

C-RMB[™] Cell-Rapid Mix Burner

Coen's Efficient, Reliable, Ultra-Low-NOx Burner Just Got Even Better

IMPROVED ULTRA-LOW EMISSIONS & OPTIMUM PERFORMANCE

- Sub 5ppm NOx
- Less than 50ppm CO
- Extremely stable combustion
- Safe operation with simple controls
- Excellent burner turndown
- Low installation, operating and maintenance costs

BASED ON PROVEN ULTRA-LOW-NOx BURNER DESIGN

- More than 350 *Rapid Mix Burners (RMBs)* installed since 1994
- Thermal NOx controlled by FGR
- Prompt NOx controlled by rapid mixing of fuel and air
- No premix inside register prevents flashback
- Stabilized by high-swirl primary zone and refractory quarl
- Simple, rugged design with no moving parts

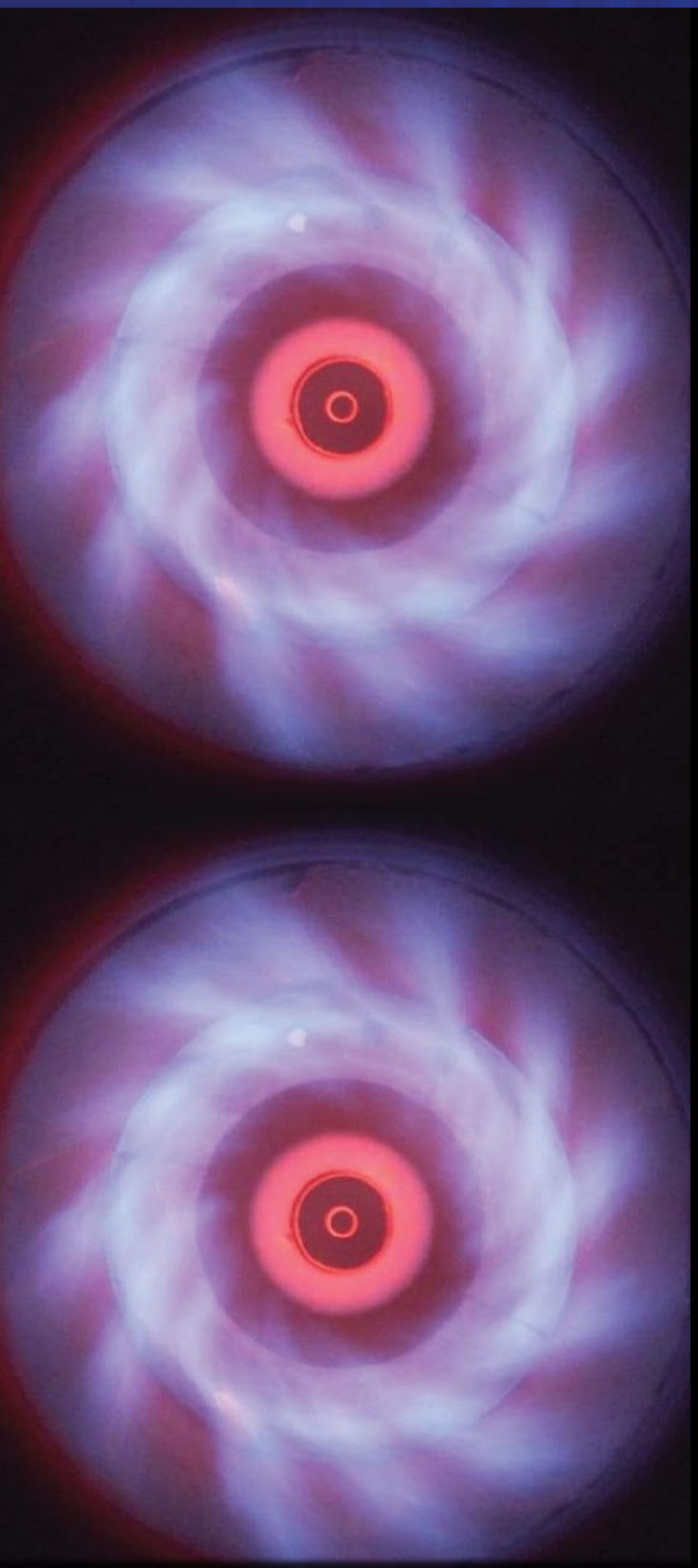
INDUSTRY REQUIREMENTS DEMAND IMPROVED BURNER PERFORMANCE

California's Central Valley region recently passed a regulation requiring that many existing industrial boilers be upgraded to meet a NOx requirement of less than 9ppm. As part of the rule's implementation, an extension was given to users who agreed to meet a NOx level of 6ppm. Other California air districts are proposing updated regulations that would require a NOx level of 5ppm. In most applications, the current versions of the *RMB* can operate at 6 to 7ppm, which easily allows them to meet a 9ppm NOx requirement. In order to meet a 5 or 6ppm NOx requirement, a burner was required that would reliably operate at 3 to 4ppm.

A solution was engineered by using multiple single-zone burners applied in unison, thus allowing configurations such as one-over-one, or three rows of two – to meet the required capacity, maintain the fully swirling flow through each burner, and fit within the confines of the given boiler furnace geometry. The *C-RMB* not only reduces costs and space requirements, but it is a proven alternative to the catalytic control of NOx emissions.

CELL BURNER ARRANGEMENT

The patented ultra-low-NOx *C-RMB* utilizes multiple burner "cells," rather than one large single burner to break the combustion into multiple zones. The two-cell concept has proven extremely successful in several installations and can accommodate boilers with heat inputs up to 120 MMBtu/hr. Additional burner cells can be added for boilers requiring higher heat inputs.



C-RMB™ Cell-Rapid Mix Burner

