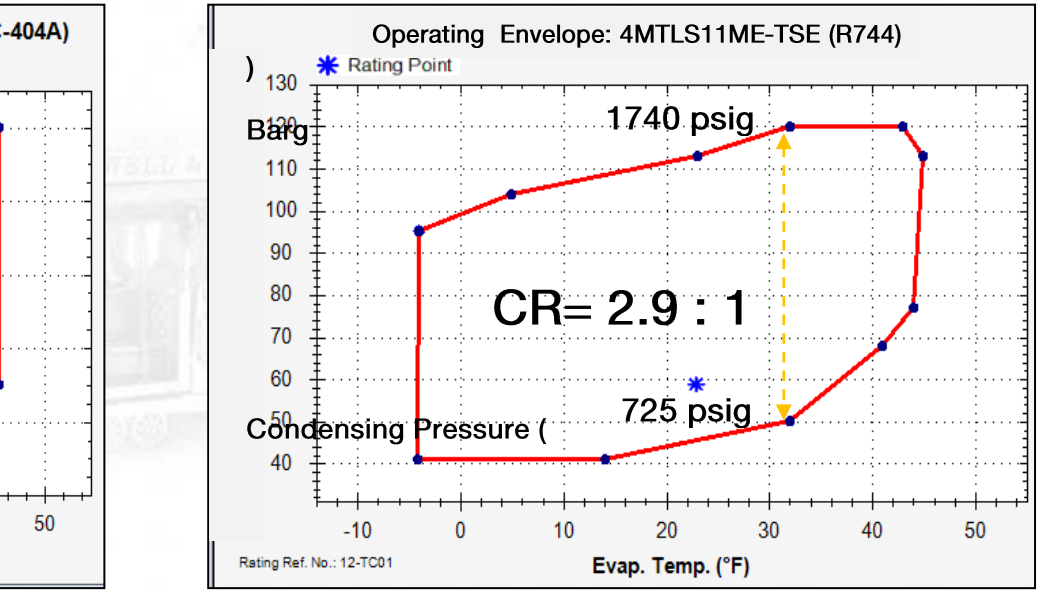
CO_2 Vs HFC Compressor

Compression Ratios

R404A
Med Temp 15 HP



CO_2
Transcritical 15 HP

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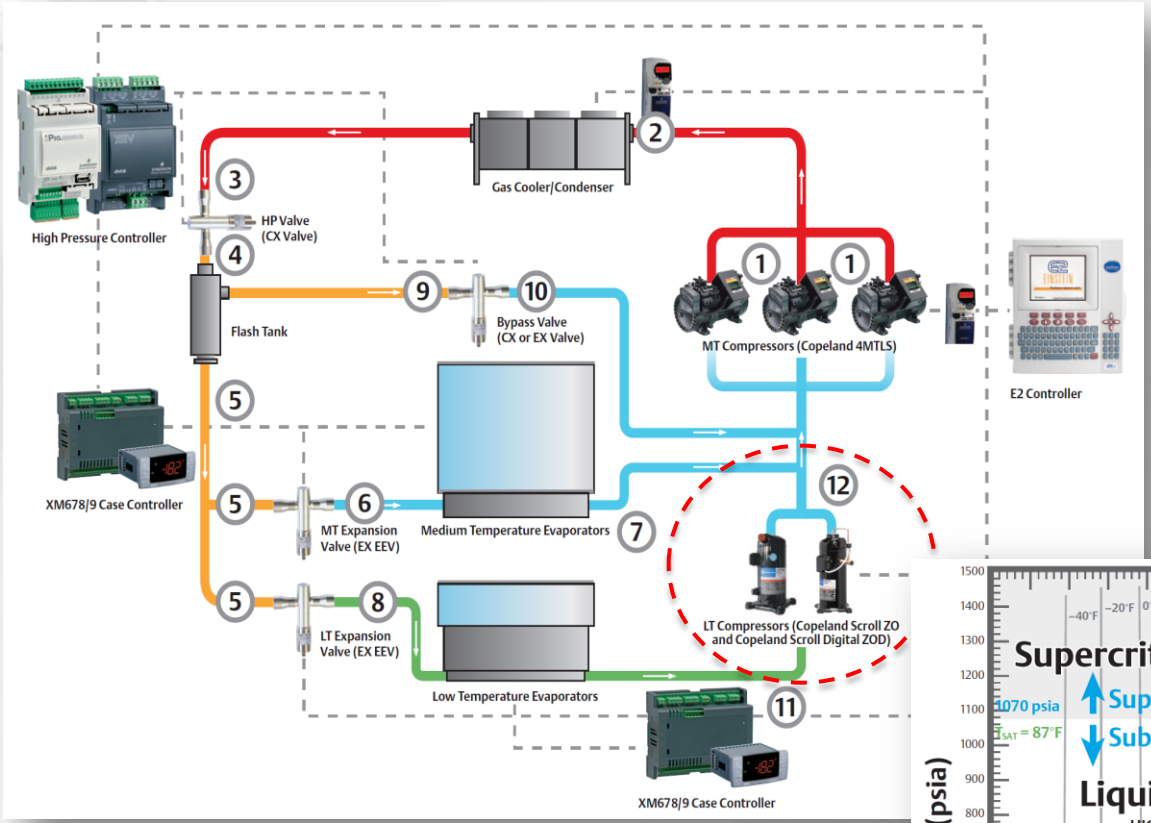
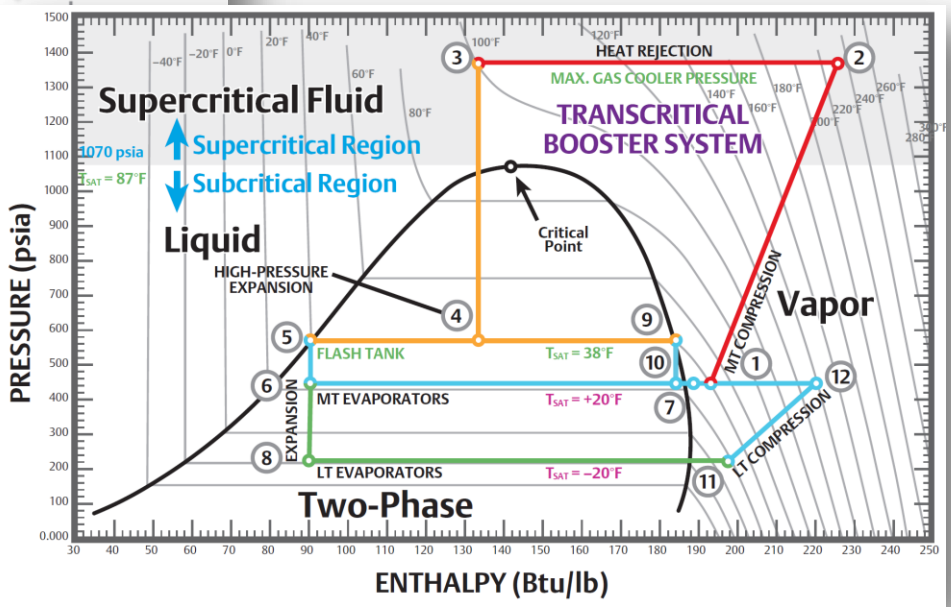
Subcritical Compressors



