



Image shown may not reflect actual package.

CONTINUOUS 1600 ekW 2000 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

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•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT® 3516B-HD 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	• Single element canister type air cleaner • Service indicator	☐ Dual element & heavy duty air cleaners ☐ Air inlet adapters & shut-off
Cooling	• Radiator with guard • Coolant drain line with valve • Fan and belt guards • Cat® Extended Life Coolant	☐ Radiator duct flange
Exhaust	• Dry exhaust manifold • Flanged faced outlets	☐ Mufflers and Silencers ☐ Stainless steel exhaust flex fittings ☐ Elbows, flanges, expanders & Y adapters
Fuel	• Secondary fuel filters • Fuel priming pump • Flexible fuel lines • Fuel cooler*	☐ Water separator ☐ Duplex fuel filter
Generator	• Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing	☐ Oversize & premium generators ☐ Winding temperature detectors ☐ Bearing temperature detectors ☐ Anti-condensation heaters
Power Termination	• Bus bar (NEMA or IEC mechanical lug holes) • Top cable entry	☐ Circuit breakers, UL listed, 3 pole with shunt trip, 100% rated, manual or electrically operated ☐ Circuit breakers, IEC compliant, 3 or 4 pole with shunt trip, manual or electrically operated ☐ Bottom cable entry ☐ Power terminations can be located on the right, left and/or rear as an option.
Governor	• ADEM™ 3	☐ Load share module
Control Panels	• EMCP 4.2	☐ Local & remote annunciator modules ☐ Digital I/O Module ☐ Generator temperature monitoring & protection ☐ Remote monitoring software
Lube	• Lubricating oil and filter • Oil drain line with valves • Fumes disposal • Gear type lube oil pump	☐ Oil level regulator ☐ Deep sump oil pan ☐ Electric & air prelube pumps ☐ Manual prelube with sump pump ☐ Duplex oil filter
Mounting	• Rails - Engine / generator / radiator mounting • Rubber anti-vibration mounts (shipped loose)	☐ Isolator removal ☐ Spring-type vibration isolator (shipped loose) ☐ IBC Isolators
General	• Right-hand service • Paint - Caterpillar Yellow except rails and radiators are gloss black • SAE standard rotation • Flywheel and flywheel housing - SAE No. 00	☐ UL 2200 ☐ CSA certification ☐ CE Certificate of Conformance

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SPECIFICATIONS

CAT GENERATOR

Cat Generator

Frame size..... 1844
Excitation..... Permanent Magnet
Pitch..... 0.6667
Number of poles..... 4
Number of bearings..... 2
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..... Closed Coupled
Overspeed capability..... 150
Wave form Deviation (Line to Line)..... 003.00
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

3516B-HD TA, V-16, 4-Stroke Water-cooled Diesel

Bore..... 170.00 mm (6.69 in)
Stroke..... 215.00 mm (8.46 in)
Displacement..... 78.08 L (4764.73 in³)
Compression Ratio..... 15.5:1
Aspiration..... TA
Fuel System..... Electronic unit injection
Governor Type..... ADEM3

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 - - 1500 rpm/50 Hz/400 Volts	DM7970	
Low Fuel Consumption		
Generator Set Package Performance Genset Power rating @ 0.8 pf Genset Power rating with fan	2000 kVA 1600 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	396.2 L/hr 295.5 L/hr 206.8 L/hr	104.7 Gal/hr 78.1 Gal/hr 54.6 Gal/hr
Cooling System ¹ 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
Inlet Air Combustion air inlet flow rate	139.8 m ³ /min	4937.0 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	432.9 ° C 346.5 m ³ /min 203.2 mm 6.7 kPa	811.2 ° F 12236.5 cfm 8.0 in 26.9 in. water
Heat Rejection 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	533 kW 1477 kW 378 kW 124 kW 71.9 kW	30312 Btu/min 83997 Btu/min 21497 Btu/min 7052 Btu/min 4088.9 Btu/min
Alternator ² Motor starting capability @ 30% voltage dip Frame Temperature Rise	6537 skVA 1844 105 ° C	189 ° F
Lube System Sump refill with filter	401.3 L	106.0 gal
Emissions (Nominal) ³ NOx mg/nm ³ CO mg/nm ³ HC mg/nm ³ PM mg/nm ³	2935.3 mg/nm ³ 89.2 mg/nm ³ 73.8 mg/nm ³ 12 mg/nm ³	

¹ For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

³ 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

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

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 continuous rated ekW for 100% of operating hours. Continuous power in accordance with ISO3046. Continuous ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature 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	6324.9 mm	249.01 in
Width	2286.0 mm	90 in
Height	2367.2 mm	93.2 in

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3274640).

Performance No.: DM7970

Feature Code: 516DE7A

Gen. Arr. Number: 3111142

Source: U.S. Sourced

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