

AUXILIARY GAS HEATING OPTIONS

Desert Aire provides auxiliary gas heater options for its ExpertAire™ Series product line that are sized to meet the winter specified heating requirements for the space. Natural gas is standard with LP gas is available upon request. These heating elements are utilized when the air temperature in the space drops below the customer set point. The heaters are not allowed to operate when the unit is in the cooling mode.

Desert Aire sizes the heating elements to precisely match the load of the system. This may be in a single heater module or in multiple modules. A modulating gas valve is automatically controlled by the unit's microprocessor to maintain an exact leaving air temperature. If multiple burner sets are utilized, then a vernier sequence is used where the base burner is modulated and the others are staged. The system's overall turn down ratio is a function of the number of heating modules and is summarized in the table below:

| Tons | Quantity Heaters | Natural Gas | LP Gas |
|---------------|------------------|-------------|---------|
| 5 to 10 tons | 1 | 5 to 1 | 5 to 1 |
| 12 to 15 tons | 2 | 10 to 1 | 10 to 1 |



Figure 1 - Detail of Gas Heat Compartment on ExpertAire™ LCQ Series Packaged Unit



Figure 2 - Detail of Gas Heat Burner Assembly

The gas module shall provide a minimum combustion efficiency of 80%, and listed for operation downstream of refrigeration or cooling system, and provide means for removal of condensate that occurs in the heat exchanger during cooling operation. They are listed for outdoor installation without the need for additional power ventilation.

Heat exchanger shall be tubular in design and constructed of Type 304L stainless steel and employ (integral formed dimple restrictors, formed turbulators) to provide for an unobstructed drainage path for condensate and provide a positive pitch to promote drainage.

Additionally the gas module shall employ:

- Patented inshot gas burners, with integral carryovers, capable of operation at 5:1 turndown with modulating controls
- A combustion blower to provide for positive venting of flue gases
- Pressure switch to prove air supply for combustion
- Direct spark ignition of gas burners with remote flame sensor to prove carryover across all burners
- An automatic reset type high limit switch to limit maximum outlet air temperature to less than 250°F
- Manual reset flame rollout switch
- Listed Combination Gas Valve incorporating redundant safety shut-off valve, manual shut-off , and gas regulator which regulates gas pressure to burner supply manifold.
- Direct Spark ignition control design certified by a Recognized National Testing Laboratory and incorporating a LED diagnostic light and alarm capable contact

The completed heater assembly shall be factory fire tested prior to shipment.

Gas Utility

- 13.5" w.c. (1/2 PSI) Maximum Inlet Pressure
- Minimum Inlet Pressure
 - 5.0" w.c.- Natural Gas
 - 11.0" w.c.- Propane Gas

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