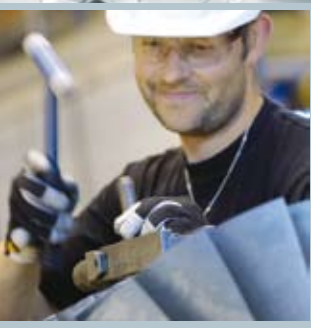


SGT-600 Industrial Gas Turbine

Power Generation: (ISO) 24.77 MW(e)

The SGT-600 is the most efficient and environmentally friendly industrial gas turbine in its power range. The robustness of the industrial design ensures high reliability and availability in all environments and applications.

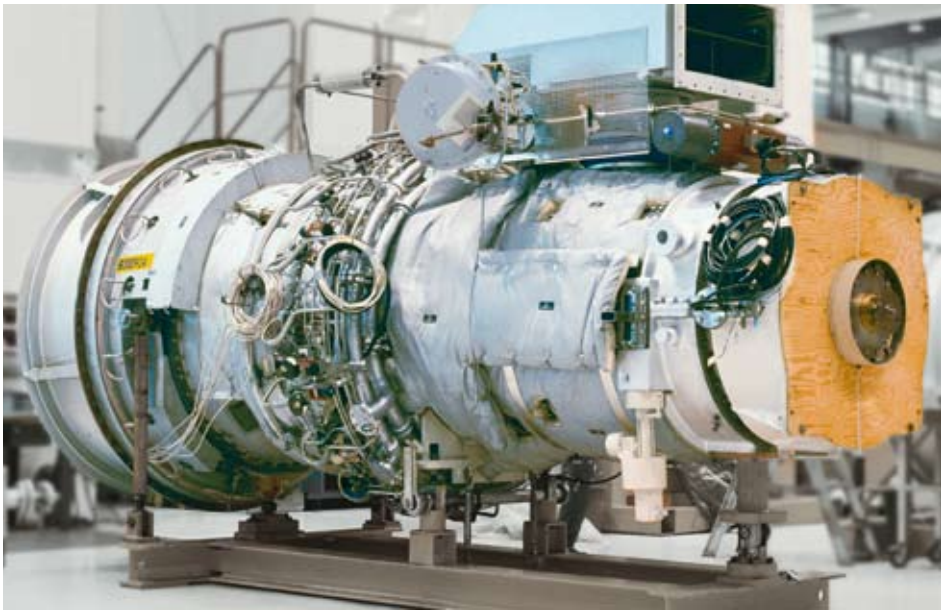
The Siemens SGT-600 is a heavy-duty industrial gas turbine designed and built to meet requirements for low life-cycle cost, i.e. low first cost, low fuel costs and low costs for operation and maintenance. Low fuel consumption, even at part loads, and short installation and commissioning times are major features of this turbine.

In cogeneration and combined-cycle applications, the high exhaust temperature of the gas turbine makes it one of the most efficient units on the market. The SGT-600 is even able to perform durably in aggressive industrial environments under really tough operating conditions, whether onshore or offshore, in arctic or desert climate.

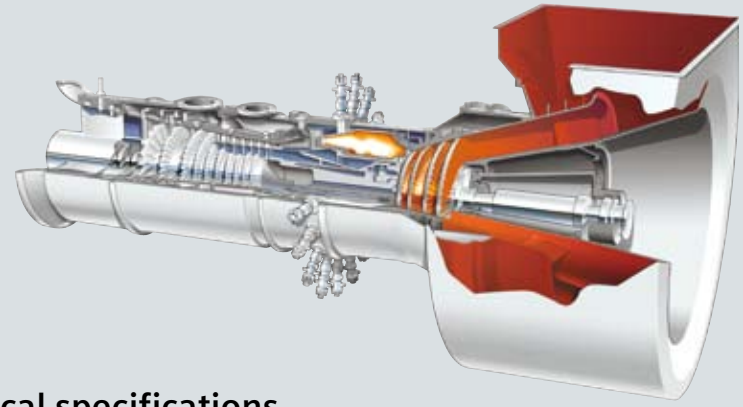
The outstanding reliability of the SGT-600 makes it ideal for interdependent multi-unit applications.

A single-lift power generation module for floating platforms such as FPSO (Floating Production, Storage and Offloading) and semi-submersibles is available for both the SGT-600 and the SGT-700.

The SGT-600 uses a Dry Low Emission (DLE) system maintaining low specific fuel consumption in all applications. The system is both stable and reliable, not requiring frequent recalibration, and coping easily with load changes, planned or otherwise.



