



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.

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### 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•S<sup>SM</sup> 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	<ul style="list-style-type: none"> <li>• Standard duty air filter</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Air cleaner- Single stage canister style</li> <li><input type="checkbox"/> Heavy duty air filter- Single stage canister w/pre-cleaner</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Radiator package mounted</li> <li>• Coolant drain line with valve. Drain hose terminated at edge</li> <li>• Fan and belt guards</li> <li>• Coolant level sight gauge</li> <li>• Cat Extended Life Coolant</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Radiator duct flange (open set only)</li> <li><input type="checkbox"/> Radiator guard (open set only)</li> </ul>
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Male full V-band style flanged outlet</li> <li>• Stainless steel flex with female full V-band flange connections</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Mufflers</li> <li><input type="checkbox"/> Male full V-band weld flange with V-band clamp</li> </ul>
Fuel	<ul style="list-style-type: none"> <li>• Primary fuel filter with integral water separator</li> <li>• Secondary fuel filters-spin on</li> <li>• Fuel priming pump</li> <li>• Flex fuel lines</li> <li>• Fuel cooler</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 12 &amp; 24 hour UL listed dual wall sub-base fuel tanks with low fuel level switch</li> </ul>
Generator	<ul style="list-style-type: none"> <li>• Brushless Exciter</li> <li>• Class H insulation</li> <li>• IP 23 Protection</li> <li>• VR6 voltage regulator with 3 phase sensing</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Cat digital voltage regulator (Cat DVR) with reactive droop control</li> <li><input type="checkbox"/> Oversize harsh environment generators</li> <li><input type="checkbox"/> Permanent magnet excitation</li> <li><input type="checkbox"/> Anti-condensation space heaters</li> </ul>
Power Termination	<ul style="list-style-type: none"> <li>• Power termination strips mounted inside power center</li> <li>• Segregated low voltage wiring panel</li> <li>• Bottom entry</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Circuit breakers, UL/EC listed, 3 pole</li> <li><input type="checkbox"/> Circuit breaker shunt trip</li> <li><input type="checkbox"/> Circuit breaker auxiliary contact</li> </ul>
Governor	<ul style="list-style-type: none"> <li>• ADEM™ A4</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Load share module</li> </ul>
Control Panel	<ul style="list-style-type: none"> <li>• EMCP 4.2 (rear mounted)</li> <li>• Speed adjust</li> <li>• Emergency Stop Pushbutton</li> <li>• Voltage adjust</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> EMCP 4.4</li> <li><input type="checkbox"/> Local annunciator modules (NFPA 99/110)</li> <li><input type="checkbox"/> Remote annunciator modules (NFPA 99/110)</li> <li><input type="checkbox"/> Discrete I/O module</li> </ul>
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valves</li> <li>• Open crankcase ventilation (OCV) filter</li> <li>• Gear type lube oil pump</li> </ul>	
Mounting	<ul style="list-style-type: none"> <li>• Rails - engine / generator / radiator mounting</li> <li>• Rubber vibration isolator</li> </ul>	
Starting / Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor</li> <li>• Batteries with rack and cables (dry)</li> <li>• 45 amp charging alternator</li> <li>• Battery disconnect switch</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Jacket water heater</li> <li><input type="checkbox"/> 10 Amp UL recognized battery charger</li> </ul>
General	<ul style="list-style-type: none"> <li>• Paint – Cat yellow except rails and radiators gloss black</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> UL 2200 listed</li> <li><input type="checkbox"/> CSA Certification</li> </ul>

**\*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 in <sup>3</sup> )
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	
<b>Genset Package Performance</b> Power rating @ 0.8 pf Power rating w/fan	625 kVA 500 ekW	
<b>Fuel Consumption<sup>1</sup></b> 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
<b>Cooling System<sup>2</sup></b> 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 <sup>3</sup> /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
<b>Inlet Air</b> Combustion air inlet flow rate	35.2 m <sup>3</sup> /min	1243 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (minimum allowable) <sup>3</sup> Exhaust system backpressure (maximum allowable) <sup>3</sup>	683.8 °C 90.2 m <sup>3</sup> /min 139 mm 1 kPa 10 kPa	1263 °F 3185 cfm 5.5 in 4 in. water 40 in. water
<b>Heat Rejection</b> 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
<b>Alternator<sup>4</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	1712 skVA LC6124F 130°C	234°F
<b>Lube System<sup>5</sup></b> Lube oil refill with filter change for standard sump	60 L	15.9 US Gal
<b>Emissions (Nominal)<sup>6</sup></b> NO <sub>x</sub> 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

<sup>1</sup> 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.

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

<sup>3</sup> Backpressure allowance is total backpressure available for the customer.

<sup>4</sup> 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.

<sup>5</sup> Requires the use of CJ4 oil in order to meet published maintenance intervals.

<sup>6</sup> 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<sub>x</sub>. 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

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**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**

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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](http://www.Cat-ElectricPower.com)

Performance No.: EM0177

Feature Code: C15DEBH

Gen. Arr. Number: 235-1212

Sourced: U.S. Sourced

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