Company Profile

Power Plant Maintenance and Consulting

We Provide More Than Dismantling

❑ Table Content

❑ Table Content

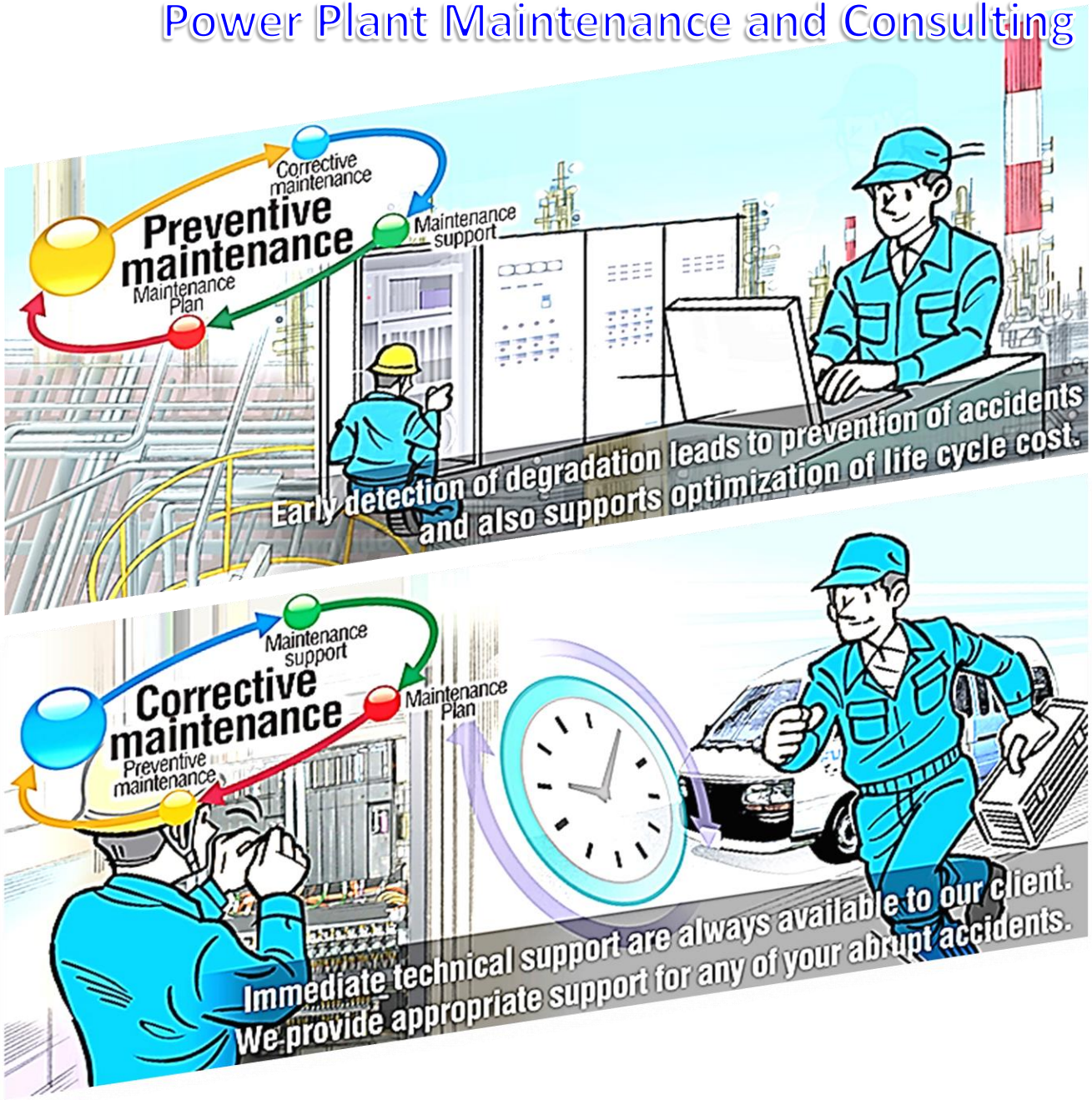
About The Company

Power Plant Maintenance and Consulting

JMH has been providing services in maintenance and engineering for Power Generation Plant since it was established in 2001 JMH has experience in minor and major inspections for Gas Turbines, Steam Turbines, Generators and HRSG, including customer-required modifications.

JHM also has experience in Fabrication, installing jobs such as Gas Turbines and Steam Turbine Modules, including lifting and storage tools.

JHM's facility office and workshop is located within the Ratchaburi Industrial Estate, just 100 kilometers from Bangkok.



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Address The Company

Power Plant Maintenance and Consulting

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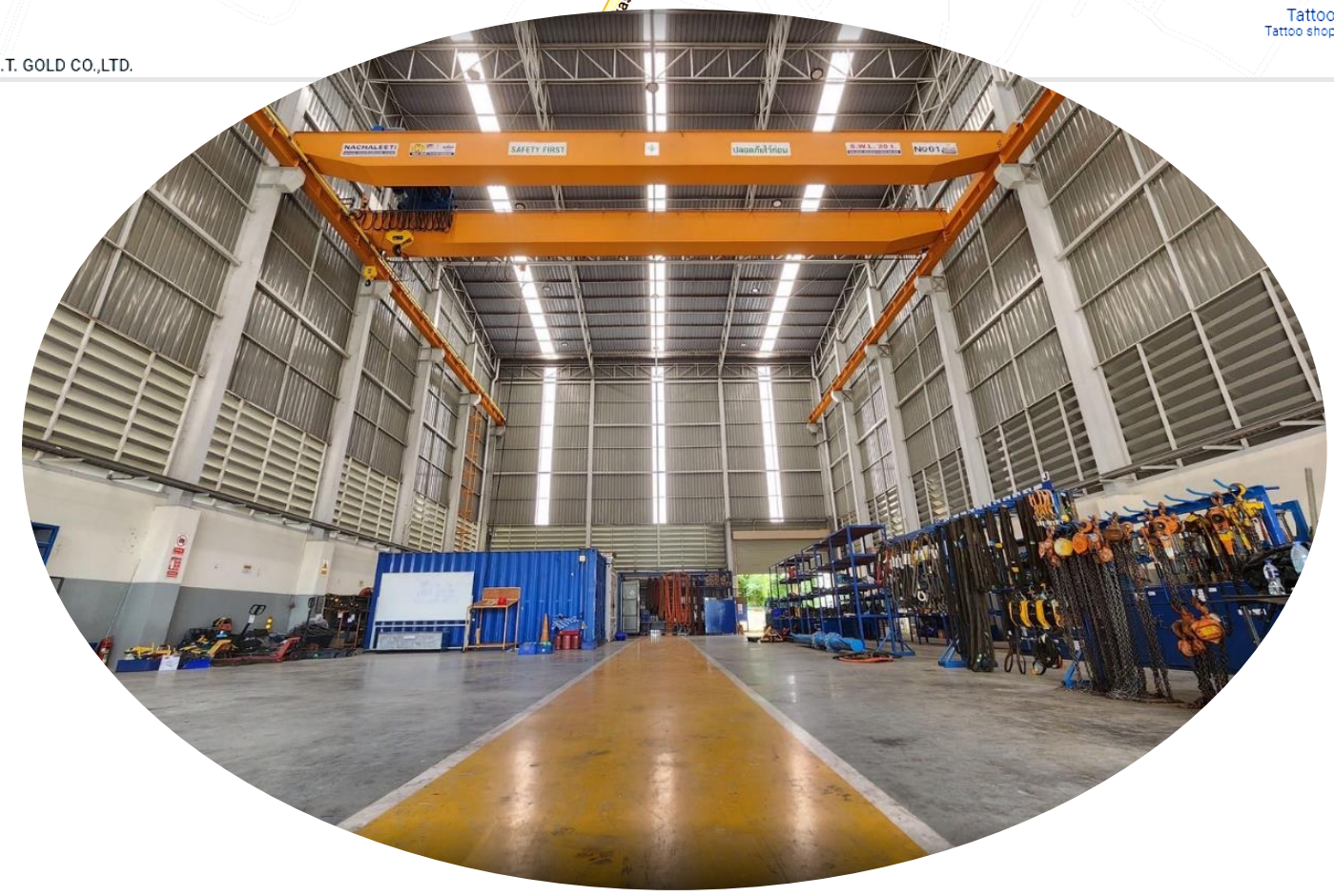
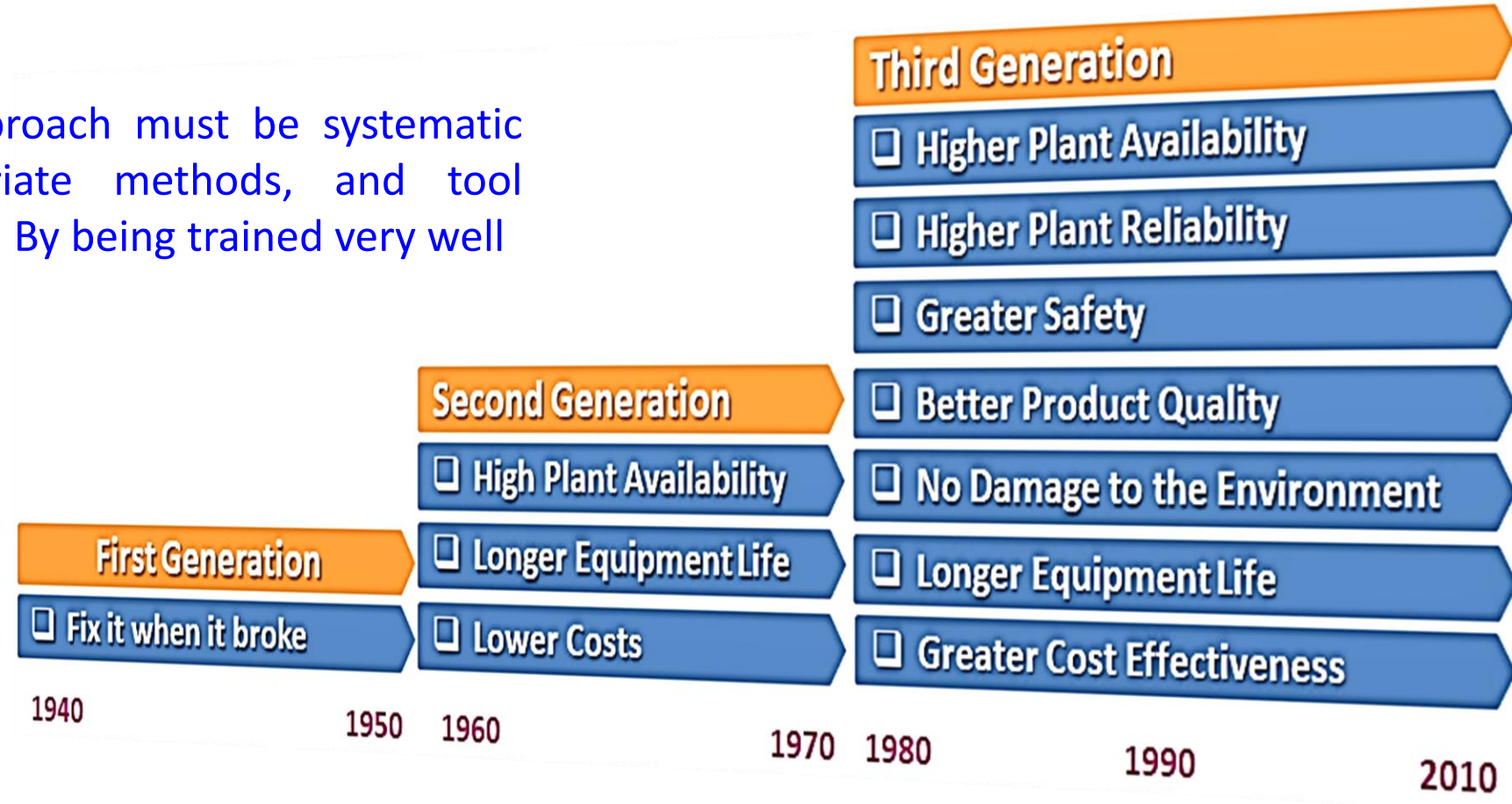


❑ Mission:

Maintenance is more than just searching. and fix bugs But it is an important activity in healing. and improve machinery and equipment to be complete with readiness Availability, High Reliability and High Efficiency.

❑ Vision:

To achieve these goals the approach must be systematic with current technology, appropriate methods, and tool readiness. and experienced personnel By being trained very well



Our Service

Power Plant Maintenance and Consulting

Maintenance Service

- **Mechanical Section**
  - Gas Turbine
  - Steam Turbine
  - HRSG and Boiler
  - Reduction Gear
  - Pump and Valve
  - Root Cause Analysis
  - Vibration Check and Analysis
  - Other Rotating Machine
  - Steel Tools Fabrication
- **Control and Instrument Section**
  - Preventive Maintenance
  - Corrective Maintenance
- **Electrical Section**
  - Generator& Exciter
  - Electrical Auxiliary
  - Electrical System Equipment

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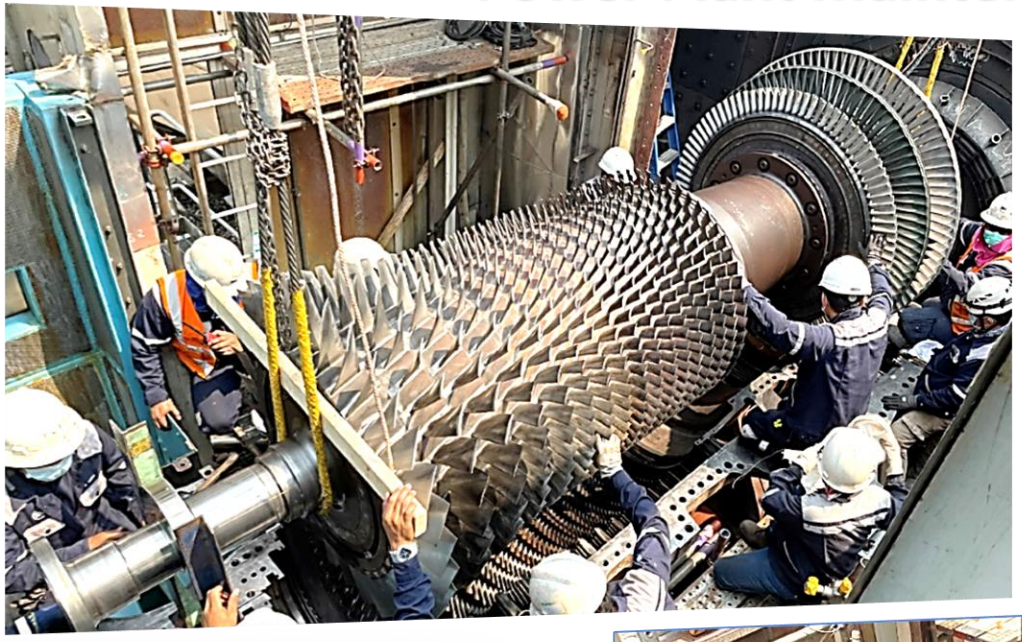
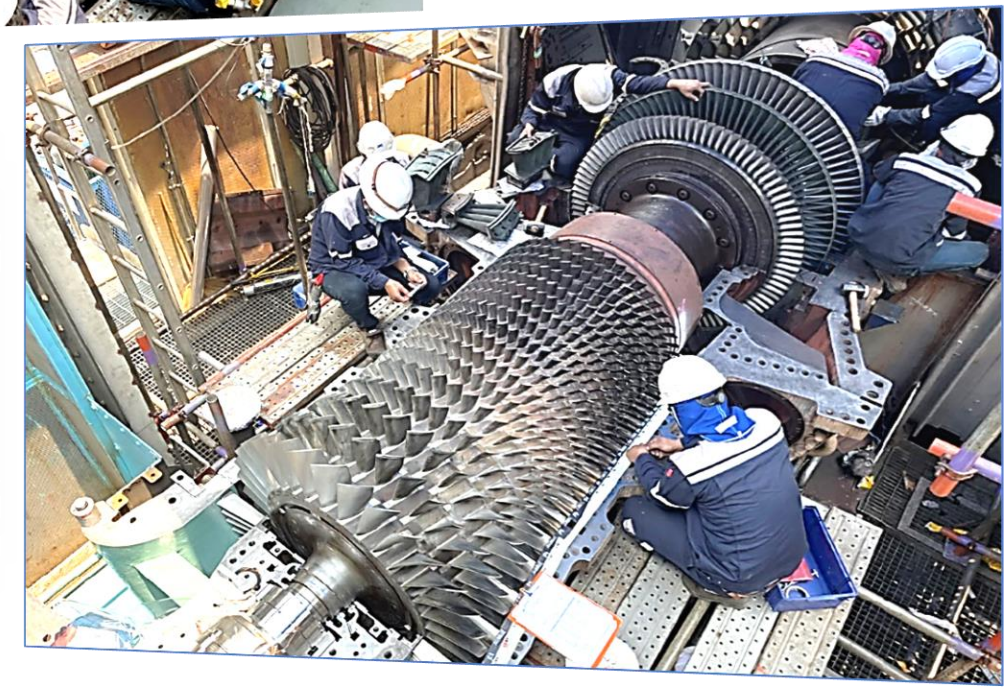
Gas Turbine Maintenance Service

Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Planned outage
  - ➢ Combustion inspection
  - ➢ Hot gas path inspection
  - ➢ Major overhaul
- ✓ All unplanned outage
- ✓ Reduction gear
- ✓ Auxiliary equipment system





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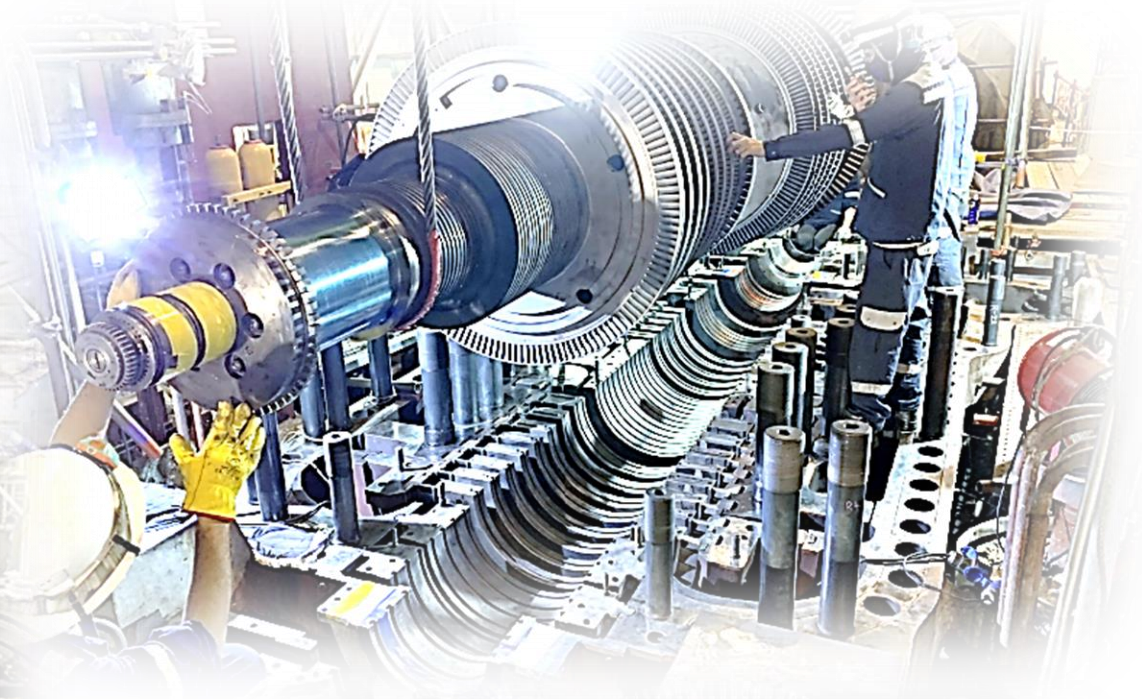
Steam Turbine Maintenance Service

Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Planned outage
  - ➢ Yearly inspection
  - ➢ Minor inspection
  - ➢ Major overhaul
- ✓ All unplanned outage
- ✓ Reduction gear
- ✓ Auxiliary equipment system
- ✓ Replace turbine seal



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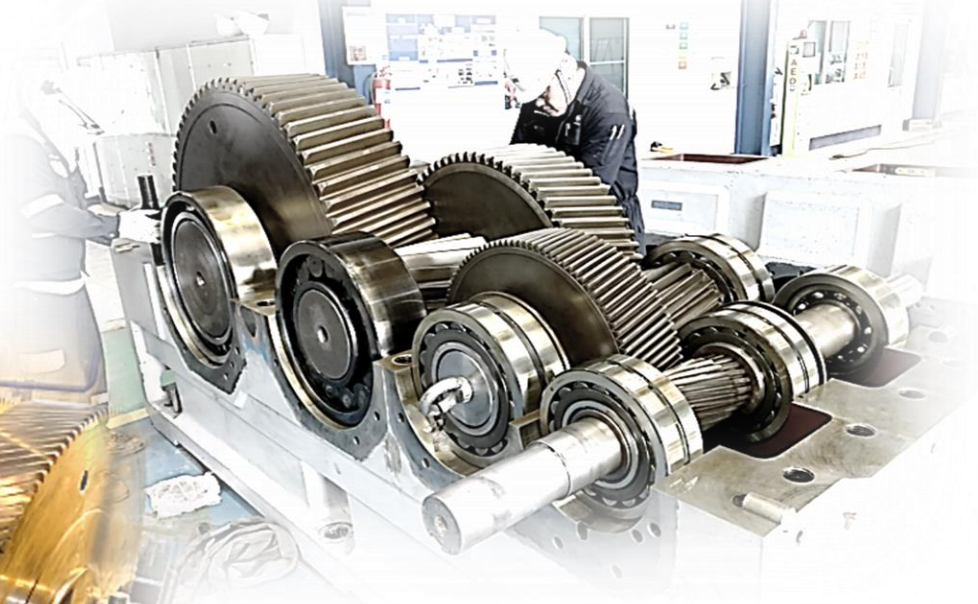
Gear Maintenance Service

Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Minor inspection
  - ➢ Alignment turbine-gear-generator
  - ➢ Gear tooth
  - ➢ Gear contact and backlash
- ✓ Major inspection
  - ➢ Minor inspection
  - ➢ Bearing inspection
- ✓ Mode of gear damage analysis
- ✓ Repair or recondition

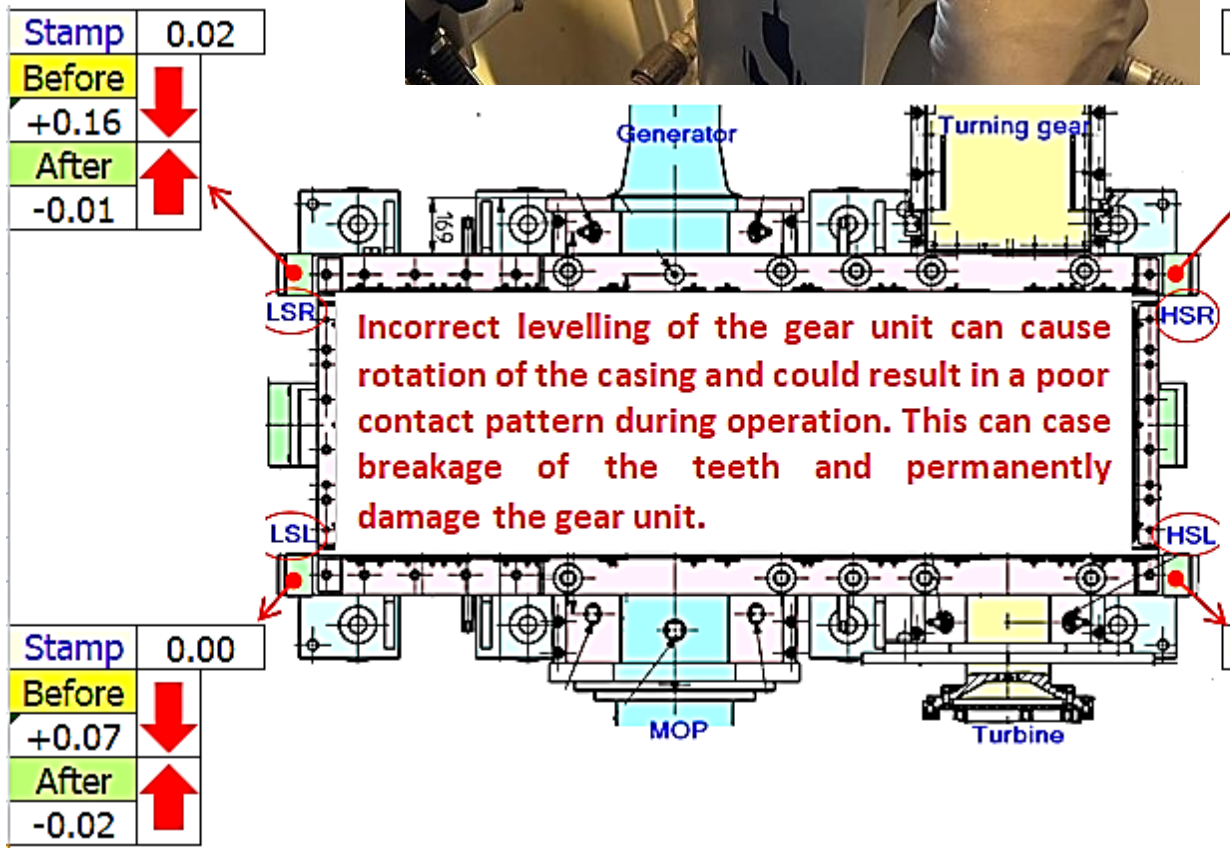


Gear Level and Soft foot

Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Before alignment check
- ✓ Before level and soft-foot check
- ✓ Fix the soft-foot and shim zero setting
- ✓ Level check and adjust
- ✓ After alignment check and adjust
- ✓ Final check the level



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Generator Maintenance Service

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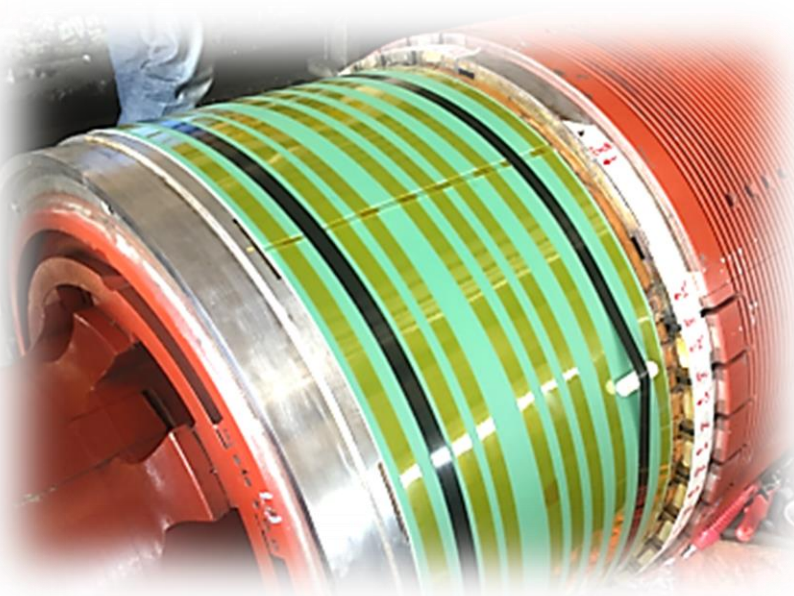
❑ Scope of Works

- ✓ Electrical inspection and testing
- ✓ Bearing inspection
- ✓ Remove and install rotor
- ✓ Clean generator cooler
- ✓ Remove retaining ring



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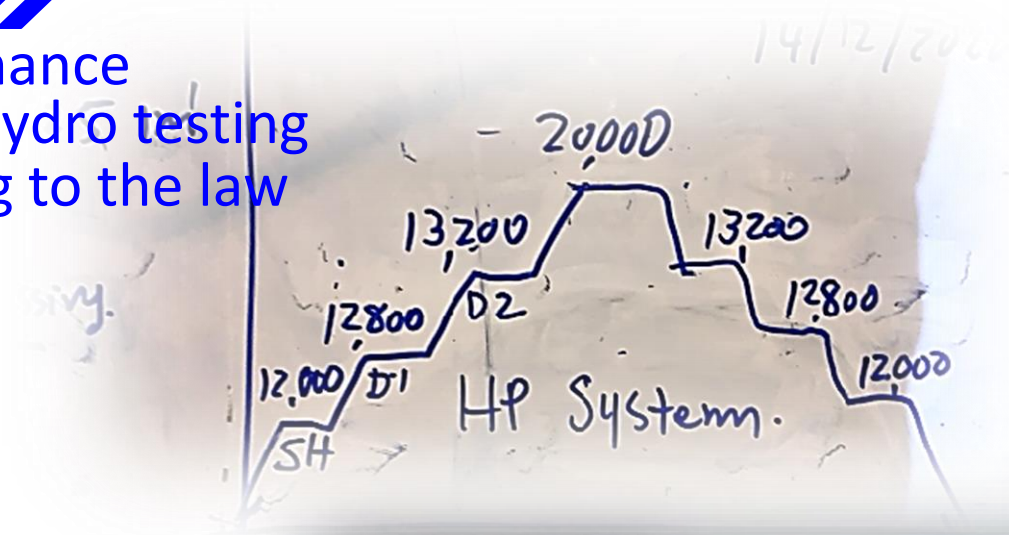
HRSG& Boiler Maintenance Service

Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Routine Maintenance
- ✓ Inspection and hydro testing
- ✓ Report according to the law
- ✓ Pump and valve

