



### STANDARD EQUIPMENT

- **Biogas Engine and Synchronous Generator** connected with flexible coupling
- **Digital Electronic Ignition**
- **Heat Exchangers** for jacket water and exhaust piped and insulated at the factory
- **Electric Circulation Pump** for jacket water, with electric temperature control valve
- **Electric Circulation Pump** for Inter cooler water
- **Secondary Exhaust Silencer**
- **Vibration Isolators** between engine/ generator and base frame as well as between base frame and foundation
- **Sound Attenuated Enclosure**, 72-75 dB(A) avg. at 3 ft, for indoor installation, with ventilating fan
- **Utility Grade Protective Relay**
- Electrically operated **Power Circuit Breaker** with trip unit
- 24 V maintenance-free **Batteries**, 10 amp **Battery Charger**
- **Hot water temp up to 190 °F**
- **Lube Oil Make-up System** with 15 gal storage tank, unit mounted
- **Electric Pre-lubrication Pump**
- **Dual Solenoid Gas Train**, with zero pressure regulator per NFPA 37
- **Low Fuel Pressure** system 0.5-3 PSI
- **Remote Monitoring**

### KMBL-240-4SH

#### KRAFT ENERGY/MAN Biogas Engine

<b>Electrical Output</b>	<b>240 kW</b>
<b>Thermal Output</b>	<b>1,172,454 BTU/hr</b>
<b>Fuel Consumption</b>	<b>9,481 BTU/kWhe</b>
<b>Overall Efficiency</b>	<b>87.51 %</b>

### BENEFITS

- **Most Reliable MAN Gas Engines**
- **Turbocharged & Intercooled Engine**
- **High Efficiency**
- **Low Emissions**
- **Compact Design**
- **Easy On-site Installation**
- **PLC-based Digital Controls**
- **Remote Communication Capabilities**

### OPTIONAL EQUIPMENT

- **Outdoor Enclosure**
- **Remote Heat Dump Radiator**
- **Induction Type Generator**
- **Secondary Exhaust Silencer**
- **Electric Circulation Pump for Process Hot Water**
- **Hot Water Temperature Control Valve**
- **Load Sharing Controls for Multiple Unit Applications**
- **Island Mode Operation Capability**

# TECH DATA: KMBL-240-4SH BIOGAS

		100%
MAN Engine Model		E 2848 LE 322
Generator Model		HCI434D
Electric Output	kWe	240
Amps @ 480 Volts @ 0.8 P.F.	Amps	360
Amps @ 208 Volts @ 0.8 P.F.	Amps	832
Max. Engine BHP	BHP	355
Number of Cylinders/Arrangement		8 V
Bore & Stroke	Mm	128 x 142
Displacement	Ltrs (cu in)	14.62 (892)
BMEP	Psi	175.3
Compression Ratio		12 : 1
Combustion Air Required	Scfm	580
Generator Cooling Air Required	Scfm	2100
Total Air Required	Scfm	2680
Fuel Consumption	Th/Hr	22.76
Electric Heat Rate (LHV)	BTU/kWhe	9,481
<b>Hot Water Recovery - Jacket Water &amp; Exhaust Combined</b>		
Cogen Thermal Output	kW	344
Thermal Output	Th/Hr	11.72
Recoverable Heat from Jacket	BTU/Hr	624,372
Recoverable Heat from Exhaust	BTU/Hr	548,082
Total Heat Recovered	BTU/Hr	1,172,454
Process Water Flow	GPM @ 15° F Rise	156
Process Water Temp	Deg F	190
Exhaust Flow	Lbs/Hr	2962
Exhaust Temp	Deg F	898
<b>Efficiencies</b>		
Electrical Efficiency	%	35.99
Thermal Efficiency	%	51.52
Combined Efficiency	%	87.51
<b>Environmental</b>		
<b>Emissions at 100% Load (Correlation 15% O2)</b>		
NOx Emission	Gms/BHP-Hr (ppm)	< 1.0 (< 91)
CO Emission	Gms/BHP-Hr (ppm)	< 2.5 (< 300)
NMHC	Gms/BHP-Hr (ppm)	< 0.2 (< 36)
HCHO (Formaldehyde)	Gms/BHP-Hr (ppm)	< 0.07 (< 13.4)
Sound Level at 1 Meter	dBA	73-75
Gas Pressure-min	Inches of WC	20
Gas Pressure-max	Inches of WC	40
Dimensions & Weight	LxWxH (lbs.)	150"x65"x96" (9900)
i) Tech data is based on gas mixture of 60% methane & 40% carbon dioxide with a calorific value of 580 Btu/cu ft. ii) Gas quality must be per engine manufacturer's specifications & must be cleaned, if necessary. iii) The tolerances: electrical output: +/- 0%, fuel consumption: +/- 5%, thermal output: +/- 8% iv) Tech data is based on standard conditions acc to DIN ISO 3046-1. Standard conditions: atmospheric pressure: 14.5 psi or 328 ft above sea level, air temperature: 77 deg F, relative humidity: 30%. v) The coolant data is based on 40% antifreeze.		

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