

HYDROGEN BURNER

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PREFERRED
UTILITIES MFG CORPORATION

 Preferred Utilities
Go Green Initiative



HIGH PERFORMANCE TO MEET YOUR SPECIFICATIONS

Our Hydrogen burner, provides the sustainable, safe reclamation of hydrogen and hydrogen rich process gas with high efficiency and carbon footprint reduction. Various customers can then utilize their green, blue, gray, or white Hydrogen, which significantly reduces their use of fossil fuel for their process steam requirements.

Our expertise in “free fuel” applications means we provide reliable blending of alternate and traditional fuels and reliable combustion so the plant is operational and experiences unnecessary downtime.

Preferred Combustion understands all aspects of the combustion system, including: burner, controls, boiler, fuel handling, blending, and balance of plant systems to deliver a total sole source solution. Specializing in these applications gives facility managers the confidence they require for a hardened system that operates reliably safely and is design to work together from the ground up.



500HP firetube boiler with SPEC-COM Hydrogen burner



BLENDING SKIDS

Fuel gas blending systems for boilers and generators are designed to accurately blend biogas with natural gas, with preference given to the biogas to reduce natural gas consumption. Perfect for facilities that have their own source of digester gas, landfill gas, or other manufactured fuel gas, and want to minimize natural gas consumption and expense.



CASE STUDY:

PREFERRED COMBUSTION CUSTOM GAS TRAIN FOR SOUTH AFRICA APPLICATION

Preferred Combustion specializes in applications as rare and large as this one were able to design a blending skid to meet the project needs. Preferred's engineering and manufacturing team built this custom skid and conducted a Virtual Factory Acceptance Test (vFAT) that was attended by the project stakeholders both remotely and in person.

Blending skids are primarily used in facilities that have their own source of digester gas, landfill gas, or other manufactured fuel gas, and want to minimize natural gas consumption and expense. This blending skid was also programmed utilizing Preferred's vast combustion engineering experience with the Allen Bradley CompactLogix PLC Platform. Now shipped, this beautiful blending skid is ready for its new home!



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GREEN HYDROGEN & GAS BLENDING

Often, plants that produce hydrogen or hydrogen-rich process gases will turn to Preferred to maximize consumption of the fuel to offset purchases of typically utilized fossil fuels (such as natural gas or liquid propane gas) to power their industrial power plant. Preferred will perform detailed process analysis and engineer the combustion system solution tailored for the facility. Whether the customer is a chemical-producing facility, refinery, food processing facility, nuclear facility, or a facility considering adding hydrogen production to their plant through electrolysis or fuel cells, Preferred has solutions for all green, blue, pink, or brown/gray hydrogens.

Preferred Combustion specializes in gas blending and combustion systems for alternate fuels, including various process gasses. These waste gases can be a byproduct of the reforming or membrane process or can be generated from

electrolyzers and fuel cells which are not made from fossil fuels. Therefore, they are “green” as no emissions were spent to create them.



CASE STUDY:

PREFERRED'S SUSTAINABLE SOLUTIONS FOR HYDROGEN & SPECIAL FUELS

An American based chemical manufacturer decided to make use of their waste/bi-product hydrogen which significantly reduced their use of fossil fuel for their process steam requirements. But the customer needed the right company to deliver a controls, burner, boiler, fuel handling, blending, and a balance of plant integrated combustion package. They came to Preferred Utilities Manufacturing for a total combustion design solution which included a custom (IBEW / UL 508) PLC flame safe guard system with integrated combustion control, fuel ratio control, boiler

water control and balance of plant interface. A 10" touch screen operator interface with plant wide SCADA communications provides easy process / efficiency monitoring and trouble shooting operations.

For single source responsibility, significant energy savings, and unsurpassed combustion engineering expertise, choose Preferred.

* See picture above.





**REDUCED INSTALLATION TIME, INCREASED EFFICIENCY,
LOWER EMISSIONS, AND RELIABLE COMBUSTION.**

SPECIFICATIONS

SPECIFICATIONS	APPLICATIONS:	Single Burner Auxiliary Burner Multiburner Utility Burner Watertube	Firetube Thermal Oxidizers Air Heaters
	FUEL:	Natural Gas Hydrogen LPG	
	EMISSIONS:	Consult Application Engineering	
	BURNER EFFICIENCY:	3% Excess Oxygen Levels Available	
	TURNDOWN:	10:1 Contingent on available fuel pressures	
	SIZING:	A Full Range of Burner Heat Input Available, Consult Application Engineering with your project details	
	BURNER CONTROL & MONITORING:	Safety PLC Based Burner Management System with, Multiloop Controller or PLC Based Combustion Control System.	



MORE ABOUT PREFERRED'S COMBUSTION

There are multiple burner lines available:

- Preferred X-Plus (Gun Style and Register Style)
- Preferred Utility Burner
- Preferred NanoNOx Burner (Ultra Low NOx)
- Preferred API-RF and AP-AF Burners

Capacities:

5 MMBtu/Hr through 400 MMBtu/Hr

Emissions:

Ultra Low NOx, Low NOx without FGR, and Low NOx with minimal FGR are available.

Ultra High Efficiency:

1.5% - 2% Excess Oxygen Levels Available

*Stable combustion with high turndown ratio

Preferred offers the complete combustion system solution through single-source responsibility and value-added offerings including:

Fuel Piping Trains

Offered in ANSI B31.1, Class 1 Div 2, NEMA 4, Stainless Steel, and Carbon Steel Construction. Standalone Fuel Blending skids are engineered for your Boiler or Gas Fired Generator to offset primary fuel consumption.

Burner Management and Combustion Control Systems

Engineered to your specifications in PLC, Microprocessor, Multiloop, or Combination Platforms. Control systems available in Class 1 Div 2 and Safety Integrated level designs.

Combustion Consultation

Physical Flow Modeling and Computation Fluid Dynamics (CFD) can help optimize proper air flow distribution with your proposed application. It is also offered as a service for existing field applications, including:

- Site and Energy Surveys
- NFPA 85 Audits
- Turnkey Installation
- Installation Supervision Services
- Startup and Commissioning Services
- Aftermarket Support

Applications:

- Single Burner
- Watertube
- Auxiliary Burners
- Firetube
- Multiburner
- Thermal OxidizersT
- Air Heaters
- Utility Boilers
- Coal > Gas Conversion

Fuel Type

- Natural Gas
- Process / Waste Gas
- Light/Heavy fuel oil
- Biogas / Landfill Gas
- Propane
- Solid Fuel
- Hydrogen



OUR EXPERIENCE

Preferred Combustion has been manufacturing state-of-the-art combustion controllers, variable Ratio blended fuel systems, and burners for over 40 years. Preferred burner systems have ranged from one (1) MMBTU/Hr. heat input to boiler applications with multiple burners for boilers rated up to 250 KPPH of steam generation and multiple 3-MWe (continuous) engine generators.

Preferred Combustion offers state-of-the-art burners for your field-erected, package boilers, heaters, and thermal oxidizer applications. Whether your application is a coal-to-gas conversion, waste gas, hydrogen or specialty gas, Preferred's combustion engineers have the right burner for your new or retrofit applications.





ALSO AVAILABLE:

Fuel Oil Handling Systems
Fuel Gas Blending Systems
SCADA & SMART Monitoring Systems
Auxiliary Balance of Plant Controls
Instrumentation
Nuclear Outage Solutions

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