



Asko Equipment Company Ltd.

GLOBAL EXPERIENCE OF
STEAM TURBINE,
REDUCTION GEAR,
GENERATOR, PUMP AND
ENGINEERING SERVICES



OUR SERVICES

- 01 STEAM TURBINE
- 02 REDUCTION GEAR
- 03 GENERATOR
- 04 PUMP & BOILER
- 05 OVERHAULING
- 06 MANUFACTURING
- 07 ON-SITE SERVICES
- 08 INSTALLTION

ASKO
EQUIPMENT COMPANY LIMITED.

OFFICE
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WWW.ASKO.CO.TH

CERTIFICATION

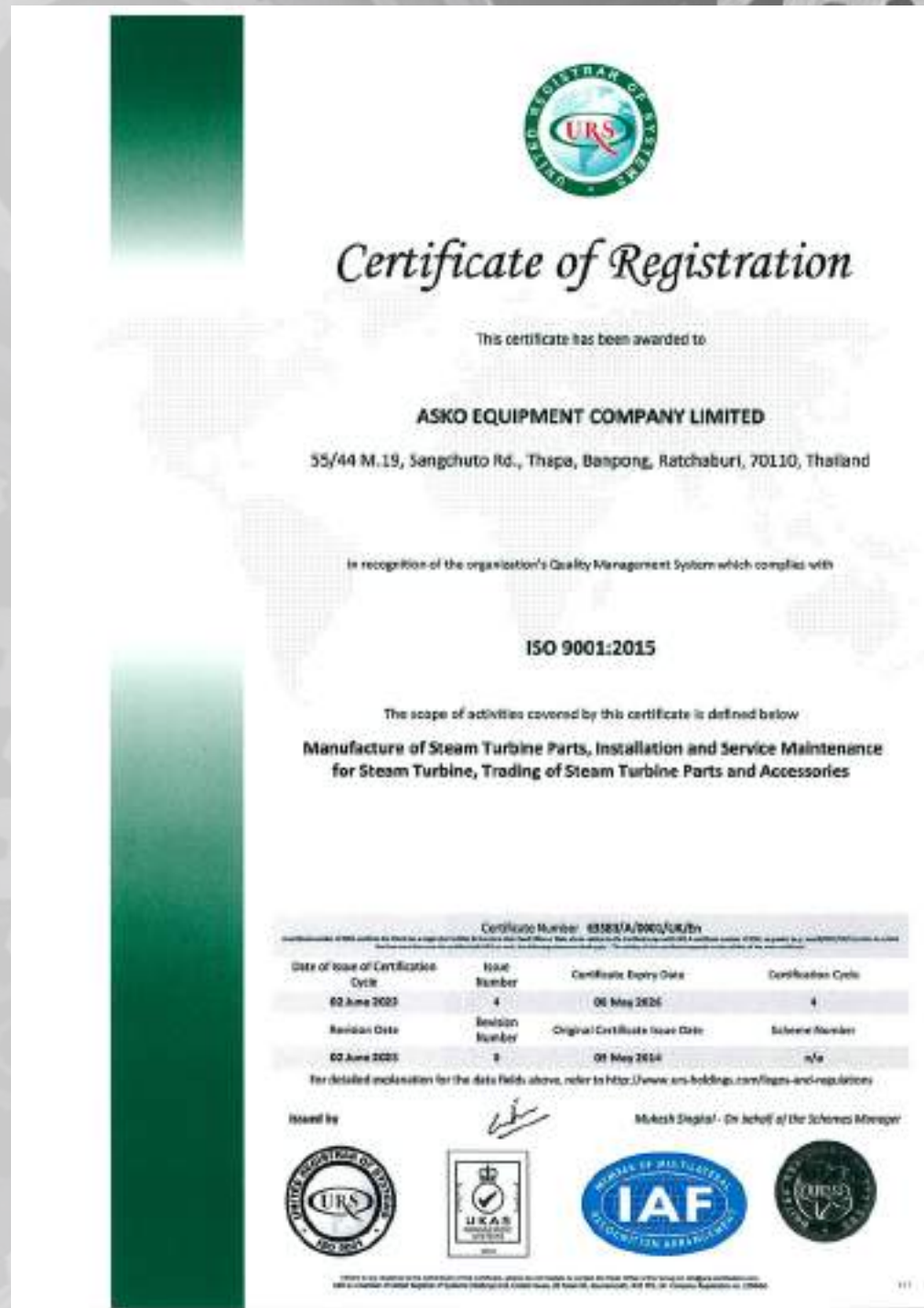


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Full turn-key partner

Steam Turbine, Pump, Reduction Gear, Generator Boiler, Manufacturing, Spare parts Center, Major overhauling

