



Image shown may not reflect actual package.

## STANDBY

**3000 ekW 3750 kVA  
60 Hz 1800 rpm 4160 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

### 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® C175-16 DIESEL ENGINE

- Reliable and durable
- Four-stroke diesel engine combines superior performance with excellent fuel economy
- Advanced electronic engine control
- Low installation and operating cost

### 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<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"/> Generator temperature monitoring and protection<br><input type="checkbox"/> Load share module<br><input type="checkbox"/> Digital I/O module<br><input type="checkbox"/> Remote monitoring software                                                                                                                                                                                                                                                                                                                                                                      |
| Mounting          |                                                                                                                                                                                                                | <input type="checkbox"/> Rubber vibration isolators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Starting/Charging |                                                                                                                                                                                                                | <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<br><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:<br><input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007<br><input type="checkbox"/> EU Certificate of Conformance (CE)<br><input type="checkbox"/> UL 2200 package<br><input type="checkbox"/> CSA Certification<br><input type="checkbox"/> EEC Declaration of Conformity<br><input type="checkbox"/> Enclosures- sound attenuated, weather protective<br><input type="checkbox"/> Automatic transfer switches (ATS)<br><input type="checkbox"/> Integral & sub-base fuel tanks<br><input type="checkbox"/> Integral & sub-base UL listed dual wall fuel tanks |

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## SPECIFICATIONS

### CAT GENERATOR

Frame size..... 1846  
Excitation..... Permanent Magnet  
Pitch..... 0.6667  
Number of poles..... 4  
Number of bearings..... 2  
Number of Leads..... 006  
Insulation.... Class H with tropicalization and anti-abrasion  
- Consult your Caterpillar dealer for available voltages  
IP Rating..... IP23  
Alignment..... Closed Coupled  
Overspeed capability..... 125  
Wave form Deviation (Line to Line)..... 5%  
Voltage regulator..... 3 Phase sensing with selectable volts/Hz  
Voltage regulation..... Less than +/- 1/2% (steady state)  
Less than +/- 1/2% (with 3% speed change)

### CAT DIESEL ENGINE

C175 SCAC, V-16, 4-Stroke Water-cooled Diesel  
Bore..... 175.00 mm (6.89 in)  
Stroke..... 220.00 mm (8.66 in)  
Displacement..... 84.67 L (5166.88 in<sup>3</sup>)  
Compression Ratio..... 15.3:1  
Aspiration..... Turbo Aftercooled  
Fuel System..... Common Rail  
Governor Type..... ADEM™ A4

### 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

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 - - 1800 rpm/60 Hz/4160 Volts                                                                                                                                           | DM8451                                                     |                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------------|
| <b>Generator Set Package Performance</b><br>Genset Power rating @ 0.8 pf<br>Genset Power rating with fan                                                                                   | 3750 kVA<br>3000 kW                                        |                                                                    |
| <b>Fuel Consumption</b><br>100% load with fan<br>75% load with fan<br>50% load with fan                                                                                                    | 806.0 L/hr<br>585.1 L/hr<br>415.3 L/hr                     | 212.9 Gal/hr<br>154.6 Gal/hr<br>109.7 Gal/hr                       |
| <b>Cooling System<sup>1</sup></b><br>Air flow restriction (system)<br>Engine coolant capacity                                                                                              | 0.12 kPa<br>303.5 L                                        | 0.48 in. water<br>80.2 gal                                         |
| <b>Inlet Air</b><br>Combustion air inlet flow rate                                                                                                                                         | 264.2 m <sup>3</sup> /min                                  | 9330.1 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)              | 479.4 °C<br>693.7 m <sup>3</sup> /min<br>150 mm<br>6.7 kPa | 894.9 °F<br>24497.8 cfm<br>6 in<br>26.9 in. water                  |
| <b>Heat Rejection</b><br>Heat rejection to coolant (total)<br>Heat rejection to exhaust (total)<br>Heat rejection to atmosphere from engine<br>Heat rejection to atmosphere from generator | 1370 kW<br>3114 kW<br>182 kW<br>118.5 kW                   | 77912 Btu/min<br>177093 Btu/min<br>10350 Btu/min<br>6739.1 Btu/min |
| <b>Alternator<sup>2</sup></b><br>Motor starting capability @ 30% voltage dip<br>Frame<br>Temperature Rise                                                                                  | 8350 skVA<br>1846<br>150 °C                                | 270 °F                                                             |
| <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                                                                                            | 6.18 g/hp-hr<br>.6 g/hp-hr<br>.11 g/hp-hr<br>.034 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> 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 degree C 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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**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

**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.

**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             | 7801.5 mm | 307.15 in |
| Width              | 2889.3 mm | 113.75 in |
| Height             | 3409.7 mm | 134.24 in |

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3288943).

Performance No.: DM8451

Feature Code: 175DE04

Gen. Arr. Number: 2523974

Source: U.S. Sourced

March 14 2013

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