



Image shown may not reflect actual package

## LANDFILL GAS/BIOGAS CONTINUOUS

496 ekW 620 kVA

471 ekW 589 kVA

50 HZ 1500 RPM 400 VOLTS

**Caterpillar is leading the power generation marketplace with power solutions engineered to deliver unmatched flexibility, expandability, reliability and cost-effectiveness.**

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## FEATURES

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### EMISSIONS

- Meets most worldwide emissions requirements down to 500 mg/Nm<sup>3</sup> NO<sub>x</sub> level without after-treatment

### FULL RANGE OF ATTACHMENT

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

### PROVEN SYSTEM

- Developed and tested using the latest techniques.
- Fully prototype tested
- Field proven in a wide range of applications worldwide

### WORLDWIDE PRODUCT SUPPORT

- Caterpillar dealers provide extensive post sales support including maintenance and repair agreements
- Caterpillar dealers have over 1,600 dealer branch stores operating in 200 countries
- The CAT® S.O.S<sup>sm</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

### PERKINS 4008-30TRS2 GAS ENGINE

- Robust high speed engine design provides prolonged life and lower owning and operating costs
- Designed for maximum performance on low pressure gaseous fuel supply
- Simple open chamber combustion system for reliability and fuel flexibility
- Leading edge technology in ignition system and air/fuel ratio control for lower emission and engine efficiency
- Electronic control modules handle all engine functions: ignition, governing, air/fuel ratio control and engine protection

### LL7024L GENERATOR

- Designed to match performance and output characteristics of Perkins gas engines
- Industry leading mechanical and electrical design
- High efficiency

### POWERWIZARD 2-0 CONTROL PANEL

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customers needs
- Integrated Control System and Communication Gateway

**SPECIFICATIONS**

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**PERKINS GAS ENGINE**

4008-30TRS2	SCAC, 4 stroke, spark ignition engine
Number of Cylinders	In-line 8
Bore --- mm (in)	160 (6.3)
Stroke --- mm (in)	190 (7.5)
Displacement --- L (cu in)	30.56 (1865)
Compression Ratio	12:1 nominal
Aspiration	Turbocharged Separate Circuit Aftercooled
Cooling Type	One stage aftercooler, JW and O/C combined
Fuel System	Low Pressure
Governor Type	Digital governing system

**LL7024L GENERATOR**

Excitation	AREP
Pitch	2/3
Number of poles	4
Number of bearings	Single
Number of leads	6
Insulation	Class H
IP rating	IP23
Overspeed capability -- % of rated	150%
Wave form NEMA = TIF	less than 50
Wave form IEC = THF	less than 2%
Total harmonic content LL/LN	less than 4%
Radio interference	BSEN50081 & BSEN50082
Voltage regulator	R448
Voltage regulation, steady state	+/- 0.5%

**POWERWIZARD 2-0 CONTROL PANEL**

- Package mounted
- Emergency stop button
- 24V DC control
- Environmental sealed front face
- Text alarm / event descriptions
- Warning / Shutdowns with indicating lights for:
  - Low oil pressure
  - High coolant temperature
  - Overspeed
  - Emergency stop
  - Failure to start (Overcrank)
- Controls
  - Speed adjust
  - Auto start/stop control
  - Engine cool-down timer
  - Alarm acknowledgement
  - Lamp test
- True RMS AC metering, 3-phase
- Digital indications for:
  - RPM
  - Operating hours
  - Oil pressure
  - Coolant temperature
  - System DC volts
  - L-L volts, L-N volts, phase amps, Hz, ekW, kVA, kVAR, kWhr, %kW, pf
- Programmable digital inputs (4) and outputs (4)
- MODBUS communication (RS485 half duplex) for remote monitoring

**PACKAGE DEFINITION**

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**PACKAGE GENSET WITH RADIATOR (STANDARD)**

- Engine driven JW pump and thermostat
- Engine driven SCAC pump and thermostat
- Set-mounted electrical driven radiator

**PACKAGE GENSET WITH HEAT EXCHANGERS (OPTIONAL)**

- Engine driven JW pump and thermostat
- Engine driven SCAC pump and thermostat
- Set-mounted heat exchangers

**CHP GENSET (OPTIONAL)**

- Genset without engine driven water pumps and thermostats for JW and SCAC
- Ship-loose electrical driven water pumps and thermostats for JW and SCAC under special pricing