Industries

Power Plant, Oil & Gas
Sugar Mill, Paper Mill
Petrochemical, OffShore,
Food Processing, Refinery
Renewable energy

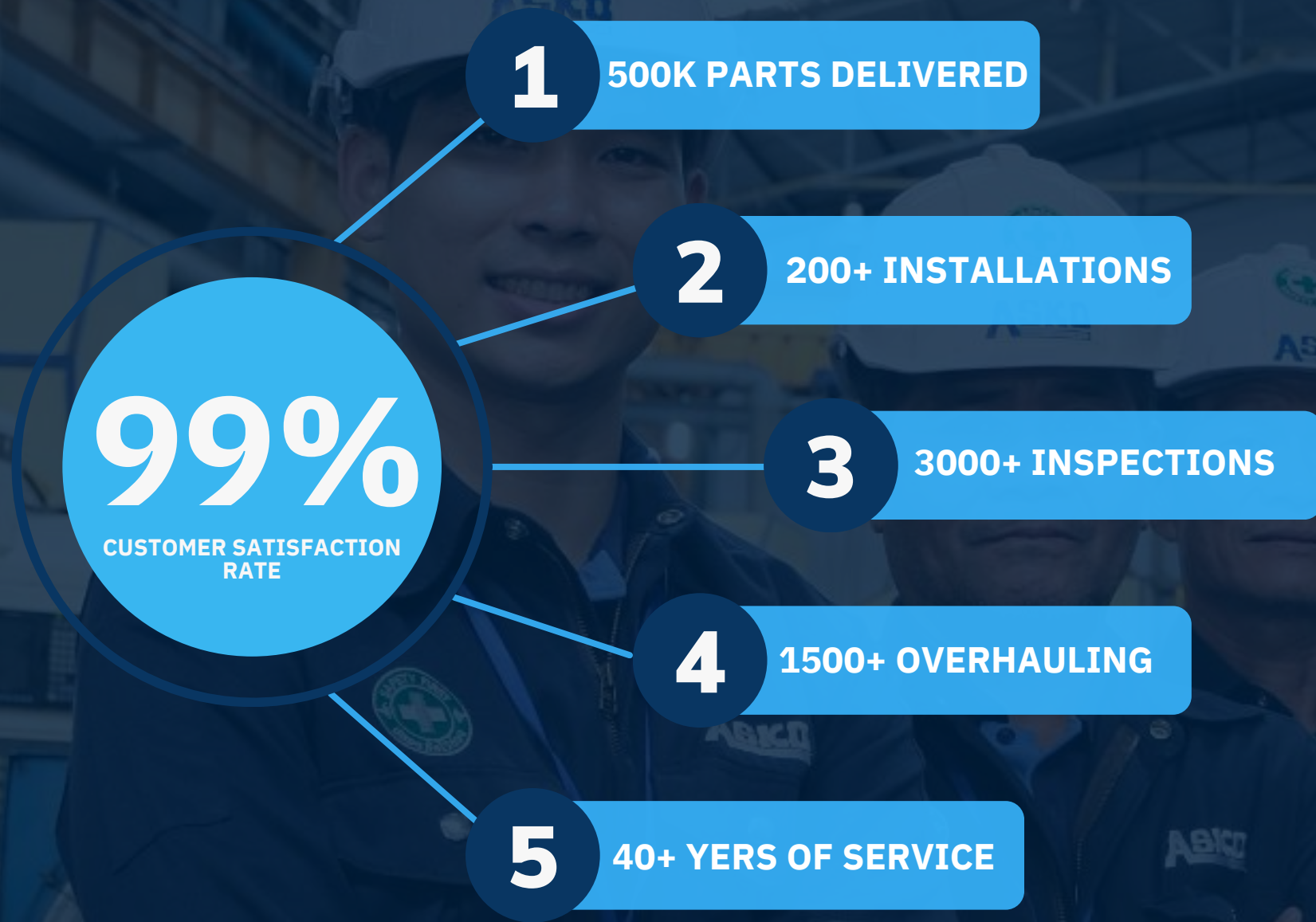
Location

Thailand headquarters with International expertise since 1972
ISO: 9001:2015

Personnel

90+ personnel With 60 professional Certified engineers in different fields

BUSINESS PERFORMANCE



BASED ON INTERNAL DATA AND SURVEYS FOR LAST 40 YEARS

ความปลอดภัยและคุณภาพคือ
ค่านิยมหลักของเรา



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COMPANY INFORMATION

Company name: ASKO Equipment Company Limited

Address: 55/44 Moo 19 Tha Pha, Ban Pong District, Ratchaburi 70110

Industry Type: Industrial Equipment Manufacturing, Engineering

Design & Service Maintenance

Date of Establishment: 1972

Amount of Employee: 90+

Quality: ISO: 9001:2015

STEAM AND GAS TURBINE OEM EXPERIENCE:

Shin Nippon
Siemens
Kawasaki
Skoda
GE
Shinko
Ebara
HTC

Triveni
Qingdao
Hirozoki
Terry
Nadrowski
Worthington
KKK
MAN

PUMP OEM EXPERIENCE:

SIHI
Sulzer
Sihi
KSB
Torishima

Shimadzu
MUSASHINO
Ebara
Shinko
Shin Nippon

Hebei Yuandong
SEKO
Grundfos
Danfoss
Wilo

REDUCTION GEAR OEM EXPERIENCE:

BONENG
Esenpro
SLtransmission
Nara Samyang
Makishiko
NORD
JiangSu TailLong

Mitsubishi
Sumiftomo
Seisa
Nender

OUR EXPERTISE AND SERVICES ARE NOT LIMITED TO THE ABOVE LIST

Capabilities

Advantages of Full Turn Key Partner

✓ MANUFACTURING OF SPARE PARTS

ASKO has one of Thailand's most advanced mechanical machining shops suited for both small and large workpieces. We support multiple industries by providing OEM-quality industrial spare parts.



✓ MAINTENANCE AND INSPECTIONS

All our expert engineers and technicians are trained and certified under international standards. We have supplied our expertise for 30+ years, with more than 3,000 successfully completed maintenance and inspection jobs.



✓ ON-SITE URGENT SERVICES 24/7

