C18 Generator Set

Electric Power

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

Specifications

Generator Set Specifications	
Minimum Rating	455 ekW (569 kVA)
Maximum Rating	500 ekW (625 kVA)
Voltage	480 Volts
Frequency	60 Hz
Speed	1800 RPM

Generator Set Configurations	
Emissions/Fuel Strategy	U.S. EPA Tier 4 Final Nonroad Genset Emission Standards

Engine Specifications	
Engine Model	C18 ATAAC, I-6, 4-Stroke Water-Cooled Diesel
Bore	145 mm (5.71 in)
Displacement	18.13 L (1106.36 in3)
Stroke	183 mm (7.2 in)
Compression Ratio	14.5:1
Aspiration	Air to Air Aftercooled
Governor Type	Adem™A4
Fuel System	Electronic unit injection

Benefits And Features

Cat® Generator Set Packages

Cat® generator set packages have been fully prototype tested, and certified torsional vibration analysis reports are available. The packages are designed to meet the NFPA 110 requirement for loading, and conform to the ISO 8528-5 steady state and transient response requirements.

Cat Diesel Engines

The four cycle Cat diesel engine combines consistent performance with excellent fuel economy and transient response that meets or exceeds ISO 8528-5. The engines have been designed and built for a wide range of applications and can be optimized for low fuel consumption or low emissions. The engines feature a reliable, rugged, and durable design that has been field proven in thousands of applications worldwide from emergency standby installations to continuously operating power plants.

Cooling System

The cooling system has been designed to operate in standard ambient temperatures up to 50°C (122°F) with an air flow restriction of 0.5 in water. The factory installed cooling system has been designed and tested to ensure proper generator set cooling, and includes the radiator, fan, belts, and all guarding installed as standard. Contact your Cat Dealer for specific ambient and altitude capabilities.

Generators

The generators used on Cat packages have been designed and tested to work with the Cat engine. The generators are built with robust Class H insulation and provide industry leading motor starting capability. They provide high efficiency in a majority of applications and optional coastal protection for the windings is available for harsh environments.

Cat EMCP Control Panel

The EMCP controller features the reliability and durability you have come to expect from your Cat equipment. EMCP 4 is a scalable control platform designed to ensure reliable generator set operation, providing extensive information about power output and engine operation. EMCP 4 systems can be further customized to meet your needs through programming and expansion modules.

Cat Integrated Voltage Regulation

The Cat IVR has three phase sensing with adjustable volts-per-hertz regulation. It Provides precise control, excellent block loading, and constant voltage in the normal operating range.

Cat Clean Emissions Module (CEM)

Aftertreatment module consists of Cat Regeneration System (CRS), Diesel Oxidation Catalyst (DOC), Diesel Particulate Filter (DPF), and Selective Catalytic Reduction (SCR).

Diesel Exhaust Fluid (DEF) System

The DEF system consists of a 25 gallon tank with an on-tank fill, integrated pump, a level sensor and heating elements. This incorporates electrically heated DEF lines from the DEF tank to the CEM. The system is equipped with low and critically low level alarms and a critically low shutdown

World Wide 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 Caterpillar S•O•S℠ program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

Optional Equipment

Engine Options

- Air Cleaner: [ ] Disposable air cleaner [ ] Single element air cleaner [ ] Heavy duty air cleaner
- Batteries: [ ] Standard
- Starting Motors: [ ] Standard
- Battery Charger: [ ] 10 Amp UL Listed
- Starting Aids: [ ] Jacket Water Heater UL Listed

Control System

- Controller: [ ] EMCP 4.2 [ ] EMCP 4.4
- Local annunciator module: [ ] NFPA 110
- Remote annunciator Module: [ ] NFPA 110
- Additional Options: [ ] Expansion I/O module [ ] Remote monitoring software

Generator

- Excitation: [ ] Internally Excited (IE)
- Anti-condensation heater
- Oversize and premium generators
- Coastal protection

Power Termination

- Circuit breakers, UL listed

General

- Certifications: [ ] UL 2200 package
- Skid Base: [ ] Wide
- Fuel Tanks: [ ] Dual wall sub-base [ ] 5 Gallon spill containment with pipe extending to within 6" from bottom
  [ ] 5 Gallon spill containment with Overfill prevention valve
- Enclosures: [ ] Sound attenuated
- Automatic transfer switches (ATS)

Extended Service Contract (ESC)

- Extended Service Contract (ESC): [ ] 2 Year [ ] 3 Year [ ] 4 Year [ ] 5 Year

Rating Type: PRIME

Emissions: U.S. EPA Tier 4 Final Nonroad Genset Emission Standards

Image shown may not reflect actual configuration

C18 ACERT
455 ekW/ 569 kVA
60 Hz/ 1800 rpm/ 480 V

	Metric	English
Package Performance		
Genset Power Rating with Fan @ 0.8 Power Factor	455 ekW	
Genset Power Rating	569 kVA	
Aftercooler (Separate Circuit)	N/A	N/A
Fuel Consumption		
100% Load with Fan	126.6 L/hr	33.4 gal/hr
75% Load with Fan	96.7 L/hr	25,6 gal/hr
50% Load with Fan	69.2 L/hr	18.3gal/hr
25% Load with Fan	43.2 L/hr	11.4 gal/hr
Cooling System[1]		
Engine Coolant Capacity	26.9 L	7.1 gal
Inlet Air		
Combustion Air Inlet Flow Rate	36.3 m³/min	1208.0 cfm
Max. Allowable Combustion Air Inlet Temp	50 ° C	122 ° F
Exhaust System		
Exhaust Stack Gas Temperature	426.3 ° C	799.3 ° F
Exhaust Gas Flow Rate	66.5 m³/min	2349.7 cfm
Exhaust System Backpressure (Maximum Allowable)	10.0 kPa	40.0 in. water

Rating Type: PRIME

Emissions: U.S. EPA Tier 4 Final Nonroad Genset Emission Standards

Heat Rejection		
Heat Rejection to Jacket Water	256 kW	14548 Btu/min
Heat Rejection to Exhaust (Total)	462 kW	26276 Btu/min
Heat Rejection to Aftercooler	101 kW	5721 Btu/min
Heat Rejection to Atmosphere from Engine	26.1 kW	1483 Btu/min
Heat Rejection to Atmosphere from Generator	25.5 kW	1450 Btu/min

Alternator[2]	
Motor Starting Capability @ 30% Voltage Dip	1729 skVA
Current	684 amps
Frame Size	LC6124G
Excitation	AR
Temperature Rise	105 ° C

Emissions (Nominal)[3]		
NOx	122.8 mg/Nm³	0.26 g/hp-hr
CO	N/A	N/A
HC	3.9 mg/Nm³	0.01 g/hp-hr
PM	1.6 mg/Nm³	0.0 g/hp-hr

DEFINITIONS AND CONDITIONS

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

2. 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° C 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.

Rating Type: PRIME

Emissions: U.S. EPA Tier 4 Final Nonroad Genset Emission Standards

Applicable Codes and Standards:
AS1359, CSA C22.2 No100-04, UL142,UL489, UL869, UL2200,
NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528,
NEMA MG1-22,NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer representative for availability.

STANDBY: 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.

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.

www.Cat-ElectricPower.com

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The International System of Units (SI) is used in this publication.