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## DIESEL GENERATOR SET

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# CATERPILLAR®



Image shown may not reflect actual package.

## STANDBY

**320 e kW 400 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

### Fuel Strategy

- Low fuel consumption

### FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested

### COMPLETE, READY-TO-RUN SYSTEM

- Fully configured generator set
- Full range of attachments and options available

### ENCLOSURES (optional)

- Weather protective and sound attenuated

### SINGLE-SOURCE SUPPLIER

- Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities
- Fully prototype tested with certified torsional vibration analysis available

### WORLDWIDE PRODUCT SUPPORT

- Caterpillar® dealers provide extensive post sale support including maintenance and repair agreements
- Caterpillar dealers fill 99.7% of parts orders within 24 hours
- Caterpillar dealers have over 1,600 dealer branch stores operating in 200 countries
- The Cat® S•O•S™ program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

### CAT® 3406C TA DIESEL ENGINE

- High efficiency, four-stroke-cycle engine designed for thousands of trouble-free hours of operation
- Field-proven in thousands of applications

### CAT GENERATOR

- Matched to the performance and output characteristics of Caterpillar engines
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H insulation

### CAT EMCP 3 SERIES CONTROL

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

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## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> <li>• Service Indicator</li> <li>• Light duty air cleaner</li> </ul>	<ul style="list-style-type: none"> <li>• Canister Style Air Cleaner</li> <li>• Single Stage</li> <li>• Dual element</li> <li>• Heavy duty</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Radiator with guard</li> </ul>	<ul style="list-style-type: none"> <li>• Low coolant level alarm or shutdown</li> <li>• Heat exchanger and expansion tank</li> <li>• Jacket water heater</li> <li>• Oversize radiator</li> <li>• Duct flange</li> <li>• Caterpillar Extended Life Coolant</li> </ul>
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Flanged outlet</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial muffler</li> <li>• Residential muffler</li> <li>• Critical muffler</li> <li>• Flexible fitting</li> </ul>
Fuel	<ul style="list-style-type: none"> <li>• Fuel priming pump</li> <li>• Fuel pressure gauge</li> </ul>	<ul style="list-style-type: none"> <li>• Water separator</li> <li>• Day tanks</li> <li>• Flexible fuel lines</li> </ul>
Generator	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• R448 voltage regulator with load adjustment module</li> <li>• IP23 Protection</li> <li>• Circuit Breaker. IEC, 3-pole</li> </ul>	<ul style="list-style-type: none"> <li>• Anti-condensation space heater</li> <li>• Terminal strip connection</li> <li>• Oversize generator</li> <li>• Circuit breaker, UL Listed, 3 &amp; 4-pole with shunt trip</li> <li>• Multiple breaker capability</li> </ul>
Governor	<ul style="list-style-type: none"> <li>• Hydra-mechanical</li> </ul>	<ul style="list-style-type: none"> <li>• Woodward 1724</li> <li>• Load sharing module</li> </ul>
Control Panels	<ul style="list-style-type: none"> <li>• EMCP3.1</li> <li>• User Interface panel (UIP) - rear mount (standard)</li> <li>• Voltage and Speed adjust</li> <li>• AC&amp;DC customer wiring area (right side)</li> <li>• CAT digital voltage regulator (CDVR) with KVAR/PF control, 3-phase sensing</li> <li>• Emergency Stop Pushbutton</li> </ul>	<ul style="list-style-type: none"> <li>• EMCP 3.2, EMCP 3.3</li> <li>• Local alarm horn</li> <li>• Common alarm/shutdown relay</li> <li>• Local &amp; remote annunciator modules</li> <li>• Load share module</li> <li>• Discrete I/O module</li> <li>• Generator temperature monitoring &amp; protection</li> <li>• Speed Adjust (on panel)</li> </ul>
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valve piped to edge of base</li> <li>• Fumes disposal piped to front of radiator</li> </ul>	<ul style="list-style-type: none"> <li>• Manual sump pump</li> <li>• Oil temperature sensor</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>• Narrow integral fuel tank base (950L)</li> <li>• Linear vibration isolators between base and engine-generator</li> </ul>	<ul style="list-style-type: none"> <li>• Narrow base</li> <li>• Wide Base</li> <li>• Lifting arch</li> <li>• Oil field skid base</li> </ul>
Starting/Charging	<ul style="list-style-type: none"> <li>• 45 amp charging alternator</li> <li>• Energized to Run (ETR) fuel shutoff solenoid</li> <li>• 24 volt starting motor</li> <li>• Batteries with rack and cables</li> </ul>	<ul style="list-style-type: none"> <li>• 5 amp battery charger</li> <li>• Oversize batteries</li> <li>• Ether starting aid</li> <li>• Battery disconnect switch</li> </ul>
General		<ul style="list-style-type: none"> <li>• Enclosures - sound attenuated, weather protective</li> <li>• Automatic transfer switches (ATS)</li> <li>• EU Certificate of Conformance (CE)</li> </ul>

