JB Advanced Engineering Limited

"Powering Precision, Engineering the Future"

Complete Power Generation Solutions



www.jbepower.com

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1 Our Vision, Mission & Goal



Welcome to

JB Advanced Engineering Limited. (JBAEL)

Since the privatization of power generation in 2003, India has significantly expanded its installed capacity, largely supported by global equipment suppliers. While this growth delivered speed and cost efficiency, sustaining long-term performance now depends on reliability, operational excellence, and lifecycle-focused asset management to ensure consistently high power output.

Vision is to be a globally trusted engineering partner, recognized for technical excellence, responsible execution, and unwavering commitment to quality and safety. We aim to bridge global OEM standards with practical field-level execution, enabling our customers to achieve higher availability, optimized performance, and extended equipment life.

Goal is not limited to fixing problems, but to create lasting value — by enhancing reliability, modernizing aging assets, and supporting the transition toward efficient and responsible power generation. Guided by a zero-harm philosophy and strict quality governance, we remain committed to engineering solutions that serve both industry and society.

Mission is to provide integrated asset support services across thermal, hydro, gas, and nuclear power sectors. Through strong global partnerships, advanced diagnostics, skilled field services, and lifecycle-focused solutions, we help operators manage risk, control costs, and make informed decisions for long-term sustainability.

“We don’t just offer services; we build legacies of trust by ensuring your assets deliver reliable, high-output power for decades”.

Mr. Abhimanyu Arya
Managing Director

2. The Advantage: Precision, Agility, and Trust



Maximize Asset Availability:

Predictive diagnostics and rapid-response teams minimise unplanned outages.

Extended Asset lifecycle

Renovation & Modernization programs designed to defer massive Capital Expenditure.

Cost- Efficiency:

Global OEM-standard spares combined with localised execution.

JBAEL	Traditional Services Providers
Industry Expertise	Generic Approach
Customised Solutions	One Size Fits All
Dedicated Support	Limited Support
Innovative Technology	Slow & Inflexible

Outcome: Peace of mind for stakeholders through risk-controlled asset management.



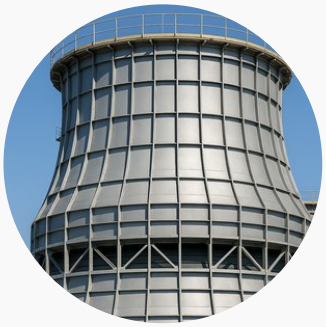
3. Solutions We Deliver



• Repair, Overhauling & Asset Restoration

Precision repair, overhauling, and life extension solutions for turbines, generators, and critical rotating assets.

• Erection, Commissioning & End-to-End Plant Execution



Complete electrical & mechanical erection, alignment, testing, commissioning, and execution support for critical plant systems.



• Inspection, Diagnostics & Expert Technical Supervision

Condition assessment, fault diagnostics, troubleshooting, and expert supervision to improve plant performance.

• Skilled Field Services & Long-Term Support



Deployment of experts for shutdowns, maintenance, and sustained field support.



• Spares Supply & Lifecycle Support

Reliable supply of critical spares backed by installation assistance and long-term lifecycle services.

• Global OEM Partnerships

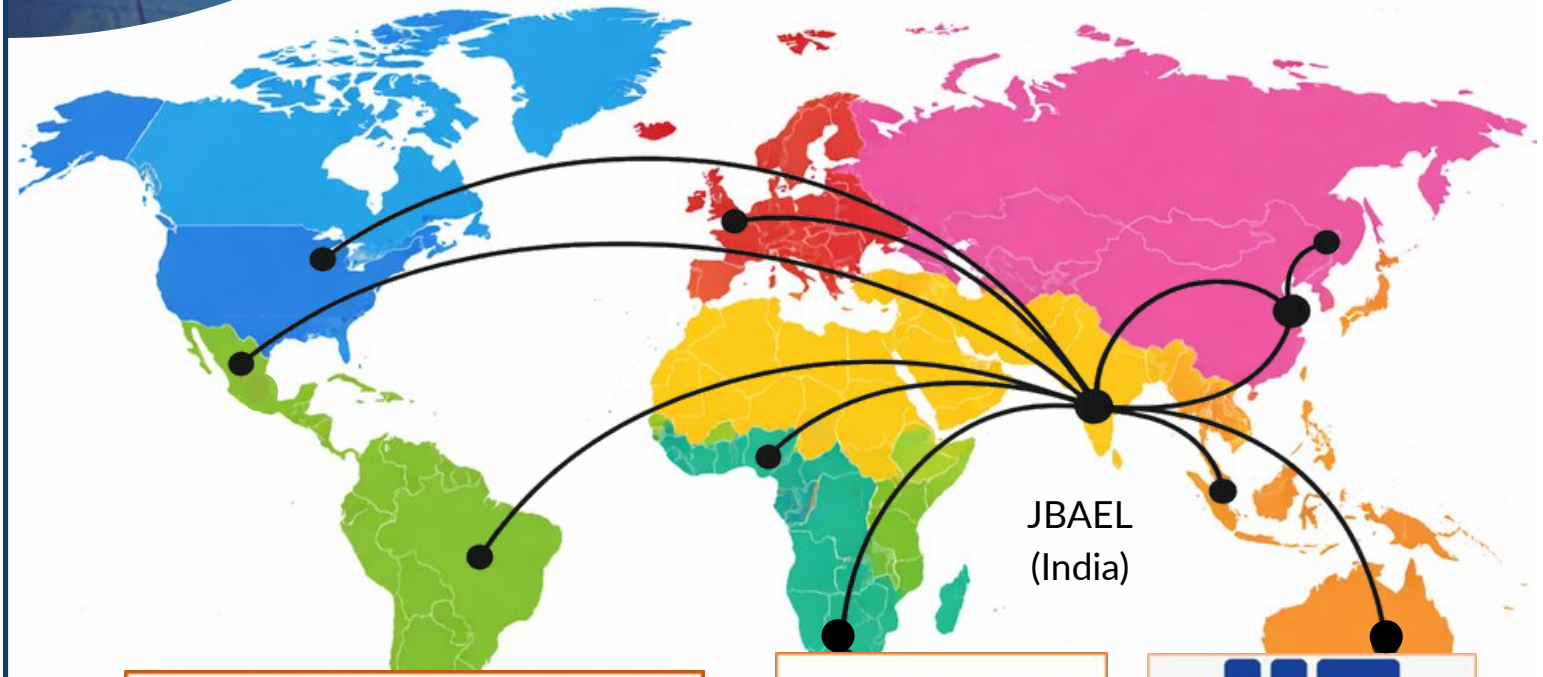


Strategic access to certified equipment, genuine spares, and advanced engineering support through global alliances.



