

Low Ambient Considerations

Additional Precautions for Extremely Low Ambient, 0°F and Below

In extreme conditions the following consideration should be given.

1. Always install a freeze stat on the evaporator coil to cycle “off” the compressor should the coil begin to freeze.
2. The liquid line sensor will require significantly more insulating to assure that the sensor reads the liquid temperature, not the ambient temperature. Insulate from sensor back to condenser header.
3. It is possible that long liquid refrigerant line need to be insulated to insure that the extremely low ambient does not over sub-cool the liquid line.
4. A “Baffle” or “Deflector” to keep snow from drifting on the condenser surface definitely will be required. This baffle will also be needed to preclude the wind from impinging the condenser coil at high velocity, artificially over sub-cooling the refrigerant. Install the baffle 10” from coil surface and 10” above top of fin height. This arrangement will provide a recycling of warm condensed air. Note: See cross section of baffle & condensing unit installation.
5. For extreme low ambient the condenser fan blade may need to be replaced with a same diameter blade that has a reduced pitch. If a unit is not going to see more than 85°F in the summer, you don’t need that volume of air that would be required in Texas which would be at 105°F.
6. There is no question that the expansion valve will be required; no cap tubes or orifices period.
7. The “range Adjust” on the 10EH and 10DH may be required to operate at a higher range setting than would normally be required in the states.
8. It is suggested that in every case where we know that the unit must operate year round, that the dx evaporator coil be enlarged to the next larger size to provide extra surface (capacity).
9. If the load on the evaporator coil is very light in the low ambient season, a hot gas bypass should be installed to artificially load the coil when the evaporator pressure falls below a pressure that would result in the evaporator freezing.
10. If the unit does not, or is not allowed to cycle at the prescribed set point under these low ambient conditions, reset the thermostat to allow cycling. The unit probably was oversized and should be downsized.

