



MSG[®] TURBO-AIR[®] API

API 672 Centrifugal Air Compressor Packages

Efficient, reliable, 100% oil-free air*

**Per ISO 8573-1 certification*



Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a \$13 billion global business committed to a world of sustainable progress and enduring results.



API 672 Custom Centrifugal Air Compressor Packages

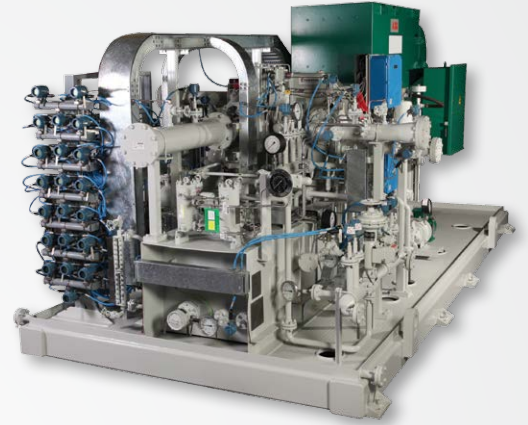
Benefit from Our Expertise and Technology

We have a long-standing tradition of providing innovative products and technology that positively affect our customers' bottom line. Following this tradition, the API 672 Custom MSG® TURBO-AIR® product line has been developed through close interaction with our customer base and analysis of their individual application demands.

This addition to the standard MSG TURBO-AIR product line provides class-leading levels of performance and reliability while meeting the following specifications:

- API 672 for packaged, integrally geared centrifugal compressors for petroleum, chemical and gas industry services
- API 614 for lubrication systems
- API 670 for machinery protection systems
- API 671 for coupling systems

You can rest assured knowing that our MSG TURBO-AIR API product line, like all of our products, is supported by our global aftermarket service and support network.



Advantages of Centrifugal Compressor Technology

Our integrally geared centrifugal compressors represent the latest technology, offering significant advantages over more costly and less efficient designs. An MSG TURBO-AIR API compressor is a compact solution with a variety of design features that provide less maintenance, lower operating costs and improved operating efficiencies.

Industries worldwide depend on MSG TURBO-AIR compressors for efficient and reliable oil-free air. applications include:

- Instrument and service air
- Hydrocarbon production processes
- DeSOx / DeNOx
- Fluidization process
- Fermentation process
- Pneumatic conveying



The MSG TURBO-AIR Advantage

Our Quality Policy

We strive to uphold our quality policy by fully meeting customer expectations and requirements by providing products that equal or exceed industry and government standards.

Packaging Capabilities

MSG TURBO-AIR API compressors are available as customized packages, designed and packaged using our extensive experience to best suit the needs of our customers.

Dedicated API Project Management Team

We have a dedicated, professional team for each API project in order to deliver customer satisfaction in each phase of the project life.

Dedicated Manufacturing Facilities

Our manufacturing facilities are among the most advanced in the industry, utilizing leading technology operated by an experienced and skilled workforce. Everything we do at our ISO-9001:2008 facilities is aimed at improving quality and shortening delivery times.



Compressor Design

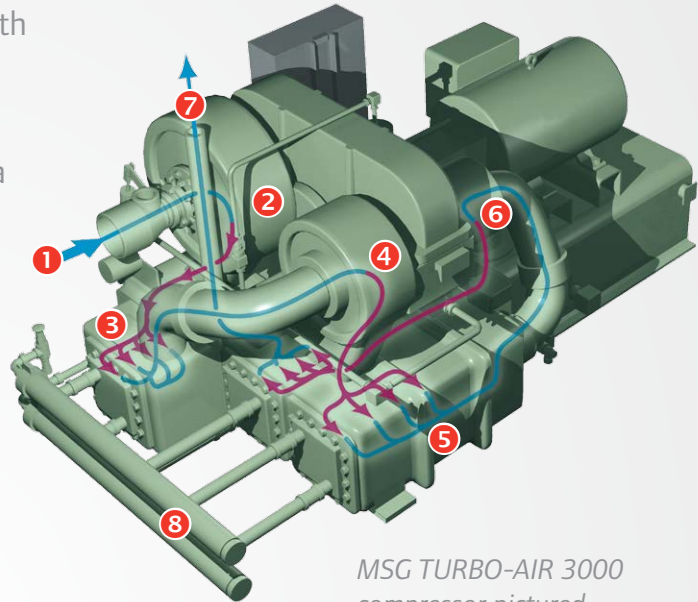
Our API engineering team has provided the MSG TURBO-AIR API product line with a variety of available options and additional systems in order to customize the final product. Our goal is to meet demanding API 672 requirements with as few deviations as possible.