SGT-600 Industrial Gas Turbine



SGT-600 gas generator.

Technical specifications

Overview

- Power generation: 24.77 MW(e)
- Frequency: 50/60 Hz
- Electrical efficiency: 34.2 %
- Heat rate: 10,533 kJ/kWh (9,983 Btu/kWh)
- Turbine speed: 7,700 rpm
- Compressor pressure ratio: 14:1
- Exhaust gas flow: 80.4 kg/s (177.3 lb/s)
- Exhaust temperature: 543° C (1,009° F)
- NO_x emissions (with DLE corrected to 15 % O_2 dry)
  - Gas fuel: ≤25 ppmV
  - Liquid fuel: ≤42 ppmV (wet)

Axial Compressor

- 10-stage axial flow compressor
  - 2 stages variable guide vanes
- Electron-beam-welded rotor

Combustion

- 18 dual-fuel 2nd generation Dry Low Emissions (DLE) burners
- Welded annular sheet metal design

Emissions control

- DLE combustion system
- Water injection for NO_x-reduction during liquid fuel operation in DLE combustor

Compressor Turbine

- 2-stage axial-flow compressor turbine
  - Both stages are air-cooled

Power Turbine

- 2-stage free power turbine, uncooled
- Interlocking shrouds

Bearings

- Tilting pad radial and thrust
- Vibration- and temperature-monitoring

Fuel System

- Natural gas - Liquid fuel - Dual fuel
- Fuel-changeover capability at full and part load
- Gas-supply pressure requirement: 24.5 bar(a) ±0.5 bar (355±7 psi(a))

Gearbox

- 50 or 60 Hz

Generator

- Four-pole design
- Rated voltage: 10.5/11.0/13.8 kV
- 50 or 60 Hz
- Protection IP54
- PMG for excitation power supply
- Complies with -IEC/EN 6034-1 standard

Lubrication

- Lubricating oil tank located in package base frame
- Two main lube oil circuits, low pressure and high pressure
- 3 x 50 % HP and 3 x 50 % LP AC-driven lube oil pumps with DC backup

Starting

- Electric VSD start-motor

Control System

- Siemens Simatic S7
- Distributed inputs/outputs

Gas turbine:

Key features

- Robust industrial design
- Low fuel consumption, high efficiency
- Excellent DLE experience
- Low emissions – DLE ≤25 ppm NO_x
- Low life-cycle cost
- Workshop tested
- Excellent operational availability and reliability
- Load rejection capability
- Highly reliable, clean and efficient power generation

Maintenance

- On-site maintenance or 24-hour exchange of gas generator
- No need for special workshop maintenance
- Modular build-up for easy maintenance on site
- Standardized concepts for maintenance planning
- Overhaul intervals of 40,000 hours
- Extended time between overhaul when running on part load
- Condition-based maintenance
- Horizontal split compressor casing
- Low deterioration and service cost

Two multi-unit deliveries of SGT-600 gas turbines power this cement factory near Riyadh, Saudi Arabia.

On Torrens Island, Australia, four SGT-600 gas turbines provide seasonal peaking support for the electrical grid.

Package:

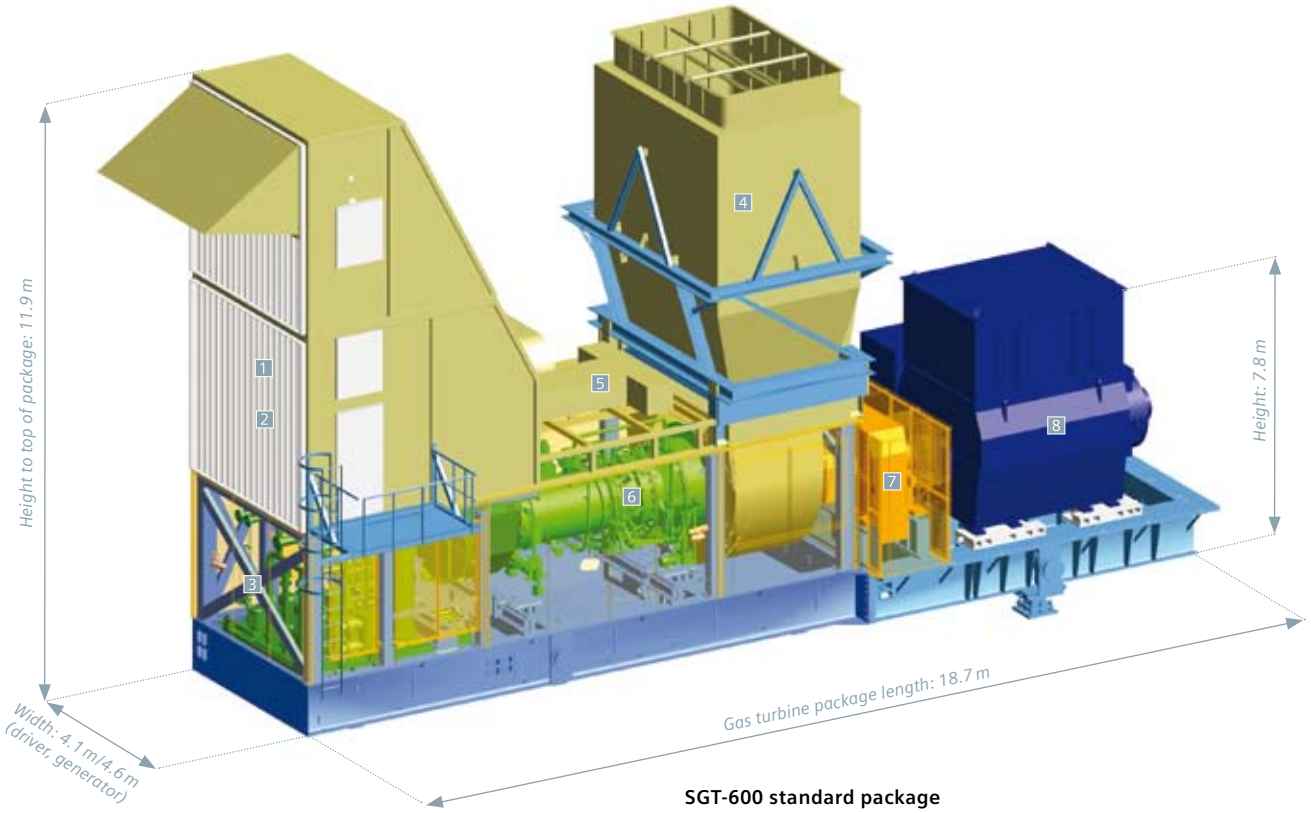
Key features

- Compact layout
- Low life-cycle cost
- Short delivery time
- Same footprint as the SGT-700 gas turbine
- Fast and easy installation
- Major components delivered on a common base frame
- High availability/reliability for complete package

Customer Support:

Key features

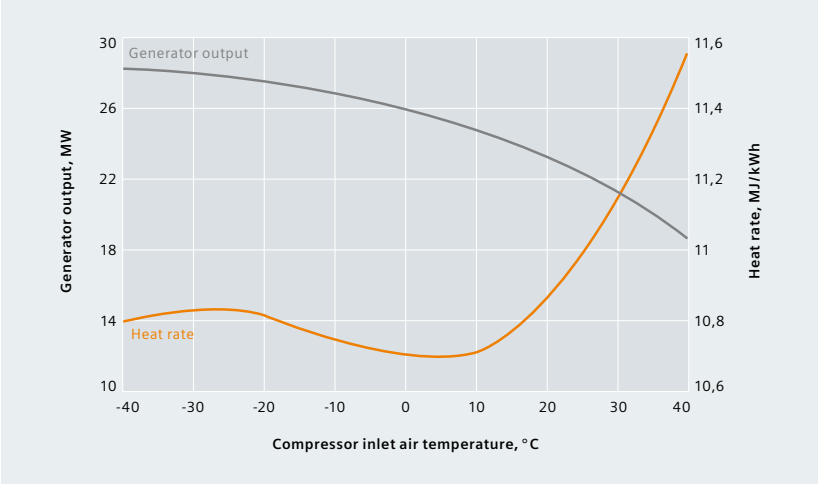
- Global support network of Authorized Service Centers
- Emergency service – 24/7 specialist helpdesk
- Full field service
- Full diagnostic support, remote monitoring
- OEM modernizations and upgrades
- In-house or on-site training programs
- Range of maintenance and service contracts available

