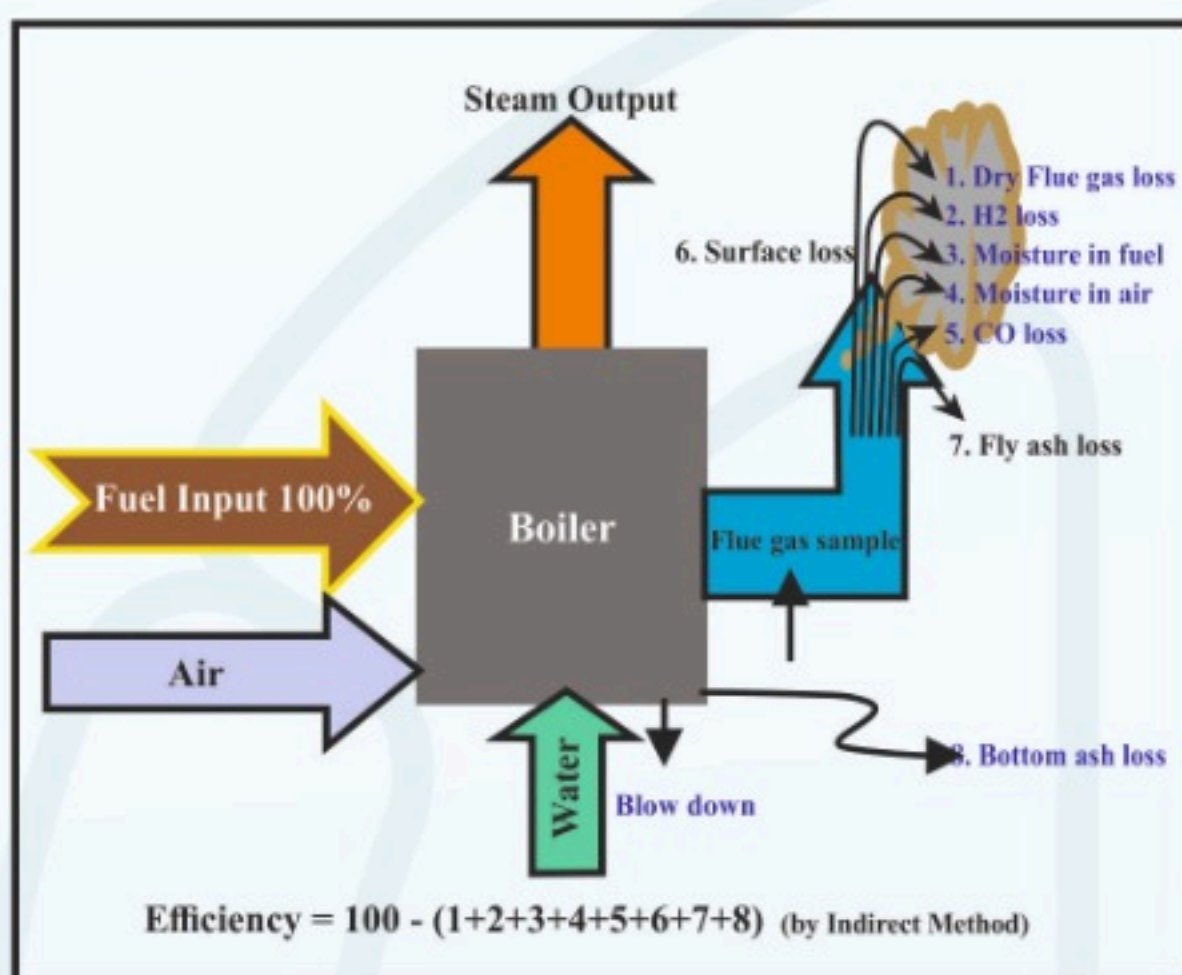




Utech Projects Pvt. Ltd.

Efficiency Monitoring System for Oil, Gas & Solid Fuel Fired Boilers



'UTECH' boiler efficiency monitoring system helps to reduce steam costs by monitoring and analyzing performance and controlling parameters to improve overall efficiency. Optimizing efficiency not only reduces boiler fuel consumption, and thereby steam cost, but also the quantum of harmful emissions. This contributes significantly towards a lower carbon foot print and clean and sustainable production goals.

The cost of a boiler is negligible as compared to the amount spent on fuel to operate the boiler year on year. Fuel costs are majorly determined by boiler efficiency in regular operation. Buying an efficient boiler does not guarantee high efficiency. Survey reveals that operating efficiency of unmonitored boilers operates at less than rated efficiency by 5-10%. The first step towards improving boiler efficiency is to be aware of its current operating efficiency.

