

SGT-700 Industrial Gas Turbine

Mechanical Drive: (ISO) 32.04 MW (42,966 bhp)

The Siemens SGT-700 industrial gas turbine is a high-performance gas turbine with excellent environmental compatibility. It combines the reliability and robustness of an industrial design with the high efficiency and low emission levels of the latest turbine technology.

The SGT-700 is an industrial gas turbine for mechanical drive applications. It is designed for heavy-duty operation under tough conditions, both onshore and offshore, floating or fixed, in hot or cold climates.

The SGT-700 is derived from the well proven SGT-600. Together these turbines have more than six million operating hours and field experience from different operating conditions incorporated in the design.

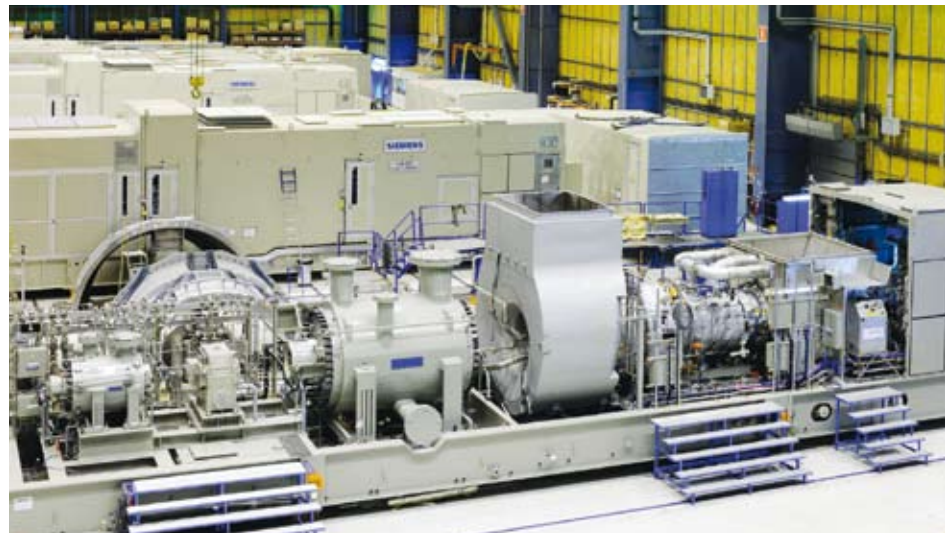
The DLE (Dry Low Emissions) combustion system is robust and simple with very high availability and no need for frequent tuning. The DLE system is stable over the whole operating range including load

transients, variations in fuel composition and ambient conditions. It also offers stability and DLE performance for fuels with high inert gas content and heavy hydrocarbons.

The compact modularized design, small footprint and low weight are of particular benefit in offshore applications.

The standard electrical equipment design has been fully adapted for Ex-proof installation in hazardous areas and to meet offshore codes and standards.

A single-lift 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.

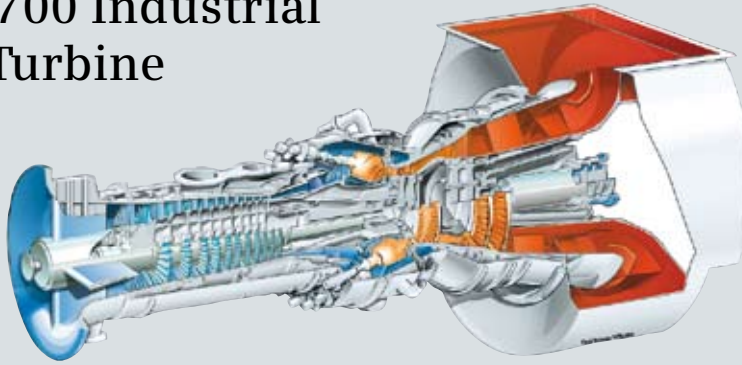


Industrial Gas Turbines

Answers for energy.

SIEMENS

SGT-700 Industrial Gas Turbine



Compressor driven by SGT-700.

