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Applicationbrief

Eclipse Product: RatioAir Burner on an RHT with FGR and Ratio Control System

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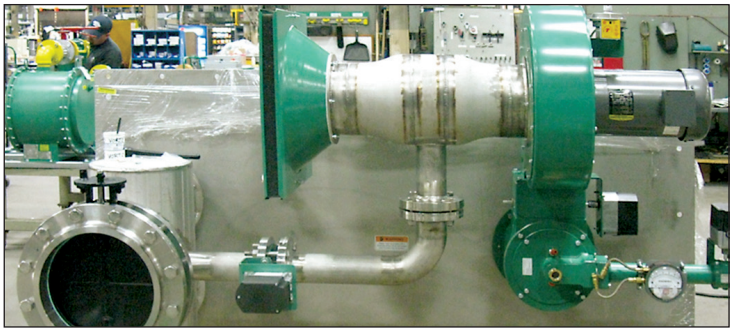
Application: Molded Parts Drying Oven

Description: Eclipse was contacted by a customer who designs and builds state-of-the-art molded parts drying ovens. These ovens are designed with the best available technology to achieve the highest efficiencies possible. The company needed help on a new project that required indirect heating.

Eclipse was asked to heat a moisture saturated air stream of roughly 55,000 acfm to 600° F. The Exothermics RHT800 (recirculating high temperature indirect air heater) incorporating an Eclipse RatioAir 500 burner and a Siemens LMV 52 flame safety/ratio control system was recommended by Eclipse. A low emissions specification was also added by the local emissions authority, requiring the oven manufacturer to meet specific NO_X and CO emissions levels. Eclipse hadn't worked with this type of emissions requirement in the past.



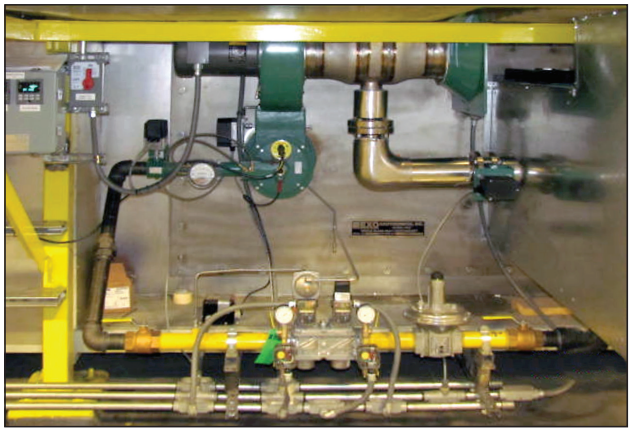
RHT indirect air heater, RatioAir burner and FGR system.

At first, alternate burner options were considered, but standard low emissions burners wouldn't work for this indirect fired application. The best option was flue gas recirculation (FGR) to reduce NO_X, while maintaining acceptable CO levels. The LMV 52 ratio control system gave Eclipse the ability to control the amount of FGR as a standard function of the control system.

Eclipse provided the customer a complete packaged system. The RHT's were designed with the RA500 burners mounted, and all FGR piping was connected. Eclipse built the valve trains and burner management panels that held the LMV 52 flame safety/ratio controller.

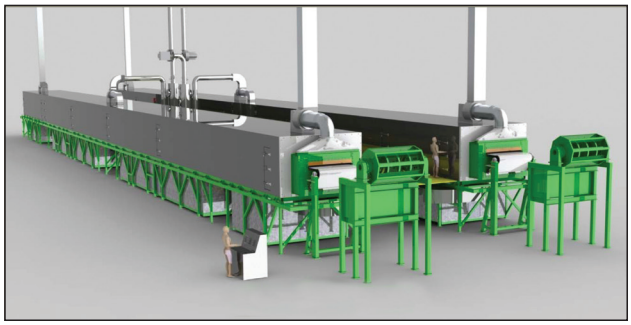
The results were impressive. The combustion system reduced NOx by 40 percent, while maintaining a consistent CO level. The Eclipse RA500 burner packaged with the LMV gave commissioning engineers the ability to adjust the air to fuel ratio, as well as the fresh air to FGR ratio.

The burner performance and precision of the control system with FGR delivered an indirect fired combustion system that gave the client the emissions levels they were seeking, without compromising system efficiency. To quote the customer, "it's an elegant solution to the NO_X problem."

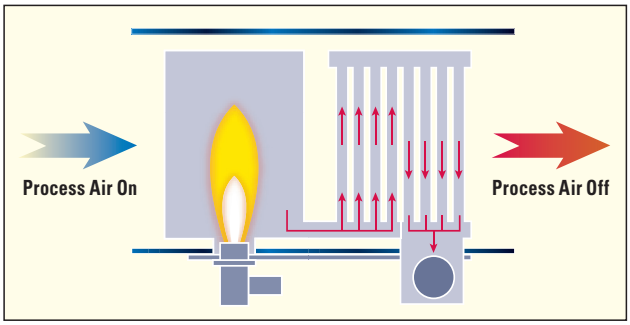


Valve train and additional FGR piping on rear side.

Burner management panels.



Rendering of the complete drying oven line.



Process air flow diagram for RHT Indirect Air Heater.

RHT Indirect Air Heater (recirculating high temperature indirect air heater)

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