

Industrial modules

Turnkey power-generation and compression solutions to increase efficiency, reliability & power in restrictive areas



Industrial modules

Modern oil and gas operations must respond to evolving resource compositions and extreme operating conditions. They have to adapt to increasingly diverse fluid mixtures and processes, expand their reach into more remote and demanding environments, and continually incorporate new technologies for increased efficiency and performance. Modularized solutions simplify engineering, project management, installation and maintenance. Successful designs address the specific weight, space and power distribution requirements of each project, as well the universal need to minimize costs while ensuring the highest levels of efficiency and reliability.

GE Oil & Gas solutions

Since 1985, we have designed, manufactured and delivered more than 40 modules and pre-assembled units to customers around the world. Our field-proven, reliable modules are available for a complete range of onshore and offshore applications, including gas lift and injection, gas compression, power generation and waste-heat recovery. Our fully integrated solutions benefit from comprehensive capabilities in engineering analysis and design, manufacturing, installation and lifecycle support. And we invest significant resources in research, development and testing to increase the efficiency and reliability of our equipment, no matter how tough the demands. As a result, our modules are sought after for their small footprint, high power-to-weight ratio, and their ability to quickly and significantly increase a project's productivity level.

one source many solutions

Our modularized applications integrate core equipment with all relevant auxiliary systems in an engineered solution that is delivered to the customer fully connected and wired. With GE providing single-source responsibility for all project elements, customers benefit from a fully optimized system design as well as a greatly simplified workflow.

Our solutions provide significant benefits, including:

- An integrated engineering approach at the system level
- Effective project management coordination at every phase of the project
- Maximized prefabrication activities that enable reduced on-site installation, construction and testing requirements
- Testing, commissioning and start-up services

Optimized design

We provide turnkey modules for both gas compression and power generation service, as well as larger modules composed of pre-assembled units for optimized transport and logistics. Each module is engineered to meet specific project requirements. In addition to our experience in gas compression, processing systems and power generation, we offer customers the added value of extensive knowledge of materials, international codes and standards.

Using an advanced integrated design platform, we perform all engineering functions, from basic concept to final detailed design – ensuring the highest levels of quality and performance.

Engineering capabilities include:

- Conceptual and process design, instrumentation and control design, electrical systems design
- 3D modeling of piping and structures
- Materials management fully integrated with 3D modeling
- Structural dynamic analysis of modules and foundation
- Design for transportation, including fatigue analysis

The result is a tailored solution with optimized operability, maintainability and safety for the entire module.

Design for installation

Gas compression and power generation modules can range from simple configurations to large modules that include both turbocompression and gas processing equipment in the same prefabricated structure.

Where there are significant transportation and logistic constraints, large modules can be divided into different pre-assembled units that are easily interconnected at the final installation site.

Modules can be designed for transport by single-lift, RO-RO or skidding – depending on specific project requirements.



less space more power

Fully integrated in-house capabilities

All design and engineering functions are carried out by our own experienced personnel in purpose-designed GE facilities. With extensive in-house manufacturing capabilities for all major rotating equipment, we are able to create the most efficient solutions tailored to each plant's specific requirements. When third-party balance-of-plant equipment is integrated, suppliers have been rigorously screened and qualified by our global sourcing department for the highest quality standards.

All erection works (mechanical, electrical and instrumentation) are managed by experienced GE personnel, while remaining site activities are usually provided by a local contractor. Our operations team includes qualified personnel for all project management, engineering and procurement functions. We regularly provide this experience at integration yards around the world, partnering with local companies to ensure GE's high quality standards are applied to each project.

This breadth of in-house expertise offers customers simplified project management, including single-point responsibility for the entire project, from conceptual engineering to plant start-up.

