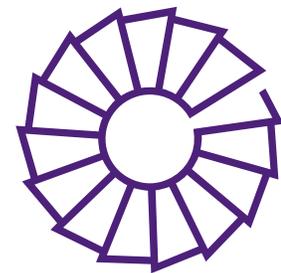


Product Improvement Bulletin

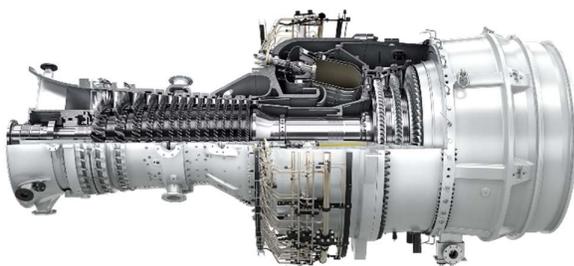
SGT-800 Performance Enhancement
Upgrade of 50,5MW & 53MW units to 54 MW rating
E1B100035949 PIB/SGT-800/17-001



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Bulletin applies to

The Power upgrade is applicable to all existing SGT-800 units with ratings of 50,5 and 53 MW in all types of installations. However please consider that steam cycles in CC (Combined Cycle) and CHP (Combined Heat and Power) applications need to be able to handle the higher exhaust data.



Reason for Bulletin

A power upgrade to 54 MW

Siemens Energy is continuously improving its Industrial Gas Turbine portfolio and invests heavily into R&D to bring you top-of-the-line innovations.

The latest 54MW rated turbine has been available to new customers since 2015, and a performance enhancement is now developed for implementation into the existing fleet. All SGT-800s of the 50,5MW and 53MW rating are therefore applicable for upgrade to the 54MW core engine rating.

A small increase in MW can have significant benefits

This upgrade is a simple and cost-effective approach to improving power output, saving fuel, and therefore optimizing your unit. Should the unit be used in combined cycle or cogeneration applications, exhaust data is further improved to boost downstream equipment

performance. This cost-effective upgrade can be included easily as part of routine overhaul whilst maintaining the highest uptime for your unit.

Description

A fast and cost-effective upgrade solution

The SGT-800 54MW power upgrade can be easily achieved with minimal modification to the existing package design during routine unit overhaul. This cost-effective and simple retrofit approach ensures facility down-time is minimized, while performance is optimized.

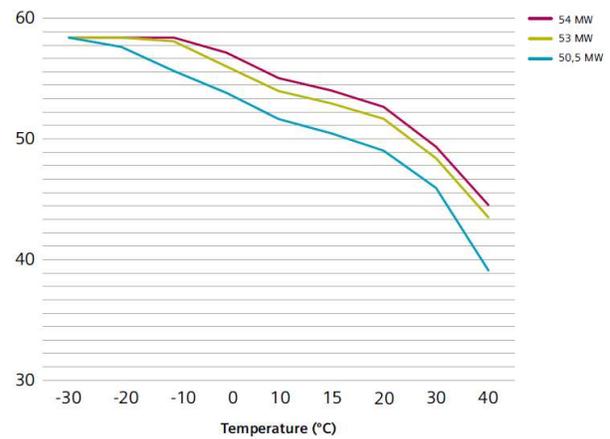
Technical excellence

The power enhancement results from:

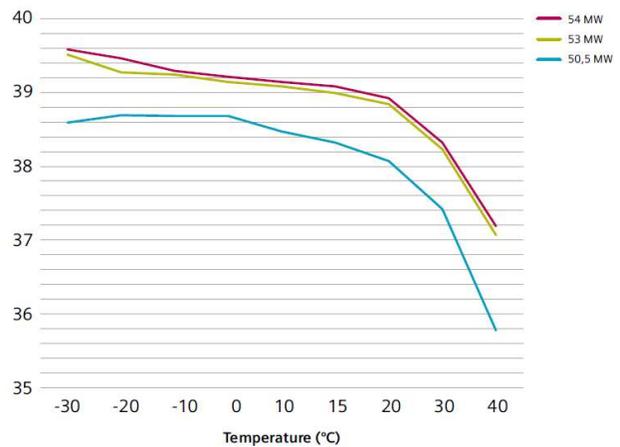
- Improved front section in the compressor for increased mass flow and efficiency.
- Improved components in the turbine section for increased power and efficiency.

Track record of performance enhancements

Siemens Energy has a proven track-record of applying systematic product enhancement and upgrade improvements to increase power output and enhance the efficiency and emissions performance of equipment for owner operators.



GT Power (Electric) with 60MW gear



GT Thermal Efficiency (Electric) with 60MW gear

ISO power	50,5 MW		53 MW		54 MW	
	55 MW gear	60 MW gear	55 MW gear	60 MW gear	55 MW gear	60 MW gear
Heat rate (Kj/kWh)	9395	9395	9233	9233	9220	9212
Efficiency (electric) (%)	38,3	38,3	39,0	39,0	39,0	39,1
Exhaust gas flow (kg/s)	134,2	134,2	136,8	136,8	135,9	135,9
Exhaust gas temperature (°C)	551	551	551	551	558	562

What is upgraded?

The power upgrade is based on improvements in aerodynamics in the compressor section plus material/coating/cooling technology of the parts in the turbine section, coupled with updates of the control system.

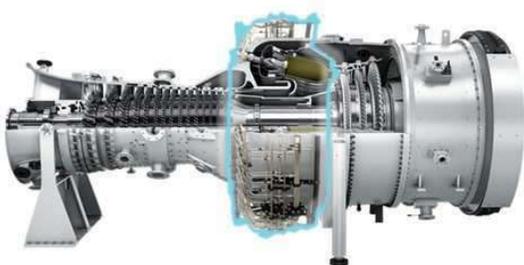
Compressor

Upgraded with improved aerodynamics to increase mass flow and improve efficiency.



Combustor

Same reliable system with only a slight increase in firing temperature.

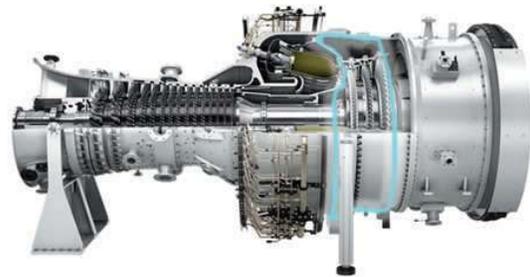


Turbine

- Further improved efficiency through clearance and cooling system adjustments

- Improved coating system on some components to assure sustained high reliability

Please note that the scope of the upgrade kit will vary depending on the current MW rating of your unit. Please check what is valid for your unit



Planning and Implementation

The performance enhancement is preferably implemented during a major inspection but can be implemented at other convenient times if required. Your Siemens Energy service contact will support you in identifying the scope of the modification.

Your Benefit

- Improved GT power output.
- Improved GT efficiency.
- Improved combined cycle performance.
- Simple to upgrade.

Sincerely yours

Esa Utriainen

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