GE
Marine

LM2500 Marine Gas Turbine

The LM2500 marine gas turbine is a simple-cycle, two-shaft, high-performance engine. Derived from GE's TF39 and CF6-6 aircraft engines, the LM2500 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 LM2500 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, the LM2500 features the following: a simple modular design, marine corrosion-resistant materials and minimum size, weight and space requirements per horsepower. The LM2500 delivers high thermal efficiency and low fuel and airflow per horsepower.

The LM2500 marine gas turbine is frequently housed in a high-shock resistant, 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. GE furnishes these modules for the United States Navy and other navies. The modules can be equipped with either resilient shock mounts or hard mounts. Resilient shock mounts not only provide mechanical safeguards, they also are important for absorbing structure-borne noises and reducing the ship's noise signature.

Pre-wired, pre-piped and factory tested for easy installation, the LM2500 module weighs just 48,000 pounds (22,000 kg) with shock mounts and 45,500 pounds (20,639 kg) without. 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 m). The inlet duct flow area is 48 square feet and the exhaust duct flow area is 36 square feet (3.34 sq m).

The simple modular design of the LM2500 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.

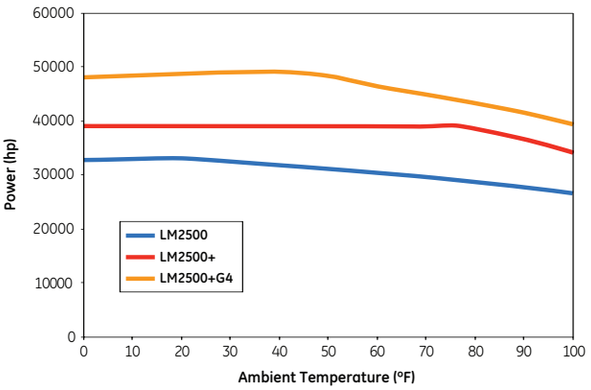
Performance

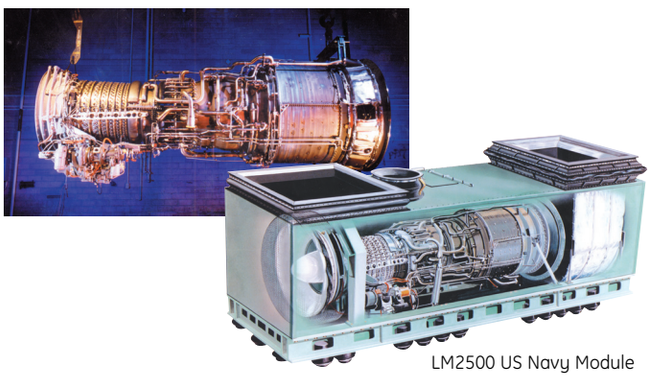
Output	33,600 shp (25,060 kW)
SFC	.373 lb/shp-hr
Heat rate	6,860 Btu/shp-hr
	9,200 Btu/kWs-hr
	9,705 kJ/kWs-hr
Exhaust gas flow	155 lb/sec (70.5 kg/sec)
Exhaust gas temperature	1,051°F (566°C)
Power turbine speed	3600 rpm

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

Max Power vs. Ambient Temperature

(losses: inlet/exhaust 4/6 inches water)





LM2500 US Navy Module

LM2500 Marine Gas Turbine

LM2500 Marine Gas Turbine - Genset

The LM2500 marine gas turbine can be coupled with an electric generator making an LM2500 marine gas turbine-generator set. The LM2500 gensets are ideal for military applications for which electric drive is the propulsion system of choice. The DDX program of the United States Navy is an example of an application for such a genset. The Japanese Asuka research ship is already using the LM2500 in an electric drive propulsion system. More than 10 cruise ships are in service or under construction that use GE's LM2500 and LM2500+ gas turbine gensets for the total propulsion and on-board energy system. GE furnishes the complete LM2500 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 (435,600 kg)
Duct flow areas	Inlet	48 sq ft (4.46 sq m)
	Exhaust	30 sq ft (3.34 sq m)

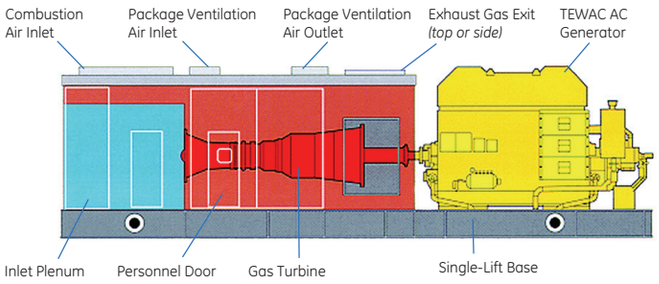
Performance*

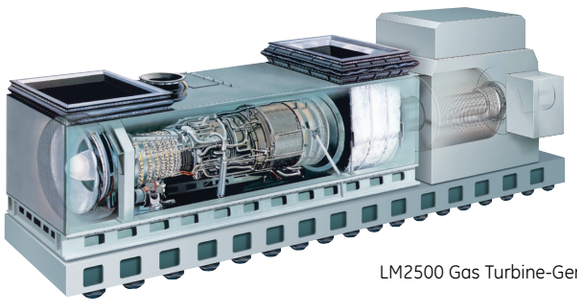
Output	24,050 kW
Heat rate	9,421 Btu/kW-hr
Thermal efficiency	36%

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

Specific Qualifications

The LM2500 gas turbine propulsion system (turbine, base and enclosure plus lube oil storage and conditioning assembly) has been evaluated and accepted by the U.S. Navy as meeting their requirements for shock, vibration, EMI and electrical bonding plus airborne and structure-borne noise required for surface combatant vessels. Each LM2500 production unit is acceptance-tested by GE and is available for customer witness. The LM2500 gas turbine has been granted type approval by ABS, DNV and RINA.





LM2500 Gas Turbine-Generator Set

Contact us at www.ge.com/marine

*Exact dimensions, weight and performance vary with the specific generator selected. Other product sheets are available on the LM500, LM1600, LM2500+, LM2500+G4 and LM6000.

AE-28203F (08/06)