High-Side
(Discharge and Receiver)
- **400-500 psig**

Low-Side (Suction)
- **200-275 psig**



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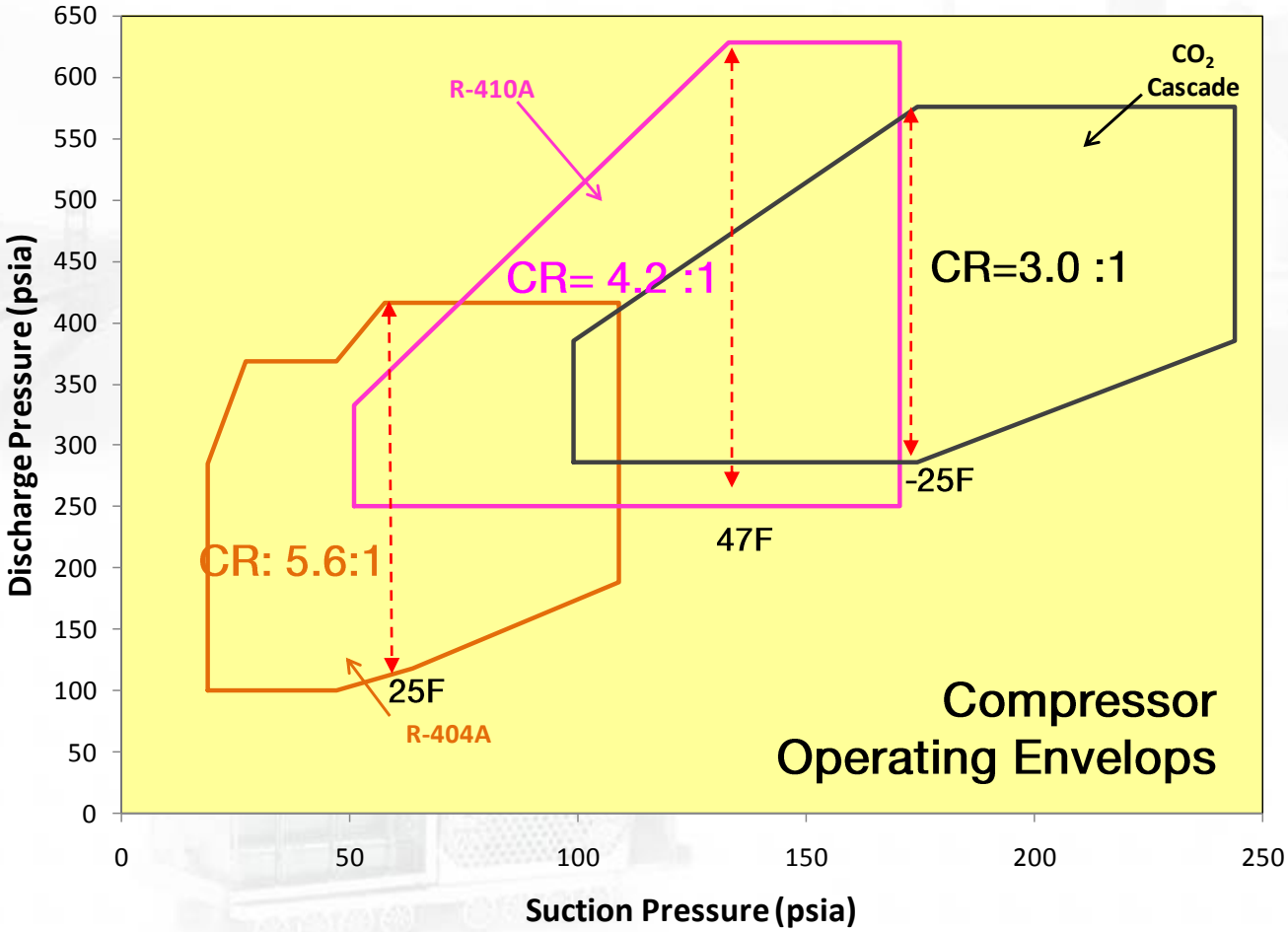
Subcritical Compressors