4

Global Supply Chain & Strategic Alliances



山东济南发电设备厂有限公司 JPEF
SHANDONG JINAN POWER EQUIPMENT FACTORY Co., Ltd

北京北重汽轮电机有限责任公司
BEIJING BEIZHONG STEAM TURBINE GENERATOR CO.,LTD.

DEC
东方电气
DONGFANG ELECTRIC

哈电集团
HARBIN ELECTRIC CORPORATION

- The Logistics Promise

- Direct Sourcing:

100% verified genuine OEM spares

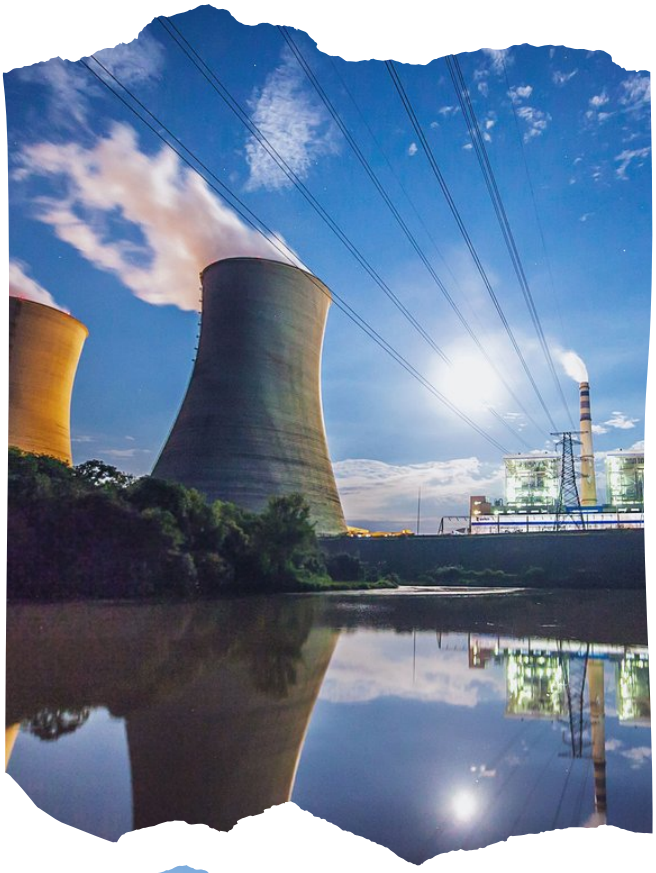
- Delivery:

B2B, B2C Handling including customs and inland transport

- Emergency Inventory:

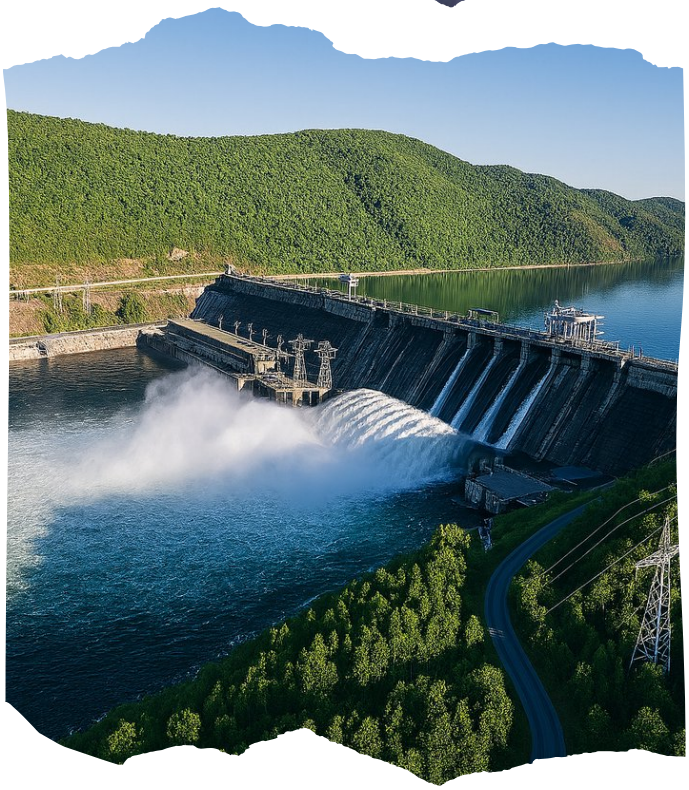
Essential spares are kept ready at the JBAEL central store for quick support.

5. Our Expertise Across Power Generation Sectors

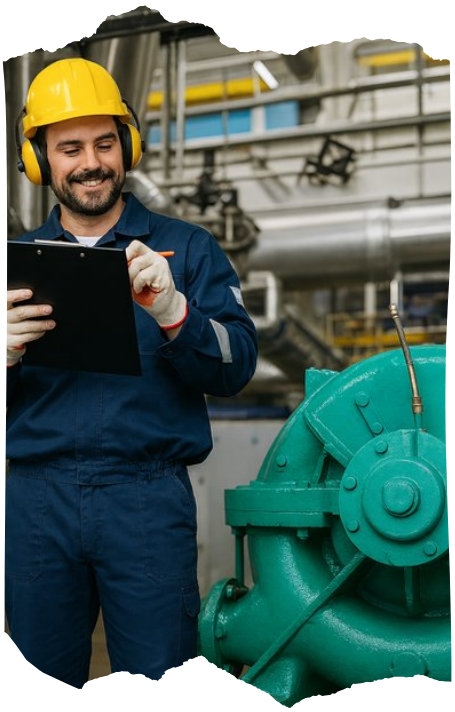


From Thermal and Hydro-based plants to Gas and Nuclear facilities, we bring deep domain expertise to every corner of the power generation landscape.

Our team delivers precision-driven engineering, inspection, and maintenance solutions tailored to the unique demands of each sector. With decades of experience and a commitment to operational excellence, we help power producers enhance reliability, extend asset life, and ensure safety at every stage. By integrating advanced technologies with proven industry practices, we support clients in building a more efficient, resilient, and sustainable energy future.





