

“PROMOTING ENERGY EFFICIENCY AND RENEWABLE ENERGY IN SELECTED MSME CLUSTERS IN INDIA”

To develop and promote a market environment for introducing energy efficiency and enhanced use of renewable energy technologies in process applications in the selected energy-intensive MSME clusters, United Nations Industrial Development Organization (UNIDO) in collaboration with Bureau of Energy Efficiency (BEE) is implementing a project titled “Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India” funded by Global Environment Facility (GEF) and co-financed by Ministry of Micro, Small and Medium Enterprises (MoMSME) and Ministry of New and Renewable Energy (MNRE).

Modifying the design of the blowing pipe in a cupola furnace to funnel shape.

Objective

To reduce the energy consumption in a cupola furnace by modifying the design of the blowing pipe to funnel shape

Implementation

Modified the design of the blowing pipe in a cupola furnace to funnel shape. This resulted in reduction of coke consumption by 4 to 5 %.

Principle

Modifying the design of the blowing pipe in a cupola furnace to funnel shape results in uniform circulation of the air in combustion chamber. This improves the combustion efficiency of furnace and thereby reducing the coke consumption. Uniform air circulation in the cupola also reduces the wear and tear on ceramic bricks.



Savings

₹ 1,69,200



Investment

₹ 1,35,000



Pay Back

10 Months



Replication Potential

In all the foundry units with cupola furnace



Unit Profile

Sri Ramkrishna industries is a medium scale foundry unit located in Coimbatore. The average monthly production of the unit is around 45 to 50 MT per month.

Benefits

- Improved combustion efficiency of the furnace
- Improved life of ceramic bricks
- Reduced coke consumption and reduced energy costs

Outcomes



2,200 kg of annual coke saving



₹ 1,69,200 of annual cost saving



6.6 T of CO₂ reduction per year (96 kg CO₂/GJ of coke)



Calculation

Net cost savings, ₹ = (Coke savings per year, kg * cost of coke per kg, ₹/kg) + (reduction in no of ceramic bricks used per year * cost of brick, ₹/brick)

Cost Economics

Coke savings per year	2,200 kg
Cost saving due to coke per year (₹ 36/kg)	₹ 79,200
Reduction in no of ceramic bricks used per year	2,000
Cost saving with ceramic bricks (₹ 45/brick)	₹ 90,000
Net cost savings	₹ 1,69,200
Investment cost	₹ 1,35,000
Simple Payback period	10 months

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