



## Product Specification

### EF Series High Efficiency Gas-Fired Duct Furnace

Heating unit shall be an EF Series, indirect gas-fired Duct Furnace Listed by Underwriters Laboratories (UL), a Nationally Recognized Testing Laboratory (NRTL) to ANSI Z83.8 / CSA 2.6-20 Gas-Fired Duct Furnaces, for operation on the positive pressure side of the circulating air blower. Duct furnace to provide a minimum combustion efficiency of 90% through the entire firing range, exceeding the ASHRAE 90.1 minimum requirement for steady state efficiency. Duct furnace/burner shall be capable of turndown up to 20:1. Furnace shall be listed for operation downstream of refrigeration or cooling system. The Duct furnace modules shall be listed for outdoor installation and indoor installation for Category IV venting as outlined in the manufacturer's instructions, without the need for additional power ventilation.

The unit casing shall be insulated with 2" thick fiberglass insulation between the outer casing and inner heat reflective galvanized liner. Supporting frame rails shall be galvanized steel.

Heat exchanger shall be a primary drum and multi-pass tubular secondary constructed of titanium stainless steel, and shall be of a floating design to minimize stresses during heating and cooling cycles. Tubing used for the heat exchanger shall comply with ASTM A268 or ASTM 249 (as applicable). Secondary tubes shall be swaged into panels and welded to provide a secure joint and air tight assembly. All heat transfer surfaces shall be inside the casing and in the air stream.

Duct furnace shall be provided with multiple condensate drains. Installer is responsible for materials and final connection of drains for condensate disposal.

Gas burner shall be constructed of stainless steel to ensure high durability and life, and shall be a forced-draft, positive pressure type, with an intermittent pilot ignition system. Burner control and flame supervision shall be with a non-proprietary flame relay and flame rod.

A non-proprietary electronic proportional controller shall provide linearization of fuel and combustion air to provide optimum efficiency throughout the burner firing range. The controller shall electronically adjust the combustion air blower and modulating gas valve to maintain proper air fuel ratios and monitor combustion air blower operation. Controller shall be compatible with the following inputs: 1) 2 -10 VDC signal from building management system, (2) 4-20ma signal from building management system, (3) Discharge air sensor. Burner shall be listed by a NRTL and labeled.

Duct Furnace module and burners provided are suitable for use on Natural or Propane gases as specified at the time of order. Minimum supply pressure on Natural gas is 7.0" w.c. and on Propane gas 11.0" w.c. Maximum inlet pressure on either gas is 14.0" w.c.

Control voltage is 120 VAC, 1 $\Phi$ , 60 Hz.

Heater Assembly shall be factory piped and wired and include the following components: Main and pilot manual shut-off valve, pilot solenoid and regulator, regulator dual main gas shut-off valves, ratio regulator, union fitting, high limit switch, air proving switch and condensate overflow switch.

High efficiency furnaces require a Category IV venting system certified to UL1738 / ULC S636. Installer is responsible for materials and final vent installation in accordance with manufacturer's instructions provided.

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

Duct furnace shall be accompanied by printed instructions for proper installation, start-up, operation and maintenance.

Burner and components are warranted for one year from date of installation or 18 months from date of manufacture. Heat exchanger is warranted for ten (10) years on a pro-rated basis. See Heatco Standard Warranty for full details.

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