



Image shown may not reflect actual package.

## STANDBY

**520 e kW 650 kVA**

**50 Hz 1500 rpm 400 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 and meets ISO 8528-5 transient response.

### FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested

### SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

### WORLDWIDE PRODUCT SUPPORT

- Caterpillar® dealers provide extensive post sale support including maintenance and repair agreements
- Caterpillar dealers have over 1,600 dealer branch stores operating in 200 countries
- The Cat® S•O•S<sup>SM</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

### CAT® C18 ATAAC DIESEL ENGINE

- 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
- 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 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>• Light Duty Air Cleaner</li> <li>• Service indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Single element canister type air cleaner</li> <li>• Dual element air cleaner</li> <li>• Heavy-duty air cleaner with precleaner</li> <li>• Air inlet shutoff</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Radiator with guard sized for 50° C</li> <li>• Coolant level sight window</li> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Caterpillar® Extended Life Coolant</li> </ul>	<ul style="list-style-type: none"> <li>• Radiator duct flange</li> <li>• Low Coolant Level Sensor</li> <li>• Radiator removal</li> </ul>
Exhaust	<ul style="list-style-type: none"> <li>• Stainless steel exhaust flex and ANSI weld flange</li> <li>• Turbo outlet elbow</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial, residential and critical mufflers</li> <li>• 35 dBA muffler</li> <li>• Engine mounted muffler</li> <li>• Mounting and through-wall installation kits</li> <li>• Manifold and turbocharger guards</li> </ul>
Fuel	<ul style="list-style-type: none"> <li>• Primary fuel filter with integral water separator</li> <li>• Secondary fuel filters</li> <li>• Fuel cooler</li> <li>• Fuel priming pump</li> <li>• Fuel pressure gauge</li> <li>• Flexible fuel lines</li> </ul>	<ul style="list-style-type: none"> <li>• Dual Wall Integral Fuel Tanks</li> <li>• Dual Wall Sub-base Fuel Tanks</li> <li>• Manual Fuel Fill Pump</li> <li>• Automatic Fuel Fill Options</li> </ul>
Generator	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• Class H Temperature Rise</li> <li>• R448 Voltage Regulator with Load Adjustment Module</li> <li>• Power center power terminal strip connections</li> <li>• Segregated low voltage wiring panel</li> <li>• IP23 Protection</li> </ul>	<ul style="list-style-type: none"> <li>• Oversize and premium generators</li> <li>• Three phase sensing</li> <li>• Quadrature droop kit</li> <li>• Space heaters</li> <li>• RFI filter</li> <li>• Circuit breaker, IEC compliant 3 or 4-pole (100% rated)</li> <li>• Floor standing circuit breakers with auxiliary contacts &amp; cabling kits</li> </ul>
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 3.1 (package mounted)</li> </ul>	<ul style="list-style-type: none"> <li>• EMCP 3.2</li> <li>• EMCP 3.3</li> <li>• Local alarm and remote annunciator modules</li> <li>• Protective devices</li> </ul>
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valves</li> <li>• Fumes disposal</li> <li>• Lube oil level indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Oil temperature sensor</li> <li>• Manual sump pump</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>• Formed steel narrow base frame</li> <li>• Linear vibration isolators</li> </ul>	<ul style="list-style-type: none"> <li>• Oil field skid base</li> <li>• Formed steel wide base frame</li> <li>• 8 hour narrow tank base</li> <li>• 16 hour wide tank base</li> </ul>
Starting/Charging	<ul style="list-style-type: none"> <li>• 45 amp charging alternator</li> <li>• 24 volt starting motor</li> <li>• Batteries with rack and cables</li> <li>• Safety shutoff protection</li> </ul>	<ul style="list-style-type: none"> <li>• Jacket water heater</li> <li>• Integral 5 and 10 amp battery chargers</li> <li>• Oversize batteries</li> <li>• Ether starting aid</li> <li>• Battery disconnect switch</li> <li>• Battery removal</li> </ul>

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## SPECIFICATIONS

### CAT GENERATOR

Frame size.....LC7024F  
Excitation..... Internal Excited  
Pitch..... 0.6667  
Number of poles..... 4  
Number of bearings..... 1  
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 IP23  
Alignment..... Pilot Shaft  
Overspeed capability..... 125% of rated  
Wave form deviation (Line to Line)..... 2%  
Paralleling kit droop transformer..... Standard  
Voltage Regulator.....Single phase sensing with load adjustable module  
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 ATAAC, I-6, 4-stroke 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 in<sup>3</sup>)  
Compression ratio..... 14.5:1  
Aspiration..... Air-to-Air Aftercooled  
Fuel system..... Electronic unit injection  
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  
Electrically dead front  
• 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  
- ekW, 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  
Generator instruments meet ANSI C-39-1  
Terminal box mounted  
Single location customer connector point  
EC Compliant - segregated AC/DC connections and wiring  
Consult your Caterpillar dealer for available voltages.

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## TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM7543	
<b>Low Fuel Consumption</b>		
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	650 kVA 520 ekW	
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	133.4 L/hr 97.4 L/hr 66.9 L/hr	35.2 Gal/hr 25.7 Gal/hr 17.7 Gal/hr
<b>Cooling System<sup>1</sup></b> 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	0.12 kPa 660 m <sup>3</sup> /min 81.8 L 20.8 L 61.0 L	0.48 in. water 23308 cfm 21.6 gal 5.5 gal 16.1 gal
<b>Inlet Air</b> Combustion air inlet flow rate	38.2 m <sup>3</sup> /min	1349.0 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	543.8 °C 110.3 m <sup>3</sup> /min 203 mm 10.0 kPa	1010.8 °F 3895.2 cfm 8 in 40.2 in. water
<b>Heat Rejection</b> Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	167 kW 502 kW 107 kW 81 kW 38.5 kW	9497 Btu/min 28549 Btu/min 6085 Btu/min 4606 Btu/min 2189.5 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	1376 skVA LC7024F 163 °C	293 °F
<b>Lube System</b> Sump refill with filter	38.0 L	10.0 gal
<b>Emissions (Nominal)<sup>3</sup></b> NOx mg/nm <sup>3</sup> CO mg/nm <sup>3</sup> HC mg/nm <sup>3</sup> PM mg/nm <sup>3</sup>	3552.7 mg/nm <sup>3</sup> 239.2 mg/nm <sup>3</sup> 13.2 mg/nm <sup>3</sup> 11.2 mg/nm <sup>3</sup>	

<sup>1</sup> For ambient and altitude capabilities consult your Caterpillar 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.

<sup>3</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.

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## RATING DEFINITIONS AND CONDITIONS

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**Meets or Exceeds International Specifications:** AS1359, CSA, IEC60034, ISO 3046, ISO 8528, 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 ISO 8528. Fuel stop power in accordance with ISO 3046. 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 ISO 3046 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 Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Caterpillar dealer.

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## DIMENSIONS

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Package Dimensions		
Length	3936.9 mm	155 in
Width	1536.0 mm	60.47 in
Height	2165.8 mm	85.27 in
Weight	3842 kg	8,470 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2673870).

Performance No.: DM7543

Feature Code: C18DE76

Gen. Arr. Number: 2476127

Source: European Sourced

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