

ECLIPSE **TUBE FIRING** **BURNERS (TFB)**

Radiant Tube Burner system with Plug In Recuperator and Efficiency Device



Honeywell

ECLIPSE TFB BURNERS

Precise, uniform temperatures for better process quality and longer tube life

UNIQUE FLAME PROFILE ACTUALLY SCRUBS FIRE TUBES CLEAN

Designed to fire radiant and immersion tubes with inputs from 25,000 to 2,000,000 Btu/hr., the TFB's unique nozzle creates an intense, adjustable length flame with a vigorous spinning action. The flame scrubs the inside of the fire tubes to remove the gas film boundary layer and increases heat transfer effectiveness with outstanding temperature uniformity. Not only does this contribute to longer tube life, it also ensures consistently uniform product processing.

The TFB delivers these additional benefits:

- Low NOx and low CO.
- Low excess air capability for high efficiency.
- Low air and gas pressure requirements.
- High heat transfer with low noise levels.
- Reliable ignition at a wide range of firing rates.
- Can be fitted with Eclipse Bayonet-Ultra recuperators for maximum system efficiency.

VERSATILE AND ADAPTABLE; EASY TO INSTALL OPERATE AND SERVICE

Every TFB burner offers the convenience of multi-fuel capability with the same nozzle for global application; either ambient or pre-heated combustion air; straight, U, W or Trident®-type tube designs. And, TFB burners are user-friendly.

- Uncomplicated installation.
- Integrated gas/air metering make set up a snap.
- Two peepsights provide clear visual access for flame verification and adjustment.



Designed with long life and low maintenance requirements, TFB burners deliver a level of safety, operating efficiency and reliability that are second to none.

TFB BURNERS & BAYONET- ULTRA RECUPERATORS: IMPRESSIVE INDIVIDUALLY... UNSURPASSED AS A TEAM

It's a fact: As much as 65% of the heat generated in many gas furnaces doesn't do anything but cost you money. Most of the energy from the burning fuel heats the combustion air instead of the work load. When heat and fuel dollars sneak out through your stack, each load costs more to process than it should.

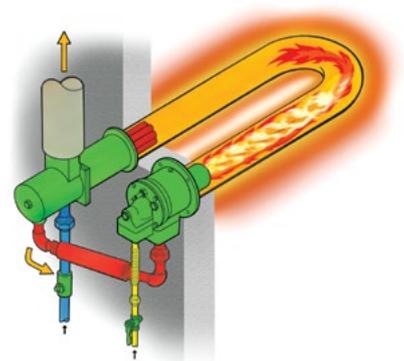
By combining Bayonet-Ultra Recuperators with TFB Burners, you can be assured of matched-performance components that will provide your company with maximum fuel savings and system efficiency.

Check out the chart on the right for the savings you can get at your shop.

Example: 800°F preheat from 1900°F flue gas delivers 24% fuel savings.

FLUE GAS EXIT TEMPERATURE (°F)	PRE-HEAT COMBUSTION AIR TEMPERATURE (°F)			
	400	600	700	800
700	8	12	-	-
800	8	12	14	-
900	8	13	15	17
1000	9	13	15	17
1100	9	14	16	18
1200	9	14	16	19
1300	10	15	17	19
1400	10	15	18	20
1500	10	16	18	21
1600	11	16	19	21
1700	11	17	20	22
1800	12	18	21	23
1900	13	19	22	24
2000	13	20	23	26
2100	14	21	24	27

% Fuel Saved

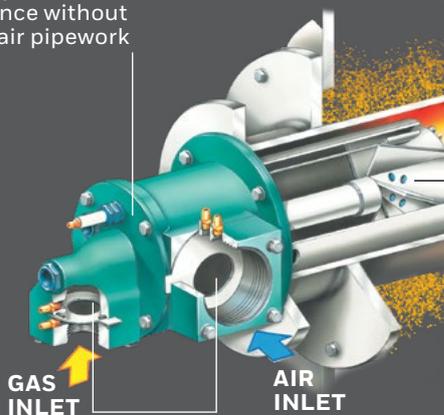




TFB BURNERS

Ideal for indirect heating of tubes where tube temperature uniformity is at a premium.

Removable Back Plate
allows inspection and maintenance without breaking air pipework



High Spin Flame Geometry
provides clean combustion and temperature uniformity

Cast Alloy Nozzle

Air and Gas Orifices

supplied with each unit help ease set-up (sized for application). Both inlets can be rotated in 90° increments.

Eclipse Tube Firing Burner can pair with the Eclipse Bayonet Ultra Recuperator and E-Jector for an efficiency improvement of up to 65% and a NO_x reduction of up to 50%, respectively.

ECLIPSE BAYONET-ULTRA RECUPERATORS

| Exclusive multi-tube design delivers fuel savings up to 30%!

A SIMPLE IDEA FOR COMPOUND SAVINGS

Suitable for use with exhaust streams up to 2100° F, Bayonet-Ultra recuperators are high efficiency heat exchangers designed to fit into the exhaust leg of single, U, O, W or Trident®-type radiant tubes. They're frequently paired with TFB burners to provide fuel savings up to 30%.

