# **DIESEL GENERATOR SET**





Image shown may not reflect actual package.

### **FEATURES**

### **FUEL/EMISSIONS STRATEGY**

• EPA Certified for Stationary Emergency Application (EPA Tier 2 emissions levels)

### **DESIGN CRITERIA**

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

### UL 2200 / CSA - Optional

- UL 2200 listed packages
- 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•S<sup>™</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

# PRIME 455 ekW 569 kVA 60 Hz 1800 rpm 600 Volts

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

### **CAT® C15 ATAAC DIESEL ENGINE**

- Utilizes ACERT™ Technology
- 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

### **CAT GENERATOR**

- Matched to the performance and output characteristics of Cat engines
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- 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

60 Hz 1800 rpm 600 Volts



### FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional	
Air Inlet	Air cleaner		
Cooling	Package mounted radiator		
Exhaust	Exhaust flange outlet	[] Industrial [] Residential [] Critical Mufflers	
Fuel	<ul> <li>Primary fuel filter with integral water separator</li> <li>Secondary fuel filters</li> <li>Fuel priming pump</li> </ul>		
Generator	<ul> <li>Matched to the performance and output characteristics of Cat engines</li> <li>Load adjustment module provides engine relief upon load impact and improves laod acceptance and recovery time</li> <li>IP23 protection</li> </ul>	<ul> <li>[ ] Oversize and premium generators</li> <li>[ ] Permanent magnet excitation (PMG)</li> <li>[ ] Internal excited (IE)</li> <li>[ ] Anti-condensation space heaters</li> </ul>	
Power Termination	• Bus bar	[ ] Circuit breakers, UL listed [ ] Circuit breakers, IEC compliant	
Control Panel	• EMCP 4 Genset Controller	[] EMCP 4.2 [] EMCP 4.3 [] EMCP 4.4 [] Local and remote annuniciator modules [] Load share module [] Digital I/O module [] Remote monitoring software	
Mounting	Rubber vibration isolators		
Starting/Charging	• 24 volt starting motor • Batteries	[] Battery chargers [] Oversize batteries [] Jacket water heater [] Heavy duty starting system [] Charging alternator	
General	• Paint - Caterpillar Yellow except rails and radiators gloss black	The following options are based on regional and product configuration: [] Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 [] UL 2200 package [] EU Certificate of Conformance (CE) [] CSA Certification [] EEC Declaration of Conformity [] Narrow, wide or skid base [] Sound attenuated, weather protective or high ambient weather protective enclosures [] Single or dual wall integral fuel tanks [] Single or dual wall sub-base fuel tanks [] Single or dual wall sub-base fuel tanks [] Integral & sub-base UL listed dual wall fuel tanks [] Automatic transfer switches (ATS)	

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### **SPECIFICATIONS**

#### **CAT GENERATOR**

Frame sizeLC6124F				
ExcitationInternal Excitation				
Pitch0.6667				
Number of poles4				
Number of bearings Single bearing				
Number of Leads012				
Insulation UL 1446 Recognized Class H with				
tropicalization and antiabrasion - Consult your Caterpillar dealer for available voltages				
IP RatingDrip Proof IP23				
AlignmentPilot Shaft				
Overspeed capability125				
Wave form Deviation (Line to Line)2%				
Voltage regulatorThree phase sensing				
Voltage regulationLess than +/- 1/2% (steady state)				
Less than +/- ½% (w/ 3% speed change)				

### CAT DIESEL ENGINE

C15 ATAAC, I-6, 4-Stroke Water-cooled Diesel

Bore	137.20 mm (5.4 in)		
Stroke	171.40 mm (6.75 in)		
Displacement	15.20 L (927.56 in <sup>3</sup> )		
Compression Ratio			
Aspiration	Air-to-Air Aftercooled		
Fuel System	MEUI		
Governor Type Caterpillar ADEM control system			

#### **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 (4.2 only)
- 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) (4.2 only)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- 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/600 Volts		DM8154	
Generator Set Package Performance			
Genset Power rating @ 0.8 pf	568.75 kVA		
Genset Power rating with fan	455 ekW		
Fuel Consumption			
100% load with fan	125.7 L/hr	33.2 Gal/hr	
75% load with fan	100.8 L/hr	26.6 Gal/hr	
50% load with fan	81.9 L/hr	21.6 Gal/hr	
Cooling System <sup>1</sup>			
Air flow restriction (system)	0.12 kPa	0.48 in. water	
Air flow (max @ rated speed for radiator arrangement)	822 m³/min	29029 cfm	
Engine Coolant capacity with radiator/exp. tank	57.8 L	15.3 gal	
Engine coolant capacity	20.8 L	5.5 gal	
Radiator coolant capacity	37.0 L	9.8 gal	
Inlet Air			
Combustion air inlet flow rate	37.0 m³/min	1306.6 cfm	
Exhaust System			
Exhaust stack gas temperature	492.8 ° C	919.0 ° F	
Exhaust gas flow rate	99.0 m³/min	3496.2 cfm	
Exhaust flange size (internal diameter)	152.4 mm	6.0 in	
Exhaust system backpressure (maximum allowable)	10.0 kPa	40.2 in. water	
Heat Rejection			
Heat rejection to coolant (total)	175 kW	9952 Btu/min	
Heat rejection to exhaust (total)	455 kW	25876 Btu/min	
Heat rejection to atmosphere from engine	85 kW	4834 Btu/min	
Heat rejection to atmosphere from generator	26.0 kW	1478.6 Btu/min	
Alternator <sup>2</sup>			
Motor starting capability @ 30% voltage dip	1714 skVA		
Frame	LC6124F		
Temperature Rise	105 ° C	189 ° F	
Lube System			
Sump refill with filter	60.0 L	15.9 gal	
Emissions (Nominal) <sup>3</sup>			
NOx g/hp-hr	5.59 g/hp-hr		
CO g/hp-hr	.41 g/hp-hr		
HC g/hp-hr	.01 g/hp-hr		
PM g/hp-hr	.024 g/hp-hr		

<sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory. <sup>2</sup> Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32. Some packages may have oversized generators with a different temperature rise and motor starting characteristics.

<sup>a</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, 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.

60 Hz 1800 rpm 600 Volts



### **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 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. **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 or 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. Consult your Cat representative for details.

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DIMENSIONS

Package Dimensions				
Length	3775.1 mm	148.63 in		
Width	1110.0 mm	43.7 in		
Height	2091.0 mm	82.32 in		

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2781052).

Performance No.: DM8154

Feature Code: C15DE6Q

Gen. Arr. Number: 2351214

Source: U.S. Sourced

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