



Image shown may not reflect actual package.

## STANDBY

**1800 e kW 2250 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 Emissions

### 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 3516B 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 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	<ul style="list-style-type: none"> <li>• Single element canister type air cleaner</li> <li>• Service indicator</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Dual element &amp; heavy duty air cleaners</li> <li><input type="checkbox"/> Air inlet adapters &amp; shutoff</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Radiator with guard</li> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Cat® Extended Life Coolant*</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Radiator duct flange</li> <li><input type="checkbox"/> Jacket water heater</li> </ul>
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Flanged faced outlets</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Mufflers and Silencers</li> <li><input type="checkbox"/> Stainless steel exhaust flex fittings</li> <li><input type="checkbox"/> Elbows, flanges, expanders &amp; Y adapters</li> </ul>
Fuel	<ul style="list-style-type: none"> <li>• Secondary fuel filters</li> <li>• Fuel priming pump</li> <li>• Flexible fuel lines</li> <li>• Fuel cooler*</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Fuel cooler</li> <li><input type="checkbox"/> Water separator</li> </ul>
Generator	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing</li> <li>• Reactive droop</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oversize &amp; premium generators</li> <li><input type="checkbox"/> Winding temperature detectors</li> <li><input type="checkbox"/> Bearing temperature detectors</li> <li><input type="checkbox"/> Anti-condensation heaters</li> </ul>
Power Termination	<ul style="list-style-type: none"> <li>• Bus bar (IEC mechanical lug holes)</li> <li>• Top cable entry</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Circuit breakers, IEC compliant, 3 or 4 pole with shunt trip (low voltage only), choice of trip units, manual or electrically operated</li> <li><input type="checkbox"/> Bottom cable entry</li> <li><input type="checkbox"/> Power terminations can be located on the right, left and/or rear as an option.</li> </ul>
Governor	<ul style="list-style-type: none"> <li>• ADEM™ 3</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Load share module</li> </ul>
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 3.1</li> <li>• User Interface panel (UIP) - wall mounted</li> <li>• AC &amp; DC customer wiring area (right side)</li> <li>• Emergency top pushbutton</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> EMCP 3.2 ... <input type="checkbox"/> EMCP 3.3</li> <li><input type="checkbox"/> Option for right or left mount UIP</li> <li><input type="checkbox"/> Local &amp; remote annunciator modules</li> <li><input type="checkbox"/> Digital I/O Module</li> <li><input type="checkbox"/> Generator temperature monitoring &amp; protection</li> <li><input type="checkbox"/> Remote monitoring software</li> </ul>
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valves</li> <li>• Fumes disposal</li> <li>• Gear type lube oil pump</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Oil level regulator</li> <li><input type="checkbox"/> Deep sump oil pan</li> <li><input type="checkbox"/> Electric &amp; air prelube pumps</li> <li><input type="checkbox"/> Manual prelube with sump pump</li> <li><input type="checkbox"/> Duplex oil filter</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>• Rails - Engine / generator / radiator mounting</li> <li>• Rubber anti-vibration mounts (shipped loose)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Isolator removal</li> <li><input type="checkbox"/> Spring-type vibration isolator (shipped loose)</li> <li><input type="checkbox"/> IBC Isolator</li> </ul>
Starting/Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor(s)</li> <li>• Batteries with rack and cables</li> <li>• Battery disconnect switch</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Battery chargers (5 or 10 amp)</li> <li><input type="checkbox"/> 45 amp charging alternator</li> <li><input type="checkbox"/> Oversize batteries</li> <li><input type="checkbox"/> Ether starting aids</li> <li><input type="checkbox"/> Heavy duty starting motors</li> <li><input type="checkbox"/> Barring device (manual)</li> </ul>
General	<ul style="list-style-type: none"> <li>• Right-hand service</li> <li>• Paint - Caterpillar Yellow except rails and radiators are gloss black</li> <li>• SAE standard rotation</li> <li>• Flywheel and flywheel housing - SAE No. 00</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> CSA certification</li> <li><input type="checkbox"/> CE Certificate of Conformance</li> <li><input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007</li> </ul> <p>* Not included with packages without radiators</p>

