

**ژنراتور : Caterpillar**

**موتور دیزل : Caterpillar**

Standby		Prime		
KVA	KW	KVA	KW	
350	280	318	254	دیزل ژنراتور



### موتور دیزل

Manufacturer	Caterpillar	تولید کننده
Model	3406C TA	مدل
Number of cylinders	6	تعداد سیلندر ها
Cylinder arrangement	Liner	آرایش سیلندر ها
Displacement , Liters	14.64	جا به جایی
Bore × Stroke , mm	137.20× 165.10	قطر سیلندر × کورس پیستون
Compression Ratio	14.5:1	نسبت تراکم
Aspiration	Turbocharged Aftercooled	سیستم تنفس
Gross engine power, kWb	254	قدرت ناخالص موتور
Fan Power, kWm	280	قدرت فن
Combustion air flow, m <sup>3</sup> /min	19.8	جریان هوای احتراق
Exhaust gas temp.(after turbo) , °C	596.8 °	دمای گاز خروجی از اگزوز
Exhaust gas flow (after turbo) , m <sup>3</sup> /min	60.4	جریان هوای خروجی از اگزوز

### ژنراتور

Manufacturer	Caterpillar	تولید کننده
Standby power at rated voltage ,KVA	350	توان standby در ولتاژ نامی
Efficiency, %	88.3	راندمان
Power factor	0.8	ضریب قدرت
Phase	3	فاز
Frequency, Hz	50	فرکانس
Speed, Rpm	1500	سرعت
Voltage, V	380	ولتاژ
Excitation	Self Excitation	سیستم تمریک
Voltage Regulator	Three phase sensing	رگولاتور ولتاژ
Voltage Regulation, %	Less than +/- 1/2%	تنظیم ولتاژ
Over speed, Rpm	2250	مداکثر سرعت مجاز
Insulation class	H	کلاس عایق
Connection	Terminal strip connection	اتصال
Protection class	IP23	کلاس حفاظتی

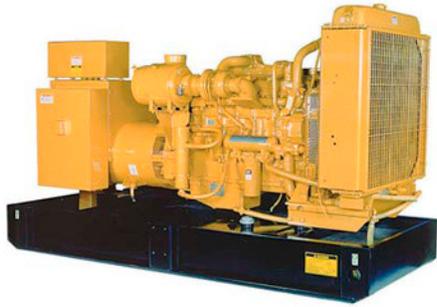


Image shown may not reflect actual package.

## STANDBY 280 kW 350 kVA 50 Hz 1500 rpm 400 Volts

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

### FEATURES

#### FUEL/EMISSIONS STRATEGY

- Low Fuel consumption

#### 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

#### COMPLETE, READY-TO-RUN SYSTEM

- Fully configured generator set
- Full range of attachments and options available

#### ENCLOSURES (optional)

- Weather protective and sound attenuated

#### 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<sup>SM</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

#### CAT® 3406C TA DIESEL ENGINE

- High efficiency, four-stroke-cycle engine designed for thousands of trouble-free hours of operation
- Field-proven in thousands of applications

#### 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 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>• Light duty air cleaner</li> </ul>	<input type="checkbox"/> Regular duty canister style, single stage with service indicator <input type="checkbox"/> Dual element <input type="checkbox"/> Heavy-duty and Muffler <input type="checkbox"/> Air Inlet Shut-off
Cooling	<ul style="list-style-type: none"> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Radiator with guard</li> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Cat® Extended Life Coolant*</li> <li>• Coolant level sight gauge</li> </ul>	<input type="checkbox"/> Low coolant level shutdown <input type="checkbox"/> Duct flange
Exhaust	<ul style="list-style-type: none"> <li>• Stainless steel exhaust flex</li> <li>• ANSI style outlet flange, gasket, bolts and mating weld flange; shipped loose</li> </ul>	<input type="checkbox"/> 10 DBA Industrial muffler <input type="checkbox"/> 25 DBA Residential muffler <input type="checkbox"/> Critical muffler <input type="checkbox"/> Flexible fitting <input type="checkbox"/> Elbow kit <input type="checkbox"/> Throughwall Installation kit <input type="checkbox"/> Manifold and Turbo Guard
Fuel	<ul style="list-style-type: none"> <li>• Fuel priming pump</li> <li>• Fuel pressure gauge</li> <li>• Primary and secondary fuel filters</li> <li>• Flexible fuel lines</li> </ul>	<input type="checkbox"/> Water separator <input type="checkbox"/> Fuel level switch <input type="checkbox"/> Flexible fuel lines <input type="checkbox"/> Manual or auto fuel pumps <input type="checkbox"/> Single wall tank bases
Generator	<ul style="list-style-type: none"> <li>• Three phase sensing</li> <li>• Class H insulation</li> <li>• VR6 3-phase sensing voltage regulator with load adjustment module</li> <li>• IP23 Protection</li> <li>• Circuit Breaker IEC, 3-pole</li> <li>• Segregated L.V. (AC/DC) wiring panel</li> </ul>	<input type="checkbox"/> Anti-condensation heater <input type="checkbox"/> Permanent Magnet excitation <input type="checkbox"/> RFI Filter <input type="checkbox"/> Coastal Protection <input type="checkbox"/> Terminal strip connection <input type="checkbox"/> Oversize generator <input type="checkbox"/> Circuit breaker, UL and IEC Listed, 3 & 4-pole with shunt trip <input type="checkbox"/> Multiple breaker capability <input type="checkbox"/> Digital Voltage Regulator
Governor	<ul style="list-style-type: none"> <li>• Hydra-mechanical (3% speed regulation)</li> </ul>	<input type="checkbox"/> Electronic isochronous governor <input type="checkbox"/> Load sharing module
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 4.1</li> <li>• User Interface panel (UIP) - rear mount (standard)</li> <li>• Emergency Stop Pushbutton</li> </ul>	<input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> Local & remote annunciator modules <input type="checkbox"/> Load share module <input type="checkbox"/> Discrete I/O module <input type="checkbox"/> Generator temperature monitoring & protection
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valve piped to edge of base</li> <li>• Fumes disposal piped to front of radiator</li> </ul>	<input type="checkbox"/> Manual sump pump <input type="checkbox"/> Oil temperature sensor
Mounting	<ul style="list-style-type: none"> <li>• Narrow integral fuel tank base (950L)</li> <li>• Linear vibration isolators between base and engine-generator</li> </ul>	<input type="checkbox"/> Narrow base <input type="checkbox"/> Wide Base <input type="checkbox"/> Lifting arch <input type="checkbox"/> Oil field skid base
Starting/Charging	<ul style="list-style-type: none"> <li>• 45 amp charging alternator</li> <li>• 24 volt starting motor</li> <li>• Batteries with rack and cables</li> <li>• Safety shutoff protection</li> </ul>	<input type="checkbox"/> Battery chargers (5 or 10 amp) <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Battery disconnect switch <input type="checkbox"/> Ether starting aid <input type="checkbox"/> Jacket water heater
General		<input type="checkbox"/> Enclosures - sound attenuated, weather protective <input type="checkbox"/> EU Certificate of Conformance (CE)

