

## Low Ambient Controls

Allows Specific Systems equipment to provide mechanical cooling at temperatures as low as -60°F (-51°C)

*Available for all InPac and AirPak systems  
(Ultra Low available on InPac Only)*



### Features and Benefits

- Low ambient option allows operation of mechanical cooling at temperatures down to -35°F (-37°C)
- Basic package includes head pressure control valves and receivers
- Receivers serve to hold refrigerant used to flood the condenser during low ambient conditions

### Optional Equipment

- Ultra low ambient option allows operation of mechanical cooling at temperatures down to -60°F (-51°C)
- Ultra low ambient package includes all features of the basic package, and adds
  - > Time delay function on low pressure control
  - > Thermostatically controlled heater for receiver
  - > Insulation for the receiver
  - > Steel blade condenser fan
  - > Custom built low-temperature Arctic duty motors

### Your equipment generates heat regardless of outside conditions.

Most HVAC units can provide mechanical cooling to approximately 55 °F (13 °C). However, our standard Specific Systems InPac units operate effectively down to 35 °F (2 °C). Low ambient control packages help keep the unit cooling at temperatures to -35 °F (-37 °C), while our ultra low ambient packages work down to approximately -60 °F (-51 °C). Specific Systems' optional low ambient control package includes head pressure control valves and receivers.

Crankcase heaters are standard on all our units, and are used to prevent refrigerant in the system from reverse migrating back into the compressor and mixing with the oil. This is especially an issue if a compressor is used in a low ambient condition, because during the off-cycle the oil inside the compressor cools off. This cooled oil has a higher propensity to attract refrigerant because of the pressure difference between it and the vaporized refrigerant in the cycle. When the compressor is started during the next cycle, the oil, now attached to the refrigerant, flows out of the compressor and toward the condenser, leaving less oil to effectively lubricate the compressor. The compressor could then experience immediate or eventual failure.



Use of head pressure control valves contributes to low and ultra-low ambient stability in the refrigeration systems. Head pressure control valves help maintain suction pressure when the unit is operating at ambient temperatures below about 40°F (4.5°C), keeping the evaporator coil from freezing over due to lack of refrigerant flow. Receivers work as essentially a holding tank for the extra refrigerant needed to maintain pressures at low ambient temperatures. The receivers are sized specifically to fit the refrigeration systems in individual units.