
DIESEL GENERATOR SET



Image shown may not reflect actual package

Standby 500 kW 625 kVA 60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation Market place with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FUEL/EMISSIONS STRATEGY

- EPA Tier 4 Interim

DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200

- UL 2200 packages available. 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 Caterpillar S•O•SSM program effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

CAT[®] C15 ATAAC 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

CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Single point access to accessory connections
- UL 1446 Recognized Class H insulation

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	• Standard duty air filter	☐ Air cleaner- Single stage canister style ☐ Heavy duty air filter- Single stage canister w/pre-cleaner
Cooling	• Radiator package mounted • Coolant drain line with valve. Drain hose terminated at edge • Fan and belt guards • Coolant level sight gauge • Cat Extended Life Coolant	☐ Radiator duct flange (open set only) ☐ Radiator guard (open set only)
Exhaust	• Dry exhaust manifold • Male full V-band style flanged outlet • Stainless steel flex with female full V-band flange connections	☐ Mufflers ☐ Male full V-band weld flange with V-band clamp
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters-spin on • Fuel priming pump • Flex fuel lines • Fuel cooler	☐ 12 & 24 hour UL listed dual wall sub-base fuel tanks with low fuel level switch
Generator	• Brushless Exciter • Class H insulation • IP 23 Protection • VR6 voltage regulator with 3 phase sensing	☐ Cat digital voltage regulator (Cat DVR) with reactive droop control ☐ Oversize harsh environment generators ☐ Permanent magnet excitation ☐ Anti-condensation space heaters
Power Termination	• Power termination strips mounted inside power center • Segregated low voltage wiring panel • Bottom entry	☐ Circuit breakers, UL/EC listed, 3 pole ☐ Circuit breaker shunt trip ☐ Circuit breaker auxiliary contact
Governor	• ADEM™ A4	☐ Load share module
Control Panel	• EMCP 4.2 (rear mounted) • Speed adjust • Emergency Stop Pushbutton • Voltage adjust	☐ EMCP 4.4 ☐ Local annunciator modules (NFPA 99/110) ☐ Remote annunciator modules (NFPA 99/110) ☐ Discrete I/O module
Lube	• Lubricating oil and filter • Oil drain line with valves • Open crankcase ventilation (OCV) filter • Gear type lube oil pump	
Mounting	• Rails - engine / generator / radiator mounting • Rubber vibration isolator	
Starting / Charging	• 24 volt starting motor • Batteries with rack and cables (dry) • 45 amp charging alternator • Battery disconnect switch	☐ Jacket water heater ☐ 10 Amp UL recognized battery charger
General	• Paint – Cat yellow except rails and radiators gloss black	☐ UL 2200 listed ☐ CSA Certification

***Not included with packages without radiators**

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SPECIFICATIONS

CAT GENERATOR

Frame 6124F
Excitation IE
Pitch..... 0.6667
Number of poles..... 4
Number of leads..... 12
Number of bearings Single
Insulation Class H
IP rating Drip proof IP23
Over speed capability - % of rated..... 125%
Wave form deviation..... 2 %
Voltage regulator..... 3 phase sensing with load adjustable module
Voltage regulation.... Less than $\pm 1/2\%$ (steady state)
Less than $\pm 1/2\%$ (3% speed change)
Telephone Influence Factor Less than 50
Harmonic Distortion Less than 5%

CAT DIESEL ENGINE

C15 ATAAC, L-6, 4 stroke, water-cooled diesel

Bore 137.20 mm (5.4 in)
Stroke 171.4 mm (6.75 in)
Displacement 15.20 L (927.56 in³)
Compression ratio..... 16:1
Aspiration..... ATAAC
Fuel system..... MEUI
Governor Type..... ADEM™ A4

CAT EMCP 4 CONTROL PANELS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed & Voltage Adjust
- Engine Cycle Crank
- Emergency stop pushbutton

EMCP 4.2 controller features:

- 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)
- Power Factor (per phase & average)
- kW (per phase, average & percent)
- kVA (per phase, average & percent)
- kVAr (per phase, average & percent)
- kW-hr & kVAr-hr (total)

Warning/shutdown with common LED indication of shutdowns for:

- 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

- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link

- 6 programmable digital inputs
- 4 programmable relay outputs (Form A)
- 2 programmable relay outputs (Form C)
- 2 programmable digital outputs

Compatible with the following optional modules:

- Digital I/O module
- Local Annunciator
- Remote annunciator
- RTD module
- Thermocouple module