We understand the urgency within our industries and have built an extensive network of technical on-site support teams. To be dispatched at any moment's notice to support ALL our client needs.



✓ RECONDITION AND REPAIR

Our maintenance center and specialized teams are equipped with modern technology and tools. Capable of handling any urgent or regular upkeep maintenance services needed.



✓ OVERHAULING AND INSTALLATIONS

Your trusted partner for overhauling and installations for multiple types of industrial machinery equipment. Such as Steam Turbine, Reduction Gear, Generator, Pump and Boiler ect..

✓ ENGINEERING SERVICES AND CONSULTATION

We provide services for small to large custom projects, civil engineering, plant commissioning, and project management. In addition to complex reengineering. ****Avg turnaround time 10 days.**



✓ MACHINERY AND SHAFT ALIGNMENT

Asko Equipment Company Limited has been operating since the 1970s as a full-turn key partner for numerous industries within different commercial sectors including government.



Manufacturing and Workshop Services

- ✓ Spare Parts Manufacturing Center
- ✓ Inspection and Failure analysis
- ✓ Maintenance Overhauling workshop
- ✓ Heavy-Duty Machining Services
- ✓ CNC - Vertical machining centers
- ✓ Vertical lathes and lathes machining
- ✓ Equipment modifications and Refurbishment
- ✓ Dynamic balancing
- ✓ Urgent spare parts supply (OEM)
- ✓ Reverse-engineered spare parts
- ✓ Bearing Rebabbiting and remetalling
- ✓ Overseas Equipment Procurement and Raw material Consultation



On-Site Services

- ✓ On-Site maintenance (Alignment, Failure Analysis, Inspection)
- ✓ OffShore Rotary equipment and Valve services
- ✓ Assembly and Dismantle
- ✓ Performance and residual life assessments
- ✓ Predictive and condition-based maintenance
- ✓ Emergency spare parts supply
- ✓ Custom projects and Turn-Key Project Partner
- ✓ Failure Analysis and Field balancing
- ✓ Installation and commissioning
- ✓ Service Level Agreement (SLA)

ASKO EQUIPMENT COMPANY LTD.

