

HANUMAN AGRO INDUSTRIES LTD.

REGD. & CORPORATE OFFICE: NICCO HOUSE, BLOCK 'C', 6TH FLOOR, 2, HARE STREET, KOLKATA-700 001, INDIA
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HAIL/KOL/1033/FEB./2004-2005

Dt. 08-02-2005

M/s. Cheema Boildrs Ltd.
SCO 66, Phase 3B2
Mohali
Chandigarh - 160 059

For kind attn : of Mr. Rajesh Singla. Dy Manager (Marketing)

Dear Sirs,

In reference to your Qtn. No. CBL/21K/2004-2005 dated 17-12-2004, your subsequent visit to our Kolkata Office along with your Team, as discussed/finalized with you and our LOI dt. 31-01-2005 we are pleased to place an order with you as per the details given in the enclosed Annexures, duly stamped and signed by us.

We are sure, you will live up to your reputation and would not let us down and ensure quality and timely supplies to give the rated trouble free output as confirmed by you. Needless to say, Material of construction, Workmanship, Bought out items etc. etc., which you have repeatedly assured us will be of International standards.

Looking forward to a long and prosperous business relation with you and your company.

Thanking you,

Yours faithfully,
For Hanuman Agro Industries Limited


Director.

Encl : As above.

PAPER PLANT : VILLAGE, PARAGAON, NAWAPARA—RAJIM, DIST. RAIPUR-493 885, (CHATTISGARH)

TEL.: (07701) 233219, 233922 FAX: (07701) 233689

RAIPUR OFFICE : APARTMENT NO. 8, 2ND FLOOR, LALGANGA APARTMENTS, MOUDHAPARA, RAIPUR-492 001 (CHATTISGARH)

TEL.: (0771) 2223510, 2223520

DESIGN BASIS

Type	:	Outdoor, Natural circulation, Water tube, Fluidised bed combustion, Under bed firing boiler.
Design code	:	IBR 1950 with latest amendments
Steam boiler (Kg/hr.)	:	22000 (exportable)
Steam pressure (Kg/cm ²)	:	45
Steam temperature (Deg.C)	:	440 +/- 10
Outlet flue gas temp. (Deg.C)	:	165 - 170
Water temp. at economizer inlet (Deg. C)	:	120
Fuel	:	100 % Rice husk
	:	100 % Coal
NCV (K.Cal/kg.) - Rice husk	:	3150
GCV (K.Cal/kg.) - Coal	:	3400
Fuel sizing - Rice husk	:	As available
- Coal	:	Less than 6 mm
Boiler efficiency - Rice husk	:	82 +/- 2 %
- Coal	:	
	:	83 +/- 2 %
Start up fuel	:	Charcoal mixed with Diesel
Relative humidity (%)	:	58
Ambient temp. (Deg. C)	:	
- Efficiency	:	30
- Insulation	:	48
- Electrical	:	48
Electrical data	:	
- LT Volt (V)	:	415 ± 10%
- Control Volt (V)	:	220 ± 10%
- Frequency (HZ)	:	50
Compressed air pressure (Kg/cm ²)	:	6 (Oil and Moisture free)



OPERATION & MAINTENANCE MANUAL



An ISO 9001-2000 company

CHEEMA BOILERS LIMITED

SCO 66, Phase 3-B2, Mohali - 160 059.

☎ 0172-2220067, 5090486, Fax: 2271691

Works: Vill. Banmajra, Kurali (Ropar), Punjab

☎ 0160-2642606, 839,701



CUSTOMER : M/s Hanuman Agro
Industries Ltd. (Raipur)

BOILER NO. : CBBT – 285

CAPACITY : 22 TPH

PRESSURE : 44 Kg/cm²

TEMPERATURE : 450 ± 50°C

BOILER EFFICIENCY : WITH RICE HUSK 82 ± 2%
WITH COAL 85 ± 2%

GENERAL DESCRIPTION OF BOILER

The 'Powerpac' Boiler is designed for:

- a) Compartmentalized /Double combustion chamber.
- b) Overbed feeding system
- c) Double drum type

The boiler is designed for husk and coal as a fuel with capacity of 22 TPH. The outlet stem parameters are

- a) Pressure 44 Kg/Cm²
- b) Temp. 450⁰C
- c) Boiler Efficiency : 82 ± 2% Rice Husk
: 85 ± 2% Coal

1. AIR SYSTEM

This system starts with FD fan to supply required combustion air and impart energy for fluidisation. FD fan is a centrifugal type fan. Ambient air from fan outlet is distributed evenly to combustion chamber through air box. A part of combustion air is tapped from air heater outlet. It goes to secondary Air Nozzle, which play a major role in post combustion for black smoke control.

2. COMBUSTION CHAMBER

The distributor plate is the heart of the FBC system. It is made up of carbon steel base plate with primary air nozzles to distribute the fluidised air from air box uniformly over the entire bed. Sufficient free board volume is available above the bed to ensure complete combustion of fuel.

3. FUEL AND ASH HANDLING SYSTEM

The fuel from the screen is transported to the bunker through the conveyor. The fuel from bunker is fed into the bed by fuel feeder and sprayed by spray nozzle located below the feeder. The speed of fuel flow can be adjusted from the control panel. The ash generated is collected at furnace, dust collector & air pre-heater & taken to the exit point through to Belt Conveyor designed to minimise the spillage of Ash. Ash quenching line is provided to minimise the fly Ash.

4. FLUE GAS SYSTEM

The hot flue gas generated from the combustion chamber is cooled by passing through waterwall, drum tubes and air heater. FD and ID fans maintain Balance draft. Flue gas is finally let into the atmosphere through the chimney.