

CPT TIGERS®

Exhaust Gas Energy Recovery Turbine



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Machine configurations

- Designed to be ASIL B
- Voltage can be 12V, 24V or 48V

Liquid-cooled system

- Cooling jacket design optimised using CFD
- Integrates to main engine coolant ~ 90 Deg C @ 6 l/min

Integrated control & power electronics

- All electronics are housed in the rear of the machine
- Significantly reduced electrical losses and improved EMC
- Only one unit to package

Control system – self protecting

- Over/under current/voltage protection
- Monitors and controls against Pressure & Temperature
- Speed control and over-speed protection

TIGERS®

Waste to Watts - Powering the Planet with TIGERS®

TIGERS® (Turbogenerator Integrated Gas Energy Recovery System) is a liquid cooled switched reluctance generator coupled to an exhaust driven turbine.

It is capable of operating in exhaust temperatures up to 750°C, at speeds up to 45,000RPM, delivering a peak power of 2kW-4kW. The TIGERS® system includes an electronically controlled full flow external by-pass that ensures the desired proportion of exhaust gas is delivered to the turbogenerator as determined by the control system.

TIGERS® is currently in the proof of concept hardware test phase.

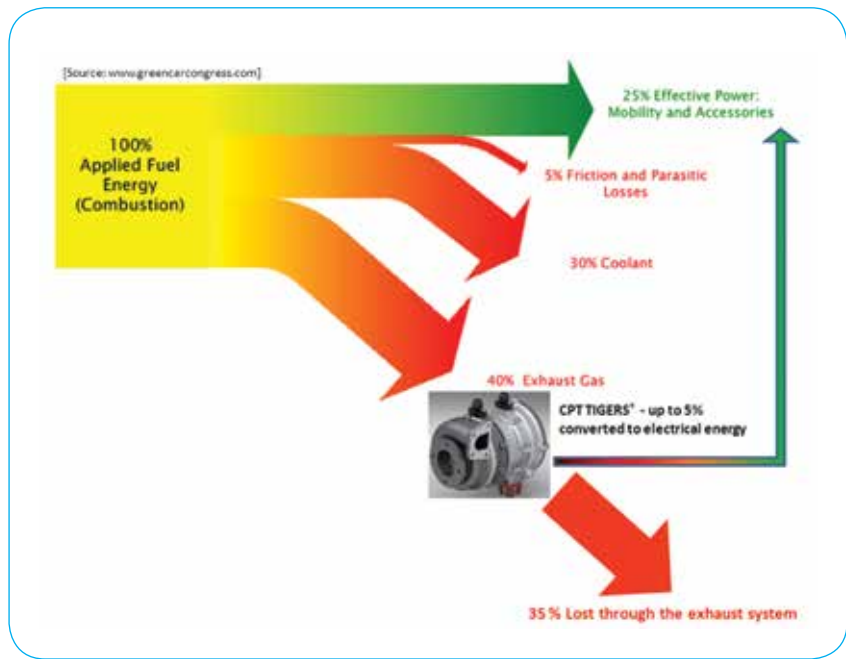
| Design Specification | TIGERS-12V | TIGERS-48V |
|-----------------------------|-----------------------------------|------------|
| System Voltage | 12V | 48V |
| Peak Power | 2kW | 4kW |
| Continuous Power | 600W | 800W |
| Maximum Speed | 45,000 rpm | |
| Generating Efficiency | Up to 70% | |
| Bearings | Sealed for life rolling element | |
| Rotor | Position Control Digital | |
| Machine Weight | ~11kg | |
| Machine Length | ~230mm | |
| Cooling System | Engine Coolant | |
| Power Electronics & Control | Integrated | |
| Bypass System | TIGERS Controlled, Dual Butterfly | |

For further details, please email: info@cpower.com



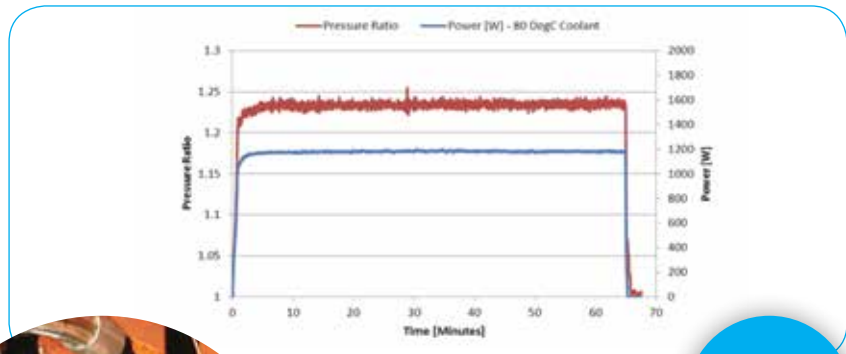
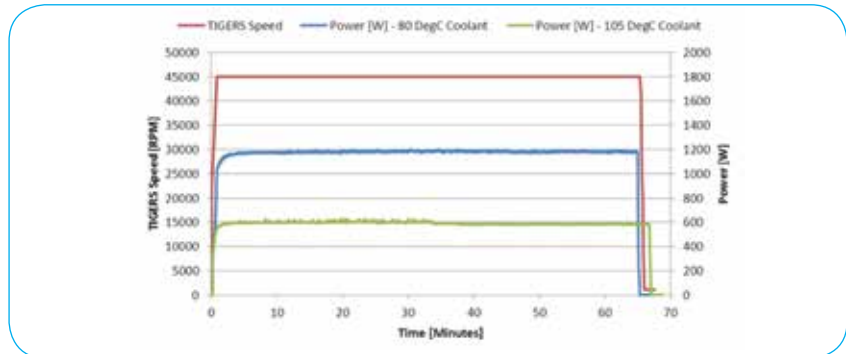
Applications and Benefits

- Waste exhaust heat energy is converted into useful electrical power
- More efficient electrical power generation compared with a conventional alternator at medium to high engine load
- Compact machine (240mm x 210mm x 175mm) delivering high power (0.5 - 2kW @ 12v)
- Can be packaged anywhere in the exhaust system
- Integrated power & control electronics
- Internally controlled bypass valve system
- Able to control pressure limit, voltage limit and current limit commands over CAN
- Utilises a bespoke low pressure turbine to extract power from exhaust flow with a minimal impact on back pressure



Peak Generation

The test range of exhaust inlet temperature was 250°C to 500°C



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