



IJT BOILERS

AFBC Boilers

Atmospheric Fluidised Bed Combustion Boilers



ENGINEERING FOR EXCELLENCE



AFBC Boilers (Range - up to 200 TPH)

COST EFFECTIVE SOLUTION FOR COGENERATION AND CAPTIVE POWER PLANTS

- ISO 9001:2008
- ASME 'S', 'U2' & 'U' Stamps
- 'R' Stamp
- 'NB' Stamp
- 'CE' Marking for supply to European Union
- Approval by Lloyds as a Class I Fabricator of Fusion Welded Pressure Vessels up to 300 mm (12") thickness



*2 x 105 TPH, 67 Kg/sq.cm., 485 Deg.C Coal Fired AFBC Boilers
at Rajasthan Spinning and Weaving Mills Ltd., India*



*114 TPH, 45 Kg/sq.cm., 405 Deg.C Coal Fired AFBC Boiler
at UPL Ltd., India*

Advantages / Features

Fuel Flexibility

- Wide variety of fuels (fossil & biomass)
- Underbed / overbed fuel feeding options
- Open hopper bottom design for specific fuels

High Efficiency

- Large free board height
- Adequate residence time
- Optimum boiler efficiency even at part loads

Lower Auxiliary Power Consumption

- Single pass boiler bank design (for Bi-Drum Boilers)
- Low excess air
- Optimum system pressure drop

Wide Turn-Down

- Turn-down of 4:1 or better can be achieved without the need for supplementary oil firing
- Rated superheat temperature can be maintained even at part loads

Simple to Operate

- Elimination of fire-out or explosion hazard
- Simple controls and instrumentation
- No oil support during low load operation

Reduced Maintenance

- Use of studded bed evaporation coils
- Sleeve protection construction
- Air and coal nozzles of SS material
- In-bed superheater coils shielded by bed evaporator tubes
- Optimum use of refractory
- Reliable bed ash coolers



Coal
(Indian / Imported)



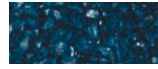
Lignite



Petcoke



Kiln Char



Washery Rejects



Julie Flora



Saw Dust



Coffee Husk



Rice Husk



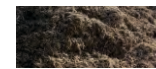
Mustard Stalk



Wood Chips



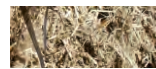
Coconut Shells



Cotton Stalk



Red Gram Stalk



Soya Stalk



Groundnut Shells



Bagasse Pith

Quick Start-Up and Fast Response to Load Changes

Less Erosion

- Low combustion temperature results in friable and soft fly ash
- Optimum flue gas velocities

Environment Friendly

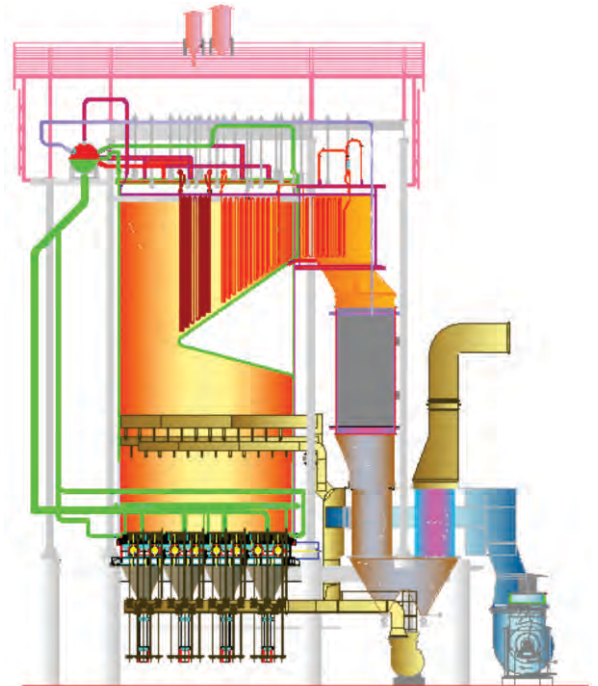
- Electrostatic Precipitator for reducing particulate emission
- Low NOx emission
- Low SOx emission

Boiler Control Room



OTHER FEATURES

- Water cooled membrane wall furnace for maximum heat absorption and structural rigidity
- Refractory lining in the fluidising bed zone to minimize tube erosion.
- Underbed fuel feed lines designed with cross and without bends to avoid chokage
- Rifle tube bed evaporator coils for high pressure application
- In-bed superheater for superheat temp. > 500 Deg. C
- Optimum air nozzle pressure drop to ensure uniform air distribution and to attain higher efficiency
- Optimum selection of bed temperature to avoid slagging / clinkering and to attain higher efficiency
- Optimum fluidising velocity for improved combustion with minimum unburnt carbon
- Optimum furnace volume to minimise unburnt carbon
- Optimum air and flue gas velocities to reduce auxiliary power consumption
- Wider pitch of superheater coils to avoid fouling of heat transfer surfaces



