

“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).

Minimizing energy consumption of a dust collection system by reducing the fan speed by changing pulley instead of damper control.

Objective

To reduce the specific energy consumption of the dust collection system installed in shot blasting machine by reducing the fan speed by changing pulley size instead of damper control

Implementation

Reduced the pulley size of the dust collection system motor from 8” (motor side) to 7” (motor side) to reduce the speed of the fan. This will reduce the fan volume by speed reduction instead of damper control and results in energy saving.

Principle

Generally, every equipment is designed with excess capacity or margin to meet the future expansion, variation in process parameters and climatic conditions. When a fan volume change is required on a permanent basis, it can be achieved with a speed change instead of damper control. Damper control will not lead to effective energy savings, whereas speed control using pulley change will result in significant energy savings and pulley change is the easiest way to control the fan speed.



₹ 2,01,600



Investment

₹ 50,000



Pay Back

3 Months



Unit Profile

Mahendra pumps foundry division is a medium scale foundry unit, located in Coimbatore region. The average monthly production of the unit is around 225 MT.

Benefits

- Reduced energy consumption
- Reduced energy costs



Replication Potential

In all the units with oversized dust collection systems and the control is done by damper and the fan is having V pulley system.



Outcomes



25,200 kWh of annual energy saving



₹ 2,01,600 of annual cost saving



20.7 T of CO₂ reduction per year (0.82 kg/kWh)

Cost Economics

Energy savings per month	2,100 kWh
Energy saving per annum	25,200 kWh
Cost savings per year	₹ 2,01,600 (₹ 8 /kWh)
Investment cost	₹ 50,000
Simple Payback period	3 months

Calculation

Energy savings per annum (kWh/year) = (Energy consumption before implementation- after implementation, kWh/month) * 12

Contact details :

Unit

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