



1050 kW Extr.-BPT, Khaitan Agro, M.P.



165 kW MS-BPT, Khaitan, U.P.



400 kW BPT, SPY Agro, A.P.



850 kW Extr.-BPT, Taj Milk Foods, Delhi



150 kW BPT, Lupin Ltd., Gujarat



175kW BPT, GSK Health Care Punjab



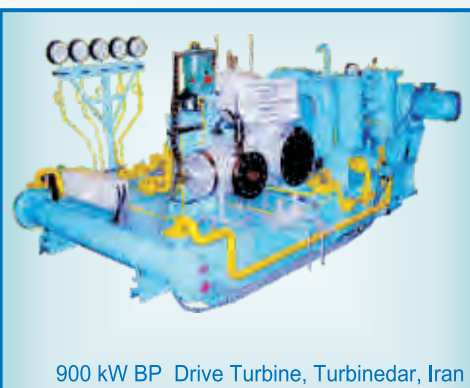
1020 kW Extr.-BPT, Surya Pharma, Punjab



75 kW Drive Turbine, GSK Health Care, Sonapat



110 kW BPT, Aranthangi Chem., T.N.



900 kW BP Drive Turbine, Turbinedar, Iran



Ncon Turbo Tech Pvt. Ltd.

Shed No. F-62 & F-63, Industrial Estate
Rajajinagar, Bangalore - 560 044, INDIA
Ph: +91-80 23151486 / 23301629 / 23307313 Fax: +91-80 23159158
Email: ncontt@gmail.com, info@nconturbines.com
Website : www.nconturbines.com



NCON SHAKTI STEAM TURBINES



- Custom Design
- Efficiency
- Reliability



Ncon Turbo Tech Pvt. Ltd. TURBINE ENGINEERS

www.nconturbines.com

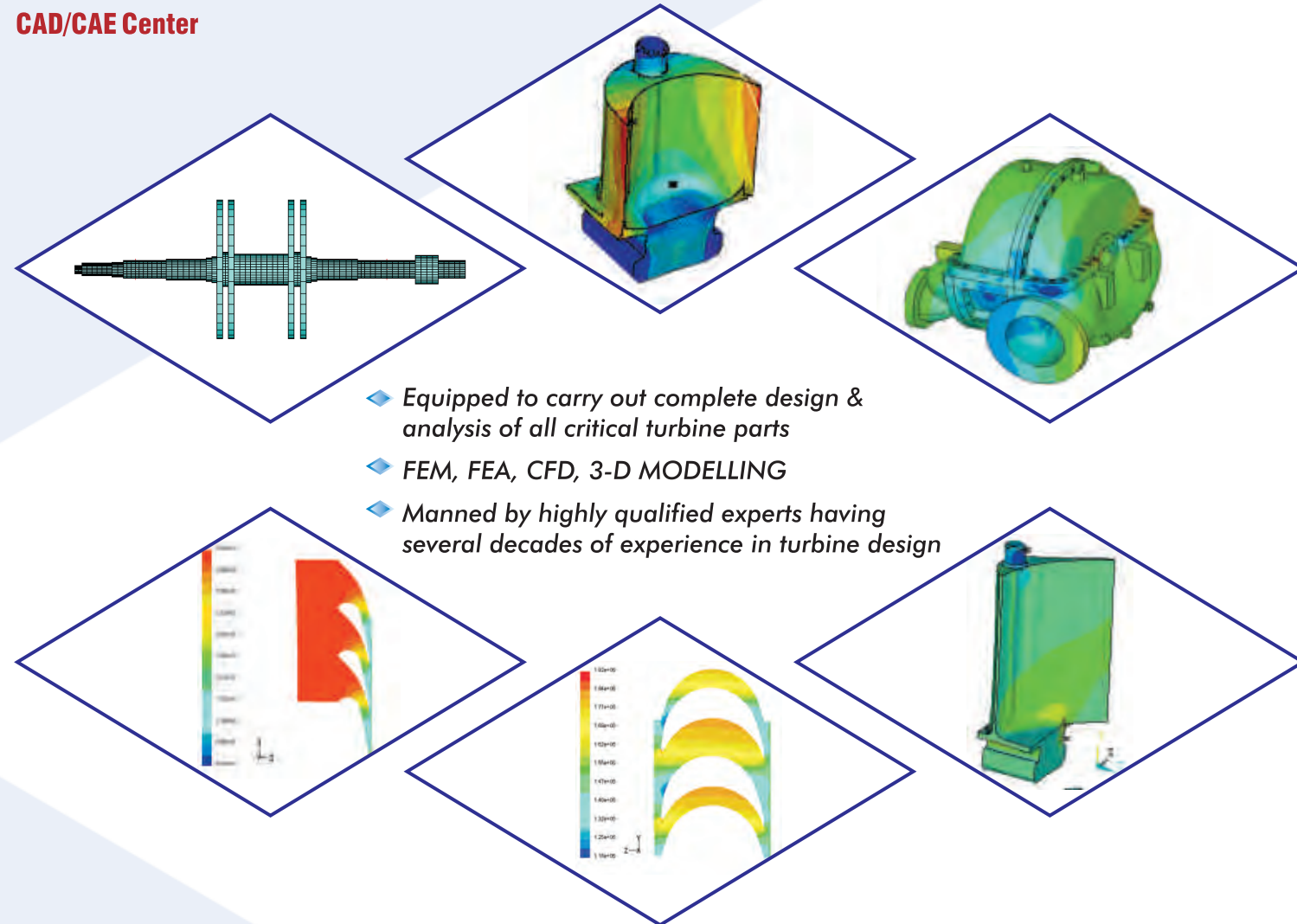
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NCON TURBO TECH PVT LTD., was started in the 1980's with a mission to provide the highest quality of products and services in the field of steam turbines. The Company has a large customer base encompassing almost every industry segment using steam in its process.