Conventional recuperators have only one heat transfer tube. Each Bayonet-Ultra contains multiple tubes to dramatically increase the heat transfer area while significantly decreasing the amount of fuel required to maintain required heat levels. Plus, an air cooled housing cools the work area.

INSTALLATION; RETROFITTING IS EASY

Because versatility and adaptability are designed into the Bayonet-Ultra, new or retrofit installations rarely require special brickwork, radiant tube or exhaust modifications.

- Bayonet-Ultra recuperators are available in four sizes to fit radiant tubes with inside diameters from 3" to 8".
- A choice of pressure drops makes it easy to match most existing blower systems.
- Tube lengths can be adjusted to meet exact installation requirements.
- During installation, multiple-tube furnaces don't have to be shut down; only the tube being fitted.

Like all Honeywell-Eclipse combustion products, you can be confident that Bayonet-Ultra recuperators are unsurpassed in the industry for quality, safety, reliability and efficiency.

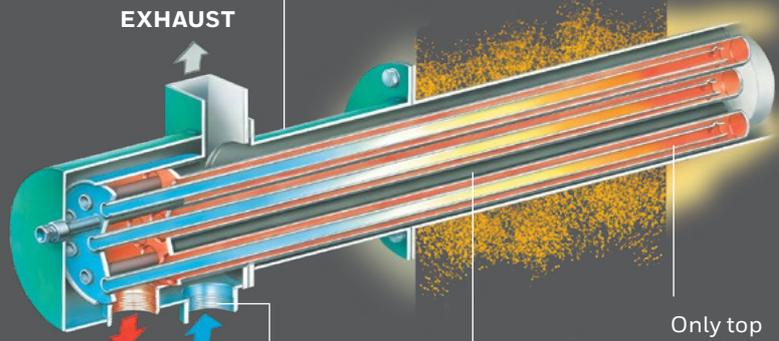


BAYONET-ULTRA RECUPERATORS

The additional heat transfer area gained through the use of multiple tubes dramatically increases efficiency and lowers fuel costs.

Air Cooled Housing
increases pre-heat while helping cool work area

Stainless Steel Adapter
Flanges are manufactured to suit each application



EXHAUST

HOT AIR COLD AIR

Threaded Inlet and Outlets
for ease of installation

"Free Flow" Design
does not restrict exhaust gases

Only top quality heat and oxidation resistant alloys are used in **Exchanger Tubes**

ECLIPSE E-JECTOR

FLUE GAS RECIRCULATION DEVICE

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

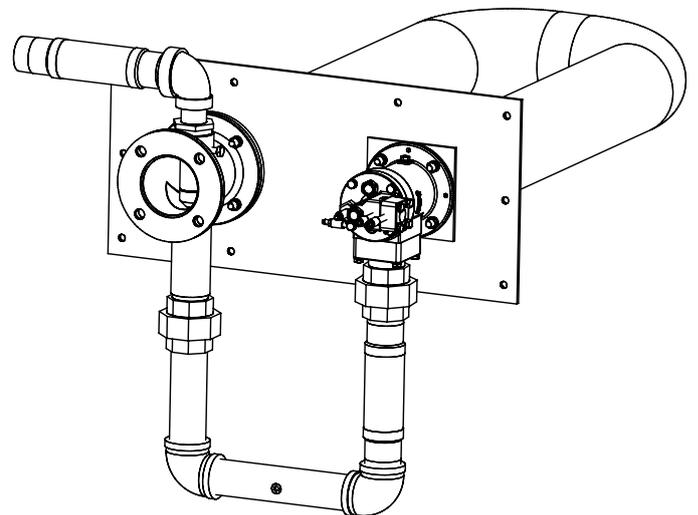
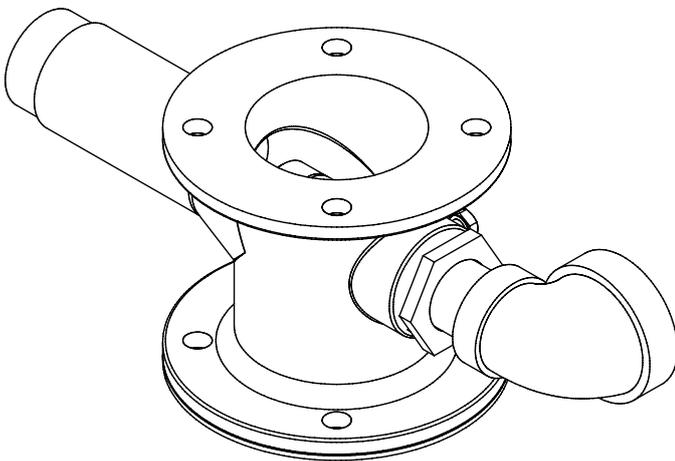
EMISSIONS

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.

NOTE:

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

*Contact Eclipse engineering for application specific designs.



For more information

To learn more about our products, solutions and services, visit ThermalSolutions.Honeywell.com or contact your Honeywell Sales Engineer.

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The Honeywell Thermal Solutions family of products includes Honeywell Combustion Controls, Honeywell Combustion Safety, Honeywell Combustion Service, Eclipse, Exothermics, Hauck, Kromschroder and Maxon.

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**THE
FUTURE
IS
WHAT
WE
MAKE IT**

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