



Image shown may not reflect actual package.

PRIME

**545 kW 681 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

- EPA Certified Tier 2

UL 2200

- UL 2200 listed packages are available. Certain restrictions may apply. Consult with your Caterpillar dealer network

ENCLOSURES (optional)

- Sound attenuated
- Weather Protective

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available
- Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities

WORLDWIDE PRODUCT SUPPORT

- Caterpillar® dealers provide extensive post sale support including maintenance and repair agreements
- Caterpillar dealers fill 99.7% of parts orders within 24 hours
- Caterpillar dealers have over 1,798 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 C18 Tier 2 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

CAT® GENERATOR

- Matched to the performance and output characteristics of Caterpillar engines
- 2/3 pitch minimizes harmonic distortion and facilitates parallel operation
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H Insulation

CAT EMCP 3 SERIES CONTROLS

- Three levels of controls to meet individual customer needs:
 - EMCP 3.1 offers basic engine/generator monitoring, metering and protection.
 - EMCP 3.2 provides comprehensive monitoring, metering, and protection including: power metering, protective relaying, and MODBUS communication.
 - EMCP 3.3 provides all of the EMCP 3.2 features and adds the ability to expand the system for advanced engine and generator monitoring.
- Segregated low voltage (AC/DC) accessory box provides single point access to accessory connections

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FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> • Light Duty Air Cleaner • Service indicator 	<ul style="list-style-type: none"> • Single element canister type air cleaner • Dual element air cleaner • Heavy-duty air cleaner with precleaner • Air inlet shutoff
Cooling	<ul style="list-style-type: none"> • Radiator with guard sized for 50° C • Coolant level sight window • Coolant drain line with valve • Fan and belt guards • Caterpillar® Extended Life Coolant 	<ul style="list-style-type: none"> • Radiator duct flange • Low Coolant Level Sensor
Exhaust	<ul style="list-style-type: none"> • Stainless steel exhaust flex and ANSI weld flange • Turbo outlet elbow 	<ul style="list-style-type: none"> • 15 dBA muffler • 25 dBA muffler • 35 dBA muffler • Engine mounted muffler • Mounting and through-wall installation kits • Manifold and turbocharger guards
Fuel	<ul style="list-style-type: none"> • Primary fuel filter with integral water separator • Secondary fuel filters • Fuel cooler • Fuel priming pump • Fuel pressure gauge • Flexible fuel lines 	<ul style="list-style-type: none"> • Dual Wall Integral Fuel Tanks • Dual Wall Sub-base Fuel Tanks • Manual Fuel Fill Pump • Automatic Fuel Fill Options
Generator	<ul style="list-style-type: none"> • Self excited or AREP excitation • Class H insulation • Class H Temperature Rise (50Hz: 163°C standby/127°C SB, 125°C/40°C PP) (60Hz: 150°C/40°C SB, 125°C/40°C PP) • Random wound • R448 Voltage Regulator • Power terminal strip connections • IP23 Protection • Power Center 	<ul style="list-style-type: none"> • Permanent magnet conversion for self-excited and AREP generators • Oversize and premium generators • Three phase sensing • Quadrature droop kit • Digital voltage Regulator • Space heaters • RFI filter • 80% & 100% UL Breakers • IEC compliant 3 or 4-pole • Floor standing circuit breakers with auxiliary contacts & cabling kits
Governor	<ul style="list-style-type: none"> • Electronic ADEM A4 	<ul style="list-style-type: none"> • Load Share Module
Control Panels	<ul style="list-style-type: none"> • EMCP 3.1 (package mounted) 	<ul style="list-style-type: none"> • EMCP 3.2 • EMCP 3.3 • Local alarm and remote annunciator modules • Protective devices
Lube	<ul style="list-style-type: none"> • Lubricating oil and filter • Oil drain line with valves • Fumes disposal • Lube oil level indicator 	<ul style="list-style-type: none"> • Oil temperature sensor • Manual sump pump
Mounting	<ul style="list-style-type: none"> • Formed steel narrow base frame • Linear vibration isolators between base and engine generator 	<ul style="list-style-type: none"> • Formed steel wide base frame • Oil field skid base
Starting/Charging	<ul style="list-style-type: none"> • 45 amp charging alternator • 24 volt starting motor(s) • Batteries with rack and cables 	<ul style="list-style-type: none"> • Jacket water heater • Block heater • Ether starting aid • Battery disconnect switch • Battery charger(5A, 10A) • Oversized batteries • Battery removal



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SPECIFICATIONS

CAT GENERATOR

Frame size.....LC7024F
Excitation.....AR
Pitch.....0.6667
Number of poles.....4
Number of leads.....12
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages
IP rating.....Drip Proof IP22
Alignment..... Pilot Shaft
Overspeed capability..... 125% of rated
Wave form deviation (Line to Line).....002.00
Paralleling kit droop transformer..... Standard
Voltage Regulation.....Less than +/- 1/2% (steady state)
Less than +/- 1/2% (w/ 3% speed change)
Telephone Influence Factor..... Less than 50
Harmonic distortion..... Less than 5%