1 STEAM TURBINE

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STEAM TURBINE



• Rotor Blade



• Pad plane bearing



• Governor control valve



• Journal bearing double solid thrust



• Bearing liner



• Governor valve stem



• Journal bearing with thrust pad bearing



• Bearing main gear oil pump



• Rotor shafting turbine rotor



• Thrust pad bearing



• Casing governor control valve



• Lubrication oil unit



• Oil cooler

STEAM TURBINE



- **New Governor**



- **Labyrinth Seal Strips**



- **Thrust collar**



- **Gear Pump**



- **Labyrinth Gland Seal**



- **Diaphragm**



- **Emergency stop valve**



- **Over speed trip**



- **Rotor disc**



- **New Worm wheel and Casing**



- **Nozzle ring**



- **New Filter**

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Reduction gear

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Reduction gear



- **Reduction gear housing**



- **Journal bearing**
Double solid thrust
for Reduction gear



- **Gear Wheel**



- **Labyrinth oil guard**



- **Gear Pinion**



- **Cover for Gear pinion**

ASKO EQUIPMENT COMPANY LTD.

Generator

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Generator

- **Journal bearing double solid thrust**



- **Labyrinth oil guard**



- **Labyrinth Bakelite**



ASKO EQUIPMENT COMPANY LTD.

4 Pump

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Pump



- **Bearing pump**



- **Impeller for Boiler feed Pump**



- **mechanical seal**



- **Bush Bearing main gear**



- **Gear drive MOP**



- **Spur gear**



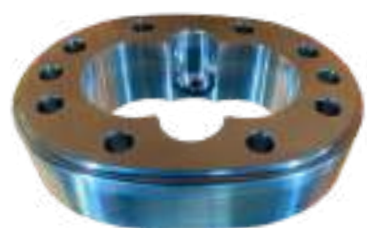
- **Brass bush bearing (#BC6)**



- **Shaft drive for mop pump**



- **Overhaul kits**



- **Housing gear oil pump**



- **Screw cop**



- **Bush Bearing with solid thrust MOP**

ASKO EQUIPMENT COMPANY LTD.

5 Recondition and Repair

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Repair and Recondition

ASKO has more than 4 decades of providing Inspection, Repair, Maintenance, and Spare Parts Manufacturing services. Making us a trusted full turnkey service provider, functioning as your one-stop shop!

Special Coating

- Hardening
- Hard chrome
- Ceramic powder

Thermal Spray Coating

- HVOF
- Arc Wire
- Plasma
- Flame Sprayed

Laser Cladding

- Machine cap:
OD = 3,500 mm.
L = 12,000 mm.
- Load Cap: 50t

Welding

- TIG
- Co2
- MMA (Manual Metal Arc Welding)
- Plasma

Reduce Cost and improve OpEx

At ASKO, we are passionate about understanding our clients' operational goals. Continuously working hard to improve operational expenses across all areas, with proven certified processes and modern technology.



White Metal Alloy Bearing

- Rebabbiting and Remetalling
- All types of White Metal Alloy Bearings
- Bearing inspection, Repair, and Health Check
- Reverse Engineering
- Custom Bearing Design, Development and Manufacturing
- Thrust Pad Bearing
 - Action end / non-action end
- Journal Bearing
 - Journal Thrust Pad Bearing
- Plain Pad Bearing
 - Tilt pad Bearing
- Sleeve Bearing
- Bearing liner



Steam Turbine

- Repair and reconditioning
- Refurbishment and retrofit
- Minor/Major overhauling
- Rotor blade and shoulder
- Stationary blade
- Diaphragm
- Guide blade carrier
- Blade nozzle and ring
- Upper and lower housing
- Turbine shaft and collar
- Labirynt ring and seal strip
- Emergency Stop Valve (ESV)
- Governor Control Valve (GSV)
- Valve stem