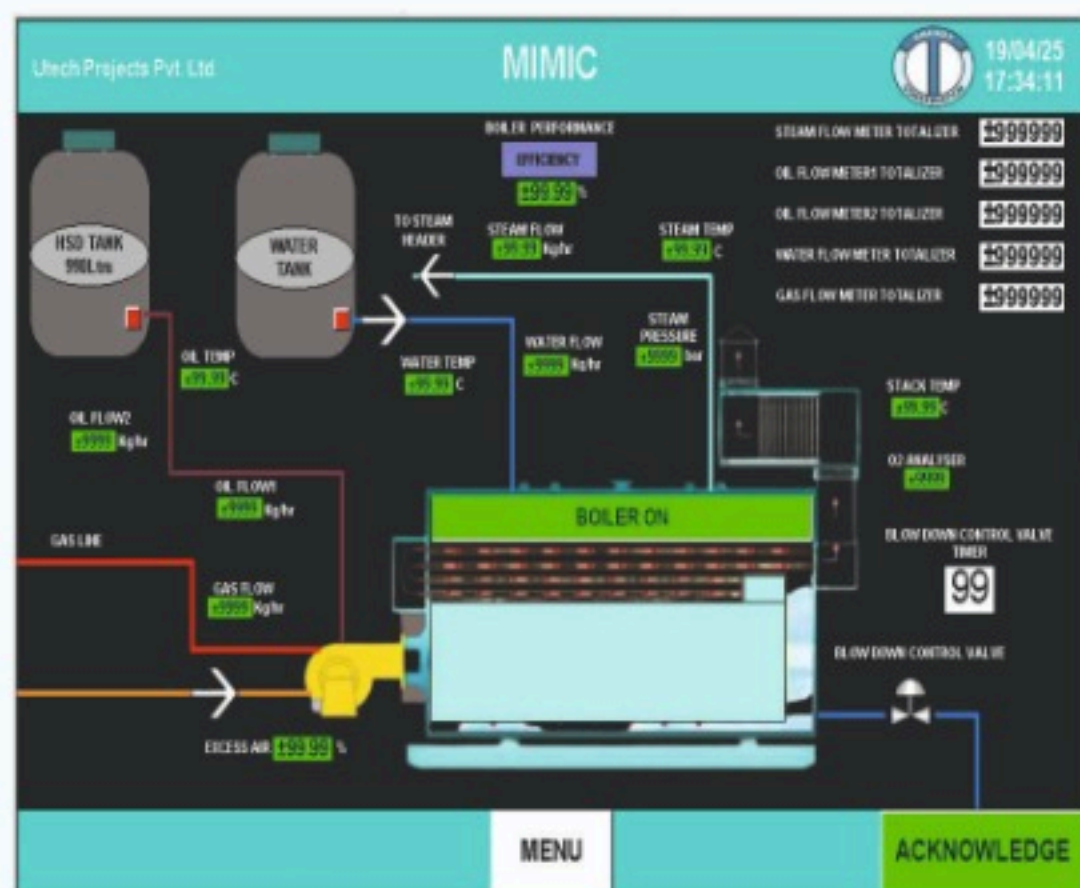
Programmable Logic Controller (PLC)

- Latest technology
- Modular in nature
- Provides unparalleled reliability and can be used for efficiency calculation in all combustion applications.





Boiler efficiency is an important parameter in the boiler specification when buying a new boiler. However, little attention is given to it once the boiler is in operating. It's accepted that the boiler will always continue to generate steam at the rated efficiency. One of the most critical parameters in boiler operation is its delivered efficiency in actual operation, which will determine the steam generation cost.



Features

- Touch screen display for instantaneous display of all boiler parameters that impact boiler efficiency
- Online boiler efficiency measurement with breakup of losses (as per Bs845)
- Graphical analysis of boiler performance metrics
- Boiler performance diagnostic reports with alarms
- Web based remote performance monitoring (Optional)

Measured Parameters

Steam flow (Kgs/hr)
Fuel flow (Kgs/hr)
Steam pressure (Kgs/cm²)
Steam temperature (Deg.c)
Stack temperature (Deg.c)
Ambient temperature (Deg.c)
Feed water temperature (Deg.c)
% O₂ in flue gas %
Blow down TDS

Calculated Parameters

Boiler Indirect Efficiency %
Steam to fuel ratio
Stack loss
Blow down loss
Enthalpy loss
Radiation loss
CO₂ %
Totalized
Steam, Water & Oil

Control Parameters

Oxygen trimming
Alarm & display
Boiler Drum level low
Water tank low level
High steam pressure
Oil tank low level

Payback-Minimum 3% Efficiency Improvement

Boiler Capacity (TPH)	LDO Oil Savings Rs Lacs/Annum	Furnace Oil Saving Rs Lacs/Annum	Natural Gas Savings Rs Lacs/Annum
2	20	17	19
3	28	27	35
4	40	34	43
5	50	42	58
10	100	84	117
15	150	126	176

Note:- Payback of less than 12 months for smallest Boiler.