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## SPECIFICATIONS

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### CAT GENERATOR

Frame Size.....	LC6114B
Excitation.....	Self Excited
Pitch.....	0.6667
Number of poles.....	4
Number of bearings.....	Single Bearing
Insulation.....	UL 1446 Recognized Class H with tropicalization and antiabrasion
IP Rating.....	IP23
Overspeed capability - % of rated.....	150
Wave form.....	.002.00
Paralleling kit/Droop transformer.....	Optional
Voltage regulator.....	Single Phase sensing with selectable volts/Hz
Voltage regulation.. Less than +/- 1/2% (steady state) Less than +/- 1% (no load to full load)	
Telephone Influence Factor.....	Less than 50
Harmonic distortion.....	Less than 5%

### CAT DIESEL ENGINE

3406C TA, I-6, 4-Stroke-Cycle Watercooled Diesel	
Bore - mm.....	137.20 mm (5.4 in)
Stroke - mm.....	165.10 mm (6.5 in)
Displacement - L.....	14.64 L (893.39 in <sup>3</sup> )
Compression ratio.....	14.5:1
Aspiration.....	TA
Governor type.....	Hydra-mechanical

### CAT CONTROL PANELS

EMCP 3.1 (Standard)
EMCP 3.2 & 3.3 (Optional features)
• Emergency stop pushbutton
• Voltage adjustment potentiometer
• Digital speed adjustment (via EMCP3 display)
• Panel illuminating lights
• Digital AC metering 3-phase, true RMS
• Digital Indication for:
- RPM
- DC volts
- Operating hours
- Oil Pressure (psi, kPa or bar)
- Coolant temperature
- L-L volts, L-N volts, phase amps, Hz
- kW, kVa, kVAR, kW-hr, % kW, PF
• Warning / Shutdowns with indicating lights for:
- Low oil pressure
- High Coolant temperature
- Overspeed
- Emergency Stop
- Failure to start (overcrank)
• Programmable digital (4) inputs and (4) outputs
• Reverse power (optional)
• MODBUS isolated data link (RS-485 half-duplex)
supports serial communication at data rate up to 115.2 kbaud (optional)

**Consult your Caterpillar Dealer for details**

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## TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM2273	
<b>Low Fuel Consumption</b>		
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	400 kVA 320 ekW	
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	86.1 L/hr 64.3 L/hr 44.4 L/hr	22.7 Gal/hr 17.0 Gal/hr 11.7 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 522 m <sup>3</sup> /min 57.8 L 20.8 L 37.0 L	0.48 in. water 18434 cfm 15.3 gal 5.5 gal 9.8 gal
<b>Inlet Air</b> Combustion air inlet flow rate	23.4 m <sup>3</sup> /min	826.4 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Heat rejection to aftercooler Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	583.8 °C 70.4 m <sup>3</sup> /min 31 kW 152.4 mm 6.7 kPa	1082.8 °F 2486.2 cfm 1763 Btu/min 6.0 in 26.9 in. water
<b>Heat rejection</b> Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	197 kW 303 kW 73 kW 23.7 kW	11203 Btu/min 17232 Btu/min 4152 Btu/min 1347.8 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	745 skVA LC6114B 150 °C	270 °F
<b>Lube System</b> Sump refill with filter	38.0 L	10.0 gal
<b>Emissions<sup>3</sup></b> NOx mg/nm <sup>3</sup> CO mg/nm <sup>3</sup> HC mg/nm <sup>3</sup> NOx mg/nm <sup>3</sup>	3042.8 mg/nm <sup>3</sup> 1265.3 mg/nm <sup>3</sup> 11.6 mg/nm <sup>3</sup> 3042.8 mg/nm <sup>3</sup>	

<sup>1</sup> For ambient and altitude capabilities consult your Caterpillar 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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**Meets or Exceeds International Specifications:** AS1359, CSA, IEC60034, ISO3046, ISO8528, NEMA MG 1-33, UL508A, 72/23/EEC, 89/336/EEC, 98/37/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. Standby power in accordance with ISO8528. Fuel stop power in accordance with ISO3046. Standby ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the shutdown temperature.

**Ratings** are based on SAE J1995 standard conditions. These ratings also apply at ISO3046 standard conditions. **Fuel Rates** are based on fuel oil of 35° API [16° C (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, contact your Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Caterpillar dealer.

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## DIMENSIONS

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Package Dimensions		
Length	4264.3 mm	167.89 in
Width	1110.0 mm	43.7 in
Height	2150.0 mm	84.65 in
Weight	3321 kg	7,322 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2923096).

Performance # DM2273  
Feature Code : 406DET8  
Gen Arrangement # 2351203

Source: U.S. Sourced  
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