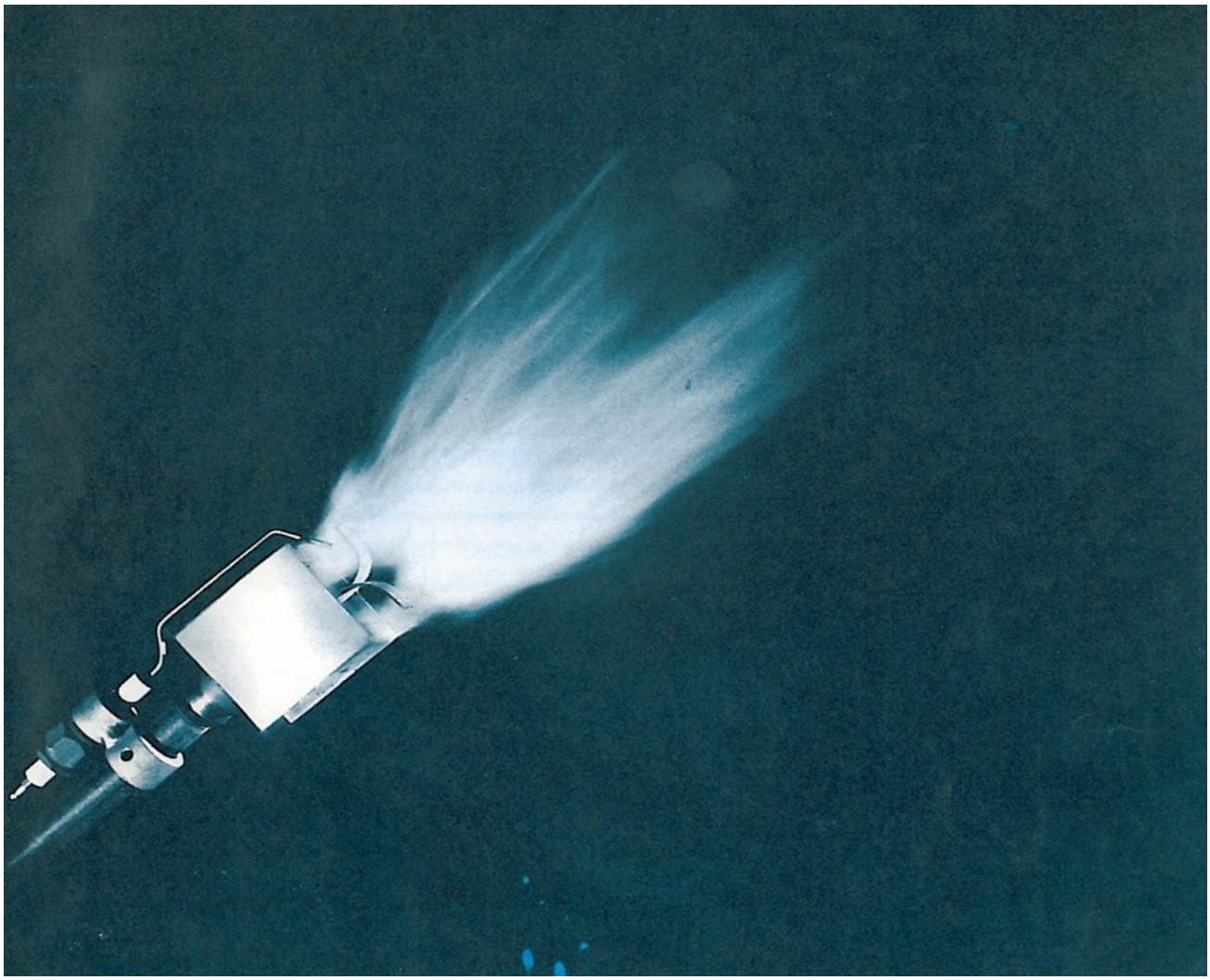


CCS&ES PILOTS

The pilot designed for difficult operating conditions. This new and unique pilot is the solution to chronic operating and control problems caused by erratic pilot performance. It will ignite and maintain stable flame in air velocities in excess of 6000 feet per minute. Can be used on any gas-oil or dual fuel burner system - boilers- dryers - rotary kilns - direct fired heaters - supplementary fired waste heat boilers or any other combustion application where constant dependability is a requirement. Can be operated with low or high pressure gas systems, using natural gas, propane, butane, or other hydro carbon gases, and will meet O.S.H.A. requirements.

Combustion Controls Solutions
& Environmental Services, Inc.

3132 Wilford Drive*Toledo, Ohio 43617
419.841.9984 * 419.841.9535 *fax*
www.oxidizerservice.com

BALANCED DESIGN SOLVES PILOT STABILITY PROBLEMS

The patented aerodynamic principal that makes the CCS&ES Pilot stable, and prevents pilot flame-outs, is a new design break-through. Due to this unique design, the air velocity on the outside of the pilot assembly and the air that passes through the pilot assembly is in a constant differential balance. Any sudden changes in air velocities on the outside of the pilot assembly will cause the same relative change inside of the pilot assembly, thus the constant differential is maintained and the CCS&ES Pilot will remain stable with no possibility of flame-out.

