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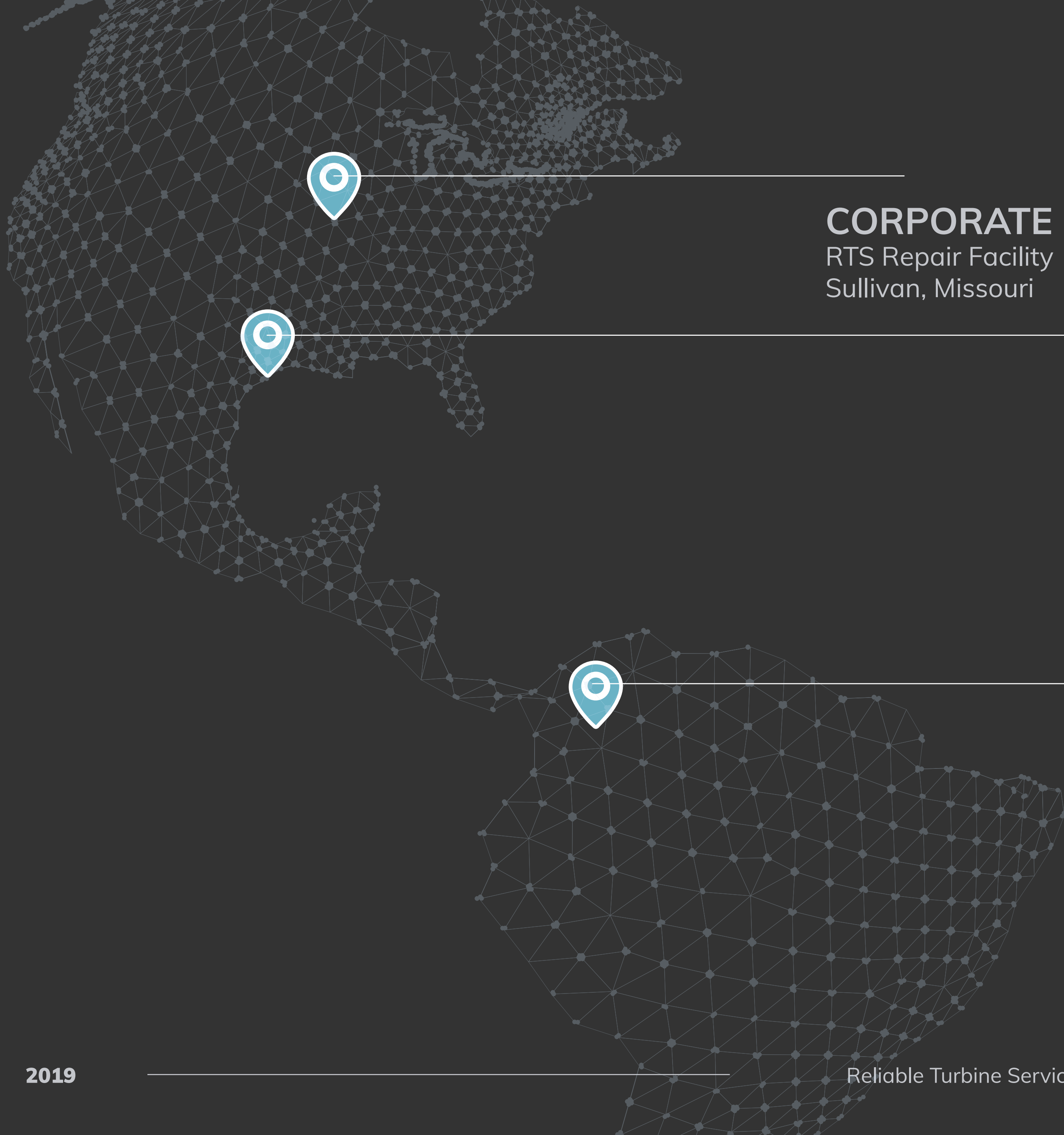


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## EXCELLENCE THAT EXCEEDS TIME

Premier service provider,  
powered by Fuji Electric  
a world leader in turbine/generator



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## CORPORATE OFFICE

RTS Repair Facility  
Sullivan, Missouri

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## U.S. BRANCH OFFICE

RTS Manufacturing Facility  
Houston, Texas

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## FUJI RTS LATAM OFFICE

Medellin, Colombia

**1984**

Reliable Turbine Services opens for business in Sullivan, MO.

**2007**

Pinnacle Component Technologies, a subsidiary of Reliable Services, Inc. opens a League City, TX manufacturing facility.

**2010**

Reliable Turbine Services Open, Clean, Inspect & Close Division opens for business.

**2012**

Reliable Turbine Services Houston, TX, formerly Pinnacle Component Technologies, relocates to a Manufacturing, Valve Repair, and Steam-path Depot in Houston, TX. Reliable Turbine Services Sullivan begins a major facility expansion.

**2015**

Reliable Turbine Services opens for business in Sullivan, MO.

Reliable Turbine and Critical Path Services merger announced.

**2005**

Reliable Turbine Latin America Division opens for business.

**2009**

Reliable Turbine Services offers a complete Turnkey Turbine Generator Outage solution for clients.

**2011**

Reliable Turbine Services Generator Services Division opens for business.

