

Centrifugal Compressors for Refrigeration Service

With custom designs that optimize efficiency, extend life and reduce maintenance costs, Ingersoll Rand MSG[®] integrally geared compressors are ideal for industrial refrigeration service applications.



3MSG-5G Propane Compressor

Custom Refrigeration Solutions

Refrigeration gases and mixed refrigerants are used in a variety of industries for applications such as gas liquefaction and process chilling. In all refrigeration systems, the gas compressor is the heart of the refrigeration cycle. A dynamic compressor operating at peak efficiencies with high molecular weight gas is vital to optimize a process system.

MSG integrally geared centrifugal compressors can match the optimum efficiency of each compression section by matching the impeller speed and size to the volume flow, even with high molecular weight gases used in refrigeration service. A number of seal options that offer oil-free process gas and zero leakage into the environment are available, depending on the service.

| Specifications | |
|-----------------|--|
| Feature | Data |
| Flow Range | Up to 60,000 cfm (1,700 m ³ /min) |
| Pressure Range | Up to 1,450 psi (100 bar) |
| Gases | Propane, propylene, nitrogen, mixed refrigerants and more |
| Certifications | ISO 9001, ISO 14001, ISO 29001 |
| Classifications | ASME, API, ATEX, CE, China Code, GOST, KOSHA, and more; compliance with additional regional certifications as dictated by project requirements |

Why Choose Ingersoll Rand Centrifugal Compressors?

| Features | |
|--|--|
| Attribute | Description |
| Optimized Efficiency | <ul style="list-style-type: none"> Custom designed to the required refrigerant composition and flow Available interstage cooling optimizes compression isothermal efficiency Up to three pinions per compressor to aerodynamically optimize impeller speed Inlet guide vanes maintain high efficiency at turndown operating points State-of-the-art PLC-based control systems enable efficient operation with high compressor availability |
| Stringent Industry Compliance | <ul style="list-style-type: none"> Designed to meet API 617 or API 672, ASME and CE codes and standards as required Customizable to meet your specifications Compliance to local codes and standards as needed |
| Process and Environmentally Friendly | <ul style="list-style-type: none"> Unique seal design developed specifically for refrigeration service minimizes expensive gas leakage Atmospheric separation between scroll and gearbox prevents oil from entering process flow All sealing options ensure no process gas leakage to the environment |
| High Reliability and Availability | <ul style="list-style-type: none"> Longest mean time between failures (MTBF) of any compressor technology -- industry-leading availability of 99.7% Custom material selection to suit process gas properties and installation environment Compression elements do not wear or require periodic replacement |
| Low Cost Installation and Maintenance | <ul style="list-style-type: none"> Inherently vibration-free requiring only a pad suitable for supporting the static weight of the package Volute can handle large gas volumes, reducing overall footprint Compact layout for easy transportation, ideal for mobile plants Custom package layouts ensure easy access to inspection items, like coolers, oil filters and seal rack Pre-assembled delivery on skids minimizes overall site installation time and cost Horizontally split gearbox and small rotor size greatly reduce maintenance |

Compressor Features

Up to 6 stages on 3 rotors

Horizontal split gearbox and bearing assembly simplifies inspection and maintenance

Throat-mounted inlet guide vanes (IGV) improve overall efficiency and enhance turndown range

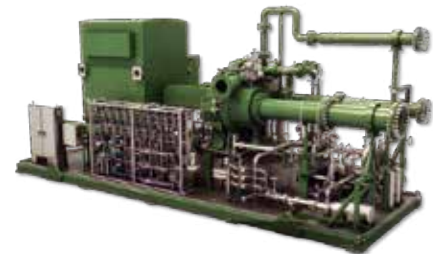
Variety of drivers available, including electric motors (API 541), steam turbine (API 611 or 612) and gas turbine

Integral or standalone lubrication systems designed to customer specifications and/or API 614

Integral or standalone seal support system tailored to your specific gas process

Dry disc or diaphragm coupling according to customer specifications and API 671

User-friendly options include completely enclosed units, outdoor noise canopy, integral or standalone valve skid and gas seal N₂ generators



Flexible package options to simplify installation, including a variety of engineered packaging configurations, single-point lift and packaging at regional locations around the world

State-of-the-art instruments and controls, including proprietary integrated surge control, trip voting, load sharing, start-up logic, monitoring and protection, as well as remote monitoring and diagnostics available

Water or air-cooled heat exchangers supplied per project requirements, including closed-loop cooling water systems for a complete solution



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.

IngersollRandProducts.com



Ingersoll Rand, IR and the IR logo are trademarks of Ingersoll Rand, its subsidiaries and/or affiliates. All other trademarks are the property of their respective owners. Ingersoll Rand compressors are not designed, intended or approved for breathing air applications. Ingersoll Rand does not approve specialized equipment for breathing air applications and assumes no responsibility or liability for compressors used for breathing air service. Nothing contained on these pages is intended to extend any warranty or representation, expressed or implied, regarding the product described herein. Any such warranties or other terms and conditions of sale of products shall be in accordance with Ingersoll Rand's standard terms and conditions of sale for such products, which are available upon request. Product improvement is a continuing goal at Ingersoll Rand. Any designs, diagrams, pictures, photographs and specifications contained within this document are for representative purposes only and may include optional scope and/or functionality and are subject to change without notice or obligation.