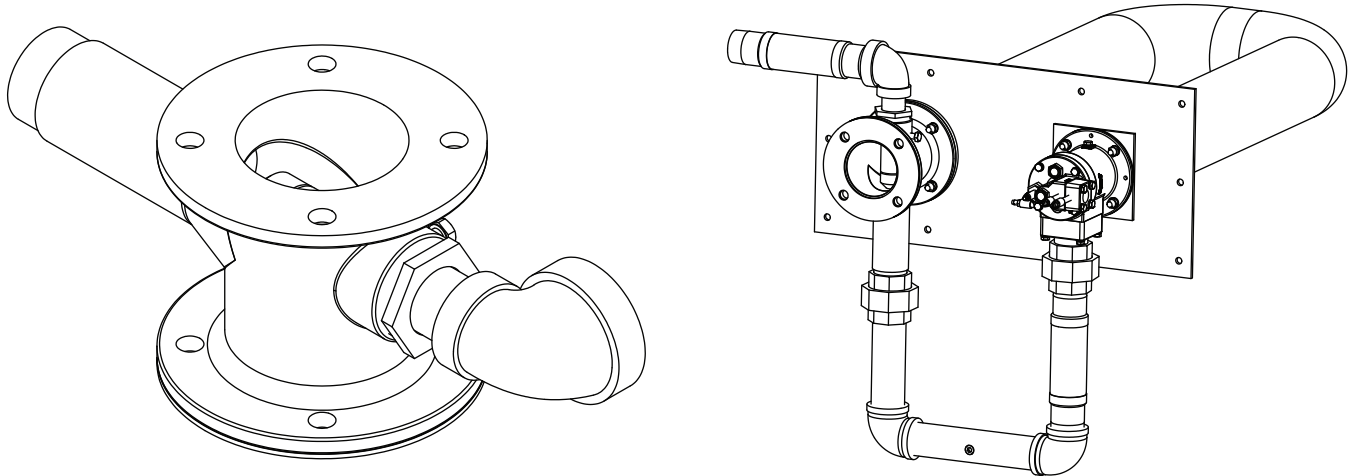


Eclipse E-Jector Flue Gas Recirculation Device

Model FGR

Version 1



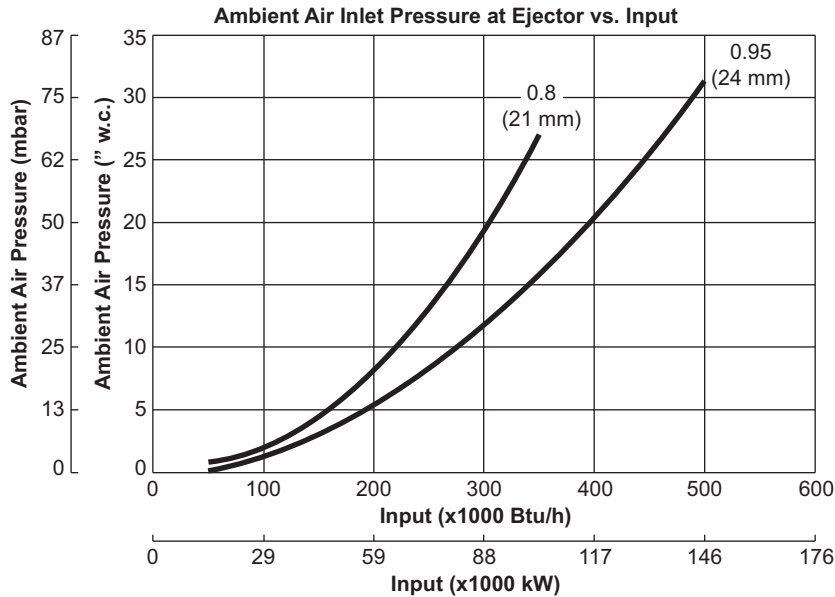
Parameter	Specification
Inside Diameter of Radiant Tube	4" to 6" (102 to 152 mm)
Maximum Flue Gas Temperature at the E-Jector Inlet*	1400°F (760°C)
Maximum Capacity	500,000 Btu/h (132 kW)
E-Jector Mounts to the Radiant Tube Exhaust or Recuperator (if used)	Flanged
Air Inlet	2" NPT
Air Outlet	2" NPSM

NOTE: Flue Gas Recirculation Device is designed exclusively for use with the Eclipse Tube Firing Burner as part of a total system.

* Consult Eclipse for higher temperature conditions.

- Do not insulate the FGR device, this may cause equipment damage and void the warranty.
- All information based on laboratory testing.
- All Imperial units based on gross calorific value (HHV). All metric units based on net calorific value (LHV).
- All pressures based on 15% excess combustion air and natural gas.
- Eclipse reserves the right to change the construction and/or configuration of our products at any time without being obliged to adjust earlier supplied accordingly.