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TECHNICAL DATA

Open Generator Set - 1800 rpm/60 Hz/480 Volts	STANDBY EM0177	
Genset Package Performance Power rating @ 0.8 pf Power rating w/fan	625 kVA 500 ekW	
Fuel Consumption¹ 100% load with fan 75% load with fan 50% load with fan	136.6 L/hr 108.0 L/hr 78.0 L/hr	35.9 Gal/hr 28.6 Gal/hr 20.5 Gal/hr
Cooling System² Ambient air temperature Air flow restriction (system) Air flow (max @rated speed) Engine coolant Capacity with radiator arrangement) Engine coolant capacity Radiator coolant capacity	51°C 0.12 kPa 819.6 m ³ /min 68 L 27 L 41 L	123 °F 0.5 in water 28958 cfm 18.0 US Gal 7.1 US Gal 10.9 US Gal
Inlet Air Combustion air inlet flow rate	35.2 m ³ /min	1243 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (minimum allowable) ³ Exhaust system backpressure (maximum allowable) ³	683.8 °C 90.2 m ³ /min 139 mm 1 kPa 10 kPa	1263 °F 3185 cfm 5.5 in 4 in. water 40 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	253 kW 430 kW 95.6 kW 29.1 kW	14375 Btu/min 24457 Btu/min 5436 Btu/min 1655 Btu/min
Alternator⁴ Motor starting capability @ 30% voltage dip Frame Temperature Rise	1712 skVA LC6124F 130°C	234°F
Lube System⁵ Lube oil refill with filter change for standard sump	60 L	15.9 US Gal
Emissions (Nominal)⁶ NO _x CO HC PM	3.6 g/kW-hr 0.52 g/kW-hr 0.04 g/kW-hr 0.04 g/kW-hr	2.7 g/hp-hr .39 g/hp-hr 0.03 g/hp-hr 0.03 g/hp-hr

¹ EPA Tier 4 Interim diesel engines required the use of Ultra Low Sulfur Diesel (ULSD) fuel in order to protect emissions control systems, help comply with emissions standards, and meet published maintenance intervals. ULSD fuel will have ≤ 15 ppm (0.0015%) sulfur using the ASTM D5453, ASTM 2622, or SIN 51400 test methods.

² For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

³ Backpressure allowance is total backpressure available for the customer.

⁴ Generator temperature rise is based on a 40 degree C ambient per NEMA MG1-32.

Some packages may have oversized generators with a different temperature rise and motor starting characteristics.

⁵ Requires the use of CJ4 oil in order to meet published maintenance intervals.

⁶ 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, NO_x. 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

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

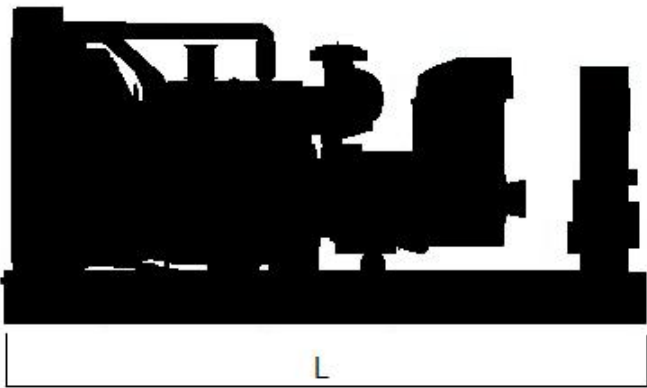
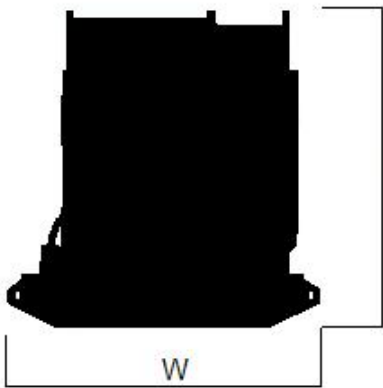
Fuel Rates are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements, contact your Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

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DIMENSIONS

Package Dimensions		
Length	4273 mm	169 in
Width	2058 mm	81 in
Height	2092 mm	83 in
Weight	3759 kg	8288 lb



www.Cat-ElectricPower.com

Performance No.: EM0177
Feature Code: C15DEBH
Gen. Arr. Number: 235-1212
Sourced: U.S. Sourced
LEHE0305-01 (06/11)

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