Official Partner & European Distributor
T: +31 6 467 655 43
E: info@holland-ret.com

ENER-CORE

Holland
Renewable Energy Technologies BV

ENER-CORE POWERSTATION KG2-3G/GO

Integrating Gas Turbine and Gradual Oxidation Technology to Produce 1.85MW of Clean Power

The Ener-Core Powerstation KG2-3G/GO is the only clean power generation solution which runs directly on low-pressure, low-quality gases which otherwise cannot be utilized. The system integrates proprietary oxidation technology with a field proven 2MW-class Dresser-Rand gas turbine, efficiently generating electricity with near-zero emissions.

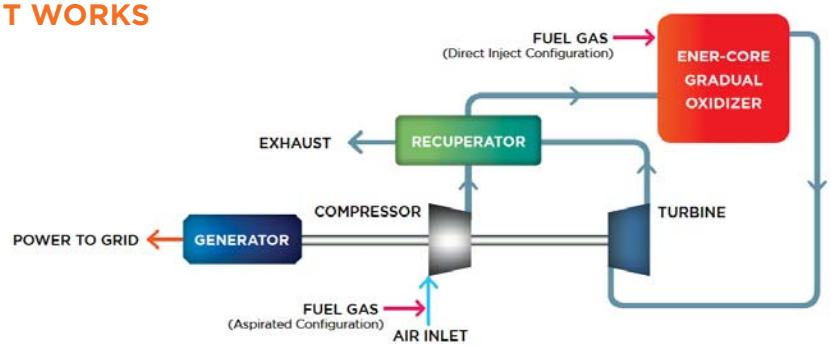
The KG2-3G/GO's wide fuel range enables operation on extremely low grade or waste fuels, landfill gas, biogas, coal gas, and associated petroleum gas. Its ability to maintain near-zero emissions excels in regulated air quality markets without additional emissions controls.

The base turbine of the KG2-3G/GO evolved from the successful Dresser Rand line of KG2-3 gas turbines, which comprise nearly 1,000 fielded units with over 25 million operating hours. The KG2-3G turbine line is the preferred solution for clean power requirements from 1 to 12 MW.

KEY FEATURES

- **Class-leading fuel efficiency**
- **High effectiveness recuperator**
- **Wide fuel specification tolerance**
- **Ultra-low emissions Gradual Oxidizer, <1 ppm NOx**
- **No catalyst and no chemicals used**
- **H_2S and siloxane acceptance**

HOW IT WORKS



A Gradual Oxidizer replaces the combustor in the 1.85 MW 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 KG2-3G/GO to avoid the thermal formation of NOx.

DRESSER-RAND

Package Arrangement

GAS TURBINE

- Industrial, single-shaft KG2-3G
- Single-stage compressor and turbine
- Cantilevered rotor configuration (no "hot" bearings)

GENERATOR

- Brushless synchronous generator
- Manufacturer of client's choice

PACKAGE

- Steel base frame
- Integrated lube oil system
- PLC control system with monitoring
- Weatherproof acoustic enclosure
- Inlet and exhuast system

GRADUAL OXIDIZER

- Packed bed gradual oxidizer ("no moving parts")
- ASME pressure vessel
- Multi fuel gas operation
- Ultra-low emissions

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 **KG2-3G/GO**

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)	11132	6679	3340	1670	1113	668	334	278	209	167	145	128
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)	17899	10739	5370	2685	1789	1074	537	447	336	269	233	206