Technical specifications

Overview

- Mechanical drive: 32.04 MW (42,966 bhp)
- Shaft efficiency: 37.4 %
- Heat rate: 9,629 kJ/kWh (6,806 Btu/hph)
- Turbine speed: 6,500 rpm (50–105 %)
- Compressor pressure ratio: 18.6:1
- Exhaust gas flow: 94 kg/s (207 lb/s)
- Exhaust temperature: 528°C (983°F)
- NO_x emissions (with DLE corrected to 15 % O₂ dry)
 - Gaseous fuel: ≤15 ppmV

Axial Compressor

- 11-stage axial-flow compressor
 - 2 stages variable guide vanes
- Electron-beam welded rotor
- Cr-steel blades and vanes
- Abradable seals

Combustion

- Welded annular sheet metal design
- 18 dual-fuel Dry Low Emissions burners
- Robust and stable DLE performance

Compressor Turbine

- 2-stage turbine, air-cooled

Power Turbine

- 2-stage turbine, uncooled
- Interlocking shrouds
- Abradable seals

Fuel System

- Natural gas – Liquid fuel – Dual fuel
- On load fuel-changeover capability
- Gas-supply pressure requirement: 27.0 bar(a) ±0.5 bar (395±7 psi(a))

Bearings

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

Lubrication

- Common lubricating oil system integrated in skid using mineral oil
- 3x50 % AC-driven lube oil pumps with DC backup

Starting

- Electric VSD start-motor

Control System

- Siemens Simatic S7 control system
- Distributed Inputs/Outputs

Gas turbine

Key features

- Robust and stable DLE performance
- Robust design – long-life components
- Low emissions – DLE ≤15 ppm NO_x
- Unique dual-fuel DLE capability
- Fuel efficiency 37.4 %
- Wide range of fuel capability
- Long-term efficiency – low deterioration
- Excellent operational availability and reliability

Maintenance

- On-site maintenance or 24-hour exchange of gas generator
- Flexible standardized concepts for maintenance planning
- Overhaul interval of 40,000 hours
- Condition-based maintenance
- The 18 burners are easily removable without opening the casing
- Can be balanced in-field
- Staff training in operation and maintenance
- 24/7 Siemens support
- Remote diagnostics



The first SGT-700 mechanical drive offshore unit is installed in the Arabian Gulf.



The first two SGT-700 mechanical drive onshore units were delivered to an NGL (natural gas liquids) plant in Egypt.

