

"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).

Reduction in energy consumption of the motor by installing a Star Delta starter

Objective

To reduce the specific energy consumption of the broaching machine by installing a Star Delta starter to the motor and running it in the Star mode.

Implementation

Installed a Star Delta starter to the motor in broaching machine to reduce the energy consumption by running it in the Star mode.

Principle

Broaching machine has variable loads. Machine motor was running in Delta mode even at low loads resulting in higher energy consumption. Installing a Star Delta starter to the broaching machine motor will enable the motor to run in Star mode during low load conditions. In the star mode voltage is 57.7% of the line voltage. This results in low speed of motor and increase in motor efficiency leading to energy saving.



Savings

₹ 1,28,250



Investment

₹ 15,000



Pay Back

2 months



Unit Profile

Ajay Industries is established in 1973 and located in Jalandhar. Unit manufactures hand tools, automobile tools and builders hardware gate fittings.

Benefits

- Improved motor efficiency
- Reduced energy consumption
- Reduced energy costs



Outcomes



17,100 kWh of annual energy saving



₹ 1,28,250 of annual cost saving



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

Cost Economics

Energy savings per month	1,425 kWh
Energy saving per annum	17,100 kWh
Cost savings per year (₹ 7.5/kWh)	₹ 1,28,250
Investment cost	₹ 15,000
Simple Payback period	2 months



Replication Potential

In all the units with motors & process loading is varying



Calculation

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

Contact details :

Unit

Ajay Industries
Ajay Nagar, Behind Industrial Estate
Near Pathankot Bye Pass Road
Jalandhar, Punjab - 144004
+91 98555 26295 | info@ajayind.com

Cluster Leader

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PMU

GEF-UNIDO-BEE
4th Floor, Sewa Bhawan, Sector-1,
R.K. Puram, New Delhi - 110066
gubpmu@beenet.in
+011-26194770

United Nations Industrial Development Organization

Mr Sanjaya Shrestha
Industrial Development Officer
UNIDO
s.shrestha@unido.org