

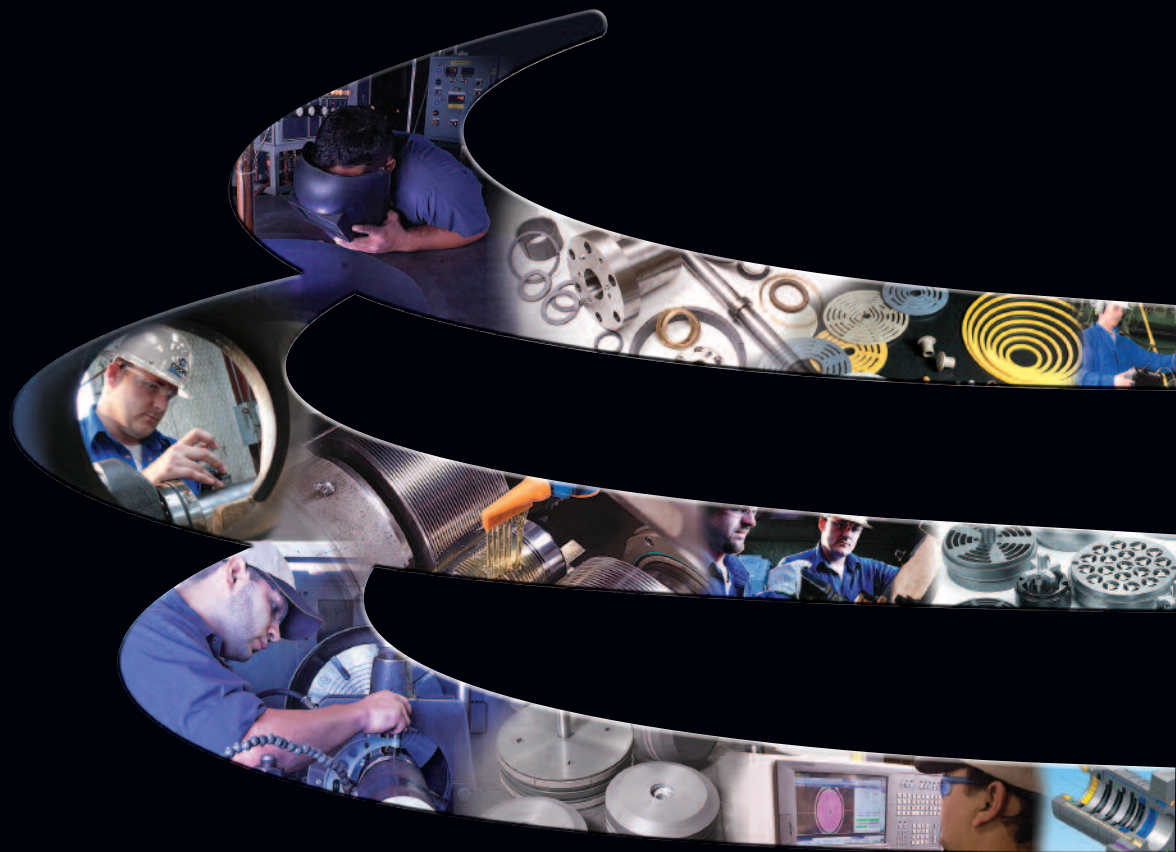
*Your Source for
Optimum
Compressor
Performance*



COOK[®]
COMPRESSION

A DOVER COMPANY

*One Name, A World
of Solutions*



Engineering

- Highly experienced, in-house engineering teams
- Turnkey project management
- Computational Fluid Dynamics, sophisticated modeling, FEA and valve dynamics simulation
- Extensive research and development programs
- Materials laboratories
- Test compressors

Services

- Factory repairs
- Field services
- Strategically located service centers
- 24/7/365 response
- Global sales, distribution and support
- Bundled services with alliance partners

Components

- Patented products
- ISO 9001:2000-certified manufacturing centers in North America and Europe
- Lean manufacturing and 5S methodology
- Products include all components 'from the crosshead out'
- Windrock portable and online condition monitoring systems
- Broad range of emissions solutions

A HIGHER STANDARD FOR COMPRESSION

Cook Compression views compressor performance the way you do:

It's not about maintenance.

It's about improvement.

