



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

- Low Fuel consumption

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•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT® C18 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 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

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> • Disposable Air Filter • Service indicator 	Canister type Air Filter: <input type="checkbox"/> Single element air filter
Cooling	<ul style="list-style-type: none"> • Radiator package mounted • Coolant level sight gauge • Low coolant level sensor • Coolant drain line with valve • Fan and belt guards • Cat® Extended Life Coolant* 	<input type="checkbox"/> Radiator duct flange <input type="checkbox"/> Stone guard <input type="checkbox"/> Low temperature alarm
Exhaust	<ul style="list-style-type: none"> • Dry exhaust manifold • Stainless steel exhaust flex fittings with split-cuff • Exhaust flange outlets 	<input type="checkbox"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Critical Mufflers <input type="checkbox"/> Manifold and turbocharger guards <input type="checkbox"/> Elbows and through-wall kits
Fuel	<ul style="list-style-type: none"> • Integral single wall fuel tank base • Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump • Engine fuel transfer pump • Fuel cooler integral with cooling system* • Flexible fuel lines *Not included with packages without radiators	<input type="checkbox"/> Manual transfer pump <input type="checkbox"/> Fuel level switch
Generator	<ul style="list-style-type: none"> • Class H insulation • Internal excited (IE) • Class H temperature rise • R450 voltage regulator with single phase sensing and load adjustment • IP23 Protection 	<input type="checkbox"/> Oversize generators <input type="checkbox"/> Permanent magnet excitation(PMG) <input type="checkbox"/> Cat digital voltage regulator (CDVR) with kVAR/PF control <input type="checkbox"/> Anti-condensation space heaters <input type="checkbox"/> Coastal Insulation Protection (CIP) <input type="checkbox"/> Reactive droop <input type="checkbox"/> Three phase sensing
Power Termination	<ul style="list-style-type: none"> • Power Center houses EMCP controller and power/control terminations (rear mounted) • Circuit breaker, IEC compliant, 3-4 pole (100% rated) • Segregated low voltage wiring termination panel • IP22 protection • Bottom cable entry 	<input type="checkbox"/> C.B. Shunt trips <input type="checkbox"/> C.B. Auxiliary contacts
Governor	<ul style="list-style-type: none"> • ADEM™ A4 	
Control Panels	<ul style="list-style-type: none"> • EMCP 4.1 (mounted in Power Center) • Speed adjustment • Voltage adjustment • Emergency stop pushbutton 	<input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> Right-hand mounted Power Center <input type="checkbox"/> Local annunciator module (NFPA 99/110) <input type="checkbox"/> Remote annunciator module (NFPA 99/110) <input type="checkbox"/> Digital I/O module
Lube	<ul style="list-style-type: none"> • Lubricating oil • Oil drain line with valves • Oil filter and dipstick • Fumes disposal • Lube oil level indicator • Oil cooler 	<input type="checkbox"/> Oil temperature sensor <input type="checkbox"/> Manual sump pump
Mounting	<ul style="list-style-type: none"> • Integral Narrow 8hr tank base • Linear vibration isolation 	<input type="checkbox"/> Narrow skid base <input type="checkbox"/> Integral Dual Wall 8hr tank base* *Available only with enclosed units
Starting/Charging	<ul style="list-style-type: none"> • 24 volt starting motor • 24 volt, 45 amp charging alternator • Batteries with rack and cables 	<input type="checkbox"/> Jacket water heater <input type="checkbox"/> Battery disconnect switch <input type="checkbox"/> Battery charger 5 amp

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



SPECIFICATIONS

CAT GENERATOR

Frame size.....LC7024F
Excitation..... Internal Excitation
Pitch..... 0.6667
Number of poles..... 4
Number of bearings..... Single bearing
Number of Leads..... 012
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages
IP Rating..... Drip Proof IP23
Alignment..... Pilot Shaft
Overspeed capability..... 125
Wave form Deviation (Line to Line)..... 2%
Voltage Regulator..... Single Phase Sensing
Voltage regulation..... Less than +/- 1/2% (steady state)
Less than +/- 1/2% (w/ 3% speed change)

CAT DIESEL ENGINE

C18 ATAAC, I-6, 4-Stroke Water-cooled Diesel
Bore..... 145.00 mm (5.71 in)
Stroke..... 183.00 mm (7.2 in)
Displacement..... 18.13 L (1106.36 in³)
Compression Ratio..... 14.5:1
Aspiration..... Air-to-Air Aftercooled
Fuel System..... Electronic unit injection
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)
- kW, 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

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



TECHNICAL DATA

Open Generator Set - - 1800 rpm/60 Hz/480 Volts	DM9833	
Low Fuel Consumption		
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	681.25 kVA	
Genset Power rating with fan	545 kW	
Fuel Consumption		
100% load with fan	150.5 L/hr	39.8 Gal/hr
75% load with fan	111.1 L/hr	29.3 Gal/hr
50% load with fan	76.6 L/hr	20.2 Gal/hr
Cooling System¹		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)	481 m ³ /min	16986 cfm
Engine Coolant capacity with radiator/exp. tank	54.8 L	14.5 gal
Engine coolant capacity	20.8 L	5.5 gal
Radiator coolant capacity	34.0 L	9.0 gal
Inlet Air		
Combustion air inlet flow rate	46.0 m ³ /min	1624.5 cfm
Exhaust System		
Exhaust stack gas temperature	495.5 °C	923.9 °F
Exhaust gas flow rate	125.0 m ³ /min	4414.3 cfm
Exhaust flange size (internal diameter)	203 mm	8 in
Exhaust system backpressure (maximum allowable)	10.0 kPa	40.2 in. water
Heat Rejection		
Heat rejection to coolant (total)	174 kW	9895 Btu/min
Heat rejection to exhaust (total)	546 kW	31051 Btu/min
Heat rejection to aftercooler	133 kW	7564 Btu/min
Heat rejection to atmosphere from engine	139 kW	7905 Btu/min
Heat rejection to atmosphere from generator	36.0 kW	2047.3 Btu/min
Alternator²		
Motor starting capability @ 30% voltage dip	1633 skVA	
Frame	LC7024F	
Temperature Rise	125 °C	225 °F
Lube System		
Sump refill with filter	38.0 L	10.0 gal
Emissions (Nominal)³		
NOx g/hp-hr	4.97 g/hp-hr	
CO g/hp-hr	.16 g/hp-hr	
HC g/hp-hr	.01 g/hp-hr	
PM g/hp-hr	.013 g/hp-hr	

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

² 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.

³ 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.

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



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

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 kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year. Prime power in accordance with ISO3046. Prime ambients shown indicate ambient temperature at 100% 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 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.

PRIME 545 kW 681 kVA

60 Hz 1800 rpm 480 Volts



DIMENSIONS

Package Dimensions		
Length	3910.0 mm	153.94 in
Width	1461.0 mm	57.52 in
Height	2155.7 mm	84.87 in

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3930335).

Performance No: DM9833
Feature Code: C18DF2Y
Generator Arrangement: 3921383
Sourced: China Sourced
November 2012

www.Cat-ElectricPower.com

2012 Caterpillar
All rights reserved.

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

CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow," the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.