DIESEL GENERATOR SET

Image shown may not reflect actual package.

STANDBY
520 ekW 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℠ 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

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FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Light Duty Air Filter • Service indicator	[ ] Single element air filter [ ] Dual element air filter [ ] Heavy-duty dual element air filter with precleaner [ ] Air inlet shut-off
Cooling	• Radiator package mounted • Coolant level sight gauge • Coolant drain line with valve • Fan and belt guards • Cat® Extended Life Coolant*	[ ] Radiator duct flange [ ] Low coolant level sensor
Exhaust	• Dry exhaust manifold • Stainless steel exhaust flex fittings with split-cuff • Exhaust flange outlets	[ ] Industrial [ ] Residential [ ] Critical Mufflers [ ] Manifold and turbocharger guards [ ] Elbows and through-wall kits
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump • Fuel cooler* *Not inlcuded with packages without radiators • Flexible fuel lines	[ ] Integral single wall fuel tank base [ ] Manual transfer pump [ ] Fuel level switch
Generator	• Class H insulation • Class H temperature rise • VR6 voltage regulator with 3-phase sensing with load adjustment • IP23 Protection	[ ] Oversize generators [ ] Internal excited (IE) [ ] Permanent magnet excitation(PMG) [ ] Cat digital voltage regulator (CDVR) with kVAR/PF control [ ] Anti-condensation space heaters [ ] Coastal Insulation Protection (CIP) [ ] Reactive droop
Power Termination	• Power Center houses EMCP controller and power/control terminations (rear mounted) • Circuit breaker, UL listed, 3 pole (80% & 100% Rated) • Circuit breaker, IEC compliant, 3-4 pole (100% Rated) • Segregated low voltage wiring termination panel • IP22 protection • Bottom cable entry	[ ] Power Center mounting option (right side) [ ] Multiple circuit breaker options [ ] C.B. Shunt trips [ ] C.B. Auxiliary contacts
Governor	• ADEM™ A4	[ ] Load Share Module
Control Panels	• EMCP 4.1 (mounted in Power Center) • Speed adjustment • Voltage adjustment • Emergency stop pushbutton	[ ] EMCP 4.2 [ ] Local annunciator module (NFPA 99/110) [ ] Remote annunciator module (NFPA 99/110) [ ] Digital I/O module
Lube	• Lubricating oil • Oil drain line with valves • Oil filter and dipstick • Fumes disposal • Lube oil level indicator • Oil cooler	[ ] Oil temperature sensor [ ] Manual sump pump
Mounting	• Formed steel narrow base frame • Linear vibration isolation-seismic zone 4	[ ] Oil skid base [ ] Formed steel wide base frame
Starting/Charging	• 24 volt starting motor • 24 volt, 45 amp charging alternator	[ ] Jacket water heater with shut-off valves [ ] Engine block heater [ ] Ether starting aid [ ] Battery disconnect switch [ ] Battery chargers (5 or 10 amp) [ ] Oversize batteries [ ] Batteries with rack and cables
General	• Paint - Caterpillar yellow except rails and radiators gloss black • Flywheel housing - SAE No. 0	[ ] EU or CE Certificate of Conformance [ ] Weather protective enclosure [ ] Sound attenuated protective enclosure

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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.....150
Wave form Deviation (Line to Line).....2%
Voltage regulator.....Three phase sensing
Voltage regulation.....Less than +/- 1/2% (steady state)
Less than +/- ½% (w/ 3% speed change)
Telephone influence factor.....Less than 50
Harmonic Distortion.....Less than 5%

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 in^3)
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)
- ekW, 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

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TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM9630	
EU Stage II		
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	650 kVA	
Genset Power rating with fan	520 ekW	
Coolant to aftercooler		
Coolant to aftercooler temp max	49 ° C	120 ° F
Fuel Consumption		
100% load with fan	134.9 L/hr	35.6 Gal/hr
75% load with fan	102.1 L/hr	27.0 Gal/hr
50% load with fan	70.4 L/hr	18.6 Gal/hr
Cooling System[1]		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)	645 m³/min	22778 cfm
Engine Coolant capacity with radiator/exp. tank	81.8 L	21.6 gal
Engine coolant capacity	20.8 L	5.5 gal
Radiator coolant capacity	61.0 L	16.1 gal
Inlet Air		
Combustion air inlet flow rate	38.3 m³/min	1352.6 cfm
Exhaust System		
Exhaust stack gas temperature	550.1 ° C	1022.2 ° F
Exhaust gas flow rate	111.6 m³/min	3941.1 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)	162 kW	9213 Btu/min
Heat rejection to exhaust (total)	510 kW	29004 Btu/min
Heat rejection to aftercooler	113 kW	6426 Btu/min
Heat rejection to atmosphere from engine	87 kW	4948 Btu/min
Heat rejection to atmosphere from generator	38.5 kW	2189.5 Btu/min
Alternator[2]		
Motor starting capability @ 30% voltage dip	1376 skVA	
Frame	LC7024F	
Temperature Rise	163 ° C	293 ° F
Lube System		
Sump refill with filter	38.0 L	10.0 gal
Emissions (Nominal)[3]		
NOx mg/nm3	2079.3 mg/nm³	
CO mg/nm3	368.4 mg/nm³	
HC mg/nm3	16.3 mg/nm³	
PM mg/nm3	21.2 mg/nm³	

[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.

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	**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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