Long live your engine.
Chromalloy partners with leading companies around the world to create innovative solutions that reduce the operating expense and extend the life of gas turbine engines.

Our latest partnership is a joint venture with Arabian Qudra, serving the power needs of the energy and industrial sectors in Saudi Arabia and throughout the Middle East. The joint venture was formed in 2015 and is owned equally by Chromalloy and Arabian Qudra.

Headquartered in Riyadh, Arabian Qudra is a service provider for all electrical equipment in power and industrial plants in the oil, gas, petrochemicals and utilities sectors. The company has more than two decades of experience servicing industrial electrical equipment from its Riyadh-based service center. Arabian Qudra carries out repair of motors, transformers, diesel generators, and alternators, and offer field services in addition to the installation, testing and commissioning of electrical equipment.

Backed by Abunayyan Holding Company and ACWA Holding, among the biggest and most respected brands in Saudi Arabia’s industrial and utility sector, Arabian Qudra is committed to provide the highest quality customer service for all electrical servicing needs.

The company’s service center is fully equipped to international specifications and has an ISO 9001-2008-certified quality management system. Arabian Qudra is an active member of the Electrical Apparatus Service Association, an international trade organization for the industry.
Today’s power generation industry is more competitive than ever. As power producers around the world seek newer, better ways to maximize performance and minimize life cycle costs, Chromalloy is rising to the challenge.

Chromalloy is trusted worldwide to provide gas turbine engine manufacturers and operators with a wide range of innovative, high-technology manufacturing and repair capabilities and processes. We offer high-tech coatings, repairs, exchange and replacement parts, as well as field services and monitoring that extend the life of critical parts and reduce operating expenses.
Chromalloy pioneered the development and application of protective coatings for turbine airfoils in the 1950s—primarily in commercial aviation and military applications. As our expertise grew, we became one of the first independents in the world to repair gas turbine engine components. Later, we began re-engineering and casting parts and, in the last decade, tackled the challenges of both manufacturing and repairing parts for aeroderivative and heavy industrial gas turbine engines.

Today, Chromalloy is a $1B+ company with locations in 11 countries around the world. We leverage our aerospace heritage, military insight and expertise in energy and power to provide some of the most high-tech coatings, repairs and parts ever conceived for heavy industrial gas turbine engines.

As an independent provider, we are uniquely focused on our customers and work together as partners. This approach enables us to provide the most reliable, technologically advanced solutions, and deliver those solutions in a flexible, cost-effective manner.
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Chromalloy combines our diverse expertise in aerospace, the military and power generation with a full scope of capabilities. This enables us to develop and deliver some of the world’s most technologically advanced coatings, repairs and parts.

Innovation forms the core of the Chromalloy value chain, and influences each of our capabilities. From design, test and systems engineering, castings and core development, to machining, repair technology, joining, thermal capabilities, tooling, and coatings—every discipline benefits from our global knowledge base.

Our unique Value Chain and dedication to quality, safety and innovation allow us to provide a wide range of supply chain support options, from component repair to full component design and manufacturing.
Chromalloy Heavy Industrial Gas Turbine Capabilities

Chromalloy is an integrated solutions provider that delivers a wide range of services to heavy industrial gas turbine engine manufacturers and operators around the world.

- Gas Turbine Spares and Replacement Parts
- Component Repair Services
- Combustion Inspection Elimination Kit
- Gas Turbine Rotor Overhaul Services
- Field Support and Engineering Services
- Gas Turbine Refurbishment
- Long Term Service Agreements
- Sentinel C™ – Gas Turbine Control System
- TIGER® Condition Monitoring for Gas and Steam Turbines
- Training Courses for Gas Turbine Technologies

**Life Cycle Cost Management** – Chromalloy uses a two-step approach to deliver the most reliable and technologically advanced solutions in a flexible, cost-effective manner: (1) repair instead of replace and (2) replace non-repairable parts with OEM-equivalent components.
Chromalloy has been a leader in developing commercially viable aluminide coatings for decades. Today, we continue to provide these coatings and their derivatives to all the major OEMs, as well as owners and operators around the world. We are the world’s largest provider of Low Pressure Plasma Spray Overlay and Electron Beam Physical Vapor Deposition (EBPVD) coatings. All Chromalloy coating technologies are designed to protect turbine components and increase their longevity.

**Thermal Barrier Coating**
- EBPVD 7YSZ
- EBPVD Low K Nd-YSZ
- Air Plasma Alumina
- Air Plasma 7YSZ
- Air Plasma Low K Nd-YSZ
- DVC

**Overlay Coating**
- EBPVD MCrAIY
- LPSS MCrAIY
- HVOF MCrAIY

**Abradable Coating**
- Plated CBN Tip
- Air Plasma Porous 7YSZ

**Wear Coating**
- Chromium Carbide
- Nickel Chromide

**Diffusion Coating**
- Pack Aluminide
- Gas Phase Aluminide
- Pack/Gas Phase Chromide
- Pack/Gas Phase Platinum Aluminide
- Pack/Gas Phase Platinum Rhodium Aluminide
- Pack/Gas Phase Silicon Aluminide
Chromalloy has analyzed thousands of engines and repaired over 1,000,000 heavy IGT components. We offer a full suite of manufacturing and repair capabilities for heavy industrial gas turbine engines from all major manufacturers. Our dedication to research and technology has led to many proprietary processes for metallurgical and mechanical repairs that are simply unavailable from any other source.

