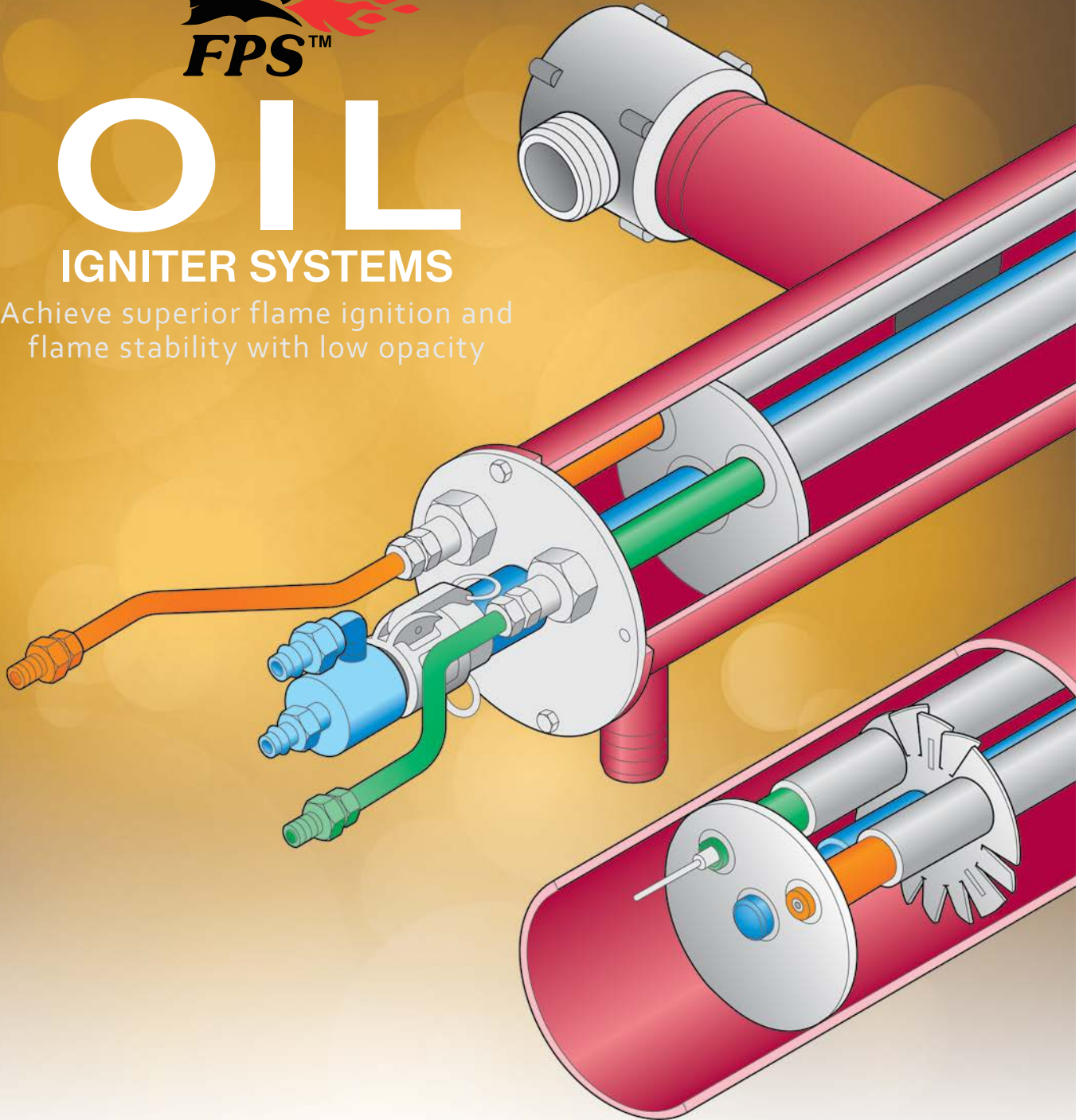




# OIL

## IGNITER SYSTEMS

Achieve superior flame ignition and flame stability with low opacity



ENERGY | ENVIRONMENTAL

# FPS OIL IGNITER SYSTEMS

Babcock & Wilcox (B&W) has successfully used the FPS® igniter in a variety of burner and fuel applications. Such applications include new low NO<sub>x</sub> burners as well as replacement of old igniters in existing burners.

