ENGINEERED SOLUTIONS

CASE STUDY

Overcoming Emissions Challenges:

A Cradle to Grave Solution for a Global Process

Manufacturer's Combustion Challenges





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Existing line burners used for preheating flue gas in the selective catalytic reduction (SCR) process, were causing reliability issues and leading to non-compliance with emissions permits.

A global leader in carbon emission reduction technologies, high performance catalysts and proprietary technology for the chemical and refining industries, faced a significant challenge in meeting emissions requirements. Their existing line burners, used for preheating flue gas in the selective catalytic reduction (SCR) process, were causing reliability issues and leading to non-compliance with emissions permits. To address this problem using a consultative approach, Relevant Industrial developed an innovative and comprehensive solution that would enhance combustion efficiency and ensure compliance with environmental regulations.

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& OBJECTIVES

1

Fulfill Emissions Requirements 2

Inability to Consistently Support Combustion



Design a Reliable NOx Burner System

01 FULFILL EMISSIONS REQUIREMENTS

The process
manufacturer's primary
challenge was to fulfill
emissions requirements
by providing the
necessary make-up heat
for the SCR process.

02 INABILITY TO CONSISTENTLY SUPPORT COMBUSTION

The existing line
burners were unable
to consistently support
combustion due to changes
in the flue gas stream's
O2 composition. This
resulted in frequent flame
outs, nuisance trips, and
reduced efficiency.

03 DESIGN A RELIABLE NOX BURNER SYSTEM

The objective was to design a reliable and low NOx burner system that would deliver the required make-up heat, maintain a stable flame, and ensure emissions compliance.



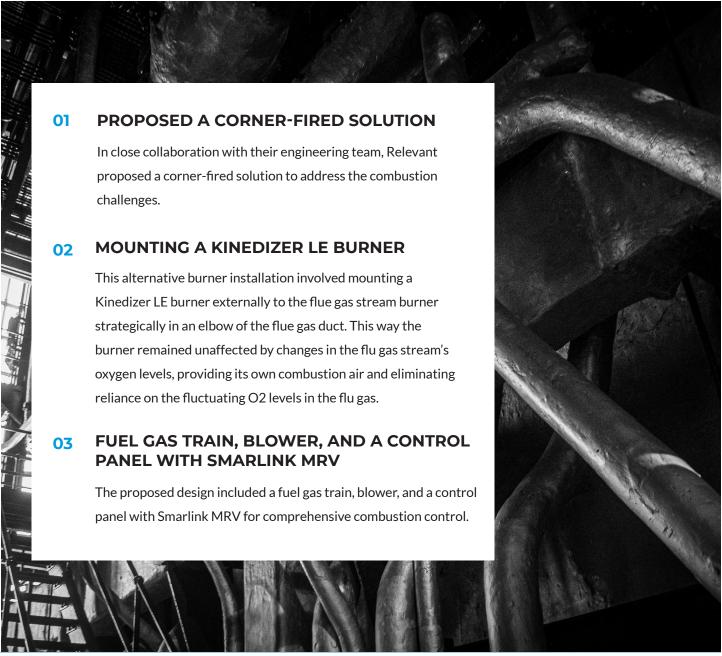
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Proposed a Corner-Fired Solution 2

Mounting a
Kinedizer LE Burner

3

Fuel Gas Train, Blower, and a Control Panel with Smarlink MRV Relevant Industrial engaged in critical discussions, site visits to collaborate with the manufacturer's engineering team to develop an innovative and cost-effective solution:





1

Enhanced Combustion Reliability 2

Consistent Make-Up Heat 3

Flexibility in the Manufacturer's Processes

01 ENHANCED COMBUSTION RELIABILITY

The implementation of the corner-fired burner system resulted in enhanced combustion reliability and improved emissions control.

02 CONSISTENT MAKE-UP HEAT

By eliminating the dependency on the flue gas composition and providing a separate combustion air supply, the solution provided consistent makeup heat, allowing the SCR to effectively reduce NOx and CO levels and comply with emissions requirements.

3 FLEXIBILITY IN THE MANUFACTURER'S PROCESSES

The solution offered flexibility in the manufacturer's processes, minimizing downtime, fines, and potential plant shutdowns. This successful project not only resolved the combustion challenges but also established Relevant Industrial as a trusted partner and subject matter expert in combustion solutions.



CONCLUSION

The collaboration between Relevant Industrial and the process manufacturer led to the successful resolution of the combustion challenges faced by the company. By implementing the cornerfired burner system, the manufacturer achieved improved combustion reliability, emissions control, and compliance with environmental regulations. The consultative approach, from initial proposal to the execution of the project, showcased Relevant Industrial's expertise and commitment to delivering comprehensive solutions for its customers. This project served as a testament to Relevant Industrial's ability to provide innovative and tailored combustion solutions for complex industrial processes.



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