ENER-CORE

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ENER-CORE POWERSTATION EC333

DESCRIPTION

The Ener-Core Powerstation EC333 is the only 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

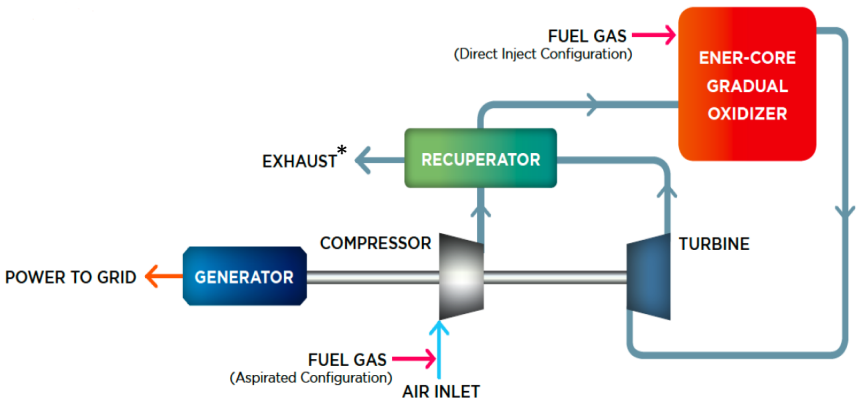
- Near Zero NO_X Emissions
- Meets stringent environmental standards
- Accepts fuels with down to 1.5% methane content
- Minimal Fuel Conditioning

APPLICATIONS

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

HOW IT WORKS

A Gradual Oxidizer replaces the combustor in this 333kW 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 configurations, low oxidation temperature enables the EC333 to use the widest range of gases without thermal formation of NO_X.



*CHP option available

System Arrangement

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 an MT333 FlexEnergy turbine
- Synchronous generator that runs grid parallel or grid isolated
- Recuperator reuses waste heat for high system efficiency

ENER-CORE POWERSTATION EC333 TECHNICAL SPECIFICATIONS

GAS ENERGY VS. FUEL SUPPLY RATE

Calorific Value HHV (Btu/scf)	30	50	100	200	300	500	1,000	1,200	1,600	2,000	2,300	2,600
Flow Rate (scfm)	2,362	1,417	708	354	236	142	71	59	44	35	31	27
Calorific 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	97
Flow Rate (NM^3/HR)	3,737	2,242	1,150	568	380	228	114	95	71	57	50	46

FUEL REQUIREMENTS (Gas Analysis Required)

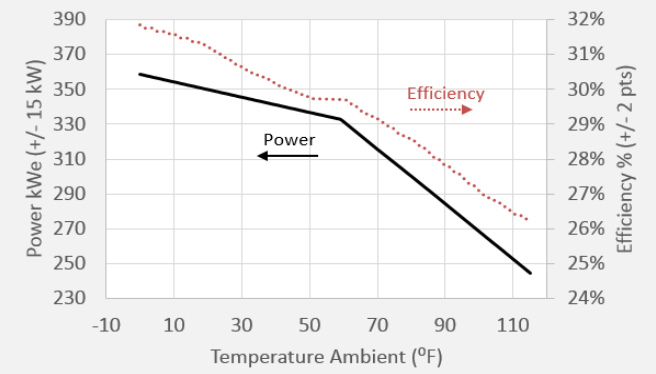
CHARACTERISTIC		SPECIFICATION
Fuel Operating Range (HHV)	Direct Inject Configuration	350 - 2,600 Btu/scf (13 - 97 MJ/Nm^3)
	Aspirated Configuration	15 - 2,600 Btu/scf (0.55 - 97 MJ/Nm^3)
Nominal Fuel Supply Pressure	Direct Inject Configuration	75 psig (517 kPa)
	Aspirated Configuration	As low as 1.5 psig (10.3 kPa)

ELECTRICAL PERFORMANCE

CHARACTERISTIC	SPECIFICATION
Nominal Electrical Output*	333 kW (±15 kW)
Electrical Efficiency (LHV)	29.7% (±2)
Nominal Heat Rate (LHV)*	11,489 Btu/kWh (12,122 kJ/kWh)
Voltage	480/400 VAC
Frequency	60 Hz/ 50 Hz
Type of Service	3 Phase, 4 Wire Wye

*does not include fuel delivery parasitics

CHANGE IN POWER & EFFICIENCY WITH AMBIENT TEMPERATURE (at ISO Conditions)



GENERATOR BRAKING RESISTOR

CHARACTERISTIC		SPECIFICATION		
Weight		4,200 lb (1,905 kg)		
Rating		390 kW, 480V/60 Hz, 400V/50Hz		
Dimensions		Length	Width	Height
	in	54	39	108
	cm	137	98	274

SOUND LEVELS

CHARACTERISTIC	SPECIFICATION
Outdoor	81 dB(A) at 1 m

EMISSIONS (ppmv adjusted for 15% O_2)

CHARACTERISTIC	SPECIFICATION
Aspirated Configuration	<1 ppm NO_X
Direct Inject Configuration	<1 ppm NO_X, CO, VOC

CLEARANCE REQUIREMENTS

CHARACTERISTIC	SPECIFICATION
Vertical clearance	45 feet
Horizontal front, rear, left side	48 in (122 cm)
Horizontal right side	72 in (183 cm)

AMBIENT TEMPERATURE LIMIT

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

*Some configurations may require additional cold-weather options

PHYSICAL SPECIFICATIONS

CHARACTERISTIC		SPECIFICATION		
System Weight		48,000 lb (21,772 kg)		
Dimensions		Length	Width	Height
	in	270	99	310
	cm	686	251	787