Complete testing capabilities

Our facilities can accommodate complete fabrication and full-load testing for every module size and configuration. Our Modules yard in Avenza, on the Tuscany coast of Italy, is conveniently located for all shipping routes. It includes 40,000 m² of construction and testing areas (with plans for an additional 100,000 m²) and is fully equipped for single and combined load tests of complete modules.

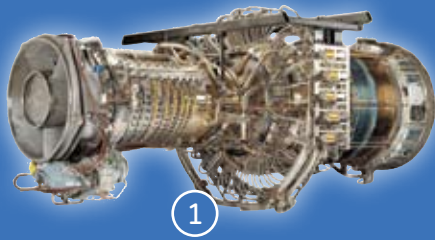
With complete assembly and testing activities performed in Avenza, we are able to offer a true 'plug & play' solution – accelerating production, minimizing in-field construction requirements and ensuring each unit's suitability to the final installation.

Alternatively, module construction can be localized at the customer's site to meet project requirements.

Experienced and dedicated customer support

We provide a dedicated team of Site Operation Leaders who support each customer from design through to commercial operation. This ensures safe and efficient execution of every project, with smooth transitions and open communication from beginning to end.





1. Gas turbines

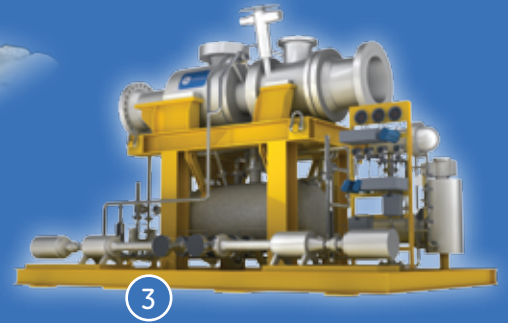
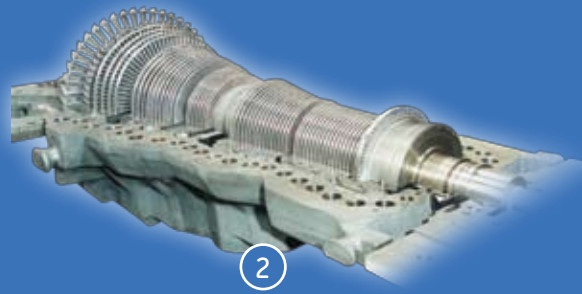
GE aeroderivative gas turbines are proven solutions for modular installations, providing maximum flexibility, simplified on-site maintenance and a high power-to-weight ratio with reduced footprint.

2. Steam turbines

The simple designs and sealing technologies of GE steam turbines ensure top performance over a long lifetime. The impulse stages offer enhanced wear resistance and provide the ability to withstand influx of water in offshore applications.

3. Turboexpander-compressors

GE's installed fleet includes 13 units on platforms, 2 on FPSOs and over 1,600 units in onshore industrial power-generation applications. Our high-efficiency designs cover a wide range of process and power demands, and are ideal for dew point control or condensate recovery applications. Optional active magnetic bearings reduce weight and footprint requirements.



4. Centrifugal pumps

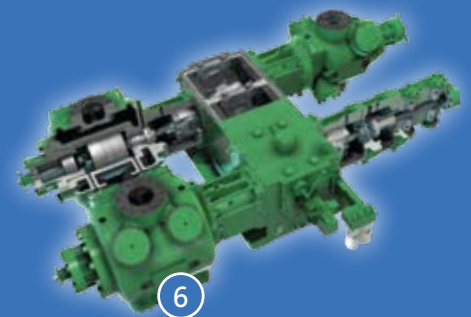
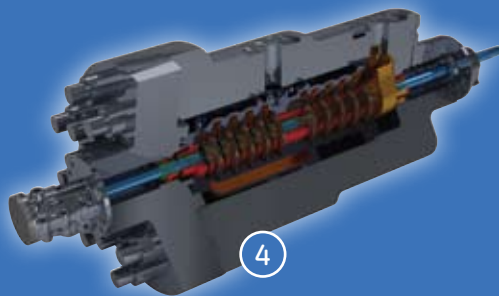
Our pump products are compliant with API 610 (ISO13709) and designed to meet customer requirements for a wide range of modular installations. Ease of maintenance is a key benefit, with reliability of our robust designs proven in over 18,000 installed units.

