

# SGT-50 DLE

Radial gas turbine with radial compressor and turbine inflow



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# **Technical Description**

- Reduction gearbox
  - Epicyclic with journal bearings
  - Available in 50Hz and 60Hz version (1500/1800rpm)
  - Equipped with thermocouples on main bearings
- Turbine Rotor Bearings
  - In the cold side of the engine
  - Thrust (tilting pad) and journal
- Compressor wheel
  - Centrifugal single stage
- Turbine wheel
  - Radial single stage
- Combustors
  - Can (tubular) type
  - DLE (dry low emission)



# Performance at ISO conditions

#### SGT-50 DLE

Туре	Radial gas turbine		
Power Output	2000	kW	
Emissions (NOx/CO)	<15	ppm	
Shaft efficiency	25	%	
Availability/ Reliability	>98	%	
Compressor pressure ratio	7:1	-	
Air inlet mass flow	9,26	kg/s	
Exhaust heat	5221	kW	
Exhaust gas flow	9.44	kg/s	
Exhaust gas temperature	600	°C	
Fuel flow rate	623.6	kg/h	
Required inlet gas pressure	13	barg	
Generator voltage	0.4 – 13.8	kV	
Gearbox	Epicyclic	-	
Frequency	50 or 60	Hz	
Maintenance (MTBO)	>40 000	h	
Noise (enclosure)	75-85	dbA	

# Sub-components

#### Base frame

- Integrated lube oil reservoir including level gauge, drain and vent connections
- Coated and painted
- Junction box available for easy customer connection

#### Starter system

- Hydraulic starter with el. motor and high-pressure pump
- Optionally: air starter motor (pre-required 7barg air pressure (could be supplied with separate compressor)

#### Lube oil system

- Turbine driven
- Optional: lube oil cooler (air to oil / water to oil)
- Compressor cleaning system (optional)
  - Mobile off-skid trolley with water-wash tank

#### Control system

- Woodward Flex 500 PLC-Based Turbine Control Panel (TCP)
- MCC, main circuit breaker, communication link to ICCS/DCS – optional

#### Control room

- On and Off skid
- Optionally can be integrated on Level 2 package
- Coupling
  - Flexible Dry Coupling with Integrated Shear Pin for
  - Overload Protection

#### Generator

- 4 pole, 400 or 480V
- Available up to 13kV

# **CHP** application (optional CCHP)

- CHP Efficiency: >90% (typically w/ duct burner)
- Steam output: from 6.6 to 13.5 t/h
- Pressure: 10barg
- Steam outlet temperature: 186°C

# Performance curves:



Available in following package levels:

- Level 1 Gas turbine mounted on base frame (incl. all auxiliaries)
- Level 2 Fully packaged (incl. Level 1, CO2 gas suppression system, air intake and exhaust system with silencer). Standard package complies with 85dBA noise level.
- Extreme Temperature conditions:
  - Option 1: Below -25°C
  - Option 2: Above +45°C

\*All package levels include control system cabinet

#### Package's details

Туре	Length [m]	Width [m]	Height [m]	Weight [kg]
Level 1	8.5	2.1	2.1	14 100
Level 2	8.5	2.1	3.4	21 000



Typical Level 1 layout

# Applicability

SGT-50 has a wide range of applications that already has been proven through existing installed base both on- and off-shore.

We cover markets such as power generation, distributed energy, district heating including C(C)HP (Combined Cooling Heat and Power).

We offer SGT-50 in several different modular options to suit the best customers' requirements.



#### Siemens-Energy

Dresser-Rans AS Kirkegårdsveien 45, 3616 Kongsberg, Norway For more information:

https://www.siemens-energy.com/global/en/offerings/power-generation/gas-turbines/sgt-50.html

Tor Andreas Kaasa

Sales Manager

email: tkaasa@siemens-energy.com