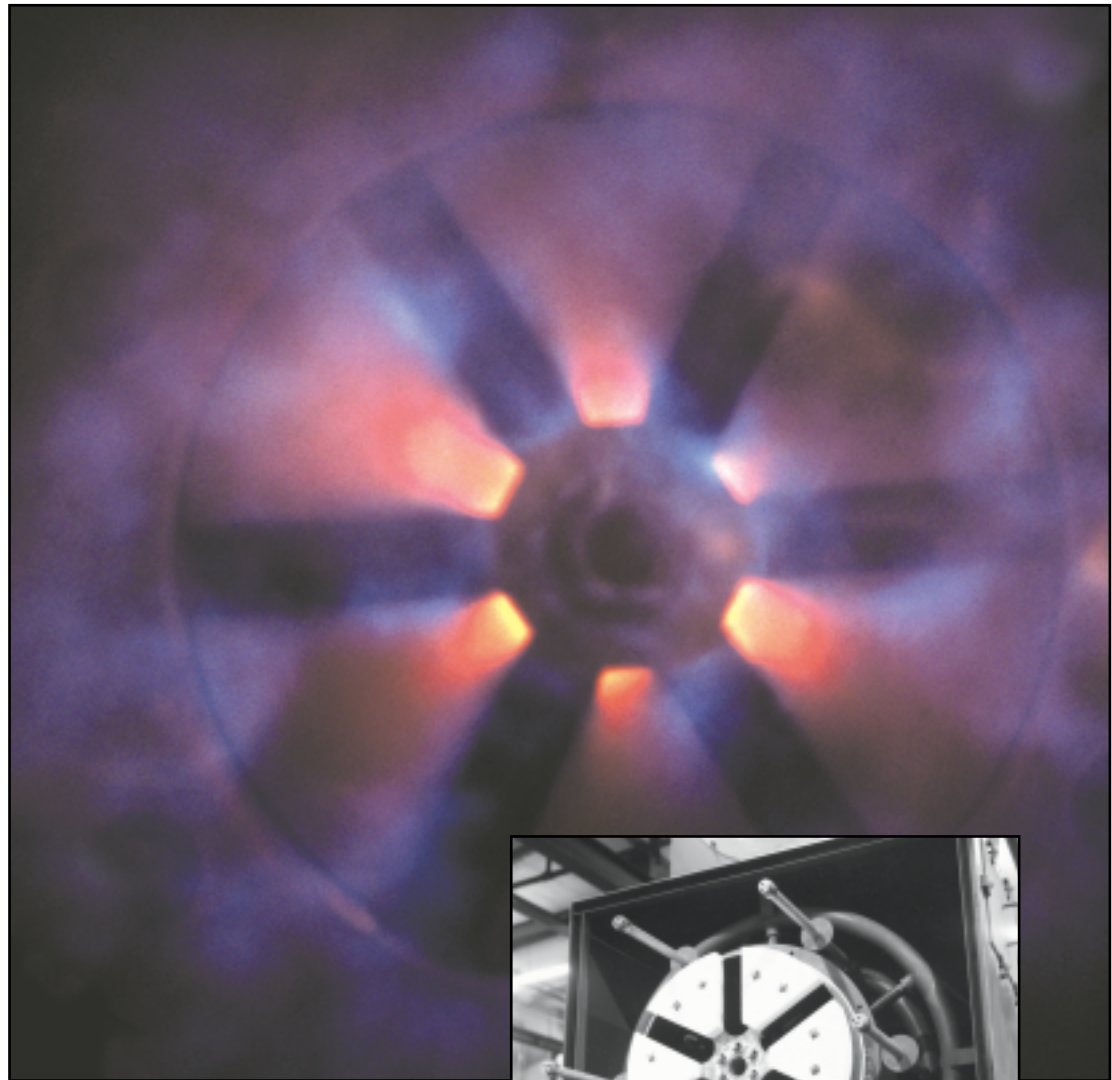
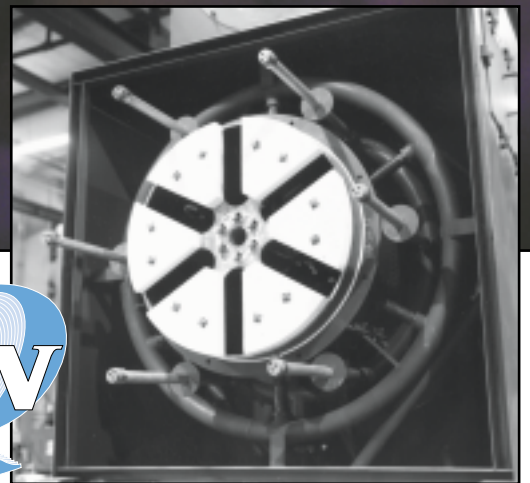