**Re-Engineering and Design Capabilities**
- Coordinate Measuring Machine
- Video Measuring Machine
- ATOS scanning
- Full Engineering Analysis

**Inspection Capabilities**
- Eddy Current Inspection
- Fluorescent Penetrant Inspection
- Metallurgical Analysis
- Optical Contour Inspection
- Radiographic Inspection
- Ultrasonic Inspection
- Scanning Electron Microscope (SEM)
- X-ray Inspection
- Component Life Evaluations

**Preparation Capabilities**
- Chemical Stripping/Cleaning
- Degreasing
- Hydrogen Fluoride Ion Cleaning
- Water Jet Stripping and Cutting

**Repair Capabilities**
- Electron Beam Welding and Automatic TIG Welding
- 5-axis Laser Powder Welding with Vision System
- Induction Welding
- Gas Tungsten Arc Welding
- Coatings: Robotic HVOF, Plasma and Wire Arc
- Heat Treat and Thermal Processing
- Laser Cutting, Drilling and Shaping
- Honeycomb Sealing and Replacing
- Vacuum Furnace High Temperature Brazing
- Induction Brazing
- Automated Blending and Recontouring
- CBN Abrasive Tip Grinding
- Electro Chemical Grinding
- CNC Milling, Turning and Grinding
- Jig Boring and Grinding
- Shaped Hole Drilling
- Robotic Laser Drilling
- Vibro Super Polishing
- Chemical Plating
- Corrosion Resistant Painting
- Glass Bead Peening
- Steel Shot Peening
- Blade Moment Weigh Balancing
Chromalloy incorporates years of advanced coating and repair technology into the redesign, casting and manufacturing of our heavy industrial gas turbine parts. We utilize single crystal technology. And we use leading-edge manufacturing tools and processes to produce even the most sophisticated components with utmost precision. This generates high-quality components that not only cost less, but also perform equal to the OEM parts they replace.

**Castings**
The Chromalloy castings facility in Tampa, Florida, is the most technologically advanced in the world. This, along with our other casting facility, allows us to provide a single source for replacement parts, and enables Chromalloy to meet the operational and financial needs of power producers in a way that no other company can. By managing the entire replacement part supply chain—from design, test and systems engineering, tooling, castings and core development, to repair technology, machining and coating—Chromalloy expedites turnaround times and reduces costs for customers around the world.

**Technology**
- Turbine Aerodynamic Design and Analysis
- Engine Performance Analysis
- Secondary Air System Design and Analysis
- Blade/Vane Cooling Design and Analysis
- CFD Analysis
- 3D Thermal Design and Analysis
- 3D Structural Design and Analysis
- Vibration/Modal Analysis
- Mechanical Design and Analysis
- Engine Instrumentation and Testing
- Engine Tuning and Optimization
- Hardware Characteristics
New Part Development Process
Chromalloy’s capital parts development technology enables us to provide a fully-integrated supply chain.

- **Redesign**
  - Redesign part using largest repair database in the industry to inform improvements.

- **Casting & Cores**
  - Cast components
    - Single Crystal
    - Equiax
    - DS
  - Onsite core development

- **Machining**
  - Machine component
    - Drill

- **Coating**
  - Apply industry leading protective barrier coatings.

- **Test**
  - Flow
  - NDT
  - X-ray
  - FPI

- **Deliver**
  - Deliver
  - Install
  - Monitor
  - Life Evaluate
Field Support, Engineering Services and Planned Maintenance Programs

Chromalloy staffs a wide range of experienced mechanical engineers, instrumentation and control engineers, field engineers, technical advisors and project managers. We promptly dispatch expert personnel to evaluate and perform both on-site and remote engineering services for planned and unplanned maintenance.

- Scheduled Outages
- Unscheduled Outages
- Comprehensive QHSE Programs
- Site Management
- Control Systems and Retrofits
- Electrical Engineering
- Fuel Conversions
- Technical Support
- Generator Overhauls
- Plant Commissioning
- Plant Upgrades
- Control Retrofits
- Plant Relocation
- Contractual Maintenance Agreements
- Auxiliary Plant Services
- Condition Monitoring and Diagnostics
Long Term Service Agreements
Chromalloy service agreements provide heavy IGT owners with predictable costs and reliable performance. Our agreements include complete management and maintenance services required for scheduled maintenance, unscheduled breakdown maintenance (with access to the Chromalloy strategic spare parts stockholding and rotor club), part repairs, plant modifications, condition monitoring, diagnostic trending, fault finding, plant improvements, inspection planning and more.

Controls and Remote Monitoring
Control Systems
The Chromalloy Control Systems series was designed specifically for the retrofit of heavy-duty gas turbine controls—particularly, the Speedtronic and LA families of turbine controllers. These systems follow the same turbine control philosophy as the original system and are easily adaptable to site-specific requirements. Once implemented, these systems can minimize downtime, increase availability and enhance reliability.

Condition Monitoring
TIGER® Monitoring System automates the knowledge of the best turbine engineers and continuously evaluates the condition of gas turbine engines. The software compiles a complete picture of the turbine in the last shift, day or week providing a simple-to-read diagnostic summary. TIGER® provides performance and maintenance calculations along with archiving and graphing capabilities that enable the analysis of trends and incidents in detail. The system allows colleagues to connect remotely to assist in turbine operations and alerts operators when problems occur.
We are One Chromalloy.

Although we operate out of facilities across the globe, partnering with us means you are part of one Chromalloy — which means you can expect the same high level of service, quality and reliability across all our units. We are working today — and every day — to meet the needs of our customers and to extend the life of gas turbine engines.