**CTF Model – COMBITHERM – HUSK FIRED**

**PRESSURE PARTS:**

* 1 No. Shell & Tube Type Heat Exchanger
* 1 Set Risers and Down-comers
* 1 Set Membrane Type Water Wall Panel

**NON-PRESSURE PARTS:**

* Smoke Chambers
* Saddles for shell boiler & Membrane water wall panel assembly

**MOUNTINGS AND FITTINGS**:

* 1 No. Main Steam Stop Valve
* 2 Nos. Safety Valves
* 1 No. Blow-down Valve
* 2 Nos. Drain valves in Membrane headers
* 1 No. Dial type Steam Pressure Gauge
* 2 Nos. Non return valves with globe valves for feed line.
* 2 Nos. Water Level Gauge Sets
* 1 No. Magnetic Float type On/Off Water level Controller
* 1 No. Isolation Valve for Pressure Gauge
* 2 Nos. Mobrey Isolation Valves on Boiler

**INSTRUMENTS, CONTROLS AND SAFETIES**:

* Automatic Water Level controller for Pump On/Off
* Pressure Gauge for steam
* Pressure Gauge for water
* Fusible Plug
* On / Off selector switches &Indicating lamps for all motors
* Alarm for Abnormal Operating conditions

**ACCESSORIES**:

* 2 Nos. Feed Water Pumps with Motors
* 1 No. Control Panel with Control Wiring
* Induced Draft Fan:
  + Centrifugal fan along with motor, base frame & belt drive assembly
* Forced Draft Fan:
  + Centrifugal fan along with motor, base frame & Inlet damper

**ADDITIONAL SUPPLY**

* Fluidisation kit consisting of following:
  + Secondary air system with nozzles & damper
  + Screw feeder with gear box & motor
  + Variable Frequency Drive (VFD) for feeder
  + Fuel spray nozzle with damper
  + CI nozzles for fuel firing
  + Plennum chamber with bed material drain pipes
* Air Pre-heater:
  + Shell & Tube type Air pre heater
  + Ash discharge hopper
* Pollution Control Equipment
  + Cyclone dust collector
  + Ash discharge hopper

**EXCLUSIONS:**

* Chimney and Flue Gas Ducting
* Civil Works and foundation
* Steam, water & drain piping.
* Refractory and Insulation material
* Fire doors, ash removal doors
* Power Wiring up-to terminal points of Motors
* Water Softening Plant (can be offered additionally)
* Feed Water Storage Tank & Piping up-to Pumps
* Fuel Preparation, Handling and Firing System
* Ash Collection & Disposal System
* Statutory Approval including Site IBR (We shall issue IBR Folder complete in all respects)
* Anything not specifically mentioned above