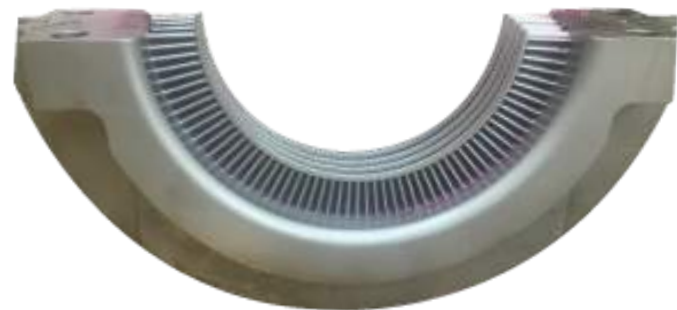
Professional Blasting Cleaning



• Before



• After



• After



• Before

- ✓ Cleaning turbine rotor and diaphragm by aluminium oxide blasting
- ✓ Cleaning turbine rotor by bead blasting
- ✓ Cleaning turbine rotor by dry ice+glass bead blasting
- ✓ Turbine parts blasting Cleaning (On site service)



ASKO EQUIPMENT COMPANY LTD.

Dynamic Balancing

Dynamic balance turbine rotor

Reduction Gear

Impeller pump

Blower

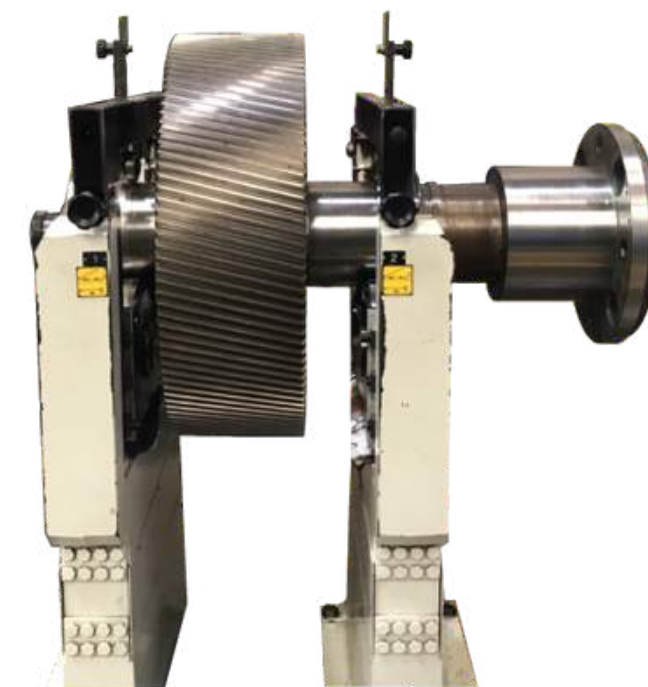
Machinery: CEMB (Italy)

Spec: Cap.50 - 8,000 Kgs.

Standard ISO:1940/G2.5)

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Dynamic balancing



Standard ISO:1940/G2.5)

ASKO EQUIPMENT COMPANY LTD.

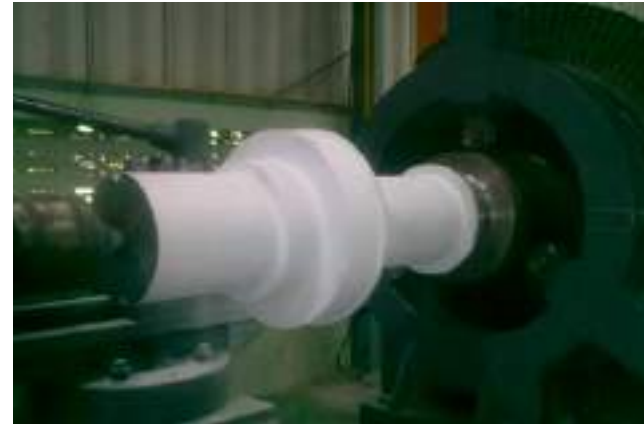
Non-destructive testing & Special Tools

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Non-destructive testing & Special Tools

✓ SURFACE HARDNESS TESTING

Surface Hardness Testing is used to evaluate material properties, such as strength, ductility, and wear resistance. All our inspectors are certified professionals under international standards for NDA testing.



