MICRO, SMALL & MEDIUM ENTERPRISES
सूक्ष्म, लघु एवं मध्यम उद्यम

Ministry of New and Renewable Energy
Government of India

"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 low capacity motors in a forging unit

Objective

To reduce the specific energy consumption of the forging unit by installing correct size motors for the broaching machine there by improving the motor loading and efficiency.

Implementation

Installed two 15 kW motors in place of two22.5 kW motors in broaching machine to reduce the energy consumption. Capacity reduction was 15 kW.

Principle

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

Savings	Investment	Pay Back
₹ 1,39,590	₹ 50,000	5 months

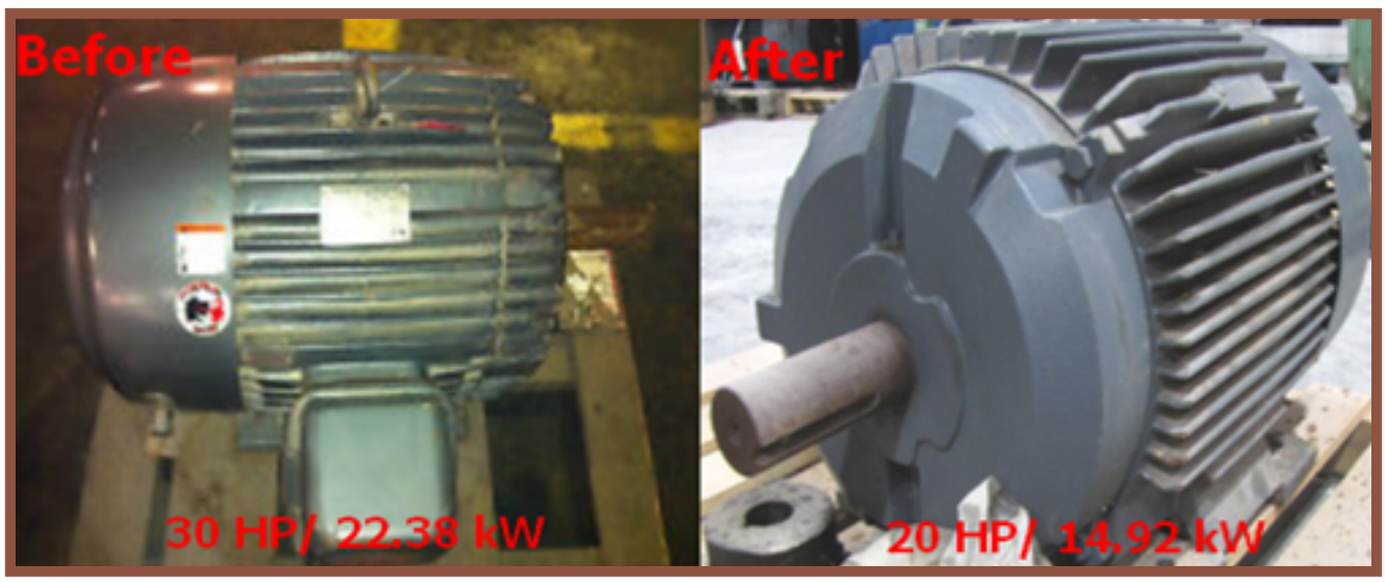
Prepared & designed by:
Confederation of Indian Industry

Unit Profile

Victor Forgings is a hand tools manufacturing unit established in year 1954 at Jalandhar. They manufacturevast range of spanners, wrenches, pliers, vices, hammers, automotive tools and carpentry tools.

Benefits

- **Improved efficiency of motors**
- **Reduced energy consumption**
- **Reduced energy costs**



Outcomes

- **18,612 kWh of annual energy saving**
- **₹ 1,39,590 of annual cost saving**
- **15.3 T of CO_2 reduction per year (0.82 kg/kWh)**

Cost Economics

Energy savings per month	**1,551 kWh**
Energy saving per annum	**18,612 kWh**
Cost savings per year (₹ 7.5/kWh)	**₹ 1,39,590**
Investment cost	**₹ 50,000**
Simple Payback period	**5 months**

Replication Potential

In all the forging units with low loading of motors.

Calculation

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

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