

Next Generation Low NOx Burner Introduced

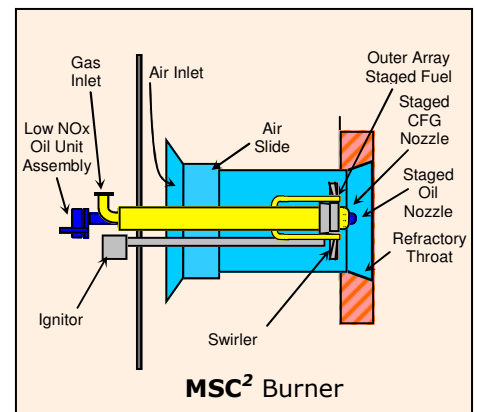
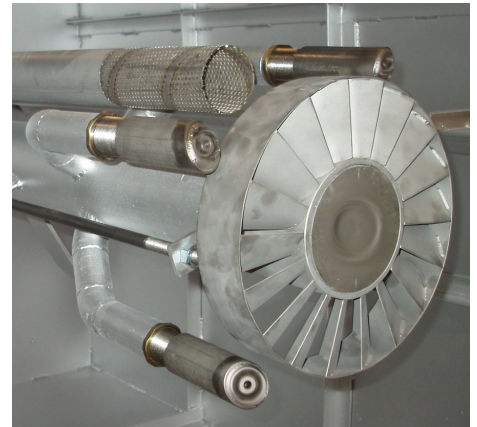
With the constantly evolving emissions regulations, Hamworthy Peabody Combustion has decided to build upon the success of their **MSCTM** burner. The development of the **MSC^{2TM}** included the use of Hamworthy Peabody Combustion's **SMARTflowTM** modeling, and the resources of Hamworthy Combustion's World-leading Advanced Technology Center (14 test furnaces with the capability of testing burner capacities up to 300 MM BTU/hr).

The basis for the **MSC^{2TM}** burner's operation is Multi-Stage Combustion (MSC). The staged **Q-jetTM** design introduces fuel into primary and secondary air streams. The primary stream allows for their new **STABLEflameTM** technology, ensuring an ultra-strong root flame for extreme stability. The secondary zone stages the flame to mitigate thermal NOx production.

Every aspect of the burner has been reviewed and updated: from air entry to gas and oil nozzles to swirler, all were strategically redesigned to optimize combustion staging, balancing minimal flame temperature with precision flame shaping. Low CO and particulate performance, while maintaining low NOx with lower FGR, has been attained. For liquid fuels, the standard **SPIROjetTM** low-NOx atomizer is utilized; or, as an option, the **SPIROjet EXTM** atomizer offers low NOx performance plus ultra-low atomizing media consumption.

Ignition is achieved using Hamworthy Peabody Combustion's highly successful line of Gas-Electric ignitors. These have the capacity to fire a wide variety of fuels (natural gas, propane, coke oven gas, etc.) and can be rated NFPA Class 1, 2 or 3, depending upon the application requirements. The highly reliable, self-cleaning, and low maintenance Chentronics' (a Hamworthy Combustion Group company) High Energy Direct Spark Ignitor can also be supplied. This state-of-the-art burst mode ignition, with flashing indicator, allows the operator to observe the ignitor condition during operation. This also eliminates the need for an ignitor fuel train.

In summary, the **MSC²** is a highly reliable, efficient, low excess air/low NOx burner that can meet the emission reduction needs for today and tomorrow.



Throat Diameter:	10 to 52 inches
Firing Rate:	20 – 400 MM BTU/HR
NOx:	<20 ppm firing Natural Gas or Refinery Gas
	<60 ppm w/o FGR firing Natural Gas or Refinery Gas
	<70 ppm firing No. 2 Fuel Oil
CO:	<100 ppm
Excess Air Operation:	10% or less, typical
Ignitor:	Gas-Electric (Propane or Natural Gas)
	High Energy Direct Spark
Fuel Pressure:	Oil, 150 psig typical
	Gas, 10 psig typical
Combustion Air Temperature:	Ambient to 650°F
Oil Atomization:	Steam, Air, or Mechanical
Auxiliary Ports:	Flame Scanner, Sight Port
Turndown Ratio:	10:1 Natural Gas/8:1 Oil (Typical)

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