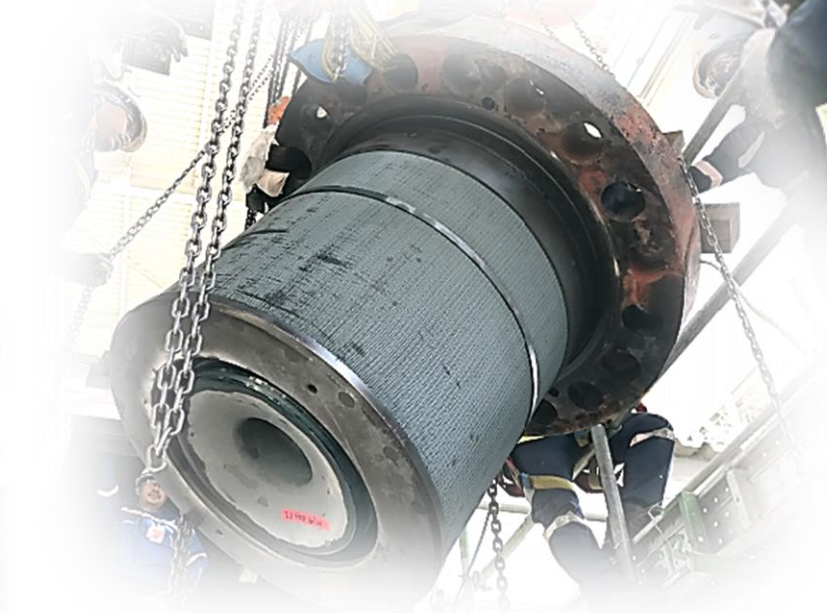


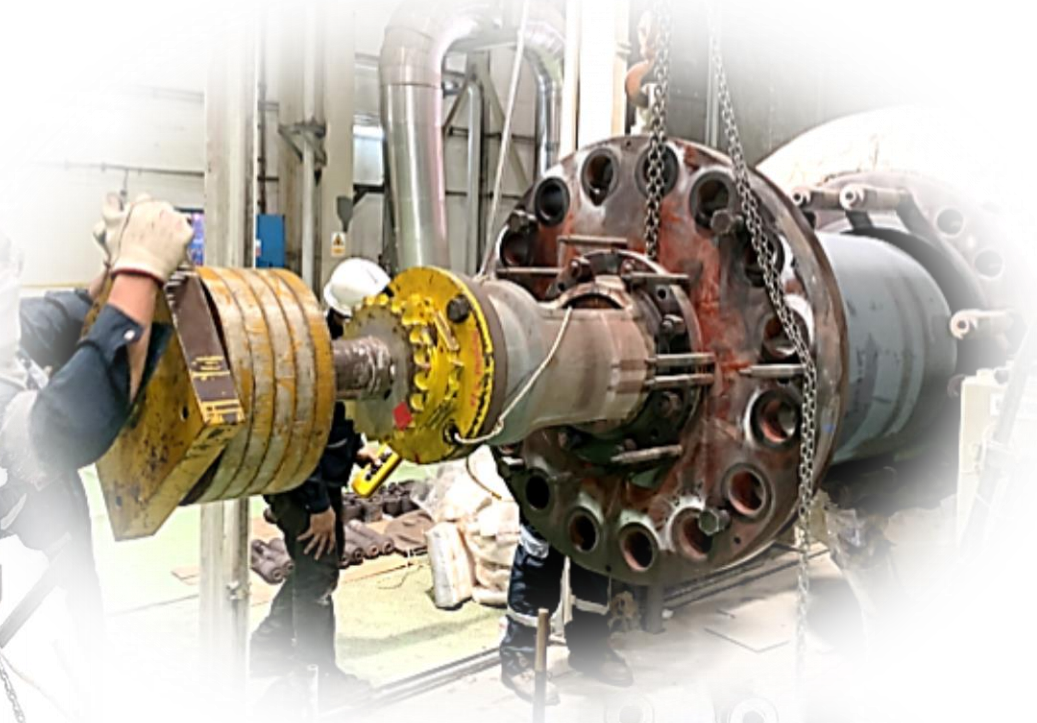
Valve Maintenance Service

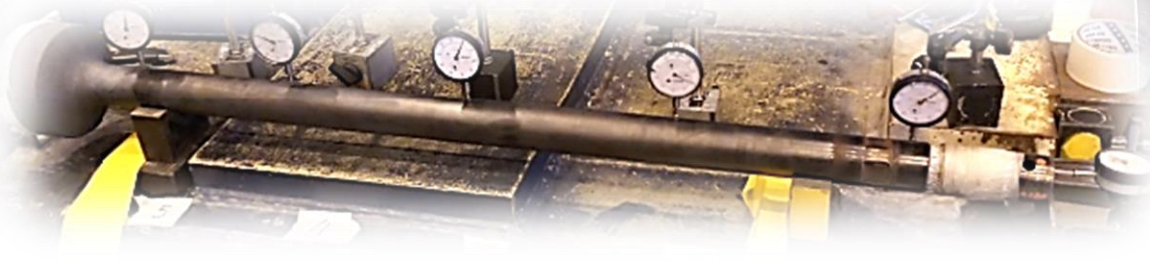
Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Overhaul inspection
- ✓ Replace packing or bushing
- ✓ Replace disc and seat
- ✓ Repair, Replace and Rebuild the Stem
- ✓ Lapping







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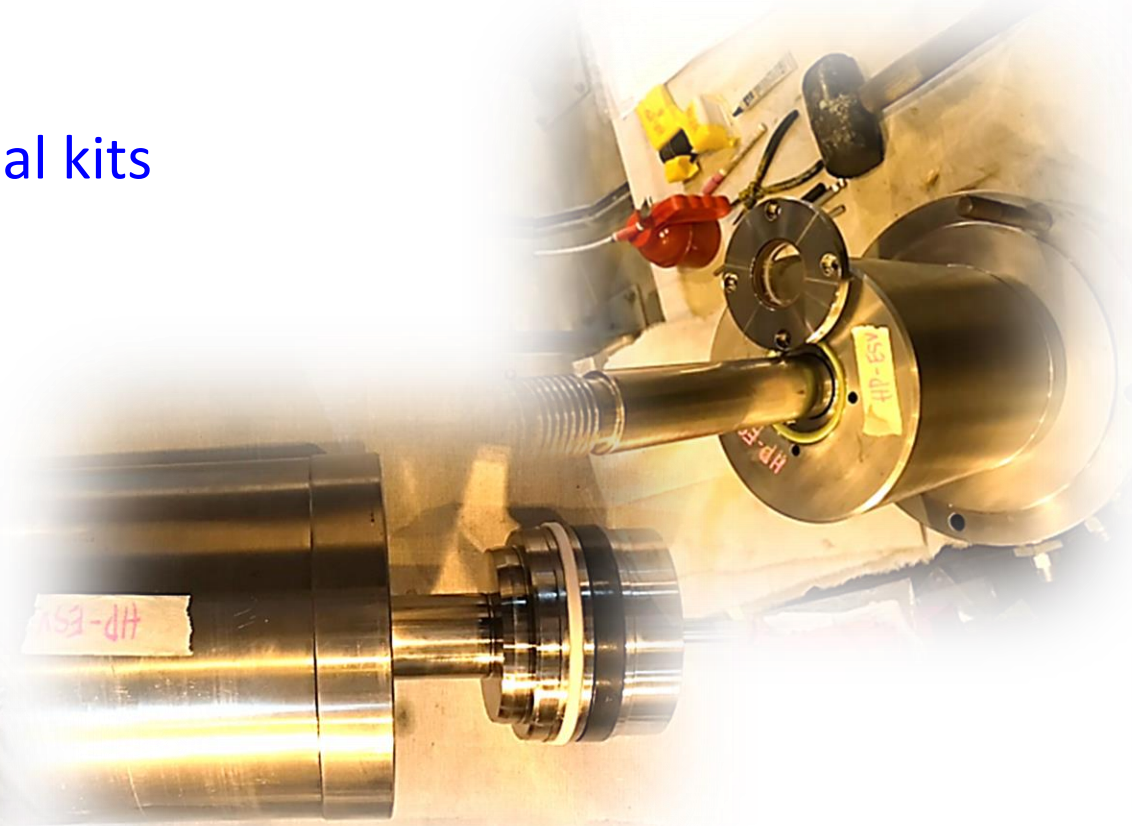
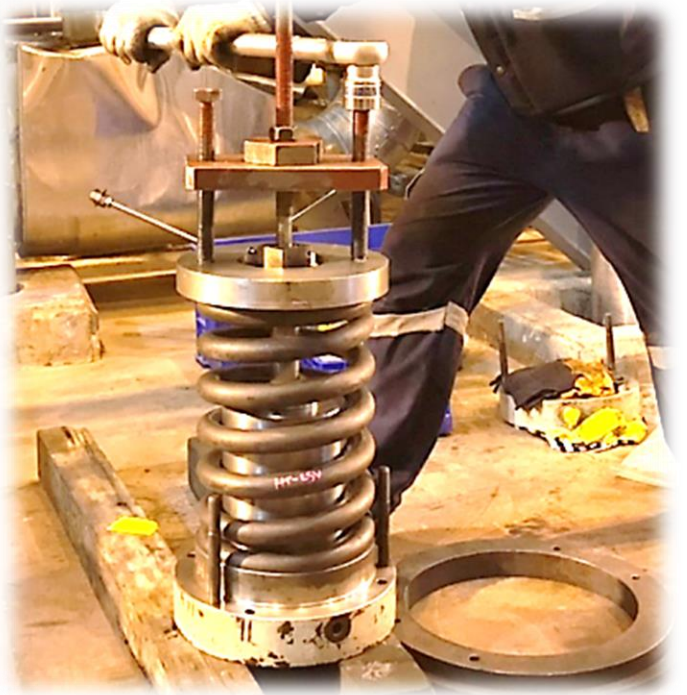
Overhaul Actuator of Emergency Stop Valve

Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Disassembly
- ✓ Clean and inspection
- ✓ Assembly with new seal kits
- ✓ Assembly and install
- ✓ Flushing
- ✓ Assembly piping
- ✓ Leak test
- ✓ Lift test





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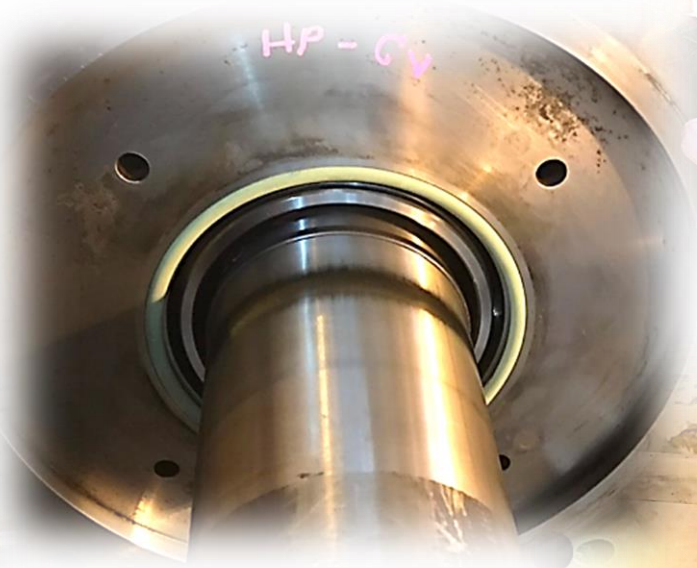
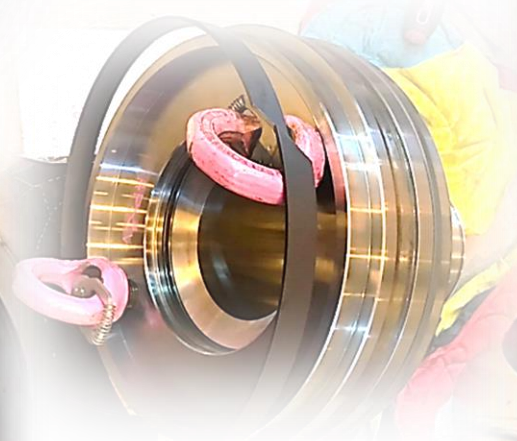
Overhaul Actuator of Control Valve

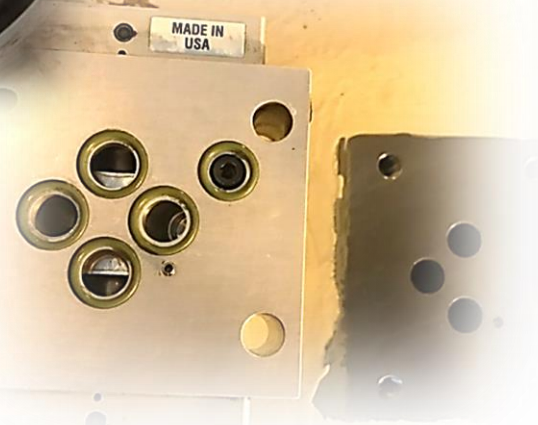
Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Disassembly
- ✓ Clean and inspection
- ✓ Assembly with new seal kits
- ✓ Assembly and install
- ✓ Flushing
- ✓ Assembly piping
- ✓ Leak test
- ✓ Lift test







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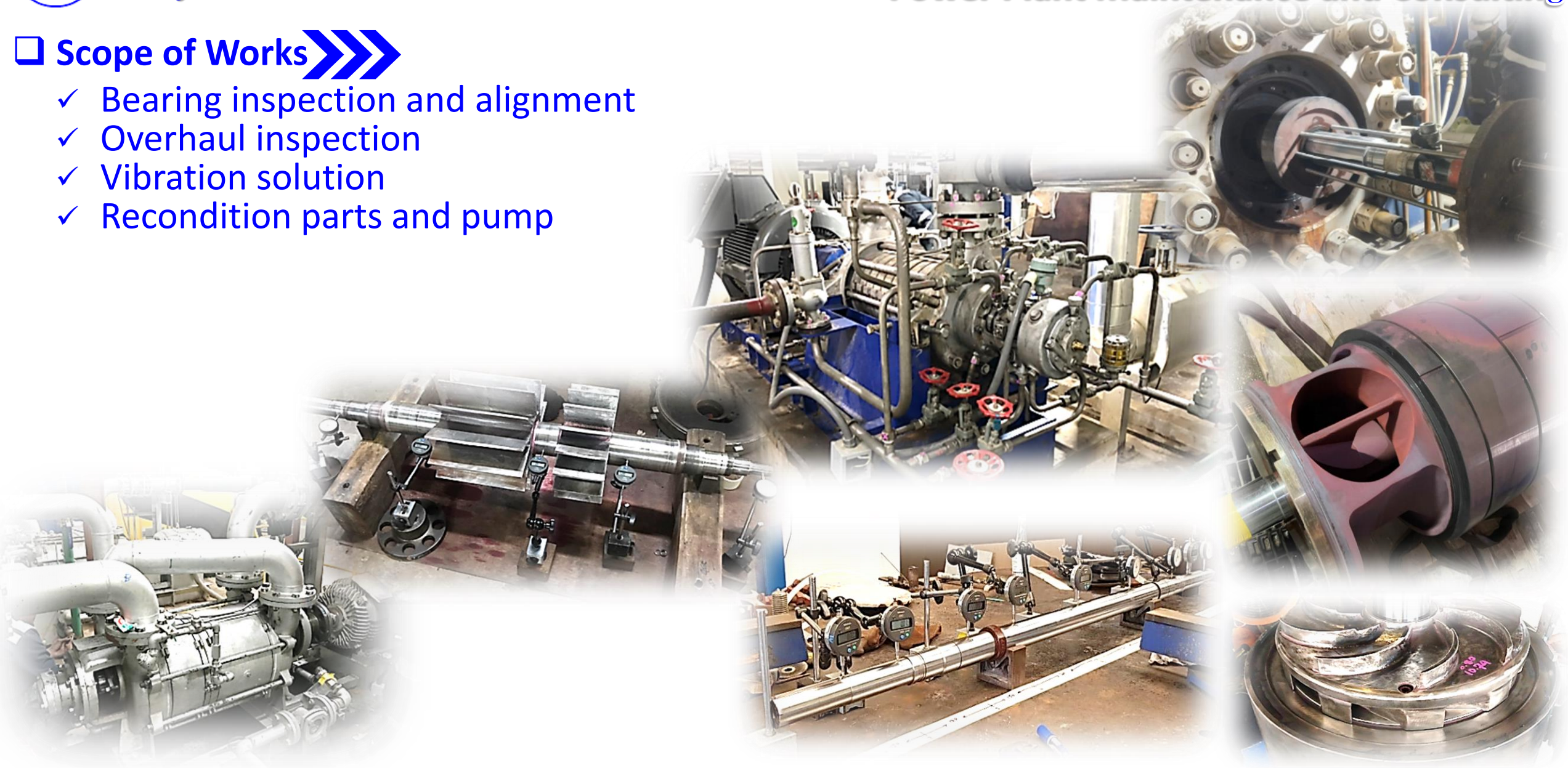
Pump and Fan Maintenance Service

Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Bearing inspection and alignment
- ✓ Overhaul inspection
- ✓ Vibration solution
- ✓ Recondition parts and pump