*As an option, we also offer open hopper bottom boiler
This is a sketch of a 68 TPH, 70 kg/sq.cm., 485 Deg C
for Kalyani Renewable Energy Ltd., Akola (Maharashtra) India*



*40 TPH, 67 Kg/sq.cm., 490 Deg.C Coal Fired AFBC Boiler
at Deepak Fertilizers Ltd., India*

A Few References

Customer / Site	TPH	kg/sq.cm.g	Deg.C	Fuel
Jaiprakash Associates, Bagheri (Himachal Pradesh) India	115	87	515	Rice Husk, Indian Coal
UPL Jhagadia (Gujarat) India	114	45	405	Imported Coal
Gujarat Anjan Cement, Wanakbori & Bhuj, (Gujarat) India	2 x 110	87	515	Imported Coal, Indian Coal, Lignite
Gujarat Flurochemicals, Dahej (Gujarat) India	105	67	485	Indian Coal, Imported Coal
Fujairah Cements Ltd., U.A.E.	2 x 90	90	525	Imported Coal
Riddhi Siddhi (Uttarakhand) India	90	110	540	Imported Coal
Jaiprakash Associates, Siddhi (Madhya Pradesh) India	2 x 85	87	515	Indian Coal
N.V. Distilleries & Breweries, Rajpura (Punjab) India	85	87	525	Indian Coal, Rice Husk, Petcoke, Wood Chips
Grasim Industries, Nagda (Madhya Pradesh) India	75	65	485	Indian Coal, Petcoke
Kalyani Renewable Energy Ltd., Akola (Maharashtra) India	68	70	485	Indian Coal, Biomass
Divine Vidyut, Chandi (Jharkhand) India	2 x 67	88	515	Indian Coal, Washery Rejects Kiln Char, Wood Chips
Enka De Colombia, Colombia	62	67	500	Imported Coal
Balakrishna Tyres Ltd., Bhuj (Gujarat) India	2 x 66	88	515	Indian Coal, Imported Coal
Deepak Fertilizers (Gujarat) India	40	67	490	Indian Coal, Imported Coal
Emami Agro (West Bengal) India	2 x 40	64	480	Indian Coal, Imported Coal
Auro Textiles (Himachal Pradesh) India	40	10.54	200	Rice Husk, Indian Coal
Adani Wilmar (Gujarat) India	2 x 25	69 & 14	Saturated	Indonesian Coal, Lignite

Detailed list can be provided on request.

2 x 90 TPH, 90 Kg/sq.cm., 525 Deg.C Coal Fired AFBC Boilers at Fujairah Cements Ltd., U.A.E.





410 TPH Reheat type CFBC Boiler
at Nirma Ltd., Bhavnagar (Gujarat) India
for 70 MW Cogeneration Plant



3500 / 5000 TCD Sugar Plant with 15 MW Co-Generation
executed on EPC basis including civil works
at The Kisan Sahkari Chini Mills Ltd., Sathiaon, Azamgarh, (Uttar Pradesh) India

Isgec Offerings

STEAM GENERATORS

- Pulverised Coal Fired (PC)
- Circulating Fluidised Bed Combustion (CFBC)
- Atmospheric Fluidised Bed Combustion (AFBC)
- Travelling / Pulsating / Pinhole / Dumping Grate
- Oil & Gas Fired
- Heat Recovery Steam Generators
- Waste to Energy
- Waste Heat Recovery
- Slop / Spent Wash / Vinasse Fired

AUXILIARY EQUIPMENT *

- Air Pollution Controller (ESP)
- Deaerator / Fans
- Valves
- Electricals & Instrumentations
- Burner
- Bed Ash Coolers
- DCS
- Feeders
- Pumps

STEAM GENERATOR SERVICES

- Site Construction & Commissioning
- Retrofitting and Modernisation
- Replacement / Upgradation of Parts
- Troubleshooting & Services
- Residual Life Assessment (RLA) Studies
- Training
- Spares
- Operation & Maintenance

EPC PROJECTS

- Independent Power Plants
- Cogeneration Plants
- Sugar Plants
- Material Handling
- Water Treatment Plants
- Distilleries

* Only available with the Boiler

Feed Cycle Equipment (HP Heater, LP Heater & Condenser)
Process Equipment • Presses • Castings • Contract Manufacturing



**ISGEC HEAVY
ENGINEERING LTD.**

A-4, Sector 24, Noida - 201 301 India
Tel.: +91-98102 56166, 98105 13340
Email: boilersales@isgec.co.in, exports@isgec.co.in
www.isgec.com