

FLAT FLAME BURNER PLIF COMBUSTION CALIBRATION SYSTEM

APPLICATION NOTE PLIF-003 (US)

Flat Flame Burner System

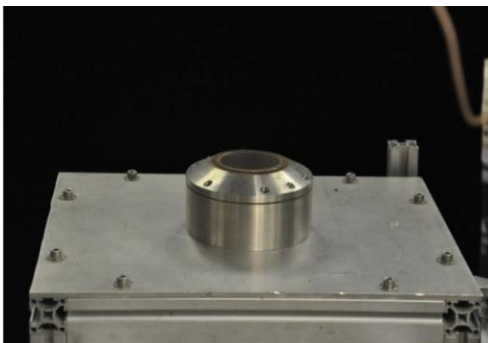
To obtain quantitative measurement of radicals or species in combustion, it is important to perform calibration of the flame. The Flat Flame Burner system offered by TSI is designed to provide the necessary tool for such a step. The main functions of the system are:

- Production of a calibration flame with specific reactants producing specific products gases
- Control of species emissions such as O_2 and CO_2
- Laminar flame production for uniform well behaved system operation
- Generation of a well behaved flame with a uniform adiabatic flame temperature to calculate the total heat transfer and calibrate thermocouples and other temperature measurement techniques such as CARS and Rayleigh
- Generation of a well behaved flame with uniform, known species concentrations such as OH to calibrate species measurement devices such as PLIF, CARS and Rayleigh

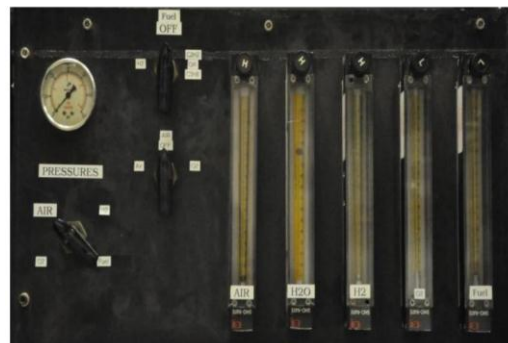
The system is a complete setup including the Burner and the Control panel as shown below:

- Flat flame burner
- Flow panel
- Rotometers, metering valves, shut off valves, pressure gauges
- Cooling control for the total heat consumption

Precise controls can be set to feed the appropriate gases to allow the emission of species at definite quantity.



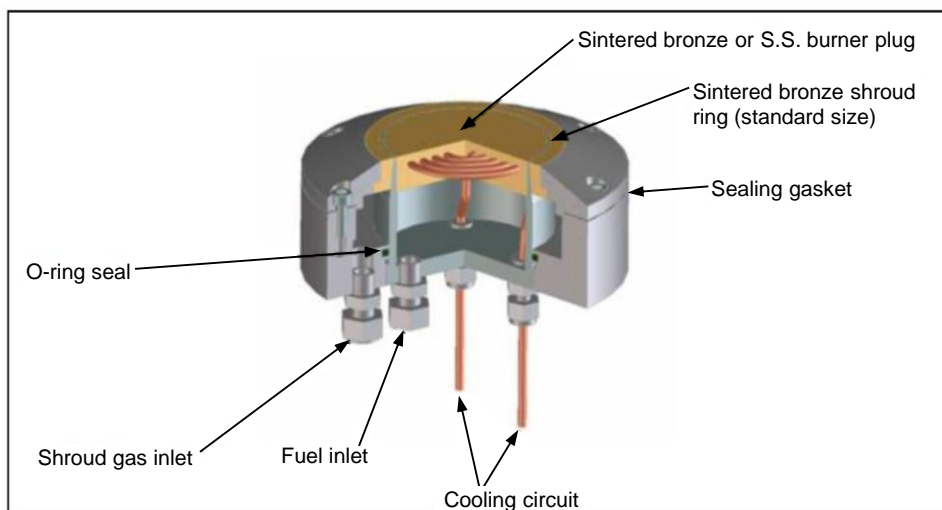
Flat flame burner head



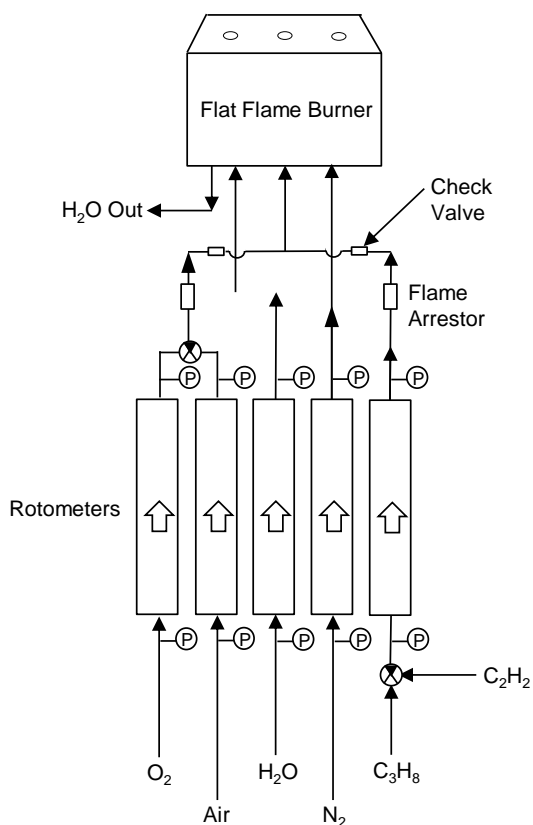
Flow control panel

A detailed instruction manual is supplied with the system to allow the user to operate the system properly and safely. Several items are not included in the system and should be obtained by the user, including, the gases used by the burner for the experiment, and also a proper exhaust system for the burner to ensure safe operation.

Schematic diagrams of the burner and the flow control panel are shown below.



Schematic sketch of the Flame burner



Flame generated from the Burner

Schematic diagram of Flow control



UNDERSTANDING, ACCELERATED

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