

SITSON INDIA PVT. LTD

Boiler | Sugar | Power | Waste to Energy



For Perfect Energy & Environment Solution

SITSON INDIA PVT. LTD. is an ISO-9001 Company, incorporated in 1978 to provide specialized engineering services in Energy & Environment sector. We are headquartered in Dombivali, District Thane, Maharashtra and branch office is in Pune, Maharashtra. We have manufacturing facilities spread over 30,000 m² area in Dombivali, Maharashtra (India).

www.sitsonindia.com



CORPORATE

SITSON INDIA PVT. LTD. is an ISO-9001 Company, incorporated in 1978 to provide specialized engineering services in the field of Boilers and Power Generation. Since its inception, SITSON got good orders from sugar / chemicals, sponge iron and paper industries from all over the country for Boiler. SITSON is registered & approved Turnkey Supplier under National Co-operative Development Corporation, New Delhi for Complete Sugar plants, Boiler, Turbo Generator and Power project.

Our References

140+

Boilers installed up to
150 TPH Capacity

7+

Sugar Mills and
Cogeneration Projects

20+

IPP and Captive
Power Plants

14+

WHRB for Spong
Iron Kilns and Cement Plant

25+

AFBC &
CFBC Boilers

30+

Electrostatic
Precipitator (ESP)

12000+

Soot Blowers,

25+

Spent Wash
Incineration Boilers

Product Range and Services

- ▲ Travelling grate, WHRB, HRSG, AFBC, CFBC, Spent Wash Incineration Boilers.
- ▲ Waste Heat Recovery Boilers (WHRB) For Cement Plant
- ▲ EPC Contract of Complete CPP, IPP, Sugar, Co-generation & Distillery.
- ▲ Coal, Bagasse, Biomass, Oil, Gas Fired Boilers up to capacity 300 TPH, 125 Kg/cm², Pressure, 545°C Temperature.
- ▲ Revamping of Boilers for change in fuels & for increase in capacity, pressure & efficiency.
- ▲ Independent Power Plants on turnkey basis.
- ▲ Electrostatic Precipitator (ESP).
- ▲ Supply of new Turbines.
- ▲ Soot Blowers.
- ▲ Supply of Revamped Turbines.



OUR FACILITIES



Water Wall Panel Manufacturing



Boiler Header Manufacturing



Drum Manufacturing



Alignment of Evaporation Section



Super Heater Coils



Water Wall Panel Manufacturing



Grate Assembly at Shop



Electrical and Instrumentation



Corporate and Branch Office

Manufacturing Facility: 10000⁺ M²

Heavy Fabrication: 5000⁺ M²

Machine Shop: 1500⁺ M²

Boiler Auxiliaries Manufacturing: 200⁺ M²

Electrical and Instrumentation: 500⁺ M²

Corporate office and branch office: 1500⁺ M²

BIOMASS AND COAL FIRED SPREADER STOKER BOILER

Design Features

- Super heater is provided in convection zone, radiation zone is eliminated so more life of super heater coils.
- Super heater is completely drainable.
- Small evaporation heating surface is required for boilers having super heater steam pressure more than 87 Kg/Cm² to avoid steaming in economizer.
- More residence time for complete combustion of fuel in suspension.
- More steam volume in steam drum which ensures better steam quality.
- Two stage top header ensure moisture return back to furnace bottom header so moisture separation load reduced in steam drum so better steam quality.

Range of SITSON Boiler

- Steam evaporation Capacity - 250 TPH.
- Steam pressure at Super heater outlet - 125 Kg/Cm².
- Super - heated steam temperature - 545°C.
- Fuel Fired - Bagasse / Coal / Any type of biomass / Biogas.