Our MSG TURBO-AIR compressors are packaged on a common base for easier installation and are available in a number of capacities.

TYPICAL COMPRESSOR ARRANGEMENT

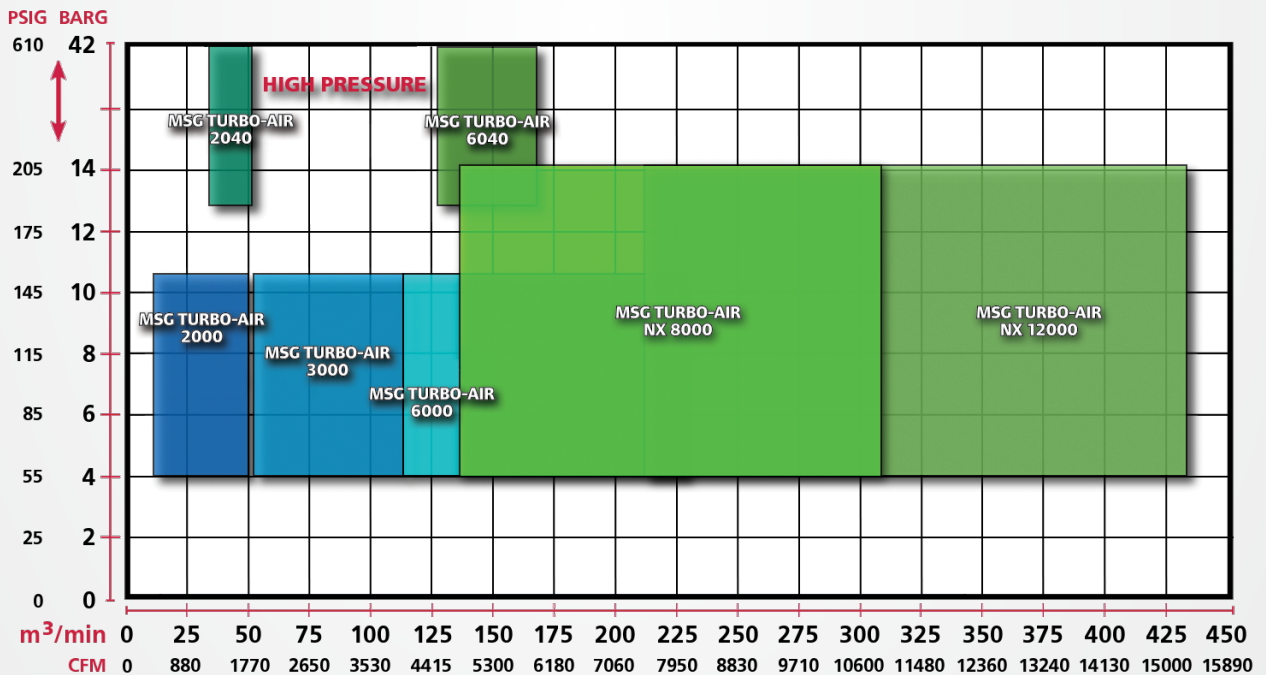
MSG TURBO-AIR

1. Compressor Inlet
2. 1st Stage Scroll
3. 1st Stage Intercooler
4. 2nd Stage Compressor Scroll
5. 2nd Stage Intercooler
6. 3rd Stage Compressor Scroll
7. Compressed Air Discharge
8. Coolant Manifold (optional)



MSG TURBO-AIR 3000 compressor pictured

API MSG TURBO-AIR Product Range



Note: This chart represents a typical flow chart schematic. For greater pressure or flow requirements, consult your local MSG TURBO-AIR representative.

Features and Benefits

Simple Installation

Compressor, lubrication system, intercoolers, shaft coupling, coupling guard and the interconnecting piping all are on a common base, simplifying installation and startup.

Low Operating Cycle Cost

Compared to other machines of similar capacity, MSG TURBO-AIR compressors are highly efficient oil-free compressors at full load, part load and no load. The power savings delivered can significantly speed up payback on your initial investment, and the savings continue to build the more you use an MSG TURBO-AIR centrifugal compressor.