To help you achieve it, we offer a complete package of services, products, technology and expertise – backed by a commitment to optimize everything we do for your machines.

So instead of simply replacing parts, you can boost efficiency. Instead of only making repairs, you can extend service life. Instead of struggling to meet regulations, you can make meaningful advances in safety and environmental compliance. And instead of continually responding to emergencies, you can monitor and assure long-term reliability.

Cook Means Total Solutions

Cook Compression is uniquely qualified to deliver the engineering support, services and products your compressors need. In more than 100 years of service to the gas compression industry, we've amassed unequalled technology and expertise. Our proficiency includes not only the machinery, but also the applications encountered in refining, petrochemical, gas gathering and processing, pipeline, air separation, chemical and industrial operations.

Cook Compression is the only resource you need to enhance the performance of large-horsepower compressors made by any manufacturer, in any service, anywhere in the world.



VALVE TECHNOLOGIES

- *Patented products*
- *Valve materials development program*
- *Valve analysis, design, upgrade, conversion and reconditioning*
- *Computational Fluid Dynamics, advanced valve dynamics simulation, 3-D modeling and FEA*
- *In-house injection molding*
- *Laser profiling and proprietary processes for stress-free metallic plates and discs*

- *Custom engineered*
- *Improved operating flexibility*
- *Field-retrofit assistance*
- *Avoid expense of new equipment*

- *O-ring seals on HSR design control fugitive emissions*
- *Easy, economical field retrofits for most compressors*
- *Optional configurations for flexibility and economy*
- *Available with pneumatic unloader assemblies*

Compressor Valves

From precision-crafted metal plate valves to the latest patented designs with non-metallic internals, Cook Compression offers valve solutions that substantially increase reliability and efficiency while reducing your life cycle costs. Cook innovation includes the original radiused-disc Manley® series valves, patented cartridge-design MOPPET® series valves and Optima™ series plate valves. In addition to complete valve assemblies, Cook manufactures plates, discs, rings, buttons, poppets, damper plates, spring plates, leaf springs and other metallic and non-metallic components for any make or model valve.



Capacity Controls

Capacity control solutions from Cook Compression are a viable alternative to cylinder modification or replacement. Cook plug unloaders, finger unloaders and clearance pockets provide more efficient operation over a wide range of conditions, reduce power consumption and prolong driver life. Most can be retrofitted in the field and manual unloaders can be converted to pneumatic actuation.



Valve Restraining Systems

For improved safety, stronger valve retention, reduced fugitive emissions and more reliable sealing, Cook Compression provides both conventional-style and HSR high-security valve restraints. All designs provide stronger retention with less maintenance than ordinary jack-bolt restraints. The HSR design distributes load over multiple studs to reduce typical installation torque and allow easy, accurate loading of the cage and valve.



SEALING TECHNOLOGIES

Rod Rings

Cook Compression is the leader in rod ring technology, with more products in more applications than any other sealing component provider.

Our engineering and manufacturing resources allow us to optimize performance for your specific machine and operating conditions. We design and manufacture rings in a wide array of material options, ranging from conventional metallics, alloys and PTFE to engineered thermoplastics and our high-performance TruTech™ materials.

Cook applications engineering teams are backed by in-house test compressors, as well as design and materials research laboratories. These resources combine to produce custom seal ring, pressure breaker and wiper solutions that deliver consistently improved reliability and durability in the most demanding applications.



- The broadest line of sealing products
- In-house injection and compression molding
- Ongoing materials development
- In-house laboratories and test compressors
- Experienced engineering and field-level support
- High-performance packing for reciprocating pumps

Packing Cases

Cook Compression offers a complete line of custom-engineered packing cases for lubrication, venting, purging, cooling and other applications. We provide cases for both lubricated and non-lubricated services, as well as for all gases and pressures. To control fugitive emissions, Cook designs custom vented and buffered cases.

Cook Compression cases are combined with specially engineered rings, control systems and/or secondary containment systems to create high-performance solutions.