FBC BOILER (FLUIDIZED BED COMBUSTION BOILER)

Key Features

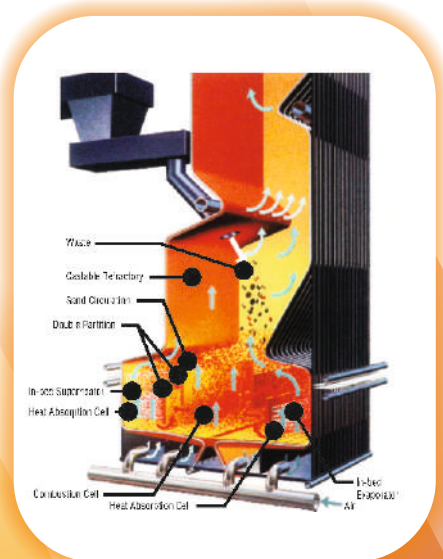
- Excellent turn down ratio.
- Under bed feeding of fuel gives less carbon loss and high efficiency.
- Very less refractory work.
- More fuel flexibility.
- Low Sox and Nox emission levels.
- No moving part in combustor so less maintenance.
- Low temperature of fluidized bed reduces possibility of clinker formation & fouling tendency of biomass fuel.

Advantages

- Less operation costs at low load operation.
- Low auxiliary power consumption compared to other boilers.
- High combustion efficiency.
- Less start up time and low operation costs.

Higher Reliability

- Low erosion rate of bed coil so reduced maintenance cost.
- No soot blowers required in convection bank zone for coal fired boiler.
- Lower velocity in furnace so less erosion of pressure parts.
- Less super heater erosion.



SPENT WASH FIRED BOILER

Design Features

- Flexibility of fuels: Wide range of supporting fuel can be burnt in boiler to incinerate spent wash. Boiler design suitable for bagasse, coal, rice husk, wood chips and biomass.
- More days of operation without stoppages : Boiler can operate continuously more than 40 days without stoppage for cleaning.
- Low maintenance: Since design is very similar to sugar industries bagasse fired boiler so maintenance is easy and economical.

Advantages of SITSON'S spent wash fired boiler

- Boiler is suitable for full load with supporting fuel as well as fuel mix spent wash.
- Lower power consumption.
- Online cleaning system for boiler pressure parts.
- Specially designed ESP air pollution control system to get maximum collection of fly ash.
- More than 4000 hrs of continuous operation without stoppage for cleaning.
- Best suitable for all zero discharge distillery plants.

Spent Wash Firing System

- Spent wash spray with high pressure steam atomized burners.
- Spent wash mixing and drying with supporting fuel in rotary kiln.
- Spent wash powder and incineration



SITSON CFBC BOILER

Key Features

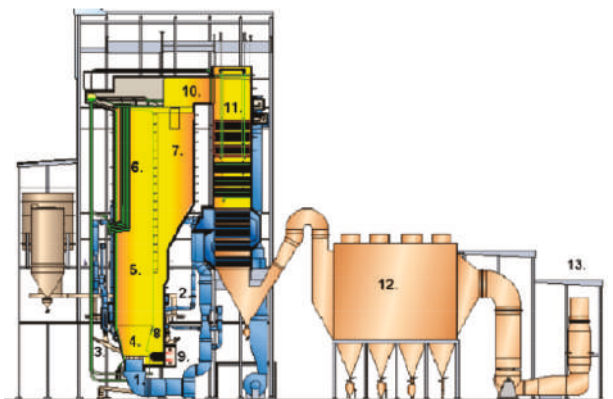
- Excellent turn down ratio without auxiliary.
- Internal circulation of bed material by gravity and solid recycle with FD and PA fan air.
- High solid collection efficiency.
- Very thin refractory lining.
- More fuel flexibility.
- Low Sox and Nox emission levels.

Advantages of SITSON CFBC Boiler

- Low auxiliary power consumption compared to other boilers.
- High combustion efficiency.
- Less start up time and low operation costs.

Higher Reliability

- Less erosion rate so reduced maintenance cost.
- No soot blowers required.
- Lower velocity in furnace so less erosion.
- Less super heater erosion.



1. Primary air | 2. Secondary air | 3. Fuel, lime stone, make-up
4. Refractory lined lower furnace | 5. Furnace walls-membrane walls
6. Internal heat transfer surfaces | 7. Separator (Cyclone) | 8. Down corner | return 11/1
9. Integrated bubbling bed heat exchanger | 10. Cross-over duct
11. Backpass with heat exchangers | 12. ESP | 13. Stack

DISTILLERY AND ALCOHOL PLANTS

SITSON is a global process solutions Company offering comprehensive solutions to the alcohol and ethanol industry all over India.

