

# SGT-300 Industrial Gas Turbine

Mechanical Drive: (ISO) 8.20MW (11,000bhp)

Siemens has expanded its gas turbine portfolio with the introduction of the SGT-300 mechanical drive (SGT-300MD). The product provides users with a highly efficient, highly available, robust gas turbine for their mechanical drive requirements.

The twin-shaft SGT-300MD is derived from the highly successful and reliable SGT-300 single-shaft machine. Many of the components are common to the two machines. This commonality in conjunction with components derived from other Siemens gas turbines provides the SGT-300MD with assured reliability.

The SGT-300MD can operate over a wide load and speed range. The two-stage power turbine design facilitates this capability.

The SGT-300MD is focused on high availability. The core engine has an advanced modular design. Modules can be changed easily, on site, or alternatively a complete core engine exchange can be carried out quickly. The core engine has been designed to operate without any major overhaul for four years.

The package provides for quick installation and easy maintenance being mounted on a single underbase.

The SGT-300MD delivers;

- excellence in Health and Safety during installation, operation and maintenance
- high availability
  - using well proven designs
  - with advanced features for ease of maintenance
  - including rapid core exchange capability
- environmental excellence
  - high efficiency reducing fuel burn
  - low emissions meeting stringent legislation
  - wide fuel flexibility
- simplicity
  - easy to transport
  - simple and quick to install
  - low manpower requirements for operation

These benefits secure the gas compressing, or oil pumping drive availability, minimizing the impact on the environment and providing real added value to the users' business.

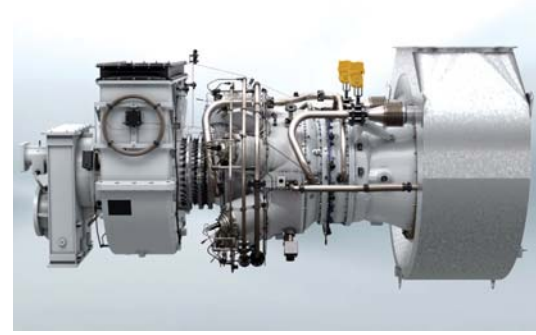
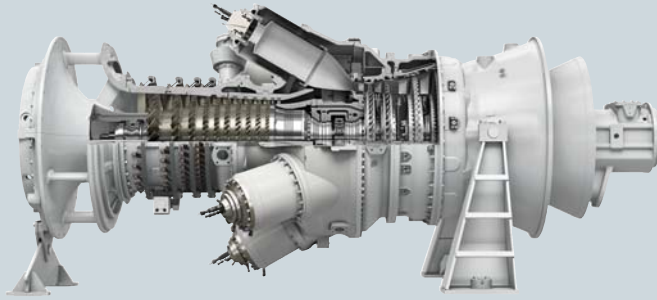


Industrial Gas Turbines

Answers for energy.

**SIEMENS**

# SGT-300 Industrial Gas Turbine



SGT-300 MD core engine.

## Technical specifications

### Overview

- Twin-shaft, industrial
- Mechanical drive: 8.20MW
- Shaft efficiency: 34.6%
- Heat rate: 10,400kJ/kWh
- Power turbine speed: Up to 12,000rpm
- Compressor pressure ratio: 13.3:1
- Exhaust gas flow: 29.0kg/s (65.5lb/s)
- Exhaust temperature: 498°C (925°F)
- Typical emissions: NO<sub>x</sub>: <15ppmV and CO: <10ppmV (corrected to 15% O<sub>2</sub> dry)
- Medium-calorific value fuels capability (>32MJ/Nm<sup>3</sup> Wobbe index)

### Axial compressor

- 10-stage
- Variable inlet guide vanes

### Combustion

- 6 reverse-flow combustion chambers
- Lean-burn Dry Low Emissions (DLE) or conventional diffusion flame system
- High-energy ignitor system

### Turbine

- 2-stage overhung compressor turbine
  - First stage air-cooled
- 2-stage high-efficiency power turbine
  - Rotor blades have interlocking shrouds for mechanical integrity