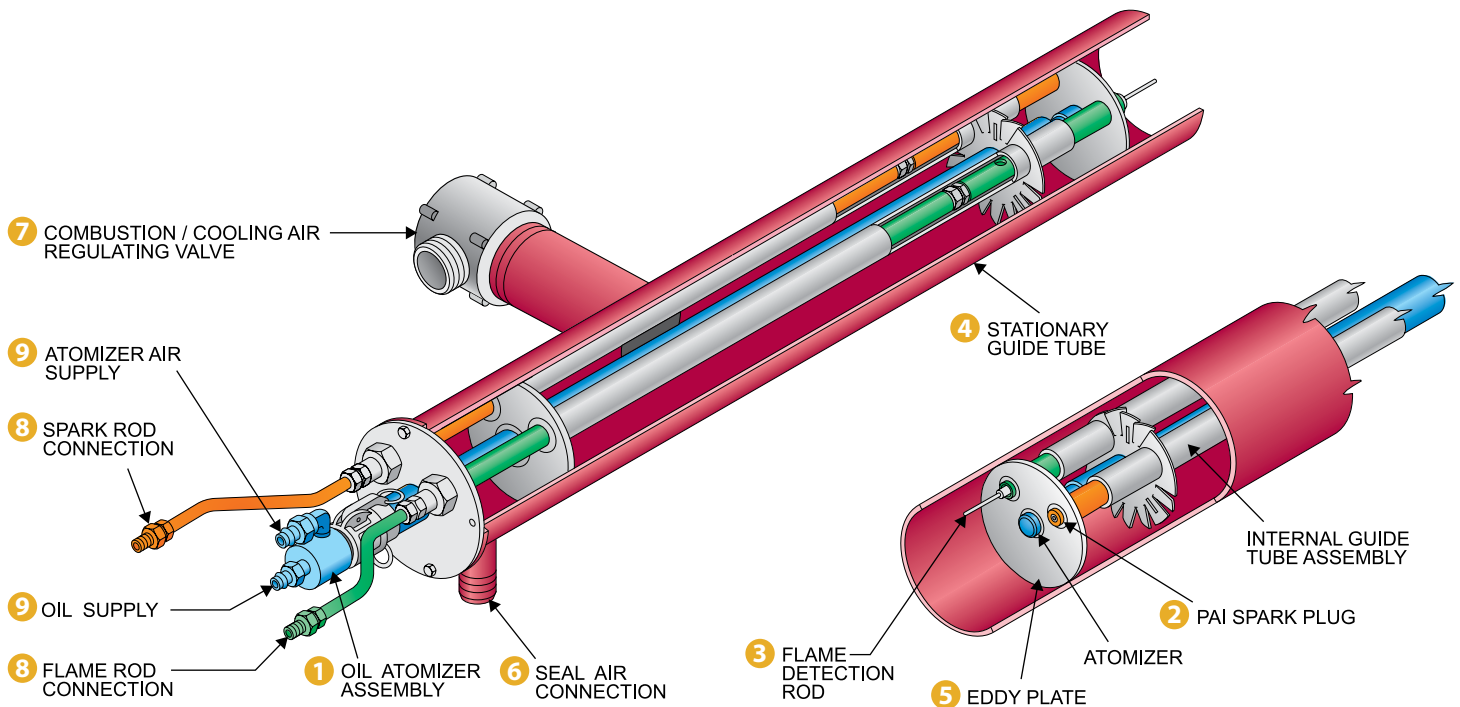
This advanced igniter design was developed to achieve superior flame ignition and flame stability with low opacity. The FPS oil igniter serves as a dual purpose igniter for boiler warm-up, burner light-off and support during unstable pulverizer conditions. With the proper controls, the igniter can be operated at a fixed heat input of Class 1, 2 or 3. The igniter features a proven flame rod technology for detecting the igniter flame while discriminating from other flames in the boiler.

The FPS igniter is designed as a simple plug-in replacement of your existing igniter with little or no modification necessary to the rest of the burner. Igniters are shop-assembled and inspected before shipment. Each is backed by our outstanding customer service as well as more than 145 years of quality, integrity and field experience in the power generation industry.

Count on B&W's system approach for the engineering expertise necessary to meet your burner and boiler needs.

## FPS igniters offer:

- Proven performance
- Lower opacity
- Reliable ignition
- Superior flame stability
- Integral flame detection
- Fixed position; no moving parts
- Low cost plug-in design
- Lower maintenance
- Proven mechanical reliability and operation