5. Centrifugal compressors

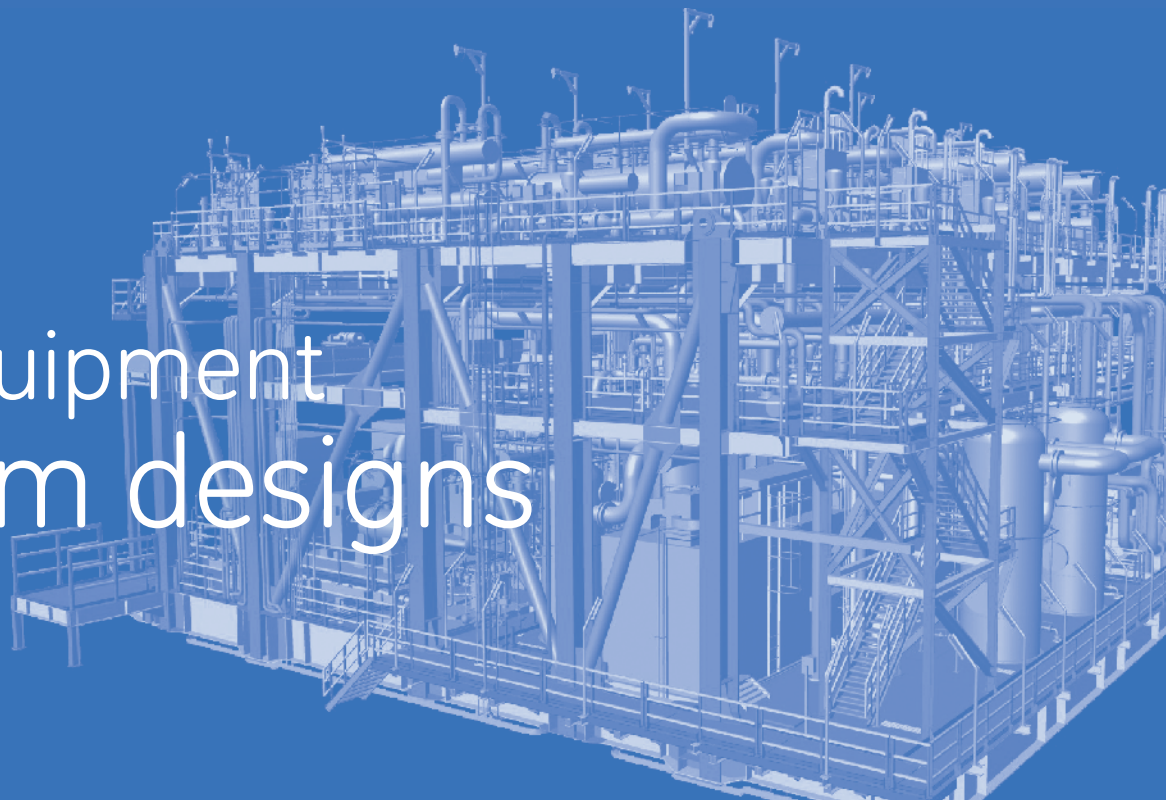
With over 3,100 units installed worldwide and the broadest range of discharge pressures available in the industry, GE is the world leader in compression technology. Our advanced materials and designs enhance the reliability and availability of compression equipment with both gas-turbine and electric-motor drivers.

6. Reciprocating compressors

We offer fully balanced reciprocating compressors for both API618 and API11P applications. These vibration-free machines provide high power density to suit virtually any natural gas installation – even the highest-pressure applications.



modular equipment
custom designs



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GE imagination at work