25.1 MW
Marine Gas Turbine

The 25.1 MW aeroderivative marine gas turbine is a simple-cycle, two-shaft, high-performance engine. Derived from GE's CF6-6 aircraft engine, the 25.1 MW marine gas turbine consists of a gas generator, a power turbine, attached fuel and lube oil pumps, a fuel control and speed governing system, associated inlet and exhaust sections, lube and scavenge systems, as well as controls and devices for starting and monitoring engine operation.

The 25.1 MW marine gas turbine has four major components: a 16-stage, 18:1 pressure ratio compressor with seven stages of variable stators and inlet guide vanes; a fully annular combustor with externally mounted fuel nozzles; a two-stage, air-cooled high-pressure turbine which drives the compressor and the accessory-drive gearbox; and a six-stage, aerodynamically coupled, low-pressure power turbine which is driven by the gas generator's high-energy exhaust gas flow.

Easy to install and maintain, this gas turbine features the following: a simple modular design, marine corrosion-resistant materials and minimum size, weight and space requirements per horsepower. The machine delivers high thermal efficiency and low fuel and airflow per horsepower.

The 25.1 MW marine gas turbine is frequently housed in a thermal, acoustic enclosure and mounting base. The enclosure attenuates noise in the engine room and provides sensors for inlet icing and fire detection. It also houses fire extinguishing equipment.

Pre-wired, pre-piped and factory tested for easy installation, the 25.1 MW module weighs just 45,500 pounds (20,639 kilograms). It requires only 324 x 108 x 120 cubic inches of ship space (27 x 9 x 10 feet) (8.23 x 2.74 x 3.05 meters). The inlet duct flow area is 48 square feet (4.46 square meters) and the exhaust duct flow area is 36 square feet (3.34 square meters).

The simple modular design of the 25.1 MW marine gas turbine incorporates many features which maximize shipboard maintainability and minimize parts replacement downtime, such as a split compressor casing, in-place blade and vane replacement, in-place hot section maintenance and accessible external fuel nozzles.

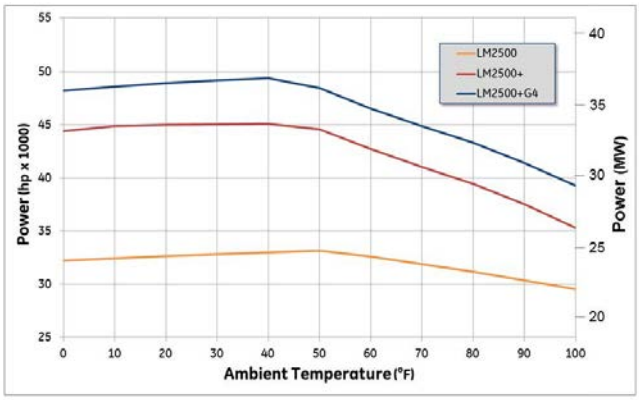
Performance

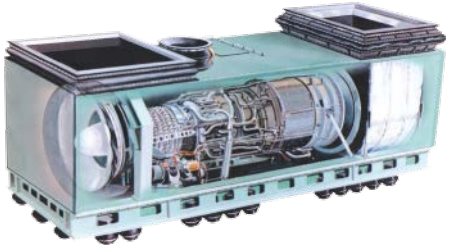
Output	33,600 shp (25,060 kW)
SFC	.373 lb/shp-hr (227 g/kW-hr)
Heat rate	6,860 Btu/shp-hr
	9,200 Btu/kW-hr
	9,705 kJ/kW-hr
Exhaust gas flow	155 lb/sec (71 kg/sec)
Exhaust gas temperature	1,051°F (566°C)
Power turbine speed	3600 rpm

Average performance, 60 Hz, 59°F (15°C), sea level, 60% relative humidity, no inlet/exhaust losses

Max Power vs. Ambient Temperature

losses: inlet/exhaust 4/6 inches (10/15 centimeters) water





25.1 MW marine gas turbine module

GE Aviation (Cincinnati, OH)
www.ge.com/marine

Imagination at work.

25.1 MW Marine Gas Turbine

25.1 MW Marine Gas Turbine Genset

The 25.1 MW marine gas turbine can be coupled with an electric generator making a 25.1 MW marine gas turbine-generator set. The 25.1 MW genset is ideal for applications for which electric drive is the propulsion system of choice. Seventeen cruise ships are in service that use GE's 25.1 MW and 30.2 MW gas turbine gensets for the total propulsion and on-board energy system. GE furnishes the complete 25.1 MW gas turbine-generator set using a generator from a generator manufacturer acceptable to the customer.

Dimensions*

Base plate width		104 in (2.64 m)
Base plate length		549 in (13.94 m)
Enclosure height		157 in (3.98 m)
Base plate weight		198,000 lb (90,000 kg)
Duct flow areas	Inlet	48 ft^2 (4.46 m^2)
	Exhaust	30 ft^2 (3.34 m^2)

* Exact dimensions, weight and performance vary with the specific generator selected.

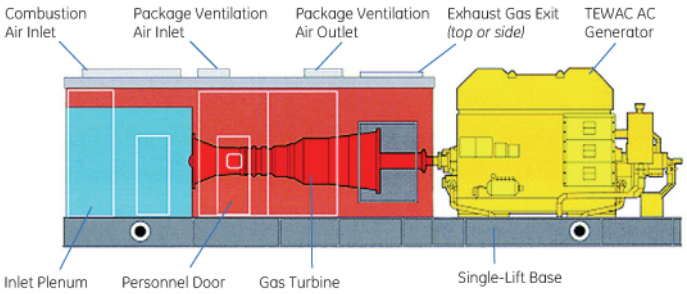
Performance

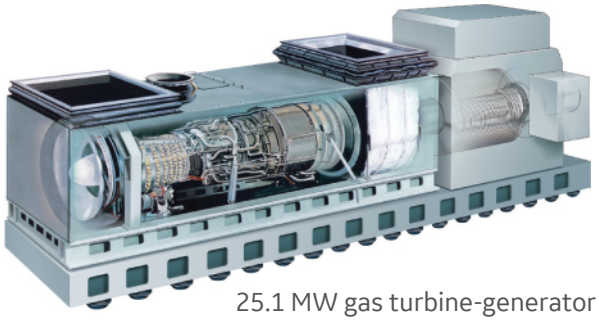
Output	24,050 kW
Heat rate	9,421 Btu/kW-hr
Thermal efficiency	36%

Average performance, 60 Hz, 59°F (15°C), sea level, 60% relative humidity, 4 in (5 cm) water inlet loss, 6 in (15 cm) water exhaust loss

Specific Qualifications

Each 25.1 MW marine gas turbine production unit is acceptance-tested by GE and is available for customer witness. The gas turbine has been granted type approval by ABS, BV, DNV, GL and Lloyd's Register.





25.1 MW gas turbine-generator set

GE Aviation (Cincinnati, OH)
www.ge.com/marine
Other product sheets are available on GE's 4.6 MW, 30.2 MW, 35.3 MW, 46.1 MW and 52.7 MW gas turbines.

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