JZHC understands that reformer operations face greater economic and emissions challenges than ever before. Our FPMR burner offers the ultra-low emission performance reformer plants need to maximize production.

How It Works
Developed as a forced draft, radiant wall burner, the FPMR burner is designed to operate with ambient or preheated combustion air under forced draft conditions. It utilizes patented COOLfuel technology, a “quasi-flameless” combustion concept where fuel and air are introduced into the furnace at separate locations.* Prior to the initiation of the combustion reaction, both the fuel and the air mix with high-temperature, inert, furnace gases. The fuel is finally oxidized in a quasi-flameless combustion environment. The combustion air is provided in an annular region around a central fuel tip and is injected radially into the furnace, parallel to the furnace wall.

The furnace gases are entrained into the combustion zone by the high exit velocity of the air leaving the air tip and the high exit velocity of the gas jet. By entraining inert gases into the combustion zone, the burner reduces NOx emissions by reducing the actual flame temperature.

The FPMR burner can be designed to use high-pressure gas (typical 2 barg (29 psig)), low-pressure gas (typical, PSA at 0.2 barg (2.9 psig)), and vaporized heavy fuels such as propane, butane, pentane, and naphtha.

*John Zink Hamworthy Combustion uses the term “quasi-flameless” combustion to describe the operation of the FPMR burner because actual flameless combustion is difficult to control and can be dangerous in a cold furnace environment.
Performance
+ Less than 80 dBA noise at 3 ft or 1 m
+ Design excess air as low as 5%

Wide Range of Fuels
+ Natural gas
+ Refinery fuel gas
+ PSA purge gas
+ Specialty fuels like vaporized naphtha or 100% hydrogen
+ Optional waste gas firing
+ Tested under TEG conditions
+ Can be designed from 0.1 to 2 bar(g) (1.5 - 30 psig) gas pressure
+ Specifically designed to provide a radial flame that lies flat against the fired wall preventing flame projection onto the process coils
+ Customizable flame geometry to fit tightest installations
+ Very large air ports which are virtually impossible to plug during normal operating conditions

Airside Capacity
+ Typical design heat release ranges from 0.15 MW (0.5 MMBtu/hr) to 1.0 MW (3.14 MMBtu/hr)
+ Combustion air temperature up to 600°C (1,110°F) or higher as per design requirements

Design
+ Low, easy maintenance
  • All stainless-steel construction
  • Compact burner layout
  • Easily removable fuel injector
+ Single-point air supply
+ Serviceable parts for online maintenance
+ Air damper adjustable in several increments with spring lock (no tooling required)
+ Compact design
  • In many cases can be retrofitted into existing furnaces
  • Typical tile dimension: 610 mm x 610 mm (24” x 24”)
+ Multi-component tile for reduced weight
+ Self-supporting tile designs available
+ Can be supplied with pilots, UV scanners, ionization rods and igniters
+ Low-noise design

Find out what the FPMR burner can do for you.