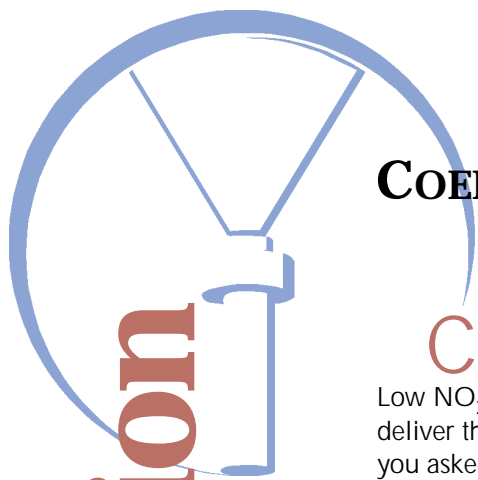
COEN

Quantum Low NOx Burners



**THE NO FLUE
GAS SOLUTION
TO LOW NOx
COMBUSTION!**



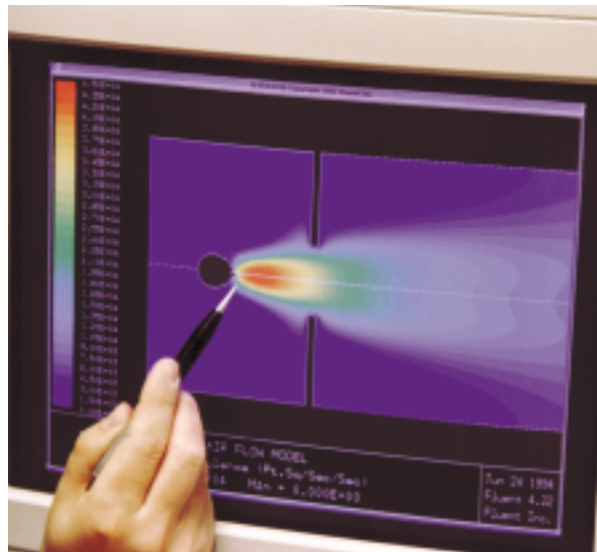


Innovation

COEN DELIVERS LOW NOX WITHOUT FLUE GAS

Coen Quantum Low NO_x[™] (QLN) burners deliver the performance you asked for at an extremely low operating cost and an affordable price. These state of the art burners meet the lowest emission levels required in the industry — normally without the addition of expensive flue gas recalculation (FGR).

Incorporating newly developed, innovative technology, Coen QLN burners set the new industry standard for low emissions and efficient combustion. Installing one of these state of the art burners in your industrial plant will assure your site the best combustion performance at the lowest possible cost.



Innovation is a Coen tradition

Evolution. At Coen, it's inevitable. That's because Coen makes an on-going commitment to research, development and testing that is unparalleled in the combustion industry today.

After extensive research into the needs of today's industrial customers and reviewing all current and future air quality regulations, Coen engineers took a leap forward in combustion technology.

With the aid of computational fluid dynamics (CFD) and other flow/combustion software programs, Coen assessed the thermal, chemical and physical performance of a revolutionary new burner design — a design that changed all the rules.