CAT ENGINE

C18 Tier 2 ATAAC, 4-stroke-cycle watercooled diesel
Bore - mm..... 145.00 mm (5.71 in)
Stroke - mm..... 183.00 mm (7.2 in)
Displacement - L..... 18.13 L (1106.36 in³)
Compression ratio..... 14.5:1
Aspiration..... Air-to-Air Aftercooled
Fuel system.....MEUI
Governor type..... Caterpillar ADEM control system

CAT CONTROL PANEL

EMCP 3 Series Controls
24 Volt DC Control
EMCP 3.1 (Standard)
• UL/CSA/CE
NEMA 1, IP22 enclosure
• Run/Auto/Stop control
Lockable hinged door (option)
• True RMS metering, 3-phase
• Speed Adjust
Voltage adjust (optional)
• Digital Indication for:
- RPM
- Operating hours
- Oil Pressure
- Coolant temperature
- System DC volts
- L-L volts, L-N volts, phase amps, Hz
- kW, kVA, kVAR, kW-hr, %kW, PF (*)
• Shutdowns
- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
• Programmable protective relaying functions: (*)
- Under and over voltage
- Under and over frequency
- Reverse power
- Overcurrent
• MODUS isolated data link (RS-485 half-duplex) supports serial communication at data rate up to 115.2 kbaud (*)
(*) Available on EMCP 3.2 & EMCP 3.3
Single location customer connector point
Consult your Caterpillar dealer for available voltages.



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TECHNICAL DATA

Open Generator Set - - 1800 rpm/60 Hz/480 Volts	DM8522	
Package Performance Genset Power rating with fan Genset Power rating @ 0.8 pf	545 kW 681.25 kVA	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	151.1 L/hr 123.5 L/hr 89.2 L/hr	39.9 Gal/hr 32.6 Gal/hr 23.6 Gal/hr
Cooling System¹ Ambient air temperature Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine Coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	48 ° C 0.12 kPa 804 m ³ /min 26.9 L 20.8 L 6.1 L	118 ° F 0.48 in. water 28393 cfm 7.1 gal 5.5 gal 1.6 gal
Exhaust System Combustion air inlet flow rate Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	46.3 m ³ /min 518.2 ° C 129.6 m ³ /min 203 mm 10.0 kPa	1635.1 cfm 964.8 ° F 4576.8 cfm 8 in 40.2 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	175 kW 573 kW 114 kW 36.0 kW	9952 Btu/min 32586 Btu/min 6483 Btu/min 2047.3 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Temperature Rise	1633 skVA LC7024F 125 ° C	257 ° F
Emissions³ Nox g/hp-hr (not to exceed) CO g/hp-hr (not to exceed) HC g/hp-hr (not to exceed) PM g/hp-hr (not to exceed)	6.24 g/bhp-hr .76 g/bhp-hr .02 g/bhp-hr .063 g/bhp-hr	

¹ Ambient capability at 300m (984 ft) above sea level. For ambient capability at other altitudes, consult your Caterpillar dealer. Air flow restriction (system) is added to existing restriction from factory. Generator temperature rise is based on a 40 C (104 F) ambient per NEMA MG1-32

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

³ Emissions data measurements 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 deg F, 28.42 in HG and number 2 diesel fuel with 35 deg API and LHV of 18,390 Btu/lb.



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PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



RATING DEFINITIONS AND CONDITIONS

Meets or Exceeds International Specifications: ABGSM TM3, AS1359, AS2789, BS4999, BS5000, BS5514, DIN6271, DIN6280, EGSA101P, IEC34/1, ISO3046/1, ISO8528, JEM1359, NEMA MG 1-22, VDE0530, 89/392/EEC, 89/336/EEC

Prime - Output available with varying load for an unlimited time. Prime power in accordance with ISO8528. 10% overload power in accordance with ISO3046/1, AS2789, DIN6271, and BS5514 available on request. Prime power ambients shown indicate ambient at 100 percent load which results in a coolant top tank temperature just below the alarm temperature.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046/1, DIN6271, and BS5514 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. Consult your Caterpillar representative for details.



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PRIME 545 ekW 681 kVA

60 Hz 1800 rpm 480 Volts



DIMENSIONS

Package Dimensions		
Length	4237.4 mm	166.83 in
Width	1536.0 mm	60.47 in
Height	2165.8 mm	85.27 in
Weight	4001 kg	8,821 lb

Note: Do not use for installation design.
See general dimension drawings for detail (Drawing #2859356).



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Performance No.: DM8522

Feature Code:: C18DE97

Source:: U.S. Sourced

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