- VORTEX® cooled packing cases
- "Hyper" high-pressure sealing components
- STATIC-PAC® shutdown seals
- In-house laboratories and test compressors
- COOK CLEAN emission-control solutions
- Seal Assist System™ ultimate emissions control

ROD & PISTON TECHNOLOGIES

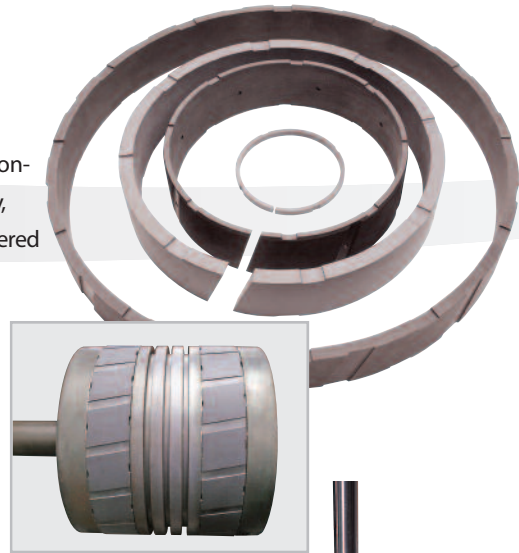
- Extensive engineering assistance
- Millions of piston rings and riders supplied for a wide range of industrial, petrochemical and natural gas applications
- Patented designs, with numerous features to customize rings for specific conditions
- Comprehensive material options, including TruTech™ engineered materials

- Full line of single-piece and segmental pistons
- FEA analyses on new piston designs
- Custom engineering and manufacturing
- Extensive experience in gas transmission, gathering, processing and refining applications

- Uncoated rods have induction hardened packing areas
- All rods feature rolled threads
- Tungsten carbide coatings specific to application requirements
- All products meet or exceed manufacturer specifications

Compressor Piston Rings & Riders

Cook Compression designs and manufactures precision-made piston ring seals and rider rings. Ring geometry, features, dimensions and materials are custom-engineered to reduce loads and provide maximum service life. Ring designs and materials are validated through our in-house engineering analyses, materials laboratory and test compressors.



Pistons

Cook Compression manufactures both single-piece and segmental piston designs in a wide assortment of sizes, materials and specifications. Pistons are machined from cast iron, aluminum or custom-specified materials. Segmental designs allow incremental repairs, replacing only the worn section of the piston.

To assure pistons meet or exceed maximum load requirements, each new design is thoroughly evaluated based on Finite Element Analysis (FEA) and knowledge accumulated in years of applications experience.



Piston Rods

We produce premium piston rods for all major makes and models of compressors. Beginning with the highest-quality, mill-certified materials, Cook engineers and manufactures rods that perform reliably and deliver lasting value.

Subject to application requirements, rods are induction-hardened or tungsten-carbide coated to resist wear and extend run times. Other coatings and surface treatments are also available. All rods are manufactured with rolled threads to increase strength and eliminate stress risers.



APPLICATION SOLUTIONS

Emissions Control

Cook Compression offers proven solutions to meet your emissions objectives through improved repair procedures, component replacements, engineered systems and more. Our flow testing accurately quantifies compressor seal leakage, enabling comparisons of different packing options and component upgrades.

We offer engineered solutions for controlling packing case emissions, including COOK CLEAN purge gas systems. Patented Seal Assist System™ (SAS) secondary containment uses a high-velocity jet stream to capture primary seal leakage, reducing fugitive packing case emissions to virtually zero ppm. Static-Pac® seals provide close to 100% leakage control when compressors are shut down.



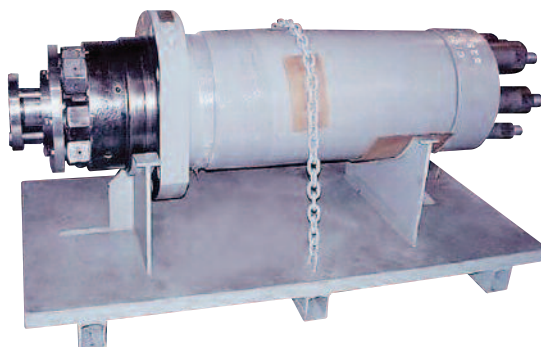
- Leak testing using thermal mass flow meter
- Engine stack testing
- AutoBalance™ engine balancing system
- Purged cases and secondary containment systems
- Emissions control panel systems
- Ultra-low-leakage ring technology
- HSR leak-preventing valve restraints

Hyper Compression

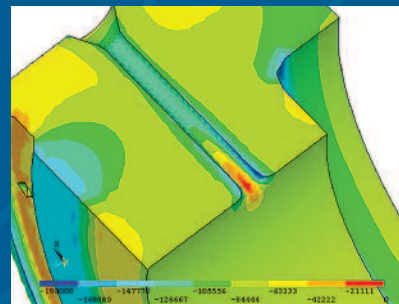
Cook Compression is the leader in high-pressure compressor technology. We are your single source for a full range of engineering support, replacement products and service solutions for hyper machines.