**2013**

**35 years of growth and expansion**



# FUJI ELECTRIC BY THE NUMBERS

Established in  
**1923**

Products sold in  
**102** countries

**\$8.7** Billion  
In annual sales

**121**  
Sales and service locations  
worldwide

**27,009**  
Employees worldwide

**438,690**  
Products designed &  
engineered

HQ - Tokyo, Japan

# COMMITMENT TO SAFETY

## SAFETY MEETINGS

- New Hire Safety Orientation
- Daily Toolbox Meetings
- Weekly Safety Meetings

## PLANNING & HAZARD ASSESSMENTS

- Pre-job safety planning is conducted before starting any job or task

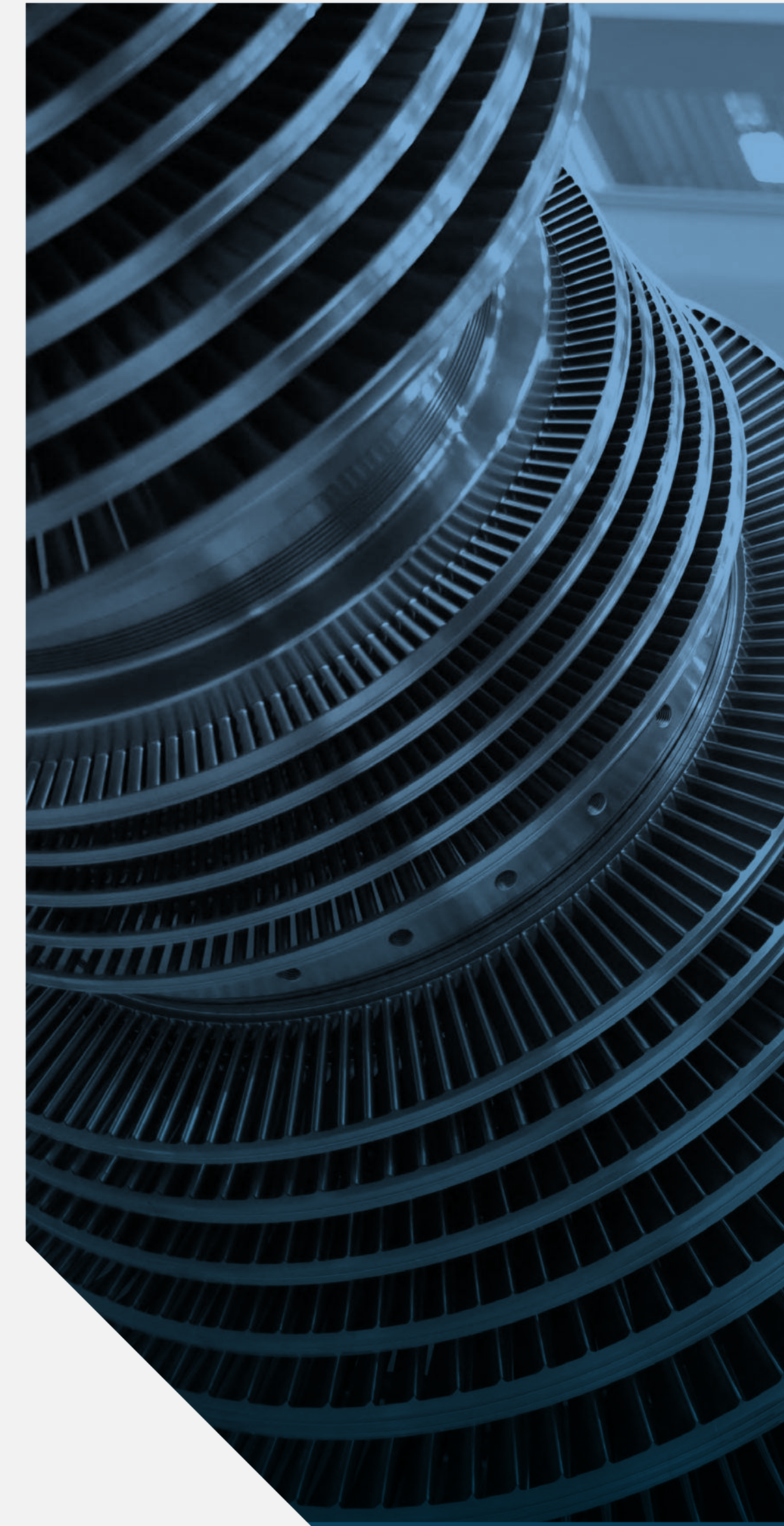
## INCIDENT MANAGEMENT, INVESTIGATION, AND REPORTING

## SUBSTANCE ABUSE POLICY & PROCEDURES

- Fitness for Duty
- Background Screening
- Drug & Alcohol Screening

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

- RTS provides the required personal protective equipment to all employees



# OCCUPATIONAL & ENVIRONMENTAL HEALTH

- Asbestos
- Hexavalent Chromium
- Lead
- Fall Protection
- Confined Space
- Housekeeping
- Electrical Safety
- Requirements
- Materials Handling
- Procedures
- Lock Out Tag Out
- PPE
- Power and Hand tools
- Industrial Vehicles
- Accident and Incident
- Reporting
- Welding Hot Work
- Fire Protection
- Hazard Communication



# QUALITY PROGRAM OVERVIEW

## QUALITY STATEMENT

RTS is committed to our customers' satisfaction. Our combined years of dedicated service in the machining industry have helped us understand the importance of timely, high quality work.

### 7 KEY COMPONENTS TO THE RTS QUALITY PROGRAM

- Requirements Planning
- Inspections & Testing Data
- Employee Competence
- Continual Improvement
- Customer Satisfaction



# QUALITY CONTROL



The standards and procedures used in our Quality Management System (QMS) allow us to meet or exceed most OEM requirements.



Through our continual improvement processes we ensure our work will meet or exceed the specifications of our customers and industry standards.

# WE TURNED EFFICIENCY INTO SOLUTIONS

Reliable Turbine Services has been successfully providing customers with a professional and affordable alternative to OEM services worldwide for over 3 decades.

With world-class OCIC, Generator Repair, Steampath Repair, and Component Manufacturing, our customers benefit from OEM experience while remaining within their budget and schedule. We invite you to discover how our team of professionals can help you share in the success of RTS.



Quality Management System (QMS)



ISO 9001:2015 CERTIFIED



SAFETY COMMITMENT

# TURNKEY OUTAGE MANAGEMENT BY



Powered by  **Fuji Electric**

## 1 OPEN, CLEAN, INSPECT, CLOSE

- Comprehensive Toolsets

## 2 REPAIR

- Rotor, Diaphragm, Valves, etc.
- On-Site or in Sullivan Facility
- Balance of plant  
(Fans, Pumps, Compressors, etc.  
Rapid Response within 24 Hours)

## 3 MANUFACTURING

- Turbine Blade Specialists
- Reverse-Engineer virtually any turbine component

## 4 GENERATORS

- OEM-Trained Generator Specialists
- Test, Inspect, and Repair most makes and models

## 5 ENGINEERING

- Technical Field Advisor
- Vibration Analysis
- Steam Path Audits
- Consultations

