



Power on board

Gas turbine modules for FPSO's
(Floating Production, Storage and Offloading vessels)

Answers for energy.

SIEMENS

A single lift can bring 120 MW in place



The oil & gas industry exercises strict requirements for safety and reliability nowhere more than in the offshore business. With the move to deeper waters in search for oil and gas, floating production facilities like semi-submersibles and floating production, storage and offloading vessels (FPSO's) have become the solution.

Fits like a glove

Siemens' program of lightweight heavy-duty, industrial gas turbines is the perfect fit for these demanding applications. For decades the oil and gas industry has utilized Siemens engines for power generation and compressor drive. The key factors for success are high plant availability and an ability to provide the support required by the environment, on-shore or offshore. Siemens has to date sold more than 300 gas turbine modules in the 17–30 MW power range, the majority of them to the Oil and Gas industry.

Meeting present requirements and future demands

Fast and efficient installation of a power or compressor plant on board an FPSO saves time and money for the operator. Our introduction of complete modules

around two or more gas turbine units satisfies these interests. Furthermore, the module design conforms to classification requirements for floating production and meets market standards.

The module is designed for topside location. It consists of 2 to 4 gas turbine units suitable for the roll and pitch requirements imposed on a floating production facility like an FPSO.

The module suits both power generation and mechanical drive and is based on conditions in DNV-OSS-102 "Rules for classification of floating production and storage units".

This module design is in line with customer requirements for compact installation on vessels and platforms and meets stringent HSE specifications.

Dual-fuel flexibility

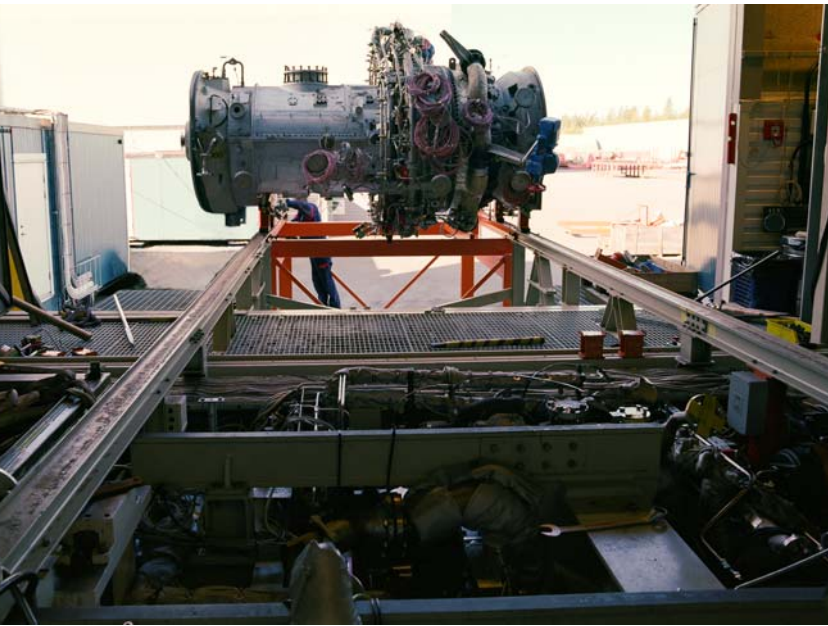
The SGT-600 and SGT-700 gas turbines are equipped as standard with dual-fuel systems. This is particularly important for FPSO service since operation on liquid is required at initial operation and after shutdown, pending gas fuel production. All engines also have dry low NO_x systems for gas fuel as standard with a

nominal emission down to 15 ppm NO_x (15% O₂). The DLE system is simple and robust and insensitive to variations in ambient conditions. SGT-600 units alone have accumulated more than 4 million operating hours with the DLE system since 1991.

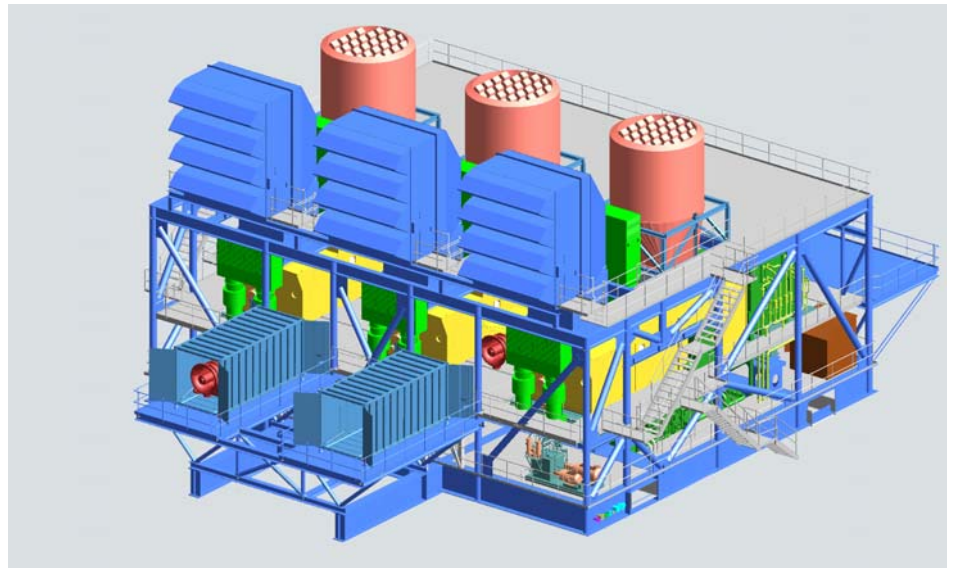
There is no substitute for availability

The design offers 8 meters between center lines, providing for a 4-meter distance between enclosure walls, which is sufficient space for easy sideways rollout of the gas turbine for (or during) service. A gas generator is exchanged in less than 24 hours. With long times between overhauls, high availability, hence maximum uptime, is ensured. The spare engine comes in a standard size 20-foot offshore container.

Availability is of key importance for all production equipment, never more so than in an offshore environment. So responsiveness, coordination with other platform activities and quick, safe and on-time execution are key factors in our offshore service business. As an Original Equipment Manufacturer with a global presence, Siemens offers unique service for all equipment supplied. We are your



competent partner for all replacement parts, maintenance plan activities, repairs, training, upgrades and modernizations. Needless to say all our field personnel are certified for offshore operations, always honoring the customer's striving for cost efficiency, quality and minimized environmental impact.



- Power module weight with 3 PG units, from 700 tons.
- Dimensions: 20.5x24.5x16.3 m. (Excluding bridge for container.)
- Package suitable for both SGT-600 and SGT-700.
- Compact, only 8 m between the centerline of the gas turbines.

	SGT-600	SGT-700
Output Power Generation (MW)	24.8	29.1
Output Mechanical Drive (MW)	25.4	30.1
Efficiency Power Generation (%)	34.2	36.0
Efficiency Mechanical Drive (%)	35.1	37.3
Exhaust Gas Flow (Kg/s)	80.4	91.0
Exhaust Gas Temperature (°C)	543	518

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Siemens AG
Energy Sector
Freyeslebenstrasse 1
91058 Erlangen, Germany

Siemens AG
Energy Sector
Wolfgang-Reuter-Platz
47053 Duisburg, Germany

Siemens Industrial Turbomachinery, Inc.
10730 Telge Road
Houston, Texas 77095, USA

For more information, contact our
Customer Support Center.
Phone: +49 180/524 70 00
Fax: +49 180/524 24 71
(Charges depending on provider)
e-mail: support.energy@siemens.com

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