Hydrogen Conversion

Applicable fleet SGT-400, SGT-300, SGT-200, SGT-100

SGT Hydrogen Gas Turbines for our sustainable future

The mission is to burn 100% hydrogen

- Carbon-free power generation
- Proven fuel flexibility
- Fast, efficient and reliable

Power Utilities | Oil and Gas | Chemicals

Gas turbine	Power Output[1]	Hydrogen Capability (vol%)*
SGT-400	10 to 13MW	10 → 65 (HyflexPower 100% FY23)
SGT-400	15 MW	5
SGT-300	8/9 MW	30
SGT-200	6/7 MW	30 → 80
SGT-100	5/6 MW	30 → 65
TB5000/5400[2]	3/4 MW	80

DLE burner | NON-DLE (Diffusion burner) with unabated NOx emission[3]

[1] ISO, Base Load, Natural Gas [2] Only available in NON-DLE Combustion [3] SGT-200 and TB can use water injection for NOx Abatement

* Values shown are the indicative for new unit applications and depend on specific power ratings, local conditions and requirements. Some operating restrictions and special hardware and package modifications may apply.


SGT-400


SGT-300


SGT-100

System/Procedures	H_2 Volume Impact on Package		
	0%	10% – 30%[1]	50% – 70%[1] / 100%
		10% – 30%[1]	50% – 70%[1]
Burners and combustion chamber	No change	Modified burner may be required	New burner design
Fuel supply system	No change	Ensure all components Stainless Steel	Pipe diameter increase
Control/protection systems	No change	Additional gas detection	All hazardous area electrical equipment to Gas Group IIC
O&M Procedures	No change	Leak check of gas fuel system after maintenance inspections	Start-up/shutdown on conventional fuel
		No modifications needed	Smaller modifications may be required / Modifications needed

Reduction in Emission

CO_2 Up to 3,247 tonnes less CO_2 per year*

Product Overview

Siemens Energy are committed to the development of gas turbines with increased capability to burn hydrogen rich fuels, and this has been externally communicated in the declaration issued by the association of European gas and steam turbine manufacturers EU Turbine signed by Siemens in January 2019. (https://powertheeu.eu/)

The small gas turbine product line has accumulated high hydrogen experience of approximately 1 million operating hours, using diffusion flame combustion technology for mixes containing up to 90% H2 by volume at installation such as refineries and coking oven plants.

Improved Features

Increased fuel flexibility and the ability to increase hydrogen content.

Benefits

- Significant CO2 reductions at higher H2 blends
- Maintain full power all the way up to 100% H2
- H2 operation is possible with both DLE and non-DLE combustion technology
- Upgraded H2 burners can still run 100% natural gas
- Minimal hardware upgrade

Scope of work & Implementation

Scope will be based on the customers hydrogen content requirements, please contact M&U for a specific proposal

*Based on a SGT-100 running on full load @ 30% H2 content