

DIESEL GENERATOR SET



Image shown may not reflect actual package.

STANDBY
50 ekW 50 kVA

PRIME
45 ekW 45 kVA
60 Hz 1800 rpm 240/120 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

- EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)

DESIGN CRITERIA

- The generator set meets NFPA 110, ISO 8528-5 transient response and can accept 100% rated load in one step
- Cooling system designed to operate in 50°C / 122°F ambient temperatures with an air flow restriction of 0.5 in. water

UL 2200 / CSA – Optional

- UL 2200 Listed
- CSA Certified

Certain restrictions may apply.

Consult with your Cat® Dealer.

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-product

Cat® Model D50-6S, Single Phase

CAT C4.4 DIESEL ENGINE

- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic engine control

GENERATOR SET

- Complete system designed and built at ISO 9001 certified facilities
- Factory tested to design specifications at full load conditions

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
- Integrated Voltage Regulation

SEISMIC CERTIFICATION

- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012 CBC 2007, CBC 2010

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**FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT**

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> • Dry replaceable paper element type with restriction indicator 	
Cooling	<ul style="list-style-type: none"> • Radiator and cooling fan complete with protective guards • Standard ambient temperatures up to 50°C (122°F) 	<input type="checkbox"/> Radiator stone guard <input type="checkbox"/> Radiator transition flange
Exhaust		<input type="checkbox"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Critical mufflers <input type="checkbox"/> Overhead silencer mounting kit
Fuel	<ul style="list-style-type: none"> • Flexible fuel lines to base with NPT connections 	<input type="checkbox"/> Sub-base dual wall UL listed fuel tanks <input type="checkbox"/> Emergency vent 12ft extension <input type="checkbox"/> 5 gallon spill containment
Generator	<ul style="list-style-type: none"> • Class H insulation • Drip proof generator air intake (NEMA 2,IP23) • Electrical design in accordance with BS5000 Part 99, EN61000-6, IEC60034-1, NEMA MG-1.33 • IP23 Protection 	<input type="checkbox"/> Generator upgrade 1 size <input type="checkbox"/> Permanent magnet excitation <input type="checkbox"/> Internal excitation (IE) / AREP <input type="checkbox"/> Anti-condensation space heater
Power Termination	<ul style="list-style-type: none"> • Circuit breakers – 100% rated assembly, UL Listed • Power center houses EMCP controller and control terminations (CB) • Segregated low voltage wiring termination panel • NEMA 1 steel enclosure, vibration isolated • Electrical stub-up area directly below circuit breaker 	<input type="checkbox"/> Auxiliary contacts <input type="checkbox"/> Shunt trip <input type="checkbox"/> Overload shutdown via breaker
Governor	<ul style="list-style-type: none"> • Adjustable Electronic governor 	
Control Panels	<ul style="list-style-type: none"> • EMCP 4.2 digital control panel • Vibration isolated NEMA 1 enclosure with lockable hinged door • DC and AC Wiring harnesses 	<input type="checkbox"/> NFPA110 upgrade <input type="checkbox"/> Control panel chassis
Lube		<input type="checkbox"/> Lube oil heater
Mounting	<ul style="list-style-type: none"> • Heavy-duty fabricated steel base with lifting points • Anti-vibration pads to ensure vibration isolation • Complete OSHA guarding • Stub-up pipe ready for connection to silencer pipework 	<input type="checkbox"/> IBC Seismic and OSHPD certification per Applicable Building Codes: IBC2000, IBC2003, IBC2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010
Starting/Charging	<ul style="list-style-type: none"> • 12 volt starting motor • Batteries with rack and cables 	<input type="checkbox"/> Battery charger – UL 10 amp <input type="checkbox"/> Battery disconnect switch <input type="checkbox"/> Battery removal (does not remove rack and cables) <input type="checkbox"/> Coolant Heater
General	<ul style="list-style-type: none"> • High gloss polyurethane paint, Caterpillar Yellow except rails and radiators gloss black • Anticorrosive paint protection • All electroplated hardware 	<input type="checkbox"/> CSA Certified <input type="checkbox"/> Weather protective enclosure <input type="checkbox"/> Sound attenuated protective enclosures <input type="checkbox"/> Caterpillar tool set <input type="checkbox"/> Caterpillar White paint