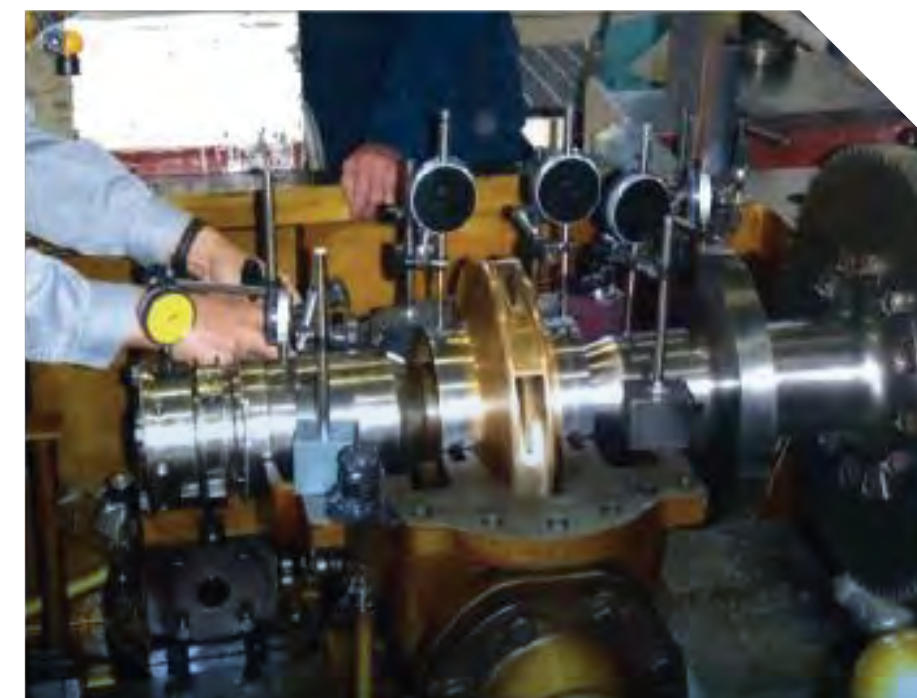
# OPEN, CLEAN, INSPECT, CLOSE

## TURNKEY TURBINE & GENERATOR OUTAGE SERVICES

- Experienced and Skilled Staff
- Advanced Tooling Program
- Safety, Quality, Schedule, and Value
- Full-Service Provider

# OPEN-CLEAN-INSPECT-CLOSE DIVISION

## TURNKEY TURBINE & GENERATOR OUTAGE SERVICES





# ON-SITE TURBINE/GENERATOR TURNKEY SERVICES

- Project Management Services
- Technical Field Advisor
- Services
- Steam Path Audit Service
- On-Site Turbine/Generator
- Repair Services
- Craft Labor Supervisors
- Craft Working Foreman
- Turbine Millwrights
- Outage Planning

# ADVANCED TOOLING PROGRAM

To deliver the highest value to our customers through continuous improvement in a sustainable and safe manner.



# RAPID RESPONSE



Reliable Turbine Services has created an Advance Tooling Program. These prepacked tool kits are designed to support any customer within the continental United States.



These kits have enough tooling and supplies to start an emergency outage while a Major tool set is in transit to site. No matter the emergency we have the tooling to start any outage, major or minor.



# REPAIR

- Specialty Welding Services
- Stationary & Rotating Equipment Repair
- Advanced Tooling Program
- Valve Maintenance & Repair Services

# REPAIR DIVISION

RTS REPAIR FACILITIES

ONSITE

# SULLIVAN, MISSOURI REPAIR FACILITY

- Centrally Located in the United States
- Capacity for Large Rotors & Industrial Components
- Large/High Capacity Lathes
- Large/High Capacity VTLs
- Crane Capability
- Slow Speed Balancing
- High Capacity Empire
- Sandblast Booth
- 60"x 80"x 80" Electric Stress Furnace





# STATIONARY EQUIPMENT REPAIR

- Nozzles/Diaphragms
- Blade Rings
- Curtis & Reversing Rings
- Partition Repair
- T.I.R.'s Flatness, Roundness, Drop, Horizontal, & Dishing Checks
- Installation of Seals, Spill Strips, & Shaft Packing
- Steam Seal Faces & Horizontal Joints
- Appendages & Set-Back Faces
- Packing Bores & Spill Strip Grooves
- Radial/Axial Seal & Crush Pins

# ROTATING EQUIPMENT REPAIR



- Bucket Removal & Installation
- Tenon Welding & Repair
- Shroud Cover Repairs & Replacement
- Tie Wire Repair & Replacement
- Lashing Lug Repair or New Installation
- Installation of Erosion Shields
- Field & Shop Balancing
- Coupling Bolt-hold Line

# ON-SITE MACHINING SERVICES

- Journal Refurbishment
- Stud Removal
- Valve Refurbishment
- Thrust Collar Refurbishment
- Stationary & Rotating Seal
- Replacement/Refurbishment
- Portable Machine Shop





# BALANCE OF PLANT

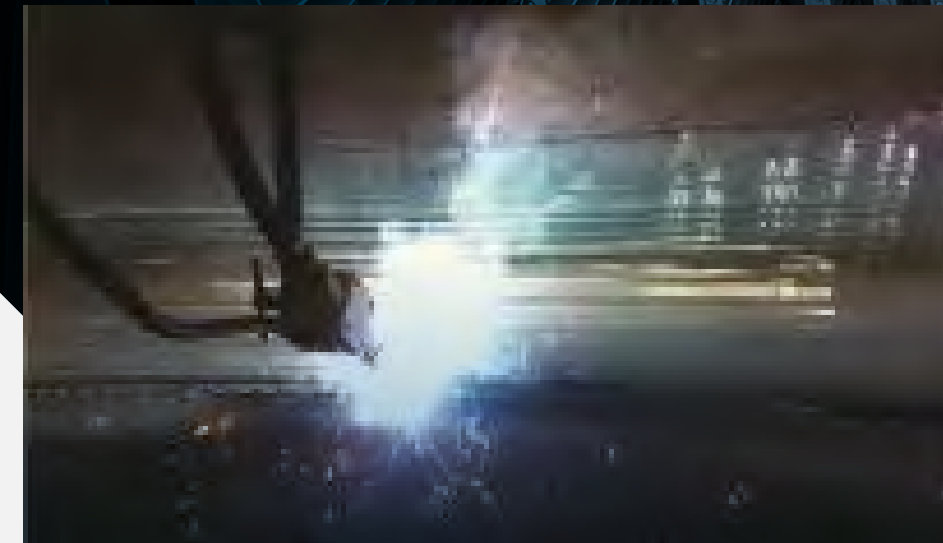
- Fans, Pumps, Compressors, etc.
- Rapid Response within 24 Hours

# ADVANCED WELDING CAPABILITIES

- Submerged Arc Welding Handling
- Automatic TIG Welding
- Automatic MIG Bore Welding
- Welding Handling



