

Gas turbine component repair



Performance-critical equipment needs reliable and innovative solutions. Sulzer is the leading service provider for rotating equipment. Founded in 1834, Sulzer is a global company with over 150 locations. Our La Porte, Texas, facility specializes in high-quality, cost-effective, customized solutions for the repair of industrial gas turbine components of all makes and models. Sulzer's in-house capabilities at the La Porte facility are second to none. With world-class engineering know-how and metallurgy experts to oversee all aspects of industrial gas turbine component inspections, repairs, refurbishments and, specialized coatings, you are assured of superior quality service. We help you to keep your industrial gas turbines operating at peak efficiency. Every solution is customized to suit the repair needs of each application.



Industrial gas turbine inspections and testing services

All industrial gas turbine component repairs and services begin with a thorough inspection by our highly-skilled staff. Our engineers and technical experts perform comprehensive inspections and offer a variety of specialized testing services to ensure the best solutions for all component repairs. Sulzer also offers industrial fuel nozzle inspections, repairs and flow testing services. Inspection and testing services include:

F-class industrial gas turbine inspection and testing services

- In-house NDT-Zygló®, dye penetrant, digital x-ray
- Destructive testing
- All measurement tools are tracked and calibrated on a scheduling/tracking software throughout the company
- Eddy current inspection for flaw detections
- UT inspection for wall thickness evaluations
- All inspections are reviewed by our staff engineers
- Visual dimensional inspections
- Mag particle inspection

Industrial gas turbine fuel nozzle inspections, repairs and flow testing services

- All DLN model applications
- Incoming inspections
- Repairs and hardware replacement
- Field inspection including on-site equipment inspections utilizing a borescope

Flow testing with state-of-the-art sonic nozzle technology with the below capabilities:

Liquid and gas flow circuit testing

Parts test parameters

- Determines the mass flow and flow parameters at specified test pressure ratios
- Sets an upper and lower acceptance limit based upon a defined tolerance

Auto tuning routine

- Automatically determines the testing parameters to optimize testing time

Parts master routine

- Measures the repeatability, average and percent difference of a series of flow tests through a master part

Pressure probing

- Allows the operator to measure the pressure ratio of a single hole

Leak testing

- System leak checks for ensuring integrity of the entire system

Industrial gas turbine digital x-ray analysis

Digital x-ray has opened a window into the most vulnerable areas of gas turbine components. Turbine blades, vanes, fuel nozzle components, transitions, and shafts are regularly inspected for plugged cooling holes and indications in cooling passages. Real-time, digital imagery enables Sulzer to view and document indications and irregularities well into the cooling cavities and across the length of the material wall. Precision manipulation of the components while digitally enhancing the image allows the operator to pin-point previously undetected irregularities.



Industrial gas turbine hot section component repairs and services

Sulzer offers a wide spectrum of industrial gas turbine hot section component repairs and services that are state-of-the-art and keep your equipment running at optimal performance. With quick turnaround times, industrial gas turbine hot section components including combustion liners, transition pieces, nozzles, and buckets are expertly serviced to improve equipment reliability and minimize down time. Component repairs and services include:

Industrial gas turbine combustion liners

- Body panel replacement
- Flow testing and x-ray inspection
- Weld repair and CNC machining
- Complete hardware manufacturing
- Vacuum furnace heat treatment

Industrial gas turbine transition pieces

- Inspection and 360° simulation fixture
- Picture frame replacement
- Weld repair
- Complete hardware manufacturing
- Anti-wear hard-face coating
- Advanced TBCs

F-class industrial gas turbine blades

- Tip welding restoration with micro-plasma method in inert chamber
- Turbine simulation fixturing for dimensional checks
- Vacuum furnace heat treatment
- Upgrades and modifications
- Flow testing and x-ray inspection

F-class industrial gas turbine fuel nozzle inspections, repairs and flow testing services

- DLN 2.0 and 2.6
- Incoming inspections
- Repairs and hardware replacement
- Field inspection including on-site equipment inspections utilizing a borescope

Flow testing with state-of-the-art sonic nozzle technology with the below capabilities:

Liquid and gas flow circuit testing

Parts test parameters

- Determines the mass flow and flow parameters at specified test pressure ratios
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Auto tuning routine

- Automatically determines the testing parameters to optimize testing time

Parts master routine

- Measures the repeatability, average and percent difference of a series of flow tests through a master part

Pressure probing

- Allows the operator to measure the pressure ratio of a single hole

Leak testing

- System leak checks for ensuring integrity of the entire system

F-class industrial gas turbine nozzles

- Coupon airfoil repairs
- 360° slide thru fixturing
- Flow testing and x-ray inspection
- Vacuum furnace heat treatment
- Weld and braze rebuild
- CNC EDM for the cooling holes after weld repairs



Industrial gas turbine component and other unique services

Our specialized coatings protect your industrial gas turbine components in extreme conditions and provide extra protection to equipment. Our other unique services for industrial gas turbines better serve our customers. Specialized coatings and other unique services include:

Industrial gas turbine component specialized coatings

- Class C plasma TBC
- Class B plasma TBC
- Abradable TBC
- XTR F-class coating
- Aluminide coating
- HVOF chrome carbide coating
- Vacuum diffusion of coating
- All with 8-axis robotic application

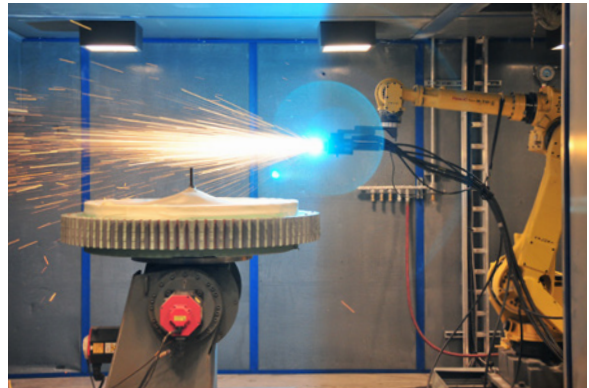
Industrial gas turbine vane repair via airfoil coupon

Intricate cooling passages and complex geometries present significant challenges in the vane restoration process. With the advancement of full airfoil coupon replacement, vane segments that previously would have been scrapped are now repairable. Repairs are performed by top-notch technicians using state-of-the-art EDM that renews wall thickness, reestablishes cooling hole diameters, and corrects cooling air flow.

Additional industrial gas turbine component services

In addition to industrial gas turbine component repairs, Sulzer offers the following additional services to better service our customers:

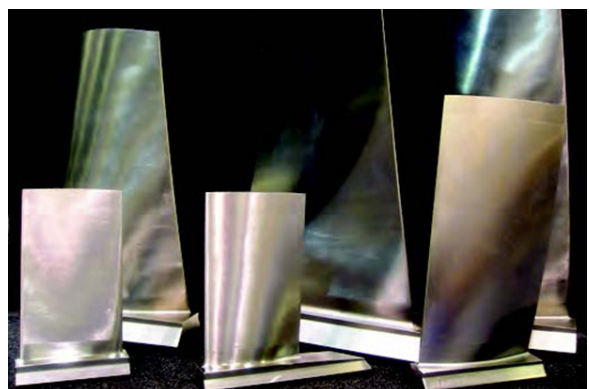
- Inspection of new components and qualifying components for pre-service
- Incoming and post-repair inspections
- Failure analysis
- New parts for cold and hot components (casting and forging)
- Reverse engineering



Fully robotic coating application



Gas turbine vane repair



Manufactured gas turbine blades



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