Maxon CROSSFIRE® Line Burner

- **Operational flexibility**
  - High moisture air streams
  - Low O_2 air streams
  - Highly inert air streams
  - Parallel velocities up to 4000 fpm, cross velocities up to 3000 fpm
- **Extremely low emissions** - NO_X levels of 25 ppm and CO levels of 250 ppm at 3% O_2 are possible. Contact your Maxon sales representative about your specific application.
- **Temperature uniformity** to enhance product quality
- **Up to 25:1 turndown** for process flexibility
- **High firing capacity** - up to 2,500,000 Btu/hr/ft (732 kW/ft)
- **Nozzle-mixing line burner** for use with low pressure natural gas firing
- **Also available in stainless steel housings and nickel-plated body versions**

MAXON
A Honeywell Company

201 East 18th Street, P.O. Box 2068, Muncie, Indiana, 47307-0068. Phone: (765) 284-3304. Fax: (765) 286-8394

Maxon CROSSFIRE® Line Burner

Design and Application Details

Maxon CROSSFIRE® Burners are nozzle-mixing, modular line burners designed for a variety of fresh and recirculated air process heating applications. The burner is available in a variety of arrangements, including straight, grid and ladder sections. An external blower supplies combustion air.

The CROSSFIRE® Burner is primarily used for in-duct firing. The CROSSFIRE® Burner can be designed within a system to allow for up to 2,500,000 Btu/hr/ft (732 kW/ft). The maximum fuel pressures and air pressures required for varying maximum firing loads are described in the table below.

Test Connection Pressures

Maximum Capacity MMBtu/hr/ft	Required Air Pressure (inches w.c.)*	Required Fuel Pressure (inches w.c.)*
1.00	2.1	7.4
1.25	3.3	11.5
1.50	4.7	16.6
1.75	6.4	22.5
2.00	8.3	29.4
2.25	10.5	37.3
2.50	13.0	46.0

*Differential pressures measured at test connection. Air and gas DP is differential over system static pressure.

Test Connection Pressures (metric)

Maximum Capacity kW/ft	Required Air Pressure (mbar)*	Required Fuel Pressure (mbar)*
300	5.2	18.4
375	8.2	28.6
450	11.7	41.3
525	15.9	56.0
600	20.7	73.2
660	26.2	92.9
732	32.4	114.6

*Differential pressures measured at test connection. Air and gas DP is differential over system static pressure.

Principle of Operation

The design of the CROSSFIRE® burner allows for extremely low emissions of both NO_X and CO. Impingement of a series of jets containing a substantially homogeneous mixture of fuel and air creates stability and extremely short flame lengths. The high excess air translates into low NO_X levels. The inherently stable design allows operation of the burner in a fuel lean condition without creating high levels of CO.

The burner performs optimally at a specific fuel/air ratio throughout the firing range. Deviation from the optimum fuel/air ratio will result in trade-off between NO_X and CO emissions. For example, a fuel lean setting (in reference to optimum fuel/air ratio) will result in lower NO_X emissions but higher CO emissions. Conversely, a fuel rich setting, again in reference to the optimum fuel/air ratio, will result in higher NO_X emissions with lower CO levels.

The fuel/air ratio is controlled by a Maxon MICRO-RATIO® Valve throughout the operating range. The MICRO-RATIO® Valve allows for a variable fuel ramp corresponding to the chosen maximum lineal firing duty. The MICRO-RATIO® Valve is sized according to the fuel and air flow requirements for the entire combustion system. For MICRO-RATIO® Valve sizing information, see Sections 7000 and 7100 of the Maxon product catalog.

For optimum performance and emissions control in applications with variable process flow, use Maxon's SMARTFIRE™ Intelligent Combustion Control System. See Maxon catalog section 7200 for more details.

201 East 18th Street, P.O. Box 2068, Muncie, Indiana, 47307-0068. Phone: (765) 284-3304. Fax: (765) 286-8394