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SPECIFICATIONS

STANDARD CAT GENERATOR	
Frame size	LCB1514P
Excitation	Self excitation
Pitch	0.6667
Number of poles	4
Number of bearings	Single bearing
Number of leads	4
Insulation	Class H
IP Rating	IP23
Overspeed capability (%)	125
Wave form deviation (%)	2
Voltage regulation	+/- 0.25% (steady state)
CAT DIESEL ENGINE	
C4.4 In-line 4, 4-cycle diesel	
Bore	105.0 mm (4.13 in)
Stroke	127.0 mm (5.0 in)
Displacement	4.4 L (268.5 in ³)
Compression ratio	18.2:1
Aspiration	Turbocharged
Fuel system	Common rail
Governor type	Electronic

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 12 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
- 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	P3454A		P3454B	
EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)	Standby		Prime	
Generator Set Package Performance Genset power rating @ 1.0 pf Genset power rating with fan	50.0 kVA 50.0 ekW		45.0 kVA 45.0 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	16.4 L/hr 12.4 L/hr 9.0 L/hr	4.3 gal/hr 3.3 gal/hr 2.4 gal/hr	14.7 L/hr 11.3 L/hr 8.3 L/hr	3.9 gal/hr 3.0 gal/hr 2.2 gal/hr
Cooling System¹ Air flow restriction (system) Engine coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 1.5 L 7.0 L 9.5 L	0.48 in. water 4.4 gal 1.8 gal 2.5 gal	0.12 kPa 1.5 L 7.0 L 9.5 L	0.48 in. water 4.4 gal 1.8 gal 2.5 gal
Inlet Air Combustion air inlet flow rate	5.3 m³/min	187.2 cfm	5.2 m³/min	183.6 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system back pressure (maximum)	571°C 13.7 m³/min 63.5 mm 15.0 kPa	1060°F 484 cfm 2.5 in 60.2 in. water	532°C 12.8 m³/min 63.5 mm 15.0 kPa	990°F 452 cfm 2.5 in 60.2 in. water
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	46.1 kW 66.9 kW 14.9 kW 4.4 kW	2622 Btu/min 3805 Btu/min 847.3 Btu/min 250.2 Btu/min	42.3kW 59.3 kW 12.5 kW 3.8 kW	2406 Btu/min 3372 Btu/min 710.9 Btu/min 216.1 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Insulation class Rotor temperature rise	157 skV LC1514P H 105°C	189°F	157 skV LC1514P 80°C	144°F
Lubrication System Total oil capacity Oil pan	8.4 L 6.9 L	2.2 gal 1.8 gal	8.4 L 6.9 L	2.2 gal 1.8 gal
Emissions (Nominal)³ NOx + HC CO PM	4.42 g/kWhr 1.02 g/kWhr 0.18 g/kWhr			

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

²Generator temperature rise is based on a 40°C (104°F) ambient per NEMA MG1-32.

³The nominal emissions data shown is subject to instrumentation, easurement, facility and engine to engne variations. Emissions data is based on 100% load.

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RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards: AS1359, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 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.

Prime – Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand of 100% of prime-rated ekW with 10% of overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel rates are based on fuel oil to specification EPA 2D 89.330-96 with a density of 0.845 – 0.850 kg/L (7.052 – 7.094 lbs/U.S. gal.) @ 15°C (59°F) and fuel inlet temperature 40°C (104°F).

Additional ratings may be available for specific customer requirements, contact your Cat representative for details.

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DIMENSIONS

Package Dimensions		
Length	1932 mm	76 in
Width	1110 mm	44 in
Height	1767 mm	46 in

NOTE: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3989305).

Performance No.: P3454A/B

www.Cat-ElectricPower.com

Feature Code: NAC140P

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

Source: U.S. Sourced

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