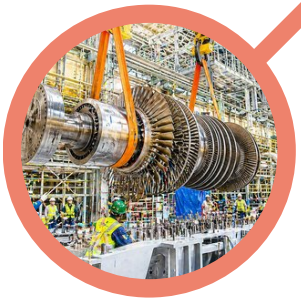


5.1 Major Services

We are a specialized power plant service company delivering end-to-end solutions in repairing, refurbishment, erection, commissioning, and testing of thermal, hydro and other power plant equipment. With strong technical expertise and industry experience, we ensure reliable performance, extended equipment life, and enhanced operational efficiency.







Our team is equipped to handle generators, turbines, and associated auxiliaries with precision and adherence to national & international standards. From detailed inspection and fault diagnosis to complete overhauling and final commissioning, we provide comprehensive support at every stage.



Our commitment to quality, safety, and timely execution makes us a trusted partner for power plant maintenance and modernization projects. We strive to deliver sustainable and cost-effective solutions that maximize plant availability and performance.



5.2 Turbine

Our Expertise

Erection Work:

- Verification of turbine components, spares, and documentation.
- Checking foundation levels, grouting, and alignment readiness.
- Installation of casing, rotor, blades, diaphragms, and seals.
- Precision alignment of turbine rotor with generator and setting of clearances.
- Installation of steam/water lines, lubrication, cooling, and control systems.

Commissioning Work:

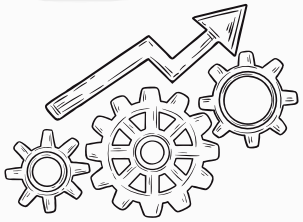
- Verification of lubrication system, control system, and safety interlocks.
- Initial rolling of turbine and checking vibration, temperature, and parameters.
- Gradual loading and synchronization with grid.
- Monitoring efficiency, pressure, temperature, and vibration levels
- Documentation, testing reports, and operational clearance.

Testing:

All required tests performed during refurbishment process like Dye Penetrant test, Magnetic Particle Inspection (MPI), Ultrasonic Testing, Eddy Current Testing, Bump test, & Horn drop test.







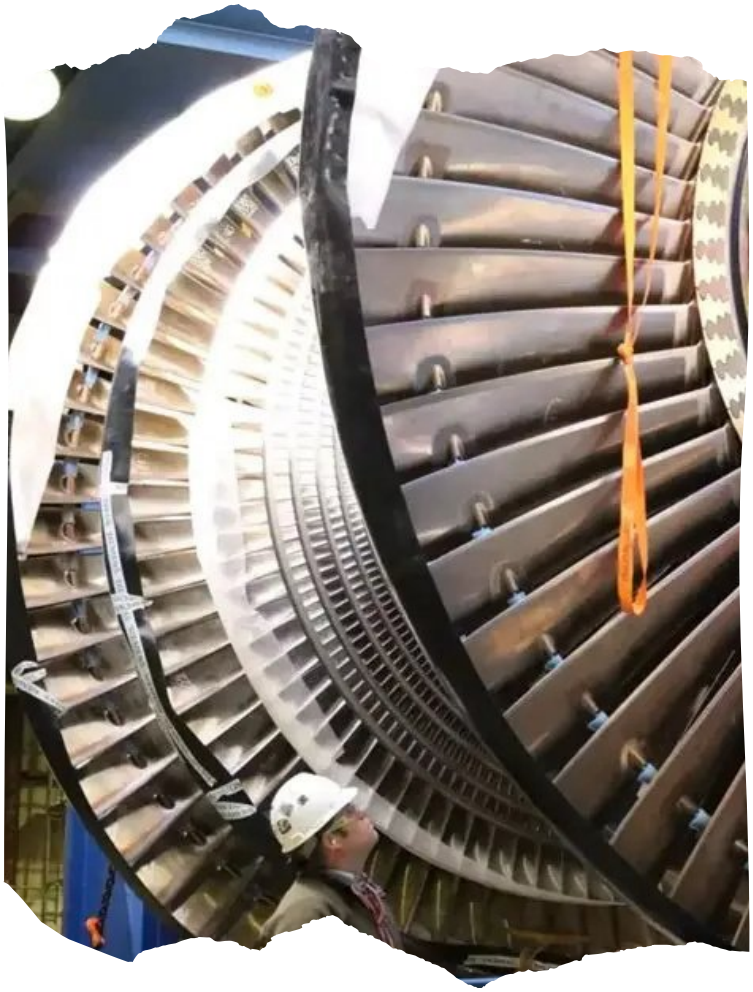
Overhauling (Capital/Annual)

Minor Overhauling:

- Couplings: check for teeth condition, visual inspection for cracks and bend in coupling bolts. Check for radial runouts and axial float.
- Bearings: check for bearings condition- scoring, bearing clearance, bedding and D.P. test and check for fit of the bearing in bearing housing.
- Oil glands: check for radial and axial runouts if necessary to be repaired/replaced.

Bearing housings and casing supporting elements:

- spring/washers to be cleaned and assembled.
- Emergency stop valves, governing valves, bypass valves are to be opened and checked.
- Drains are to be checked for choking.
- Main oil pump to be opened-bearing, sealing rings, rotor, impeller etc., to be checked.
- Complete governing system and protection equipment to be cleaned and checked.



Major Overhauling:

In this overhaul, all elements are to be checked thoroughly including turbine casing, rotor and blading. Besides all the checks that will be done under minor overhaul, the following checks are to be carried out-

- Bearing housing is to be lifted out and the bearing is to be removed for inspection.
- Casing to be checked for parting plane clearance in free condition- parting plane to be checked. Check cracks.
- Supporting elements of inner casing to be checked.
- High temperature zone bolts are to be measured in length. Check for deformation/elongation.
- Rotor: a) Check for rubbing marks b) Check for runouts c) Check for lock blade condition d) Check for thrust collar.
- Guide blades including nozzles to be cleaned thoroughly and checks to be made for cracks.
- Oil tank to be emptied. Oil quality to be checked.
- Oil cooler: tune bundles to be taken out. Tubes to be cleaned mechanically and chemically. Check for leaks.
- Oil piping should be checked for leakages.
- Piping supports and hangers to be checked and adjusted if required.



Cooler (H2 / Air) and its auxiliaries:

- Thorough Inspection of Defective Components.
- Comprehensive Cleaning (chemical, mechanical and solvent) of Outer and Inner Section of Cooler.
- Accurate required testing performed related to Generator Cooler.
- Replacement of faulty Fins and Tubes.