High Reliability

- Thrust loads absorbed at low speed
- Stainless steel compression elements
- Conservative, high-quality gear design
- Extended life pinion bearing design
- Non-contacting air and oil seals

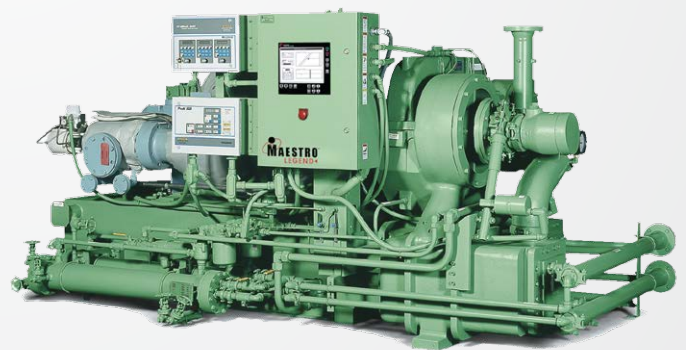
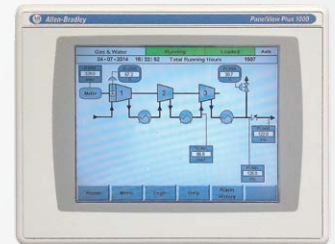
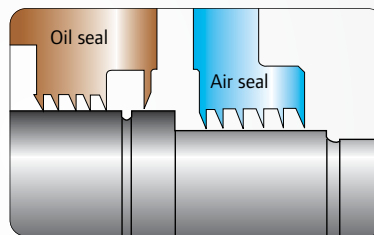
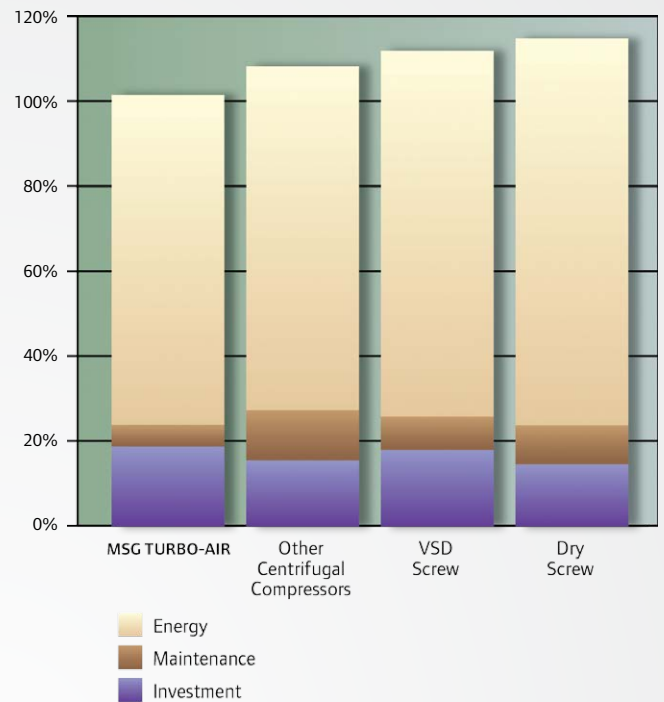
Simple Operation and Maintenance

- State-of-the-art controls
- Total automatic operation for any operating condition
- Self-diagnostics
- Compression elements do not wear or require periodic replacement
- No oil removal filters to clean

ISO Certified Class Zero

Our MSG TURBO-AIR centrifugal compressor product line has been engineered to produce oil-free air for more than 60 years. This certification officially acknowledges the ability of our compressors to produce 100% oil-free air, providing our customers with enhanced quality assurance.

Life-Cycle Cost Comparison
(over 10 years of operation at 80% loaded)



