DIESEL GENERATOR SET

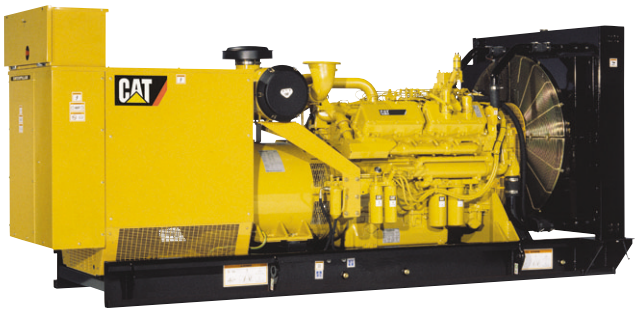


Image shown may not reflect actual package.

PRIME
648 ekW 810 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

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

CAT® 3412C TA DIESEL ENGINE
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight

CAT GENERATOR
- Designed to match the performance and output characteristics of Cat diesel 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	• Single element canister type air cleaner • Service indicator	[ ] Dual element air cleaner [ ] Heavy-duty air cleaner
Cooling	• Radiator with guard • Coolant drain line with valve • Fan and belt guards • Cat® Extended Life Coolant • Low coolant level alarm or shutdown	[ ] Radiator duct flange [ ] Jacket water heater with shutoff valve [ ] Heat exchanger and expansion tank
Exhaust	• Stainless steel exhaust flex and ANSI style outlet flange, gasket, bolts and mating weld flange, shipped loose	[ ] Mufflers (10 or 35 dBA) [ ] Elbow kit and through-wall installation kit [ ] Manifold and turbocharger guards
Fuel	• Primary and secondary fuel filters • Water separator • Fuel priming pump • Flexible fuel lines	[ ] Manual transfer pump [ ] Choice of three Automatic Transfer Systems
Generator	• Class H insulation • Class F temperature rise • VR6 Voltage Regulator, 3-phase sensing, 2:1 Volts/Hz • Reactive droop • Extension box • Bus bar connection • Segregated low voltage (AC/DC) wiring panel	[ ] Digital Voltage Regulator with kVAR/PF control [ ] Anti-condensation space heater [ ] Oversize and premium generators [ ] Circuit breakers, IEC Compliant, 3-pole or 4-pole with shunt trip
Governor	• PEEC - Cat Electronic	[ ] Electronic load sharing
Control Panels	• 4.2 (mounted inside power center) • Rear facing • Speed adjust • Emergency stop pushbutton • Voltage adjustment	[ ] Right-hand mounting of control panel [ ] Local annuniciator modules (NFPA 99/110) [ ] Remote annunicator modules (NFPA 99/110) [ ] Discrete I/O module
Lube	• Lubricating oil and filter • Oil drain line with valves • Fumes disposal	[ ] Manual sump pump
Mounting	• Formed steel base • Linear vibration isolators between base and engine-generator	[ ] Integral fuel tank base [ ] Sub base fuel tank [ ] Wide base [ ] Skid base
Starting/Charging	• 45 amp charging alternator • Fuel shutoff solenoid • 24 volt starting motor • Battery with rack and cables	[ ] Heavy-duty starting system [ ] 5 or 10 amp battery charger [ ] Oversize batteries [ ] Ether starting aid [ ] Battery disconnect switch
General		[ ] Enclosures - sound attenuated, weather protective [ ] Automatic transfer switches (ATS) [ ] Floor standing circuit breakers [ ] EU Certificate of Conformance (CE)

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SPECIFICATIONS

CAT GENERATOR

Frame size..... 598
Excitation..... Self Excitation
Pitch..... 0.8667
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..... Drip Proof IP22
Alignment..... Pilot Shaft
Overspeed capability..... 180
Wave form Deviation (Line to Line)..... Less than 5% deviation
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

3412C TA, V-12, 4-Stroke Water-cooled Diesel
Bore..... 137.20 mm (5.4 in)
Stroke..... 152.40 mm (6.0 in)
Displacement..... 27.02 L (1648.86 in^3)
Compression Ratio..... 13.0:1
Aspiration..... TA
Fuel System..... Pump and Lines
Governor Type..... PEEC - Cat Electronic

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

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)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- 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	DM1908	
Package Performance		
Genset Power rating @ 0.8 pf	810 kVA	
Genset Power rating with fan	648 ekW	
Fuel Consumption		
100% load with fan	171.7 L/hr	45.4 Gal/hr
75% load with fan	130.4 L/hr	34.4 Gal/hr
50% load with fan	90.9 L/hr	24.0 Gal/hr
Cooling System[1]		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)	1176 m³/min	41530 cfm
Engine coolant capacity	57.0 L	15.1 gal
Radiator coolant capacity	90.0 L	23.8 gal
Engine Coolant capacity with radiator/exp. tank	147.0 L	38.8 gal
Exhaust System		
Combustion air inlet flow rate	48.8 m³/min	1723.4 cfm
Exhaust stack gas temperature	539.4 ° C	1002.9 ° F
Exhaust gas flow rate	139.3 m³/min	4919.3 cfm
Exhaust flange size (internal diameter)	203.2 mm	8.0 in
Exhaust system backpressure (maximum allowable)	6.7 kPa	26.9 in. water
Heat rejection		
Heat rejection to coolant (total)	386 kW	21952 Btu/min
Heat rejection to exhaust (total)	637 kW	36226 Btu/min
Heat rejection to atmosphere from engine	108 kW	6142 Btu/min
Heat rejection to atmosphere from generator	29.8 kW	1694.7 Btu/min
Alternator[2]		
Motor starting capability @ 30% voltage dip	1629 skVA	
Frame	598	
Temperature Rise	105 ° C	189 ° F
Lube System		
Sump refill with filter	69.0 L	18.2 gal
Emissions[3]		
NOx mg/nm3	2972.6 mg/nm³	
CO mg/nm3	193.8 mg/nm³	
HC mg/nm3	122.7 mg/nm³	
PM mg/nm3	45.9 mg/nm³	

[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 40ºC 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 77ºF, 28.42 in HG and number 2 diesel fuel with 35º 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 DEFINITIONS AND CONDITIONS

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

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. Prime power in accordance with ISO3046. Prime ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the alarm 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

Package Dimensions		
Length	**4485.0 mm**	**176.57 in**
Width	**1741.6 mm**	**68.57 in**
Height	**1986.7 mm**	**78.22 in**
Weight	**5748 kg**	**12,672 lb**

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

Performance No.: DM1908

Feature Code: 412DEBB

Gen. Arr. Number: 1492445

Source: European Sourced

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