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## SPECIFICATIONS

### CAT GENERATOR

Caterpillar Generator  
Frame size..... 1647  
Excitation..... IE  
Pitch..... 0.6667  
Number of poles..... 4  
Number of leads..... 006  
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion  
Alignment..... Pilot Shaft  
Overspeed capability - % of rated..... 150  
Wave form..... 002.00  
Paralleling kit/Droop transformer..... Standard  
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)  
Telephone Influence Factor..... Less than 50  
Harmonic Distortion..... Less than 5%

### CAT DIESEL ENGINE

3516B TA, V-16, 4-stroke-cycle watercooled diesel  
Bore - mm..... 170.00 mm (6.69 in)  
Stroke - mm..... 190.00 mm (7.48 in)  
Displacement - L..... 69.00 L (4210.64 in<sup>3</sup>)  
Compression ratio..... 14.0:1  
Aspiration..... TA  
Fuel system..... Electronic unit injection  
Governor type..... ADEM3

### CAT EMCP CONTROL PANEL

- EMCP 3.1 (Standard)
- EMCP 3.2 / EMCP 3.3 (Option)
- Single location customer connector point
- True RMS AC metering, 3-phase
- Controls
  - Run / Auto / Stop control
  - Speed adjust
  - Voltage Adjust
  - Emergency Stop Pushbutton
  - Engine cycle crank
- Digital Indication for:
  - RPM
  - Operating hours
  - Oil pressure
  - Coolant temperature
  - System DC volts
  - L-L volts, L-N volts, Phase amps, Hz
  - kW, kVA, kVAR, kWhr, %kW, PF (EMCP 3.2 / 3.3)
- Shutdowns with common indicating light for:
  - Low oil pressure
  - High coolant temperature
  - Low coolant level
  - Overspeed
  - Emergency stop
  - Failure to start (overcrank)
- Programmable protective relaying functions: (EMCP 3.2 & 3.3)
  - Under and over voltage
  - Under and over frequency
  - Overcurrent (time and inverse time)
  - Reverse power (EMCP 3.3)
- MODBUS isolated data link, RS-485 half-duplex (EMCP 3.2 & 3.3)
- Options
  - Vandal door
  - Local annunciator module
  - Remote annunciator module
  - Input / Output module
  - RTD / Thermocouple modules
  - Monitoring software

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## TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM8356	
<b>Low Emissions</b>		
<b>Coolant to aftercooler</b> Coolant to aftercooler temp max	90 ° C	194 ° F
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	2250 kVA 1800 kW	
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	469.8 L/hr 348.5 L/hr 240.8 L/hr	124.1 Gal/hr 92.1 Gal/hr 63.6 Gal/hr
<b>Cooling System<sup>1</sup></b> Engine Coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	382.0 L 233.0 L 149.0 L	100.9 gal 61.6 gal 39.4 gal
<b>Inlet Air</b> Combustion air inlet flow rate	135.2 m <sup>3</sup> /min	4774.5 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	538.5 ° C 383.9 m <sup>3</sup> /min 203.2 mm 6.7 kPa	1001.3 ° F 13557.3 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	742 kW 1819 kW 341 kW 166 kW 92.7 kW	42197 Btu/min 103446 Btu/min 19393 Btu/min 9440 Btu/min 5271.8 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	5865 skVA 1647 150 ° C	270 ° F
<b>Lube System</b> Sump refill with filter	401.3 L	106.0 gal
<b>Emissions (Nominal)<sup>3</sup></b> NOx mg/nm <sup>3</sup> CO mg/nm <sup>3</sup> HC mg/nm <sup>3</sup> PM mg/nm <sup>3</sup>	3374.9 mg/nm <sup>3</sup> 168.0 mg/nm <sup>3</sup> 58.6 mg/nm <sup>3</sup> 22.8 mg/nm <sup>3</sup>	

<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.

<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, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, UL508A, 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. 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 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

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Package Dimensions		
Length	6005.6 mm	236.44 in
Width	2286.0 mm	90 in
Height	2342.0 mm	92.2 in
Weight	9072 kg	20,000 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2882680).

Performance No.: DM8356

Feature Code: 516DE90

Gen. Arr. Number: 2523862

Source: European Sourced

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