### Bearings

- Tilt-pad radial and thrust
- Standard vibration- and temperature-monitoring

### Package

- Fabricated steel underbase
  - Integral oil tank
  - Multi-point mounting
  - Optional 3-point mounting
- Modular fluid systems incorporating:
  - Lubricating oil system
  - Gearbox-driven main pump
  - AC motor-driven auxiliary pump
  - DC motor-driven emergency pump
- Oil cooler and oil heater
- Electrically driven hydraulic start system
- Hydrocarbon drains tank on package
- Control system
  - Siemens SIMATIC PLC-based with distributed control and processing capability installed on package
  - Optional Allen-Bradley system
  - Optional off-package systems
- Vibration monitoring system
- Fire and gas detection equipment
- Fire suppression equipment
- On- and off-line compressor cleaning options available
- Combustion air inlet filtration options:
  - Simple static
  - Pulse cleaning
  - HEPA
- Enclosure
  - Painted carbon steel or stainless steel
  - Noise level options (85dB(A) standard)

## Gas turbine

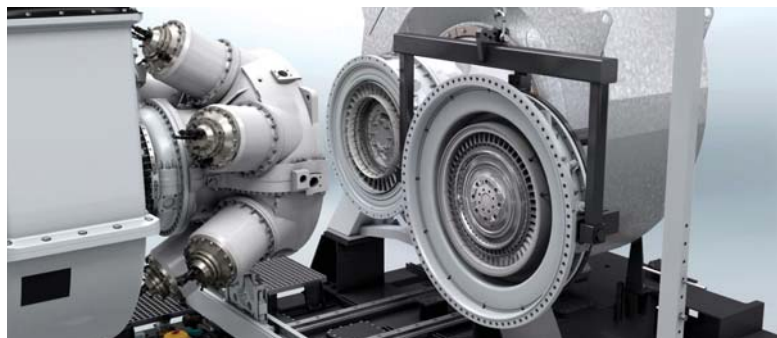
### Key features

- Excellence in health and safety for personnel
- High availability
- Environmentally friendly
- Simplicity in installation, operation and maintenance

## Maintenance

### Key features

- Focus on health and safety of maintenance personnel:
  - Internal cell maintenance platforms
  - External access ladders and platforms
  - Internal lifting equipment
  - Large access doors
  - Designed in accordance with ISO21789:2009 gas turbine applications safety
- Core engine on-site maintenance, module exchange or core exchange



SGT-300 MD core engine module removal.



SGT-300 MD package.

