



Image shown may not reflect actual package.

## CONTINUOUS 800 e kW 1000 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

#### DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

#### 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

#### 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® 3512 TA DIESEL ENGINE

- 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

#### CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Industry leading mechanical and electrical design
- Industry leading motor starting capabilities
- High Efficiency

#### 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	• Air cleaner	
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	<input type="checkbox"/> Exhaust mufflers (except Tier 4)
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 • Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time • IP23 protection	<input type="checkbox"/> Oversize and premium generators <input type="checkbox"/> Permanent magnet excitation (PMG) <input type="checkbox"/> Internal excited (IE) <input type="checkbox"/> Anti-condensation space heaters
Power Termination	• Bus bar	<input type="checkbox"/> Circuit breakers, UL listed <input type="checkbox"/> Circuit breakers, IEC compliant
Control Panel	• EMCP 4 Genset Controller	<input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> EMCP 4.3 <input type="checkbox"/> EMCP 4.4 <input type="checkbox"/> Generator temperature monitoring and protection <input type="checkbox"/> Load share module <input type="checkbox"/> Digital I/O module <input type="checkbox"/> Remote monitoring software
Mounting		<input type="checkbox"/> Rubber vibration isolators
Starting/Charging		<input type="checkbox"/> Battery chargers <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Jacket water heater <input type="checkbox"/> Heavy duty starting system <input type="checkbox"/> Charging alternator <input type="checkbox"/> Air starting motor with control and silencer (3500 & C175 models only)
General	• Paint - Caterpillar Yellow except rails and radiators gloss black	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, CBC 2007 <input type="checkbox"/> EU Certificate of Conformance (CE) <input type="checkbox"/> UL 2200 package <input type="checkbox"/> CSA Certification <input type="checkbox"/> EEC Declaration of Conformity <input type="checkbox"/> Enclosures- sound attenuated, weather protective <input type="checkbox"/> Automatic transfer switches (ATS) <input type="checkbox"/> Integral & sub-base fuel tanks <input type="checkbox"/> Integral & sub-base UL listed dual wall fuel tanks

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## SPECIFICATIONS

### CAT GENERATOR

Cat Generator  
Frame size ..... 1424  
Excitation ..... Internal Excitation  
Pitch ..... 0.6667  
Number of poles ..... 4  
Number of bearings ..... Single bearing  
Number of Leads ..... 006  
Insulation ..... UL 1446 Recognized Class H with tropicalization and antiabrasion  
- Consult your Caterpillar dealer for available voltages  
IP Rating ..... IP23  
Alignment ..... Pilot Shaft  
Overspeed capability ..... 150  
Wave form Deviation (Line to Line) ..... 002.00  
Voltage regulator..... 3 Phase sensing with selectable volts/Hz  
Voltage regulation ..... Less than +/- 1/2% (steady state)  
Less than +/- 1% (no load to full load)

### CAT DIESEL ENGINE

3512 TA, V-12, 4-Stroke Water-cooled Diesel  
Bore ..... 170.00 mm (6.69 in)  
Stroke ..... 190.00 mm (7.48 in)  
Displacement ..... 51.80 L (3161.03 in<sup>3</sup>)  
Compression Ratio ..... 13.5:1  
Aspiration ..... TA  
Fuel System ..... Direct unit injection  
Governor Type ..... Woodward

### 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

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)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:

- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- 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 - - 1500rpm/50 Hz/400 Volts	DM8220	
<b>Low Fuel Consumption</b>		
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	1000 kVA 800 ekW	
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	212.3 L/hr 163.2 L/hr 114.8 L/hr	56.1 Gal/hr 43.1 Gal/hr 30.3 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 1558 m <sup>3</sup> /min 286.8 L 156.8 L 130.0 L	0.48 in. water 55020 cfm 75.8 gal 41.4 gal 34.3 gal
<b>Inlet Air</b> Combustion air inlet flow rate	74.6 m <sup>3</sup> /min	2634.5 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	448.4 °C 187.8 m <sup>3</sup> /min 203.2 mm 6.7 kPa	839.1 °F 6632.1 cfm 8.0 in 26.9 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	485 kW 804 kW 87 kW 107 kW 38.6 kW	27582 Btu/min 45723 Btu/min 4948 Btu/min 6085 Btu/min 2195.2 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	2883 skVA 1424 105 °C	189 °F
<b>Lube System</b> Sump refill with filter	310.4 L	82.0 gal

<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

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### Applicable Codes and Standards:

AS1359, CSAC22.2 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

**Continuous** – Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous power rating. Typical peak demand is 100% of the continuous rated ekW for 100% of the operating hours.

**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 Dealer for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat Dealer.

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## DIMENSIONS

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Package Dimensions		
Length	5149 mm	202.7 in
Width	1975 mm	77.8 in
Height	2367 mm	93.2 in
Weight	11280 kg	24868 lbs

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

Performance No.: DM8220-01

Feature Code: 512DE8U

Gen. Arr. Number: 2523774

Source: European Sourced

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