



46.1 and 52.7 MW Marine Gas Turbines

GE's 46.1 MW and 52.7 MW marine gas turbines are ready now to propel high power ships! These simple-cycle, two-shaft gas turbines are derived from GE's CF6-80C2 high-bypass turbofan aircraft engine. The 46.1 MW (PC model) marine gas turbine operates at 3600 rpm, and couples loads directly to the low-pressure turbine shaft without the need for a free power turbine. This feature allows the commonality of the CF6-80C2 and the 46.1 MW gas turbine to be maintained. The 52.7 MW (PG model) mechanical drive turbine operates at 3850 rpm to achieve additional power in the same size machine. The low-pressure compressor features independently controlled variable inlet guide vanes and variable stator vanes to modulate airflow, ensuring fast, easy startup/shutdown – even under partial loads. The high-pressure compressor is mated to an efficient annular combustor for maximum fuel economy. Incorporation of advanced airflow and cooling technologies helps both models have unprecedented parts life, and provide reliable and efficient power, low fuel consumption, and low NO_x, carbon monoxide and unburned hydrocarbon emissions, which is critical for marine applications. With no free-spinning power turbine there is greater flexibility in ship design and better use of variable space.

These gas turbines weigh only 16,340 pounds (7,411 kilograms) and the entire unit is only 193.5 inches long (4.96 meters), 85 inches wide (2.16 meters) and 81 inches (2.05 meters) high so you can generate more power in less space.

The compact 46.1 MW and 52.7 MW gas turbines, with their great environmental and high thermal performance (42% efficiency), are ideal gas turbines for ship propulsion systems where high power and high performance are requirements.

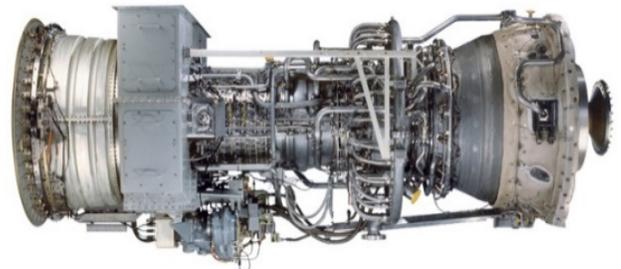
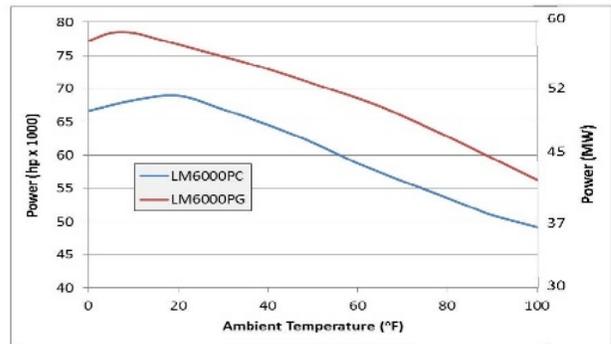
Performance

	<u>PC Model</u>	<u>PG Model</u>
Output		
shp	61,851	70,656
kW	46,123	52,689
SFC		
lb/shp-hr	.333	.335
g/kW-hr	202.7	203.6
Heat rate		
Btu/shp-hr	6,128	6,168
Btu/kW-hr	8,224	8,279
kJ/kWs-hr	8,675	8,773
Exhaust gas flow		
lb/sec	286	306
kg/sec	130	139
Exhaust gas temperature		
	853°F (456°C)	921°F (494°C)
Power turbine speed	3600 rpm	3850 rpm

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

Max Power vs. Ambient Temperature

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



46.1 MW gas turbine

46.1 MW and 52.7 MW Marine Gas Turbines

46.1 MW and 52.7 MW Marine Gas Turbine Gensets

The 46.1 MW and 52.7 MW marine gas turbines can be coupled with an electric generator in a hot or cold end drive configuration for installation flexibility. The gensets, with rapid start up and load rejection capability, are ideal for ship applications for which electric drive is the propulsion system of choice.

Dimensions*

Base plate width	169.6 in (4.31 m)
Base plate length	650 in (16.51 m)
Enclosure height	193.3 in (4.91 m)
Base plate weight	302,000 lb (136,985 kg)
Duct flow areas	
Inlet	90 sq ft (8.36 sq m)
Exhaust	57 sq ft (5.3 sq m)

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

Performance*

<u>Model</u>	<u>PC Model</u>	<u>PG Model</u>
Output (kW)	46,123	52,689
Heat rate (Btu/kW-hr)	8,224	8,279
Thermal efficiency	40.8%	41.6%

**Average performance, 60 Hertz, 59°F, sea level, 60% relative humidity, 4 inches water inlet loss, 6 inches water exhaust loss

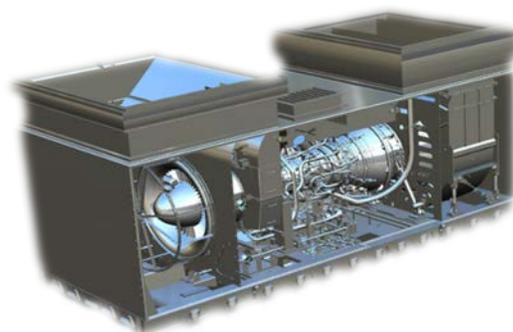
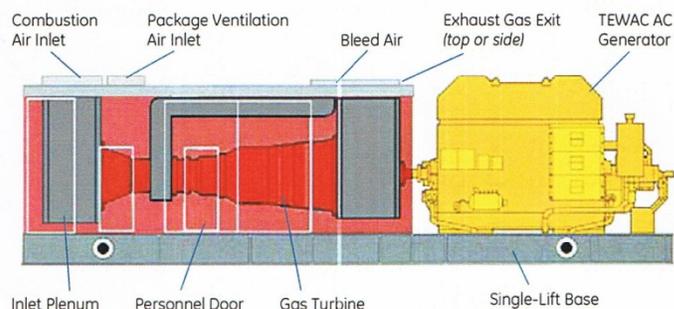


52.7 MW gas turbine on test in Italy

Specific Qualifications

More than 1,200 46.1 MW and 52.7 MW gas turbines have shipped or are operating in industrial applications, driving electric generators for utility and industrial power generation, or in mechanical drive applications. At sea, 15 units are used aboard offshore platforms, floating production storage and offloading ships, and power barges, accumulating over 700,000 operating hours. More than 8 million operating hours have been logged on the 46.1 MW gas turbines, experiencing a fleet-wide reliability greater than 99%.

The 46.1 MW and 52.7 MW models have received certifications from Lloyd's Register's Design Appraisal Document to the Marine Naval Vessel Rules (NVR) and RINA. These powerful gas turbines are now available to propel high power marine applications.



46.1 MW marine module