Bearing:

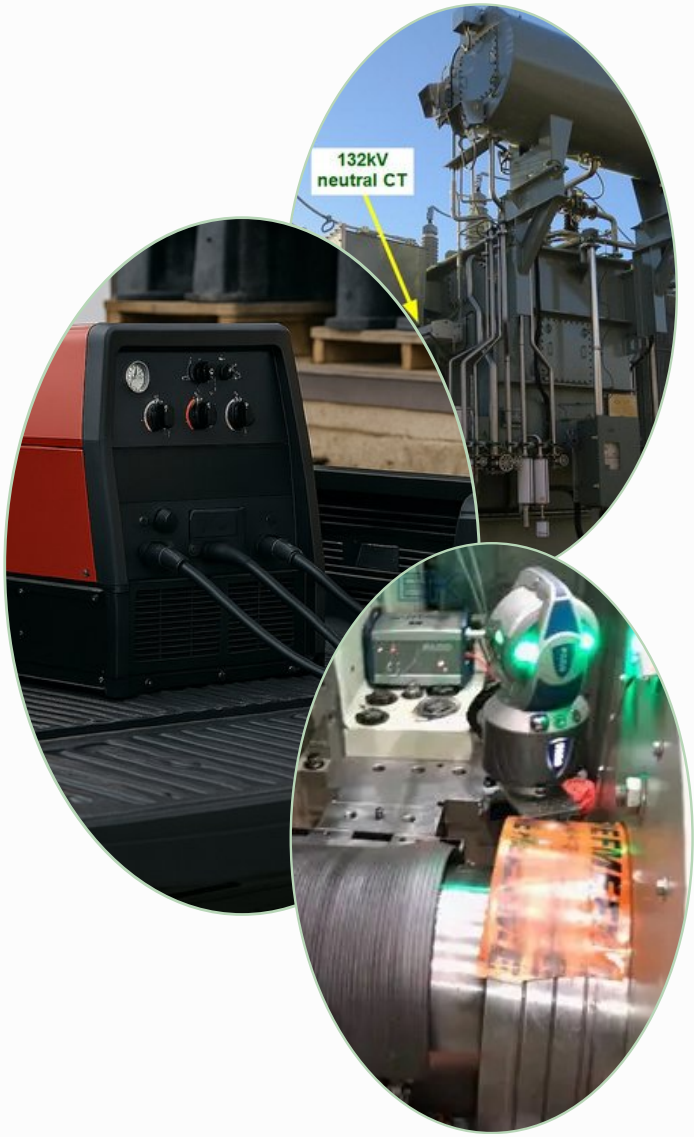
- Check for wear, scoring, overheating, vibration, and oil contamination.
- Removal of bearing shells and thorough cleaning of housing and components.
- Measurement of bearing clearances, alignment, and journal condition.
- Re-metalling (white metal), polishing, or replacement of damaged shells.
- Inspection of oil grooves, seals, pipelines, and flow conditions.



- Proper fitment of bearings with alignment of shaft and housing.
- Monitoring of temperature, vibration, and oil flow during trial run.

Erection, Testing and Commissioning of Generator Auxiliaries:

- Generator Neutral Adapter Box
- Work done related to Phase and Neutral Current Transformers and Assembly:
  a) Careful handling of OEM parts
- Alignment, torque and tightening works has been completed
- Phase and Neutral End-to-end matching with IBPD and its flexible link.
- CT installation and connection to neutral bus plate (star point) is done safely, avoiding damage to generator bushings and insulation.
- Welding/Cutting Work is done if required



5.3 Generator



Our Expertise

Stator and its Auxiliaries:

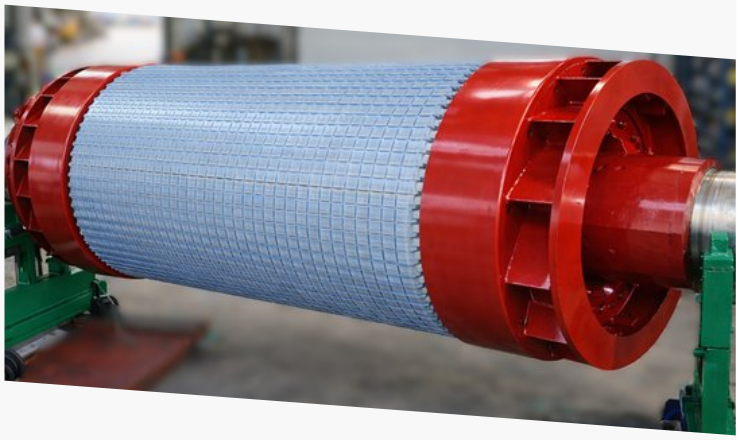
- Proper Inspection and cleaning of Stator Core, slots and internal components.
- All required Testing (Electrical and Mechanical) to identify the core problems.
- End Windings support tightening
- Core tightening and Wedging.
- Replacement/Repairing of faulty Bars.
- Replacement/Repairing of Windings by using High-quality copper conductors and advanced insulation systems (Class F/H).
- Replacement of Teflon, copper, nickel Tube.



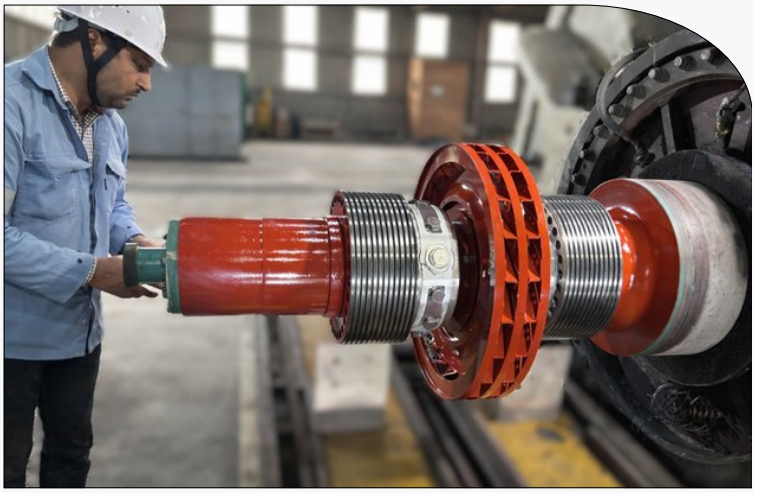




Rotor and its Auxiliaries:



- Inspection of Rotor Winding, Shaft, Retaining Rings and Electrical health.
- Comprehensive Testing performed to check condition of external and Internal parts and identification of core problems.
- Repairing of Journal parts
- Shaft Repairing and Welding
- Rotor Face Matching process
- Wedge Repairing/Replacement
- Retaining Ring Replacement and Installation.
- Repair/Replacement of damaged Rotor Fan Blade.



