Refrigerant Printable Nomograph’s
Nomograph

A graph having three parallel straight lines, each graduated for a different variable so that a straight line cutting all three intersects the related values of each variable. A chart representing numerical relationships.

Before using a refrigerant nomograph you must know the following facts:

* The system refrigerant type (example R-22)
* System design capacity (example 6.0 tons)
* Saturated Suction Temperature (SST) (example -20° F)
* Saturated Condensing Temperature (SCT) (example 100° F)
* Maximum allowable pressure drop for each refrigeration line
* Minimum allowable velocity for each refrigeration line

continued ……
Nomograph

Using the Refrigerant Pressure Drop or Velocity Nomograph

1. Select the proper nomograph chart.
2. Enter at the design refrigeration capacity at the top of the chart.
3. From the refrigeration capacity location drop vertically until intersecting the saturated evaporator temperature (SST) line, the discharge lines and ending at the saturated liquid line.
4. At this evaporator temperature location draw a horizontal line intersecting the diagonal tubing lines.
5. Select the desired pressure drop or velocity on the saturated condensing temperature line at the bottom of the chart and draw a vertical line to intersect the previously drawn horizontal line.
6. Select the proper suction line tubing size from where these two lines intersect.
7. Confirm the pressure drop in psi per 100 feet or velocity of selected tubing just below the saturated condensing temperature (SCT) line.
8. Repeat the above outline steps for the discharge and liquid lines.
Nomograph

"Velocity"

Evaporator Temperature

Discharge Line

Liquid Line

Refrigerant Line Sizes

Refrigerant Velocity

Condensing Temperatures

Velocity in feet / minute

Example

Load 17 tons
SST = 0°F
SCT = 120°F
Design Liquid line is 200 fpm
Design Suction line is 2000 fpm
Liquid line is 1/2 inch
Suction line is 7/8 inch

NOTE: This is a graphic representation only, use specific nomograph for specified refrigerant
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R-407C Refrigerant Pressure Drop in Lines (65°F Evap Outlet)

**Example**

- 3/4" liquid line pressure drop = 8.2 psi/100 ft
- Superheat drop = 0.9 psi/100 ft
- Superheat drop = 0.9 psi/100 ft
- Example 1: 100°F, 160°F, and 200°F cond.
- Example 2: 100°F, 160°F, and 200°F cond.

**NOTE**

- Pressure drops do not show.
Pressure Drop in Lines (65°F Evap. Outlet)