

DIESEL GENERATOR SET



Image shown may not reflect actual package.

PRIME
225 ekW 281 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

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•SSM 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.

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Disposable air filter	☐ Canister type, dual element ☐ Heavy duty air cleaner
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	☐ Industrial ☐ Residential / Critical
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump	
Generator	• Matched to the performance and output characteristics of Cat engines • IP23 Protection	☐ Permanent magnet excitation (PMG) ☐ Anti-condensation space heater ☐ Coastal insulation protection ☐ Internal excitation (IE) / AREP
Power Termination	• Power terminal strips	☐ Circuit breakers – 100% rated assembly, UL Listed ☐ SUSE (Suitable for use as service equipment)
Control Panels	• EMCP 4.2	☐ EMCP 4.3 ☐ EMCP 4.4 ☐ Local and remote annunciator modules ☐ Remote monitoring software
Mounting	• Rubber vibration isolators	
Starting/Charging	• 24 volt starting motor & charging alternator • Batteries	☐ Battery chargers ☐ Oversize batteries ☐ Jacket water heater
General	• Paint – Caterpillar Yellow except rails and radiators gloss black • Narrow skid base	The following options are based on regional and product configuration: ☐ Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010 ☐ UL 2200 Listed package ☐ CSA Certified ☐ Wide skid base ☐ Sound attenuated enclosure ☐ Weather protective enclosure ☐ Integral dual wall UL Listed 8 hr fuel tank ☐ Sub-base dual wall UL Listed 24 hr fuel tank ☐ Sub-base dual wall UL Listed 48 hr fuel tank

SPECIFICATIONS

STANDARD CAT GENERATOR	
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	
CAT DIESEL ENGINE	
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 ³)
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)
- kW, 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

Open Generator Set - - 1800 rpm/60 Hz/480 Volts	DM8505	
EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)		
Generator Set Package Performance Genset power rating @ 0.8 pf Genset power rating with fan	281 kVA 225 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	68.9 L/hr 55.7 L/hr 42.0 L/hr	18.2 gal/hr 14.7 gal/hr 11.1 gal/hr
Cooling System¹ 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 m³/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
Inlet Air Combustion air inlet flow rate	24.2 m³/min	855 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	444 °C 59.8 m³/min 127.0 mm 10.0 kPa	831 °F 2112 cfm 5.0 in 40.1 in. water
Heat Rejection 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	99 kW 259 kW 72 kW 26 kW 17.2 kW	5630 Btu/min 14729 Btu/min 4095 Btu/min 1479 Btu/min 978 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Insulation class Temperature rise	543 skV LC5014H H 105 °C	189 °F
Lubrication System Sump refill with filter	39.0 L	10.3 gal
Emissions (Nominal)³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	2.66 g/hp-hr 0.4 g/hp-hr 0.11 g/hp-hr 0.092 g/hp-hr	

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

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

³ 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

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.

Prime – Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 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

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.: DM8505

Feature Code: C09DE47

Gen. Arr. Number: 449-0571

Source: U.S. Sourced

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