• Auto-TIG Stellite Overlay



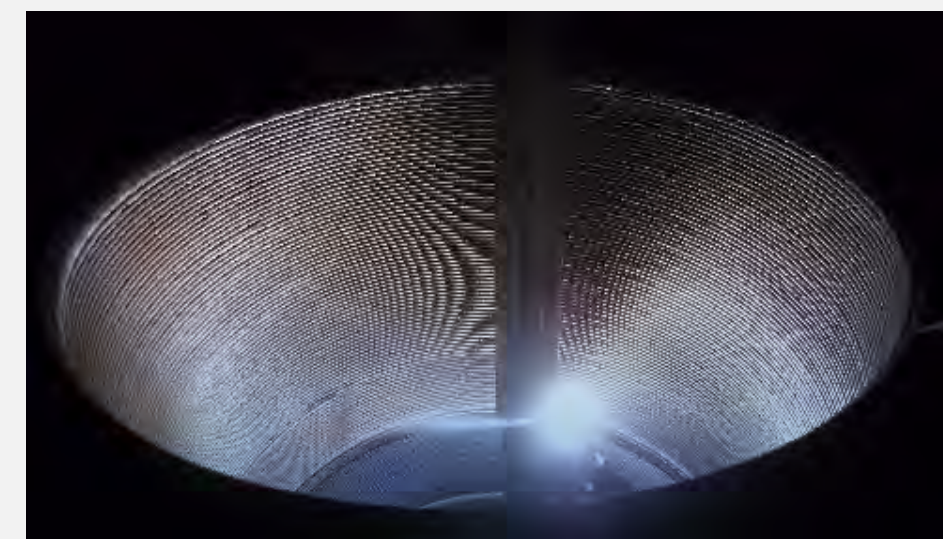
• Auto-MIG Bore Welding



• Auto-TIG Shaft Repair



• Sub-Arc Rotor Welding



• Valve Sleeve Auto-TIG



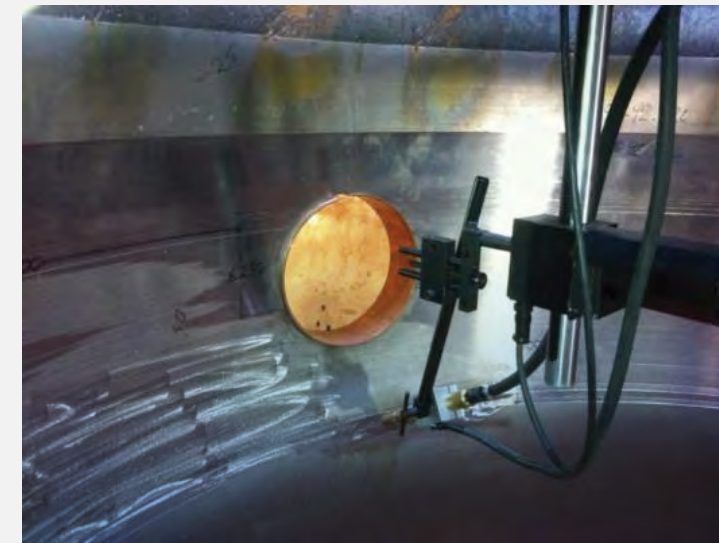
• Auto-TIG Bore Welding



# LARGE COMPONENT WELDING AND BORING



• Water Runner Erosion



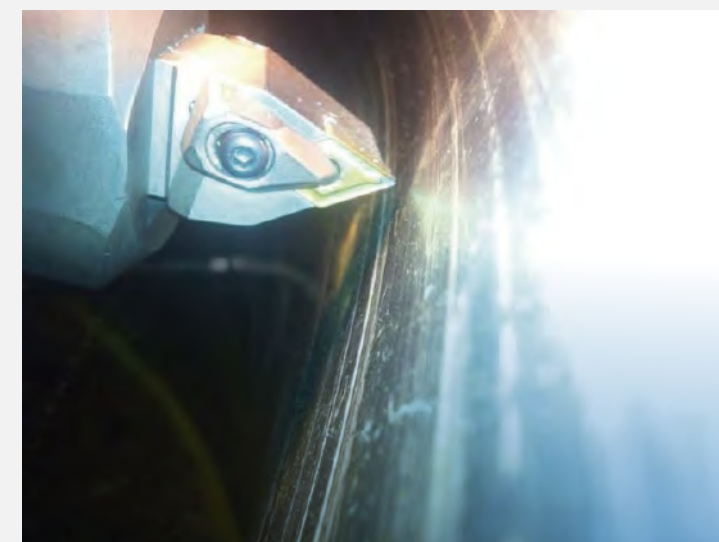
• Auto-MIG Weld Prep



• Auto-MIG Bore Weld



• Boring Bar Setup



• Large Bore  
Machining



• Bore Restoration  
Complete

# VALVE MAINTENANCE & REPAIR SERVICES

## RTS ALSO PERFORMS:

- Valve component parts change outs (bushing, stems, seats, and discs)
- Weld repair of components
- Seat inlay welding
- Site seat welding, replacement, and machining
- Site fit area refurbishment
- Manufacture new valve components



# FIELD REPAIR SERVICE EQUIPMENT



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## TURNING DEVICES

- Large Portable Turning Devices (up to 200,000 lb. capacity)
- Small Portable Turning Devices

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## BORING BARS

- 8" Boring Bars x 18'
- 6" Boring Bars x 12', 8', & 5'
- 4" Boring Bar x 14'
- BB 5000 Climax 2.25" Boring Bars x 8', 6', & 4'
- Rotor Coupling Boring Machine

