

Economiser needs to be changed.

22 TPH CAPACITY BOILER TECHNICAL DETAILS

2009

Make	: CHEEMA BOILERS LIMITED
Capacity	: 22 TPH +/-2 (MCR)
Rating	: 1053 M ² Bohl, 1CW, from 9 at.
Steam Pressure O/L	: 66 Kgs./Cm ²
Steam Temperature O/L	: 485°C +/-5°C
Type of Boiler	: AFBC, Membrane Water Wall By Drum
Fuel Feeding	: Under Bed Feeding, Over Bed Feeding
Draught	: Artificial Balanced Draught (ID,FD,Pan Fans)
Type of Fuel	: Coal, Indigenous (or) Imported Coal, Rice Husk Underfeeding Over Bed Wood Chips
Auxiliaries	: Boiler feed Water Pumps -- 2 Nos.(One Standby) ID Fan - with VFD Control FD Fan - with CFD Control P.A.Fan - Pneumatic Cylinder Damper Control
Dust Collector	: ESP suitable for 22 TPH Boiler Thermax Make
Ash Handling System	: Bottom & Fly Ash collected through Screw Convleyor & Belt

$$TPA = \text{Primary Air volume of Primary Air (m}^3/\text{hr)}$$

$$= \text{Total PA requirement (TPH)} \times 1.1 \text{ No } / 1.233.$$

$$\text{Bohl} = \text{Area of H.T} \times (1/17)$$

$$(\text{m}^2)$$

$$kW = \text{D.R} = \frac{\text{Steam oil (kg/h)} / ((3600 \text{ s/h}) / (\text{calorific energy in kJ/kg}))}{}$$

3 M.W. TURBINE TECHNICAL DETAILS

Make : TRIVENI TURBINES LIMITED
Frame Size : Fr-13B
Sr.No. : 21
Year of Manufacturing : 2015

I. TURBINE

Power Rate : 3000 KW
Inlet Steam Pressure : 64 ATA
Inlet Steam Temperature : 485°C
Inlet Steam Flow : 22500 Kg./Hr.
Extraction Pressure : 7 ATA
Extraction Flow : 14000 Kg./Hr.
Extraction Pressure : 0.1 ATA
Turbine Speed : 8325 RPM
Alternator Speed : 1500 RPM
Turbine Trip Speed Range : 9158/9574 RPM
First Critical Speed(Range) : 3800/4500 RPM
No. of Stages : 10 Nos.
Steam Inlet size : 8" NB 900# RF
Direction of Rotation
From Output end : Counter Clockwise

II. GEAR BOX(BT0210025)

Make : TEIL – Mysore
Type : Single
Model : HSG-432
Speed/Input : 8325/1500 RPM

III. OIL SYSTEMS

Lubricating Oil : ISO-VG-46
Oil Reservoir Capacity : 3000 Ltrs.
1st Fill Oil Requirement : 6000 Ltrs.
Lube Oil Pressure Range : 1.8 – 2 Kg./Cm²g
Control Oil Pressure : 4.5 – 5.5 Kg./Cm²g

A MAIN LUBRICATING OIL PUMP

Manufacturer : TEIL
Type : Geared
Capacity : 55 GPM
Driver : Gear Box

B AUXILIARY OIL PUMPL(AC) BT0750138

Manufacturer : Rotodel
Model : (RDN X 200 L)
Type : Geared
Speed : 1440 RPM
Capacity : 55 GPM
Motor : 7.5 HP

C EMERGENCY OIL PUMP (EOP) (BT0750154)

Manufacturer : Rotodel
Model : (RDN x 125 L)
Type : Geared
Capacity : 15 IGPM
Driver : 2 HP DC Supply

✓ D OIL COOLER (BT0140073) *Geared*

Make : ESKAY INDUSTRIES LTD.,
Model : (TB2SAM4195-R5 Item A)
Type : Horizontal Duplex
Capacity : 70 GPM
Oil Temperature Inlet : 60°C
Oil Temperature Outlet : 45°C
No. of Tubes : 196 O/D x 18 BWG
Surface Area : 24 SQM
Cooling Water Temp.Inlet : 35°C
Cooling Water Temp.Outlet : 38°C
Cooling Water Flow : 143 GPM

✓ E OIL FILTER (BT0150013) *Geared*

Manufacture : Industrial Enterprises(IEH 621)
Model : Duplex
Capacity : 75 GPM
Grade of Filtration : 10 -15 Microns
Element No. : 75-03

*1. Move
the turbine*

F CONTROL OIL FILTER (BT0150042)

Manufacture	: Industrial Enterprises(IEH 1435)
Model	: Simplex
Capacity	: 8 GPM
Grade of Filtration	: 15 Microns
Element No.	: 8-04