CUSTOMER NEEDS	OPERATIONS	AIR QUALITY
• Easy to Install	• Simple Controls	• Meets BACT
• Quick Start-ups	• Excellent Turndown	• Ultra-Low-NOx
• Lower Cost	• Fast Ramp Rates	• Low CO
• Trouble-free Design	• No Moving Parts	• Low Emissions over Turndown Range

INITIAL TESTING

The C-RMB performed exceptionally well in preliminary testing conducted at an end user site. Although the 30,000 lb/hr boiler was only required to meet NOx levels of 9ppm, which could be accomplished by installing a single RMB with 30% FGR, it was equipped with two burner "cells" and tested with higher FGR levels. The boiler was operated with NOx levels between 4 to 5ppm when operating with two burners at boiler loads up to around 70%. The FGR rate required to operate at this NOx level was consistent with the results from firing the burners independently – ranging from 40 to 45%.



C-RMB INSTALLATION

Contact your Coen representative

about designing a dependable, integrated system to your company's specifications using the Cell-Rapid Mix Burner (C-RMB) or any of Coen's other outstanding products.

C-RMB MEETS PROJECT GOALS

The C-RMB was installed at a tomato processing facility in central California as part of the retrofit of two 80,000 lb/hr "D" style package watertube boilers. The facility was required to meet an emission limit of 6ppm NOx and 90ppm CO on both boilers. Both units were set up to operate below 5ppm NOx and 50ppm CO, and have been operated in automatic with a ramp rate from 20 to 100% firing rate within three minutes. Source testing of these boilers was performed and based on the successful results, the user ordered another C-RMB to retrofit a third boiler at this site.

COEN'S DEPENDABLE BURNER MANAGEMENT SYSTEMS AND EXCEPTIONAL SERVICE

Coen Company designs the highest quality, most advanced and dependable burner systems in the world. Our ultra-low-NOx technologies offer significant financial and performance benefits compared to other burner or post-combustion systems.

Coen's engineers take the time to listen, analyze and understand the needs of every burner management system's design. Each system is evaluated for fuel-firing configurations, individual burner characteristics, and operator interface preference.



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