

Research Work Title

Technical Knowledge Acquisition, Design, and Manufacture of Coanda Burner



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Abstract

The project involves creating an ultra-low NO_x burner using multi-stage combustion technology based on the Coanda effect. This effect is when a fluid jet remains attached to a convex surface. The burner is designed to have high radiation heat transfer and ultra-low NO_x emissions. The project will include the design, and manufacturing of the burner as follows:

1. A valve has been separated in the gas path to detach 50% of the gas nozzles, resulting in an improved turn down ratio from 1/10 to 1/20. As a result, the burner's performance has been optimized, and stable and hard flames have been achieved in low fire.
2. The burner muffler has been modified to prevent uncontrolled air entry and to simplify the manufacturing process.
3. The muffler plate mechanism has been upgraded to reduce friction.
4. The burner's heat release range has been enhanced from 800,000 kcal/hr to 4,500,000 kcal/hr.