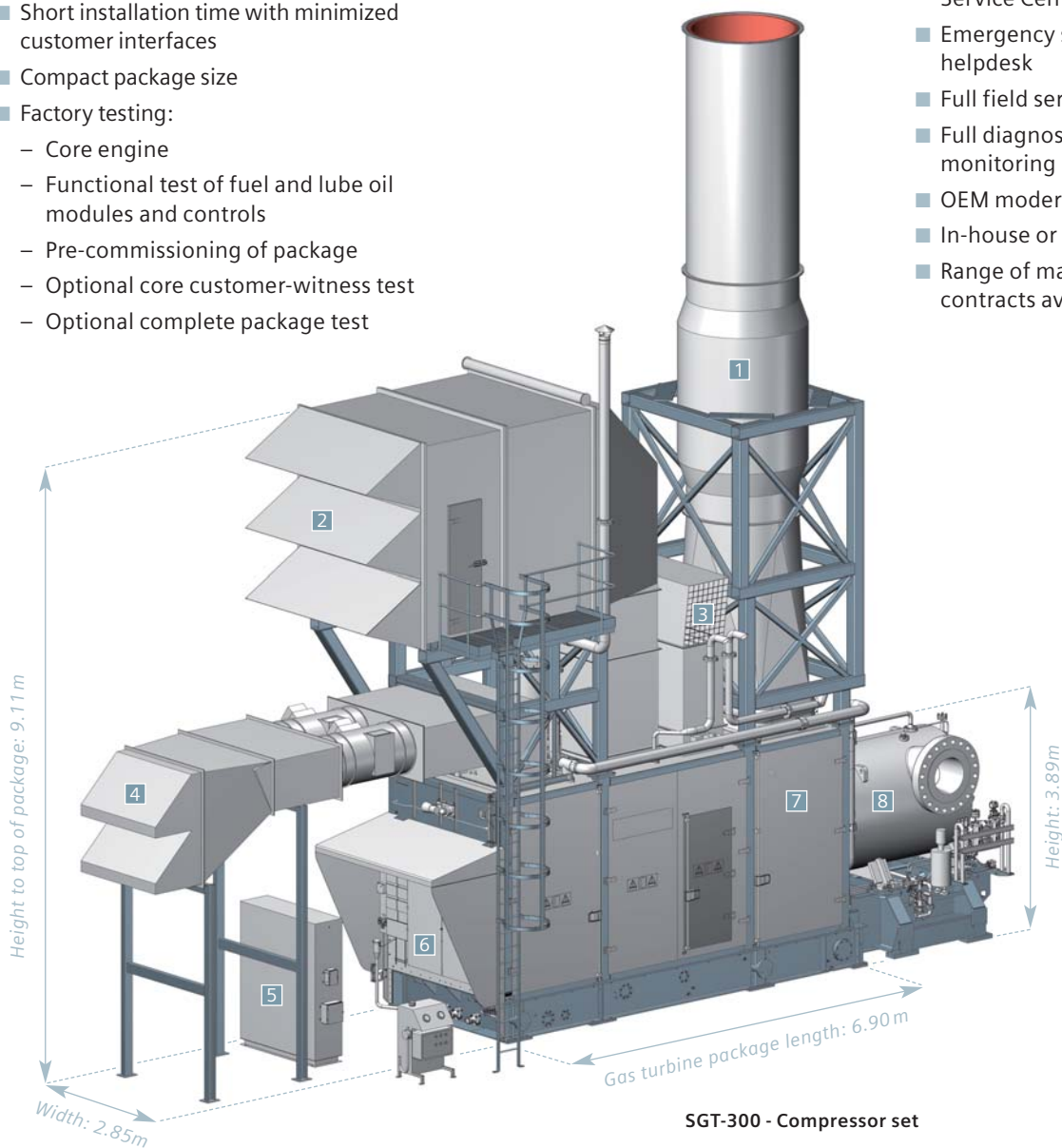
## Package

### Key features

- Short installation time with minimized customer interfaces
- Compact package size
- Factory testing:
  - Core engine
  - Functional test of fuel and lube oil modules and controls
  - Pre-commissioning of package
  - Optional core customer-witness test
  - Optional complete package test