Fluid Coupling Maintenance Service

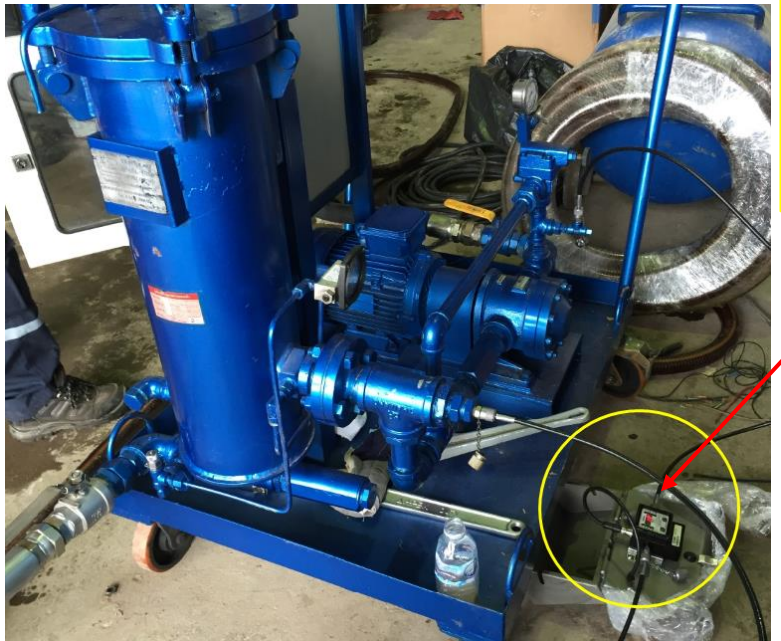
Power Plant Maintenance and Consulting

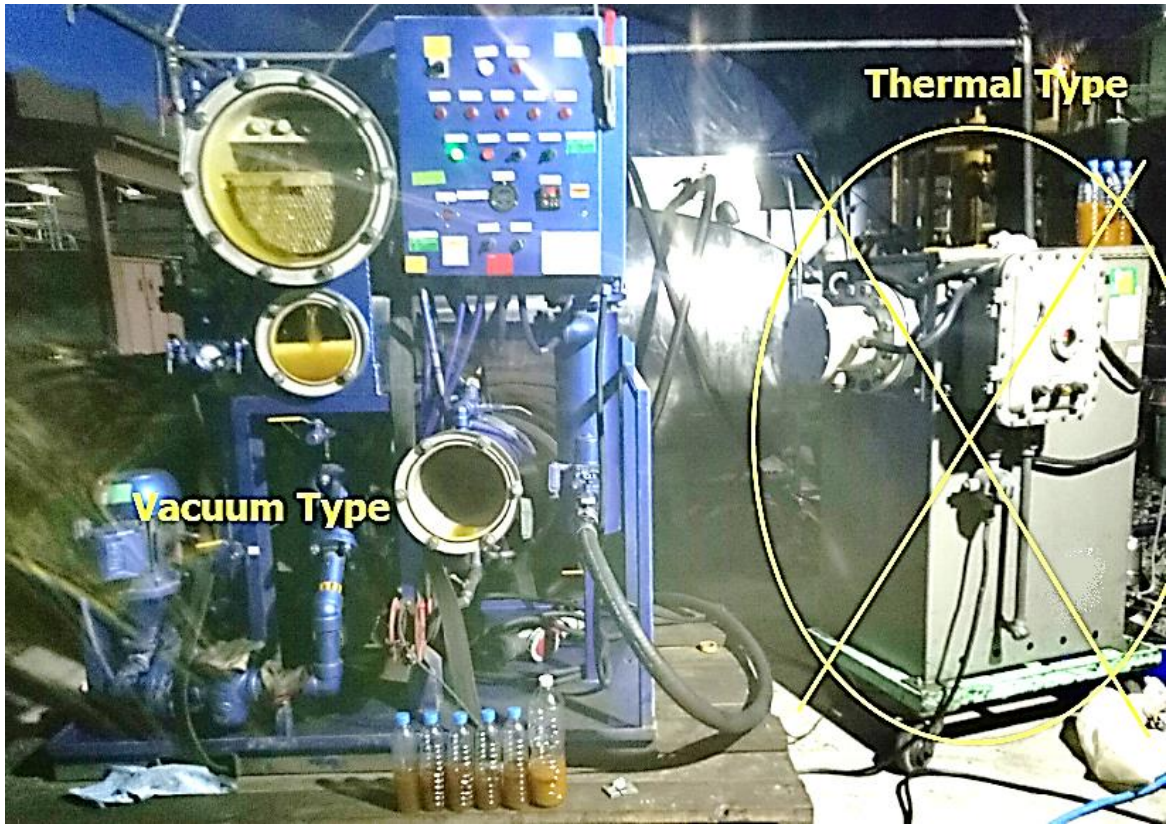
❑ Scope of Works

- ✓ Minor inspection
  - ➢ Gear and bearing inspection
  - ➢ Level and alignment check and adjust
- ✓ Overhaul inspection
- ✓ Vibration solution
- ✓ Recondition parts

❑ Scope of Works

- ✓ Before sampling check (NAS& Water%)
- ✓ Empty drain to tempo tank
- ✓ 1st Purify on the tempo tank
- ✓ Clean and inspect the oil tank
- ✓ Fill oil to tank
- ✓ Lube oil system running
- ✓ 2nd Purify
- ✓ Return to service



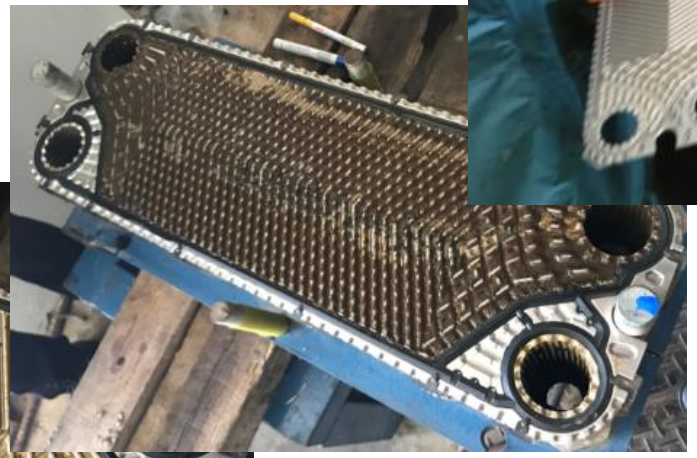


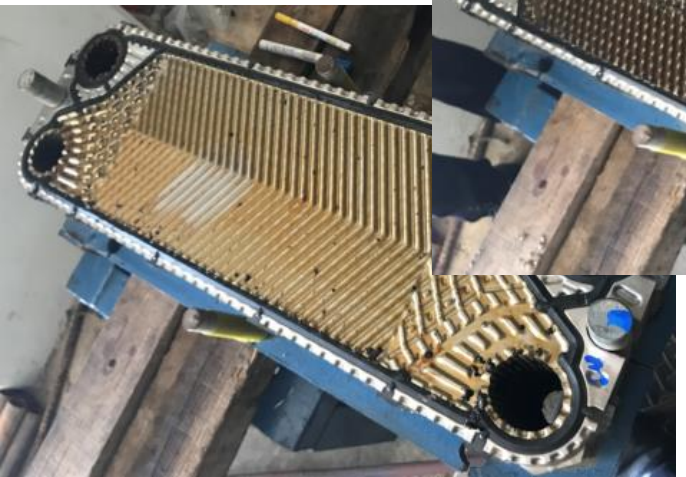
On Site-Clean The Oil Plate Cooler

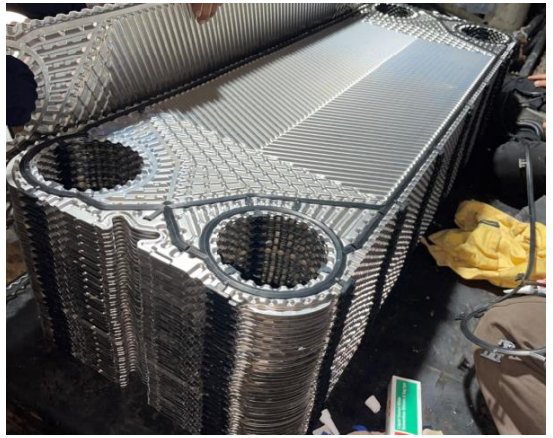
Power Plant Maintenance and Consulting

❑ Scope of Works

- ✓ Condition inspection
- ✓ Disassembly the pipe and select the solvent clean
- ✓ Disassembly the plate
- ✓ Clean and inspecting
- ✓ Assembly and leak test
- ✓ Assembly the pipe
- ✓ Return to service

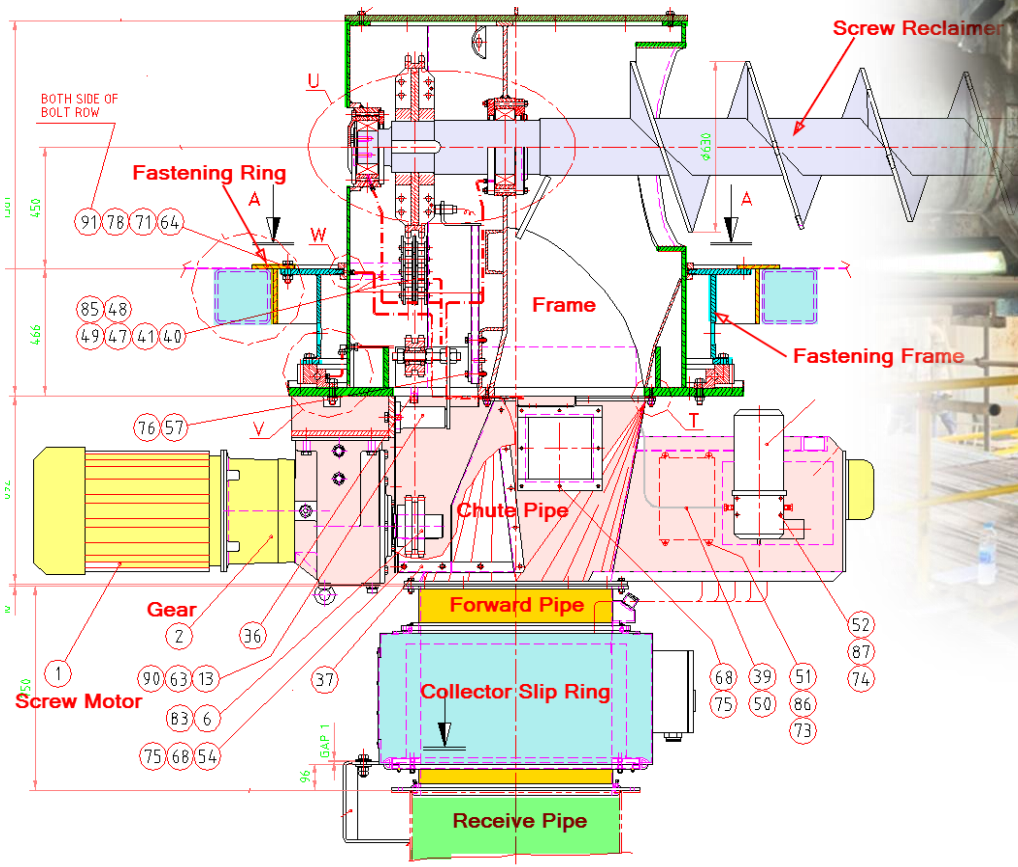


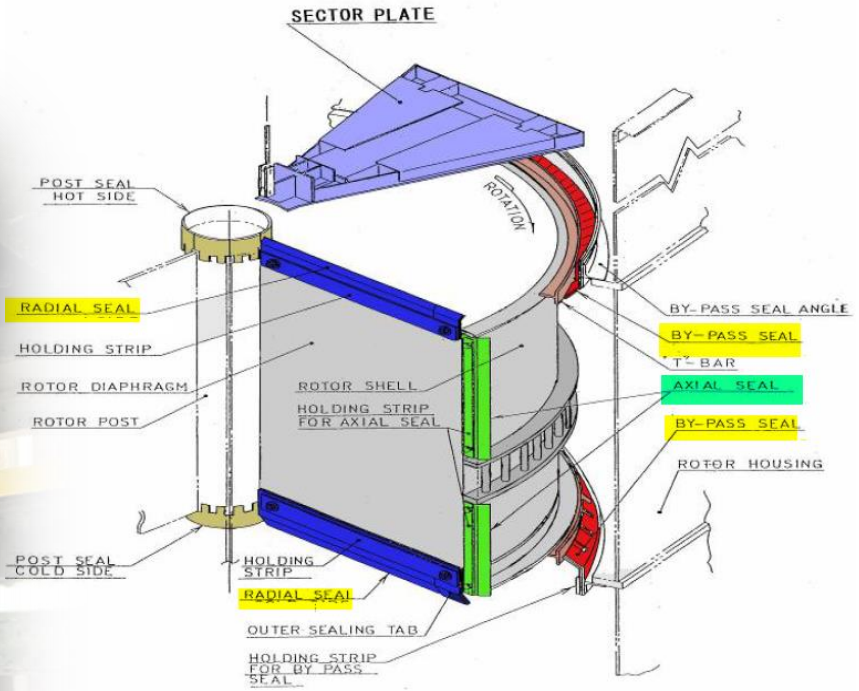




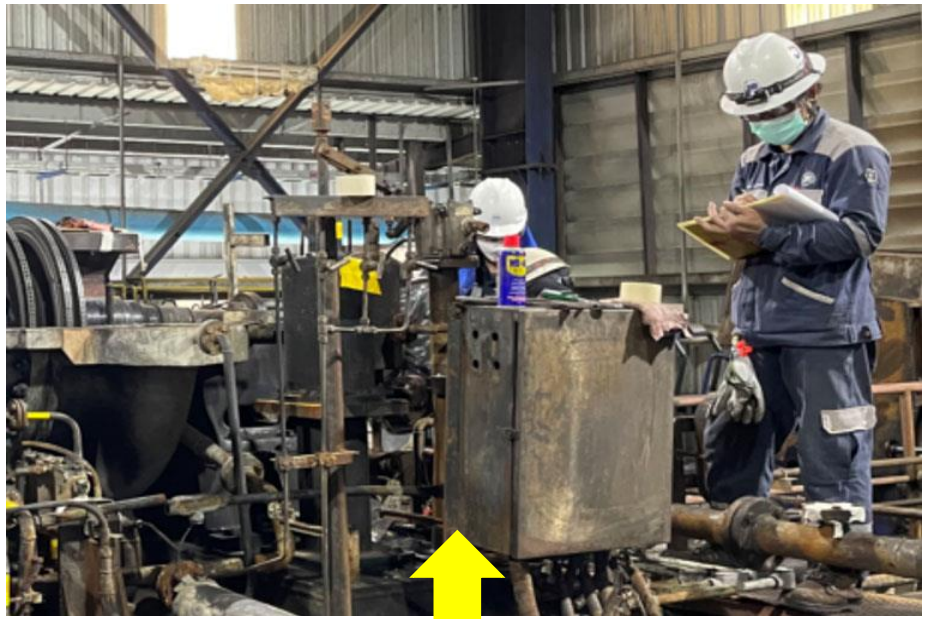
❑ Other rotating equipment

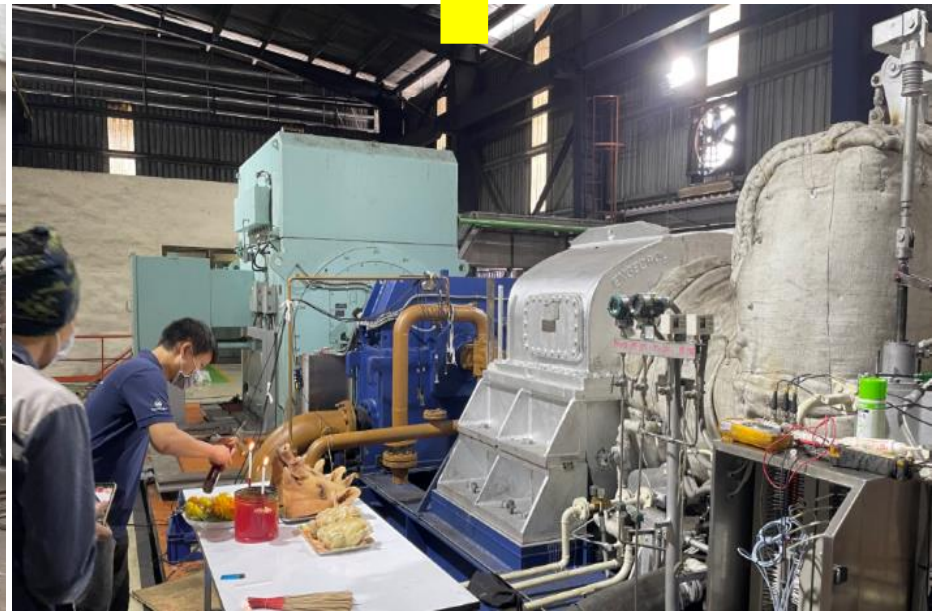
- ✓ Bio Silo
- ✓ Gas-Gas Heater





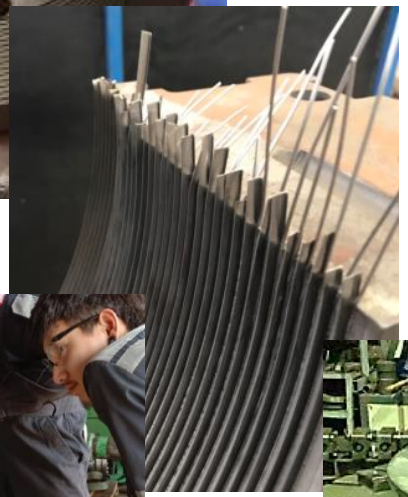
- ❑ **Recondition the Steam Turbine after fire fighting**
- ❑ **Step of works**
  - ✓ **Disassembly**
  - ✓ **Clean and inspection**
  - ✓ **Repair, rebuild and replace**
  - ✓ **Assembly**
  - ✓ **Loop and function test**
  - ✓ **Commissioning and test run**

