

HANUMAN AGRO INDUSTRIES LTD.

REGD. & CORPORATE OFFICE : NICCO HOUSE, BLOCK 'C', 6TH FLOOR, 2. HARE STREET, KOLKATA-700 001, INDIA
TEL. : (033) 22481420, 22486507, 22430025, 22437368 FAX : (0091) (33) 22209807, E-Mail : hail@cal.vsnl.net.in

HAIL/KOL/1035/FEB./2004-2005

Dt. : 08-02-2005

M/s. Pentagon Turbines (P) Ltd.
No. 13, 2nd Floor, 11th Main,
5th Block, Jayanagar,
Bangalore - 560 041.

Mr. Rathode
Raipur Office

Kind Attn : Mr. Pramod Chandra, Managing Director.

Dear Sirs,

In reference to your Qtn. No. TURBINE/EQ-04-0144 dated 13-12-2004, your subsequent visit to our Kolkata Office along with your Mr. Satish Pandey, Director - Marketing & Contracts, 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

TECHNICAL SPECIFICATIONS FOR STEAM TURBINE

Inlet Steam pressure	:	44 Kg/Cm ² g
Inlet Steam Temperature	:	430°C.
Inlet Steam Flow	:	21.4 TPH
Extraction Pressure	:	9Kg/Cm ² g
Extraction Flow	:	14T per Hour(+1 from PRDS) total – 15tph
Exhaust Pressure	:	0.1 ATA
Exhaust flow	:	7.4 TPH
Power generation	:	2.5 MW or 2500 KW
Voltage	:	440VLT
Alternator voltage	:	415 V AC, 3 phase, 4 Wire with differential protection
Condensar size	:	11TPH

Note:

Requirement

1. Power net – 2.2 MW(exportable)
2. Steam for process – 14 TPH at 9Kg/Cm²g
 - (a) Paper machine – 3.5TPH Steam at 7Kg/Cm²g and 4TPH at 4Kg.Cm²g
 - (b) Pulp Mill – 4.5TPH Steam at 7Kg/Cm²g
 - (c) Deaerator- 2TPH at 4Kg/Cm²g
 - (d) 1TPH for others (stock cooker. m/c hood etc)

SCOPE OF SUPPLY

PART - A MECHANICAL

Steam Turbine

Multistage, nozzle governed, Horizontal spindle, two bearings, Impulse type Extraction – cum- Condensing turbine with :-

- Hydraulically operated stop and emergency valve with Integral steam strainer for inlet.
- Hydraulically operated throttle/governing valve for inlet steam flow control and extraction steam flow control.

Lubrication system:

Forced feed lubrication system, combined for Turbine, Gearbox and Alternator comprising of

- Under base Lube oil tank provided with cleaning doors and air breather.
- Main oil pump (MOP) driven by gear box , pinion out put shaft low speed.
- Auxiliary oil pump (AOP) with a ito cut-in & cut-out facility(Driven with AC Motor)
- Emergency lube oil pump (EOP) with auto cut-in & cut-out facility(Driven with DC Motor)
- Suction strainers for MOP, AOP & EOP.
- Pressure relief valves for discharge of MOP, AOP & EOP and lube oil line.
- Oil coolers (1 working + 1 standby) with on-line charge-over arrangement.
- Oil filters (1 working + 1 standby) with on-line charge-over arrangement.
- AC motor driven oil vapour extractor mounted on oil tank.
- Pressure regulating valve to achieve desired lube oil pressure.
- Interconnecting lube oil piping.