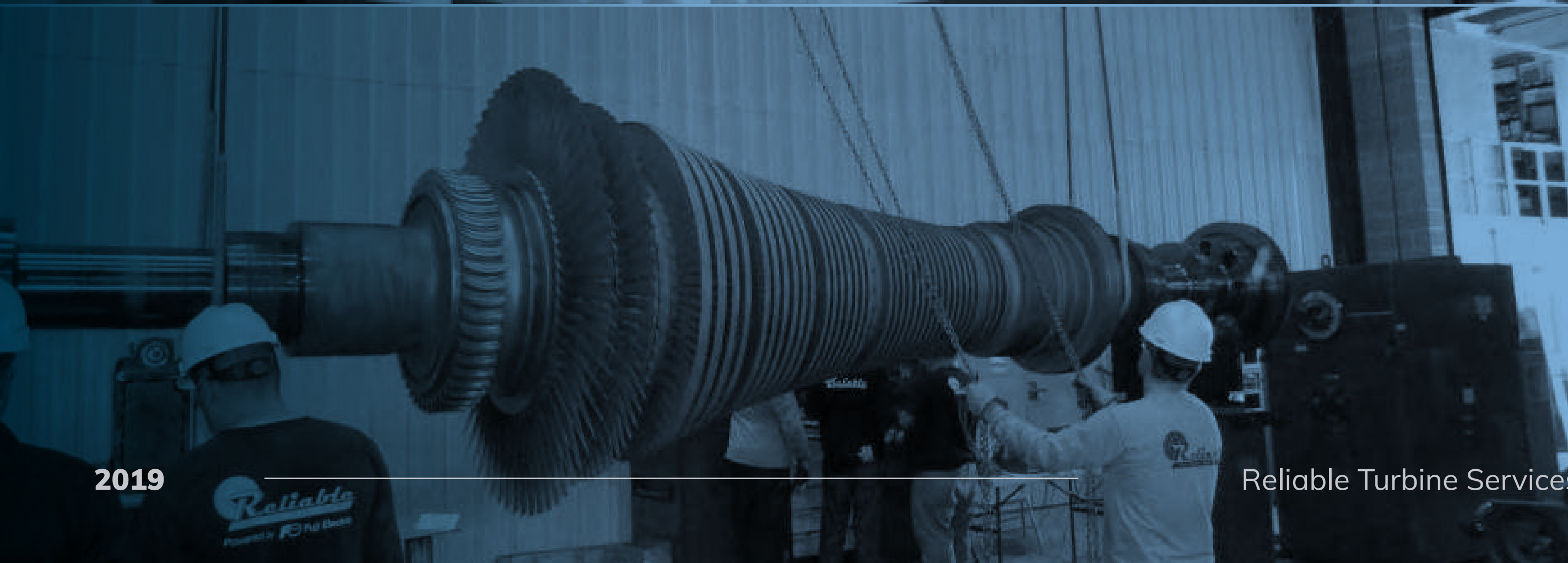
# FIELD REPAIR SERVICE EQUIPMENT



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## VERTICAL TURNING LATHE

- Portable 84" capacity
- Portable 150" capacity

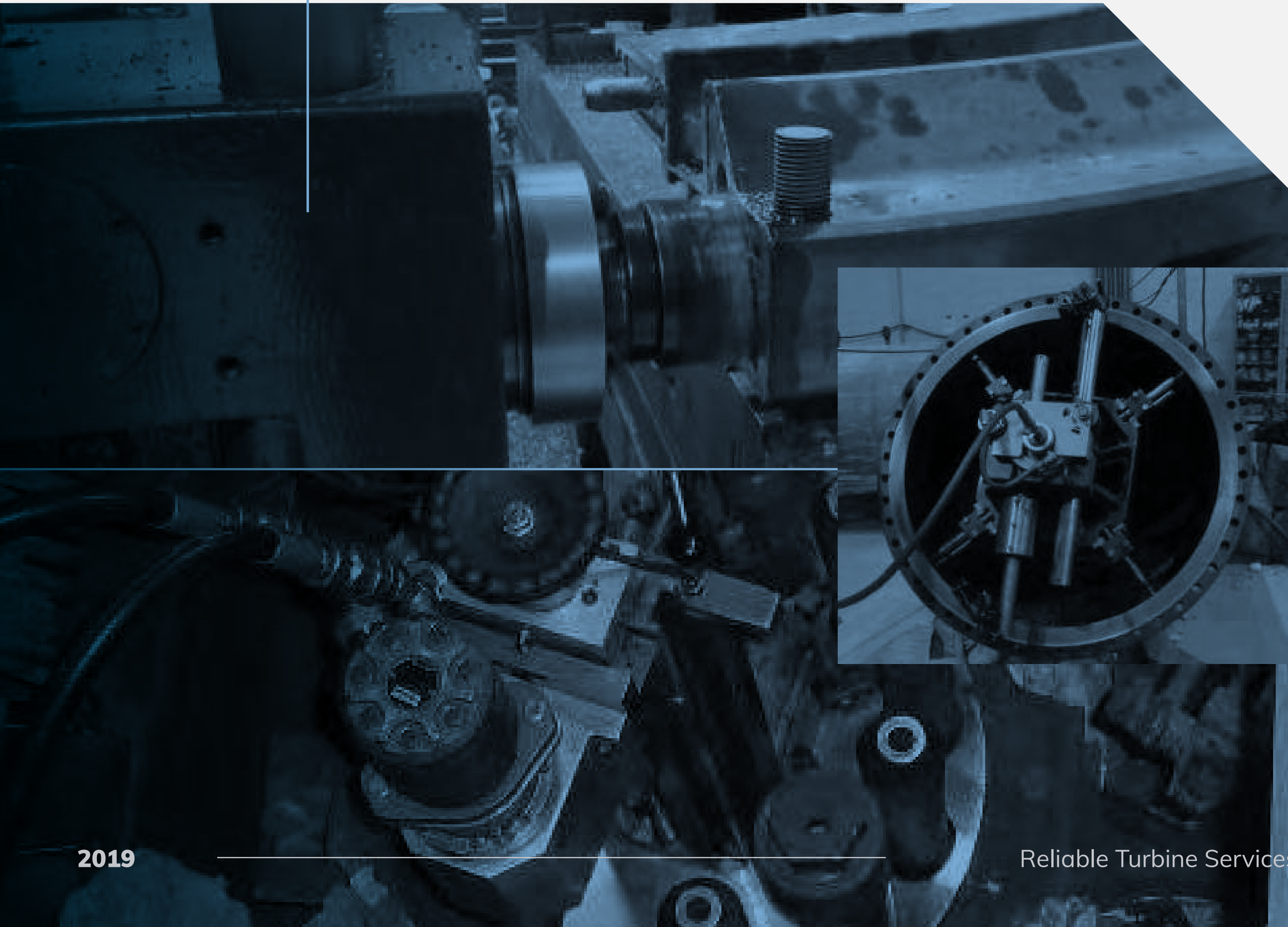


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## PORTABLE SLOW SPEED BALANCE MACHINES

- Large Portable Slow Speed Balance Machine (up to 200,000 lb. capacity)
- Small Portable Slow Speed Balance Machine

# FIELD REPAIR SERVICE EQUIPMENT



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## MILLING MACHINES

- Portable Horizontal Mill, 6' x 4' table
- Horizontal Joint Milling Machines
- Climax Portable Key Cutters
- Climax Flange Facers

