DIESEL GENERATOR SET





Image shown may not reflect actual package.

Mission Critical Standby 3000 ekW 3750 kVA 60 Hz 1800 rpm 480 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® C175-16 DIESEL ENGINE

- · Reliable and durable
- Four-stroke diesel engine combines superior performance with excellent fuel economy
- Advanced electronic engine control
- · Low installation and operating cost

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	Air cleaner, 4 x single element canister with service	[] Air cleaner, 4 x dual element with service
	indicator(s)	indicator(s)
	Plug group for air inlet shut-off	[] Air inlet adapters
Circuit Breakers		[] Circuit breakers, UL 100% rated, 3 pole with shunt
		trip
		[] Circuit breakers, IEC rated, 3 or 4 pole with shunt
Cooling	SCAC cooling	[] Package mounted vertical SCAC
	Jacket water and AC inlet/outlet flanges	radiator
		[] Remote horizontal SCAC radiator
		[] Remote fuel cooler
Crankcase Systems	Open crankcase ventilation	[] Crankcase explosion relief valve
Exhaust	Dry exhaust manifold	[] Engine Exhaust Temperature Module
	Bolted flange (ANSI 6" & DIN 150) with bellow for	[] Mufflers (15 dBA,25 dBA, or 40 dBA)
	each turbo (qty 4)	[] Dual 16" or single 20" vertical exhaust collector
		[] Weld flange ANSI 20"
Fuel	Primary fuel filter with water separator	
	Secondary fuel filters (engine mounted)	
Generator	• 3 phase brushless, salient pole	[] Space heater
	IEC platinum stator RTD's	[] Oversize generators
	Cat digital voltage regulator (CDVR)	[] Power connection arrangement
Governor	• ADEM™ A4	[] Redundant shutdown
Control Panels	• EMCP 4	[] Local & remote annunciator modules
		[] Digital I/O module
		[] Generator temperature monitoring & protection
		[] Remote monitoring software
		[] Load share module
Lube	• Lubricating oil	
	Oil filter, filler and dipstick	
	Oil drain line with valves	
	• Fumes disposal	
	Electric prelube pumps Integral lube oil cooler	
Mounting	Rails-engine / generator	[] Spring type linear vibration isolator
	Rubber anti-vibration mounts (shipped loose)	[] IBC vibration isolators
Starting/Charging	• Dual 24 volt electric starting motors	[] Oversize batteries
Starting/Charging	• Dual 24 volt electric starting motors • Batteries with rack and cables	[] 75 amp charging alternator
	Battery disconnect switch	[] Battery chargers (20,35 or 50 Amp)
	- Dattery disconnect switch	[] Jacket water heater
		[] Redundant Electric Starter
General	RH service (Except LH Service Oil Filter)	[] Barring group- manual or air powered
	Paint - Caterpillar Yellow with high gloss black rails	[] Factory test reports
	• SAE standard rotation	', '
	Flywheel and flywheel housing - SAE No. 00	

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SPECIFICATIONS

CAT GENERATOR

Frame size	1866
ExcitationP	ermanent Magnet
Pitch	0.6667
Number of poles	4
Number of bearings	2
Number of Leads	006
InsulationUL 1446 Recogn	nized Class H with
tropicalization and antiabrasion - Consult your Caterpillar dealer for ava	ilable voltages
IP Rating	IP23
Alignment	Closed Coupled
Overspeed capability	125
Wave form Deviation (Line to Line)	5%
Voltage regulator3 Phase sensi	ng with selectible
volts/Hz Voltage regulationLess than +/- 1	1/2% (steady state)
Less than +/- 1/2% (with 3% speed change	ge)

CAT DIESEL ENGINE

C175 SCAC, V-16, 4-Stroke V	Vater-cooled Diesel
Bore	175.00 mm (6.89 in)
Stroke	220.00 mm (8.66 in)
Displacement	84.67 L (5166.88 in ³)
Compression Ratio	15.3:1
Aspiration	Turbo Aftercooled
Fuel System	Common Rai
Governor Type	ADEM™ A4

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

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TECHNICAL DATA

Open Generator Set 1800 rpm/60 Hz/480 Volts		
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	3750 kVA	
Genset Power rating with fan	3000 ekW	
Fuel Consumption		
100% load with fan	806.0 L/hr	212.9 Gal/hr
75% load with fan	585.1 L/hr	154.6 Gal/hr
50% load with fan	415.3 L/hr	109.7 Gal/hr
Cooling System ¹		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Engine coolant capacity	303.5 L	80.2 gal
Inlet Air		
Combustion air inlet flow rate	264.2 m³/min	9330.1 cfm
Exhaust System		
Exhaust stack gas temperature	479.4 ° C	894.9 ° F
Exhaust gas flow rate	693.7 m³/min	24497.8 cfm
Exhaust flange size (internal diameter)	150 mm	6 in
Exhaust system backpressure (maximum allowable)	6.7 kPa	26.9 in. water
Heat Rejection		
Heat rejection to coolant (total)	1370 kW	77912 Btu/min
Heat rejection to exhaust (total)	3126 kW	177775 Btu/min
Heat rejection to atmosphere from engine	274 kW	15582 Btu/min
Heat rejection to atmosphere from generator	112.0 kW	6369.4 Btu/min
Alternator ²		
Motor starting capability @ 30% voltage dip	7322 skVA	
Frame	1866	
Temperature Rise	150 ° C	270 ° F
Emissions (Nominal) ³		
NOx g/hp-hr	5.39 g/hp-hr	
CO g/hp-hr	.6 g/hp-hr	
HC g/hp-hr	.11 g/hp-hr	
PM g/hp-hr	.034 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

Mission Critical Standby - Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the standby power rating. Typical peak demand up to 100% of standby rated ekW for 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year. 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	6631.6 mm	261.09 in		
Width	2089.4 mm	82.26 in		
Height	2207.9 mm	86.93 in		

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3269431).

www.Cat-ElectricPower.com

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