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## DIESEL GENERATOR SET



Image shown may not reflect actual package.

## STANDBY 250 kW 313 kVA 60 Hz 1800 rpm 480 Volts

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

## FEATURES

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### FUEL/EMISSIONS STRATEGY

- EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)

### DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response
- Cooling system designed to operate in 50°C / 122°F ambient temperatures with an air flow restriction of 0.5 in. water

### UL 2200 / CSA – Optional

- UL 2200 Listed
- CSA Certified

Certain restrictions may apply.

Consult with your Cat® Dealer.

### FULL RANGE OF ATTACHMENTS

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

### SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

### WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 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

### CAT C9 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

### CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- UL 1446 Recognized Class H insulation
- CSA Certified

### CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway
- Integrated Voltage Regulation

### SEISMIC CERTIFICATION\*

- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight and concrete strength.  
IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010

\*Not available with some options – consult with your Cat Dealer.

**STANDBY 250 ekW 313 kVA**  
60 Hz 1800 rpm 480 Volts



**FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT**

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> <li>• Disposable air filter</li> </ul>	<input type="checkbox"/> Canister type, dual element <input type="checkbox"/> Heavy duty air cleaner
Cooling	<ul style="list-style-type: none"> <li>• Package mounted radiator</li> </ul>	
Exhaust	<ul style="list-style-type: none"> <li>• Exhaust flange outlet</li> </ul>	<input type="checkbox"/> Industrial <input type="checkbox"/> Residential / Critical
Fuel	<ul style="list-style-type: none"> <li>• Primary fuel filter with integral water separator</li> <li>• Secondary fuel filters</li> <li>• Fuel priming pump</li> </ul>	
Generator	<ul style="list-style-type: none"> <li>• Matched to the performance and output characteristics of Cat engines</li> <li>• IP23 Protection</li> </ul>	<input type="checkbox"/> Permanent magnet excitation (PMG) <input type="checkbox"/> Anti-condensation space heater <input type="checkbox"/> Coastal insulation protection <input type="checkbox"/> Internal excitation (IE) / AREP
Power Termination	<ul style="list-style-type: none"> <li>• Power terminal strips</li> </ul>	<input type="checkbox"/> Circuit breakers – 100% rated assembly, UL Listed <input type="checkbox"/> SUSE (Suitable for use as service equipment)
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 4.2</li> </ul>	<input type="checkbox"/> EMCP 4.3 <input type="checkbox"/> EMCP 4.4 <input type="checkbox"/> Local and remote annunciator modules <input type="checkbox"/> Remote monitoring software
Mounting	<ul style="list-style-type: none"> <li>• Rubber vibration isolators</li> </ul>	
Starting/Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor &amp; charging alternator</li> <li>• Batteries</li> </ul>	<input type="checkbox"/> Battery chargers <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Jacket water heater
General	<ul style="list-style-type: none"> <li>• Paint – Caterpillar Yellow except rails and radiators gloss black</li> <li>• Narrow skid base</li> </ul>	The following options are based on regional and product configuration: <input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010 <input type="checkbox"/> UL 2200 Listed package <input type="checkbox"/> CSA Certified <input type="checkbox"/> Wide skid base <input type="checkbox"/> Sound attenuated enclosure <input type="checkbox"/> Weather protective enclosure <input type="checkbox"/> Integral dual wall UL Listed 8 hr fuel tank <input type="checkbox"/> Sub-base dual wall UL Listed 24 hr fuel tank <input type="checkbox"/> Sub-base dual wall UL Listed 48 hr fuel tank

## SPECIFICATIONS

<b>STANDARD CAT GENERATOR</b>	
Frame size	LC5014H
Excitation	Self Excitation
Pitch	0.6667
Number of poles	4
Number of bearings	Single bearing
Number of leads	12
Insulation	UL 1446 Recognized Class H
IP Rating	IP23
Alignment	Pilot shaft
Overspeed capability (%)	125
Wave form deviation (%)	2
Voltage regulator	Three phase sensing
Voltage regulation	+/- 0.25% (steady state)
- Consult your Cat dealer for available voltages	
<b>CAT DIESEL ENGINE</b>	
C9 ATAAC, I-6, 4-Stroke Water-cooled Diesel	
Bore	112.00 mm (4.41 in)
Stroke	149.00 mm (5.87 in)
Displacement	8.80 L (537.01 in <sup>3</sup> )
Compression ratio	16.1:1
Aspiration	Air-to-air aftercooled
Fuel system	Hydraulic electronic unit injection
Governor type	Caterpillar ADEM™ control system

## CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

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## TECHNICAL DATA

<b>Open Generator Set - - 1800 rpm/60 Hz/480 Volts</b>	<b>DM8501</b>	
<b>EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)</b>		
<b>Generator Set Package Performance</b> Genset power rating @ 0.8 pf Genset power rating with fan	313 kVA 250 ekW	
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	73.3 L/hr 58.8 L/hr 43.8 L/hr	19.4 gal/hr 15.5 gal/hr 11.6 gal/hr
<b>Cooling System<sup>1</sup></b> Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 600 m <sup>3</sup> /min 46.7 L 22.0 L 24.7 L	0.48 in. water 21189 cfm 12.3 gal 5.8 gal 6.5 gal
<b>Inlet Air</b> Combustion air inlet flow rate	25.2 m <sup>3</sup> /min	890 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	456 °C 63.6 m <sup>3</sup> /min 127.0 mm 10.0 kPa	852 °F 2246 cfm 5.0 in 40.1 in. water
<b>Heat Rejection</b> Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	104 kW 277 kW 82 kW 18 kW 19.7 kW	5914 Btu/min 15753 Btu/min 4663 Btu/min 1024 Btu/min 1120 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Insulation class Temperature rise	543 skV LC5014H H 150 °C	270 °F
<b>Lubrication System</b> Sump refill with filter	39.0 L	10.3 gal
<b>Emissions (Nominal)<sup>3</sup></b> NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	2.91 g/hp-hr 0.37 g/hp-hr 0.09 g/hp-hr 0.081 g/hp-hr	

<sup>1</sup> For site specific ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

<sup>2</sup> Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

<sup>3</sup> Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

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## RATING DEFINITIONS AND CONDITIONS

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### Applicable Codes and Standards:

AS1359, CSA C22.2 No100-04, UL142,UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22,NEMA MG1-33, 72/23/EEC, 98/37/EC, 2004/108/EC.

**Standby** – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

**Ratings** are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

**Fuel Rates** are based on fuel oil of 35° API (16°C or 60°F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

**Additional Ratings** may be available for specific customer requirements. Consult your Cat representative for details.

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## DIMENSIONS

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Package Dimensions		
Length	2870 mm	113.0 in
Width	1622 mm	63.9 in
Height	2065 mm	81.3 in
Weight*	2106 kg	4643 lb

\*With Oil and Coolant.

**NOTE:** For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Performance No.: DM8501

Feature Code: C09DE47

Gen. Arr. Number: 449-0571

Source: U.S. Sourced

LEHE0489-00 (02/14)

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