



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

DESIGN CRITERIA

- The generator set accepts 100% rated load in one step.

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Caterpillar® dealers provide extensive post sale support including maintenance and repair agreements
- Caterpillar dealers fill 99.7% of parts orders within 24 hours
- Caterpillar dealers have over 1,600 dealer branch stores operating in 200 countries
- The Cat® S•O•SSM 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 SR4B GENERATOR

- Designed to match the performance and output characteristics of Caterpillar diesel engines
- Optimum winding pitch for minimum total harmonic distortion and maximum efficiency
- Single point access to accessory connections
- UL 1446 recognized Class H insulation

CAT EMCP 3 SERIES CONTROL PANELS

- Controls designed to meet individual customer needs.
- EMCP 3 provides the option for full-featured power metering and protective relaying
- Segregated low voltage, AC/DC accessory box provides single point access to accessory connections
- Options to meet UL/CSA/NFPA
- Power Center provides convenient location for control panel, optional power terminal strips and optional circuit breakers

PRIME 648 kW 810 kVA

50 Hz 1500 rpm 400 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> •Single element canister type air cleaner •Service indicator 	<ul style="list-style-type: none"> •Dual element air cleaner •Heavy-duty air cleaner
Cooling	<ul style="list-style-type: none"> • Radiator with guard • Coolant drain line with valve • Fan and belt guards • Caterpillar® Extended Life Coolant • Low coolant level alarm or shutdown 	<ul style="list-style-type: none"> • Radiator duct flange • Jacket water heater with shutoff valve • Heat exchanger and expansion tank
Exhaust	<ul style="list-style-type: none"> • Stainless steel exhaust flex and ANSI outlet flange 	<ul style="list-style-type: none"> • Mufflers (20, 25, or 30 dBA) • Elbow kit and through-wall installation kit • Manifold and turbocharger guards
Fuel	<ul style="list-style-type: none"> • Primary and secondary fuel filters • Water separator • Fuel priming pump • Flexible fuel lines • Fuel pressure gauge 	<ul style="list-style-type: none"> • Manual transfer pump • Choice of three Automatic Transfer Systems • Low fuel level alarm
Generator	<ul style="list-style-type: none"> • Self excited • Class H insulation • Class F temperature rise (105°C prime/130°C standby) • VR3F Voltage Regulator, 3-phase sensing, 2:1 Volts/Hz • Reactive droop • Extension box • Bus bar connection 	<ul style="list-style-type: none"> • Permanent magnet excited • Digital Voltage Regulator with KVAR/PF control • Anti-condensation space heater • Oversize and premium generators (except 648 kW Prime/720 kW Standby) • Circuit breakers, IEC Compliant, 3-pole or 4-pole with shunt trip
Governor	<ul style="list-style-type: none"> • PEEC - Cat Electronic 	<ul style="list-style-type: none"> • Electronic isochronous • Electronic load sharing
Control Panels	<ul style="list-style-type: none"> • EMCP 3.1 (mounted inside power center) • Rear facing • Speed adjust • Emergency stop pushbutton • Voltage adjustment 	<ul style="list-style-type: none"> • EMCP 3.2 & EMCP 3.3 • Right-hand mounting of control panel • Local annunciator modules (NFPA 99/110) • Remote annunciator modules (NFPA 99/110) • Discrete I/O module
Lube	<ul style="list-style-type: none"> • Lubricating oil and filter • Oil drain line with valves • Fumes disposal 	<ul style="list-style-type: none"> • Manual sump pump
Mounting	<ul style="list-style-type: none"> • Formed steel base • Linear vibration isolators between base and engine-generator 	<ul style="list-style-type: none"> • Skid base • Fuel tank base • Extended capacity fuel tank base
Starting/Charging	<ul style="list-style-type: none"> • 45 amp charging alternator • Energized to Run (ETR) fuel shutoff solenoid • 24 volt starting motor • Batteries with rack and cables 	<ul style="list-style-type: none"> • Heavy-duty starting system • 5 or 10 amp battery charger • Oversize batteries • Ether starting aid • Battery disconnect switch
General		<ul style="list-style-type: none"> • Enclosures - sound attenuated, weather protective • Automatic transfer switches (ATS) • Floor standing circuit breakers • EU Certificate of Conformance (CE)