Compression Ratios Differences

- **Max. High Side Pressure: 43 Bar / 630 psi**
- **10-100% Digital Scroll Modulation**
- **High Efficiency Motor**
- **Small Footprint**
- **Lightweight**



- **Max. Standstill Pressure: 28 Bar / 410 psi**

- **Capacity Ranges 21MBH to 104MBH**
- **@ -20F**

High Viscosity RL68HB Oil

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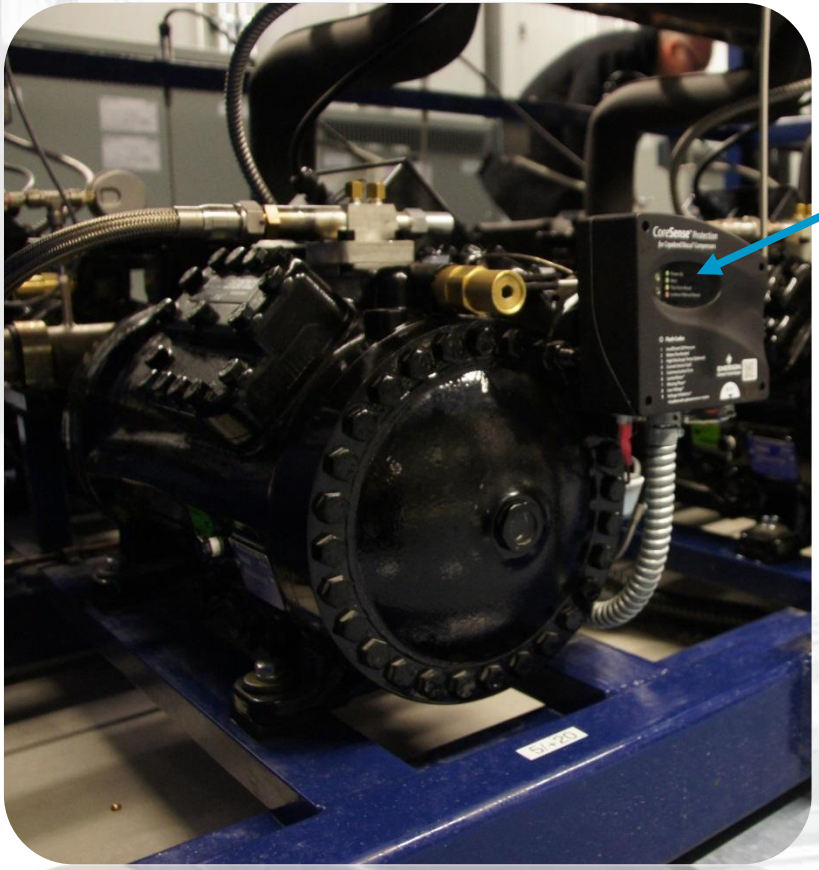
CoreSense Protection



CoreSense™ Protection Module

Discharge Temp Sensor On Cylinder Head

Sensor Module in T-Box

Current Sensor in T-Box

LED Status Indications

Green ON → No Faults
Green Flashing → Warning
Yellow Flashing → Trip
Red Flashing → Lockout

End User Benefits

- Reduced Maintenance Costs
- Increases System Uptime/Reduces food Loss
- History of all trips, alarms, run hours and starts

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Thank you very much!