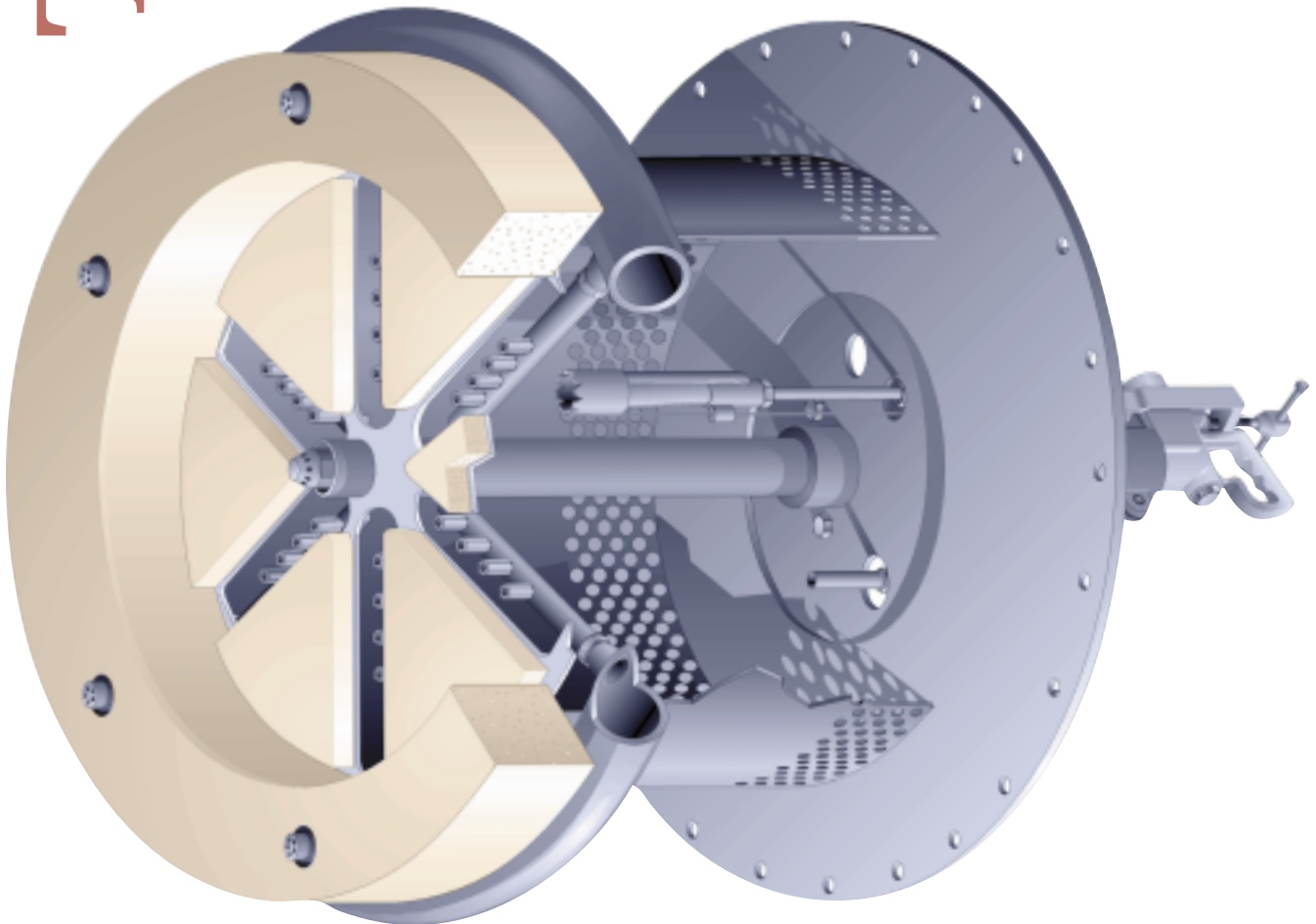


Technology

COEN QLN BURNERS

Superior NOx control technology

- High technology...easy installation
- Meets Federal and State NOx rules
- FGR usually not required for 30 ppm NOx
- Low installation cost
- Lower operating cost
- Lowest emissions available
- The standard for general industrial applications.



COMPARE QLN AND SEE WHY IT SETS A TOUGH INDUSTRY STANDARD

The benefits of Coen's QLN Burner

Coen's QLN burner is the new standard for all general industrial boiler applications including food processing, power generation, process steam, petrochemical, hospitals, and institutional users. Here is just a beginning list of QLN burner benefits:

- Low NOx and low CO
- Meets all State and Federal air quality standards
- Lower operating cost
- Rugged design with no moving parts
- FGR usually not required
- Lower installation cost
- No stack losses due to FGR



Dixon Canning in northern California reduced operating costs with a Coen QLN-powered package boiler.

The disadvantages of using FGR

The typical boiler owner may not be aware of some of the disadvantages of using FGR. Some of the disadvantages that have become apparent in the industry include:

- FGR installation cost
- FGR operating cost
- FGR fan maintenance cost
- Increased stack losses
- Potential flame instability
- Increase in carbon monoxide
- Potential flame-induced vibrations

Design features

- Limits prompt NOx as well as thermal NOx
- Three gas fuel zones for controlling NOx
- Fits standard windboxes
- Wide stability limits
- Ideal for multiple burner boilers
- **Future Regulatory Ready (FR²)**
While the QLN can achieve 30 ppm without FGR, think what it can do if your emission limits are only 50 or 80 ppm. The benefit is that these higher numbers can be met easily, and you are protected against future lower limits. In short, you are Future Regulatory Ready.

Cost comparisons give QLN the edge

The cost comparison chart at right illustrates exactly how revolutionary the QLN burner is. The rules of combustion technology have changed. QLN burners normally achieve low NOx without FGR.

The seven-year costs for a typical 100,000 pph packaged boiler with an economizer operating with 10% and 20% FGR to meet stringent NOx guarantees are estimated in the chart at right. Coen's QLN burner results in substantial cost savings.

