



Image shown may not
reflect actual package.

CONTINUOUS 1450 kW 1813 kVA 60 Hz 1800 rpm 12 470 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® 3516 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 HV GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Single point access to accessory connections
- UL 1446 Recognized Class F 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

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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 • Radiator fan and fan drive • Fan and belt guards • Cat® Extended Life Coolant* • Coolant level sensors	☐ Duct flange ☐ Heat exchanger and expansion tank ☐ Coolant level switch gauge ☐ Jacket water heater
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 ☐ Primary Fuel Filter
Power Termination	• Bus bar (NEMA mechanical lug holes) • Right hand cable entry • Top or bottom cable entry	☐ Left hand cable entry
Generators	• Class F insulation • Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing • Winding temperature detectors • Anti-condensation heaters	☐ Oversized generators ☐ Cross current compensation transformer
Governor	• Woodward 2301 isochronous	☐ Load share governor
Control Panel	• EMCP 4.2 • User Interface panel (UIP) - rear mount • AC & DC customer wiring area (right side) • Emergency stop pushbutton	☐ Option for right or left mount UIP ☐ Local & remote annunciator modules ☐ Digital I/O Module ☐ Generator temperature monitoring & protection ☐ Remote monitoring software
Lube	• Lubricating oil • Gear type lube oil pump • Oil filter, filler and dipstick • Oil drain lines and valve • Fumes disposal	☐ 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)
Starting/Charging	• 24 volt starting motor(s) • Batteries with rack and cables • Battery disconnect switch	☐ Battery chargers (10 or 20 amp) ☐ 45 amp charging alternator ☐ Oversize batteries ☐ Ether starting aid ☐ Heavy duty starting motors ☐ Barring device (manual) ☐ Air starting motor with control & silencer
General	• Right hand service • Paint - Caterpillar Yellow (with high gloss black rails & radiator) • SAE standard rotation • Flywheel and flywheel housing - SAE No. 00	☐ CSA certification ☐ CE Certificate of Conformance ☐ Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 * Not included with packages without radiators

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SPECIFICATIONS

CAT GENERATOR

Cat HV Generator

Frame size..... 2740

Excitation..... Permanent Magnet

Pitch..... 0.6670

Number of poles..... 4

Number of bearings..... 2

Number of Leads..... 006

Insulation..... Class H with tropicalization and antiabrasion

Insulation..... Class F with tropicalization and antiabrasion

- Consult your Caterpillar dealer for available voltages

IP Rating..... IP23

Alignment..... Closed Coupled

Overspeed capability..... 125

Wave form Deviation (Line to Line)..... 002.00

Voltage regulator..... 3 Phase sensing with 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

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

Bore..... 170.00 mm (6.69 in)

Stroke..... 190.00 mm (7.48 in)

Displacement..... 69.00 L (4210.64 in³)

Compression Ratio..... 13.5:1

Aspiration..... TA

Fuel System..... Mechanical 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)
- 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/12 470 Volts	DM7960	
Low Fuel Consumption		
Generator Set Package Performance Genset Power rating @ 0.8 pf Genset Power rating with fan	1812.5 kVA 1450 ekW	
Coolant to aftercooler Coolant to aftercooler temp max	82 ° C	180 ° F
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	400.5 L/hr 309.1 L/hr 220.1 L/hr	105.8 Gal/hr 81.7 Gal/hr 58.1 Gal/hr
Cooling System ¹ 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 1671 m³/min 398.0 L 233.0 L 165.0 L	0.48 in. water 59011 cfm 105.1 gal 61.6 gal 43.6 gal
Inlet Air Combustion air inlet flow rate	141.0 m³/min	4979.4 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	496.2 ° C 378.8 m³/min 203.2 mm 6.7 kPa	925.2 ° F 13377.2 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	867 kW 1690 kW 215 kW 138 kW 76.3 kW	49306 Btu/min 96110 Btu/min 12227 Btu/min 7848 Btu/min 4339.2 Btu/min
Alternator ² Motor starting capability @ 30% voltage dip Frame Temperature Rise	3400 skVA 2740 105 ° C	189 ° F
Lube System Sump refill with filter	401.3 L	106.0 gal
Emissions (Nominal) ³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	10.36 g/hp-hr 1.27 g/hp-hr .21 g/hp-hr .176 g/hp-hr	

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

² 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.

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	6233.2 mm	245.4 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 #2748728).

Performance No.: DM7960

Feature Code: 516DE4D

Gen. Arr. Number: 2524224

Source: U.S. Sourced

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