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# Diesel Generator Set

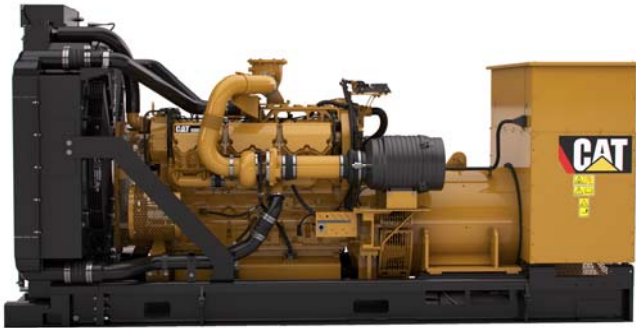


Image shown may not reflect actual package

## **PRIME** **800 ekW 1000 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.

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### **FUEL/EMISSIONS STRATEGY**

- Low emissions

### **DESIGN CRITERIA**

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

### **UL 2200**

- UL 2200 packages available. 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® SOS<sup>SM</sup> program effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

### **CAT C32 ATAAC DIESEL ENGINE**

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

### **CAT GENERATOR**

- Matched to the performance and output characteristics of Caterpillar engines
- Single point access to accessory connections
- 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	<ul style="list-style-type: none"> <li>• Single element canister type air cleaner with service indicator</li> </ul>	<input type="checkbox"/> Dual element air cleaners
Cooling	<ul style="list-style-type: none"> <li>• Package mounted radiator</li> </ul>	
Exhaust	<ul style="list-style-type: none"> <li>• Exhaust flange outlet</li> </ul>	<input type="checkbox"/> Mufflers
Fuel	<ul style="list-style-type: none"> <li>• Secondary fuel filters</li> <li>• Fuel cooler</li> <li>• Fuel priming pump</li> </ul>	
Generator	<ul style="list-style-type: none"> <li>• Matched to the performance and output characteristics of Cat engines</li> </ul>	<input type="checkbox"/> Oversize & premium generators <input type="checkbox"/> Permanent magnet excitation (PMG) <input type="checkbox"/> Internal excitation (IE) <input type="checkbox"/> Winding temperature detectors <input type="checkbox"/> Anti-condensation space heaters
Power Termination	<ul style="list-style-type: none"> <li>• Bus bar</li> </ul>	<input type="checkbox"/> Circuit breakers, UL listed <input type="checkbox"/> Circuit breakers, IEC listed <input type="checkbox"/> Bottom cable entry <input type="checkbox"/> Right, left, and/or rear power termination
Governor	<ul style="list-style-type: none"> <li>• ADEM™ A4</li> </ul>	<input type="checkbox"/> Load share module
Control Panel	<ul style="list-style-type: none"> <li>• EMCP 4</li> </ul>	<input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> EMCP 4.3 <input type="checkbox"/> EMCP 4.4 <input type="checkbox"/> Local & remote annunciator modules <input type="checkbox"/> Digital I/O Module <input type="checkbox"/> Generator temperature monitoring & protection
Mounting		<input type="checkbox"/> Rubber vibration isolators <input type="checkbox"/> Spring type vibration isolator <input type="checkbox"/> IBC seismic certification
Starting / Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor(s)</li> <li>• Battery disconnect switch</li> </ul>	<input type="checkbox"/> Battery charger <input type="checkbox"/> Charging alternator <input type="checkbox"/> Batteries with rack <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Ether starting aids <input type="checkbox"/> Heavy duty starting motors <input type="checkbox"/> Barring device (manual) <input type="checkbox"/> Jacket water heater
General	<ul style="list-style-type: none"> <li>• Paint – Caterpillar Yellow except rails and radiators gloss black</li> </ul>	<input type="checkbox"/> UL 2200 listed <input type="checkbox"/> CSA Certification

