DIESEL GENERATOR SET

STANDBY
400 ekW 500 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

DESIGN CRITERIA
- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200 / CSA - Optional
- UL 2200 listed packages
- CSA Certified

Certain restrictions may apply. Consult with your Cat® Dealer

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 effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

CAT® C15 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	• Disposable Air filter • Service indicator	Canister type Air Filter: [ ] Single element [ ] Dual element
Cooling	• Radiator package mounted • Coolant level sight gauge • Low coolant level sensor • Coolant drain line with valve • Fan and belt guards • Cat® Extended Life Coolant	[ ] Radiator duct flange [ ] Stone Guard [ ] Low coolant temperature alarm
Exhaust	• Dry exhaust manifold • Stainless steel flex fittings • Exhaust flange outlet	[ ] Industrial [ ] Residential [ ] Critical Mufflers [ ] Manifold and turbocharger guards [ ] Elbows and flange kits
Fuel	• 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	[ ] Fuel level switch [ ] Manual fuel transfer pump
Generator	• Class H insulation • Self excited (SE) • Class H temperature rise • IP23 protection • R450 voltage regulator with single phase sensing and load adjustment module	[ ] Oversize generators [ ] Permanent magnet excitation (PMG) [ ] Internal excited (IE) [ ] Cat digital voltage regulator (CDVR) with kVAR/PF [ ] Anti-condensation space heaters [ ] Coastal Insulation Protection (CIP) [ ] Reactive droop [ ] Three phase sensing
Power Termination	• 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	[ ] C.B. Shunt trips [ ] C.B. Auxiliary contacts
Governor	• ADEM™A4	
Control Panel	• EMCP 4.1 (Rear-mounted in Power Center) • Emergency stop pushbutton • AC Voltmeter, Ammeter & Frequency • Engine Speed (rev/min) • Lube Oil pressure	[ ] EMCP 4.2 [ ] Local annuniciator module (NFPA 99/110) [ ] Remote annunicator module (NFPA 99/110) [ ] Digital I/O module [ ] Speed adjustment [ ] Voltage adjustment
Lube	• Lubricating oil • Oil drain line with valves • Oil filter and dipstick • Fumes disposal • Oil cooler	[ ] Oil temperature sensor [ ] Manual sump pump
Mounting	• Integral Narrow 8hr tank base • Linear vibration isolation	[ ] Narrow skid base [ ] Integral Dual Wall 8hr tank base* *Available only with enclosed units
Starting/Charging	• 24 volt starting motor • 24 volt, 45 amp charging alternator • Batteries with rack and cables	[ ] Jacket water heater [ ] Battery disconnect switch [ ] Battery charger - 5 amp [ ] Battery removal (does not remove rack and cables)
General	• Paint - Caterpillar Yellow except rails and radiators gloss black (Powder Coated) • Flywheel housing - SAE No.1/2	[ ] EU Certificate of Conformance [ ] Sound attenuated protective enclosure with integral lifting frame [ ] High Ambient enclosure with integral lifting frame

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SPECIFICATIONS

CAT GENERATOR

Frame ……..…….. LC6114D
Excitation ……SE
Pitch……0.6667
Number of poles……..4
Number of bearings …….. Single Bearing
Number of Leads……..12
Insulation..... .Class H with tropicalization and anti-abrasion
IP rating ……..Drip proof IP23
Alignment…….. Pilot Shaft
Over speed capability - % of rated……125%
Wave form deviation……..2%
Voltage regulator…. .....Single phase sensing with volts/Hz
Voltage regulation .....Less than ±1/2% (steady state)
Telephone Influence Factor ……Less than 50
Harmonic Distortion ……..Less than 5%

CAT DIESEL ENGINE

C15 ATAAC, I-6, 4-stroke watercooled diesel
Bore ……137.20 mm (5.4 in)
Stroke ……171.40 mm (6.75 in)
Displacement ……15.20 L (927.56 in^3)
Compression ratio……16.1:1
Aspiration…….. Air-to-Air Aftercooled
Fuel system……..... ……..MEUI
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, ±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 - 1500 rpm/50 Hz/400 Volts	STANDBY DM8491
Package Performance	
Power rating	400 ekW
Power rating @ 0.8 pf	500 kVA
Fuel Consumption	
100% load with fan	105.2 L/hr 27.8 Gal/hr
75% load with fan	80.1 L/hr 21.2 Gal/hr
50% load with fan	57.1 L/hr 15.1 Gal/hr
Cooling System*	
Air flow restriction (system)	0.12 kPa 0.48 in. water
Engine coolant capacity	20.8 L 5.5 US Gal
Radiator coolant capacity	37.3 L 9.8 US Gal
Engine Coolant capacity with radiator	58.1 L 15.3 US Gal
Inlet Air	
Combustion air inlet flow rate	28.1 m^3/min 992.3 cfm
Exhaust System	
Exhaust stack gas temperature	509.8 °C 949.6 °F
Exhaust gas flow rate	77.1 m^3/min 2722.8 cfm
Exhaust flange size (internal diameter)	152.4 mm 6 in
Exhaust system backpressure (maximum allowable)	10.0 kPa 40.2 in. water
Heat Rejection	
Heat rejection to coolant (total)	156 kW 8872.Btu/min
Heat rejection to exhaust (total)	365 kW 20758 Btu/min
Heat rejection to aftercooler	68 kW 3867 Btu/min
Heat rejection to atmosphere from engine	70 kW 3981 Btu/min
Heat rejection to atmosphere from generator	27.8 kW 1581.0 Btu/min
Alternator**	
Motor starting capability @ 30% voltage dip	923 SKVA
Frame	LC6114D
Temperature Rise	163 °C 293 °F
Lube System	
Lube oil refill volume with filter change for standard sump	60.0 L 15.9 US Gal
Emissions (Nominal)***	
NO_x mg/nm^3	3336.9 mg/nm^3
CO mg/nm^3	180.6 mg/nm^3
HC mg/nm^3	2.7 mg/nm^3
PM mg/nm^3	6.6 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.

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 35º API [16º C (60º F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29º C (85º 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	3800 mm	149.6 in
Width	1130 mm	44.5 in
Height	2215 mm	87.2 in

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.: DM8491

Preliminary Feature Code: C15DF1X
Based on Data from: C15DEM6

Gen. Arr. Number: 3921378

Sourced: European Sourced (03/12)