DIESEL GENERATOR SET





Image shown may not reflect actual package.

CONTINUOUS 1200 ekW 1500 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•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT® 3512B-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 SR5 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

50 Hz 1500 rpm 400 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional		
Air Inlet	Single element canister type air cleaner	[] Dual element & heavy duty air cleaners		
	Service indicator	[] Air inlet adapters & shut-off		
Cooling	Radiator with guard	[] Radiator duct flange		
	Coolant drain line with valve	[] Jacket water heater		
	• Fan and belt guards			
	Cat® Extended Life Coolant*			
Exhaust	Dry exhaust manifold	[] Mufflers and Silencers		
	Flanged faced outlets	[] Stainless steel exhaust flex fittings		
		[] Elbows, flanges, expanders & Y adapters		
Fuel	Secondary fuel filters	[] Water separator		
	• Fuel priming pump	[] Duplex fuel filter		
	• Flexible fuel lines			
	• Fuel cooler*			
Generator	• Class H insulation	[] Oversize & premium generators		
	Cat digital voltage regulator (CDVR) with kVAR/PF	[] Winding temperature detectors		
	control, 3-phase sensing • Reactive droop	[] Bearing temperature detectors [] Anti-condensation heaters		
Power Termination				
Power rermination	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 []		
	Top cable entry	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	[] Option for right or left mount UIP		
	User Interface panel (UIP) - wall mounted	[] Local & remote annunciator modules		
	AC & DC customer wiring area (right side)	[] Digital I/O Module		
	Emergency stop pushbutton	[] Generator temperature monitoring & protection		
		[] Remote monitoring software		
Lube	Lubricating oil and filter	[] Oil level regulator		
	Oil drain line with valves	[] Deep sump oil pan		
	• Fumes disposal	[] Electric & air prelube pumps		
	Gear type lube oil pump	[] Manual prelube with sump pump		
		[] Duplex oil filter		
Mounting	Rails - Engine / generator / radiator mounting	[] Isolator removal		
	Rubber anti-vibration mounts (shipped loose)	[] Spring-type vibration isolator (shipped loose)		
		[] IBC Isolators		
Starting/Charging	• 24 volt starting motor(s)	[] Battery chargers (5 or 10 amp)		
	Batteries with rack and cables	[] 45 amp charging alternator		
	Battery disconnect switch	[] Oversize batteries		
		[] Ether starting aid		
		[] Heavy duty starting motors		
		[] Barring device (manual)		

50 Hz 1500 rpm 400 Volts



SPECIFICATIONS

CAT GENERATOR

Cat Generator	
Frame size	2
ExcitationInternal Excitation	n
Pitch	7
Number of poles	4
Number of bearings2	,
Number of Leads000	ô
InsulationUL 1446 Recognized Class H with	ı
tropicalization and antiabrasion InsulationClass F with tropicalization and antiabrasion	n
- Consult your Caterpillar dealer for available voltages	
IP RatingIP23	3
AlignmentClosed Coupled	d
Overspeed capability150	0
Wave form Deviation (Line to Line)002.00	0
Voltage regulator3 Phase sensing with selectible	;
volts/Hz Voltage regulationLess than +/- 1/2% (steady state	:)
Less than +/- 1% (no load to full load)	
Telephone influence factorLess than 50	0
Harmonic DistortionLess than 5%	6

CAT DIESEL ENGINE

3512B-HD TA, V-12, 4-Stroke Water-cooled Diesel				
Bore	170.00 mm (6.69 in)			
Stroke	215.00 mm (8.46 in)			
Displacement	58.56 L (3573.55 in ³)			
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)
- ekW, 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

50 Hz 1500 rpm 400 Volts



TECHNICAL DATA

Open Generator Set 1500 rpm/50 Hz/400 Volts	DM8247		
Low Emissions			
Generator Set Package Performance			
Genset Power rating @ 0.8 pf	1500 kVA		
Genset Power rating with fan	1200 ekW		
Coolant to aftercooler			
Coolant to aftercooler temp max	90 ° C	194 ° F	
Fuel Consumption			
100% load with fan	314.2 L/hr	83.0 Gal/hr	
75% load with fan	238.6 L/hr	63.0 Gal/hr	
50% load with fan	167.5 L/hr	44.2 Gal/hr	
Cooling System ¹			
Air flow restriction (system)	0.12 kPa	0.48 in. water	
Air flow (max @ rated speed for radiator arrangement)	1543 m³/min	54491 cfm	
Engine Coolant capacity with radiator/exp. tank	305.8 L	80.8 gal	
Engine coolant capacity	156.8 L	41.4 gal	
Radiator coolant capacity	149.0 L	39.4 gal	
Inlet Air			
Combustion air inlet flow rate	105.3 m³/min	3718.6 cfm	
Exhaust System			
Exhaust stack gas temperature	440.4 ° C	824.7 ° F	
Exhaust gas flow rate	264.8 m³/min	9351.3 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)	570 kW	32416 Btu/min	
Heat rejection to exhaust (total)	1151 kW	65457 Btu/min	
Heat rejection to aftercooler	202 kW	11488 Btu/min	
Heat rejection to atmosphere from engine	129 kW	7336 Btu/min	
Heat rejection to atmosphere from generator	56.5 kW	3213.1 Btu/min	
Alternator ²			
Motor starting capability @ 30% voltage dip	4266 skVA		
Frame	1602		
Temperature Rise	105 ° C	189 ° F	
Lube System			
Sump refill with filter	310.4 L	82.0 gal	
Emissions (Nominal) ³		_	
NOx mg/nm3	2692.4 mg/nm ³		
CO mg/nm3	453.5 mg/nm ³		
HC mg/nm3	62.3 mg/nm ³		
PM mg/nm3	17.4 mg/nm³		

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.

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.

50 Hz 1500 rpm 400 Volts



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.

50 Hz 1500 rpm 400 Volts



DIMENSIONS

Package Dimensions				
Length	5461.6 mm	215.02 in		
Width	2090.8 mm	82.31 in		
Height	2367.2 mm	93.2 in		
Weight	14 520 kg	32,011 lb		

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3274648).

Performance No.: DM8247

Feature Code: 512DE6K

Gen. Arr. Number: 2523836

Source: U.S. Sourced

August 05 2011

www.Cat-ElectricPower.com

© 2011 Caterpillar All rights reserved.

Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.

CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow," the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

6