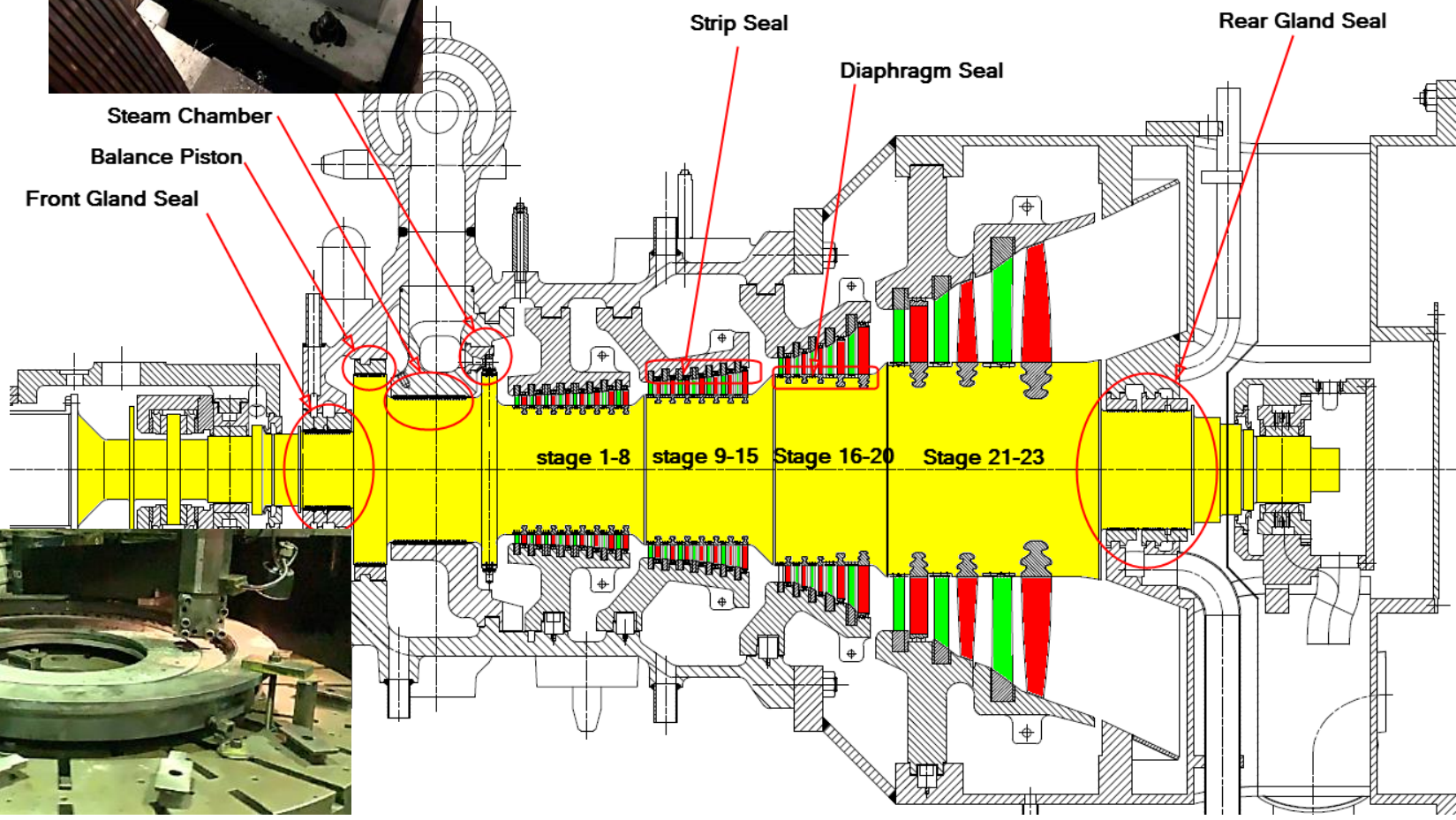




❑ The Turbine Seal

- ✓ Gland seal
- ✓ Balance piston seal
- ✓ Diaphragm seal
- ✓ Strip seal



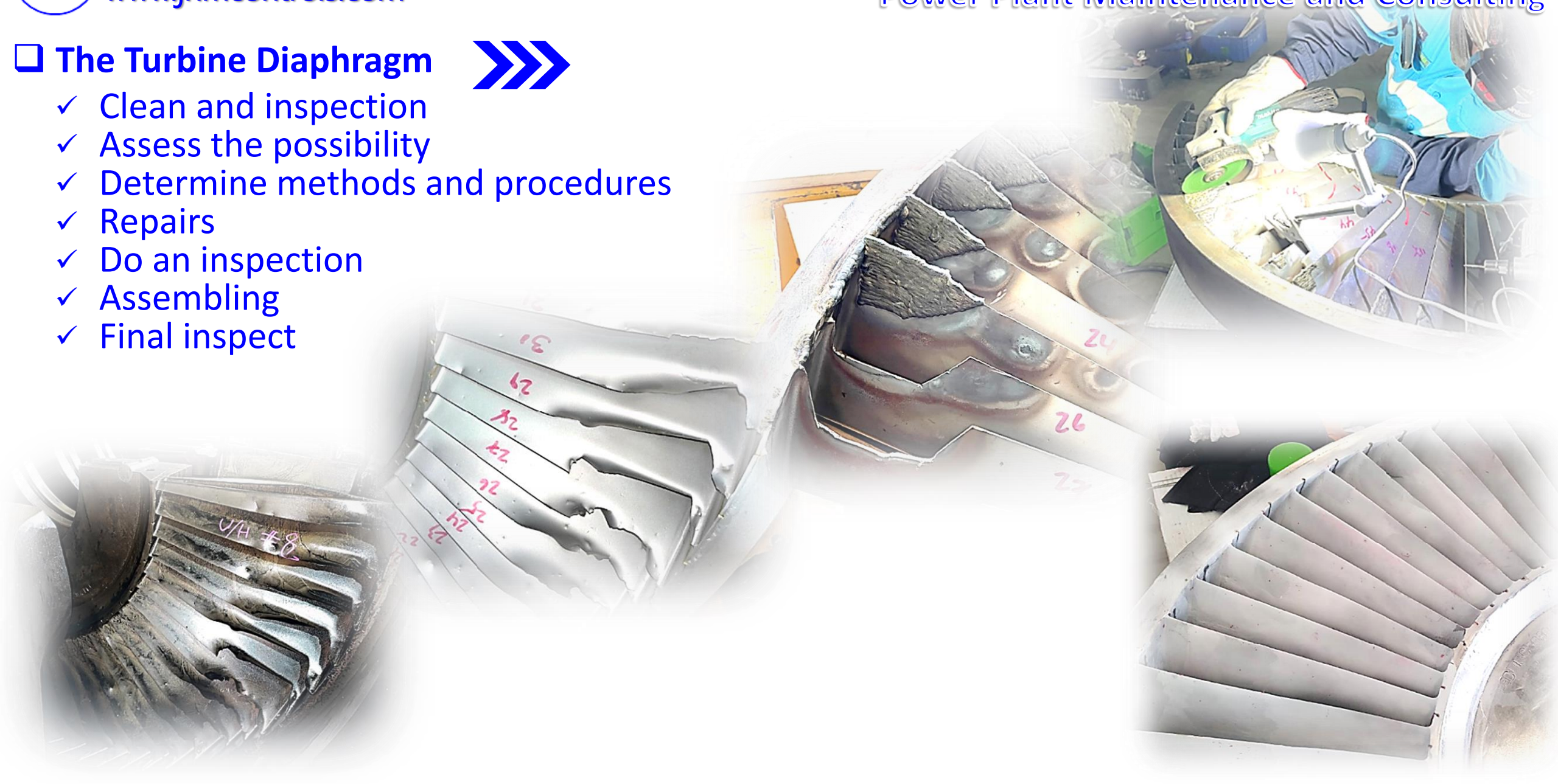


❑ The Turbine Shaft Surface

- ✓ Clean and inspection
- ✓ Assess the possibility
- ✓ Determine methods and procedures
- ✓ Make repairs by Arc Metal Spray Welding (MIG)
- ✓ Machine and polishing
- ✓ Final inspection

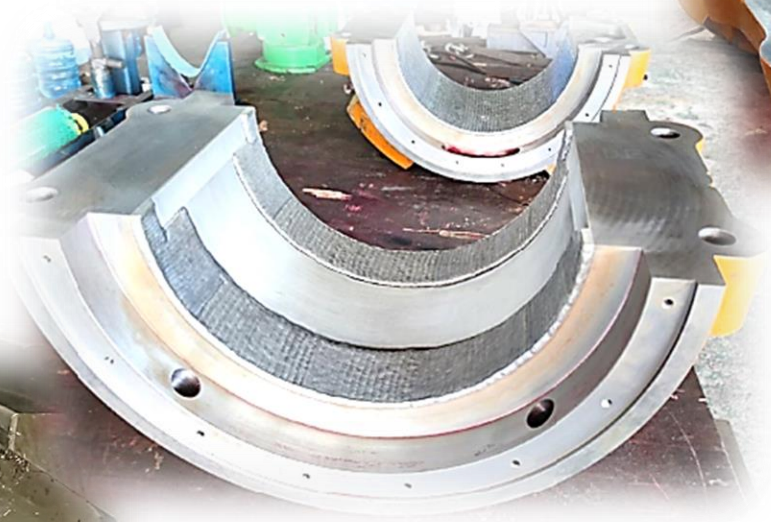
❑ The Turbine Diaphragm

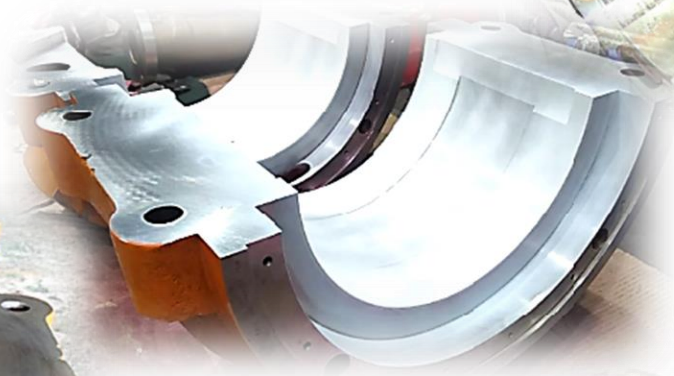
- ✓ Clean and inspection
- ✓ Assess the possibility
- ✓ Determine methods and procedures
- ✓ Repairs
- ✓ Do an inspection
- ✓ Assembling
- ✓ Final inspect



❑ The Bearing

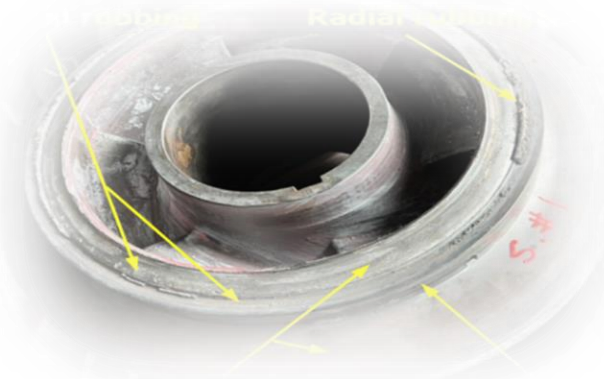
- ✓ Clean and inspection
- ✓ Assess the possibility
- ✓ Determine methods and procedures
- ✓ Make repairs by Overlay welding
- ✓ Do an inspection
- ✓ Assembling
- ✓ Check the last step

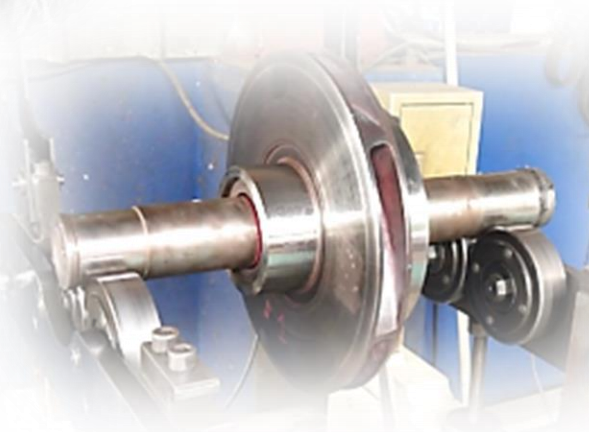
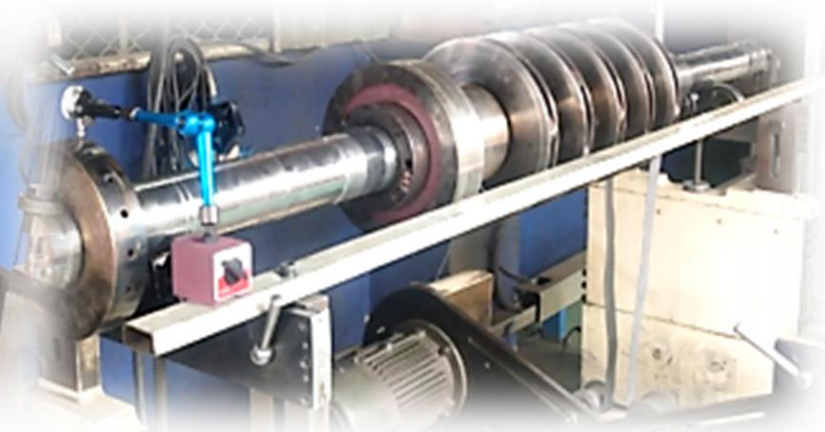




❑ The Boiler Feed Pump

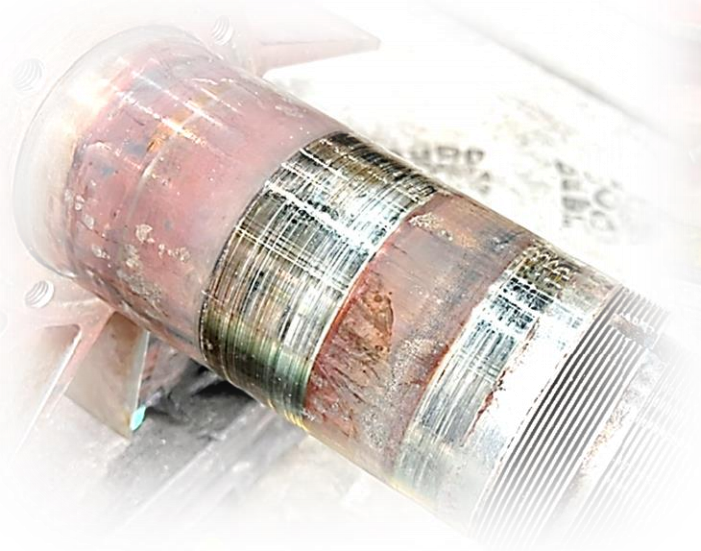
- ✓ Disassembly and inspection
- ✓ Repair, replace and rebuild
  - ➢ Shaft
  - ➢ Impeller
  - ➢ Diffuser
  - ➢ Casing
  - ➢ Parts balancing
- ✓ Assembly
- ✓ Test run and vibration check