G EOP FILTER (BT0150020)

Manufacture	: Industrial Enterprises(IEH 1427)
Model	: Simplex
Capacity	: 15 GPM
Grade of Filtration	: 15 Microns
Element No.	: 15-10

H PRESSURE RELIEF VALVE (MOP) IMO190012

Make	: Hopkinsons,U.K
Duty	: Control Oil
Size Inlet/Outlet	: 1/2" NB
Set Pressure	: 6.05 kg./Cm ² g
Discharge Capacity	: 15 GPM

I PRESSURE RELIEF VALVE (AOP) VL0100021

Make	: Telace/Nirmal
Duty	: Lube Oil
Size Inlet/Outlet	: 1/2" NB – ANSI 150# RF
Set Pressure	: 5.6 kg./Cm ² g
Discharge Capacity	: 55 GPM

J PRESSURE RELIEF VALVE (LUBE OIL) IM0190006

Make	: Hopkinsons,U.K
Duty	: Lube Oil
Size Inlet/Outlet	: 1" NB
Set Pressure	: 1.80 kg./Cm ² g
Discharge Capacity	: 10 GPM

K ACCUMULATOR (BT0220001)

Manufacturer	: Fawcett India
Model	: 2000A-00-201
Pre-charge Pressure	: 3.9 Kg./Cm ² g

L SOLENOID VALVE

Make	: ASCO
Volts	: 110 DC
Connection	: 3/4" NPT (F)
Action	: De Energise to Trip

M THROTTLE VALVE SETTING

Throttle Valve Lift No.1	: 33.50 mm
Throttle Valve Lift No.2	: 18.50 mm
Throttle Valve Lift No.3	: 05.00 mm
Total Lift (Available)	: 57.00 mm

GENERAL

A HIGH SPEED COUPLING (BT0060166)

Manufacturer	: Euroflex Transmission (I) Pvt.Ltd.,
Model	: 8GH2-160-S (without S pin)
Drawing No.	: 03340-00

B LOW SPEED COUPLING

Manufacturer	: Euroflex Transmission (I) Pvt.Ltd.,
Model	: 8GBH-270
Drawing No.	: 61209-00 REV-G ITEM-B

C GOVERNOR

Type	: Woodward (505E Model)
Model	: Digital

D ACTUATOR (HP)

Manufacturer : Woodward
Type : TG 13E
Operating Speed : 1108 RPM

E ACTUATOR (LP)

Manufacturer : Woodward
Type : TG 13E
Motor : 0.5 HP

CONDENSER

dy Make : MAZDA LIMITED
Type : Surface, Fixed Tube Type
Number of Passes : Two
Water Box Type : Divided
Steam Flow : 12,000 Kg./Hr.
Steam Pressure : 0.095 ATA
Cleanliness Factor : 0.85
Cooling Water Temp.(Inlet) : 32°C
Cooling Water Temp.(outlet) : 40°C
Cooling Water Quantity : 820 M³/Hr.
Cooling Water Inlet/Outlet Sizes: 12"
Weight(Working) : 17660 Kgs.
No. of Tubes : 912 SS-304ERW 3/4" X 20 BWG
Surface Area : 389.48 M²

B EJECTOR (STARTUP)

Manufacturer : Mazda Ltd.,
Motive Steam Pressure : 12 Kg./cm²g
Motive Steam Temperature : 300°C
Steam Consumption for Hogger: 370 Kg./Hr.

C EJECTOR (MAIN)

Manufacturer : Mazda Ltd.,
Motive Steam Pressure : 6 Kg./cm²g
Motive Steam Temperature : 270°C
Steam Consumption (Total) : 288 Kg./Hr.

GLAND VENT CONDENSER

 Manufacturer : Eskay Industries
 Type : Horizontal Shell & Tube
Steam Flow : 300 Kg./Hr.
Condensate Flow : 11,700 Kg./Hr.
Condensate Temp. Inlet/Outlet: 53/69.7°C
Condensate Pressure : 12 Kg./Cm²g
Surface Area : 9.66 M²

GVC BLOWER

Manufacturer : Nadi Airtechnics
Capacity : 650 CFM Air at 2"WC
Model : 2880
Motor : 0.5 HP

CONDENSATE EXTRACTION PUMP

Manufacturer : KSB Pumps Ltd.,
Type : Centrifugal
Model : CPKGCM-32-250
Capacity : 13.2 M³/Hr.
Rated Head : 90 Mtrs.
Motor Speed : 2900/2920 RPM

ALTERNATOR

Make : BHEL
Capacity : 3000 KVA