FUEL REQUIREMENTS

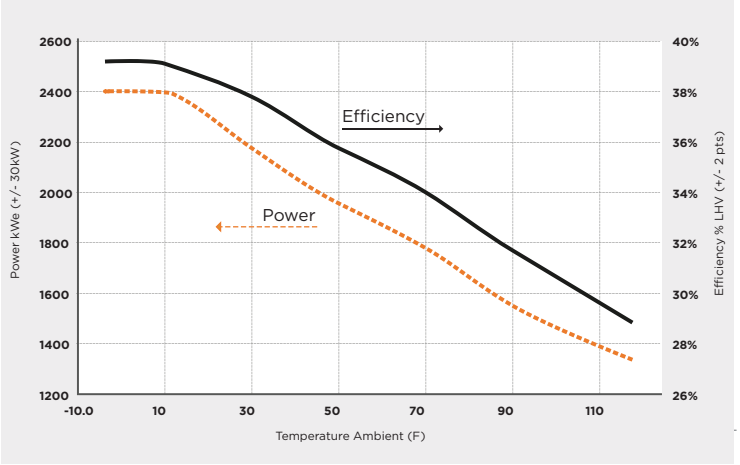
CHARACTERISTIC		SPECIFICATION
Fuel Operating Range (HHV)	Aspirated configuration	25 - 2600 Btu/scf (0.93 - 97 MJ/m^3)
	Direct Inject configuration	350 - 2600 Btu/scf (13 - 97 MJ/m^3)
Nominal Fuel Supply Pressure	Aspirated configuration	5 psig (35 kPa)
	Direct Inject configuration	140 psig (965 kPa)

ELECTRICAL PERFORMANCE*

CHARACTERISTIC	SPECIFICATION
Nominal Electrical Output	1850 kW (±30kW)
Electrical efficiency (LHV) (±2)	35% (±2)
Nominal Heat Rate (HHV)	9750 Btu/kWh (10286 kJ/kWh)
Generator Voltage	400 V – 11 kV
Frequency	60 Hz / 50Hz

*at ISO conditions

ELECTRICAL OUTPUT GRAPH SHOWS CHANGE IN POWER AND EFFICIENCY WITH TEMPERATURE



kWe is electrical output at terminals corrected for parasitics, but not including gas booster power

* at ISO Conditions (59ºF [15°C] @ sea level, 60% RH) unless otherwise noted

GENERATOR BRAKING RESISTOR

CHARACTERISTIC		SPECIFICATION		
Weight		5000 lb (2268 kg)		
Dimensions		LENGTH	WIDTH	HEIGHT
	FEET	7.5	5.9	11.3
	METERS	2.3	1.8	3.5

EMISSIONS

CHARACTERISTIC	SPECIFICATION
Aspirated Configuration	<1 ppmv NO_x
Direct Inject Configuration	<1 ppmv NO_x, CO, VOC

EXHAUST

CHARACTERISTIC	SPECIFICATION
Exhaust Mass Flow	20.7 lb/sec (9.4 kg/sec)
Exhaust Gas Temperature	600°F (316°C)

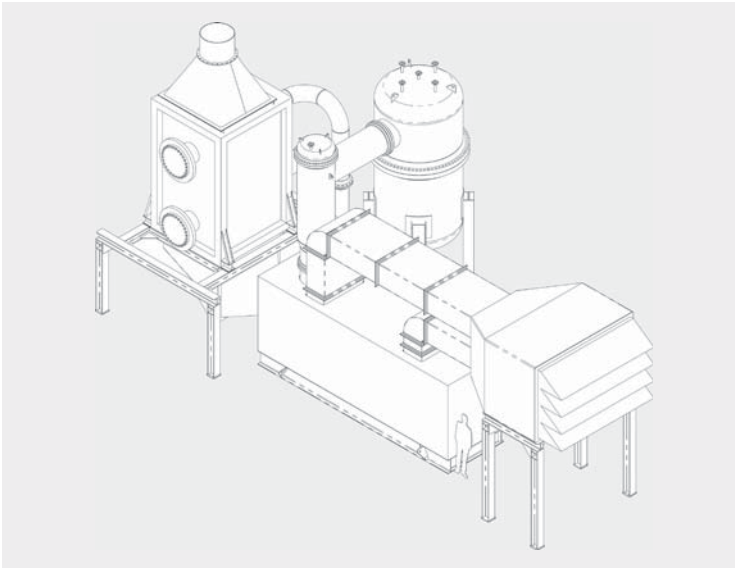
AMBIENT TEMPERATURE LIMIT

CHARACTERISTIC	SPECIFICATION
Temperature Limits*	-40° to 115°F (-40° to 46°C)

*Some configurations may require additional cold-weather options

PHYSICAL SPECIFICATIONS

CHARACTERISTIC		SPECIFICATION		
System weight		105,000 lb (47,627 kg)		
Dimensions		LENGTH	WIDTH	HEIGHT
	FEET	50	22	27
	METERS	15.2	6.7	8.2



9400 Toledo Way
Irvine, CA 92618

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

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