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## STUD REMOVAL MACHINES

- Knee Mill hydraulic with single point threading capability
- Hydraulic Knee Mill
- Stud Buster –15 HP hydraulic
- #5 Lamina Drill

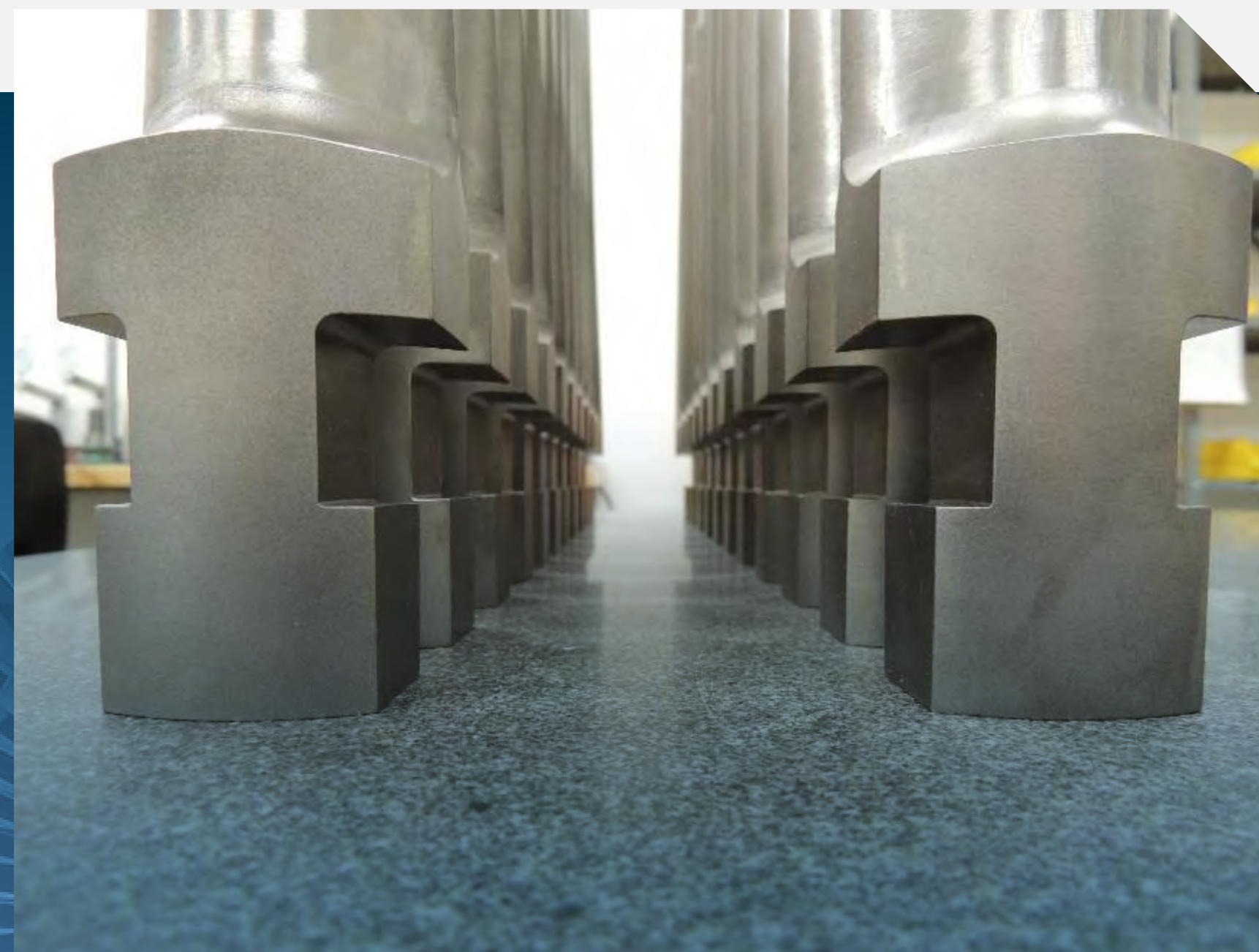
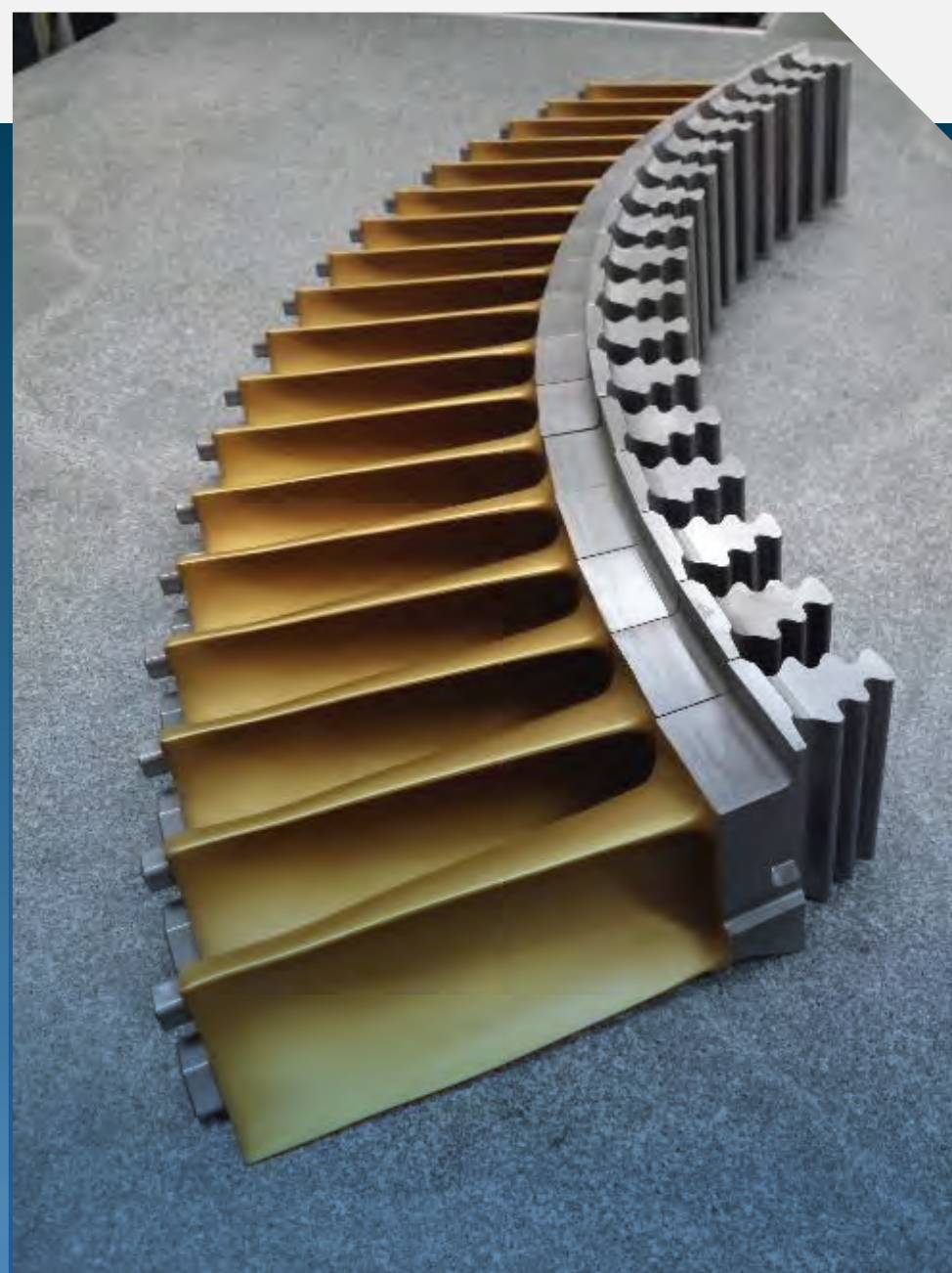
# MANUFACTURING