Mission : to be the undisputed leader in Small & Medium Power Steam Turbines

Resources & Facilities

CAD/CAE Center



- ◆ Equipped to carry out complete design & analysis of all critical turbine parts
- ◆ FEM, FEA, CFD, 3-D MODELLING
- ◆ Manned by highly qualified experts having several decades of experience in turbine design

Manufacturing Center

- ◆ Fully equipped in-house manufacturing and assembly facility, 10000 Sqft. floor space, material handling upto 10MT.
- ◆ Several GPM's, a CNC machining center and precision measuring instruments.
- ◆ Dynamic Balancing facility - rotors upto 1.0MØ and 1.0MT wt.
- ◆ Network of about 30 modern manufacturing facilities including precision gear manufacturers.

Man Power

Highly skilled and experienced technicians with specialized knowledge in turbine assembly, overhauling, testing and commissioning.

◆ Company's Products

- ◆ **NCON Shakti Steam Turbines**
Power levels upto 3.0 MW for Back-pressure as well as Extraction cum Back-pressure or Condensing applications.

◆ Services

- ◆ **Consultancy** for setting up Cogeneration / Independent Power Plants (IPP's), both steam turbine and Gas Turbine based.

NCON SHAKTI STEAM TURBINES - FRAME SIZES

Description	550B	MS 400-B	MS 660-EB/EC
Power level	75 ~ 250kW	300 ~ 500kW	750kW ~ 3.0MW
Turbine type	Single stage impulse/2-row Curtis	Multi-stage impulse	Multi-stage impulse
Turbine speed - RPM	5300	7500	6000
Application	Mechanical drive/Power generation	Mechanical drive/Power generation	Mechanical drive/Power generation
Inlet steam pr. /temp.	Upto 42 Kg/cm2g, 430 deg C	Upto 42 Kg/cm2g, 430 deg C	Upto 42 Kg/cm2g, 430 deg C
Extraction pr.	--	-	Upto 17Kg/cm2g
Back Pr.	Upto 8.0 Kg/cm2g	Upto 8.0 Kg/cm2g	Upto 8.0 Kg/cm2g in BP and 0.1 Ata in cond. Mode

