



STIRLING Electric Generator

SHR-STIRLING

In most foundries, it is necessary to extract heat from the gases to reduce the temperature at which they are released into the environment. Also, post-refinement processes often require gases to be at the appropriate temperature to carry out the necessary reactions. For example, electrostatic precipitators require a maximum temperature of 350°C for efficient operation.

The Stirling engine is directly integrated into the hot spots of the process, converting heat into electrical energy. This ensures early and substantial temperature reductions and provides a straightforward means of transporting useful energy.

Furthermore, a set of Stirling engines distributed throughout the foundry enables electricity supply (either direct or backup) to various operations as needed.

The SHR-STIRLING Stirling engine, developed by Ambar S.A., extracts heat directly from hotspots within the pipelines or any other hotspots in the process, provided they have temperatures exceeding 300°C and can reach as high as 1000°C and more in certain cases.

SPECIFICATIONS

- Output Power: 1 - 10[kW]
- Output Voltage: 220/110 [VAC]; 50 – 60 [Hz]
- Operating Temperature: from 300°C
- Approximate Diameter: 400 mm

FEATURES

- Only requires heat to operate.
- Works on various surface conditions.
- Installation on any hot surface.
- Installation on pipes with hot gas inside.

APPLICATIONS

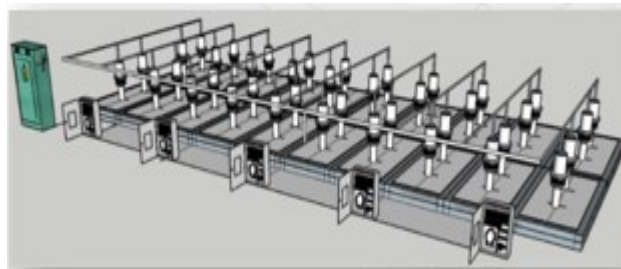
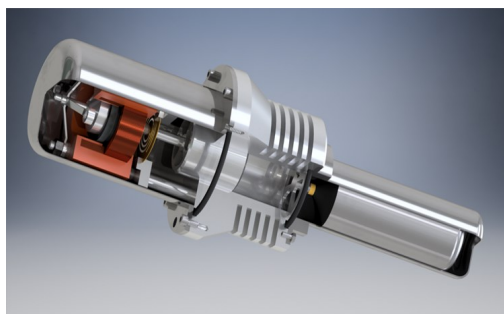
- Electricity generation from foundry furnaces (melting, conversion, others).
- Electricity generation from pipes with hot gas flowing inside.
- Heat extraction to reduce gas temperature to the level required for automation and control processes.

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SPECIFICATIONS SHR-STIRLING	
Stirling engine type	single cylinder free-piston
Linear alternator type	1 window permanent magnet with magnetic springs
Engine/Alternator mass	60 kg
Gross mechanical power	1250 Watts
Gross electrical power	1100 Watts
Output	220/110 VAC at 50 - 60 Hz
Overall efficiency (electric out/heat in)	23%
Operating frequency	50 - 60 Hz
Operating pressure	30 bar
Working fluid	nitrogen/air
Expansion space temperature	400°C
Compression space temperature	55°C
External heater wall temperature	500°C
External cooler wall temperature	40°C
Piston bearing	non-contact hydrostatic with PTFE coating
Displacer bearing	non-contact hydrostatic with PTFE coating
Piston springing	free
Displacer springing	planar mechanical springs
Piston seals	non-contact clearance
Displacer seals	non-contact clearance
External hot-end heat-exchanger	stainless steel
Internal hot-end heat-exchanger	brazed folded copper fins
External cold-end heat-exchanger	brazed copper fins with water jacket
Internal cold-end heat-exchanger	soldered folded copper fins
Regenerator	stacked foil annular gap



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