SPECIFICATIONS

CAT SR4B GENERATOR

Frame Size.....	598
Excitation.....	Self Excited
Pitch.....	0.8667
Number of poles.....	4
Number of bearings.....	Single Bearing
Insulation.....	UL 1446 Recognized Class H with tropicalization and antiabrasion
IP Rating.....	Drip Proof IP22
Alignment.....	Pilot Shaft
Overspeed capability - % of rated.....	180
Wave form.....	Less than 5% deviation
Paralleling kit/Droop transformer.....	Standard
Voltage regulator.3 Phase sensing with selectable volts/Hz	
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-cycle watercooled diesel	
Bore - mm.....	137.20 mm (5.4 in)
Stroke - mm.....	152.40 mm (6.0 in)
Displacement - L.....	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 CONTROL PANELS

- EMCP III
 - 24 Volt CD Control
 - NEMA 1, IP22 enclosure
 - Terminal box mounted
 - Single location customer connection point
 - UL/CSA/CE/UL508A
 - Panel illuminating lights
 - Auto start/stop control
 - Voltage adjust potentiometer
 - True RMS AC metering
 - Digital indications for:
 - RPM
 - Operating hours
 - Oil pressure
 - Coolant Temperature
 - System DC volts
 - AC volts, phase amps, Hz
 - Shutdowns with indicating lights for:
 - Low oil pressure
 - High coolant temperature
 - Overspeed
 - Emergency Stop
 - Failure to start (overcrank)
 - Programmable protective relaying functions*:
 - Under and over voltage
 - Under and over frequency
 - Reverse power
 - Overcurrent
 - Low coolant level
 - 4 spare alarm/shutdown inputs
 - ModBus isolated data link (RS -485 half-duplex) supports serial communication at data rate up to 115.2 kbaud (*)
- * (Available on EMCP 3.2 & EMCP3.3)

PRIME 648 ekW 810 kVA

50 Hz 1500 rpm 400 Volts



TECHNICAL DATA

Open Generator Set - - 1500 rpm/50 Hz/400 Volts	DM1908	
Package Performance Genset Power rating @ 0.8 pf Genset Power rating with fan	810 kVA 648 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	171.7 L/hr 130.4 L/hr 90.9 L/hr	45.4 Gal/hr 34.4 Gal/hr 24.0 Gal/hr
Cooling System¹ Ambient air temperature Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine coolant capacity Radiator coolant capacity Engine Coolant capacity with radiator/exp. tank	50 ° C 0.12 kPa 1176 m ³ /min 57.0 L 90.0 L 147.0 L	122 ° F 0.48 in. water 41530 cfm 15.1 gal 23.8 gal 38.8 gal
Exhaust System Combustion air inlet flow rate Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	48.8 m ³ /min 539.4 ° C 139.3 m ³ /min 203.2 mm 6.7 kPa	1723.4 cfm 1002.9 ° F 4919.3 cfm 8.0 in 26.9 in. water
Heat rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	386 kW 637 kW 108 kW 29.8 kW	21952 Btu/min 36226 Btu/min 6142 Btu/min 1694.7 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Temperature Rise	1629 skVA 598 105 ° C	189 ° F
Lube System Sump refill with filter	69.0 L	18.2 gal
Emissions³ NOx mg/nm3 CO mg/nm3 HC mg/nm3 PM mg/nm3	2972.6 mg/nm ³ 193.8 mg/nm ³ 122.7 mg/nm ³ 45.9 mg/nm ³	

¹ Ambient capability at 200 m (660 ft) above sea level. For ambient capability at other altitudes, consult your Caterpillar dealer.

² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

³ Emissions data measurement is consistent with those described in EPA CFR40 Part 89, Subpart D 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.

PRIME 648 kW 810 kVA

50 Hz 1500 rpm 400 Volts



RATING DEFINITIONS AND CONDITIONS

Meets or Exceeds International Specifications: AS1359, AS2789, CSA, EGSA101P, IEC60034, ISO3046, ISO8528, NEMA MG 1-32, UL508, 72/23/EEC, 89/336/EEC, 98/37/EEC.

Prime - Output available with varying load for an unlimited time. Prime power in accordance with ISO8528. 10% overload power in accordance with ISO3046, AS2789, and BS5514. Prime ambient temperatures shown indicate a coolant top tank temperature just below shutdown at 100 percent load.

Ratings are based on SAE J1995 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16° C or 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. Consult your Caterpillar representative for details.

PRIME 648 ekW 810 kVA

50 Hz 1500 rpm 400 Volts



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	7103 kg	15,659 lb

Note: Do not use for installation design.
See general dimension drawings for detail (Drawing #2905816).

Performance No.: DM1908

Feature Code:: 412DER1

Source:: European Sourced

21 November 2006

8788788

www.CAT-ElectricPower.com

© 2006 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, their respective logos, "Caterpillar Yellow," and 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.