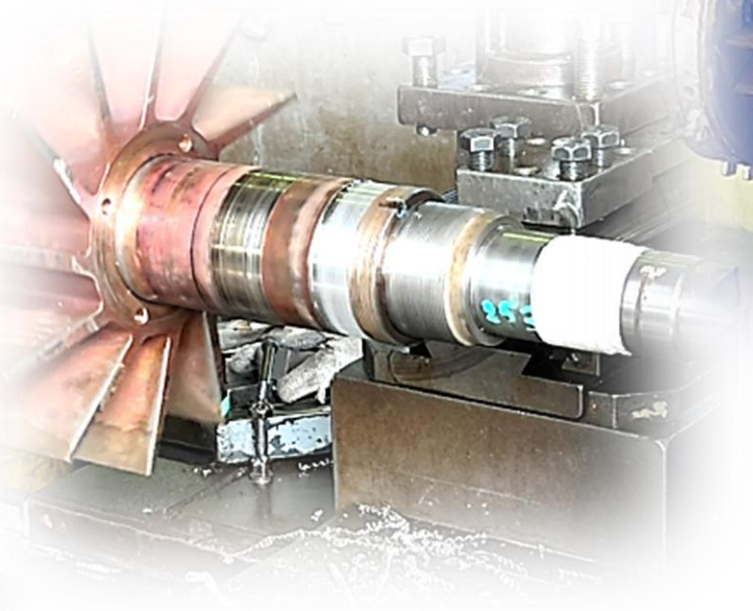


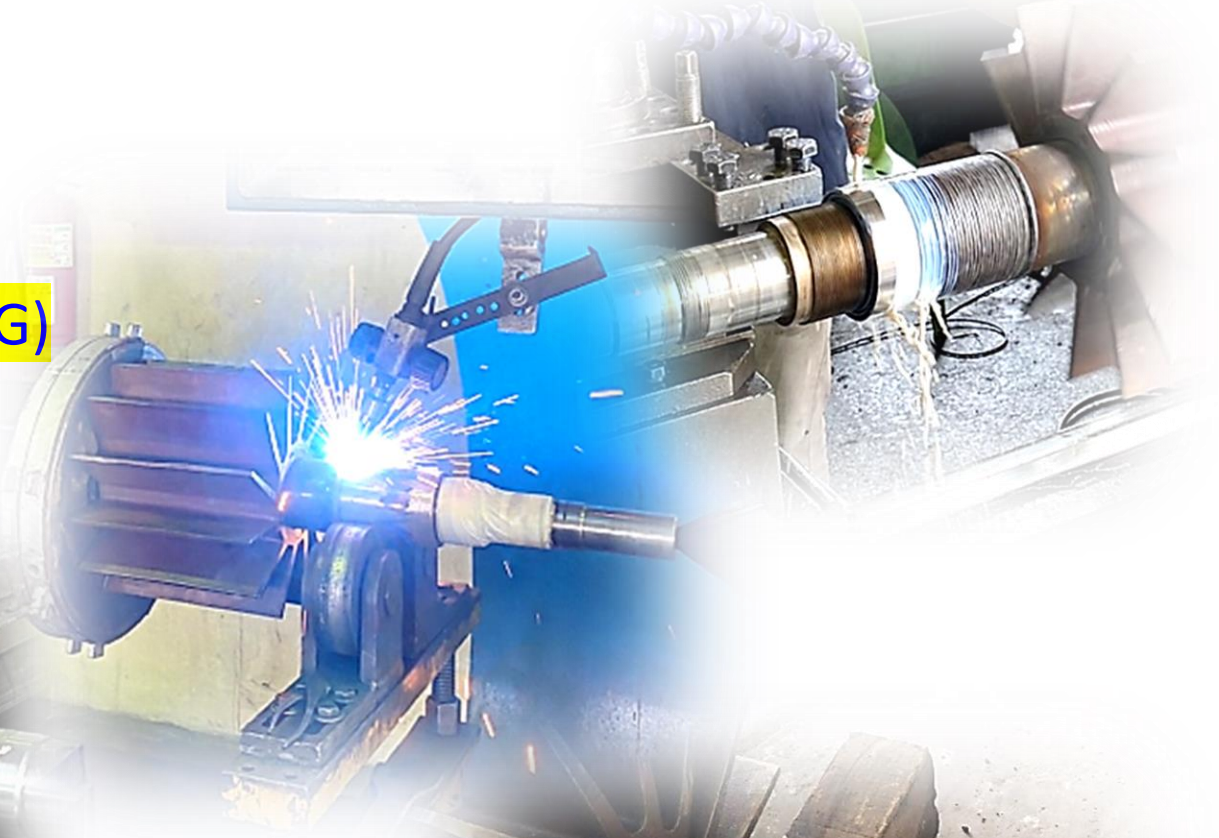



❑ The Pump Shaft Surface

- ✓ Clean and inspection
- ✓ Assess the possibility
- ✓ Determine methods and procedures
- ✓ Make repairs by Arc Metal Spray Welding (MIG)
- ✓ Machine and polishing
- ✓ Final inspection

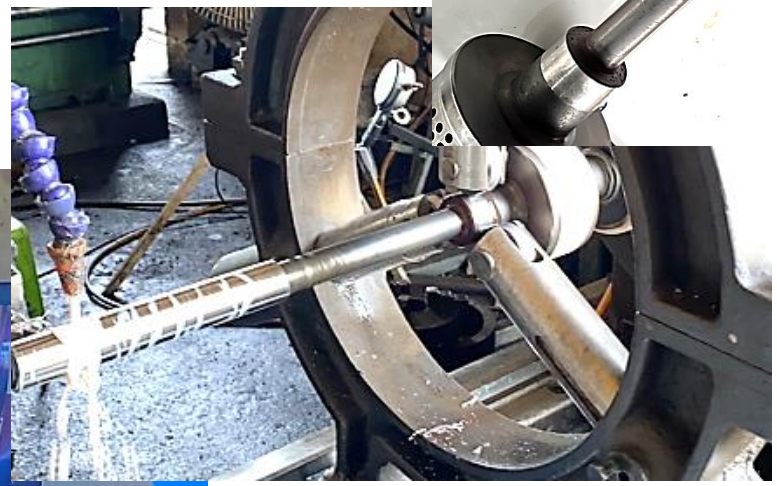


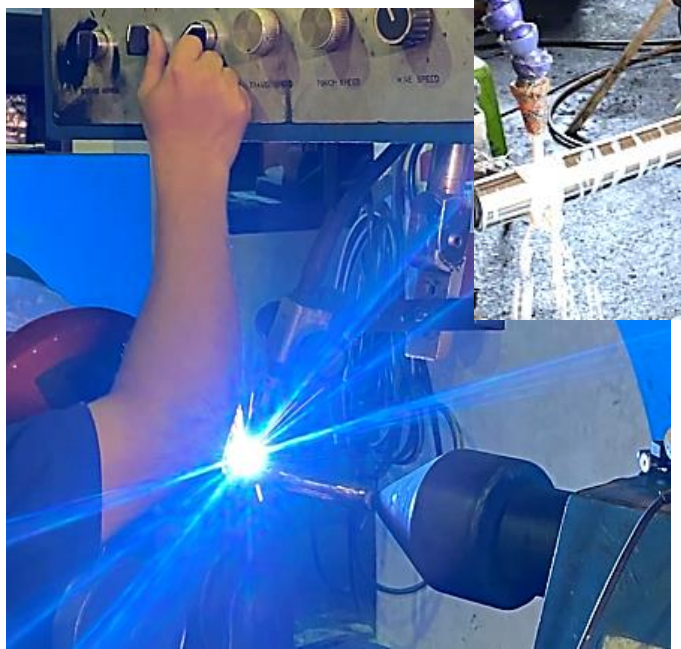




❑ The Stem Valve

- ✓ Condition inspection
- ✓ Disassembly the pipe and select the solvent clean
- ✓ Disassembly the plate
- ✓ Clean and inspecting
- ✓ Assembly and leak test
- ✓ Assembly the pipe
- ✓ Return to service





Electrical Works

Power Plant Maintenance and Consulting

❑ Works Lists

- ✓ Electrical Works
  - ➢ Power Plant
  - ➢ Substation / GIS
  - ➢ Factory

- ✓ Installation, Testing, Inspection of Electrical Equipment :
  - ➢ Power / Distribution Transformer
  - ➢ Generator
  - ➢ GIS
  - ➢ Power Circuit Breaker
  - ➢ Switchgear / MDB / ACB
  - ➢ Instrument Transformer (CT, PT, CCVT)
  - ➢ Grounding System
  - ➢ Protective Relay
  - ➢ Power Cable
  - ➢ Generator Excitation System
  - ➢ Generator Instrument Calibration

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Control and Instrument Works

Power Plant Maintenance and Consulting

Work Lists

- ✓ Instrument Works
- ✓ Power Plant
- ✓ Substation / GIS
- ✓ Factory
- ✓ Calibration Instrument
- ✓ Temp Element
- ✓ Temp Transmitter
- ✓ Temp Gauge
- ✓ Pressure Gauge
- ✓ Pressure Transmitter
- ✓ Pressure Switch
- ✓ Flow Transmitter
- ✓ Level Transmitter
- ✓ Level Switch
- ✓ Vibration Sensor
- ✓ Vibration Monitor
- ✓ Key phasor Sensor
- ✓ Speed Sensor
- ✓ Speed Indicator

❑ Turbine O&M Problem Solving and Consulting

- ✓ Vibration high solving
- ✓ Condenser vacuum low solving
- ✓ Thrust and radial bearing temperature high solving
- ✓ Water droplet erosion of last turbine blade solving
- ✓ Steam valve has problems during operation

TABLE CONT

1. JOB SUMMARRY

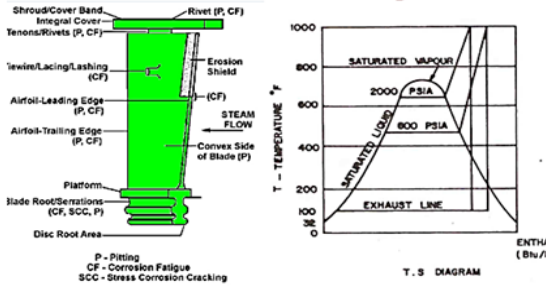
งานวัด และวิเคราะห์ Vibration สำหรับ NPP10 Stear Power Plant 5A Co., Ltd. ในครั้งนี้มีวัตถุประสงค์ เพื่อตรวจ and Modify 13th Diaphragm ว่าอยู่ในเกณฑ์มาตรฐานของ IS

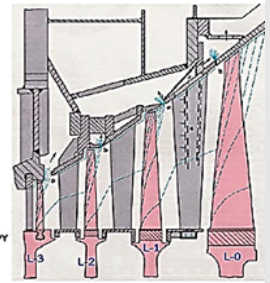
สารบัญ

11.1. REPAIR STAGE 11-12 TURBINE DIAPHRAGM

13.1.1. ปัญหา **Water Droplet Erosion:**

- ❑ Moisture เป็นสาเหตุทำให้เกิด Erosion ที่ Leading Edge ของ Last Stage Blade
- ❑ Allowable Moisture in Steam 12%
- ❑ การป้องกัน
  - ✓ Inlet Pressure Control
  - ✓ Erosion Shield
  - ✓ ทำ Grove ไว้ที่ปลายใบของ Last Stage Blade

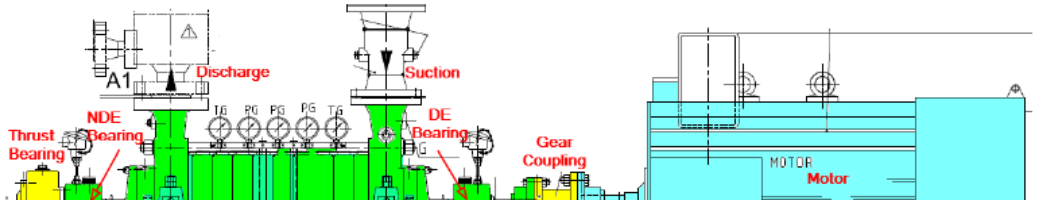




จากรูปงาน MO ปี 2010 ตรวจสอบพบ Water Droplet Erosion (WDE) ที่ Leading Edge ของ 12th Stage Turbine Blade อยู่ในเกณฑ์ยอมรับได้ แต่ในงาน MO ปี 2016 นี้ตรวจพบ WDE เกิดมากยเกิดขึ้นตั้งแต่ L-1 หรือ 11th Stage Turbine Blade และมีผลกระทบต่อ Parts ของ Turbine ดังนี้

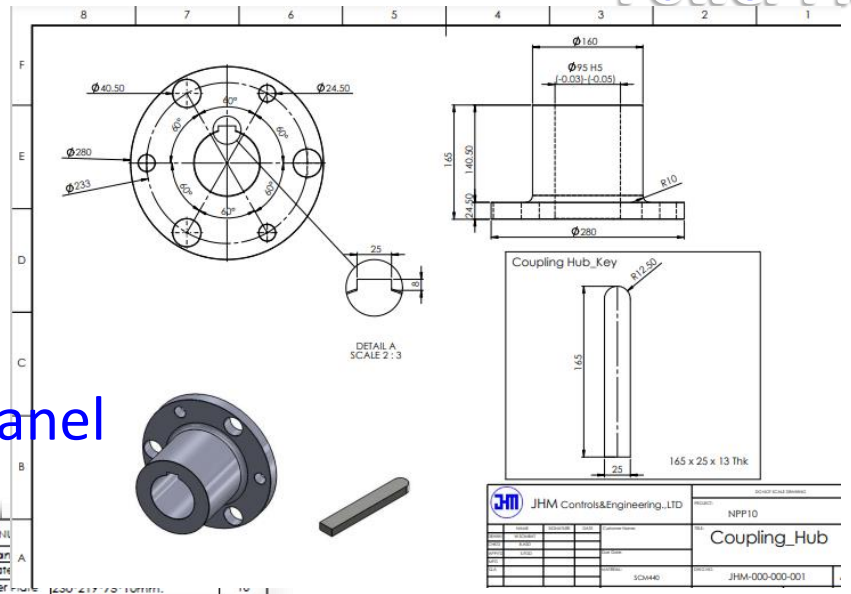
บริษัท สงขลาไบโอ แมส จำกัด
Songkhla Biomass Company Limited

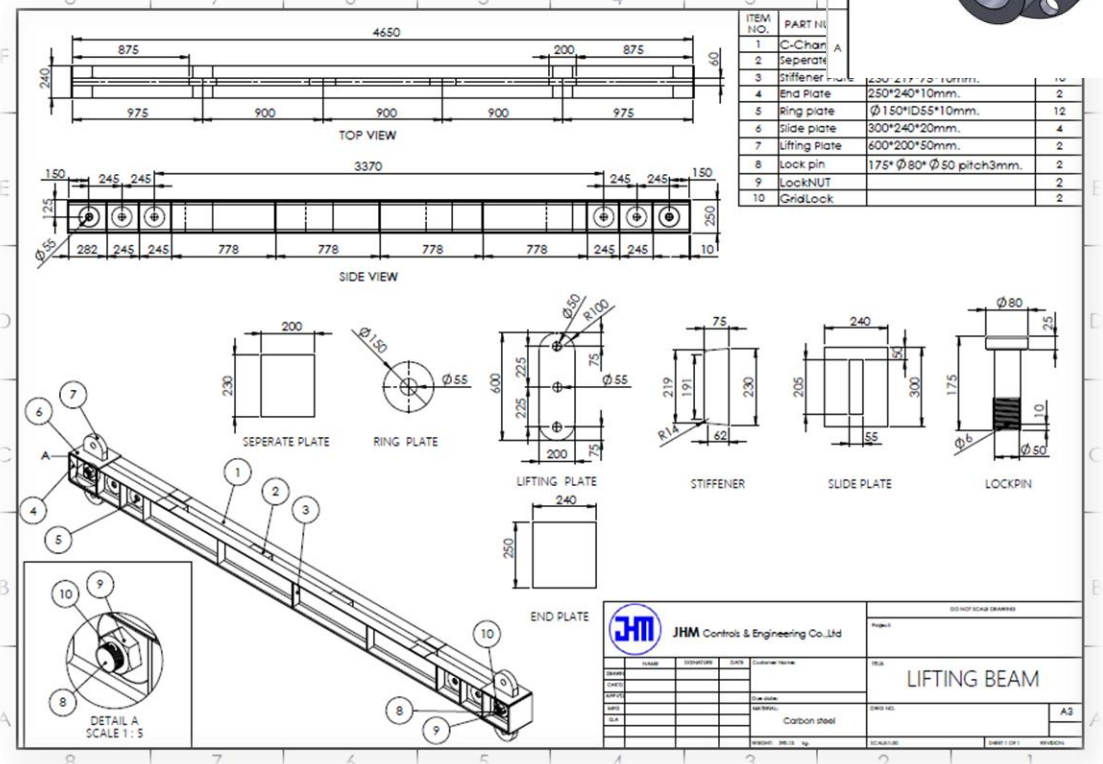
Boiler Feed Pump No.1 Vibration High



❑ Fabrication Works

- ✓ Lifting beam
- ✓ A-Frame
- ✓ Lube oil module
- ✓ Fuel gas module
- ✓ All skid unit and control panel