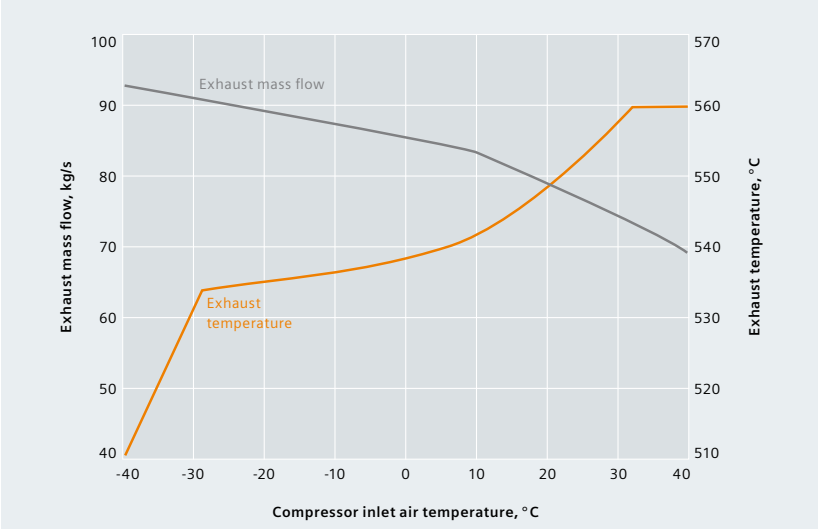


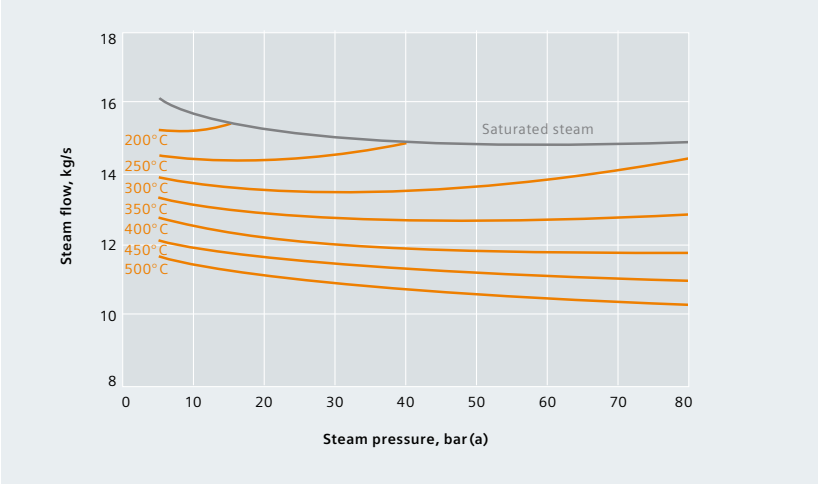
SGT-600 standard package

1 Combustion air inlet
2 Enclosure air inlet
3 Lube oil system
4 Combustion exhaust
5 Enclosure air outlet
6 Core engine
7 Speed reduction gear
8 AC generator

SGT-600 Performance







Nominal generator output and heat rate

Conditions/assumptions:

Fuel:	Natural Gas LHV, 46,798 kJ/kg (20,118 Btu/lb)
Altitude:	Sea level
Ambient pressure:	1,013 bar(a) (14.7 psi(a))
Relative humidity:	60 %
Inlet pressure loss:	5 mbar (2" H_2O
Outlet pressure loss:	5 mbar (2" H_2O)
Fuel temperature:	5° C (41° F)

Diagram conversion factors:

To convert	To	Multiply by
°C	°F	(°Cx9/5)+32
MJ/kWh	Btu/kWh	949

Nominal exhaust mass flow and temperature

Conditions/assumptions:

Fuel:	Natural Gas LHV, 46,798 kJ/kg (20,118 Btu/lb)
Altitude:	Sea level
Ambient pressure:	1,013 bar(a) (14.7 psi(a))
Relative humidity:	60 %
Inlet pressure loss:	5 mbar (2" H_2O)
Outlet pressure loss:	5 mbar (2" H_2O)
Fuel temperature:	5° C (41° F)

Diagram conversion factors:

To convert	To	Multiply by
°C	°F	(°Cx9/5)+32

Unfired heat-recovery steam generation

Conditions/assumptions:

Fuel:	Natural Gas LHV, 46,798 kJ/kg (20,118 Btu/lb)
Altitude:	Sea level
Ambient pressure:	1,013 bar(a) (14.7 psi(a))
Ambient temperature:	15° C (59° F)
Relative humidity:	60 %
Boiler pinch point:	8° C (14° F)
Boiler approach point:	5° C (9° F)
Inlet pressure loss:	5 mbar (2" H_2O)
Outlet pressure loss:	25 mbar (10" H_2O)

Diagram conversion factors:

To convert	To	Multiply by
°C	°F	(°Cx9/5)+32
kg/s	lb/s	2.2046
bar	psi	14.5

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