We design and supply the state of art Alcohol, Ethanol Plants that ensure highly efficient alcohol and ethanol processing right from Fermentation to Distillation and evaporation with unique zero liquid discharge guarantee.

The fermentation system is designed on very essential parameter that helps to reduce losses of alcohol in fermenters and increase the yield of alcohol by controlling the unwanted by products.

Operating Range

- Capacity - 20 to 210 KLPD

Feed Stock

- Cane Juice
- B-Heavy molasses
- C-Heavy molasses
- Grain

Product

- Ethanol
- RS
- ENA

Salient Features

- Robust in construction
- Easy to operate
- Low Maintenance
- Excellent durability
- Low Steam Cost

Applications

- Liquor industry
- Chemical industry
- Industrial Alcohol Plants
- Water industry
- Food and beverages industry
- Fuel Alcohol Plants



WASTE HEAT RECOVERY BOILERS (WHRB)

Key Features Of SITSON WHRB

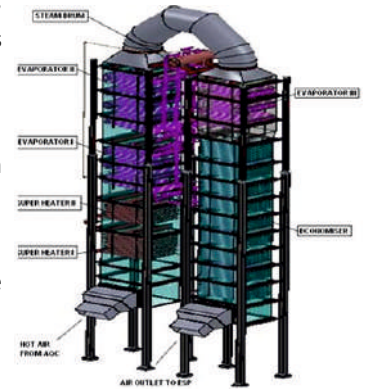
SITSON Waste Heat Recovery Boilers are used to recover waste heat from exhaust gas of sponge iron kiln, DG Sets and exhaust gas from gas turbine. The steam generated by WHRB can be used for process heating or generating power in a steam turbine.

Design Features of SITSON WHRB

- Single drum construction for reduced thermal stress during start - up & shutdown; special drum internal that promote circulation & ensure high steam purity.
- Fast Start up and shut down.
- Fully welded construction for quicker start-ups & shutdowns with welds safely located outside the gas path for higher reliability and longer life.
- Membrane wall construction for tight sealing and minimum leakages.
- Suitable to economiser steaming for better off - design operation; fully drain - able super heater for higher reliability.
- Effective soot blowing system.
- Boiler-Turbine-Generator (B. T. G) packages available and can be offered on a case-to-case basis.

Operating Range

- Capacities: 8 to 80 TPH.
- Pressure: Up to 110 kg/Cm² (g)
- Temperature: Up to 490 to 510°C.
- Waste Gas - sponge Iron Kiln / Exhaust gas of gas turbine / Waste gas from solid waste incinerator / Exhaust gas of cement kiln.



COMPONENTS OF WHRB

SITSON THREE ROLLER SUGAR MILL

Key Features Of SITSON Three Roller Sugar Mill

- Robust heavy-duty housing design for improved rigidity and stability to handle higher throughput.
- The pin-type construction makes it easy to assemble or dismantle. The side caps provide a platform for rapid emergency maintenance.
- The fourth roller rests directly on the main housing and is provided with bolting and locking arrangement to allow close setting.
- The drive to the fourth roller is directly from the top roller through heavy and long teeth pinions.
- Vertical adjustments are made possible by machined screw and specially designed bearing housings.
- Most suitable for cane feed with vertical Donnelley Chuted.
- Power consumption is minimum due to integral design.

Advantages

- Higher capacity with no extraction loss.
- No mill-gripping problems even with too fine a preparation, higher imbibition rates up to 300% with high temperature.
- Ease in setting adjustments, assembling and dismantling, due to the unique simplicity of design.
- Less maintenance.
- Pressure feeder devices can be installed and dismantle very easily.



