DIESEL GENERATOR SET





Image shown may not reflect actual package.

PRIME 1280 ekW 1600 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® 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 Flexible fuel lines	[] Duplex fuel filter
	• Fuel cooler*	
Generator	Class H insulation	[] Oversize & premium generators
Generator	Cat digital voltage regulator (CDVR) with kVAR/PF	[] Winding temperature detectors
	control, 3-phase sensing	[] Bearing temperature detectors
	Reactive droop	[] Anti-condensation heaters
Power Termination	Bus bar (NEMA or IEC mechanical lug holes)	[] Circuit breakers, UL listed, 3 pole with shunt
	Top cable entry	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
	ADEATMO	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
Manustina	. Daile. Engine / generator / redictor requiring	[] Duplex oil filter [] Isolator removal
Mounting	Rails - Engine / generator / radiator mounting Rubber anti-vibration mounts (shipped loose)	[] Spring-type vibration isolator (shipped loose)
	- Hubber anti-vibration mounts (simpled 100se)	[] 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
ExcitationInternal Excitation
Pitch
Number of poles4
Number of bearings2
Number of Leads006
InsulationUL 1446 Recognized Class H with
tropicalization and antiabrasion InsulationClass F with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages
IP RatingIP23
AlignmentClosed Coupled
Overspeed capability150
Wave form Deviation (Line to Line)002.00
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
Harmonic DistortionLess than 5%

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	DM8235		
Low Fuel Consumption			
Generator Set Package Performance			
Genset Power rating @ 0.8 pf	1600 kVA		
Genset Power rating with fan	1280 ekW		
Coolant to aftercooler			
Coolant to aftercooler temp max	90 ° C	194 ° F	
Fuel Consumption			
100% load with fan	329.5 L/hr	87.0 Gal/hr	
75% load with fan	248.9 L/hr	65.8 Gal/hr	
50% load with fan	175.0 L/hr	46.2 Gal/hr	
Cooling System ¹			
Air flow restriction (system)	0.12 kPa	0.48 in. water	
Air flow (max @ rated speed for radiator arrangement)	1558 m³/min	55020 cfm	
Engine Coolant capacity with radiator/exp. tank	286.8 L	75.8 gal	
Engine coolant capacity	156.8 L	41.4 gal	
Radiator coolant capacity	130.0 L	34.3 gal	
Inlet Air			
Combustion air inlet flow rate	105.0 m³/min	3708.0 cfm	
Exhaust System			
Exhaust stack gas temperature	479.7 ° C	895.5 ° F	
Exhaust gas flow rate	276.1 m³/min	9750.4 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)	588 kW	33439 Btu/min	
Heat rejection to exhaust (total)	1235 kW	70234 Btu/min	
Heat rejection to aftercooler	183 kW	10407 Btu/min	
Heat rejection to atmosphere from engine	125 kW	7109 Btu/min	
Heat rejection to atmosphere from generator	60.3 kW	3429.3 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	3141.6 mg/nm ³		
CO mg/nm3	332.7 mg/nm ³		
HC mg/nm3	43.4 mg/nm ³		
PM mg/nm3	37.2 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 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 MG1.33

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

Prime - Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year. Prime power in accordance with ISO3046. Prime ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just 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 #3274647).

Performance No.: DM8235

Feature Code: 512DE6J

Gen. Arr. Number: 2523836

Source: U.S. Sourced

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