DIESEL GENERATOR SET

CATERPILLAR®

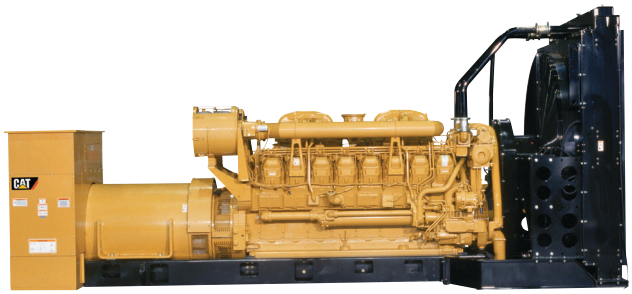

Image shown may not reflect actual package.

STANDBY
1800 ekW 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 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℠ 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•

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 & shutoff
Cooling	• Radiator with guard • Coolant drain line with valve • Fan and belt guards • Cat® Extended Life Coolant*	[ ] Radiator duct flange [ ] 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*	[ ] Fuel cooler [ ] Water separator
Generator	• Class H insulation • Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing • Reactive droop	[ ] Oversize & premium generators [ ] Winding temperature detectors [ ] Bearing temperature detectors [ ] Anti-condensation heaters
Power Termination	• Bus bar (IEC mechanical lug holes) • Top cable entry	[ ] Circuit breakers, IEC compliant, 3 or 4 pole with shunt trip (low voltage only), choice of trip units, 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 3.1 • User Interface panel (UIP) - wall mounted • AC & DC customer wiring area (right side) • Emergency top pushbutton	[ ] EMCP 3.2 ... [ ] EMCP 3.3 [ ] 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 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 Isolator
Starting/Charging	• 24 volt starting motor(s) • Batteries with rack and cables • Battery disconnect switch	[ ] Battery chargers (5 or 10 amp) [ ] 45 amp charging alternator [ ] Oversize batteries [ ] Ether starting aids [ ] Heavy duty starting motors [ ] Barring device (manual)
General	• Right-hand service • Paint - Caterpillar Yellow except rails and radiators are gloss black • 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

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 selectible 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^3)
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
  - ekW, 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 islolated 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	DM8347	
Low Fuel Consumption		
Coolant to aftercooler		
Coolant to aftercooler temp max	90 ° C	194 ° F
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	2250 kVA	
Genset Power rating with fan	1800 ekW	
Fuel Consumption		
100% load with fan	457.5 L/hr	120.9 Gal/hr
75% load with fan	345.5 L/hr	91.3 Gal/hr
50% load with fan	240.5 L/hr	63.5 Gal/hr
Cooling System[1]		
Engine Coolant capacity with radiator/exp. tank	382.0 L	100.9 gal
Engine coolant capacity	233.0 L	61.6 gal
Radiator coolant capacity	149.0 L	39.4 gal
Inlet Air		
Combustion air inlet flow rate	130.5 m³/min	4608.6 cfm
Exhaust System		
Exhaust stack gas temperature	523.6 ° C	974.5 ° F
Exhaust gas flow rate	366.0 m³/min	12925.2 cfm
Exhaust flange size (internal diameter)	203.2 mm	8.0 in
Exhaust system backpressure (maximum allowable)	6.7 kPa	26.9 in. water
Heat Rejection		
Heat rejection to coolant (total)	727 kW	41344 Btu/min
Heat rejection to exhaust (total)	1718 kW	97702 Btu/min
Heat rejection to aftercooler	319 kW	18141 Btu/min
Heat rejection to atmosphere from engine	160 kW	9099 Btu/min
Heat rejection to atmosphere from generator	92.7 kW	5271.8 Btu/min
Alternator[2]		
Motor starting capability @ 30% voltage dip	5865 skVA	
Frame	1647	
Temperature Rise	150 ° C	270 ° F
Lube System		
Sump refill with filter	401.3 L	106.0 gal
Emissions (Nominal)[3]		
NOx mg/nm3	4384.0 mg/nm³	
CO mg/nm3	273.7 mg/nm³	
HC mg/nm3	49.0 mg/nm³	
PM mg/nm3	20.3 mg/nm³	

[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.

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

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

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.: DM8347

Feature Code: 516DE90

Gen. Arr. Number: 2523862

Source: European Sourced

November 02 2010 16297620

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The International System of Units (SI) is used in this publication.

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