EffiMax™
Efficiency Manager for Oil and Gas Fired Boilers
Buying an Efficient Boiler does not Guarantee High Efficiency

Boilers do not operate at rated efficiency

Surveys reveal that operating efficiency of unmonitored boilers lags behind the rated efficiency by 5-15%

The fuel bill is determined by operating efficiency

Over time, fuel costs are more than those of boilers - many times over!

The first step towards improving boiler efficiency is to know its current operating efficiency. The Forbes Marshall EffiMax boiler efficiency monitoring system is a proven and complete solution which helps improve boiler efficiency to reduce steam cost.

The analysis of EffiMax reports leads to creating boiler specific standard operating procedures, which not only bridge the efficiency gap but also help sustain it over the entire operating life of a boiler.

**Features**

- Touch screen display for instantaneous display of all boiler parameters that impact boiler efficiency
- Online boiler efficiency measurement with break up of losses (as per BS845)
- Graphical analysis of boiler performance metrics
- Boiler performance diagnostic reports with alarms
- Web based remote performance monitoring

**Measured Parameters**

- Steam flow
- Fuel flow
- Steam pressure
- Steam temperature
- Stack temperature
- Ambient temperature
- Feed water temperature
- % O₂ in flue gas
- Blow down TDS

**Calculated Parameters**

- Boiler efficiency
- Steam to fuel ratio
- Stack loss
- Blowdown loss
- Enthalpy loss
- Radiation loss
- Blowdown quantity

**Control Parameters for EffiMax 4000**

- Oxygen trimming

**Optional**

- Drum level
- Water tank level
- Deaerator level
- Deaerator pressure
The EffiMax System

EffiMax in Action

There are over 1500 units in operation across the globe, in various industries, including paper, pharmaceuticals, food and rubber.

A large bulk drug manufacturer reduced its fuel consumption by 25,000 litres of oil per month after EffiMax indicated huge stack losses from a 20TPH boiler. After adjustments, the boiler efficiency increased by 6% and the EffiMax paid for itself within 3 months.

By increasing a 10TPH oil fired boiler's efficiency by 2%, a chemical manufacturer saved over 100,000 litres of oil per year, giving his EffiMax a payback of less than 8 months.

A solvent extraction plant improved the efficiency of their husk fired boiler from 75.39% to 79%. The EffiMax paid for itself in 9 months.
### Boiler Peak Performance Service

A service package to enhance and sustain boiler efficiency

Helps develop an SOP for efficient boiler operation based on EffiMax reports

Regular visits by our engineer to oversee SOP implementation and guidance

### Payback - Minimum 3% Efficiency Improvement

<table>
<thead>
<tr>
<th>Boiler (TPH)</th>
<th>Oil Savings (Domestic)</th>
<th>Oil Savings (International)</th>
<th>Gas Savings (Domestic)</th>
<th>Gas Savings (International)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>₹Lacs/ annum</td>
<td>Payback (Months)</td>
<td>$ /annum</td>
<td>Payback (Months)</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>22</td>
<td>16862</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>28</td>
<td>14</td>
<td>25293</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>39</td>
<td>10</td>
<td>33724</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>46</td>
<td>8</td>
<td>42156</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>95</td>
<td>5</td>
<td>84311</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>142</td>
<td>3</td>
<td>126467</td>
<td>3</td>
</tr>
</tbody>
</table>

### Basis of Calculations

**Oil**

- Efficiency improvement from 80 - 83%
- GCV = 10,100 kCal/kg
- Cost = ₹ 50 per kg

**Natural Gas**

- Efficiency improvement from 79 - 82%
- GCV = 9600 kCal/Nm³
- Cost = ₹ 18 per Nm³

Operating hours per annum = 8000

*The above prices are average prevailing domestic prices*