## SPECIFICATIONS

### FPS Oil Igniter

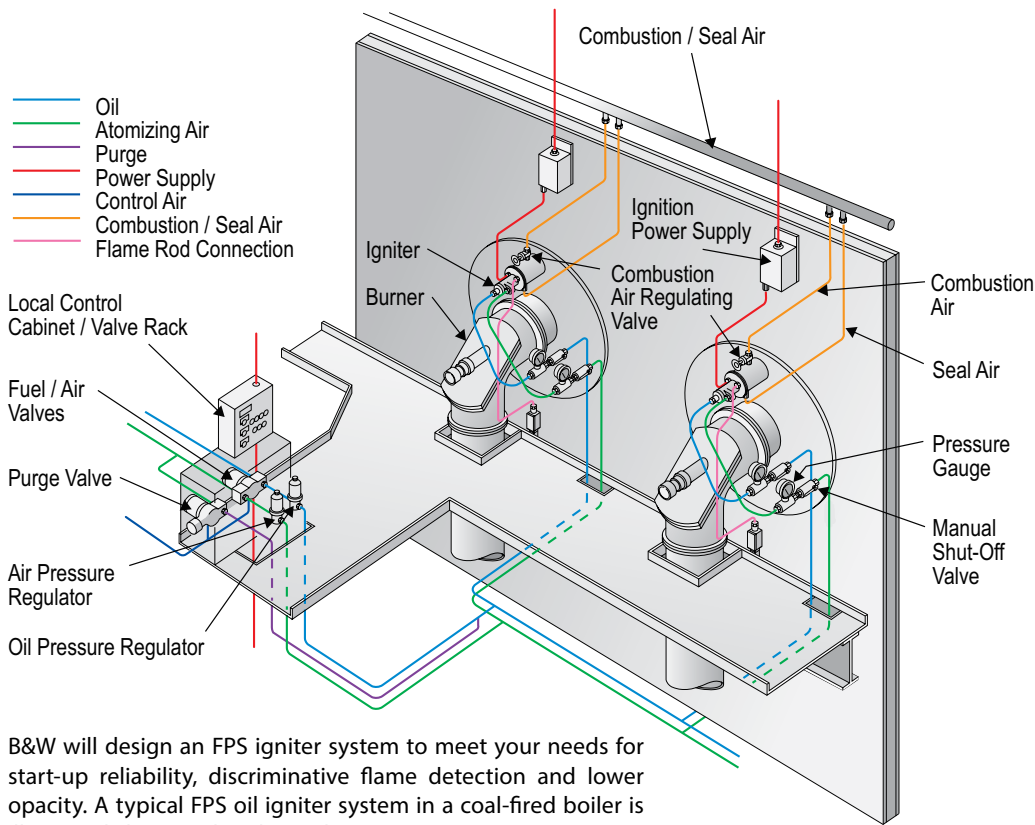
- Capacity: 4 to 20 million Btu/hr
- Oil viscosity: 32 to 45 SSU (#2 oil)
- Oil pressure: 40 to 120 psi
- Atomizing air: 75 psi minimum; 85 to 90 psi desired
- Combustion air: 80 to 200 SCFM @ 2 to 6 in. above furnace

### Flame Detection – Sunspot

- Input: 120 VAC, 1/8 amp
- Output from two form C relay contacts:
  - 1) 5 amp @ 30 or 120 VAC (resistive)
  - 2) 3 amp @ 120 VAC (inductive)

### Plasma Arc Ignition

- Input: 120 VAC, 50/60 Hz, 100 VA
- Output energy: 8 joules @ 3 arcs/sec



A standard valve rack with control panel is factory wired and tested to reduce installation time and cost. This valve rack can be conveniently located anywhere near the burner front.

B&W will design an FPS igniter system to meet your needs for start-up reliability, discriminative flame detection and lower opacity. A typical FPS oil igniter system in a coal-fired boiler is illustrated above with in-line valving.

## MECHANICAL DESIGN FEATURES

### 1. Oil Atomizer Assembly

SST construction, produces a finer spray, reduces particulate and opacity emissions, minimizes atomizer plugging

### 2. PAI Spark Probe

High temperature extension with removable spark plug

### 3. Flame Detection Rod

Integral flame detection for igniter; high temperature extension with removable flame rod

### 4. Stationary Guide Tube

Stationary guide tube with stainless steel end mounts easily into the burner

### 5. Eddy Plate

Provides proper mixing of the combustion air and fuel for reliable ignition and flame stability

### 6. Seal/Aspirating Air Connection (pressure-fired units only)

Seal air chamber allows removal of the spark and flame rods and the oil atomizer

### 7. Combustion/Cooling Air Inlet

Supplies combustion/cooling air to the igniter

### 8. Spark and Flame Rod Connections

Flexible conduit connections allow removal of the flame and spark rods without electrical disconnects

### 9. Oil and Air Connections

Positive shut-off quick disconnects allow easy maintenance, while 1/4 in. oil and 3/8 in. air connections prevent accidental switching

## B&W's system approach increases reliability, reduces opacity and maintenance

- Flexible application of PLC logic to meet your burner management system requirements
- Comprehensive analysis for customized control to meet your individual design and operational requirements
- Increased reliability
- Improved mixing of fuel and air to reduce opacity
- Elimination of moving parts allowing a near maintenance-free igniter
- Integral flame rod detector which senses only the igniter in any burner/boiler configuration

### Control Features

- Programmable logic control (PLC) based
- Pre-wired, factory tested
- Pre-assembled valve rack – allows simple pipe-in / pipe-out design
- A151 B31.1 power piping code
- Fail-safe closed valving
- Power requirement: 115 VAC, 50/60 Hz, 10 amps
- Factory Mutual approved with Sunspot flame detector
- Remote or local operation
- NEMA 4 control cabinet

## Other B&W/FPS igniter and equipment solutions

- Gas-only igniter
- Dual fuel oil and gas igniter
- Replacement for corner-fired horn igniters
- Flame scanners
- Boiler/burner control systems

For more specific information on our igniter systems, please contact us at:

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