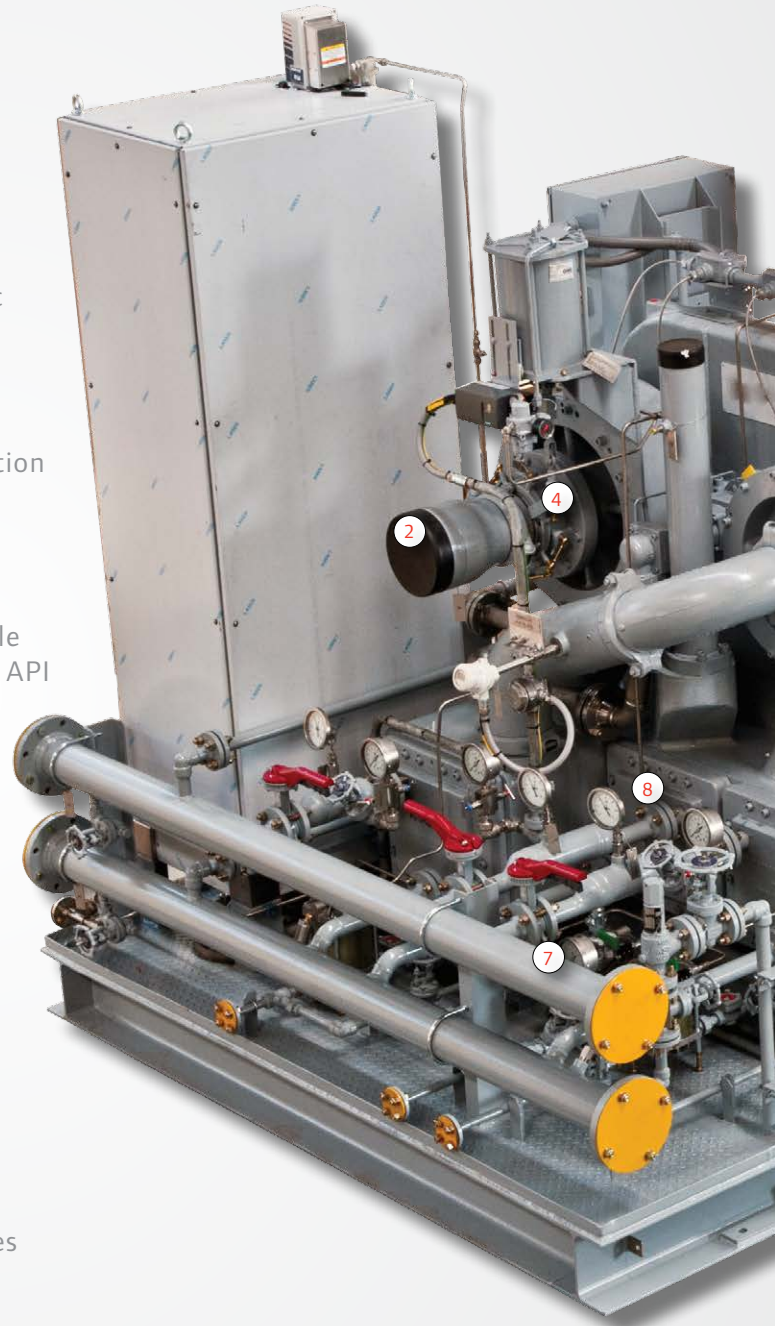
Class 0
ISO 8573 Oil-Free Air

MSG TURBO-AIR API

An "All-In-One" Package Solution

Complete "All-In-One" Package

Supplied as a complete and compact package with less weight and less floor space, simplifying installation, operation and maintenance.



1 Horizontally Split Gearbox

Allows for easier inspection of the working parts when jobsite maintenance policies require periodic inspection.

2 Inlet System

Available with pre-filtration or pulse jet configuration to ensure long reliability.

3 Dedicated Drive

Electric motor drive or steam turbine drive available and in compliance with demanding projects specs. API 671 coupling available as an option.

4 Inlet Guide Vanes (IGV)

- Can offer power savings of up to 9% when operating in turndown.
- Positioned close to inducer of the impeller to maximize performance.
- Net power savings can be realized at reduced flow or on days colder than the design temperature