ITEM NO.	PART NAME		
1	C-Chan		
2	Seperate		
3	Stiffener		
4	End Plate	250*240*10mm.	2
5	Ring plate	Ø150*ID55*10mm.	12
6	Slide plate	300*240*20mm.	4
7	Lifting Plate	600*200*50mm.	2
8	Lock pin	175* Ø80* Ø50 pitch3mm.	2
9	LockNUT		2
10	GridLock		2

Maintenance Tools

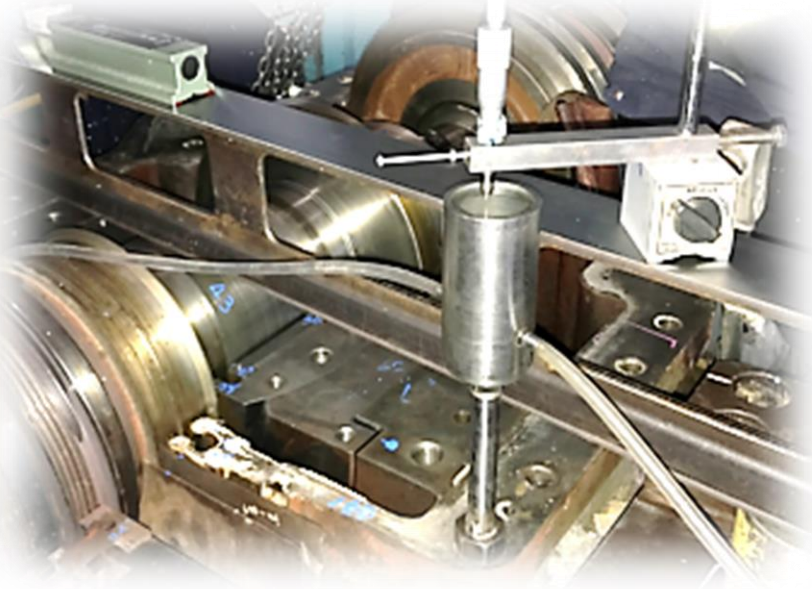
Power Plant Maintenance and Consulting

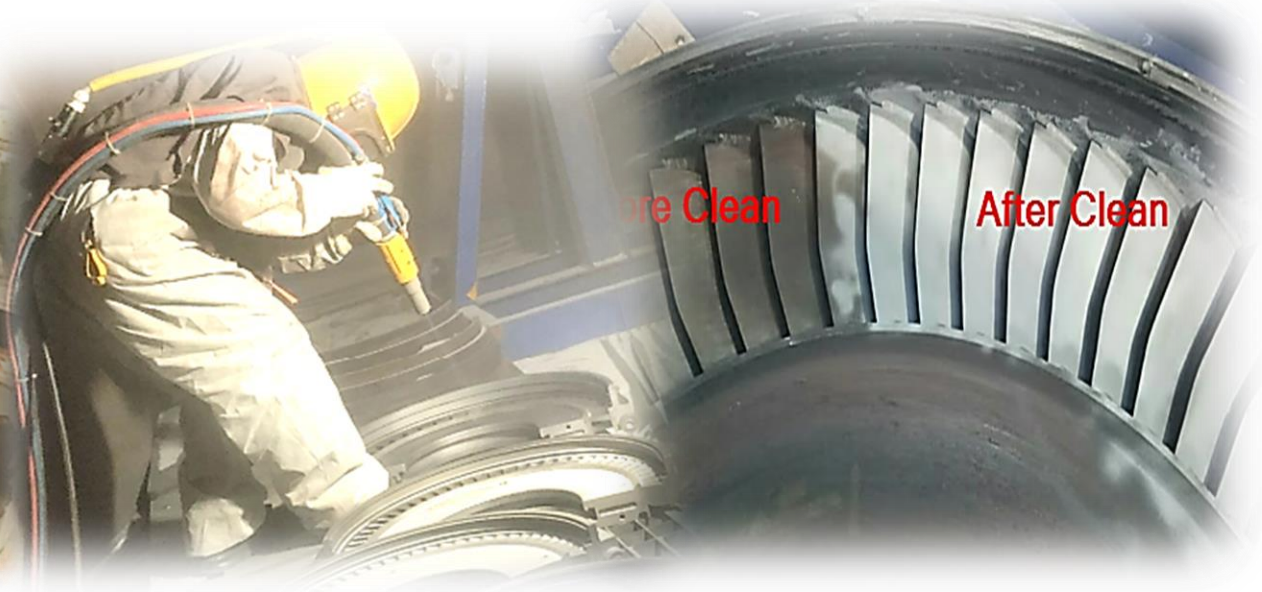
❑ Standard Tools

- ✓ Container tools
  - ✓ MS6001B gas turbine
  - ✓ MS9001FA gas turbine
  - ✓ Steam turbine

❑ Special Tools

- ✓ Hydraulic torque wrench
- ✓ Gas heater bolt
- ✓ Machine blast
- ✓ Tight-wire alignment
- ✓ Rotor deflection check
  - ➢ Water plot
  - ➢ Grid check with 0.01 mm/m



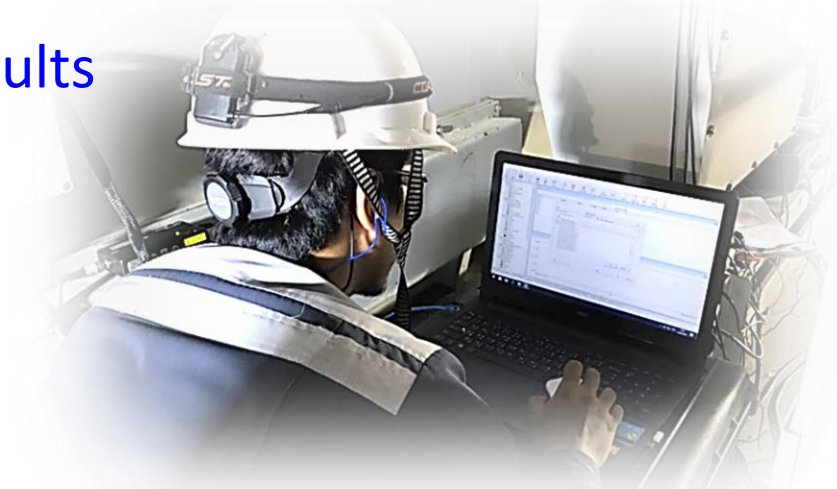


❑ NDT : Non-Destructive Testing Tools

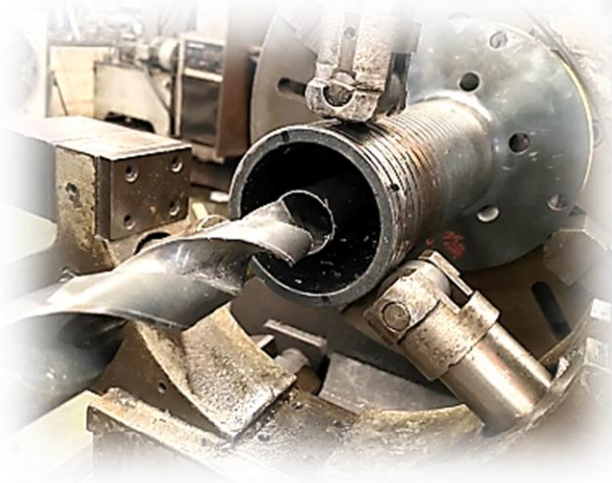
- ✓ FPT Check
- ✓ MT Check
- ✓ UT Check
- ✓ Thickness Check
- ✓ Hardness Check
- ✓ Roughness
- ✓ Borescope inspection

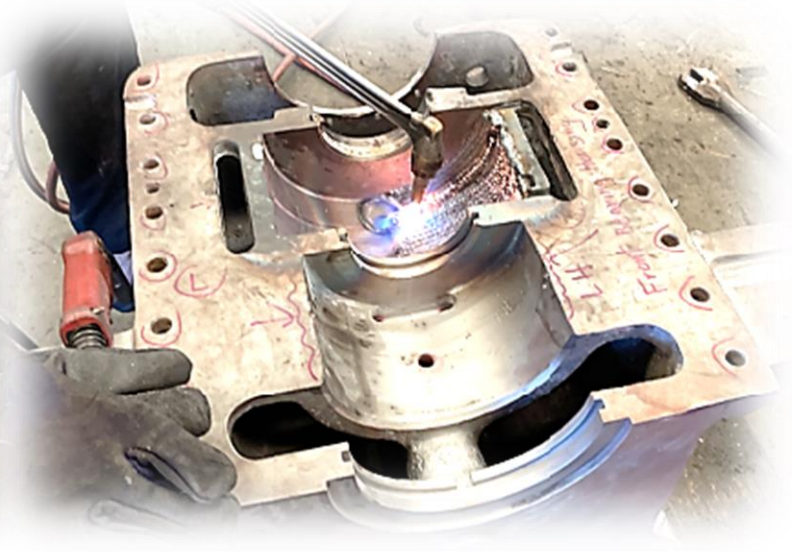
❑ Vibration Check and Analysis

- ✓ Equipment by : Alta solutions
  - ➢ AS-1250FE Dynamic Data Acquisition Front-End 26 Channels
  - ➢ AS-410 Vibration Analyzer Software
- ✓ Check and analysis during shutdown and start up monitoring
- ✓ Check and diagnose vibration problems
- ✓ Vibration report :
  - ➢ Site information
  - ➢ Bearing arrangement
  - ➢ Criteria
  - ➢ Measurement results
  - ➢ Analysis
  - ➢ Synopsis
  - ➢ Recommendation

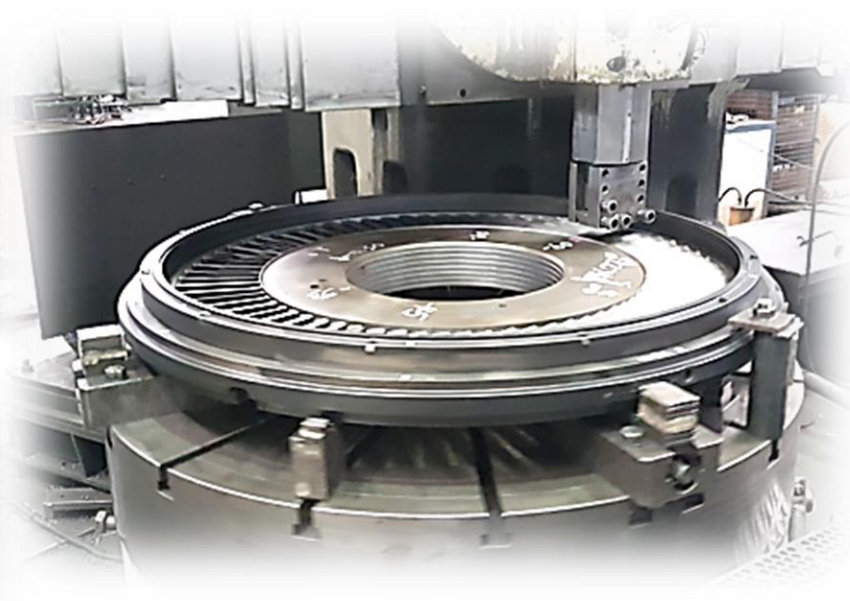


❑ Repair and Machine Parts >>> P.P.MECATEC



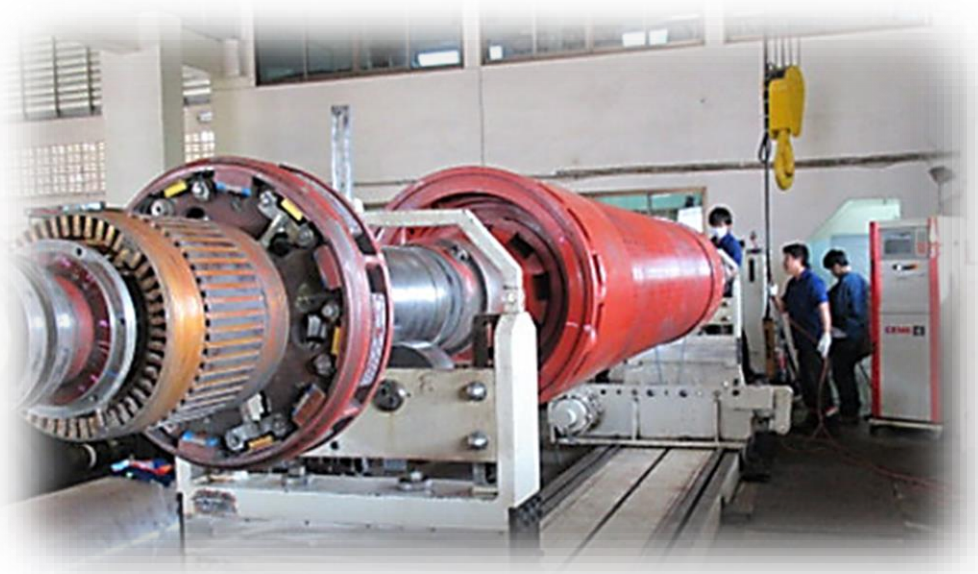


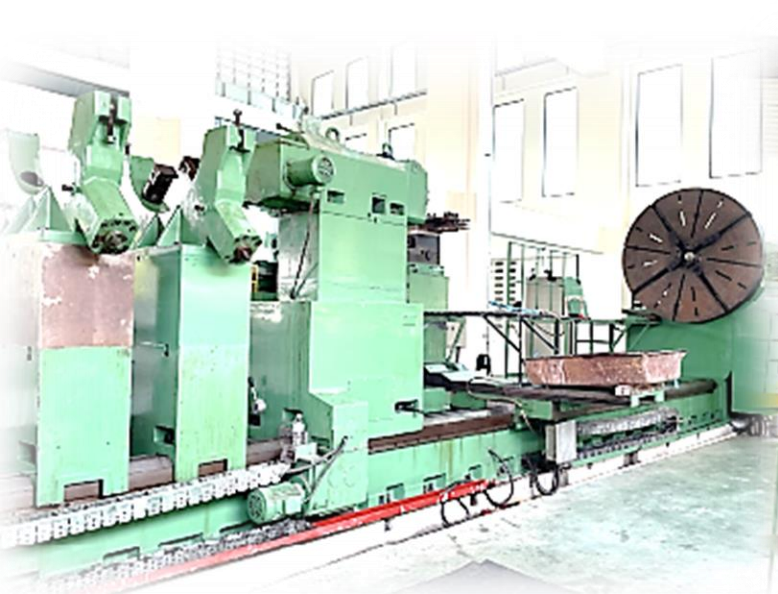
- ❑ The PP Macatec is a lathe with a large number of CNC, so it is suitable for urgent work. and troubleshooting tasks, including difficult to remove, not removable and repaired back to work as usual. It is a lathe that can be controlled from the requirements, work processes, time periods. and can work together at any time
- ❑ What is suitable
  - ✓ Remove difficult equipment without damaging it.
  - ✓ Repair spare parts
  - ✓ Rebuild special tools
  - ✓ Rebuild the spare parts
  - ✓ Replace turbine seal < 2.5 m

