SGT-2000E gas turbine series
Value for customers

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siemens.com/gasturbines
As a customer you have clear ideas about how to use your system profitably. We also know the requirements you face as an operator may change quickly, either for legal reasons or your use of alternative fuels. With the SGT-2000E series, you profit from Siemens many years of experience with high-performance gas turbines.

Our comprehensive expertise and the gas turbine’s solid technical foundation secure best-in-class, reliable, efficient, and flexible operation.

Since 1981, we have sold almost 400 turbines and over 270 licensed turbines world-wide. You can rely on our comprehensive E-class experience both in selecting the right technology and in commissioning the machine on schedule.

**Customer benefits**

- **Fast start-up in ~17.5 minutes**
  Or <12 minutes optional

- **Fast grid support**
  Including island mode operation capability

- **Excellent fuel flexibility**
  Every fuel from natural gas (incl. low-calorific gases) to crude oil and heavy fuel oil

- **High level of customization**
  Package can be optimized for project-specific requirements such as part-load capability or environmental conditions e.g., high ambient temperature

- **Well-proven reliability**
  Over 21 million of equivalent operating hours and more than 238,000 starts (status 02/2018)

- **Designed for easy maintenance**
  Service-friendly design leads to reduced maintenance outage time

- **Service offerings with one major overhaul in lifetime only**

**Technical data SGT5-2000E**

- **187 MW** power output
- **36.5%** electrical efficiency
- **>95.5%** fleet availability
- **>99.0%** fleet reliability
Continuous development for future demands

The SGT-2000E series is regarded as the workhorse among the Siemens gas turbines. In addition to its high flexibility with respect to fuels and power output, the SGT-2000E series provides outstandingly low NOx and CO emission values, even in the part-load range. The SGT-2000E series does not require cooling air holes in the blades. This means it can also process ash-producing fuels like heavy fuel oils, that would otherwise block the holes.

The upstream external combustion chambers are maintenance-friendly and contribute to the high reliability of the hot gas components. A variety of burners are available depending on the composition of the fuel.

- Enhanced flexibility options
- Service-friendly design features

**Fast start-ups**

The SGT-2000E series is capable of fast start-ups and fast load changes.

- 50 Hz: Fast start-up in ~17.5 minutes or <12 minutes optional
- 60 Hz: Fast start-up in ~10 minutes

High load gradients allow for fast load changes. With excellent peaking capability and high part load efficiency, the SGT-2000E series forms the core of profitable solutions for competitive energy markets with fluctuating power demand.

**SGT5-2000E: Fast start-up**

- Full speed and synchronization after ~4 min
- ~15 MW per minute start-up power
- Option (30 MW/min) available for very fast start
- >98.0% fleet start-up reliability
A whole package of advantages

Our E-class packages based on the SGT-2000E Siemens Gas Turbine series offer you a perfect project solution for your site specific requirements.

The SGT-PAC 2000E series packages consist of a gas turbine, generator, and auxiliary systems. These components are optimally matched to each other, to deliver the needed performance at precisely defined and transparent costs.

By grouping subsystems and installing them in separate auxiliary packages, field assembly can be minimized. All package piping is prefabricated to minimize pipe cleaning and welding on site.

We also offer you the right steam turbine package for combined cycle operations. Siemens as the original equipment manufacturer (OEM) is your expert partner for defining the best suitable scope meeting your specific plant requirements.

Customer benefits
- Standardized design and plant layout with predefined interfaces
- Compact plant size and small footprint arrangement
- Pre-assembled systems delivered to site
- Easy transport
- Short installation and commissioning time
- Fast, reliable, and high-quality project implementation
- Flexible scope to meet customer- and site-specific needs
Complete your power plant

**Package systems**

The package systems include all components, auxiliaries and supporting systems which are needed to enable gas turbine and generator operation or to ensure safety, handling, control or serviceability.

**The SGen-100A-2P generator series**

With a power output of up to 370 MVA, the SGen-100A-2P series air-cooled generators are ideally suited for a multitude of applications and significantly enhance the SGT-PAC 2000E series packages.

**The SST-600 steam turbine**

The SST-600 is an efficient and economic steam turbine designed for optimum back-fitting to an existing process. When space is limited, it can be adapted as a compact steam turbine package with a small oil piping system.

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**Package systems – to complete your engine**

All systems are perfectly coordinated with the gas turbine core engine as well as the power plant layout to ensure reliable and economical operation.

The SGT-2000E series packages have a customizable, flexible design and piping which can be adapted to specific applications and solutions. They are optimized for easy installation and maintenance.

Package systems include among others:

- Air intake system
- Exhaust gas system
- Control system
- Electrical systems
- Power Control Center (PCC)
- Auxiliaries

**Air intake system**

The air intake system is a top inlet design. It has two major sections: Filter house with static filter system or pulse filter and inlet ductwork with silencer system.

The filter housing offers weather protection and prevents large debris from entering the filter system, which removes both large particles and fine particulates from the air stream.

An anti-icing system is installed to avoid icing effects in the air intake system. The use of an air intake silencer significantly reduces pressure drop with improved noise reduction and ensures compliance with noise protection regulations.
Outstanding performance supported by optimal maintenance

Design features
The SGT-2000E series was designed to be consistently service-friendly. Easy accessibility and very smart maintenance models lead to world record outage times.

Maintenance concepts
We can provide you maximum performance and optimized availability with customized maintenance concepts designed for your plant operation.

Flexible service programs
Flexibility is an important point in maintenance service. Siemens offers a versatile portfolio which provides the optimal program for any kind of service demand.

Scope of inspection
Due to different operational requirements, the unit requires adjusted inspection scope and aligned outage times.

Less maintenance, fast service

During the development of the SGT-2000E series the components were optimized for service friendly maintenance which results in diversity of inspection options.

The comfortable access through manholes to the compressor inlet and outlet and the two combustion chambers and exhaust make it easy to inspect. Additional inspections are possible through several borescope ports.

Horizontal casing joints afford extended maintenance options due to optimized accessibility to all components.

An outstanding design feature is the rotor with radial Hirth serrations and one central tie bolt. In case of a major outage and upgrade the rotor can be de-stacked on site. No rotor transport is required during the outage – fast service combined with less risk, time and costs.

Manholes and Borescope port

- Optimized manholes at the inlet and outlet provide easy access and enable a direct view at the components.
- Parts can be cleaned and prepared for more precise inspection.
- In combination with borescope ports the complete check of the gas turbine can be performed and gives a full overview of the condition of the unit.

Compressor  Combustion chamber  Exhaust  Rotor

V via manhole in the intake casing  M via manhole  T1 via inspection bore Tle1
S via clearance measurement bores  B via manhole in combustion chamber  T2 via inspection bore Tle2
A via manhole in the exhaust section
The 50 Hz version of the SGT-2000E series was introduced in 1981 and its 60 Hz equivalent in 1989. With more than 350 turbines in operation worldwide to date, our installed E-class fleet has accumulated about 30 million equivalent operating hours (EOH). At the same time, the fleet’s overall best-in-class reliability exceeds 99.5 percent.

Choose your application:
- H₂S-rich (sour) gas applications
- Crude and heavy fuel oil applications
- CHP / Cogeneration applications
- Operational Flexibility
For more information, please contact our Customer Support Center.
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