OPERATING TEMPERATURE GUIDELINES FOR REFRIGERATION DUTY

The temperature ranges and guidelines shown below can be considered good for the following conditions: Refrigeration Duty, R-12 and R-502 (low & medium temperature), SCT from 95° to 115° F.

GUIDELINES

1. The preferred return gas temperature of refrigerant at compressor suction service valve is 35° to 50° F. Maximum return gas temperature: 65° F.
2. Motor barrel temperature near crankcase: 80° to 125° F.
    a. Below 80° F is a possible indication of flooding.
    b. Above 120°F is a possible indication of motor running too hot from:
        1. Too high superheat
        2. Running too low suction pressures
        3. Voltage or current imbalance
        4. Rotor drag – Motor end bearings failure due to flooding. Three temperatures at motor barrel are required to find hot spots due to rotor drag on stator I.D.
3. Underside of side bank cylinder heads: 80° to120° F.
    a. Below 80° F is a possible indication of flooding.
    b. Above 120° F is an indication of blown gaskets or broken valves.
4. Crankcase temperature of oil compartment (below oil level): 100° to 130° F (Max. allowable temp. 165° F.)
    a. Below 100° F is a possible indication of flooding
    b. Above 130° F is an indication of blown gaskets or broken valves.
5. Hot gas (discharge) line temperatures. This is very much a function of refrigerant and suction/discharge pressure range:

R12 Medium temperature	180° to 210° F.
R502 Medium temperature	180° to 210° F
R502 Low temperature	200° to 250° F (Max. allowable 275° F)

    a. Temperatures below minimum limits after one minute of run time is a possible indication of flooding. Note, though, that low discharge temperatures are evident when floating head pressure designs are used.
    b. Temperatures above maximum limits is an indication the compressor is running too hot. Possible causes are:
        1. Suction too low
        2. Condensing too high (check for condenser problems)
        3. Superheat too high
        4. Cylinder head cooling fan defective (low temperature system)
        5. Motor overheating (check motor temperature)
        6. Broken discharge valves ─ blown gaskets
        7. Leaking pressure relief valve