

## "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 rejection of castings by modifying the method of casting in a foundry

#### Objective

To minimize energy consumption by reducing the rejection rate in a foundry through modifying the method of casting

#### Implementation

It was identified that most of the rejects are due to inclusion defect. So, modified the method of casting to running and gate system to avoid inclusion defect.

#### Principle

Inclusion defects are caused due to entering of the slag into the mould. Running and gating system controls the flow of metal into the mould cavity at the rate needed to avoid cold metal defects in the casting. It also avoids turbulence of metal entering the mould and prevents slag and dross present in the iron from entering the mould.



**Savings**

**₹ 6,05,774**



**Investment**

**Nil**



**Pay Back**

**Immediate**



## Unit Profile

Amit Ferrocast is foundry unit located in Belgaum. The unit manufactures S.G. Iron, steel and cast iron castings. The average production of the unit is in the range of 1800 to 2000 MT per annum.

## Benefits

- **Reduced rejection**
- **Metal saving**
- **Reduced energy consumption and energy costs**



## Outcomes



**29,393 kWh of annual energy saving**



**46,656 kg of annual metal saving**



**₹ 6,05,774 of annual cost savings**



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



## Replication Potential

In all the foundry units with high rejection rate due to inclusion defects



## Calculation

Energy saved per year = metal saved per year, MT \* specific energy consumption, kWh/MT

## Cost Economics

<b>Metal saved due to reduced rejection per year</b>	<b>46,656 kg</b>
<b>Energy saved per year due to reduced rejection (630 kWh/MT)</b>	<b>29,393 kWh</b>
<b>Cost savings due to reduced energy consumption ( ₹ 6.5/ kWh)</b>	<b>₹ 1,91,054</b>
<b>Other process cost savings per year due to reduced rejection</b>	<b>₹ 4,14,720</b>
<b>Net saving</b>	<b>₹ 6,05,774</b>
<b>Investment cost</b>	<b>Nil</b>
<b>Simple Payback period</b>	<b>Immediate</b>

### Contact details :

#### Unit

Mr. Shivanand Ashtekar  
Amit Ferrocast,  
608/2 &3, Machhe Industrial Estate Machhe,  
Belgaum, Karnataka - 590014  
+91 831 2407032

#### Cluster Leader

Mr. Sadanand D.H  
Belgaum cluster leader  
+91 94482 72499  
sadananddh@gmail.com

#### 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