Performance Graphs



NOTE:

1. Size refers to the opening of the E-Jector nozzle. A 21 mm E-Jector nozzle is used for applications with maximum inputs below 350 kBtu/h (92 kW). A 24 mm E-jector is used for applications that have maximum inputs up to 500 kBtu/h (132 kW).
2. Static pressure curves shown are to be used for blower sizing and include the Eclipse TFB burner. Actual field results may vary.
3. Chart valid for:
 - Ambient Combustion Air (No Recuperator)
 - 15% Excess air
 - Up to 20% flue gas recirculation

General Considerations for all Applications

- The piping between the E-Jector and the burner should be designed to take into account thermal expansion and not restrict the flow. See page 3 for details of preferred layouts.
- There should be a minimum of 21" (533 mm) straight run of pipe from the centerline of the E-Jector in the direction of the entrained combustion air/flue gas prior to any change in direction in piping. A tap in this piping should be provided to facilitate O₂ measurements (see page 3).
- There should not be any flow restrictions between the E-Jector and the radiant tube.
- Flex hose should be installed at the E-Jector ambient air inlet to allow for a minimum of 3/8" (9.5 mm) movement in each direction from the centerline. Eclipse recommends part number 10030959 - 2" x 18" (51 x 457 mm) flex hose.
- Continuous spark is required for chamber temperatures below 1400°F (760°C).
- System must be started at less than 350,000 Btu/h (92 kW) until chamber temperature exceeds 500°F (260°C). Contact Eclipse for system design assistance.
- Flame safety should not be used except for burner monitoring (indication only). Users are responsible for adhering to all governing codes.
- Modifications to the Eclipse Tube Fired Burner may be required when used in conjunction with the E-Jector. Contact Eclipse for burner configuration details.
- The burner, E-Jector nozzle and all measurement locations should be accessible after the final installation is complete.

Emissions

FGR is a proven method of reducing NO_x. Typical applications can realize a reduction of 40-50%. Note that CO may be elevated at low fire or cold chamber conditions. Please consider this when choosing a control methodology. Contact Eclipse with specific application information for estimated emissions.

Installation Options

Dimensions in inches (mm)

With Recuperation

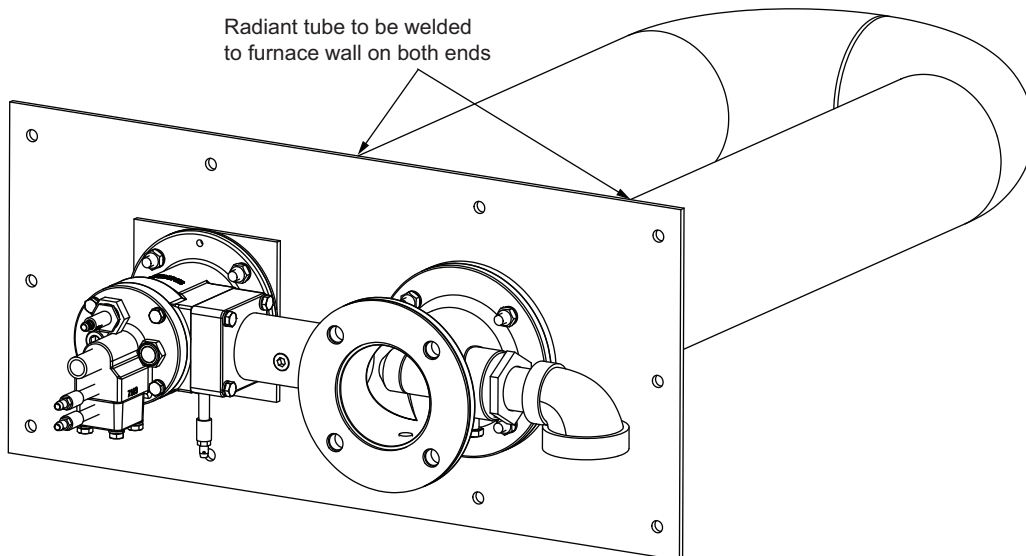
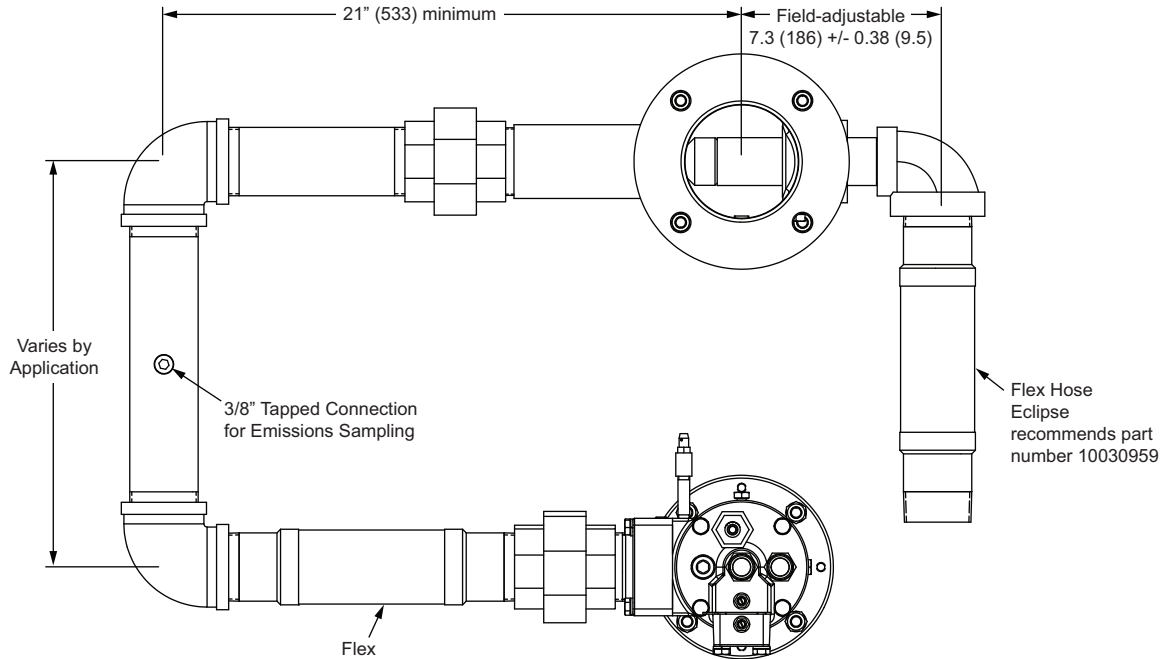
Please contact Eclipse for piping layout.

