### **DIESEL GENERATOR SET**





Image shown may not reflect actual package.

# PRIME 220 ekW 275 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.

### **FEATURES**

#### **FUEL/EMISSIONS STRATEGY**

Low Fuel consumption

#### **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

#### 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**

 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® 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 Cat 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 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

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## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional	
Air Inlet	Light duty air cleaner	[] Regular duty canister style, single stage with service indicator [] Dual element [] Heavy-duty and Muffler [] Air Inlet Shut-off	
Cooling	<ul> <li>Coolant drain line with valve</li> <li>Fan and belt guards</li> <li>Radiator with guard</li> <li>Coolant drain line with valve</li> <li>Fan and belt guards</li> <li>Cat® Extended Life Coolant*</li> <li>Coolant level sight gauge</li> </ul>	[] Low coolant level shutdown [] Duct flange	
Exhaust	Stainless steel exhaust flex     ANSI style outlet flange, gasket, bolts and mating weld flange; shipped loose	[ ] 10 DBA Industrial muffler [ ] 25 DBA Residential muffler [ ] Critical muffler [ ] Flexible fitting [ ] Elbow kit [ ] Throughwall Installation kit [ ] Manifold and Turbo Guard	
Fuel	Fuel priming pump     Fuel pressure gauge     Primary and secondary fuel filters     Flexible fuel lines	[ ] Water separator [ ] Fuel level switch [ ] Flexible fuel lines [ ] Manual or auto fuel pumps [ ] Single wall tank bases	
Generator	Three phase sensing Class H insulation VR6 3-phase sensing voltage regulator with load adjustment module IP23 Protection Circuit Breaker IEC, 3-pole Segregated L.V. (AC/DC) wiring panel	[] Anti-condensation heater [] Permanent Magnet excitation [] RFI Filter [] Coastal Protection [] Terminal strip connection [] Oversize generator [] Circuit breaker, UL and IEC Listed, 3 & 4-pole with shunt trip [] Multiple breaker capability [] Digital Voltage Regulator	
Governor	Hydra-mechanical (3% speed regulation)	[] Electronic isochronous governor [] Load sharing module	
Control Panels	EMCP 4.1     User Interface panel (UIP) - rear mount (standard)     Emergency Stop Pushbutton	[] EMCP 4.2 [] Local & remote annunciator modules [] Load share module [] Discrete I/O module [] Generator temperature monitoring & protection	
Lube	<ul> <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>	[] Manual sump pump [] Oil temperature sensor	
Mounting	Narrow integral fuel tank base (950L)     Linear vibration isolators between base and engine-generator	[] Narrow base [] Wide Base [] Lifting arch [] Oil field skid base	
Starting/Charging	<ul> <li>45 amp charging alternator</li> <li>24 volt starting motor</li> <li>Batteries with rack and cables</li> <li>Safety shutoff protection</li> </ul>	[] Battery chargers (5 or 10 amp) [] Oversize batteries [] Battery disconnect switch [] Ether starting aid [] Jacket water heater	
General		[] Enclosures - sound attenuated, weather protective [] EU Certificate of Conformance (CE)	

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### **SPECIFICATIONS**

#### **CAT GENERATOR**

Frame size	LC5014J
Excitation	Self Excitation
Pitch	0.6667
Number of poles	4
Number of bearings	Single bearing
Number of Leads	012
InsulationUL 1446 Recogn	nized Class H with
tropicalization and antiabrasion - Consult your Caterpillar dealer for ava	ilable voltages
IP Rating	IP23
Alignment	Pilot Shaft
Overspeed capability	150
Wave form Deviation (Line to Line)	002.00
Voltage regulatorTh	ree phase sensing
Voltage regulationLess 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 Water-cooled Diesel

Bore	137.20 mm (5.4 in)
Stroke	165.10 mm (6.5 in)
Displacement	14.64 L (893.39 in <sup>3</sup> )
Compression Ratio	14.5:1
Aspiration	TA
Governor Type	Hydra-mechanical

#### **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**

Open Generator Set 1500 rpm/50 Hz/400 Volts	DM7524		
Low Fuel Consumption			
Generator Set Package Performance			
Genset Power rating @ 0.8 pf	275 kVA		
Genset Power rating with fan	220 ekW	220 ekW	
Fuel Consumption			
100% load with fan	64.2 L/hr	17.0 Gal/hr	
75% load with fan	49.9 L/hr	13.2 Gal/hr	
50% load with fan	36.0 L/hr	9.5 Gal/hr	
Cooling System <sup>1</sup>			
Air flow restriction (system)	0.12 kPa	0.48 in. water	
Air flow (max @ rated speed for radiator arrangement)	522 m³/min	18434 cfm	
Engine Coolant capacity with radiator/exp. tank	57.8 L	15.3 gal	
Engine coolant capacity	20.8 L	5.5 gal	
Radiator coolant capacity	37.0 L	9.8 gal	
Inlet Air			
Combustion air inlet flow rate	16.5 m³/min	582.7 cfm	
Exhaust System			
Exhaust stack gas temperature	564.7 ° C	1048.5 ° F	
Exhaust gas flow rate	48.5 m³/min	1712.8 cfm	
Exhaust flange size (internal diameter)	152.4 mm	6.0 in	
Exhaust system backpressure (maximum allowable)	6.7 kPa	26.9 in. water	
Heat rejection			
Heat rejection to atmosphere from generator	16.3 kW	927.0 Btu/min	
Alternator <sup>2</sup>			
Motor starting capability @ 30% voltage dip	585 skVA		
Frame	LC5014J		
Temperature Rise	125 ° C	225 ° F	
Lube System			
Sump refill with filter	38.0 L	10.0 gal	

<sup>&</sup>lt;sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory. <sup>2</sup> UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40°C ambient per NEMA MG1-32.

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### RATING DEFINITIONS AND CONDITIONS

Meets or Exceeds International Specifications: AS1359, CSA, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, UL508A, 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. Prime power in accordance with ISO3046. Prime ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the alarm temperature.

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 (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 Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

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#### **DIMENSIONS**

Package Dimensions				
Length	4264.3 mm	167.89 in		
Width	1110.0 mm	43.7 in		
Height	2150.0 mm	84.65 in		
Weight	3262 kg	7,191 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 No.: DM7524

Feature Code: 406DEN9

Gen. Arr. Number: 2377184

Source: European Sourced

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