

## "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).

### Reduced specific energy consumption by installing correct size / capacity motor in forging unit

#### Objective

To reduce the specific energy consumption of the forging unit by installing correct size /capacity motor for the drop forge hammer. This will improve the loading and efficiency of the motor.

#### Implementation

Installed a 15 kW motor in place of 18.5 kW for drop forge hammer to reduce the energy consumption. Capacity reduction was 3.5 kW.

#### Principle

In the forging unit, rated capacity of motor for drop forge hammer was higher than the actual required capacity, resulting in low loading of the motor. At low loads, motor efficiency decreases resulting in higher power consumption. Installing adequate capacity of motor for drop forge hammer in place of high capacity motor will improve the loading of the motors. This in turn improves the efficiency of motor and reduces the energy consumption.



**Savings**

₹ 65,184



**Investment**

₹ 20,000



**Pay Back**

**4 months**

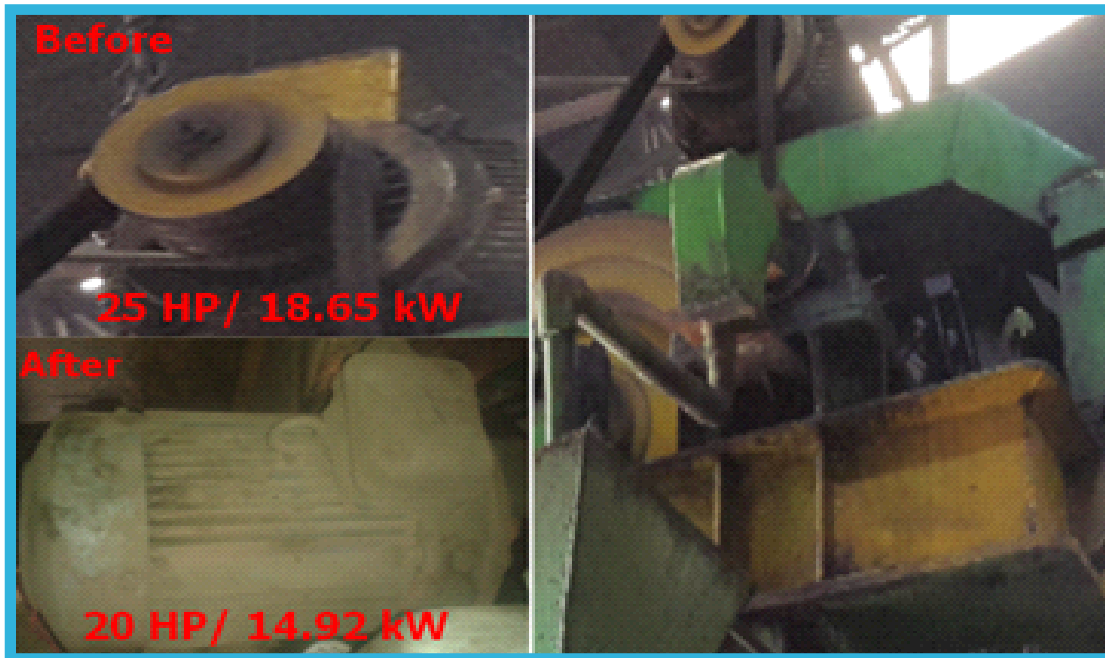


## Unit Profile

Kohinoor forging is a hand tools manufacturing unit located at RIICO Industrial area, Nagaur. Kohinoor forging is a micro scale industry with daily production capacity of 800-1000 hammer pieces of various sizes.

## Benefits

- **Reduced specific energy consumption**
- **Reduced energy costs**



## Outcomes



**8,148 kWh of annual energy saving**



**₹ 65,184 of annual cost saving**



**6.7 T of CO<sub>2</sub> reduction per year (0.82 kg/kWh)**



## Replication Potential

In all the forging units with low loading of motors.

## Cost Economics

<b>Energy saving per month</b>	<b>679 kWh</b>
<b>Energy saving per annum</b>	<b>8,148 kWh</b>
<b>Annual cost savings ( ₹ 8/kWh)</b>	<b>₹ 65,184</b>
<b>Investment cost</b>	<b>₹ 20,000</b>
<b>Simple Payback period</b>	<b>4 months</b>



## Calculation

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

### Contact details :

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