✓ ULTRASONIC TESTING (UT)

Method of using high-frequency sound waves to detect flaws or defects. The most common UT method is pulse-echo. Other methods include through transmission, resonance, time of flight diffraction (TOFD), and phased array.



✓ MAGNETIC PARTICLE INSPECTION

Magnetic particle Test (MT) can detect surface, slightly subsurface defects of material, machine parts, welding, and so on. It can detect surface and slightly subsurface defects based on the indication of particle pattern that appears on the test workpiece or part.

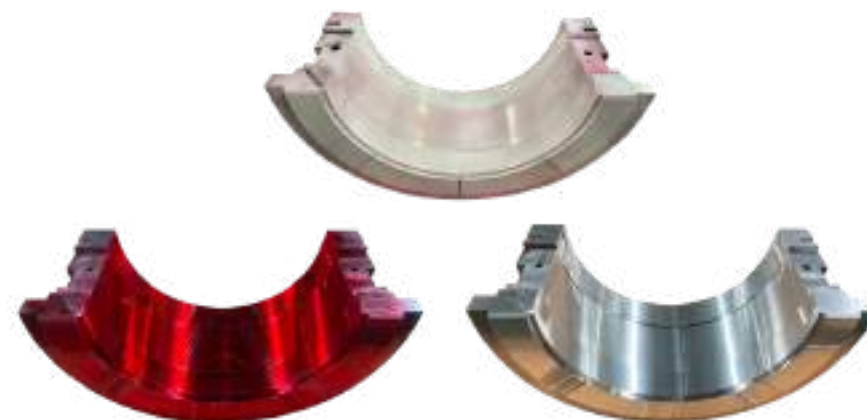


✓ SPECTRUM VIBRATION ANALYSIS

Spectrum vibration analysis is a powerful tool for condition monitoring of rotating machines. It can be used to detect early signs of damage, which can help to prevent unplanned outages and costly repairs.

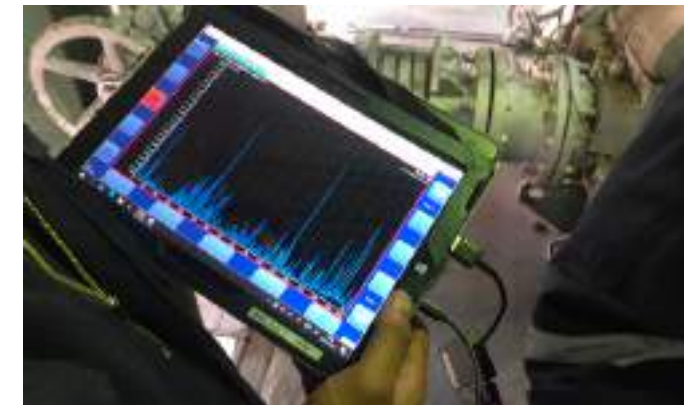
✓ PENETRANT TESTING (PT)

Penetrant testing (PT) is one of the best non-destructive test methods. That can detect surface-breaking defects such as hairline cracks, surface porosity, leaks in new products, and fatigue cracks.



✓ VISUAL INSPECTION AND MEASUREMENT (VI)

Performed by a certified technician to ensure that all of the critical areas are inspected. We will look for any visible signs of damage, such as cracks, delamination, or corrosion.



ALL OUR INSPECTORS ARE PROFESSIONALLY CERTIFIED UNDER INTERNATIONAL STANDARDS



✓ EINSCAN PRO HD 3D SCANNER

Einscan pro HD handheld 3d scanner. We use this special tool to improve our turnaround time for emergency spare parts manufacturing. Collect data in the field and live component scan for rapid reverse engineering. Auto-generation of CAD files direct to CNC machining.



✓ BORESCOPE CAMERA INSPECTION

Real-time video image transmission allows the technician to determine the conditions inside components or equipment. Corrosion, erosion, damage, cutting, cracks, leakage or obstructions

✓ SPECIALIZED FIELD BALANCE

ASKO is Thailand's leading expert in field balancing methods with more than 40 years of expertise. We service all heavy industrial mechanical equipment.