**Additional information may be available, consult your Caterpillar dealer for details**

**FACTORY SUPPLIED STANDARD & OPTIONAL EQUIPMENT**

System	Standard	Optional
<b>Control Panel</b>	POWERWIZARD 2.0	Control panel for parallel operation
<b>Air Intake</b>	Air filter(s) with restriction indicator Exhaust gas driven turbocharger(s)	
<b>Gas / Ignition</b>	Closed loop air / fuel mixer and regulator specified to suit application Detonation sensing Individual cylinder HV ignition coils with leads Ignition system and wiring harness Gas train with station (0.5-2.5 bar) (shipped loose)	Gas train with station (2.5-4 bar or 4-6 bar) (shipped loose)
<b>Lubrication</b>	Lubricating oil pump Spin on, canister type lubricating oil filters Oil cooler, jacket water cooled	Lube oil drain pump Lube oil temperature shutdown and panel circuitry Lube oil level regulator (excludes tank)
<b>Cooling</b>	Two circuit radiator - baseframe mounted Centrifugal type, gear driven jacket water pump Jacket water thermostat - engine mounted (JW pump and thermostat for Package Genset only) Aftercooler, seperated circuit (SCAC) Centrifugal type, gear driven SCAC water pump SCAC thermostat - Package mounted (SCAC pump and thermostat for Package Genset only) Low coolant level shutdown	Heat exchanger - base mounted for Package Genset Coolant heater 220/240 VAC Radiator transition flange 50% anti freeze CHP Genset with or without ship-loose electrical-driven JW and/or SCAC water pump and thermostat
<b>Exhaust</b>	Cast iron, dry manifold Exhaust outlet elbow with flange (for Package Genset only)	Industrial silencer Residential silencer with mounting kit Critical silencer with mounting kit Stainless steel bellows
<b>Governing</b>	Heinzmann Pandaros Digital Governor	
<b>Electrical</b>	Single 24V DC starter motor Battery charging alternator (for Package Genset only)	Static battery charger (for CHP Genset only)
<b>Drive</b>	Cast flywheel housing: SAE 0 Cast iron flywheel: SAE 14 Viscous type torsional vibration damper(s)	
<b>Engine Protection</b>	High coolant temperature switch and sensor Low lubricating oil pressure switch and sensor Overspeed switch and pickup Emergency stop button - grounding ignition system High manifold pressure switch Low and high gas pressure shutdown	
<b>Engine Mountings</b>	Engine / generator / radiator rigidly mounted to baseframe (Package Genset) Anti-vibration mounts (rubber type)	Engine / generator / heat exchanger rigidly mounted to baseframe (Package Genset) Baseframe - engine / generator (CHP Genset) (with rigid mount)
<b>Generator</b>	AREP winding R448 regulator Set-mounted circuit breaker	Floor standing circuit breaker Anti-condensation heater Permanent Magnet + R448 regulator Permanent Magnet + R448 regulator + R731 3 phase sensing Quadrature droop kit
<b>Miscellaneous</b>	Operation manual	Additional Operation Manual CE Certification Special engine/generator color