## EXTENSIVE COMPONENT MANUFACTURING

- Turbine Airfoils/Blades
- Reverse Engineering Capabilities
- Fast Turn Around Time
- ISO 9001:2015 Certified Facility

# MANUFACTURING DIVISION

## AIRFOIL AND COMPONENT





# TURBINE AIRFOILS & BLADES

Using reverse-engineering, RTS is a leader in the quality and delivery of airfoils/blading for the power generation industry.

## RTS MANUFACTURES MOST OEM REPLACEMENT BLADES INCLUDING:

- GE
- Alstom
- Toshiba
- Westinghouse
- Many others

RTS offers complete machining using CNC, CMM, multi-axis milling, turning, and grinding processes.



# LARGE VARIETY OF COMPONENTS

The RTS Manufacturing Division supports our customers with rapid delivery of a large variety of other turbine components.

## RTS STOCKS A WIDE ARRAY OF MATERIAL INCLUDING:

- B-7
- B-16
- 403
- 422
- 17-4 PH
- Hastalloy

# REM QUALITY

## ISO 9001:2015

- As of January 2018 RTS received ISO 9001:2015 quality system certification.
- RTS's full quality manual and ISO certificate is available to all customers by request.



## QUALITY POLICY STATEMENT

To deliver the highest value to our customers through continuous improvement in a sustainable and safe manner.



# GENERATORS

## COMPLETE GENERATOR MAINTENANCE

- Complete Test, Inspect, and Repair
- Capabilities
- Advanced Tooling Program
- Off-Line Inspections, Test, and Examinations
- GATE Testing Program

# GENERATOR ASSESSMENT TESTING & EVALUATION

INSPECT

REPAIR

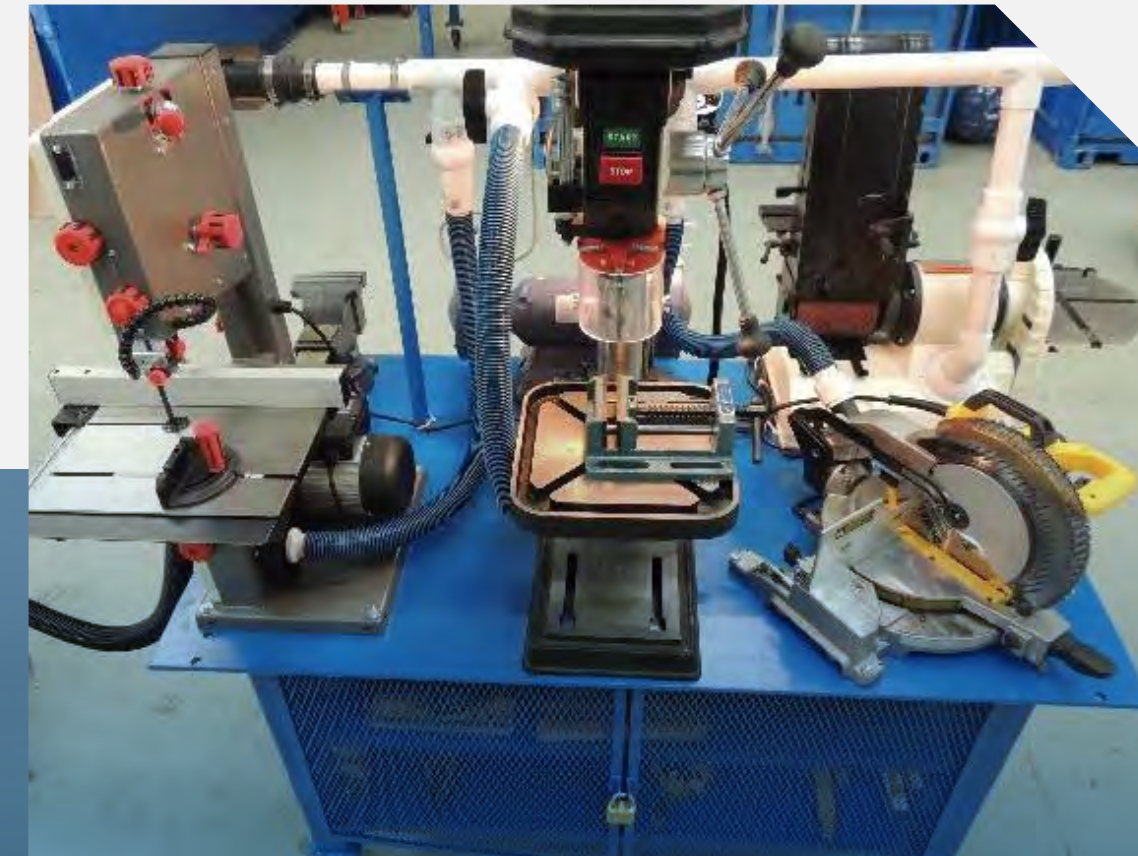
TEST

A close-up, low-angle shot of a generator's stator winding, showing the intricate arrangement of copper coils and the circular structure of the machine. The image is overlaid with a blue gradient.

