



Image shown may not reflect actual package.

## PRIME 545 kW 681 kVA 60 Hz 1800 rpm 600 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 (EPA Tier 2 emissions levels)

#### DESIGN CRITERIA

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

#### UL 2200 / CSA - Optional

- UL 2200 listed packages
- 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® C18 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
- 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

#### 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, CBC 2007
- Pre-approved by OSHPD and carries an OSP-0084-10 for use in healthcare projects in California

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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"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Critical Mufflers   |
| Fuel              | • Primary fuel filter with integral water separator<br>• Secondary fuel filters<br>• Fuel priming pump   |   |
| Generator         | • Matched to the performance and output characteristics of Cat engines<br>• Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time<br>• IP23 protection | <input type="checkbox"/> Oversize and premium generators<br><input type="checkbox"/> Permanent magnet excitation (PMG)<br><input type="checkbox"/> Internal excited (IE)<br><input type="checkbox"/> Anti-condensation space heaters  |
| Power Termination | • Bus bar  | <input type="checkbox"/> Circuit breakers, UL listed<br><input type="checkbox"/> Circuit breakers, IEC compliant  |
| Control Panel     | • EMCP 4 Genset Controller   | <input type="checkbox"/> EMCP 4.2<br><input type="checkbox"/> EMCP 4.3<br><input type="checkbox"/> EMCP 4.4<br><input type="checkbox"/> Local and remote annunciator modules<br><input type="checkbox"/> Load share module<br><input type="checkbox"/> Digital I/O module<br><input type="checkbox"/> Remote monitoring software  |
| Mounting          | • Rubber vibration isolators   |   |
| Starting/Charging | • 24 volt starting motor<br>• Batteries  | <input type="checkbox"/> Battery chargers<br><input type="checkbox"/> Oversize batteries<br><input type="checkbox"/> Jacket water heater<br><input type="checkbox"/> Heavy duty starting system<br><input type="checkbox"/> Charging alternator   |
| General           | • Paint - Caterpillar Yellow except rails and radiators gloss black  | The following options are based on regional and product configuration:<br><input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007<br><input type="checkbox"/> UL 2200 package<br><input type="checkbox"/> EU Certificate of Conformance (CE)<br><input type="checkbox"/> CSA Certification<br><input type="checkbox"/> EEC Declaration of Conformity<br><input type="checkbox"/> Narrow, wide or skid base<br><input type="checkbox"/> Sound attenuated, weather protective or high ambient weather protective enclosures<br><input type="checkbox"/> Single or dual wall integral fuel tanks<br><input type="checkbox"/> Single or dual wall sub-base fuel tanks<br><input type="checkbox"/> Integral & sub-base UL listed dual wall fuel tanks<br><input type="checkbox"/> Automatic transfer switches (ATS) |

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## SPECIFICATIONS

### CAT GENERATOR

Frame size..... LC6124K  
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..... Drip Proof IP23  
Alignment..... Pilot Shaft  
Overspeed capability..... 125  
Wave form Deviation (Line to Line)..... 2%  
Voltage regulator..... Three phase sensing  
Voltage regulation..... Less than +/- 1/2% (steady state)  
Less than +/- 1/2% (w/ 3% speed change)

### CAT DIESEL ENGINE

C18 ATAAC, I-6, 4-Stroke Water-cooled Diesel  
Bore..... 145.00 mm (5.71 in)  
Stroke..... 183.00 mm (7.2 in)  
Displacement..... 18.13 L (1106.36 in<sup>3</sup>)  
Compression Ratio..... 14.5:1  
Aspiration..... Air-to-Air Aftercooled  
Fuel System..... MEUI  
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 (kVA) (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/600 Volts  | DM8522  |   |
|--|---|---|
| <b>EPA Certified for Stationary Emergency Application</b><br>(EPA Tier 2 emissions levels)   |   |   |
| <b>Generator Set Package Performance</b><br>Genset Power rating @ 0.8 pf<br>Genset Power rating with fan   | 681.25 kVA<br>545 ekW   |   |
| <b>Fuel Consumption</b><br>100% load with fan<br>75% load with fan<br>50% load with fan  | 151.1 L/hr<br>123.5 L/hr<br>89.2 L/hr                             | 39.9 Gal/hr<br>32.6 Gal/hr<br>23.6 Gal/hr                                       |
| <b>Cooling System<sup>1</sup></b><br>Air flow restriction (system)<br>Air flow (max @ rated speed for radiator arrangement)<br>Engine Coolant capacity with radiator/exp. tank<br>Engine coolant capacity<br>Radiator coolant capacity | 0.12 kPa<br>804 m <sup>3</sup> /min<br>81.8 L<br>20.8 L<br>61.0 L | 0.48 in. water<br>28393 cfm<br>21.6 gal<br>5.5 gal<br>16.1 gal                  |
| <b>Inlet Air</b><br>Combustion air inlet flow rate   | 46.7 m <sup>3</sup> /min  | 1649.2 cfm  |
| <b>Exhaust System</b><br>Exhaust stack gas temperature<br>Exhaust gas flow rate<br>Exhaust flange size (internal diameter)<br>Exhaust system backpressure (maximum allowable)  | 518.2 ° C<br>129.6 m <sup>3</sup> /min<br>203 mm<br>10.0 kPa      | 964.8 ° F<br>4576.8 cfm<br>8 in<br>40.2 in. water                               |
| <b>Heat Rejection</b><br>Heat rejection to coolant (total)<br>Heat rejection to exhaust (total)<br>Heat rejection to aftercooler<br>Heat rejection to atmosphere from engine<br>Heat rejection to atmosphere from generator            | 175 kW<br>596 kW<br>142 kW<br>83 kW<br>29.9 kW                    | 9952 Btu/min<br>33894 Btu/min<br>8076 Btu/min<br>4720 Btu/min<br>1700.4 Btu/min |
| <b>Alternator<sup>2</sup></b><br>Motor starting capability @ 30% voltage dip<br>Frame<br>Temperature Rise  | 1919 skVA<br>LC6124K<br>125 ° C                                   | 225 ° F   |
| <b>Lube System</b><br>Sump refill with filter  | 34.0 L  | 9.0 gal   |
| <b>Emissions (Nominal)<sup>3</sup></b><br>NOx g/hp-hr<br>CO g/hp-hr<br>HC g/hp-hr<br>PM g/hp-hr  | 5.16 g/hp-hr<br>.41 g/hp-hr<br>.01 g/hp-hr<br>.033 g/hp-hr        |   |

<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> Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32. Some packages may have oversized generators with a different temperature rise and motor starting characteristics.

<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 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 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

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| Package Dimensions |           |           |
|--------------------|-----------|-----------|
| Length             | 4237.4 mm | 166.83 in |
| Width              | 1536.0 mm | 60.47 in  |
| Height             | 2165.8 mm | 85.27 in  |

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3728295).

Performance No.: DM8522

Feature Code: C18DE95

Gen. Arr. Number: 3382086

Source: U.S. Sourced

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