The CCS&ES Pilot is a raw gas pilot, with an extended venturi mixing head assembly. This design is not subject to clogging by foreign material in the air stream. CCS&ES Pilots have been operating in difficult and dirty installations for years with little or no maintenance problems. Air velocities in excess of 6000 FPM, which are encountered in some large boiler burner systems, present no problem for the CCS&ES Pilot. Even under these operating conditions, the CCS&ES Pilot will provide a smooth, fast light off of main burner system.

The lighting efficiency of the main burner is exceptional because of the hot pilot flame and a steady fire during the initial critical light off period. The CCS&ES Pilot does not require a pilot pressure regulator. Select the proper model and orifice size according to your burner's requirements and the plant gas pressure. Each pilot will maintain a dependable flame over the range of pressure indicated in the curve on the spec. sheet. The pilot gas supply line must have a line filter or "Y" strainer in same as indicated in the installation instructions.

The flame safeguard specialist will be most interested in the flame sensing procedure using the CCS&ES Pilot. We recommend the UV sensor for the majority of applications. The flame rod may be used for lower velocities and those applications where UV does not apply.

The pilot flame should be scanned just ahead of the pilot according to gas pressures and air velocities of the system.

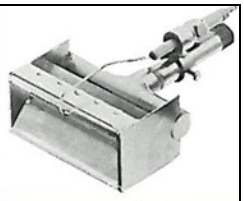
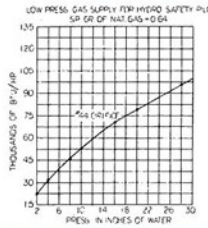
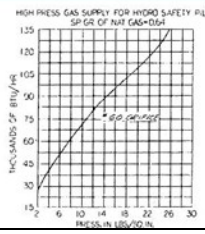
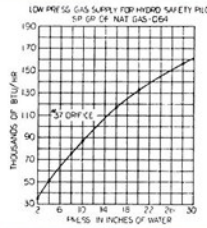
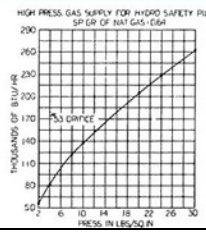
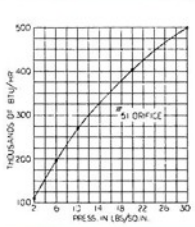
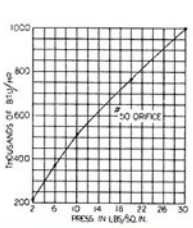
The installer can use good judgment in installation so that the pilot flame cuts across the main flame pattern and the pilot burner itself is out of the main flame. Specific applications and suggestions are available from the distributor.

We recommend that the air source for the pilot be from the back of the pilot for best operation.

CCS&ES AIR-COOLED IGNITION SYSTEMS

NEW CCS&ES Retractable Air Cooled Ignition System with heat releases from 50,000 BTU/Hr, up to and exceeding 15,000,000 BTU/Hr - for Kilns, Dryers, C 0 Furnaces, High Pressure Direct Fired Heaters, Sulphur Recovery Units, Power Plant Utility Boilers, etc. - Will operate on natural gas, butane, or propane.

SIZE & SPECIFICATION CHART

MODEL	P-2	P-1	PS-4	PS-6
ILLUSTRATION				
GAS INPUT AND BTU OUTPUT	2 PSI to 30 PSI 22,500 to 90,000 BTU 2" WC to 30" WC 30,000 to 118,000 BTU	2 PSI to 30 PSI 65,000 to 265,000 BTU 2" WC to 30" WC 48,000 to 190,000 BTU	2 PSI to 30 PSI 100,000 to 500,000 BTU	2 PSI to 30 PSI 200,000 to 1,000,000 BTU
CONSTRUCTION	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
RECOMMENDED BURNER SIZE	500,000 to 15,000,000	10,000,000 to 50,000,000	35,000,000 to 100,000,000	100,000,000 up
PERFORMANCE CURVE (CHARTS BASED ON 1000 BTU/CU. FT. & 0.64 SP. GR. NAT. GAS)	 	 	 PS-6 and PS-4 Models were especially designed to handle smooth, reliable lightoff of utility boilers, cement kilns, soda ash dryers, alfalfa dryers and other large burners	

SPECIFICATIONS

The CCS&ES PILOT has been developed to meet the needs of all types of automated or manual combustion control systems, where stable and strong U.V. or flame rod signals are a requirement. They have been designed to operate in either a continuous or interrupted pilot system, with gas supply pressures ranging from 2" of water column up to 30 PSTG. See charts.