ELECTROSTATIC PRECIPITATOR

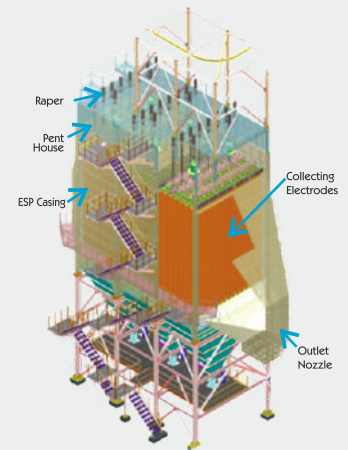
Features of SITSON ESP

- Suitable for gas flow rates 5000 m³ /hr to 400,000 m³ / hr.
- Hot gas design up to 205°C temperature.
- Effective cleaning system by top rappers for collecting electrodes and emitting electrodes.
- Low pressure drop of flue gas.
- High collection efficiency for all type of dust.
- Plate type collection electrodes are designed for high gas flow treatment and high collection efficiency.
- Specially designed and manufactured critical path line for collecting Electrodes & Emitting Electrodes.



Range of SITSON ESP

- We have supplied ESP for boilers up to 130 TPH capacity.
- We have capacity to design & manufacture ESP for Boilers up to 250 TPH capacity suitable for fuels coal, biomass bagasse & spent wash.
- We have designed of ESP for WHRB, PC Fired boilers, cement kiln, Sponge iron kiln.



SOOT BLOWER

Long Retractable Soot Blowers

Features

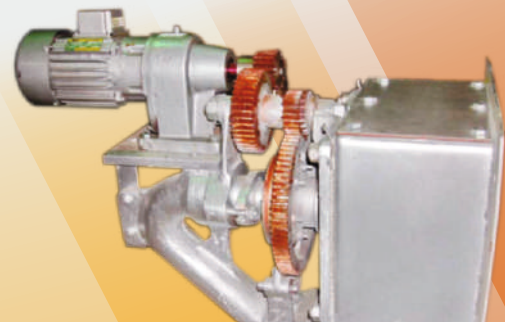
- Single motor drive.
- High cleaning efficiency.
- Minimum steam consumption.
- Simple and Robust Construction.
- Minimum maintenance.



Rotary Soot Blowers

Design Features

- Available in motorized operation as well as manual operation.
- Fully automatic with sequential control operation.
- Tailor made to suit client requirement



WASTE HEAT RECOVERY BOILER FOR CEMENT PLANT

90%  **heat**

of total energy in cement plant is used as heat energy in the clinker calcination process.

35%  **clinker**

of energy in the clinker calcination process is discharged as waste heat.

30%  **electrical**

of plant electrical energy requirement can be produced using WHR System.

Technologies for Waste Heat Boiler



Vertical Cross Flow with Bare tubes for Pre Heater Boiler.



Horizontal Cross Flow.



Vertical Cross Flow with Finned Tubes for AQC.

Design Consideration for WHR Boiler for Cement Plant

- Bare Tube Design for Pre Heater Boiler.
- Rectangular Finned Tube for AQC Boiler.
- Hammering System for Pre Heater Boiler.
- Pre Dust Collector for AQC Boiler.
- Optimum Flue Gas Velocity for better life of pressure parts.

ENGINEERING & TECHNOLOGY

Engineering Profile

11⁺ Nos

Engineering of Sugar Plant with Co-generation

140⁺ Nos

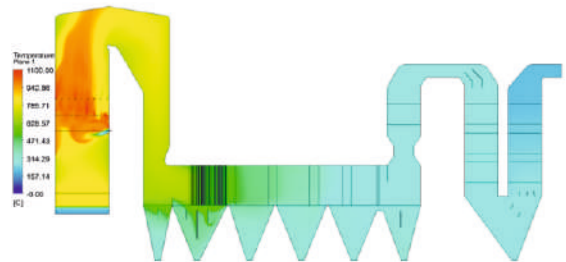
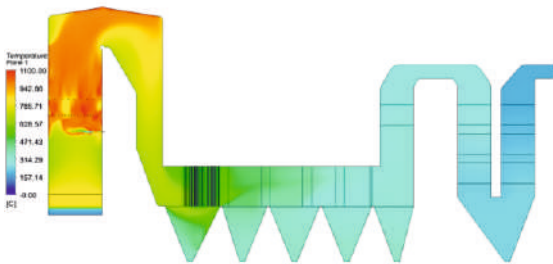
Engineering of Boilers for Sugar, Paper, Steel, Cement, Distillery and Process Industries.