The charts below show the annual additional cost for FGR due to increased horsepower and thermal stack losses. Figure 1 shows the annual additional horsepower cost for FGR. Figure 2 shows annual costs due to boiler stack losses.

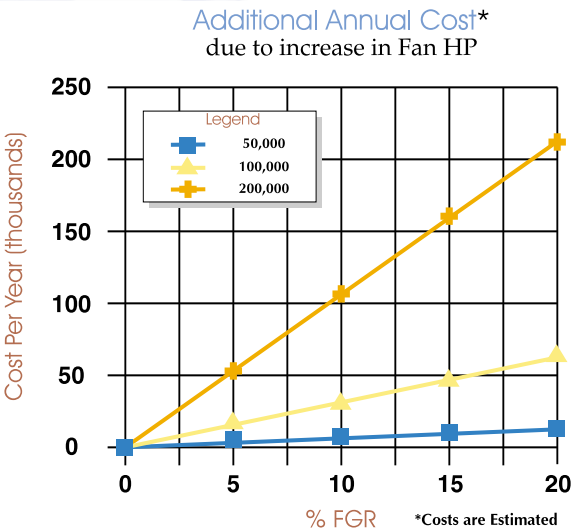


Figure 1

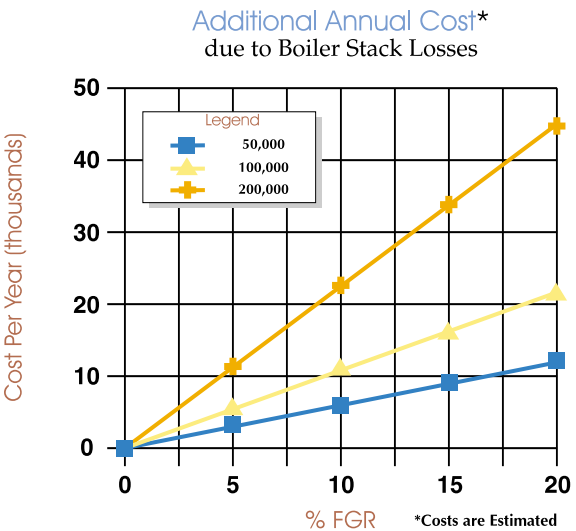


Figure 2

Cost Comparisons			
Coen QLN Burner vs Burners with 10% and 20% FGR			
Expense Item	QLN 0% FGR	Burners with 10% FGR	Burners with 20% FGR
FGR System & Ductwork	None	\$12,500	\$15,000
Installation Cost	None	\$10,000	\$12,000
Additional BHP Cost for FGR	None	\$32,000	\$62,000
Stack Losses Due to FGR	None	\$11,000	\$22,000
Cost for FGR Maintenance	None	\$1,000	\$1,000
Total Additional 1st Year Cost	None	\$66,500	\$112,000
Total Additional 7th Year Cost	None	\$330,500	\$622,000

Boiler: Typical 100,000 pph Boiler.
Operating Assumptions:

1. Total fan and motor efficiency of 60%.
2. 8400 operating hours/year.
3. Average power cost of \$0.10/HP-hr.
4. Average steam cost of \$4.50/1000#.
5. Fuel used is natural gas.
6. Stack temperature 350° F.



COEN'S QLN BURNER CUSTOMER PROFILES

Coen QLN burners enabled these companies to meet low emission requirements and realize substantial cost savings.



Pacific Gas and Electric

Location: Moss Landing, California

Capacity: 55,000 pph

Guarantee: 25 ppm NOx and 50 ppm CO

Results: Easily met the guarantee with 15 ppm NOx and 10 ppm CO.

Added bonus: Customer was able to shut down an older, inefficient boiler with this installation.



United Airlines

Location: San Francisco International Airport

Capacity: 75,000 pph

Guarantee: 30 ppm NOx and 400 ppm CO

Results: Guarantee was met easily **without the use of flue gas recirculation (FGR)**.

Added bonus: Significant efficiency improvement noted. O₂ level dropped to half of the previous burner.



ARCO

Location: Bakersfield, California

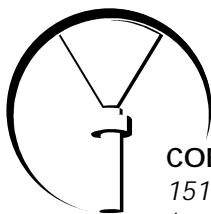
Capacity: 62,500,000 BTU/hr

Guarantee: 30 ppm NOx and 100 ppm CO

Results: Achieved 12 ppm NOx at full load and 1 ppm CO **without the use of FGR**.

Added bonus: Replaced the existing 50 HP fan motor with the QLN 30 HP fan motor to save \$19,000/year. Not using 15% FGR will save an additional \$40,000/year.

For more information and a complete installation list, contact your Coen representative. They are ready to work with you to meet your specifications for a dependable, rugged and cost-efficient solution for your combustion application.



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