◆ Features

A. TURBINE

- Nozzle chest : One set of main nozzles and two hand valves for multiple admission, operational flexibility and optimal efficiency
- Nozzles & guide vanes : Aerodynamically designed airfoils for max. efficiency
- Turbine blades : Latest profiles for high efficiency
- Turbine discs : Forged steel with inserted blades, shrouded and machined for minimum tip leakage losses.
- Bearings : Hydrodynamically designed Journal and Journal cum Thrust bearings, white metal lined
- *Seals : a. Steam side : Split Carbon rings
b. Oil side : Phosphor bronze Labyrinth
- Governor⁺ : Hydro-mechanical, Woodward or equivalent for 'Island' mode operation
- Governing valve : Combined throttle cum stop valve for governing and 'quick' shut-off, built-in strainer
- * Zero leakage steam seal on request + Electronic governor on request

B. GEAR BOX

- Type⁺ : Single helical, parallel axes, single stage reduction gearbox, output RPM to match Customer specs.
- Quality : Precision ground gears, profile corrected for low noise and high transmission efficiency
- Bearings : Hydrodynamically designed Journal and Journal cum Thrust bearings, white metal lined
- Service factor : 1.8 to 2.0
- + Speed Reversal Gear Arrangement Option for Mill Drive Applications on request

- C. LUBRICATION SYSTEM** : Pressurized oil circulation to all bearings and gears of turbine and gearbox, with MOP and Electrically driven AOP, Emergency Hand Pump - DC motor driven pump on request

- D. BASE FRAME CUM LUBE SUMP** : MS fabricated, precision machined, with provision for lifting and grouting.
: Built-in lube sump with level gauge, filler cum breather, drain and manholes for cleaning.

- E. COUPLINGS** : Choice of flexible element with dist. Pc. and/or Gear /Jaw type couplings.

- F. QSV ACTUATOR** : Double acting hydraulic cylinder.

G. ALTERNATOR & ELECTRICALS

- Alternator⁺** : 4-Pole, LT alternator, (415 to 440V), KVA rating to match Customer, brushless, self-excited, self-regulated, IP-21 Protection Class, 1500RPM, 0.8 PF., Winding temp. protection using PTC's
: RTD's and BTD's on request
- Integrated TG Set Panel** : ACB / MCCB of suitable rating
: Meters for V, A, kW, KWH, KVA, KVAR, PF, Hz.
: Protection using Multi-function relay, Earth Leakage Relay,
: Turbine control & health monitoring

⁺Induction Generator on request. HT System on request.

H. INSTRUMENTS

- Speed : Electronic speed pick-up with digital tachometer for speed indication and over speed trip setting.
- Temperature (Optional) : RTD's with multi-channel scanner with relay output for alarm / trip
- Axial displ. (Optional) : Proximity sensor with indicating meter, alarm and trip.

- I. FAIL-SAFE TRIP & ALARM SYSTEM** : Mechanical Over speed trip : Electronic Over speed trip
: Axial displ. Trip : Low Lube Oil Pr. trip
: High brg. Temp. alarm : Filter Clog alarm
: High casing pr. alarm : Breaker trip in the event of turbine trip.

J. MATERIALS OF CONSTRUCTION

- Turbine casings : Cr. Alloy steel casting
- Turbine wheel : EN-19, Forged
- Turbine shaft : EN-24, Forged
- Rotor blades, nozzles & guide vanes : Hardened stainless steel for corrosion and erosion resistance
- Steam Seal : Split Carbon rings on SS housing
- Oil Seal : Phosphor bronze labyrinth
- Bearings : White metal lined on steel
- Gears : 17CrNiMo6
- Gear shafts : EN8/EN9

Note : 1. The Company reserves the right to make changes without notice in design, materials of construction, etc. in the interest of product improvement
2. Check with Company for standard & optional features