



Image shown may not reflect actual package.

PRIME

508 ekW 635 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•SSM 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"> • 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 • Radiator removal
Exhaust	<ul style="list-style-type: none"> • Stainless steel exhaust flex and ANSI weld flange • Turbo outlet elbow 	<ul style="list-style-type: none"> • Industrial, residential and critical mufflers • 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"> • Class H insulation • Class H Temperature Rise • R448 Voltage Regulator with Load Adjustment Module • Power center power terminal strip connections • Segregated low voltage wiring panel • IP23 Protection 	<ul style="list-style-type: none"> • Oversize and premium generators • Three phase sensing • Quadrature droop kit • Space heaters • RFI filter • Circuit breaker, IEC compliant 3 or 4-pole (100% rated) • Floor standing circuit breakers with auxiliary contacts & cabling kits
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 	<ul style="list-style-type: none"> • Oil field skid base • Formed steel wide base frame • 8 hour narrow tank base • 16 hour wide tank base
Starting/Charging	<ul style="list-style-type: none"> • 45 amp charging alternator • 24 volt starting motor • Batteries with rack and cables • Safety shutoff protection 	<ul style="list-style-type: none"> • Jacket water heater • Integral 5 and 10 amp battery chargers • Oversize batteries • Ether starting aid • Battery disconnect switch • Battery removal

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SPECIFICATIONS

CAT GENERATOR

Frame size.....LC7024J
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 in³)
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
- 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
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.

TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM7599	
Low Fuel Consumption		
Generator Set Package Performance Genset Power rating @ 0.8 pf Genset Power rating with fan	635 kVA 508 kW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	131.6 L/hr 96.2 L/hr 67.4 L/hr	34.8 Gal/hr 25.4 Gal/hr 17.8 Gal/hr
Cooling System¹ 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 ³ /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
Inlet Air Combustion air inlet flow rate	38.7 m ³ /min	1366.7 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	533.3 ° C 110.7 m ³ /min 203 mm 10.0 kPa	991.9 ° F 3909.3 cfm 8 in 40.2 in. water
Heat Rejection 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	166 kW 497 kW 110 kW 74 kW 33.0 kW	9440 Btu/min 28264 Btu/min 6256 Btu/min 4208 Btu/min 1876.7 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Temperature Rise	1681 skVA LC7024J 125 ° C	225 ° F
Lube System Sump refill with filter	38.0 L	10.0 gal
Emissions (Nominal)³ NOx mg/nm ³ CO mg/nm ³ HC mg/nm ³ PM mg/nm ³	3550.6 mg/nm ³ 329.0 mg/nm ³ 9.6 mg/nm ³ 12.4 mg/nm ³	

¹ For ambient and altitude capabilities consult your Caterpillar 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.

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.

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RATING DEFINITIONS AND CONDITIONS

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
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. Prime power in accordance with ISO 3046. 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 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

Package Dimensions		
Length	4237.4 mm	166.83 in
Width	1536.0 mm	60.47 in
Height	2165.8 mm	85.27 in
Weight	3987 kg	8,790 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2996191).

Performance No.: DM7599

Feature Code: C18DE77

Gen. Arr. Number: 2476128

Source: European Sourced

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