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## SPECIFICATIONS

### CAT GENERATOR

Frame .....	1402
Excitation .....	PM
Pitch.....	0.6667
Number of poles.....	4
Number of leads.....	6
Number of bearings .....	Single Bearing
Insulation .....	Class H
IP rating .....	Drip proof IP23
Over speed capability - % of rated.....	125%
Wave form deviation.....	2 %
Voltage regulator.....	3 phase sensing
Voltage regulation.....	Less than $\pm 1/2\%$ (steady state) Less than $\pm 1/2\%$ (3% speed change)

### CAT DIESEL ENGINE

C32 ATAAC, V-12, 4 stroke, water-cooled diesel

Bore .....	145.00 mm (5.71 in)
Stroke .....	162.00 mm (6.38 in)
Displacement .....	32.10 (1958.86 in <sup>3</sup> )
Compression ratio.....	15.0:1
Aspiration.....	ATAAC
Fuel system.....	MEUI
Governor Type.....	ADEM™ A4

### CAT EMCP 4 CONTROL PANELS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed & 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

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 & 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 annunciator
- RTD module
- Thermocouple module

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## Technical Data



Open Generator Set - 1500 rpm/50 Hz/400 Volts		
<b>Low Emissions</b>		
<b>Generator Set Package Performance</b>		
Genset Power rating @ 0.8 pf	1000 kVA	
Genset Power Rating with fan	800 ekW	
<b>Fuel Consumption</b>		
100% Load with fan	224.1 L/hr	59.2 Gal/hr
75% Load with fan	168.0 L/hr	44.4 Gal/hr
50% Load with fan	115.1 L/hr	30.4 Gal/hr
<b>Cooling System<sup>1</sup></b>		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)	883.0 m <sup>3</sup> /min	31182 cfm
Engine coolant capacity with radiator	403.5 L	106.6 gal
Engine coolant capacity	233.2 L	61.6 gal
Radiator coolant capacity	170.3 L	45.0 gal
<b>Inlet Air</b>		
Combustion air inlet flow rate	72.0 m <sup>3</sup> /min	2541.4 cfm
<b>Exhaust System</b>		
Exhaust stack gas temperature (engine out)	501.1 °C	934 °F
Exhaust gas flow rate	193.7 m <sup>3</sup> /min	6839.9 cfm
Exhaust flange size	203.2 mm	8 in
Exhaust system backpressure (maximum allowable)	10 kPa	40.2 in water
<b>Heat Rejection</b>		
Heat rejection to coolant	288.3 kW	16392 Btu/min
Heat rejection to exhaust (total)	880.8 kW	50080 Btu/min
Heat rejection to aftercooler	223.0 kW	12680 Btu/min
Heat rejection to atmosphere from engine	106.9 kW	6081 Btu/min
Heat rejection to atmosphere from generator	43 kW	2448 Btu/min
<b>Alternator<sup>2</sup></b>		
Motor starting capability @30% voltage dip	2297 skVA	
Frame	1402	
Temperature Rise	125 °C	225 °F
<b>Lube System</b>		
Sump refill with filter	99 L	26.2 gal
<b>Emissions (Nominal)<sup>3</sup></b>		
NOx g/hp-hr	4.78 g/hp-hr	
CO g/hp-hr	0.31 g/hp-hr	
HC g/hp-hr	0.07 g/hp-hr	
PM g/hp-hr	0.05 g/hp-hr	

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

<sup>2</sup> Generator temperature rise is based on a 40 degree C ambient per NEMA MG-1.32. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics.

<sup>3</sup> 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

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### Applicable Codes and Standards:

AS1359,CSAC22.2 No100-04, UL142,UL489, UL601, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110,IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 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.

**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 Dealer for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat Dealer.

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## DIMENSIONS

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Package Dimensions		
Length	4234 mm	166.7 in
Width	2010 mm	79.1 in
Height	2174 mm	85.6 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](http://www.Cat-ElectricPower.com)

Feature Code: C32DR40

Gen. Arr. Number: 432-6118

Sourced: U.S. Sourced

EPD0170-B (10/13)

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