We design and manufacture high-performance parts in proprietary designs and metallurgies, including packing cases, custom seal rings and valve components. We also provide high-pressure lubrication system design, manufacturing, installation and service.

Service solutions include everything from valve and packing case repair to plunger reconditioning and complete, turnkey cylinder repairs.



- Complete repair services
- Rapid turnaround
- Solutions for any make or model hyper machine
- Replacement parts
- Hyper lubrication systems
- Engineering and troubleshooting
- Performance and reliability upgrades



AFTERMARKET SERVICES

- Fast response
- Turnkey service
- Single source for field and shop services
- Highly experienced engineers, project managers and technicians
- Improved machinery performance
- Increased reliability
- Improved regulatory compliance
- Superior safety

- Reconditioning of compressor valves and related components
- Compressor cylinder relining, resizing and overall repair
- Plaskote50+® cylinder bore plasma coating
- Hydrostatic pressure testing
- Compressor piston repair and non-lube conversions
- Compressor piston rod resurfacing and wear-resistant hardening
- Turnkey low-density polyethylene (LDPE) cylinder reconditioning
- Pressure and wiper packing case repair and component replacement
- Crosshead rebabbiting and repair
- Crosshead slide repair and resizing
- Compressor frame aligning and boring
- Authorized Ariel parts distributor

Factory Repairs

Cook Compression is your complete repair service solution, with the expertise to meet everyday needs, as well as the experience to solve extraordinary problems. We handle everything from routine repairs and preventive maintenance to emergency service, planned upgrades and major turnarounds - for any type of reciprocating compressor.

From tear-down and inspection through final assembly, we provide turnkey service with all replacement parts, machining labor, logistics and engineering support.



Induction hardening

Service Facilities

Our strategically located service centers and network of highly experienced sales, field service, and technical specialists allow us to respond quickly to your needs. Our facilities are state-of-the-art, both in terms of the machinery we use and in the procedures we have continually refined in more than a century of service to the gas compression industry.

Cook Compression operates both major regional centers with a full range of factory services, as well as satellite service centers providing specialized, rapid-response services in close proximity to regions with high customer activity. Satellite centers offer services such as valve repair, packing case repair, piston ring manufacturing and rider band manufacturing.



Valve repair



Anodizing



Plaskote 50+® cylinder coating

MECHANICAL FIELD SERVICES

Cook Mechanical Field Services (Cook-MFS) provides on-site maintenance, repair and complete overhaul services for compressors, pumps, turbines and other reciprocating and rotating equipment.

For more than 20 years, Cook-MFS has served the diverse needs of energy, power generation, manufacturing and other heavy industries. We have extensive experience in all segments of the oil and gas industry, from wellhead applications to gas gathering, processing, pipeline, refining and petrochemical processing.

Cook-MFS handles all sizes and designs of machinery. We overhaul and repair simple air compressors, as well as gas compressors with discharge pressures up to 6,000 psi. We work on small process pumps, lift pumps, cooling tower pumps and large boiler feed pumps and have repaired turbines from 30 hp to 50,000 hp. From extruders and mixers to gear sets and rotors, we have the knowledge and experience to keep a full range of machinery operating reliably, efficiently and economically.

Turnkey Field Solutions

Cook-MFS provides repair, maintenance and project-oriented work in support of plant shut-downs, turnarounds, new construction and general maintenance. We offer a single-source solution for all parts, labor, logistics and engineering support.

We have the ability to handle every aspect of your project, from tear-down and inspection through final assembly and start-up. Our diversity of services and wide-ranging experience enable us to handle a full range of challenges.