SURFACE ROUGHNESS TESTING

✓ Surface Roughness and Smoothness Tester. Used to test the roughness of materials and various elements. Product and quality control use tester to check for various defects or set parameters throughout the production cycle.



✓ LASER SHAFT ALIGNMENT

Shaft Alignment is the process of positioning two (or more) machines that are coupled so the Centerlines of rotating shafts form a single line when the machines are working at normal operating temperature.

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PROJECT REFERENCE

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1

Job scope

Replace new rotor blade for the fourth stage and sixth stage

Machinery

SKODA JINMA Condensing Steam turbine for Generator 20 MW



5

Job scope

Installation, Alignment and Commissioning Steam turbine - Reduction gear and Generator 55 MW.

Machinery

SIEMENS Condensing Steam turbine, Reduction gear and Generator 55 MW.



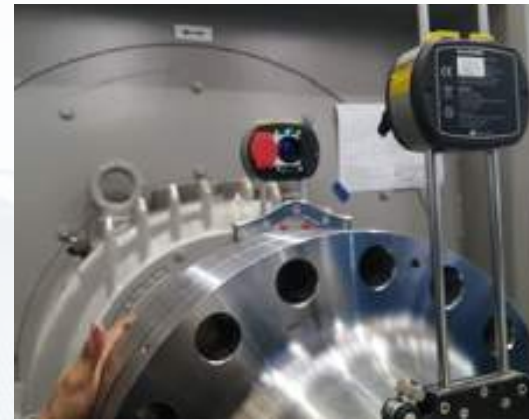
2

Job scope

Installation, Alignment, and Commissioning Steam turbine - Reduction gear and Generator 26 MW.

Machinery

SIEMENS Backpressure Steam turbine 26 MW.



6

Job scope

Maintenance and Overhauling Steam turbine - Reduction gear and Generator

Machinery

SIEMENS Condensing Steam turbine Generator 55 MW.



3

Job scope

Installation, Alignment, and commissioning

Machinery

SHINKO Steam turbine-reduction gear and Generator 9.9 MW.



7

Job scope

Maintenance and Overhauling Steam turbine - Reduction gear and Generator

Machinery

Shin Nippon Steam turbine, Reduction gear and Generator 17 MW0



4

Job scope

New Turbine blades for the first and the second stages

Machinery

Shin Nippon steam turbine for IDF



8

Job scope

New rotor blade for six stages (138pcs.)

Machinery

SKODA JINMA Steam turbine for Generator 20 MW



Expansion joint



Overhauling Generator



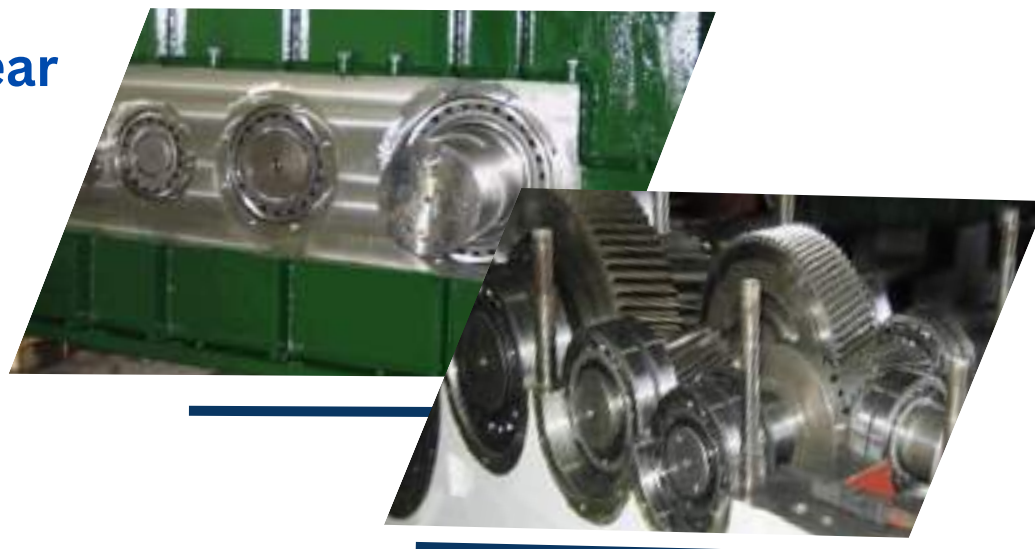
Overhaul Governor



Insulation Jacket Installation



New Gear



New Part Sulzer water feed pump



POWER PLANT | CASE STUDY:

