ENER-CORE

ENER-CORE POWERSTATION **FP250**

DESCRIPTION

The Ener-Core Powerstation FP250 is the only clean power generation solution which runs directly on low pressure, low quality gases which typically cannot be utilized or even flared. By integrating thermal oxidation with proven turbines, the system consumes the widest range of gases from 100% to as low as 1.5% methane - all while producing near-zero NO_X emissions.

STRENGTHS / KEY FEATURES

- Near Zero NOx Emissions
- Meets stringent environmental standards
- Accepts fuels with down to 1.5% methane content
- Minimal Fuel Conditioning

APPLICATIONS

- Landfills and Biogas
- Associated Petroleum Gas
- Natural Gas Systems
- Industrial Flares/Gases
- Coal Mines (Closed/VAM)

SYSTEM

GRADUAL OXIDIZER

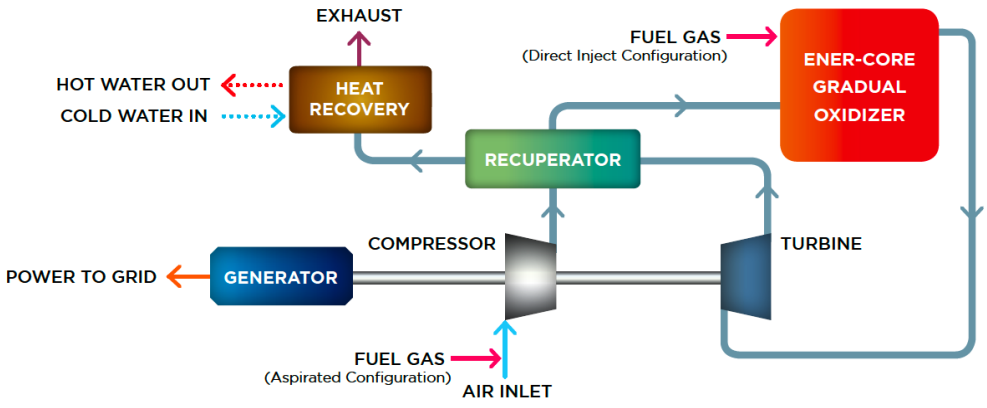
- Wide fuel flexibility that accepts extremely low heating value fuels
- Extremely low criteria pollutant emissions
- H_2S and siloxane tolerant

RUGGED GAS TURBINE

- Base turbine is a legacy Ingersoll Rand turbine
- Synchronous generator that runs grid parallel or grid isolated
- Recuperator reuses waste heat for high system efficiency

HOW IT WORKS

A Gradual Oxidizer replaces the combustor in this 250kW system, producing the heat to drive the turbine. With low-Btu fuels, fuel is aspirated with air prior to the inlet and oxidation, eliminating external compression and accepting low pressure gas. Higher quality fuels can be directly injected at a higher pressure upstream of the Oxidizer, resulting in virtually undetectable emissions. In both the aspirated and direct inject configurations, low oxidation temperature enables the FP250 to use the widest range of gases without thermal formation of NO_X.



9400 Toledo Way
Irvine, CA 92618

tel: (949) 616-3300
fax: (949) 616-3399

email: info@ener-core.com
web: www.ener-core.com

ENER-CORE POWERSTATION FP250 TECHNICAL SPECIFICATIONS

GAS ENERGY VS. FUEL SUPPLY RATE

Caloric Value HHV (Btu/scf)	30	50	100	200	300	500	1000	1200	1600	2000	2300	2600
Flow Rate (scfm)	1823	1185	593	296	198	119	59	49	37	30	26	23
Caloric Value HHV (MJ/NM^3)	1.2	2.0	3.9	7.9	11.8	19.7	39.4	47.3	63.0	78.8	90.6	102.4
Flow Rate (NM^3/hr)	3115	1869	935	467	312	187	93	78	58	47	41	36