TG Revamping, Refurbishment & Repair Solutions

Revamping Work

- Revamping or restoring an incomplete unit requires agile planning and highly specialized skills.
- We have successfully executed such projects and brought units into operation within record time.
- Idle or non-operational units (for years) often come with unforeseen issues and surprises.
- Proven capability to resolve these challenges and restore project momentum, ensuring on-time delivery.
- Balancing Scope, Cost, and Time is essential for successful project execution.
- we have trained and experienced professionals efficiently manage obstacles and ensure smooth project delivery.





Refurbishment Work (HP, IP,LP)

- Refurbishment of Casings, Steam Chamber, Diaphragms, Generator End Shields, H_2 Cooler Enclosures, and Pipe Flange & critical components
- Precision machining, welding, assembly, and alignment correction
- Inspection-driven, quality-controlled restoration for extended equipment life



- Steam path, sealing, and fitment optimization for improved efficiency
- Manufacturing of critical fasteners
- Enhanced reliability and reduced outage risk with OEM-standard practices
- Dynamic balancing
- Complete readiness for shutdown, overhaul, and maintenance support
- Full assembly of casings with alignment and clearance verification





Repair

- Precision repair of turbine and generator components
- Welding, machining, and fitment correction for damaged parts
- Restoration of sealing surfaces and critical joints
- On-site fault diagnosis and corrective action
- Replacement of worn or defective elements with OEM-quality parts
- Alignment verification to ensure smooth operation
- Quality-controlled repair practices to minimize downtime
- Reliable solutions that extend equipment life and improve efficiency



5.4 Boiler



Overhauling of Boiler:

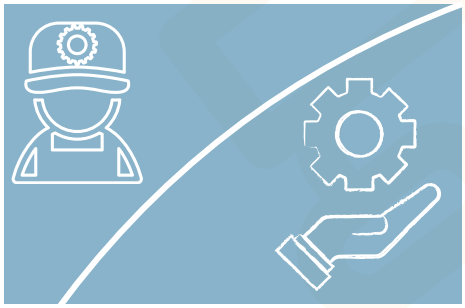
Importance of Boiler Overhauling:

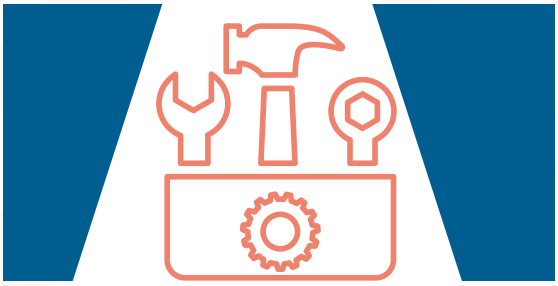
- **Enhances Boiler Efficiency:** Ensures optimal performance by addressing wear and tear issues.
- **Prevents Downtime:** Reduces the risk of sudden failures that can disrupt production.
- **Lifespan:** Proper maintenance can significantly increase the lifespan of the boiler.
- **Improves Safety:** Ensures the system is free from leaks, corrosion, or other hazards.

Overhauling Process:

- **Initial Inspection:** The overhauling procedure begins with a thorough inspection. Technicians assess the overall condition of the boiler, including checking for:
  a) Leaks
  b) Corrosion
  c) Scaling
  d) Burner functionality
  e) Pressure settings
- **Cleaning of Boiler Components including:**
  a) Boiler tubes
  b) Burners and fuel systems
  c) Blowers and Fans
  d) Water treatment systems
- **Shutdown and Isolation:** Before beginning the actual overhaul work, the boiler is safely shut down and isolated from the system to ensure the safety of maintenance personnel.
  This step involves:
  a) Shutting off all fuel and water supplies
  b) Locking the control systems
  c) Ensuring that pressure has been released from the system

- **Inspecting and Replacing Components:**
  a) Pressure relief valves
  b) Seals and gaskets
  c) Fuel Injectors
- **Testing and Calibration:**
  Once components are repaired or replaced, the boiler is reassembled, and operational testing begins. Experts test the following:
  a) Pressure & temperature control systems
  b) Flame detection and ignition systems
  c) Automatic controls and alarms
- **Final checks and safety assessment**
  a) Verifying pressure relief systems'integrity
  b) Double-checking electrical and control systems
  c) Ensuring compliance with safety and regulatory standards



