

Advanced 3D-Printed Fuel Nozzle System for MS5001 Turbines

HYFLEXGT FUEL NOZZLE



Modernizing Combustion Performance for Legacy Turbines

Gas Turbine Parts & Services (USA), in collaboration with Sustainable Business & Engineering Solutions (Switzerland), and Shakti Turbine Engineering Services (India), have developed the HyFlexGT Fuel Nozzle, a next generation low-emissions solutions for the legacy GE turbines.

Utilizing additive / 3D manufacturing technologies, the HyFlexGT Fuel Nozzle can achieve performance characteristics not possible through traditional manufacturing methods.



PRECISION PARTS. PROVEN DESIGN.



HIGH-PERFORMANCE COMPONENTS FOR DEMANDING APPLICATIONS



What Sets HyFlexGT Apart

- 50% NOx reduction compared to OEM baseline
- 3D printed using high-temp Nickel based superalloys for extreme durability
- Potential gains in Efficiency (~0.1%) and Power (~0.9MW)
- Budget friendly solution
- Simple hardware retrofit with only 3 major components replaced.
- No control system modifications
- Designed for MS5001 but easily transferable to MS3002, MS5002, MS6001.



Simple Retrofit Solutions

- Fuel Nozzle Assembly
- Combustion Liner
- Can Cover

No modifications needed to existing Controls, Transition Piece, X-Fire Tubes, Combustion Chamber, or Piping



Proven Design & Testing

- Commercial rollout planned for 2026
- V10 currently in production for Q4 2025 validation
- Full-scale single-can combustion testing completed on V9 in 2024
- Full range of fuel composition testing, including testing on various Hydrogen blends



Developed by a Global Engineering Team



▪ Gas Turbine Parts & Services, Inc. (USA)



▪ Sustainable Business & Engineering Solutions GmbH (Switzerland)



▪ Shakti Turbine Engineering Services Pvt. Ltd. (India)



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