
DIESEL GENERATOR SET



STANDBY 560 kW 700 kVA 50 Hz 1500 rpm 400 Volts

Caterpillar is leading the power generation market place with power solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

- Low Fuel consumption

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 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 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 EMCP4 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"> • Disposable Air filter • Service indicator 	Canister type Air Filter: <input type="checkbox"/> Single element <input type="checkbox"/> Dual element
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 coolant temperature alarm
Exhaust	<ul style="list-style-type: none"> • Dry exhaust manifold • Stainless steel flex fittings • Exhaust flange outlet 	<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 flange kits
Fuel	<ul style="list-style-type: none"> • Integral narrow 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 	<input type="checkbox"/> Fuel level switch <input type="checkbox"/> Manual fuel transfer pump
Generator	<ul style="list-style-type: none"> • Class H insulation • Internal excited (IE) • Class H temperature rise • IP23 protection • R450 voltage regulator with single phase sensing and load adjustment module 	<input type="checkbox"/> Oversize generators <input type="checkbox"/> Permanent magnet excitation (PMG) <input type="checkbox"/> Cat digital voltage regulator (CDVR) with kVAR/PF <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 Panel	<ul style="list-style-type: none"> • EMCP 4.1 (Rear-mounted in Power Center) • Emergency stop pushbutton • AC Voltmeter, Ammeter & Frequency • Engine Speed (rev/min) • Lube Oil pressure 	<input type="checkbox"/> EMCP 4.2 <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 <input type="checkbox"/> Speed adjustment
Lube	<ul style="list-style-type: none"> • Lubricating oil • Oil drain line with valves • Oil filter and dipstick • Fumes disposal • 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 <input type="checkbox"/> Battery removal (does not remove rack and cables)
General	<ul style="list-style-type: none"> • Paint - Caterpillar Yellow except rails and radiators gloss black (Powder Coated) • Flywheel housing - SAE No. 0 	<input type="checkbox"/> EU Certificate of Conformance <input type="checkbox"/> Sound attenuated protective enclosure <input type="checkbox"/> High Ambient enclosure

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SPECIFICATIONS

CAT GENERATOR

Frame	LC7024H
Excitation	AR
Pitch.....	0.6667
Number of poles.....	4
Number of bearings	Single Bearing
Number of Leads.....	6
Insulation.....	Class H with tropicalization and anti-abrasion
IP rating	Drip proof IP23
Alignment.....	Pilot Shaft
Over speed capability - % of rated.....	150%
Wave form deviation.....	2%
Voltage regulator.....	Single phase sensing with volts/Hz
Voltage regulation	Less than $\pm 1/2\%$ (steady state)
Telephone Influence Factor	Less than 50
Harmonic Distortion	Less than 5%

CAT DIESEL ENGINE

C18 TA, I-6, 4-stroke watercooled diesel	
Bore	145.00 mm (5.71 in)
Stroke	183.00 mm (7.20 in)
Displacement	18.13 L (1106.36 in ³)
Compression ratio.....	14.5:1
Aspiration.....	Air-to-Air Aftercooled
Fuel system.....	Electronic unit injection
Governor Type.....	ADEM™ A4

CAT EMCP 4 SERIES CONTROL PANELS

- EMCP 4 controls including:
- Run / Auto / Stop Control
 - Speed Adjust
 - Voltage Adjust
 - Engine Cycle Crank
 - Emergency stop pushbutton
- EMCP 4.2 controller features:
- 24-volt DC operation
 - Environmental sealed front face
 - Text alarm/event descriptions
 - True RMS AC metering, 3-phase, $\pm 1\%$ accuracy.
- 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)
 - Power Factor (per phase & average)
 - kW (per phase, average & percent)
 - kVA (per phase, average & percent)
 - kVAr (per phase, average & percent)
 - kW-hr (total)
 - kVAr-hr (total)
- Warning/shutdown with common LED indication of shutdowns for:
- 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)
 - Reverse Reactive Power (kVAr) (32RV)
 - Overcurrent (50/51)
- Communications
- Customer data link (Modbus RTU)
 - Accessory module data link
 - Serial annunciator module data link
 - 6 programmable digital inputs
 - 4 programmable relay outputs (Form A)
 - 2 programmable relay outputs (Form C)
 - 2 programmable digital outputs
- Compatible with the following optional modules:
- Digital I/O module
 - Local Annunciator
 - Remote CAN annunciator
 - Remote serial annunciator
 - RTD module
 - Thermocouple module

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TECHNICAL DATA

Open Generator Set - 1800 rpm/60 Hz/400 Volts	STANDBY DM9824	
Package Performance Power rating Power rating @ 0.8 pf	560 ekW 700 kVA	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	144.6 L/hr 106.9 L/hr 73.0 L/hr	38.2 Gal/hr 28.2 Gal/hr 19.3 Gal/hr
Cooling System* Air flow restriction (system) Engine coolant capacity Radiator coolant capacity Engine coolant capacity with radiator	0.12 kPa 20.8 L 47.7 L 68.5 L	0.48 in. water 5.5 US Gal 12.6 US Gal 18.1 US Gal
Inlet Air Combustion air inlet flow rate	37.4 m ³ /min	1320.8 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	571.9 °C 112.4 m ³ /min 203 mm 10.0 kPa	1061.4 °F 3969.4 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	182 kW 530 kW 105 kW 129 kW 38.3 kW	10350 Btu/min 30141 Btu/min 5971 Btu/min 7336 Btu/min 2178.1 Btu/min
Alternator** Motor starting capability @ 30% voltage dip Frame Temperature Rise	1580 SKVA LC7024H 163 °C	293 °F
Lube System Lube oil refill volume with filter change for standard sump	38.0 L	10.0 US Gal
Emissions (Nominal)*** NO _x mg/nm ³ CO mg/nm ³ HC mg/nm ³ PM mg/nm ³	2975.7 mg/nm ³ 344.0 mg/nm ³ 4.1 mg/nm ³ 8.3 mg/nm ³	

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

** UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40 degree C ambient per NEMA MG1-32.

*** 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, NO_x. 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, IEC60034-1, 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

Package Dimensions		
Length	3900 mm	153.5 in
Width	1461 mm	57.5 in
Height	2155 mm	64.8 in
Weight	4372 kg	9,639 lb

NOTE: **For reference only** - do not use for installation design. Please contact your local dealer for exact weight and dimensions.

www.Cat-ElectricPower.com

Performance No.: DM9824

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

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