

DX COIL BALANCING

What does it mean to “balance a DX coil”?

Balancing a DX coil with its matching condensing unit is critical in order to predict what your system will produce. When Carrier's 39 or 40 series computer selection program determines a suction temperature, it has really plotted the intersection of two curves—one for the condensing unit total capacity and another for the coil's total capacity. SFI always wants to know what condensing unit you are using so that we can balance any DX coil we select for you. (Yes, we plot those two curves!)

Items for consideration:

- ◇ DX coils do not “on their own” determine whether you can achieve a given capacity—your condensing unit does. Thus, a DX coil cannot be designed for more tonnage than the condensing unit produces at a given suction temperature.
- ◇ SFI understands the importance of factoring in a “line loss” and we incorporate a line loss in our cross-plot. As refrigerant travels from the condensing unit toward the coil, the refrigerant begins to warm up. Unless the coil is located a very short distance from the condensing unit, you must account for this loss of capacity (which explains why it is called a “line loss”).
- ◇ Potential problems with unbalanced DX systems include:
 - Too low suction temperature → Coil freezes up.
 - Too high suction temperature → High head pressure problems, underperforming system.

THE BOTTOM LINE

Using 45° suction for your design temperature should be a last resort (unless the system really balances there). It should only be used if the condensing unit capacity cannot be confirmed at two or more suction temperatures.