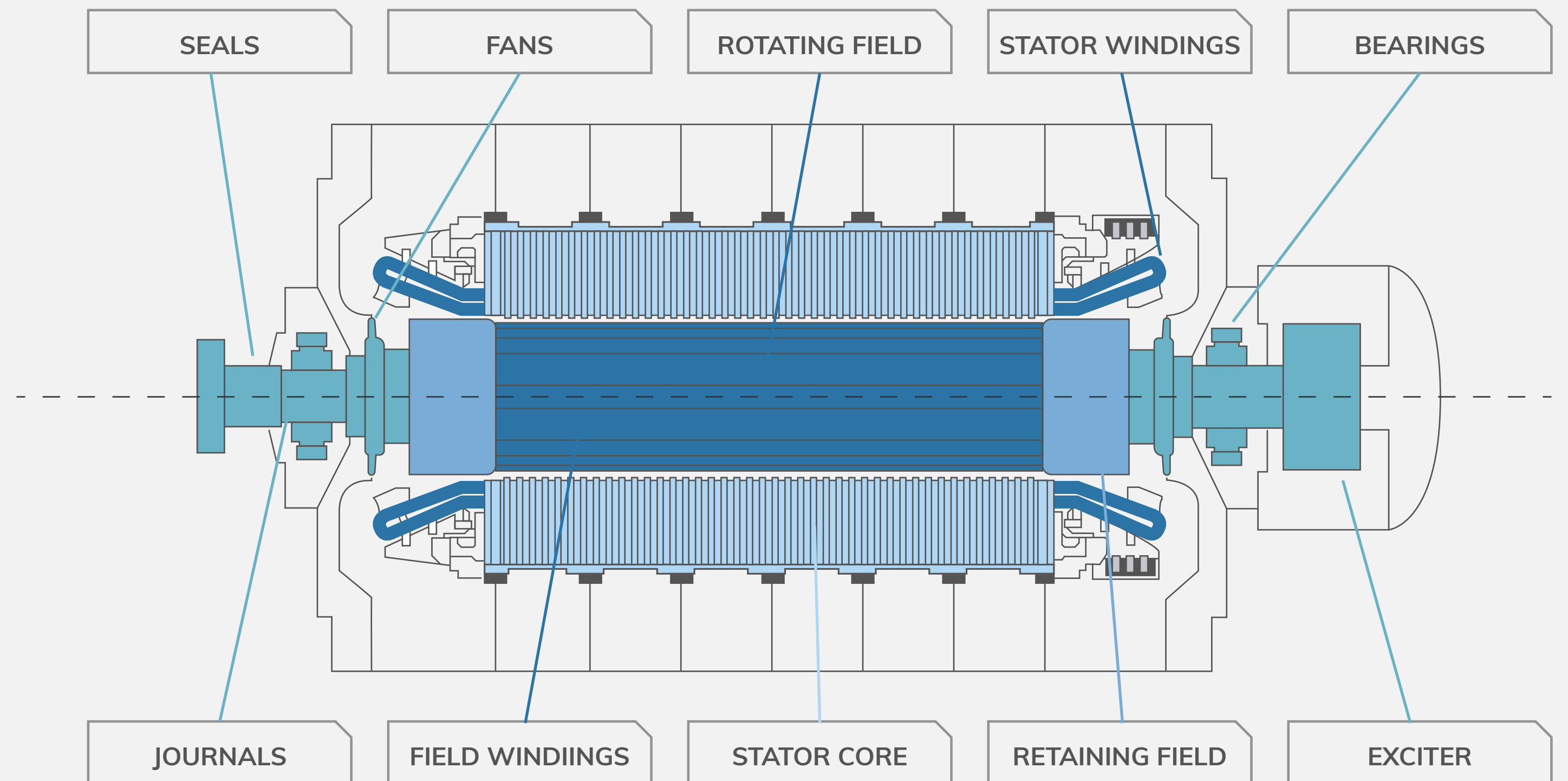
# GENERATOR CAPABILITIES

- Stator Capabilities
- Rotor Capabilities
- Advanced Generator Testing

# GENERATOR SERVICES TOOLKITS



# Critical Areas for Inspection and Monitoring.



# OFF-LINE INSPECTION, TESTS, & EXAMINATIONS



Visual inspections may produce results which indicate need for further testing. Visual inspections are inexpensive, while being useful in assessing the condition of the generator.



# GENERATOR STATOR CAPABILITIES

## GATE - 1

### Minor Inspection Generator Rotor In-Place

- Limited Electrical Testing
- Visual inspection of unit with rotor in-place
- Reveals pending faults in rotor and armature winding
- Reveals deterioration of coil insulation caused by corona or end winding vibration
- Establishes a “base line” for evaluating future inspections and input for establishing planned major maintenance activities

## GATE - 2

### Minor Inspection Generator Rotor In-Place

- Stator Re-wedging
- Flux Probe Installation
- HIT Skid Testing
- High Voltage Bushing
- Replacement
- Stator Core Iron Repairs
- Silver-Plating
- Corona & PD Abatement

## GATE - 3

### Minor Inspection Generator Rotor In-Place

- Doble, “Bump”, and EL-CID included
- Reveals pending faults in winding of rotor and stator
- Reveals deterioration of coil insulation
- Reveals possible shorted laminations
- Reveals loos slot support system
- Established a “base line” for evaluation future inspections and input for establishing planned major maintenance activities

# ENGINEERING

- Technical Field Advisor
- Vibration Analysis
- Steam Path Audits
- Consultations
- Root Cause Analysis (RCA)
- Owners Engineer

EVERYTHING YOU NEED IN A QUALITY  
SERVICE PROVIDER



Powered by  Fuji Electric

# WHAT MAKES A GREAT SERVICE PROVIDER?

- Experience
- Turnkey Service Capabilities
- Engineering Capabilities
- Guarantee
- Customer Service

Safety is our Priority, Quality is our Standard.

# WE ARE HERE TO HELP



Powered by  Fuji Electric

**35 YEARS OF CONSISTENT  
QUALITY PERFORMANCE,  
WE HAVE EARNED OUR NAME**

We invite you to speak with any of our experienced team members about how RTS can assist in a successful outage execution. We are ready 24/7 to support your Power Generation needs.

## GET IN TOUCH

### **Sullivan, MO**

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