35 MW
Marine Gas Turbine

GE's 35 MW aeroderivative marine gas turbine is the fourth generation of the industry standard-setting 25 MW marine gas turbine. Main features of the 35 MW gas turbine are increased power (17%) compared to the third generation 30 MW marine gas turbine with the same high reliability and availability, and the same high efficiency (lower SFC). The gas turbine's modular design provides for easy and timely repair and refurbishment with its split compressor casing, in-place blade and vane replacement, in-place hot-section maintenance and external fuel nozzles.

Comparing the Design of the 35 MW to the 30 MW Marine Gas Turbine

The increase in power while retaining reliability and maintainability is derived from a combination of a 6% increase in airflow, higher exhaust gas temperatures, and a higher pressure ratio (24.2 versus 23.6) through incorporation of the following proven technology enhancements:

- Redesigned inlet guide vanes (IGV) and re-staggered stage 0 blisk airfoils
- Increased high-pressure compressor life through changes in rotor materials
- Redesigned stage 1 high-pressure turbine blade with improved cooling and oxidation coating
- Application of thermal barrier coatings to high-pressure turbine stage 1 nozzle
- Material change and improved cooling for the stage 2 nozzle
- Redesigned stage 2 high-pressure turbine rotor for increased life
- Redesigned stages 2 and 3 nozzles of the 6-stage power turbine for increased power output.

Pre-wired, pre-piped and factory tested for easy installation, the 35 MW module with gas turbine weighs just 50,600 pounds (22,707 kilograms), and is 27 feet (8.2 meters) long, 9 feet (2.0 meters) wide and 8 feet (2.4 meters) high. The inlet duct flow area is 57 square feet (5.3 square meters) and the exhaust duct flow area is 36 square feet (3.34 square meters).

The 35 MW, introduced in November of 2005, was chosen to power a large high-speed yacht and has considerable experience in industrial applications.

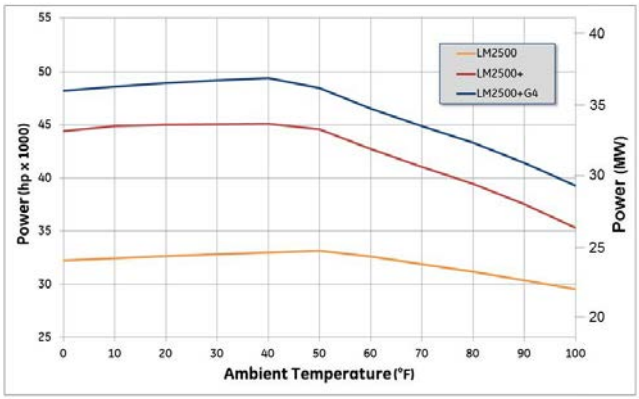
Performance

Output	47,370 shp (35,320 kW)
SFC	.354 lb/shp-hr (215 g/kW-hr)
Heat rate	6,469.1 Btu/shp-hr
	8,675.5 Btu/kW-hr
	9,150.9 kJ/kW-hr
Exhaust gas flow	204.7 lb/sec (93 kg/sec)
Exhaust gas temperature	1,020°F (549°C)
Power turbine speed	3600 rpm

Average performance, 60 Hertz, 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



35 MW marine module

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

Imagination at work.

35 MW Marine Gas Turbine

35 MW Marine Gas Turbine Genset

The 35 MW marine gas turbine can be coupled with an electric generator making an 35 MW marine gas turbine-generator set. This genset is ideal for applications for which electric drive is the propulsion system of choice.

GE furnishes the complete 35 MW gas turbine-generator set using a generator manufacturer acceptable to the customer.

Dimensions*

Base plate width		150 in (3.81 m)
Base plate length		566 in (14.38 m)
Enclosure height		157 in (3.98 m)
Base plate weight		213,500 lb (97,045 kg)
Duct flow areas	Inlet	59.736 sq ft
	Exhaust	36 sq ft

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

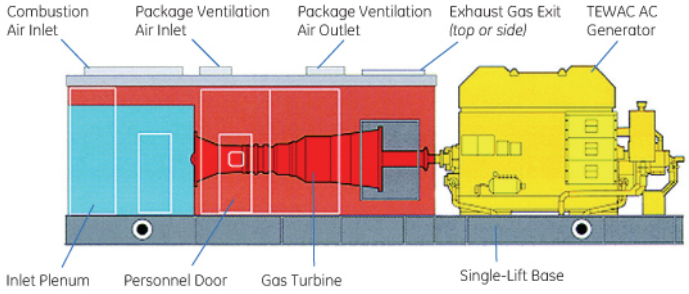
Performance

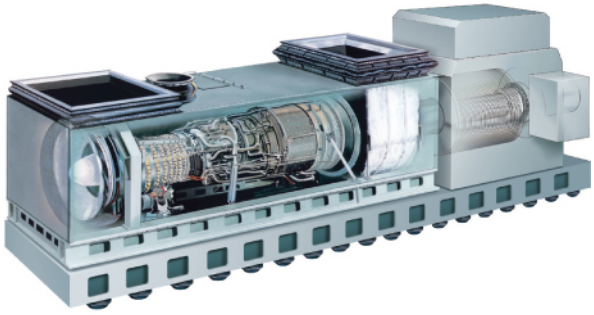
Output	34,700 kW
Heat rate	8,784 Btu/kW-hr
Thermal efficiency	39%

Average performance, 60 Hz, 59°F, sea level, 60% relative humidity, 4 in water inlet loss, 6 in water exhaust loss

Specific Qualifications

The 35 MW gas turbine propulsion system includes the turbine, base and enclosure, and lube oil storage and conditioning assembly. This gas turbine has been granted type approval by ABS, BV, DNV, GL, Lloyd's Register and RINA (single annular combustor only).





35 MW gas turbine-generator set

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Other product sheets are available on GE's 4.5 MW, 25 MW, 30 MW, 46 MW and 52 MW gas turbines.

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