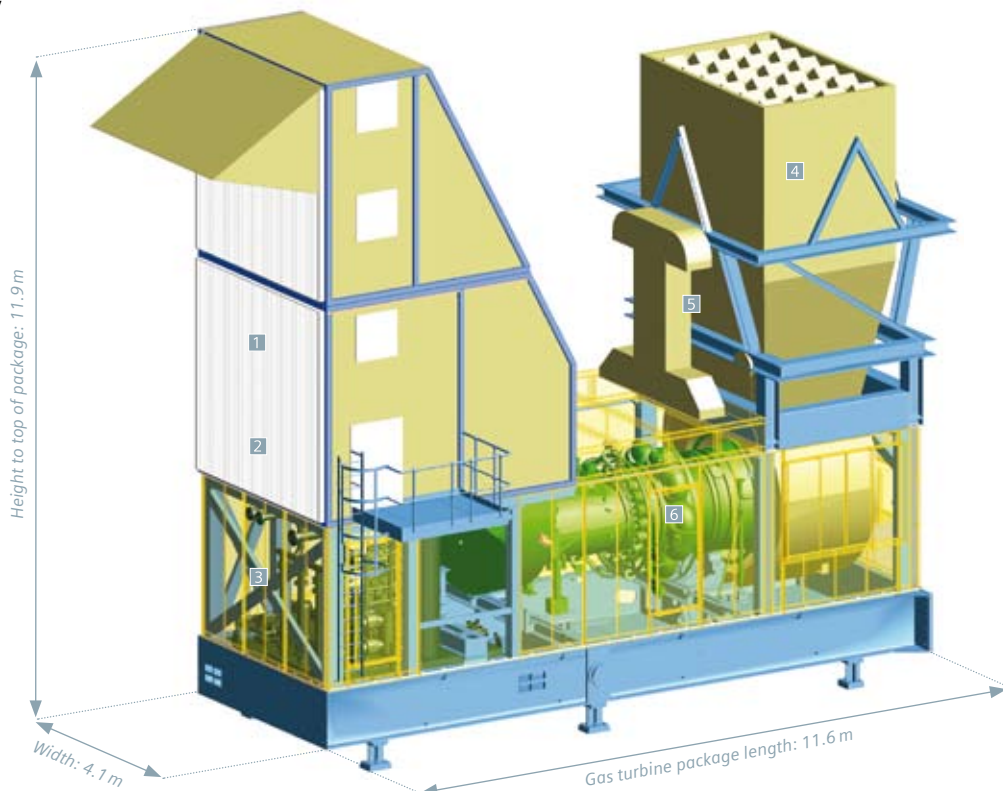
Package

Key features

- Compact layout
- Same footprint and commonality with the SGT-600
- Flexible installations based on standardized package solutions
- Major components delivered on a common base frame
- Fast and easy installation
- Skid-mounted with single-lift capacity
- Pre-commissioned at the Siemens workshop to reduce time at site
- Simple on-site works due to flexible package design
- State-of-the-art control system fulfills all requirements for control and safety
- Can easily communicate with other control systems

Customer Support

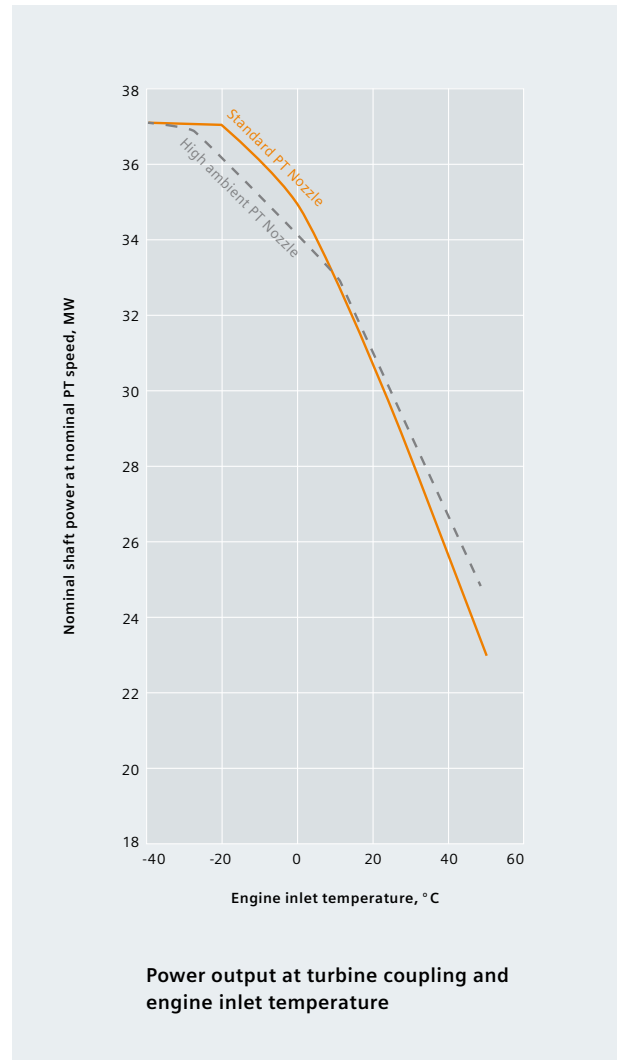
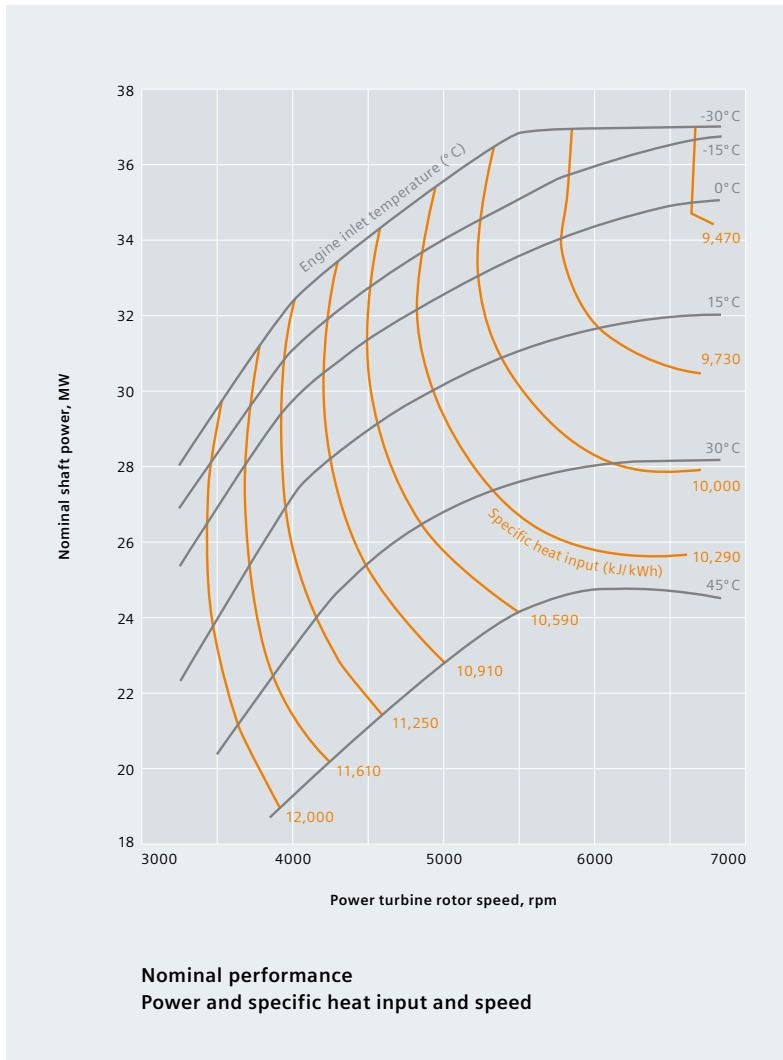
- Global support network of Authorized Service Centers
- Emergency service – 24/7 specialist helpdesk
- Full field service
- Full diagnostic support, remote monitoring
- OEM modernizations and upgrades
- In-house or on-site training programs
- Range of maintenance and service contracts available



