

GE  
Marine

# LM1600 Marine Gas Turbine

The LM1600 marine gas turbine is a simple-cycle, two-shaft, high-performance engine. Derived from GE's F404 aircraft engine, the LM1600 is comprised 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 and control—as well as devices for starting and monitoring the engine operation.

The LM1600 has four major components: a 10-stage, 22:1 pressure ratio compressor with two stages of variable stator vanes; a fully annular combustor with externally mounted fuel nozzles; a two-stage, air-cooled turbine; and a two-stage aerodynamically coupled low-pressure power turbine which is driven by the gas generator's high energy exhaust gas flow.

The LM1600 marine gas turbine is frequently housed in a highly 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. Various GE Marine System Suppliers of the LM1600 have designed modules for housing the engines they package.

These modules are usually pre-wired and factory-tested for easy installation. The weight and dimensions of these modules vary depending on the packager's design. The typical weight is 24,000 lbs (10,909 kg), and typical dimensions are 22.3 ft long x 7.9 ft wide x 9.3 ft high (6.8 m long x 2.4 m wide x 2.8 m high). The inlet duct flow area is 20.5 square feet (1.9 sq m) and the exhaust duct flow area is 31.0 square feet (2.88 sq m).

The simple modular design of the LM1600 incorporates many features to maximize shipboard maintainability and 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.

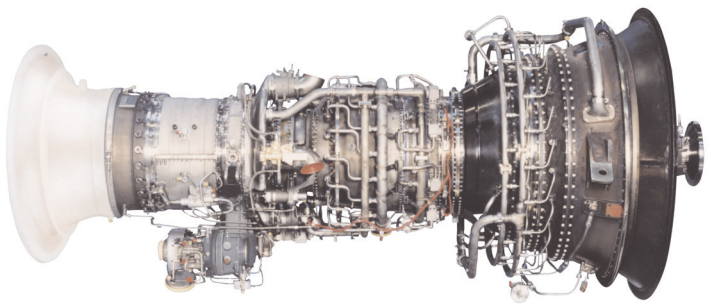
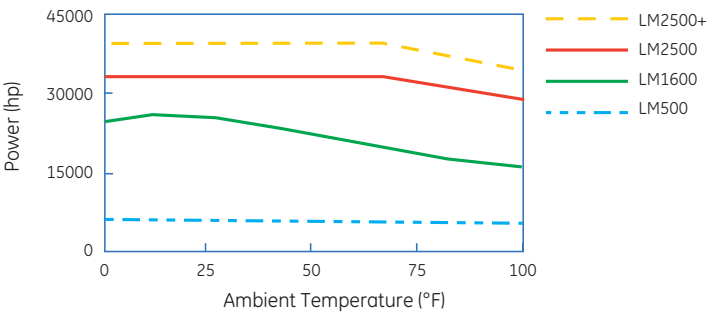
## Performance

Output	20,000 shp (14,920 kW)
SFC (lb/shp-hr)	.376
Heat rate	6,928 Btu/shp-hr 9,290 Btu/kW-hr 9,801 kJ/kW-hr
Exhaust gas flow	104 lb/sec (47.3 kg/sec)
Exhaust gas temperature	950°F (510°C)
Power turbine speed	7,000 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)



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