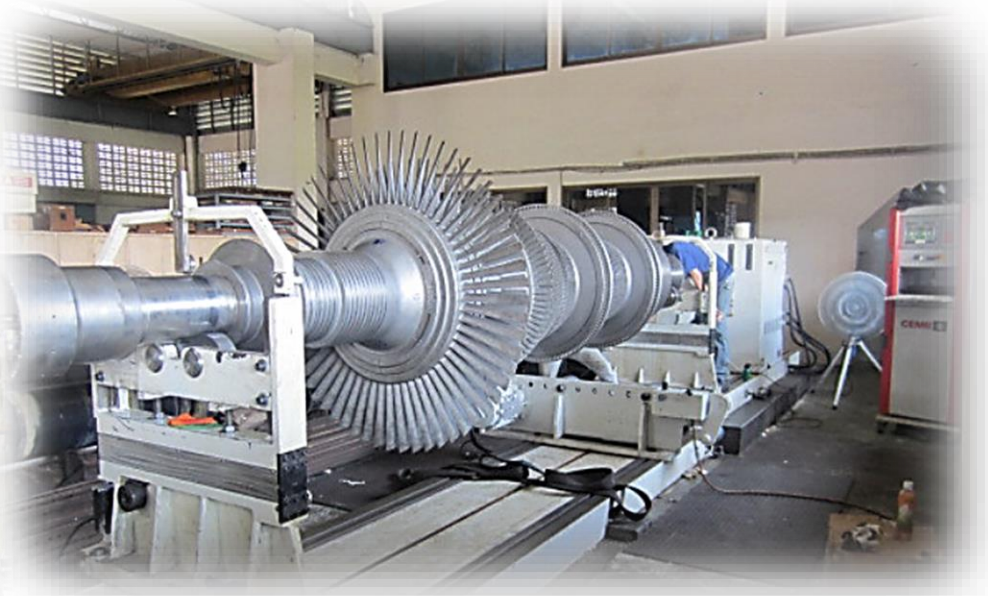


❑ Repair and Machine Parts

- ✓ Dynamic Balance (300rpm) Dia.4 x 12m x 60 tons
- ✓ Lethe Machine Dia.5 x 20m x 80 tons
- ✓ Vertical Lethe Machine Dia.16 x 4.5m x 100 tons
- ✓ Horizontal Boring Machine Dia.1.5 x 3m x 80 tons
- ✓ Arc Metal Spray Welding
- ✓ Laser Cladding







❑ PPT : Power Plant Training

- ✓ Gas turbine maintenance
- ✓ Steam turbine design and application (O&M)
- ✓ HRSG design and application (O&M)
- ✓ Generator and exciter system

- Good quality maintenance must be made and maintained
  - ✓ Maximum Availability
  - ✓ Maximum Efficiency
  - ✓ Maximum Reliability
  - ✓ Long service life by maintaining system, equipment and parts. Accurately, consistently and thoroughly.
- And
  - ✓ No harm to people and property.
  - ✓ Reduce maintenance costs.
  - ✓ Increase productivity

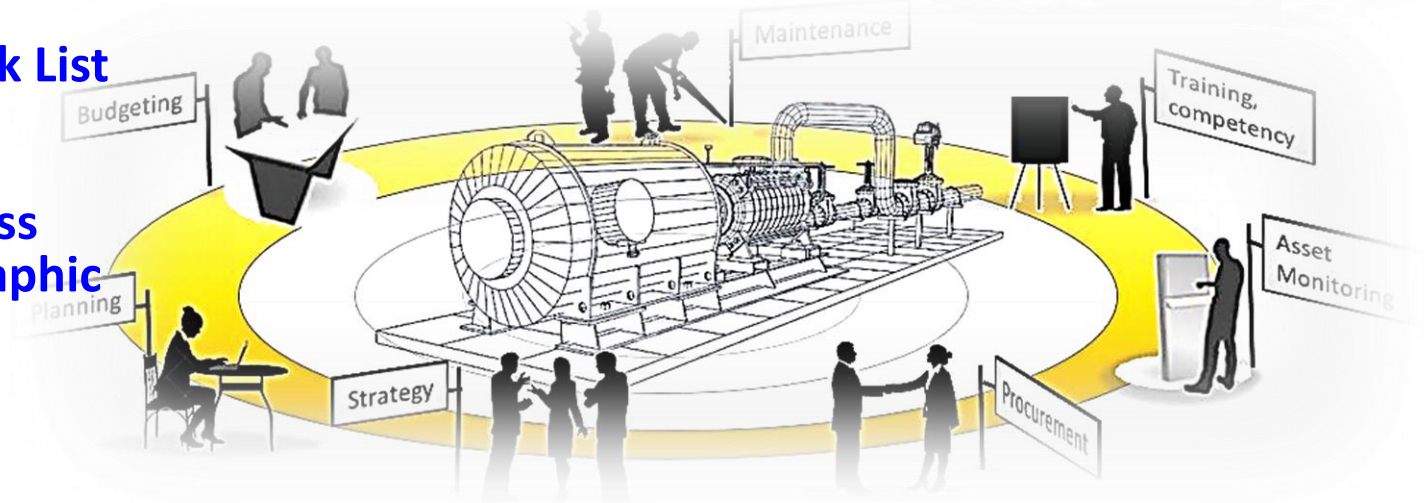
Maintenance Process

Power Plant Maintenance and Consulting

- Define maintenance activities.
- Define all maintenance activities for each piece of equipment to increase transparency.
- Map identified tasks with in-house capabilities.
- Select tasks to be performed by third parties. For most equipment, maintenance activities are outsourced, while strategy development, planning, steering, documentation, and others are handled in-house
- Risk assessment
- Work instruction
- Emergency cause exercise

- Inspection by Subjective Method
  - ✓ Looking, Listening, Smelling, Testing, Feeling
- Measuring by Objective Method
  - ✓ Vibration or Sound
  - ✓ Sampling and Analysis
  - ✓ Flow, Temp and Pressure
  - ✓ Motor Current
  - ✓ Performance and Efficiency
- Failure Analysis
  - ✓ Erection Report
  - ✓ Operation and Maintenance History& Reports
  - ✓ Event and Log Book
- Repair or Replace
- Improvement
  - ✓ Work Optimization
  - ✓ High Availability, Reliability and Safety
  - ✓ Low Cost or Cost Effective
- Report

- **Communication**
  - ✓ Quick to notify.
  - ✓ Information for the preparation of maintenance technicians.
  - ✓ Full details
- **Manpower**
  - ✓ Training
  - ✓ Fast and Quality Maintenance
  - ✓ Inspect and Analysis
  - ✓ Corrective at Root Cause
  - ✓ Report and Recommend
- **Tools**
  - ✓ Reasonable and sufficient
- **Technique**
  - ✓ Control Quality Check List
  - ✓ Work Instruction
- **Technology**
  - ✓ Schedule and Progress
  - ✓ Organization and Graphic
  - ✓ Risk Assessment
  - ✓ History Record
- **Reports**



JHM Controls and Engineering Co., Ltd.

www.jhmcontrols.com

Our Customer

Power Plant Maintenance and Consulting

GE : General Electric
Gas and Steam Turbine
- ❑ 5P Gas Turbine
  - ✓ MEPE Myanmar
- ❑ 6B Gas Turbine
  - ✓ Nongkha Co-Gen
  - ✓ Khangkoi Co-Gen
  - ✓ Samutpakran Co-Gen
  - ✓ Gulf Co-Gen
  - ✓ Lamchabang Power
- ❑ 6FA Gas Turbine
  - ✓ Bangkok Co-Gen
- ❑ 9FA Gas Turbine
  - ✓ TECO, Phumy 2
- ❑ Steam Turbine
  - ✓ Glow 2,3
  - ✓ ARC
  - ✓ Proton Indonesia
- ❑ Other
  - ✓ Pump
  - ✓ Compressor

EGAT
- ❑ 9E Gas Turbine
  - ✓ SBK-C1
- ❑ 9FA Gas Turbine
  - ✓ SBK-C2
  - ✓ RGC31,32
- ❑ 701D Gas Turbine
  - ✓ NPO-C1
  - ✓ NPO-C2
- ❑ 701F Gas Turbine
  - ✓ WN-C1
  - ✓ WN-C2
  - ✓ WN-C3
- ❑ GT26 Gas Turbine
  - ✓ NB-C21
  - ✓ NB-C22
- ❑ M701F Gas Turbine
  - ✓ RPCL Piping
- ❑ Generator
  - ✓ NB-12
  - ✓ RGC-32

Ethos
- ❑ MEPE Myanmar
  - ✓ MI 701D Turbine
  - ✓ MO 701D Turbine
- ❑ 5P Gas Turbine
  - ✓ TG18 Brunei
  - ✓ TG14 Brunei
  - ✓ TG17 Brunei
  - ✓ TG19 MO
- ❑ 6B Gas Turbine
  - ✓ Glow SPP2,3
  - ✓ Glow SPP11
  - ✓ Glow Energy
  - ✓ Amata Bgrimm
- ❑ Steam Turbine
  - ✓ Glow SPP1-ST28
  - ✓ Glow 5 SST3000
  - ✓ Glow 11 ST300
  - ✓ Glow 11 TM-2 Mitsui

NPS
- ❑ MI and MO Steam Turbine
  - ✓ NPP2 ABB/Siemens Turbine 10 MW
  - ✓ NPP3 ABB/Siemens Turbine 10 MW
  - ✓ NPP4 Siemens Turbine 37 MW
  - ✓ NPP5 Siemens Turbine 37 MW
  - ✓ NPP6 Siemens Turbine 37 MW
  - ✓ NPP7 Alstom Turbine 170 MW
  - ✓ NPP8 Alstom Turbine 170 MW
  - ✓ NPP9 Harbin Steam Turbine 135 MW
  - ✓ NPP10 Dongfang Turbine 100 MW
  - ✓ NPP11 Mitsubishi Turbine 32 MW
  - ✓ 9.9 MW Turbine 12 MW
  - ✓ NPP9 Boiler Feed Pump

SSUT, PPTC
- ❑ MI and MO Steam Turbine
- ✓ Mitsui TM2-37 MW (SSUT-1)
- ✓ Mitsui TM2-37 MW (SSUT-2)
- ✓ Mitsui TM2-37 MW (LKB)

RWC
- ❑ MO Steam Turbine
- ✓ Mitsui TM2-27 MW Block 1
- ✓ Mitsui TM2-27 MW Block 2

SCCC
- ❑ MI and MO Steam Turbine
  - ✓ K3 Nangjing Turbine 12 MW
  - ✓ K5 Hangzhou Turbine 18 MW
  - ✓ K6 Hangzhou Turbine 18 MW

IPP Myanmar
- ❑ Construction Work
- ❑ Routine Maintenance

SCG Cement
- ❑ MI/MOSteam Turbine
  - ✓ Lampang 10 MW
  - ✓ Taluang 18 MW
  - ✓ Khaowong 18 MW
  - ✓ Thungsong 10 MW
  - ✓ Thungsong 20 MW
  - ✓ Kampot 5 MW
  - ✓ Kheangkoi 20 MW

SCG Paper
- ❑ Steam Turbine
  - ✓ TG#5 Mitsubishi 21 MW
  - ✓ TG#6 Mitsui 26 MW
  - ✓ TG#8 Toshiba 10 MW
  - ✓ TG#10 Siemens 12 MW
  - ✓ TG#11 Siemens 14 MW
  - ✓ TG#12 Siemens 26 MW
  - ✓ TG#14 Siemens 47 MW
  - ✓ TG#16 Siemens 23 MW
  - ✓ SCL Shin Nippon 6 MW
  - ✓ Thai Cane Kanchanaburi
  - ✓ Thai Cane Prachinburi

Mitr Phol-Kalasin
- ❑ O/H Turbine
  - ✓ STG-3 Ebara 3.2 MW
  - ✓ STG-4 Ebara 3.2 MW
  - ✓ STG-5 Sinko 3.5 MW
  - ✓ STG-7 Skoda 15.5 MW
  - ✓ STG-8 Skoda 4.5 MW
  - ✓ STG-9 Hiro 2.5 MW
  - ✓ STG-10 Shin Nippon 37 MW
  - ✓ STG-21 Siemens SST300
  - ✓ STG-22 Siemens SST400

Mitr Phol-Phu Khieo
- ❑ STG102 SST300 Turbine
- ❑ STG101 Alstom TM2-41 MW

Mitr Phol Sing Buri
- ❑ MI TG-4 Shin Nippon 12 MW
- ❑ MI TG-5 Shin Nippon 12 MW

GPSC
- ❑ MO Shin Nippon Turbine 15 MW
- ❑ Replace Packing HP Governor Shin Nippon Turbine

Glow
- ❑ SPP1 MI ABB Turbine 28 MW
- ❑ SPP11 MO ST300 Turbine 38 MW
- ❑ SPP11 MO/MI TM2 Turbine 30 MW
- ❑ STG1C MI GE Turbine 170 MW
- ❑ STG2C MI GE Turbine 170 MW
- ❑ STG3C MO Siemens Turbine 140 MW

HPC
- ❑ MO Dongfang Turbine Drive 12 MW No.1
- ❑ MO Dongfang Turbine Drive 12 MW No.2

Bgrimm LTMA 16 Unit
- ❑ MI and MO Steam Turbine
- ✓ BPLC1-ST1 Austrian Energy STD
- ✓ BPLC2-ST2 (SST300)
- ✓ ABPR-1,2,3,4,5 (SST400)
- ✓ BIP-1,2 (SST400)
- ✓ ABP-2,2,.1 (SST300)
- ✓ ABP-3,4,5 (SST400)
- ✓ BPWHA-1(SST400)
- ✓ BPAT-1(SST400)

Gulf JP
- ❑ Nongsang Saraburi
  - ✓ Cooling Tower
  - ✓ ST Auxiliary
  - ✓ Condenser
  - ✓ HRSG's Maintenance
- ❑ Uthai Ayuthaya
  - ✓ Cooling Tower
  - ✓ ST Auxiliary
  - ✓ Condenser
  - ✓ HRSG's Maintenance

SIEMENS
- ❑ MI SST300 Esaan Sugar
- ❑ Brgimm SPP1-ST28 40 MW
- ❑ Bgrimm WHA-1(SST400)

Indorama
- ❑ Siemens Turbine 38 MW

Songkhla Biomass
- ❑ Boiler inspection
- ❑ MI Steam Turbine
  - ✓ Shainghai Turbine 10 MW

EKP
- ❑ MI/MO Steam Turbine
  - ✓ EKP 10 MW

SABANUN
- ❑ Shin Nippon 10 MW

CERTIFICATE

The Certification Body
of TÜV SÜD Asia Pacific TÜV SÜD Group

certifies that

JHM Controls & Engineering Co.,Ltd

**155/85 Ratchaburi Industrial Estate M.4 T.ChetSamian A.Photharam
Ratchaburi 70120, Thailand**

has established and applies
a Quality Management System for

**Manufacture and Maintenance of Skids and
Its Equipment for Oil & Gas and Power Industry**

An audit was performed, Report No. **721235961.**

Proof has been furnished that the requirements according to

ISO 9001:2015

are fulfilled. The certificate is valid from 2020-08-13 until **2023-08-07.**

Certificate Registration No.: TUV100 11 2974

2020-08-13

Certification Body
of TÜV SÜD Asia Pacific
TÜV SÜD Group

CERTIFICATE

The Certification Body
of TÜV SÜD Asia Pacific TÜV SÜD Group

certifies that

JHM Controls & Engineering Co.,Ltd

**155/85 Ratchaburi Industrial Estate M.4 T.ChetSamian A.Photharam
Ratchaburi 70120, Thailand**

has established and applies
an Environmental Management System for

**Manufacture and Maintenance of Skids and Its Equipment for Oil &
Gas and Power Industry**

An audit was performed, Report No. **721238708.**

Proof has been furnished that the requirements according to

ISO 14001:2015

are fulfilled. The certificate is valid from 2021-08-10 until 2024-08-09.

Certificate Registration No.: TUV104 11 2974

2021-08-10

Certification Body
of TÜV SÜD Asia Pacific
TÜV SÜD Group