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## SPECIFICATIONS

### CAT GENERATOR

Frame size..... LC6114B  
Excitation..... Self Excitation  
Pitch..... 0.6667  
Number of poles..... 4  
Number of bearings..... Single bearing  
Number of Leads..... 012  
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion  
- Consult your Caterpillar dealer for available voltages  
IP Rating..... IP23  
Alignment..... Pilot Shaft  
Overspeed capability..... 150  
Wave form Deviation (Line to Line)..... 002.00  
Voltage regulator..... Three phase sensing  
Voltage regulation..... Less than +/- 1/2% (steady state)  
Less than +/- 1% (no load to full load)  
Telephone influence factor..... Less than 50  
Harmonic Distortion..... Less than 5%

### CAT DIESEL ENGINE

3406C TA, I-6, 4-Stroke Water-cooled Diesel  
Bore..... 137.20 mm (5.4 in)  
Stroke..... 165.10 mm (6.5 in)  
Displacement..... 14.64 L (893.39 in<sup>3</sup>)  
Compression Ratio..... 14.5:1  
Aspiration..... TA  
Governor Type..... Hydra-mechanical

### CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 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)
- ekW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:

- 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) (4.2 only)
- Reverse reactive power (kVA) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

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## TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM2269	
<b>Low Fuel Consumption</b>		
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	350 kVA 280 ekW	
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	79.6 L/hr 60.6 L/hr 42.6 L/hr	21.0 Gal/hr 16.0 Gal/hr 11.3 Gal/hr
<b>Cooling System<sup>1</sup></b> Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine Coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 522 m <sup>3</sup> /min 57.8 L 20.8 L 37.0 L	0.48 in. water 18434 cfm 15.3 gal 5.5 gal 9.8 gal
<b>Inlet Air</b> Combustion air inlet flow rate	19.8 m <sup>3</sup> /min	699.2 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Heat rejection to aftercooler Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	596.8 ° C 60.4 m <sup>3</sup> /min 19 kW 152.4 mm 6.7 kPa	1106.2 ° F 2133.0 cfm 1081 Btu/min 6.0 in 26.9 in. water
<b>Heat rejection</b> Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	183 kW 297 kW 65 kW 19.8 kW	10407 Btu/min 16890 Btu/min 3697 Btu/min 1126.0 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	745 skVA LC6114B 130 ° C	234 ° F
<b>Lube System</b> Sump refill with filter	38.0 L	10.0 gal
<b>Emissions<sup>3</sup></b> NOx mg/nm <sup>3</sup> CO mg/nm <sup>3</sup> HC mg/nm <sup>3</sup> PM mg/nm <sup>3</sup>	4261.3 mg/nm <sup>3</sup> 1721.9 mg/nm <sup>3</sup> 24.1 mg/nm <sup>3</sup> 249.3 mg/nm <sup>3</sup>	

<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> 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.

<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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**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 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 representative 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	4264.3 mm	167.89 in
Width	1110.0 mm	43.7 in
Height	2150.0 mm	84.65 in
Weight	3464 kg	7,637 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2923096).

مستند انرژی

Performance No.: DM2269

Feature Code: 406DEN8

Gen. Arr. Number: 2351203

Source: European Sourced

June 10 2011

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