

---

# 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.

---

### **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**

- 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<sup>TM</sup> 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

# PRIME 800 eKW 1000 kVA

50 Hz 1500 rpm 400 Volts



## 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<br><input type="checkbox"/> Permanent magnet excitation (PMG)<br><input type="checkbox"/> Internal excitation (IE)<br><input type="checkbox"/> Winding temperature detectors<br><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<br><input type="checkbox"/> Circuit breakers, IEC listed<br><input type="checkbox"/> Bottom cable entry<br><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<br><input type="checkbox"/> EMCP 4.3<br><input type="checkbox"/> EMCP 4.4<br><input type="checkbox"/> Local & remote annunciator modules<br><input type="checkbox"/> Digital I/O Module<br><input type="checkbox"/> Generator temperature monitoring & protection                                                                                                |
| Mounting            |                                                                                                                            | <input type="checkbox"/> Rubber vibration isolators<br><input type="checkbox"/> Spring type vibration isolator<br><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<br><input type="checkbox"/> Charging alternator<br><input type="checkbox"/> Batteries with rack<br><input type="checkbox"/> Oversize batteries<br><input type="checkbox"/> Ether starting aids<br><input type="checkbox"/> Heavy duty starting motors<br><input type="checkbox"/> Barring device (manual)<br><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<br><input type="checkbox"/> CSA Certification                                                                                                                                                                                                                                                                                                              |

# PRIME 800 ekW 1000 kVA

50 Hz 1500 rpm 400 Volts



## 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

# PRIME 800 ekW 1000 kVA

50 Hz 1500 rpm 400 Volts

## Technical Data



| Open Generator Set - 1500 rpm/50 Hz/400 Volts         |              |                |
|-------------------------------------------------------|--------------|----------------|
| Low Fuel Consumption                                  |              |                |
| Generator Set Package Performance                     |              |                |
| Genset Power rating @ 0.8 pf                          | 1000 kVA     |                |
| Genset Power Rating with fan                          | 800 ekW      |                |
| Fuel Consumption                                      |              |                |
| 100% Load with fan                                    | 206.6 L/hr   | 54.6 Gal/hr    |
| 75% Load with fan                                     | 155.6 L/hr   | 41.1 Gal/hr    |
| 50% Load with fan                                     | 108.6 L/hr   | 28.7 Gal/hr    |
| Cooling System <sup>1</sup>                           |              |                |
| Air flow restriction (system)                         | 0.12 kPa     | 0.48 in. water |
| Air flow (max @ rated speed for radiator arrangement) | 883.0 m3/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       |
| Inlet Air                                             |              |                |
| Combustion air inlet flow rate                        | 60.3 m³/min  | 2128.2 cfm     |
| Exhaust System                                        |              |                |
| Exhaust stack gas temperature (engine out)            | 509.3 °C     | 948.7 °F       |
| Exhaust gas flow rate                                 | 165.0 m³/min | 5824.8 cfm     |
| Exhaust flange size                                   | 203.2 mm     | 8 in           |
| Exhaust system backpressure (maximum allowable)       | 10 kPa       | 40.2 in water  |
| Heat Rejection                                        |              |                |
| Heat rejection to coolant                             | 299.9 kW     | 17054 Btu/min  |
| Heat rejection to exhaust (total)                     | 757.1 kW     | 43047 Btu/min  |
| Heat rejection to aftercooler                         | 147.9 kW     | 8412 Btu/min   |
| Heat rejection to atmosphere from engine              | 108.2 kW     | 6150 Btu/min   |
| Heat rejection to atmosphere from generator           | 43 kW        | 2448 Btu/min   |
| Alternator <sup>2</sup>                               |              |                |
| Motor starting capabiliy @30% voltage dip             | 2297 skVA    |                |
| Frame                                                 | 1402         |                |
| Temperature Rise                                      | 125 °C       | 225 °F         |
| Lube System                                           |              |                |
| Sump refill with filter                               | 99 L         | 26.2 gal       |
| Emissions (Nominal) <sup>3</sup>                      |              |                |
| NOx g/hp-hr                                           | 7.07 g/hp-hr |                |
| CO g/hp-hr                                            | 1.17 g/hp-hr |                |
| HC g/hp-hr                                            | 0.03 g/hp-hr |                |
| PM g/hp-hr                                            | 0.08 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.

# PRIME 800 ekW 1000 kVA

50 Hz 1500 rpm 400 Volts



## RATING DEFINITIONS AND CONDITIONS

---

### 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.

# PRIME 800 eKW 1000 kVA

50 Hz 1500 rpm 400 Volts



## DIMENSIONS

---

| 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

EPD0166-B (10/13)

©2013 Caterpillar  
All rights reserved.

Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.

CAT, CATERPILLAR, SAFETY.CAT.COM their respective logos, "Caterpillar Yellow," the "Power Edge" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.