## Customer Support

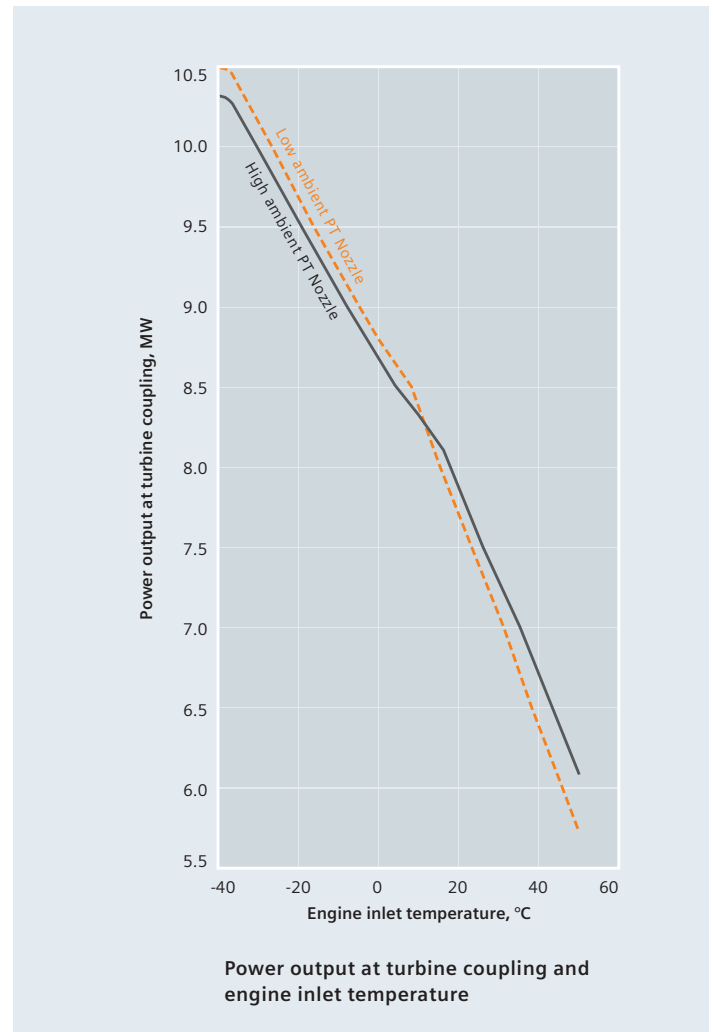
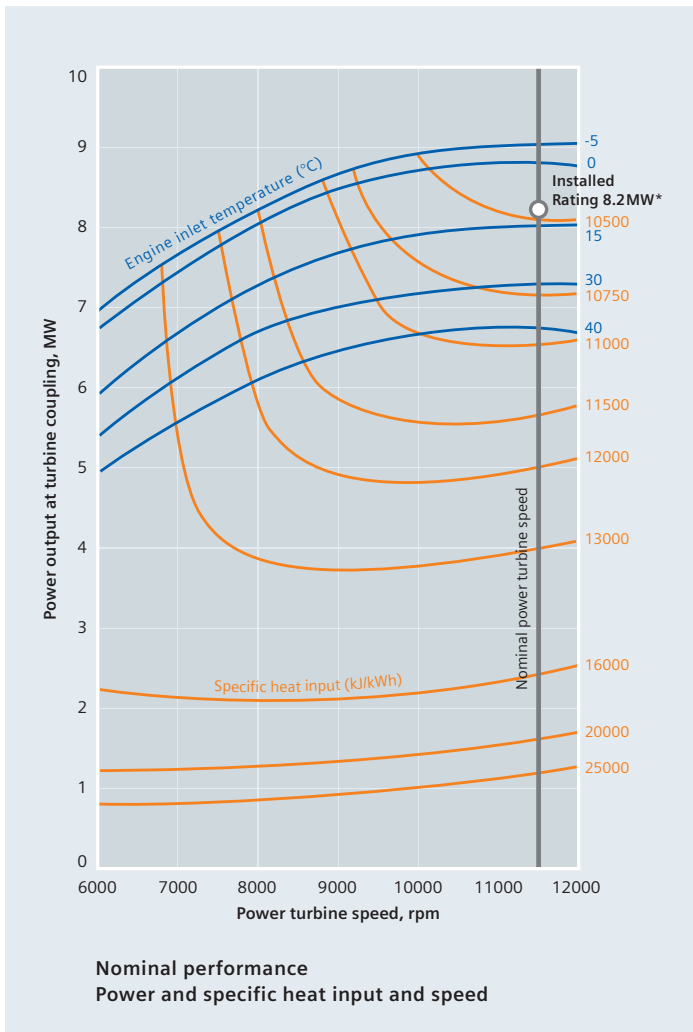
- Global support network of Authorized Service Centers
- Emergency service - 24/7 specialist helpdesk
- Full field service
- Full diagnostic support, remote monitoring
- OEM modernizations and upgrades
- In-house or on-site training programs
- Range of maintenance and service contracts available



### SGT-300 - Compressor set

- |                        |                       |                     |
|------------------------|-----------------------|---------------------|
| 1 Combustion exhaust   | 4 Enclosure air inlet | 7 Core engine       |
| 2 Combustion air inlet | 5 Fire extinguishant  | acoustic enclosure  |
| 3 Enclosure air outlet | 6 On-package controls | 8 Driven compressor |

# SGT-300 mechanical drive performance



## SGT-300 Mechanical drive performance

### Conditions/assumptions

Direct drive - no output gearbox.	Natural gas fuel.
Altitude: Sea level	Ambient pressure: 101.3kPa
*Inlet and exhaust ducting losses have not been debited.	Relative humidity: 60%
	No CO turndown in operation.

Specific heat input is drawn for an engine inlet temperature of 15°C but is approximately correct for other temperatures and is based on the LCV of the fuel.

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