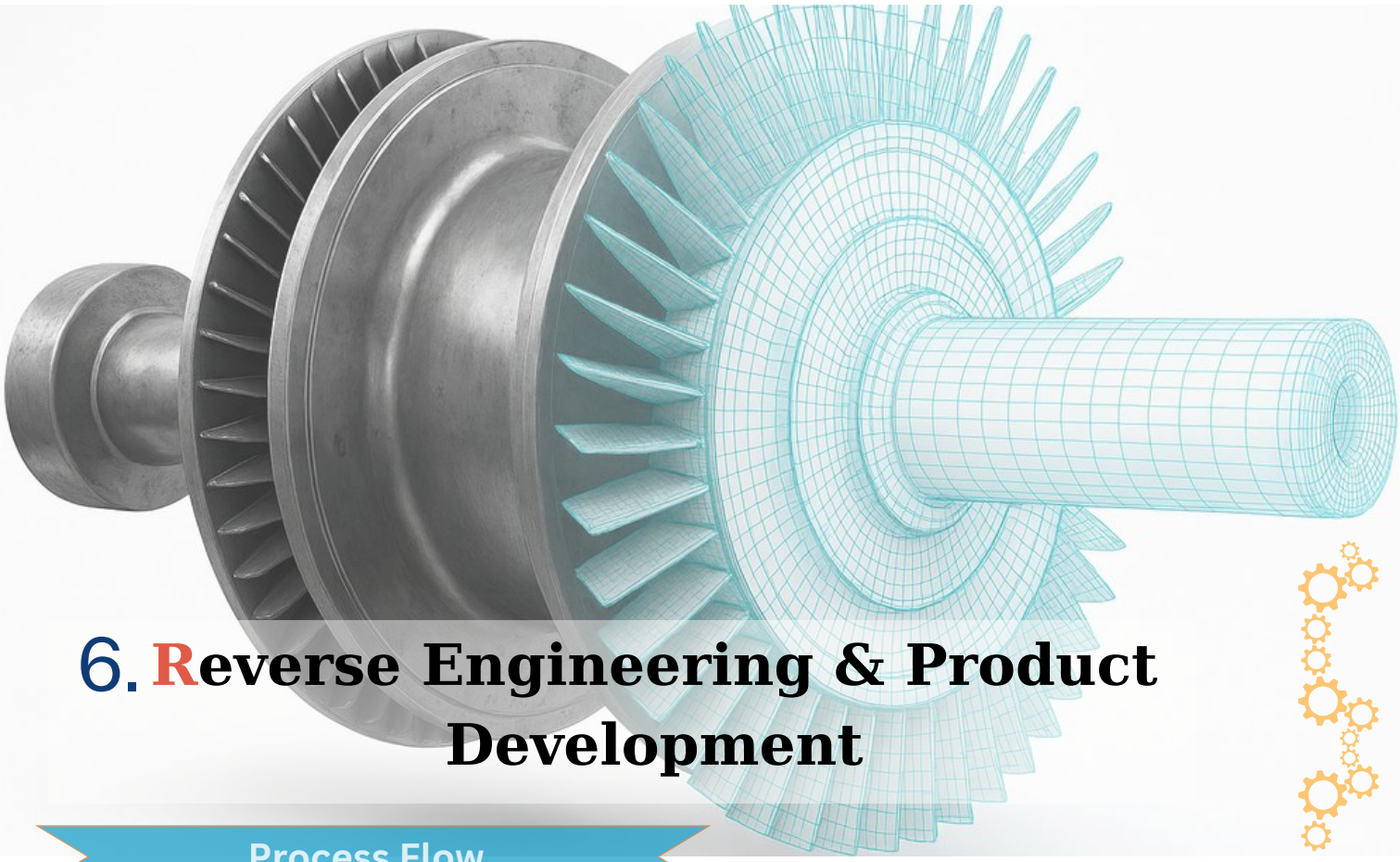


OEM-Certified Spares & Reliability Assurance

"We are pleased to offer our services as a trusted supplier of OEM-certified spare parts for thermal and hydro power plants. Our sourcing network includes globally recognized manufacturers, ensuring genuine, high-quality, and performance-assured components. Our quotation covers a wide range of critical equipment spares, including:

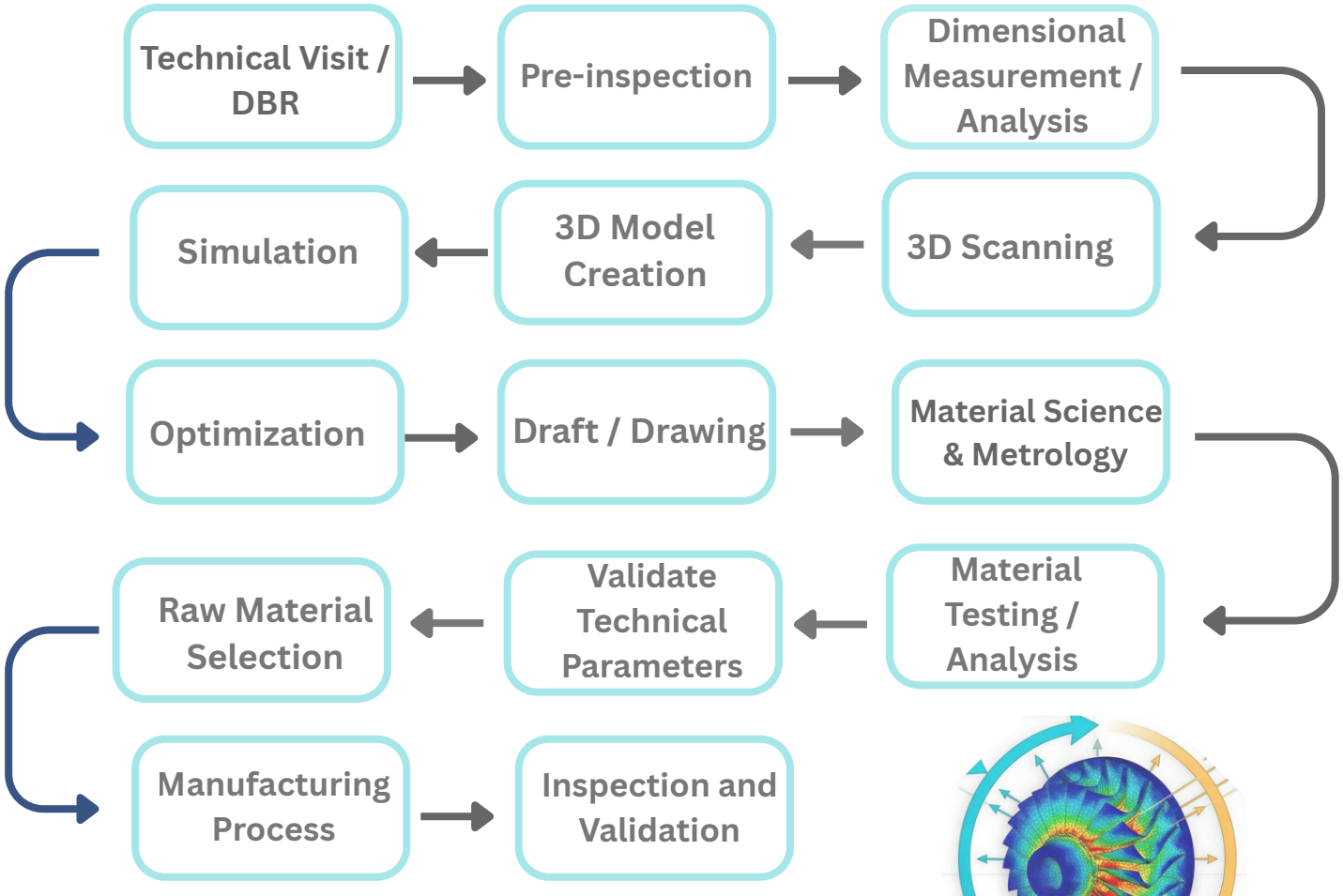
- Turbine, Rotor & Shaft System Components
- Generator, Electrical & Winding Components
- Compressor & Air Flow System Components
- Combustion Equipment Components
- Bearings, Seals & Mechanical Drive Components
- Pumps, Auxiliary & Balance of Plant Equipment
- Overhaul Consumables, Repair Kits & Maintenance Spares
- Critical Rotating Equipment Components

All supplied parts strictly comply with OEM specifications, international standards, and plant-specific requirements, ensuring seamless compatibility and operational reliability.