KAWASAKI STEAM TURBINE 10000 KW.
FULL EQUIPMENT DAMAGE AND PLANT FAILURE

02 | INSTALL AND ALIGNMENT

- Turbine rotor dynamic balance.
- Machinery re-alignment and assembling clearance
- Machinery and related equipment assembling
- Major overhauling and inspection reduction gear with re-condition
- Data report Inspection of turbine rotor
- Turbine and machinery equipment install



01 | SCOPE OF WORK

WorkShop and Manufacturing

- A new set of shafting thrust collars and a set of over-speed trip -> Shrink fit assembly process
- Rotor blade for the 5th stage, 35pc
- New sleeve bearing liner front-end and rear-end
- Build new oil baffle front-end and rear-end
- Create new over-speed trip kits
- Create new and replace labyrinth grand seals
- Thrust shoe structure with specialized thrust pad
- New worm wheel and worm thread for governor driving control
- New oil labyrinth front-end and rear-end

Repair and Reconditioning

- Upper and lower turbine casing
- Upper and lower diaphragm blade
- Turning gear wheel -> shrink-fit assembling
- Upper and lower bearing case + bearing case housing
- Part replacement with re-conditioning of governor UG8 (fully calibrated)



ASKO was contacted by the client to evaluate the best approach. After looking at all the options and speaking with OEM about price/delivery time. We decided to fix our client equipment in-house locally. Saved cost 10 Million Bath



CASE STUDY | INSTALL AND COMMISSIONING POWER PLANT 55MW

Project: Buayai Bio Power Co.,Ltd - Nakhon Ratchasima

Machinery: SIEMENS Condensing Steam turbine, Reduction gear, and Generator 55 MW.

01 | SCOPE OF WORK

- Machinery installation
- Final alignment and reporting
- Machinery test run
- Full Plant equipment commissioning



CASE STUDY | INSTALL AND COMMISSIONING POWER PLANT 26MW

Project: THIP PHICHIT HYBRID ENERGY

Machinery: SIEMENS Condensing Steam turbine 26MW, Reduction gear and Generator

01 | SCOPE OF WORK

- Civil engineering work for the foundation of machine installation
- Foundation grouting preparation
- Machinery loading and un-loading to location for installation



CASE STUDY | INSTALL AND COMMISSIONING POWER PLANT 26MW

Project: THIP PHICHIT HYBRID ENERGY

Machinery: SIEMENS Condensing Steam turbine 26MW, Reduction gear and Generator

02 | SCOPE OF WORK

- Machinery installation
- Final alignment and reporting
- Machinery test run
- Full Plant equipment commissioning



OFFSHORE | CASE STUDY: ON-SITE

Project: Inspection, Maintenance, Overhauling & Part Replacement

Machinery: Steam Turbine 1000kW & Reduction Gear

01 | SCOPE OF WORK

- Disconnect gear coupling between reduction gear and generator
- Specialized in-house lift gear supplied by ASKO
- Check the alignment coupling gear and generator
- Disassembling the Governor control valve and oil inlet
- Dis-assembling turbine and gear upper
- Inspection turbine rotor and record data
- Inspection reduction gear and record data
- Inspection of ESV inner parts by PT
- Inspection Governor control valve
- Deep-clean turbine casing and reduction gear
- Replacement of all needed spare parts
- Assembling of the turbine rotor
- Assembling the gear wheel
- Assembling turbine rotor
- Final alignment and checks
- Full test run
- Steam turbine operational improvement report
- Full Operational equipment report



OUR CUSTOMERS



FULL TURN-KEY PARTNER

- Asia (Thailand) Based Company With International Expertise
- 24/7 availability urgent services
- Certificate ISO: 9001:2015



- 40+ Years of Technical Engineering Experience
- Steam and Gas Turbine Specialist
- Reduction Gear, Pump, Boiler, Generator
- Machining Workshop & Maintenance Center
- Spare Parts Manufacturing
- Installation, Maintenance, and overhauling

**HOW CAN
WE HELP ?**



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