

Gideon Burner

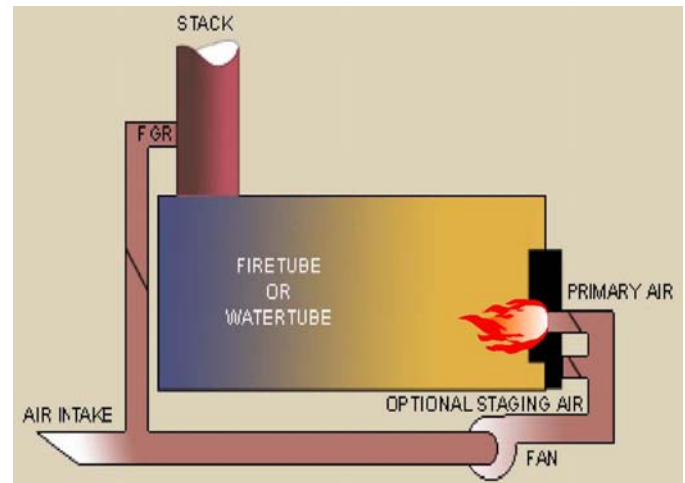
Ultra Low NO_x

- **Single Digit NO_x and CO**
- **High Turndown Ratio**
- **Rapid Adjustment to Load**
- **Cost Effective**



GIDEON ULTRA LOW NO_x BURNER

The Gideon Ultra Low NO_x Burner is the answer to compliance with emission standards for operators of all boilers. The Burner is a precision made Low NO_x Burner designed to meet the most stringent NO_x emission requirements. The design and operation of the burner is protected by 18 worldwide patents. Field tests of the burner have demonstrated that the burner can achieve less than 6 ppm NO (d, 3% O₂) without the use of catalyst, reburning or ammonia or urea injection.



==New Installations and Retrofit Applications==

The burner can be installed on any new boiler or retrofitted to any existing boiler which uses a forced draft fan. The versatility of the burner is achieved by its simple design and custom manufacture of the connections to the boiler. The burner has been installed on firetube boilers which have swing doors and watertube boilers without restricting access to the boiler. The custom fit of the burner to the boiler will maintain the original boiler design, allow access to the boiler and minimize the installation cost of the burner.

==Maintenance==

The Gideon Ultra Low NO_x Burner is designed for the convenience of the operators of industrial and utility boilers. There are no moving parts in this burner. This simple design reduces maintenance to a minimum.

PERFORMANCE

The Gideon Ultra Low NO_x Burner operates with the lowest emissions and the highest performance of available burners. The burner has the following performance characteristics.

1. Excess Oxygen <1%
2. NO emissions <6 ppm (d,3% O₂)
3. CO emissions <10 ppm (d,3% O₂)
4. Compact stable blue flame
5. Turn down ratio, greater than 10 to 1
6. No moving parts

==Features==

The burner achieves its outstanding performance by a patented swirl design which produces short, strongly stable flames when using flue gas recirculation, FGR. FGR is provided to the burner through the air fan. FGR is regulated by a damper controlled off the steam demand which is modulated to maintain the optimum ratios of fuel, air and flue gas. The air, FGR and fuel are linked proportionally to maintain proper combustion and the desired levels of O₂, NO_x, and CO. The burner is fully modulated and has been demonstrated to operate over a turn down ratio of greater than 10:1. (Gas)

Partial Installation List

Measured NO _x Emissions Produced by the Gideon Burner			
Size (Million Btu/hr)	Fuel	Site	Measured NO _x (d,3% O ₂ , ppm)
2-3	Natural Gas with 500F Preheat	RC-EST (U.S.A.)	6
2-4	Natural Gas	RC-EST (U.S.A.)	7
2-5	Natural Gas	SPEL (U.K.)	5
2-5	Natural Gas	BEC (U.S.A.)	5
5-7	Natural Gas	Hospital Installation (U.S.A.)	7
6-10	Natural Gas	ITRI (Taiwan)	9
45	Natural Gas with 590F Preheat	Riley Stoker (U.S.A.)	10
90	Natural Gas without Preheat	Riley Stoker (U.S.A.)	13
19.9	Natural Gas without Preheat	Central Valley, CA (U.S.A.)	9
12.6	Natural Gas without Preheat	Central Valley, CA (U.S.A.)	9
25	Natural Gas FGR	Oil Field Steam Generator USA	6-9
100	Natural Gas FGR	Utility Boiler USA	9
10	Natural Gas With Preheat FGR	Glycol Heater Los Angeles Basin, CA	5
62.5	Natural Gas FGR	Oil Field Steam Generator Retrofit of Coen Burner	6-9
*Measured CO < 10ppm (d,3% O ₂)			

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