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# Diesel Generator Set



Image shown may not reflect actual package

## Standby 880 kW 1100 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	1100 kVA	
Genset Power Rating with fan	880 kW	
<b>Fuel Consumption</b>		
100% Load with fan	243.0 L/hr	64.2 Gal/hr
75% Load with fan	183.9 L/hr	48.6 Gal/hr
50% Load with fan	126.0 L/hr	33.3 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	76.0 m <sup>3</sup> /min	2684.6 cfm
<b>Exhaust System</b>		
Exhaust stack gas temperature (engine out)	509.2 °C	948.6 °F
Exhaust gas flow rate	207.0 m <sup>3</sup> /min	7310.2 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	311.7 kW	17723 Btu/min
Heat rejection to exhaust (total)	951.2 kW	54087 Btu/min
Heat rejection to aftercooler	253.0 kW	14386 Btu/min
Heat rejection to atmosphere from engine	100.1 kW	5689 Btu/min
Heat rejection to atmosphere from generator	49.3 kW	2806 Btu/min
<b>Alternator<sup>2</sup></b>		
Motor starting capability @30% voltage dip	2297 skVA	
Frame	1402	
Temperature Rise	150 °C	270 °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	4.98 g/hp-hr	
CO g/hp-hr	0.41 g/hp-hr	
HC g/hp-hr	0.05 g/hp-hr	
PM g/hp-hr	0.06 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 MG1-32. 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

**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.

**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

EPD0168-B (10/13)

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