

a Legacy of Trust since 1974

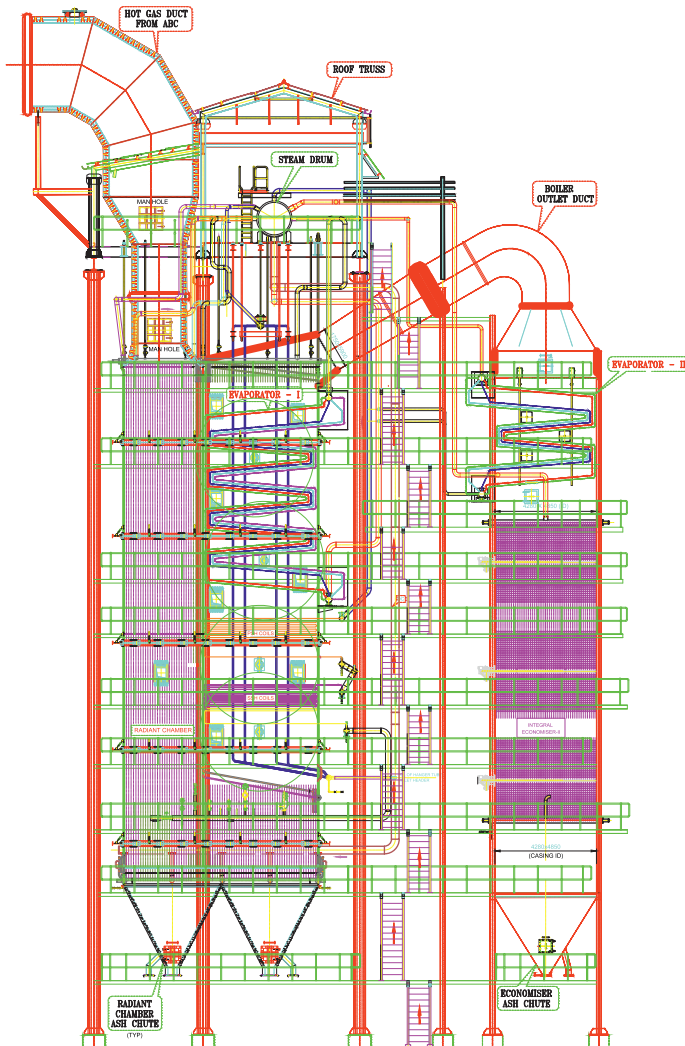
WASTE HEAT RECOVERY BOILERS



**LLOYDS[®]
ENGINEERING
WORKS**

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Salient Features of Lloyds WHRB:



- Single drum design calls for elimination of bank tubes and reduction of thickness wind up with Economic design
- Compact three pass Vertical design available with both Bottom / Top supporting arrangement & Natural circulation design
- Gas tight water wall membrane design brings zero air ingress as well the optimum Pinch and Approach point enable the WHRB to generate higher steam generation with the Maximum effectiveness (efficiency)
- Can achieve the steam parameters at MSSV outlet of up to 110 kg / cm² (g) steam pressure and 540 deg. C steam temperature
- Able to perform with large amount of ash coming out from the Kiln exhaust flue gas
- Self-cleaning design lead less ash carryover and addition of soot blowers ensure the clean pressure parts, better heat transfer and longer life
- Design with Optimum gas velocity to reduce corrosion and optimum pressure part pitches to reduce the fouling of ashes
- Flexibility of selection on pollution control equipment as per latest government norms
- Intellectual boiler control ensures automated and reliable operation
- Simple & Smooth in operation and ease on maintenance
- Robust and durable

We have supplied all the boilers with Instrumentation and Electricals.

All the necessary documentation related to the boilers including preparing of PFD's, P&ID's, H&MBD's and technical specifications of Field Instruments for procurement done by us. We have in-house plate bending machine of rolling capacity of 90 mm thick plates. We also have in-house Stress Relieving facility at our Murbad works having furnace dimensions of 6 Mtrx 6 Mtrx14 Meters Long.

Stress Analysis of critical piping, Vibration Analysis and STADD analysis of Structure is outsourced from our associates. We have IBR certified welders for carbon steel and Alloy steel material of plate, tube and piping. We have semi-automatic tube bending machine for bending upto 3" size.



PROCESS OF MANUFACTURING

- Material identification is done under IBR inspection.
- Tube Layout is made on plate for single coil, considering the centre to centre distance of top and bottom headers.
- Tube bending layout is made on plate as per drawing. Bendings are checked for thinning and ovality.
- Bent tubes are laid on respective coil assembly fixture.
- Fixed supports are set and welded between the coil tubes.
- For making of panel, fixture is made, aligned and checked by water level.
- Fin plates are fixed between two panel tubes and welded using CO₂ welding & the panel tube welding with Bottom & Top headers is done.
- For R.H. & L.H. Panel tubes are marked for hole drilling
- For Boiler Headers marking and drilling is done as per drawing.
- For Boiler Cage base plates, drain connection and T-beam welding is done on pipes.
- Radiography Test of tube to tube weld joint is done.
- Stress relieving of Top & Bottom Headers welded joints is carried out.
- All the openings of the Panel are closed for hydro test. Hydro test is taken @ 117 Kg/cm²(g) for 30 minutes.
- After successful Hydro test Linseed Oil Painting is done on Panels.



We have manufactured high Pressure vertical type waste heat recovery boilers for Gopani Iron & Power Ltd, and Lloyds Metals and Energy Limited for Power Plant application 15 MW & 30 MW respectively. Boiler capacities were 55 TPH, 12 TPH having pressure of 67 Kg/cm²(g) & Temp 490 Deg C. We have also manufactured and supplied AFBC Boiler of 90 TPH, 67 Kg/cm² (g) & Temp 490 Deg C. Our scope for Boilers is Design, engineering, manufacturing, supply including the installation and erection / commissioning.

Major WHR & AFBC Boilers executed by Lloyds

- LMEL, Ghugus - 55TPH
- Gopani Iron & Power - 12TPH x 4 nos
- IOCL Paradip - 9.7TPH & 18.7TPH
- HPCL Vizag - 6.1TPH
- NRL - Numaligarh - 2.2TPH
- IOCL - Bongaigaon - 1TPH
- LMEL - Ghugus - 90TPH AFBC
- IOCL - Dumad 10TPH - 2 Packages
- JSPL - Angul 38TPH x 2 nos & 15TPH * 2 Nos
- Salagram Power & Steel - WB 22TPH
- Spintech Tubes - WB - 76.20TPH x 2 nos
- Vista Spirit - Odisha - 25TPH - AFBC



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