



# 35.3 MW Marine Gas Turbine

GE's 35.3 MW aeroderivative marine gas turbine is the fourth generation of the industry standard-setting 25.1 MW marine gas turbine. Main features of the 35.3 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 35.3 MW to the 30.2 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 35.3 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 35.3 MW, introduced in November of 2005, was chosen to power a large high-speed yacht and has considerable experience in industrial applications.

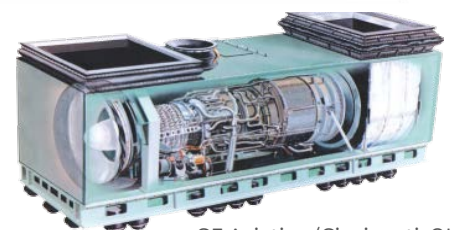
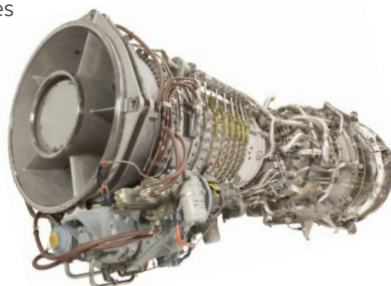
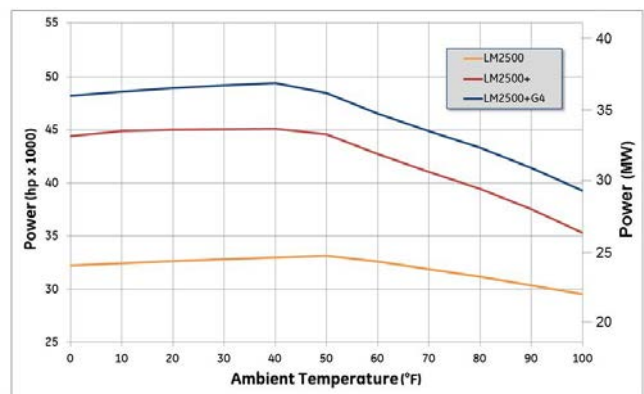
## Performance

|                         |                              |
|-------------------------|------------------------------|
| 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



35.3 MW marine module

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

# 35.3 MW Marine Gas Turbine

## 35.3 MW Marine Gas Turbine Genset

The 35.3 MW marine gas turbine can be coupled with an electric generator making an 35.3 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 35.3 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               |

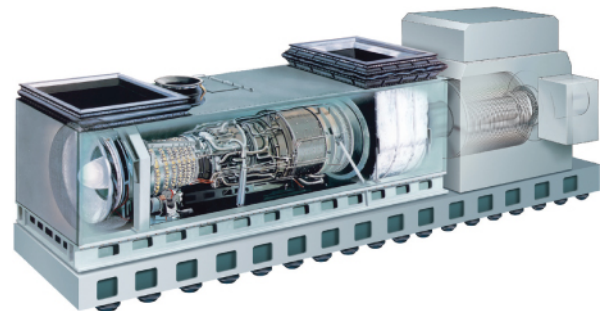
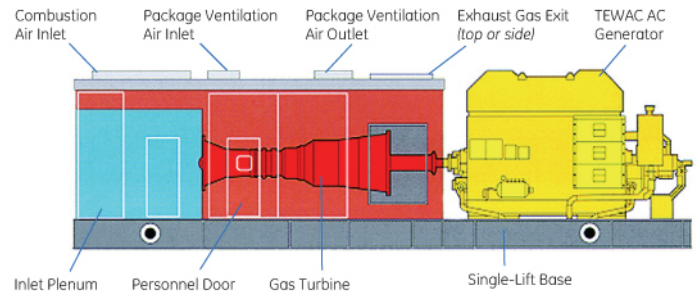
\* Exact dimensions, weight and performance vary with the specific generator selected.

### 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 35.3 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).



35.3 MW gas turbine-generator set