5 Coolers

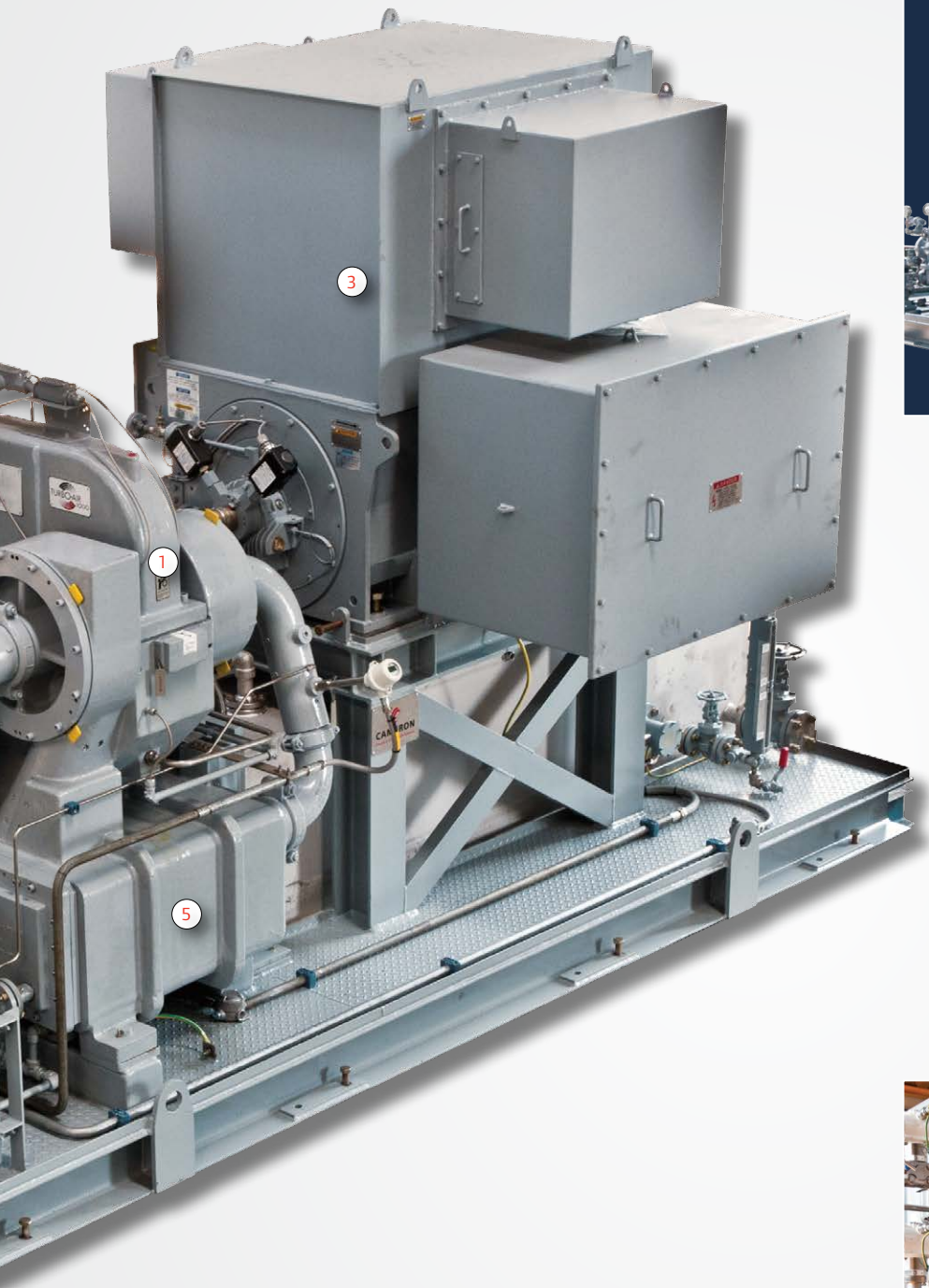
Designed for high corrosion resistance and high cooling efficiency – decreasing pressure losses and leakages while increasing energy savings.

6 Complete Lubrication System

Supplied on an integrated frame according to API 614.

7 Flanged Coolant Manifold

Provides simple connections for coolant supply and return.