SGT-700 standard driver package

- | | |
|------------------------|------------------------|
| 1 Combustion air inlet | 4 Combustion exhaust |
| 2 Enclosure air inlet | 5 Enclosure air outlet |
| 3 Lube oil system | 6 Core engine |

SGT-700 Performance



SGT-700 Mechanical drive performance

Conditions/assumptions:

Direct drive – no output gearbox.

Altitude:

Sea level

Natural gas fuel.

Inlet ducting loss:

0 kPa

Ambient pressure:

101.3 kPa

Exhaust ducting loss:

0 kPa

Relative humidity:

60%

Power turbine design speed:

6,500 rpm

Specific heat input is drawn for base load but is approximately correct for part load at corresponding speed/temperature.

Published by and copyright © 2009:

Siemens AG
Energy Sector
Freyeslebenstrasse 1
91058 Erlangen, Germany

Siemens AG
Energy Sector
Oil & Gas Division
Wolfgang-Reuter-Platz
47053 Duisburg, Germany

Siemens Energy, Inc.
10730 Telge Road
Houston, Texas 77095, USA

Siemens Industrial Turbomachinery AB
Slottsvaegen
SE-61283 Finspong, Sweden

For more information, please contact
our Customer Support Center.

Tel: +49 180 524 70 00
Fax: +49 180 524 24 71
(Charges depending on provider)
E-mail: support.energy@siemens.com

Oil & Gas Division
Order No. E50001-W430-A105-x-4A00
Printed in Germany
Dispo 34806, c4bs 7447, P WS 12092.5

Printed on elementary chlorine-free bleached paper.

All rights reserved. Trademarks mentioned in
this document are the property of Siemens AG,
its affiliates, or their respective owners.

Subject to change without prior notice.

The information in this document contains general
descriptions of the technical options available, which
may not apply in all cases. The required technical
options should therefore be specified in the contract.