



9E.03/.04 GAS TURBINE

Flexible, Adaptable Performance

From desert climates to the tropics, to the arctic cold, the rugged 9E.03 heavy duty gas turbine provides essential power and performs in a vast number of duty cycles and applications. It is one of the most fuel-flexible products in the industry, capable of using more than 52 types of fuel—almost the entire fuel spectrum. The 9E.04 heavy duty gas turbine provides increased power and performance while maintaining the simplicity and operational strengths of the 9E.03 gas turbine. The result is a platform that delivers high availability, reliability, and durability while lowering the overall cost per kilowatt.



Rapidly Getting You from Decision to Power Delivery

- Demonstrated order to operation in less than six months.
- Modular architecture and prepackaged components make for quick installation in challenging environments.
- Simple cycle, combined cycle, and various industrial applications in a broad range of industries, including electrical utilities/independent power producers, industrial oil and gas refineries, IWPP, aluminum industry for smelting, steel mills, and LNG.
- Fast-start and fast-load capabilities provide operational flexibility.
- Longest maintenance intervals without reduced performance—32,000 hours for combustion and hot gas inspections.

9E.04 Offers Enhanced Power and Performance

- Reduced fuel costs and increased revenue
 - 143 MW output and 37% efficiency simple cycle
 - 208 MW output and more than 53% efficiency in a 1x1 MS 9E.04 combined cycle power plant.
- A nearly five percent reduction in installed \$/kW price, translating to a quicker return on investment.
- New 4-stage turbine module fits within the same footprint as an already installed 9E gas turbine unit.
- Utilizes proven E- and F-class materials, fired at lower E-class temperatures for hot gas path, with cooling and sealing improvements, improved clearances and optimized work splits between stages.

132-143 MW Simple Cycle Output
>54% COMBINED CYCLE EFFICIENCY

	9E.03	9E.04
Frequency	50	50
SC Net Output (MW)	132	143
SC Net Heat Rate (Btu/kWh, LHV)	9,860	9,250
SC Net Heat Rate (kJ/kWh, LHV)	10,403	9,759
SC Net Efficiency (% LHV)	34.6%	36.9%
Exhaust Energy (MM Btu/hr)	828	814
Exhaust Energy (MM kJ/hr)	874	858
GT Turndown Minimum Load (%)	35%	35%
GT Ramp Rate (MW/min)	11	12
NO _x (ppmvd) at Baseload (@15% O ₂)	5	5
CO (ppm) at Min. Turndown w/o Abatement	25	25
Wobbe Variation (%)	>+/-30%	>+/-30%

	1x1 MS 9E.03	1x1 MS 9E.04
Power Plant Configuration		
CC Net Output (MW)	199	208
CC Net Heat Rate (Btu/kWh, LHV)	6,530	6,360
CC Net Heat Rate (kJ/kWh, LHV)	6,890	6,710
CC Net Efficiency (% LHV)	52.3%	53.7%
Bottoming Cycle Type	2PNRH	2PNRH
Plant Turndown - Minimum Load (%)	72%	70%
Ramp Rate (MW/min)	11	12
Startup Time (Hot, Minutes)	38	38

	2x1 MS 9E.03	2x1 MS 9E.04
Power Plant Configuration		
CC Net Output (MW)	401	420
CC Net Heat Rate (Btu/kWh, LHV)	6,460	6,300
CC Net Heat Rate (kJ/kWh, LHV)	6,816	6,647
CC Net Efficiency (% LHV)	52.8%	54.2%
Bottoming Cycle Type	2PNRH	2PNRH
Plant Turndown - Minimum Load (%)	36%	35%
Ramp Rate (MW/min)	22	25
Startup Time (Hot, Minutes)	38	38

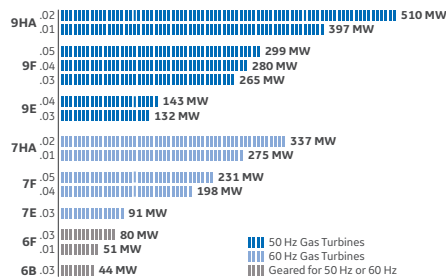


GAS TURBINE PRODUCT PORTFOLIO OVERVIEW

Efficient, Flexible, Reliable Power

GE offers the world's largest range of heavy duty gas turbines—from 44 to 510 MW. Whether for consumer electrical generation, industrial cogeneration, or mechanical drive applications, GE's gas turbines bring proven experience and capability to any power plant. On the cutting edge of gas turbine technology, GE's wide array of equipment options can meet even the most challenging power requirements.

Heavy Duty Gas Turbines



Pioneer in Gas Turbine Technology

Materials Advantage from our Aviation Expertise

GE takes advantage of more than 60 years of material science from our aviation heritage to increase performance at high firing temperatures. GE was the first to introduce single crystal alloys and devoted 15 years to developing CMCs. These materials provide longer parts life for lower life cycle costs and higher efficiencies, leading to a cost effective conversion of fuel to electricity.

Half Century of Fuel Research and Testing

GE is the industry leader in burning unconventional gas. We introduced the first F-class gas turbine to use Arabian super light crude and invented the DLN combustion system more than 30 years ago to reduce emissions.

Validation That Demonstrates Performance

GE built the world's largest, most powerful off-grid gas turbine testing facility to demonstrate gas turbine operability and performance before first fire in the field.

GE Introduced E-Class, F-Class, and H-Class Technology to the Industry

High-Efficiency H-Class

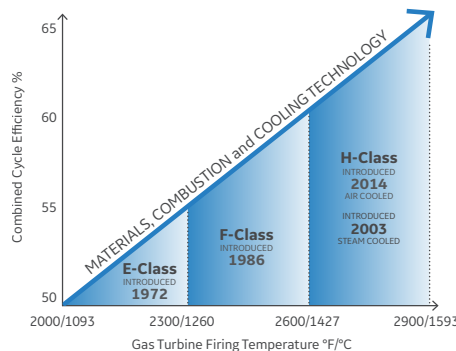
- Most cost-effective conversion of natural gas to electricity in the H-class industry.
- Includes the world's largest high efficiency turbine: 510 MW.
- First H-class gas turbine fleet to reach 220,000 operating hours.

Industry-Leading F-Class

- Introduced F-class technology nearly 30 years ago.
- World's largest fleet, with more than 1,100 installed units and 50 million fired hours in service.
- Industry's best reliability at 99.4%.

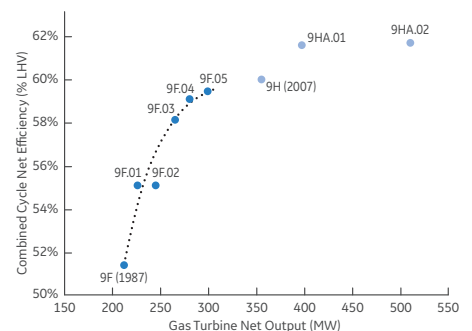
Reliable B- and E-Class

- Rugged and available in the most arduous climates.
- Industry-leading fuel flexibility, burning more than 50 gases and liquids.
- Quick installation for fast-track projects.
- Over 3000 units installed.
- More than 143 million operating hours.



Platform Product Evolution Evolutionary Method Reduces Time to Product Introduction

50 Hz



60 Hz