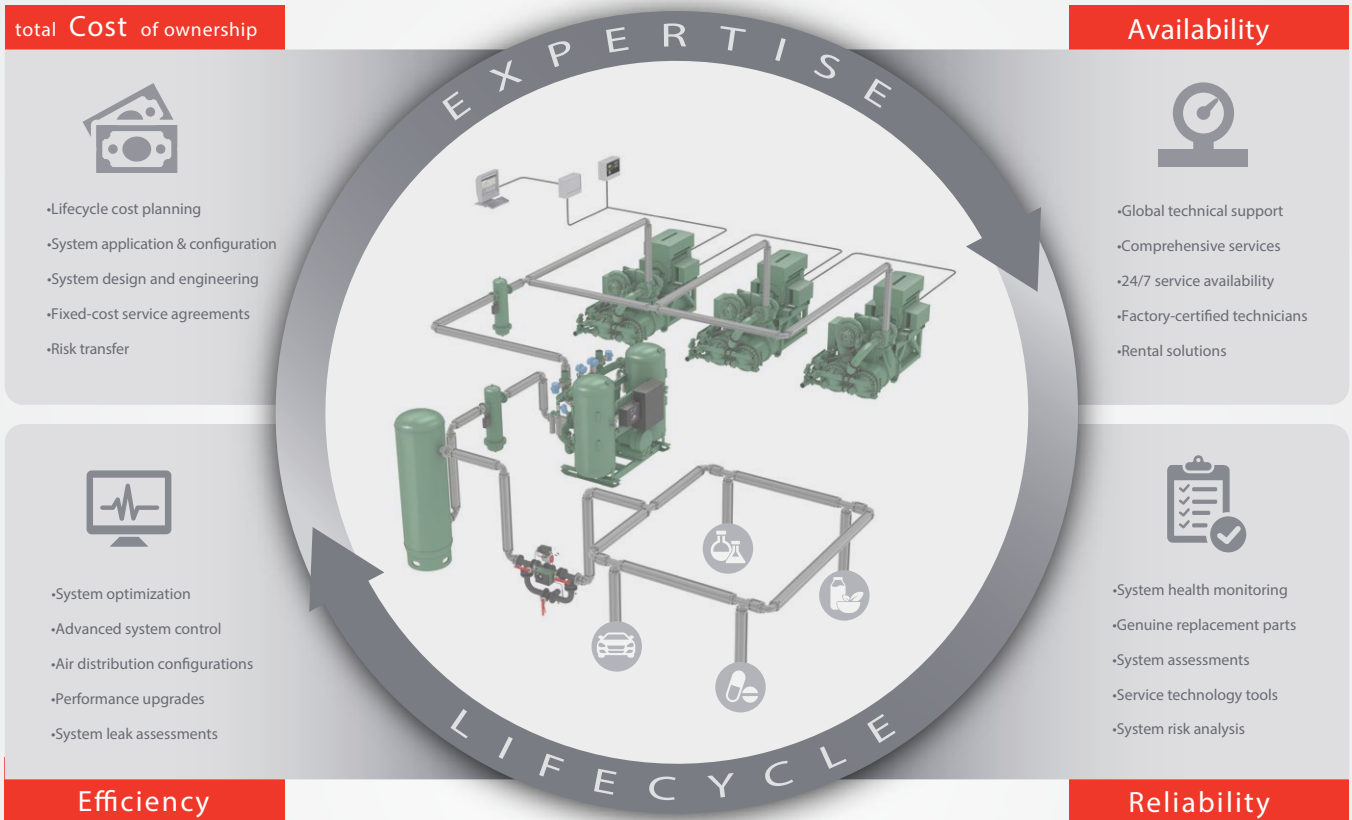


8 Instrumentation and Controls

Inherent variable load capability without high maintenance.

Your Trusted Partner in Compressed Air

Optimize your total **Cost** of ownership, while maximizing **Availability**, **Reliability** and **Efficiency** throughout the life of your compressed air system with our Lifecycle CARE services.



Design • Install • Commission • Operate • Maintain • Extend

PackageCARE™ ...eliminate the inconvenience

No matter where your facility is located, Ingersoll Rand is committed to serving you 24 hours a day, seven days a week, and is available to support you with innovative, cost-effective service solutions that will keep you running at peak performance. Let Ingersoll Rand handle the pressures and responsibilities of owning a compressed air system with our signature service contract.



Exceptional Parts

- Genuine parts produced in the same facility for more than 60 years
- Extensive inventory in strategic locations around the world, backed by our written warranty
- Cross-checked against unit maintenance records to ensure correctness

Installation and Startup

- Preventative maintenance and extended warranty programs
- Diagnostic and troubleshooting services
- Vibration analysis and trending
- Remote monitoring

Repair Expertise

- State-of-the-art equipment for turnkey repairs
- Complete documentation package
- Strategic locations to serve a broad customer base

Factory Training

- Comprehensive, onsite training seminars for you and your personnel
- Instruction on a variety of topics, including Level 2 courses offering hands-on training
- Courses can be tailored to meet your needs at our Buffalo, N.Y., training center

Controls Retrofits

- Re-aero kits to improve efficiency or match changing conditions
- Oil and cooling water system enhancements
- Motor upgrades

Smart Product Upgrades

We are constantly striving to improve efficiency and enhance performance. We incorporate these advances into retrofit kits that enable you to keep your equipment up to date.





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