



Image shown may not reflect actual package.

## STANDBY

**520 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

EU Stage II Emissions Compliant  
Suitable for Mobile Applications  
in the European Community

### 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>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

- 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 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 Filter</li> <li>• Service indicator</li> </ul>	<input type="checkbox"/> Single element air filter <input type="checkbox"/> Dual element air filter <input type="checkbox"/> Heavy-duty dual element air filter with precleaner <input type="checkbox"/> Air inlet shut-off
Cooling	<ul style="list-style-type: none"> <li>• Radiator package mounted</li> <li>• Coolant level sight gauge</li> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Cat® Extended Life Coolant</li> </ul>	<input type="checkbox"/> Radiator duct flange <input type="checkbox"/> Low coolant level sensor
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Stainless steel exhaust flex fittings with split-cuff</li> <li>• Exhaust flange outlet</li> </ul>	<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"> <li>• Primary fuel filter with integral water separator</li> <li>• Secondary fuel filters</li> <li>• Fuel priming pump</li> <li>• Fuel cooler</li> <li>• Flexible fuel lines</li> </ul>	<input type="checkbox"/> Integral single wall listed fuel tank base <input type="checkbox"/> Manual transfer pump <input type="checkbox"/> Fuel level switch
Generator	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• Class H temperature rise</li> <li>• VR6 voltage regulator with 3-phase sensing with load adjustment</li> <li>• IP23 Protection</li> </ul>	<input type="checkbox"/> Oversize generators <input type="checkbox"/> Internal excited (IE) <input type="checkbox"/> Permanent Magnet (PMG) <input type="checkbox"/> 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
Power Termination	<ul style="list-style-type: none"> <li>• Power Center houses EMCP controller and power/control terminations (rear mounted)</li> <li>• Circuit breaker, UL listed, 3 pole (80% &amp; 100% Rated)</li> <li>• Circuit breaker, IEC compliant, 3-4 pole (100% Rated)</li> <li>• Segregated low voltage wiring termination panel</li> <li>• IP22 protection</li> <li>• Bottom cable entry</li> </ul>	<input type="checkbox"/> Power Center mounting option (right side) <input type="checkbox"/> Multiple circuit breakers <input type="checkbox"/> C.B. Shunt trips <input type="checkbox"/> C.B. Auxiliary contacts
Governor	<ul style="list-style-type: none"> <li>• ADEM™ A4</li> </ul>	<input type="checkbox"/> Load Share Module
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 3.1 (mounted in Power Center)</li> <li>• Speed adjustment</li> <li>• Voltage adjustment</li> <li>• Emergency stop pushbutton</li> </ul>	<input type="checkbox"/> EMCP 3.2 ... <input type="checkbox"/> EMCP 3.3 <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"/> Discrete I/O module
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil</li> <li>• Oil drain line with valves</li> <li>• Oil filter and dipstick</li> <li>• Fumes disposal</li> <li>• Lube oil level indicator</li> <li>• Oil cooler</li> </ul>	<input type="checkbox"/> Oil temperature sensor <input type="checkbox"/> Manual sump pump
Mounting	<ul style="list-style-type: none"> <li>• Formed steel narrow base frame</li> <li>• Linear vibration isolation-seismic zone 4</li> </ul>	<input type="checkbox"/> Oil skid base <input type="checkbox"/> Formed steel wide base frame
Starting/Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor</li> <li>• 24 volt, 45 amp charging alternator</li> </ul>	<input type="checkbox"/> Jacket water heater with shut-off valves <input type="checkbox"/> Engine block heater <input type="checkbox"/> Ether starting aid <input type="checkbox"/> Battery disconnect switch <input type="checkbox"/> Battery charger(5 or 10 amp) <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Batteries with rack and cables
General	<ul style="list-style-type: none"> <li>• Paint - Caterpillar yellow except rails and radiators gloss black</li> <li>• Flywheel housing - SAE No. 0</li> </ul>	<input type="checkbox"/> EU or CE Certificate of Conformance <input type="checkbox"/> Weather protective enclosure <input type="checkbox"/> Sound attenuated protective enclosure

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## SPECIFICATIONS

### CAT GENERATOR

Frame size.....LC7024F  
Excitation..... Internal Excited  
Pitch..... 0.6667  
Number of poles..... 4  
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% of rated  
Wave form deviation (Line to Line)..... 2%  
Paralleling kit droop transformer..... Standard  
Voltage Regulator..... Three phase sensing  
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 EMCP 3 SERIES CONTROLS

- EMCP 3.1 (Standard)
- EMCP 3.2 / EMCP 3.3 (Option)
- Single location customer connector point
- True RMS metering, 3-phase
- Controls
  - Run / Auto / Stop control
  - Speed Adjust
  - Voltage Adjust
  - Emergency Stop Pushbutton
  - Engine cycle crank
- 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 (EMCP 3.2 / 3.3)
- Shutdowns with common indicating light for:
  - Low oil pressure
  - High coolant temperature
  - Low coolant level
  - Overspeed
  - Emergency stop
  - Failure to start (overcrank)
- Programmable protective relaying functions: (EMCP 3.2 & 3.3)
  - Under and over voltage
  - Under and over frequency
  - Overcurrent (time and inverse time)
  - Reverse power (EMCP 3.3)
- MODBUS isolated data link, RS-485 half-duplex (EMCP 3.2 & 3.3)
- Options
  - Vandal door
  - Local annunciator module
  - Remote annunciator module
  - Input / Output module
  - RTD / Thermocouple Modules
  - Monitoring software

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## TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM9630	
<b>EU Stage II</b>		
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	650 kVA 520 ekW	
<b>Coolant to aftercooler</b> Coolant to aftercooler temp max	49 ° C	120 ° F
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	134.9 L/hr 102.1 L/hr 70.4 L/hr	35.6 Gal/hr 27.0 Gal/hr 18.6 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 645 m <sup>3</sup> /min 81.8 L 20.8 L 61.0 L	0.48 in. water 22778 cfm 21.6 gal 5.5 gal 16.1 gal
<b>Inlet Air</b> Combustion air inlet flow rate	38.3 m <sup>3</sup> /min	1352.6 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	550.1 ° C 111.6 m <sup>3</sup> /min 203 mm 10.0 kPa	1022.2 ° F 3941.1 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	162 kW 510 kW 113 kW 87 kW 38.5 kW	9213 Btu/min 29004 Btu/min 6426 Btu/min 4948 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>	2079.3 mg/nm <sup>3</sup> 368.4 mg/nm <sup>3</sup> 16.3 mg/nm <sup>3</sup> 21.2 mg/nm <sup>3</sup>	

<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.

<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, IEC60034-1, 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	3833.5 mm	150.92 in
Width	1536.0 mm	60.47 in
Height	2138.0 mm	84.17 in
Weight	4853 kg	10,699 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3077558).

Performance No.: DM9630

Feature Code: C18DE1V

Gen. Arr. Number: 2476127

Source: European Sourced

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