Without Recuperation

Layouts without recuperation may vary by application. Below are two layouts recommended by Eclipse.

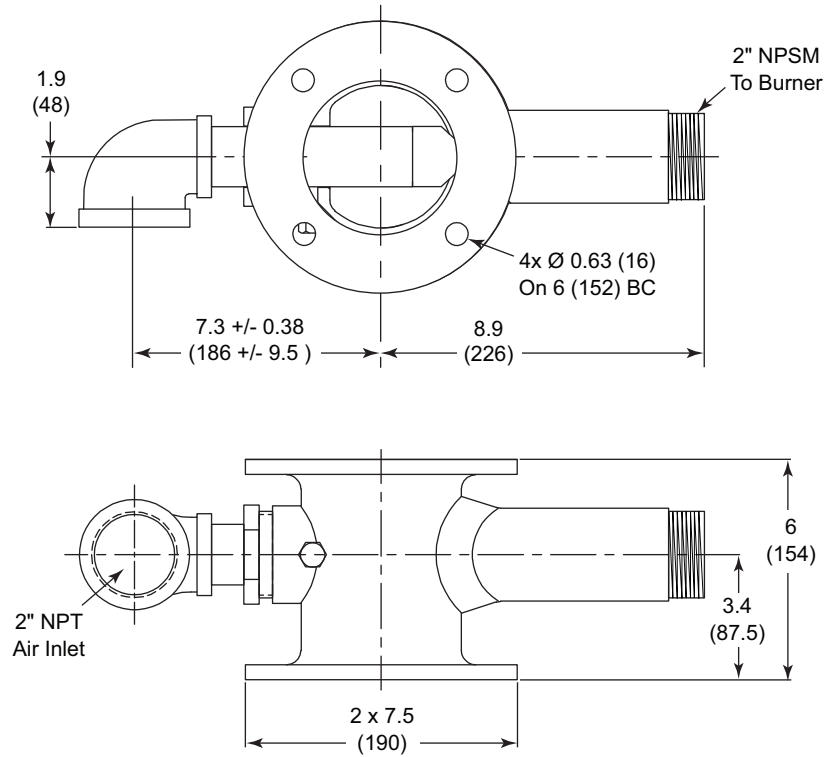
NOTE: In order to prevent equipment damage, thermal expansion in all directions must be considered. If the piping is laid out in a U-shape, proper flex hose must be provided to allow for movement during thermal expansion.

If the E-Jector is directly connected to the burner, both ends of the radiant tube must be welded to the furnace wall in order to prevent damage to the E-Jector due to thermal expansion of the radiant tube.



Installation Options

Dimensions in inches (mm)

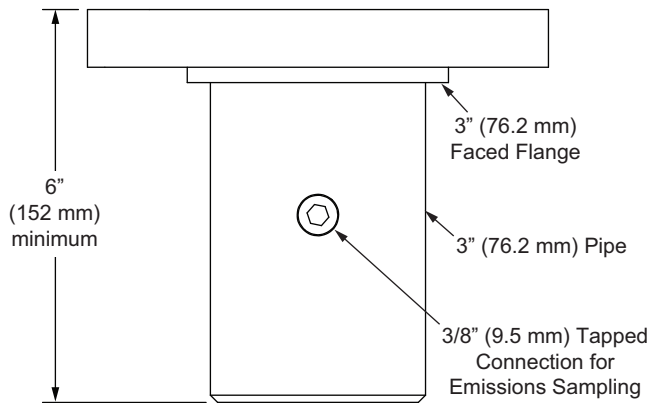


Flue Outlet Spools

Vertical Applications

Eclipse recommends a straight piping spool, minimum of 6" (152 mm), be added to the exhaust flue outlet of the Ejector.

A 3/8" tap should be installed in this spool for taking field emissions.



Horizontal Applications

