### System Temperatures and Pressures

<table>
<thead>
<tr>
<th>Refrigerant State</th>
<th>$T$, °F</th>
<th>R-410A, psig</th>
<th>Superheat/Subcool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Pressure Saturated</td>
<td>45</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td>Low Pressure Superheated Vapor</td>
<td>55</td>
<td>131</td>
<td>Superheat = $T - T_{sat} = 55° - 45° = 10°F</td>
</tr>
<tr>
<td>High Pressure Gas</td>
<td>160</td>
<td>393</td>
<td></td>
</tr>
<tr>
<td>High Pressure Saturated</td>
<td>115</td>
<td>393</td>
<td></td>
</tr>
<tr>
<td>High Pressure Liquid</td>
<td>105</td>
<td>393</td>
<td>Subcool = $T_{sat} - T = 115° - 105° = 10°F</td>
</tr>
</tbody>
</table>

### Load Calculations

- **Condenser**
  $Q_{out} \text{ (Btu/hr)} = 1.08 \times \text{SCFM} \times \Delta \text{Temperature}$

- **Evaporator**
  $Q_{in} \text{ (Btu/hr)} = 4.5 \times \text{SCFM} \times \Delta \text{Enthalpy}$
**HOT GAS REHEAT**: Includes a condenser coil mounted in the supply airstream and a modulating refrigerant valve to control the supply air temperature and relative humidity.

**Benefit**: Controls the supply air temperature and relative humidity without the need for auxiliary post heat. Provides dehumidified air without overcooling the space.

**Availability**: Optional on ERCH, RV and RVE

**DIGITAL SCROLL COMPRESSORS**: Unload/load based on cooling demand.

**Benefit**: Precise temperature control.

**Availability**: Optional on ERCH, RV and RVE

**LOW SOUND CONDENSER FAN(S)**: Low-sound swept blade.

**Benefit**: Average sound power reduction of 5 to 8 decibels when compared to typical condenser fans. Reduces perceived noise by 50%.

**Availability**: Standard on RV and RVE

**INVERTER SCROLL COMPRESSORS**: Refrigerant flow varies with motor speed.

**Benefit**: Improved part load efficiency. Reduced sound levels. Precise temperature and humidity control. Integrated Energy Efficiency Ratio (IEER) up to 22.1, with an average improvement over a digital scroll compressor of 15 to 20%.

**Availability**: Optional on RV and RVE

**MODULATING HEAD PRESSURE CONTROL**: The electronically commutated (EC) condenser fan(s) will modulate speed to maintain the optimal liquid line pressure using built-in control sequences within the factory controller.

**Benefit**: More reheat capacity at part-load conditions. Better cooling control for lower ambient temperatures. EC motors selectable on lead or all condenser fans.

**Lead**: An EC motor on the lead condenser fan will modulate to maintain a head pressure set point. Improves reheat capacity at part-load conditions.

**All**: The entire bank of condensing fans will have EC motors and will modulate in sync to maintain a head pressure set point. Improves sound performance and energy efficiency at part-load conditions.

**Availability**: Optional on RV and RVE