6. Reverse Engineering & Product Development

Process Flow

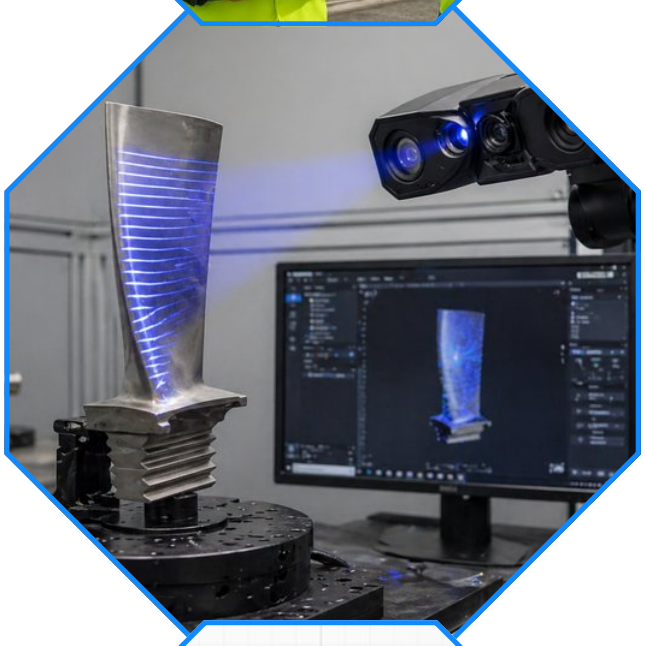




Technical Visit / DBR

Understanding the component in its actual operating environment:

- Application and functional requirement
- Load conditions and duty cycle
- Service parameters (temperature, pressure, vibration)
- Failure history and performance issues



Pre-Inspection

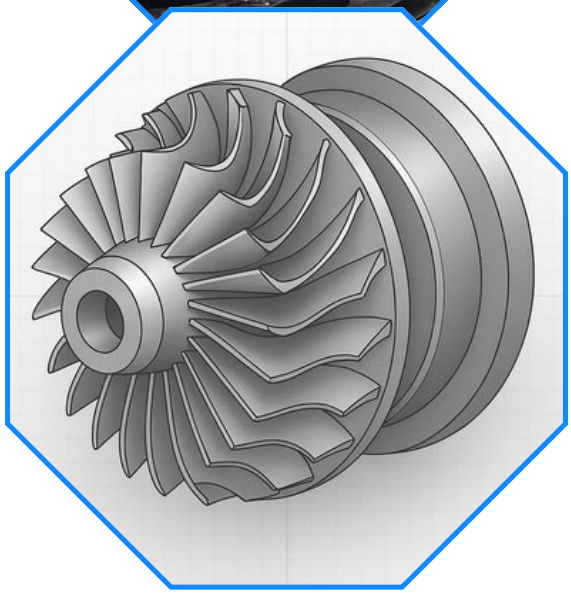
Initial assessment of component condition:

- Visual inspection
- Identification of wear, deformation, cracks
- Corrosion and surface damage analysis
- Identification of critical areas

Dimensional Measurement / Analysis

Capturing accurate geometry:

- Use of calibrated instruments/Gauges
- Measurement of critical dimensions & fits
- Tolerance and alignment evaluation
- Functional relationship between features



3D Scanning

For complex geometries:

- High-density point cloud capture
- Mesh generation for free form surfaces
- Accurate replication of intricate profiles
- Reduction of manual measurement limitations

3D Model Creation

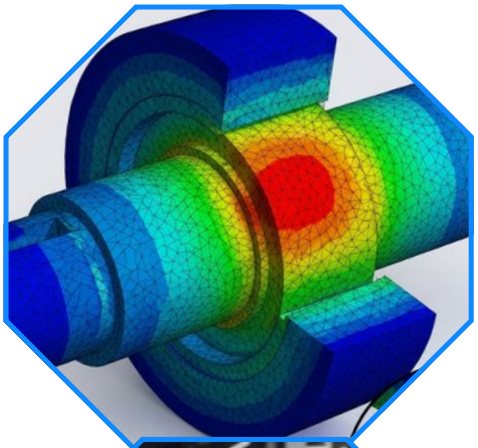
Development of digital model:

- CAD model from measurement & scan data
- Geometry refinement and correction
- Preparation for simulation and manufacturing
- Design intent incorporation

Simulation

Engineering performance validation:

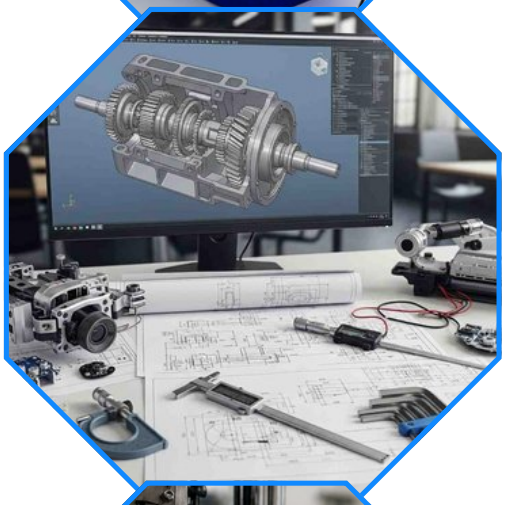
- Structural analysis (stress, deformation)
- Thermal analysis
- NVH (Noise, Vibration & Harshness)
- Fluid flow analysis
- Buckling and fatigue checks



Optimization

Improving design performance:

- Weight reduction
- Strength and durability enhancement
- Life improvement
- Cost and manufacturability opmization



Draft / Drawing

Preparation of manufacturing documents:

- Detailed dimensions and tolerances
- GD&T specifications
- Surface finish requirements
- Manufacturing notes and standards

Material Science & Metrology

Material identification:

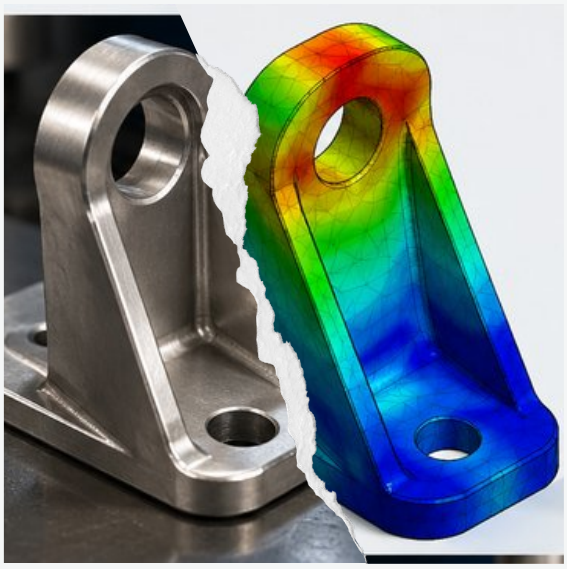
- Chemical composition analysis
- Mechanical properties
- Spectrometry techniques
- Grade identification or nearest equivalent
- Verification against standards



Material Testing / Analysis

Evaluation of properties:

- Mechanical testing
- Elemental analysis/testing
- Microstructural examination
- Behaviour under service conditions



Validate Technical Parameters

Ensuring design reliability:

- Matching material + geometry with load conditions
- Verification against operating environment
- Safety and performance checks
- Compliance with functional requirements



Raw Material Selection

Final material decision:

- Selection as per national and international standards
- Review test certificates of raw materials
- Quality of raw material assurance
- Availability and cost consideration
- Performance suitability
- Manufacturability check



Manufacturing Process Execution strategy:

- Machining (precision components)
- Casting (complex geometries)
- Forging (high-strength applications)
- Fabrication (for assembly parts/structure)
- Process selection based on design and material



Inspection and Validation

Final quality assurance:

- Quality assurance plan (QAP)
- Verification of documents
- Functional validation
- Compliance with technical specifications



7. Tribology & Total Lubrication Reliability Solutions

Global Technical Excellence for Power Plant Engineering

Tribology is crucial for power plant reliability, impacting efficiency, maintenance costs, and asset longevity. We offer integrated Total Lubrication Reliability & Management Solutions worldwide, meeting OEM requirements and international standards.

Standards & Compliance

All solutions are executed in strict adherence to globally recognized frameworks, ensuring safety, quality, and performance:

- As per national and international standard
- OEM Specifications | Utility Protocols

Critical Equipment Coverage

Our domain expertise spans across key rotating and auxiliary assets:

- Steam & Gas Turbines
- Generators
- Boiler Feed Pump Turbines
- Gearboxes | Fans & Drives
- Cooling Tower
- Pumps, EHC Systems ,Compressors
- Balance of Plant Equipment

End-to-End Lubrication Solutions

We provide engineered lubricant selection and supply for all operating conditions:

- Mineral Oils
- Synthetic Fluids
- Turbine Oils
- Hydraulic Oils
- Gear Oils
- Compressor Oils
- High-Temperature Greases
- Fire-Resistant Fluids
- Custom Formulations

Filtration & Reliability Systems

Advanced contamination control solutions designed for maximum equipment protection:

- OEM Filters
- Varnish Removal Systems
- Ion Exchange Units
- Oil Purification
- Vacuum Dehydration
- Inline Filtration | Desiccant Breathers

Smart Monitoring & Digital Reliability

Real-time condition monitoring for predictive maintenance excellence:

- Contamination Sensors
- Moisture Monitoring
- Particle Count Systems
- Temperature / Pressure Diagnostics
- Predictive Analytics

Testing & Oil Recovery Technologies

Comprehensive oil health management and restoration:

- TAN
- MPC
- Viscosity
- Cleanliness Testing
- Particle Counting
- Oil Reconditioning
- Resin-Based Treatment
- Varnish Mitigation

Technical Expert Support

End-to-end project execution backed by engineering expertise:

- Remote & Onsite Support
- Shutdown & Outage Planning
- KPI-Based Programs
- Data-Driven Maintenance
- RCFA

Training & Capability Development

Industry-focused programs to strengthen plant reliability:

- Tribology
- Oil System Reliability
- Sampling & Analysis
- Contamination Control
- Bearing Failure Prevention
- SOP Development

Reliability-Centered Lubrication (RCL)

• Customized Online / Onsite Workshops

Total Lubrication Reliability & Management Every Solution Engineered to National & International Standards with Global OEM Alignment. Reduce Friction | Control Contamination | Build Reliability | Maximize Availability

8. Operational Governance: ‘Zero-Harm’ & Quality



Safety Protocols

- Philosophy: Zero-Harm.
- LOTO Mastery: Strict lockout/Tagout For Energy isolation.
- JSA: Mandatory daily Job safety analysis.

Quality Assurance

- Standards: Adherence to National & International standards
- Environmental:‘Repair-over-Replace’ sustainability approach.





9. ESG MANAGEMENT

Responsible Engineering. Sustainable Growth.

At JBAEL, sustainability is integral to how we operate and create long-term value. Our Environmental, Social, and Governance (ESG) framework ensures responsible growth, ethical conduct, and positive impact across all stakeholders.

Environmental Responsibility

We are committed to reducing environmental impact through efficient resource use, cleaner technologies, and responsible waste management. By integrating sustainability into our operations, we support long-term environmental resilience.
Social Responsibility

Social Responsibility

JBAEL prioritizes people, safety, and inclusive growth. We foster a safe work environment, invest in skill development, uphold ethical labor practices, and contribute to community development wherever we operate.



Governance & Ethics

Strong governance is the foundation of trust at JBAEL. We follow transparent processes, robust compliance systems, and ethical business practices to ensure accountability and integrity at every level.

Our Commitment

By embedding ESG principles into our strategy and operations, JBAEL engineers solutions that are innovative, responsible, and future-ready."







10. Central Office, Administration & Manufacturing Facility



Administrative Office

Ground Floor, 1/6 , Anjani complex premises CHSL, Pareira hill road, Nr. W.E highway, Andheri East, Mumbai Suburban, Maharashtra 400099

Central Office



A 204, Sahyog Atrium, Behind Jagadish Foods, Haribhakti Extension, Diwalipura, Vadodara,Gujarat-390007



Manufacturing facility

Block No. 143 and 144, Tundave, TAL. Savli, Vadodara, Gujarat - 391775

ISO 9001:2015
Quality Management System

ISO 14001:2015
Environmental Management System

ISO 45001:2018
Health and Safety Management System

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