25⁺ Nos

Independent Power Plants for Paper, Steel and other industries

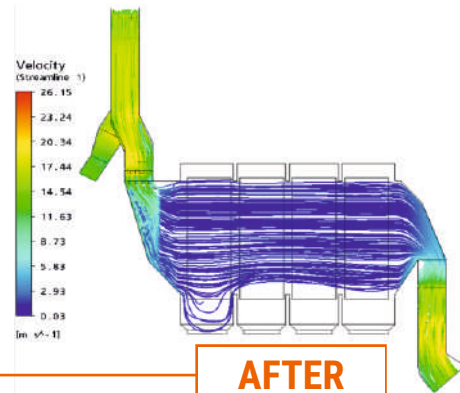
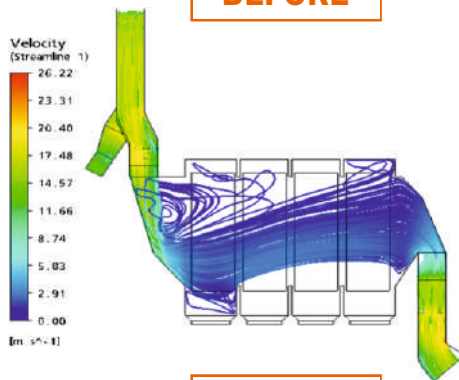
12000⁺ Nos

Engineering of boiler Auxiliaries like ESP, Travelling Grate, Soot blowers.



BEFORE

AFTER



BEFORE

AFTER

Engineering Softwares

- AutoCAD.
- Auto - Desk Inventor for 3 D Modelling.
- STAAD Pro for structure design and analysis.
- CAESAR for Piping stress analysis.
- Coil Program – by Ganpathy.
- Excel Program for Thermal Design based on Coil Program of Ganpathy.
- Tekala for structure modelling and detailing.
- In-house developed excel programs for boiler parts as per IBR.

Recent Boiler & EPC Contracts under Execution

75 TPH Spent Wash Incineration Boiler,
Shri Renuka Sugars Ltd,
Munoli, Karnataka

2.5 MW Co-Generation with 25 TPH Spent Wash Incineration Boiler.
Shri Vighnagar SSK Ltd,
Dist - Pune.

2.5 MW Co- Generation with 25 TPH Spent Wash Incineration Boiler.
Shree Datta SSK Ltd
Shirol Dist - Kolhapur.

3 x 10.3 TPH WHRB for
Shriram Power & Steel Pvt Ltd.

12 MW Co - Generation Power Plant With 75 TPH Bagasse Fired Boiler.
Shri Chhatrapati Shahu SSK Ltd,
Kagal Dist -Kolhapur.

40 TPH Biomass Fired Boiler For
Pro Industries Ltd,
Uganda.

2.5 MW Co - Generation with 25TPH Spent wash Incineration Boiler,
Naranja, SSKN. Ltd,
Bidar

2 Nos PH Boilers and 2 Nos AQC Boiler for Ultra Tech Cement Ltd

20 TPH Biomass Fired Boiler For
Kyenjojo Sugar Pvt Ltd,
Uganda.

Major Achievement in Export



Fiberizer, UFR (Under feed roller) and GRPF to Indonesia for 2 Sugar Plants.



10 Nos. Electrostatic Precipitator (ESP) to Cuba, Latin America & Indonesia.



450 Nos. Soot blowers to various other countries



1250 TCD Sugar Mill Plant to Ghana through Safetech Projects India Pvt



45 TPH Rice Husk, Palm Shell and Spent Wash Fired Boiler – Thai Agro, Thailand.



25 TPH Bagasse Fired Boiler - Sri Lanka.

Our Global Presence



SITSON INDIA PVT. LTD

India | Indonesia | Thailand | Malaysia | Kenya | Cuba | Venezuela | Sri Lanka
Fiji | Uganda

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