ROUTINE FIELD WORK

Mechanical services for turnarounds, plant shutdowns and machine overhauls

CONTRACT MAINTENANCE

Full-time or periodic on-site services to establish condition-based maintenance for critical machinery

TURNKEY PROJECTS

Custom-engineered work to upgrade compressors and other equipment, incorporating advanced Cook technologies and products



Portable machining



- *Highly experienced engineers, project managers and technicians*
- *Turnkey service*
- *Flexibility and quick response*
- *Superior safety*
- *Portable machining*
- *On-site repairs*
- *Scheduled maintenance*
- *Installation and start-up work*
- *Diagnostics and troubleshooting*



On-site repair

MONITORING & DIAGNOSTICS

- *Windrock on-line monitoring systems*
- *Windrock portable analyzers*
- *Flow and leakage measurements*
- *Diagnostics and analysis services*
- *Maximizes machinery availability*
- *Improves safety*
- *Reduces maintenance costs*
- *Supports environmental compliance*

For maximum reliability and efficiency, Cook Compression offers industry-leading Windrock diagnostic systems for reciprocating and rotating machinery. Included are portable and online monitoring and diagnostic systems, software, sensors and related equipment. Cook Compression also provides training, technical support and service contracts, as well as machinery analysis services.

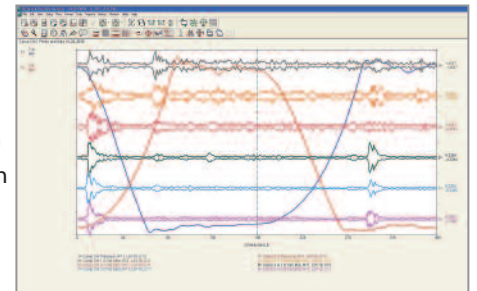
Windrock systems are used world-wide by operators, engineers and maintenance personnel to monitor, trend, alarm and diagnose the mechanical condition and performance of reciprocating engines, compressors and pumps.

Windrock analyzers and systems collect and process a variety of information, such as dynamic engine/compressor pressure, vibration, ultrasonic data and other parameters. They also calculate horsepower, flow, balance, capacity, valve losses and more in real-time. This data enables analysts to diagnose performance and mechanical malfunctions, such as leaking valves, blow-by, ignition problems and engine balance. With an accurate assessment of machine condition, managers can plan and prioritize maintenance procedures for optimal machine protection and cost-efficiency.



Online Systems

The On-Guard™ family of online monitoring systems offers users the flexibility to design a monitoring system tailored specifically to their application – from basic machine protection to full mechanical condition and performance monitoring. System architecture is modular, consisting of “smart” data-acquisition modules connected to the user’s PLC or DCS system running On-Guard™ reciprocating machinery diagnostic software.



Portable Analyzers

Windrock portable analyzers provide highly accurate information to enable compressor performance testing, engine testing, horsepower measurement and vibration analysis. All Windrock analyzers are compact, lightweight and durable, with powerful processors and large, solid-state data storage. Up to four dynamic input channels, plus a separate input for speed and crank-angle signal, help analysts provide precise and reliable analyses of ignition, mechanical condition and performance.

TURNKEY SOLUTIONS

Project Management

Project management enables you to leverage the broad range of services, technology and products offered by Cook Compression and our network of alliance partners. For any type or combination of work you need – troubleshooting, upgrades, repairs, installation and more – Cook Compression provides turnkey project planning, supervision, execution and follow-up.

Only Cook Compression can offer this comprehensive, multidiscipline approach to machine optimization. From monitoring, diagnostics, troubleshooting and engineering to shop services, field repairs and high-performance, custom-engineered parts, you have a single point of contact. For machinery maintenance and operating managers whose resources are stretched thin, Cook Compression project management offers a way to complete work faster and more efficiently.



Alliance Partners

Cook Compression works closely with a network of industry-leading alliance partners to offer you a full range of complementary products and services.

With years of cooperative efforts for our customers, these alliances offer you a seamless, comprehensive package of expertise to solve problems and improve machinery productivity.