**TECHNICAL DATA (LANDFILL GAS / BIOGAS)**

<b>GEPG620-2 Gas Generator Set</b>		<b>CHP Genset</b>			
	<b>%</b>	<b>70</b>	<b>60</b>	<b>50</b>	<b>40</b>
Methane content					
Emission level (NO <sub>x</sub> )		TA Luft	TA Luft	TA Luft	TA Luft
<b>Package Performance (1)</b>					
Power Rating @ 0.8 pf	ekW Cont.	496	496	496	471
Power Rating @ 0.8 pf	kVA Cont.	620	620	620	589
Power Rating @ 1.0 pf	ekW Cont.	500	500	500	475
Electric Efficiency @ 1.0 pf (ISO 3046/1) (2)	%	38.5	38.1	37.7	36.8
Mechanical Power	bkW	526	526	526	500
<b>Fuel Consumption (3)</b>					
100% load w/o fan	Nm <sup>3</sup> /hr	186	219.4	265.8	315
75% load w/o fan	Nm <sup>3</sup> /hr	149.7	168.6	204.2	237.9
50% load w/o fan	Nm <sup>3</sup> /hr	115.3	119.9	145.2	166.9
<b>Altitude Capability (4)</b>					
At 27 Deg C (80 Deg F) ambient temperature	M (ASL)	152.4	152.4	152.4	152.4
<b>Cooling System</b>					
Jacket water maximum outlet temperature	Deg C	96	96	96	96
Inlet manifold mixture maximum temperature	Deg C	50	50	50	50
<b>Exhaust System</b>					
Combustion air inlet flow rate (25 Deg C)	M <sup>3</sup> /min	39.7	36.8	35.6	34.2
Exhaust stack gas temperature	Deg C	478	505	501	505
Exhaust gas flow rate (at turbo exit temperature)	M <sup>3</sup> /min	104.2	163.1	190.7	224.4
Maximum system back pressure	mm H <sub>2</sub> O	400	400	400	400
<b>Heat Rejection (5)</b>					
Heat rejection to jacket water and oil cooler	kW	211	211	211	205
Heat rejection to AC	kW	90	90	90	83
Heat rejection to exhaust (LHV to 25 Deg C)	kW	396	412	416	421
Heat rejection to atmosphere from engine	kW	75	73	82	82
Heat rejection to atmosphere from generator	kW	28.8	28.8	28.8	28.8
<b>Generator</b>					
Temperature rise	Deg C	80	80	80	80
Motor starting capability @ 30% voltage dip (6)	skVA	1959	1959	1959	1959
<b>Lubrication System</b>					
Sump maximum oil capacity	L	154	154	154	154

## **DEFINITIONS AND CONDITIONS**

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### **(1) Continuous Baseload Rating**

These ratings are applicable for supplying continuous electrical power for full load operation. There is no overload available. The ratings represent the engine performance in accordance with the reference conditions equivalent to those specified in ISO 8528-1 2005 based on the use of natural gas having a lower calorific value of 34.71 MJ/m<sup>3</sup>.

Landfill gas / biogas ratings are based on lower calorific values of:

70% methane content: 25.150 MJ/m<sup>3</sup>

60% methane content: 21.543 MJ/m<sup>3</sup>

50% methane content: 17.965 MJ/m<sup>3</sup>

40% methane content: 14.768 MJ/m<sup>3</sup>

### **Standard Reference Conditions**

Air ambient temperature: 25 Deg C

Total barometric pressure: 100 kPa

Relative humidity: 30%

(2) **Efficiency** of standard generator is used.

(3) **Fuel consumption** data is based on ISO3046/1 standard reference conditions of 25 deg C of ambient temperature, 100 kPa of total barometric pressure and 30% relative humidity with 0, +5% fuel tolerance. Fuel consumption data uses gas fuels as specified above.

(4) **Altitude** capability is based on 380 mm H<sub>2</sub>O max air intake restriction and 400 mm H<sub>2</sub>O max exhaust back pressure.

(5) **Heat Rejection** --- data based on nominal data with tolerance of +/-3% and 380 mm H<sub>2</sub>O max air intake restriction and 400 mm H<sub>2</sub>O max exhaust back pressure.

(6) Assume synchronous driver

### **(7) Emissions data**

Ambient temperature of 25 deg C.

Emissions at continuous baseload rating.

If the engine is to operate in ambient conditions other than test conditions then suitable adjustments may be necessary for any change in inlet air temperature or barometric pressure.

# CONTINUOUS 496 ekW / 471 ekW 620 kVA 589 kVA

50 Hz 1500 rpm 400 Volts

# OLYMPIAN™

## DIMENSIONS & WEIGHTS

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Package Dimensions & Weight (CHP Genset w/o cooling system opt.)		
Length	3978 mm	156.6 in
Width	1566 mm	61.7 in
Height	1735 mm	68.3 in
Est. Package Weight (wet)	6027 kg	13 287 lb

Note: Do not use for installation design.  
See general dimension drawings  
MGA77647 for detail.

Package Dimensions & Weight (Package Genset with Heat Exchangers)		
Length	4668 mm	183.8 in
Width	1630 mm	64.2 in
Height	2093 mm	82.3 in
Est. Package Weight (wet)	6578 kg	14 502 lb

Note: Do not use for installation design.  
See general dimension drawings  
MGA7652 for detail.

Package Dimensions & Weight (Package Genset with radiator)		
Length	5348 mm	210.6 in
Width	1992 mm	78.4 in
Height	2244 mm	88.3 in
Est. Package Weight (wet)	7790 kg	17 173 lb

Note: Do not use for installation design.  
See general dimension drawings  
MGA7570 for detail.

[www.cat-electricpower.com](http://www.cat-electricpower.com)

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