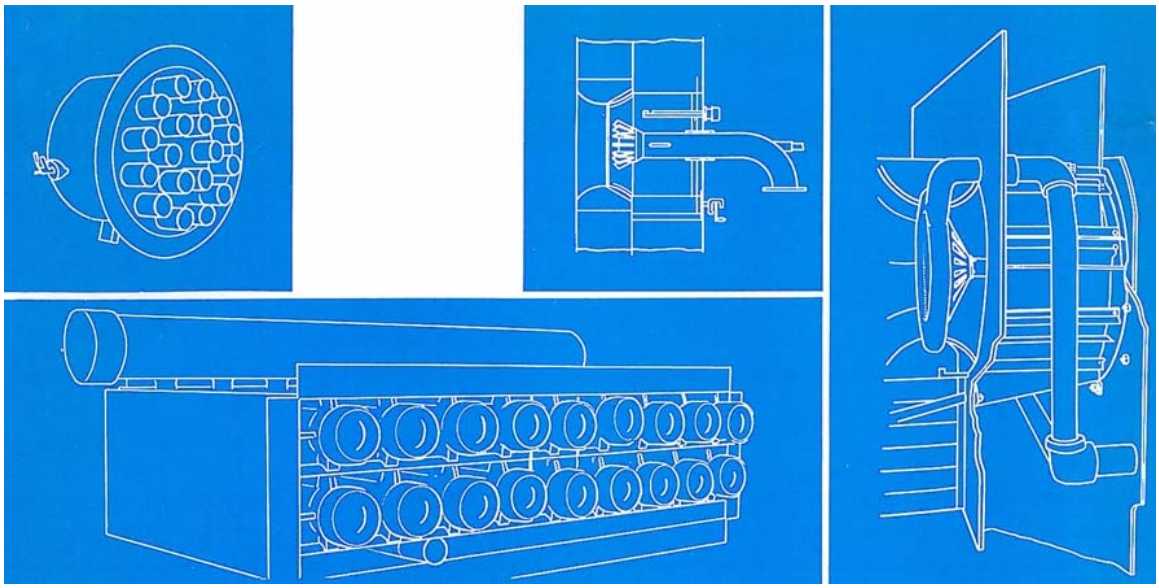
The CCS&ES PILOT will operate on natural draft, forced draft, or induced draft combustion systems. It will provide instant main burner ignition on any main burner fuel - ranging from natural gas, LPG, diesel fuel oil, No. 6 fuel oil, to the heaviest of tars, pitches, or waste oils.

The CCS&ES PILOT will ignite and maintain a stable flame in air velocities ranging from ambient velocities up to and including velocities in excess of 6000 FPM - and in air temperatures from ambient up to in excess of 1200°F. Because the CCS&ES PILOT is a raw gas design, it will operate in any furnace static pressure condition up to the limit of the gas supply pressure.

The CCS&ES PILOT part numbers, gas flow charts, orifice sizes, gas supply pressure, and dimensions are shown on detail drawings.

Because of the unique design of the CCS&ES PILOT units, there is no requirement for a separate gas pressure regulator in the gas supply line to the CCS&ES PILOT - it will operate on the plant gas supply pressure.

SUGGESTED APPLICATIONS FOR CCS&ES PILOT



INSTALLATION & OPERATING INSTRUCTIONS

1. The CCS&ES PILOT should be installed in such a manner that the air flow from the back side (gas supply connection end) of the pilot head.

2. The CCS&ES PILOT should be located in such a manner that it provides instant ignition of the main burner. Good combustion practice should be used in locating the CCS&ES PILOT relative to the main burner system. In general, it should be located one inch away from the main burner, and a minimum of two inches in back of the main burner.

3. For details on UV scanner tube location relative to the CCS&ES PILOT consult the instruct-tion sheet that is supplied with the pilot.

4. The location of the flame rod relative to the CCS&ES PILOT head should be determined by following the flame safeguard control supplier recommendation, and good combustion practices. In general, the flame rod system should not be used in high velocity air streams (consult the distributor for a flame rod application in high-velocity or high-temperature air systems).

5. A pipe strainer must be installed in the gas supply to the CCS&ES PILOT. The location of the strainer, relative to the pilot head, should be as close as good piping practices will allow. The perforations in the pipe line strainer screen should not exceed 1/32” in size.

6. The spark ignition assembly, and the flame rod assembly, can be adjusted to any location to meet the specific burner application. When the CCS&ES PILOT system is to be used in a high-temperature air stream (above 500°F), contact the distributor for information on special spark ignition system requirements.

7. CCS&ES PILOT units are orificed as shown on the respective flow charts for high pressure gas; for low pressure gas service, re-orifice to the drill size shown on the low pressure gas flow chart.

PARTIAL LIST OF CCS&ES PILOT APPLICATIONS

Supplementary-fired turbine exhaust

Dryers

Fume incineration

Burning spent sulphite liquor

Heat treating furnaces

Crude oil burning

Ovens

Waste liquid disposal by incineration

Marine Boilers

Refinery heater

Hydrogen generator

Boilers

Soda ash dryer

Cement Kilns

Inside Sales
419.841.9984
info@oxidizerservice.com