FOUNDATIONS & GROUTING

Partner: Adhesive Services Company

- Engineered foundation repairs/rebuilds
- Grouting services



FIELD BORING & MACHINING

Partner: Down Time Services

- Line boring of engine/compressor frames, pumps and turbines
- Compressor cylinder relining, boring and honing
- Milling of compressor bases and pump bases
- Optical alignment of cylinders, bearing housings and main bearing bores



LUBRICATION SYSTEMS

Partner: T.F. Hudgins, Incorporated

- System design, assembly and installation
- Repairs and preventive maintenance programs
- Performance upgrades
- High-pressure systems
- Training



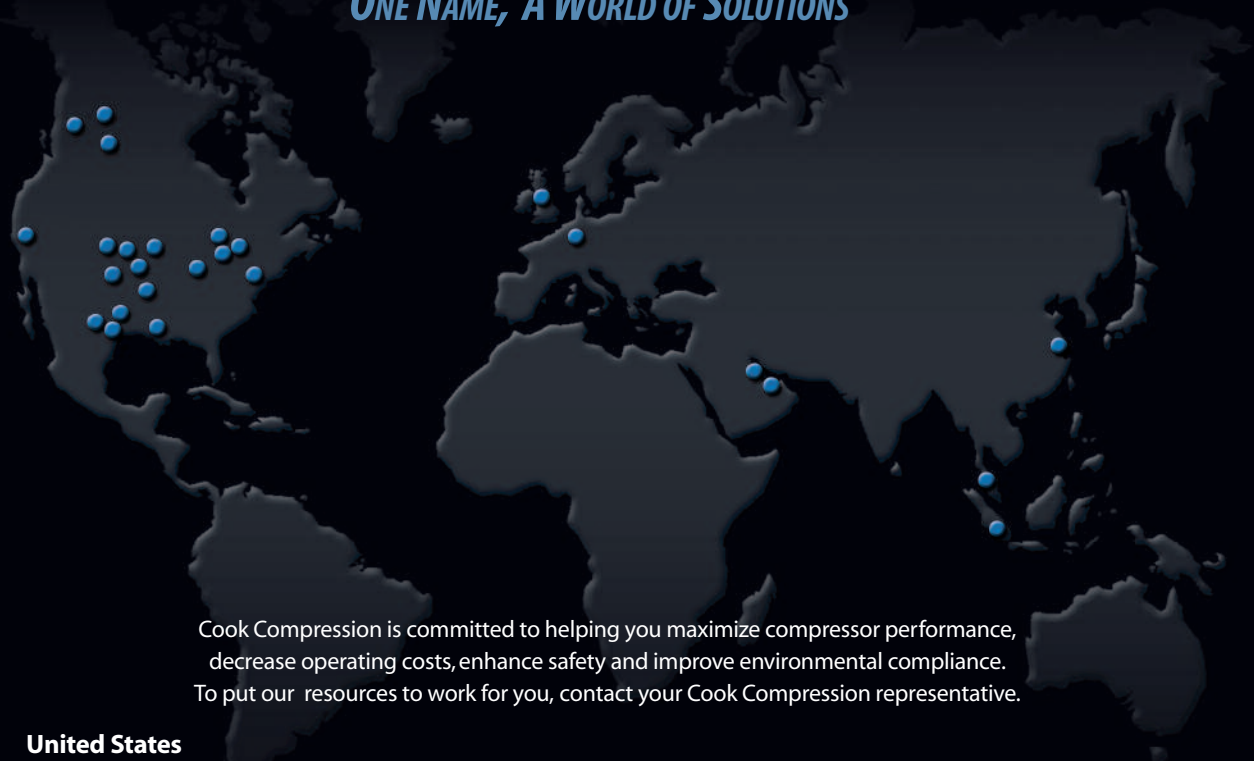
CONTROL & AUTOMATION

Partner: T.F. Hudgins, Incorporated

- Autocator® products
- Custom control systems for compressors, engines and related machines
- Automation and capacity/unloader control
- Emissions (buffer/purge) controllers
- Programmable logic controllers
- Field-configurable electronic controllers

- Leverage extensive Cook Compression resources
- Single point of responsibility
- Cost efficiency
- Quality
- Consistency
- State-of-the-art technology

ONE NAME, A WORLD OF SOLUTIONS



Cook Compression is committed to helping you maximize compressor performance, decrease operating costs, enhance safety and improve environmental compliance. To put our resources to work for you, contact your Cook Compression representative.

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