FUEL REQUIREMENTS

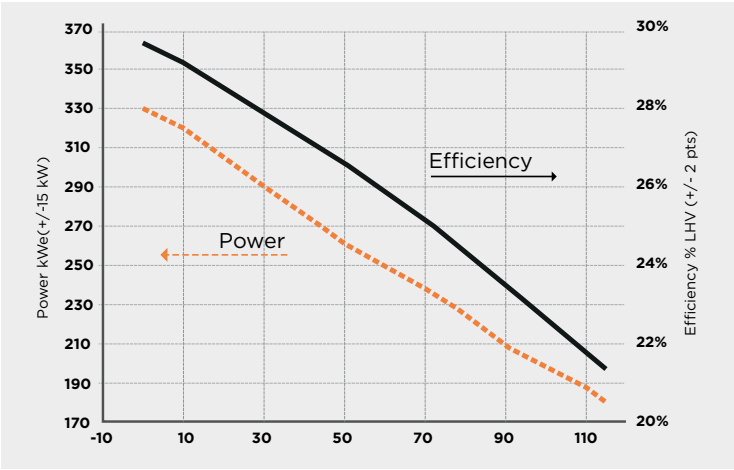
CHARACTERISTIC		SPECIFICATION
Fuel Operating Range (HHV)	Aspirated configuration	15 - 2600 Btu/scf (0.55 - 97 MJ/m^3)
	Direct Inject configuration	350 - 2600 Btu/scf (13 - 97 MJ/m^3)
Nominal Fuel Supply Pressure	Aspirated configuration	5 psig (35 kPa)
	Direct Inject configuration	75 psig (517 kPa)

ELECTRICAL PERFORMANCE

CHARACTERISTIC	SPECIFICATION
Nominal Electrical Output*	250 kW
Nominal Heat Rate (HHV)*	14,600 Btu/kWh (15,400 kJ/kWh)
Electrical efficiency (LHV)	26% (+/- 2)
Voltage	480 / 400 VAC
Frequency	60 Hz / 50Hz
Type of service	3 phase, 4 wire wye

*does not include fuel delivery parasitics

CHANGE IN POWER AND EFFICIENCY WITH AMBIENT TEMPERATURE



EMISSIONS

CHARACTERISTIC	SPECIFICATION
NO_x in exhaust gas	<1 ppm

MINIMUM CLEARANCE REQUIREMENTS

CHARACTERISTIC	SPECIFICATION
Vertical clearance	no overhead obstruction
Horizontal front, rear & left side	48 in (122 cm)
Horizontal right side	72 in (183 cm)

GENERATOR BREAKING RESISTOR

CHARACTERISTIC		SPECIFICATION		
Weight		1590 lb (721kg)		
Dimensions		LENGTH	WIDTH	HEIGHT
	INCHES	54	39	66
	CM	137	98	137

AMBIENT TEMPERATURE LIMIT

CHARACTERISTIC	SPECIFICATION
Outdoor*	-10° to 115°F (-23° to 46°C)

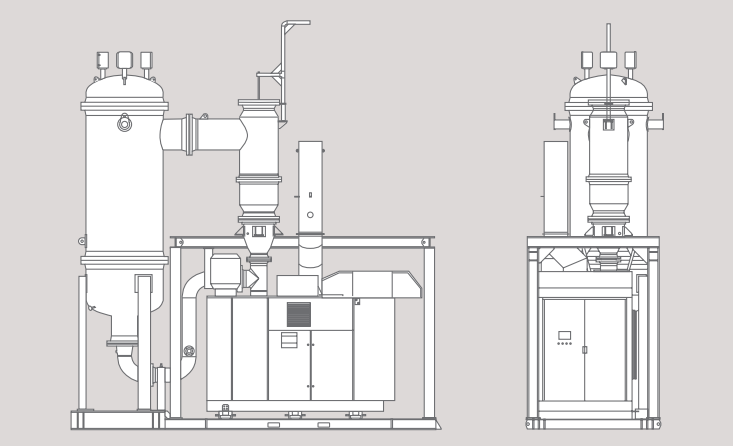
*Some configurations may require additional cold-weather options

SOUND LEVELS

CHARACTERISTIC	SPECIFICATION
Standard sound level	81 dB(A) at 1m

PHYSICAL SPECIFICATIONS

CHARACTERISTIC		SPECIFICATION		
System weight		52,000 lb (23,600 kg)		
System footprint		LENGTH	WIDTH	HEIGHT
	INCHES	288	107	318
	CM	732	272	808



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