Basis of Calculations

LDO

Efficiency improvement

From 80-83%

NCV = 10,100 Kcal/Kg

FO

Efficiency improvement

From 80-83%

NCV = 9650 Kcal/Kg

Natural Gas

Efficiency improvement

From 80-83%

NCV = 8500 Kcal/Nm³

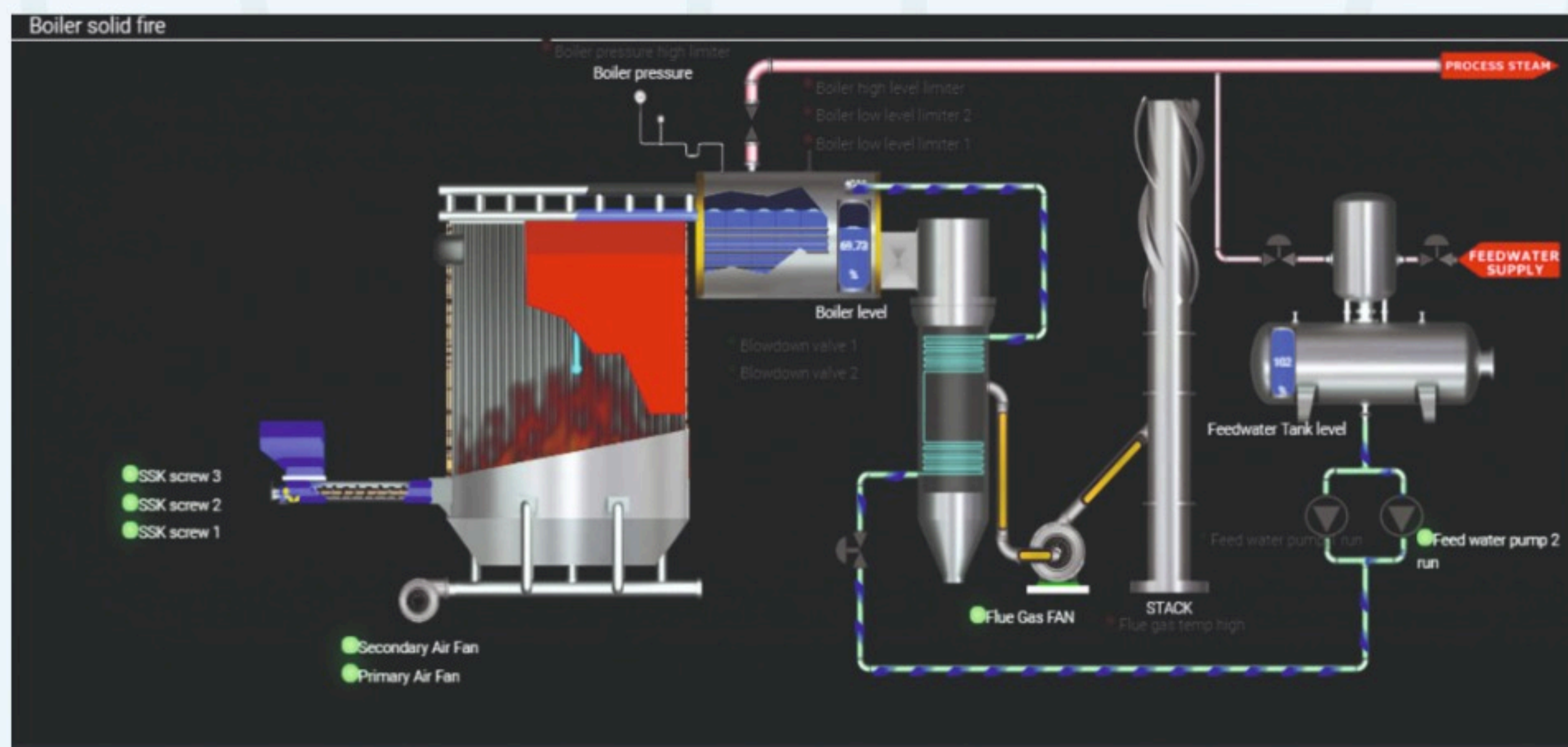
LDO Cost = Rs. 56 per kg FO Cost = Rs. 48 per kg N Gas Cost = Rs. 49 per Nm³

(Prices are average prices prevailing in India in 2024)

Operating hours per annum = 7200

INTRODUCTION :

'Utech' Efficiency Monitoring System is a PLC based efficiency monitoring unit which takes inputs from field installed measuring instruments and does performance analysis of the boilers/heater. Important measured and calculated parameters are displayed on locally mounted touch screen color human machine interface (HMI). 'Utech' Efficiency Monitoring System more than 15 parameters are analyzed for better load management and to plan proactive actions leading to decrease in fuel bill. The system is suitable for oil fired (FO/HSD/LDO), Gas fired (NG/LPG) and Solid fuel fired boiler & thermic fluid heater.





Utech Projects Pvt. Ltd.

OTHER PRODUCTS

IBR & NON IBR STEAM BOILERS

- Self Supported Chimneys.
- Hot water Boilers.
- Heat Exchangers (TEMA).
- Pressure Vessels (ASME).
- Waste Heat Boilers.
- Electrode Boilers.
- Dewaxing Autoclave Boilers.
- Incinerators.



D M Plant



P H Dosing System



R O Plant

Energy Saving Equipments

- Condensate Recovery System.
- Flash Vessel.
- Economiser.
- Air Preheater.
- Steam Accumulator.
- Deareator Tank.



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