Gas turbine SGT-600

For power generation and mechanical drive applications

A small footprint, high fuel flexibility, and third-generation DLE make the SGT-600 the perfect choice. Typical applications include industrial power generation in combined heat and power (CHP), and combined cycle power plants (CCPP), onshore oil and gas power generation, and mechanical drives.

Key benefits

- 25-MW gas turbine
- 34.6% simple cycle efficiency
- More than 330 units sold (> 9 million equivalent operating hours)
- Robust, reliable design
- High fuel flexibility – High exhaust energy
- Well-proven dry low emissions (DLE) combustion system < 15 Ppmvd
- On-load fuel changeover (gas to liquid fuel and liquid fuel to gas)
- Low lifecycle costs

High fuel flexibility
- Available with both conventional and DLE combustion systems
- Gaseous and liquid fuels on-load changeover
- Third-generation DLE system
- Best-in-class NOx emission levels

Customer service and maintenance
- 24-hour gas generator swap
- Maximized serviceability – on-site maintenance or gas generator removal for off-site maintenance
- Service plan with just 17 scheduled maintenance days over a 17-year service cycle
- Minimized load-to-load downtime
- Remote diagnostic service with online monitoring, expert performance data analysis, and fleet data comparisons
- 24-hour global help desk

Important features
- Low emissions maintained on different fuels
- Maximized uptime
- Robust industrial design
- Small environmental footprint
- High lifetime profitability

DLE combustion system
- Well-proven and reliable dry low emissions (DLE) combustor with low emissions.

Power turbine
- Two-stage uncooled free power turbine offers nominal shaft speed up to 7,700 rpm. For mechanical drive, it may operate at 50 to 105 percent of the nominal speed. The blades use interlocking shrouds for extra robustness.

Compressor
- 10-stage axial flow transonic compressor with three balancing planes accessible from the outside.

Easy to maintain, reliable, and robust twin-shaft designed core engine, consisting of gas generator plus a free spinning power turbine

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Power generation package

The SGT-600’s ability to handle sudden load changes and its high exhaust temperature makes it ideal for simple cycle, combined cycle, cogeneration, and other heating applications:

• Small footprint for easy fitting
• Modular and flexible package design
• Single-lift capability

Simple cycle power generation

- Power output: 24.5 MW(e)
- Fuel: Natural gas, liquid fuel, dual fuel
- Frequency: 50/60 Hz
- Gross efficiency: 33.6%
- Heat rate: 10,720 kJ/kWh
- Turbine speed: 7,700 rpm
- Pressure ratio: 14.0 : 1
- Exhaust gas flow: 81.3 kg/s
- Exhaust temperature: 543°C (1,009°F)
- NOx emissions: ≤ 15 ppmvd at 15% O2 on fuel gas (with DLE)

Mechanical drive package

- Power output: 25.3 MW
- Fuel: Natural gas, liquid fuel, dual fuel
- Frequency: 50/60 Hz
- Gross efficiency: 34.6%
- Heat rate: 10,390 kJ/kWh
- Turbine speed: 3,850 – 8,085 rpm
- Pressure ratio: 14.0 : 1
- Exhaust gas flow: 81.3 kg/s
- Exhaust temperature: 543°C (1,009°F)
- NOx emissions: ≤ 15 ppmvd at 15% O2 on fuel gas (with DLE)

Physical dimensions

- Approx. weight: 150,000 kg (330,693 lb) / 59,000 kg (130,072 lb)
- Length: 18.8 m (61.7 ft) / 11.7 m (38.4 ft)
- Width: 4.6 m (15.0 ft) / 4.0 m (13.1 ft)
- Height: 4.0 m (13.1 ft) / 4.0 m (13.1 ft)

Combined cycle power generation

- Siemens combined cycle power plant: SCC-600 1 x 1 / SCC-600 2 x 1
- Net power output: 35.9 MW(e) / 73.3 MW(e)
- Net plant efficiency: 49.9% / 50.9%
- Net heat rate: 38/39 MW / 7/8 MW
- Number of gas turbines: 1 / 2

SGT-600 performance

Above performances at ISO conditions, gaseous fuel