

DIESEL GENERATOR SET

CATERPILLAR®

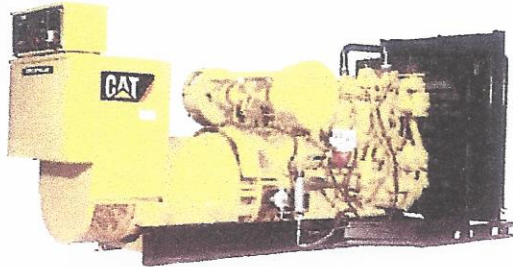


Image shown may not reflect actual package.

PRIME
400 ekW 500 kVA
50 Hz 1000 rpm 415 Volts

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

FEATURES

EMISSIONS STRATEGY

- Low Fuel Consumption

DESIGN CRITERIA

- The generator set accepts rated load in one step

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

- Caterpillar® dealers provide extensive post sale support including maintenance and repair agreements
- 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® 3508 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 Caterpillar diesel engines
- Single point access to accessory connections
- UL 1446 recognized Class H insulation

CAT EMCP 3 SERIES 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 (with pre-cleaners) • Service indicator	• Dual element & heavy duty air cleaners • Air inlet adapters & shutoff
Cooling	• Radiator with guard (43°C) • Low Profile (frontal area) • Low Airflow • Coolant drain line with valve • Fan and belt guards • Caterpillar Extended Life Coolant* • Coolant level sensors* • Radiator duct flange *Not included with packages without radiators	• Radiator with 27°C and 50°C ambient capability • Radiant option for 57°C ambient with treated water • Radiator removal • Heavy duty, harsh environment radiator at 43°C and 50°C • Heat exchanger and expansion tank • Coolant level switch gauge • Jacket water heater
Exhaust	• Dry exhaust manifold • Flanged faced outlets	• Mufflers & Silencers • Stainless steel exhaust flex fittings • Elbows, flanges, expanders & Y adapters
Fuel	• Secondary fuel filters • Fuel priming pump • Flexible fuel lines • Fuel cooler* *Not included on packages without radiators	• Water separator • Duplex fuel filter
Generator	• Permanent magnet excited • Class H insulation • Class F temperature (105°C prime/130°C standby) • Reactive droop • Digital Voltage Regulator, 3-phase sensing • Bus bar connections • Winding temperature detectors • Anti-condensation space heaters	• Digital Voltage Regulator with KVAR/PF control • Bearing temperature detectors • Oversize, premium & self-excited generators • Cable access box • European bus bars • Circuit breakers, UL listed, 3 pole with shunt trip (low & medium voltage only) • Circuit breakers, IEC compliant, 3 pole with shunt trip (low & medium voltage only) • Space heater relay
Power Termination	• Bus bar (NEMA and IEC mechanical lug holes) • right side standard • Top and bottom cable entry	• Circuit breakers, UL listed, 3 pole with shunt trip, 80% or 100% rated, choice of trip units, manual or electrically operated (low voltage only) • Circuit breakers, IEC compliant, 3 or 4 pole with shunt trip (low voltage only), choice of trip units, manual or electrically operated • Shroud cover for bottom cable entry • Power terminations can be located on the left and/or rear as an option. Also, multiple circuit breakers can be ordered. (up to 3)
Control Panels	• EMCP 3.1 • User Interface panel (UIP) - rear mount • Emergency Stop Pushbutton	• EMCP 3.2 or EMCP 3.3 • Right or left mount UIP • Local and remote annunciator modules • Discrete I/O module • Generator temperature monitoring & protection • Remote monitoring • Load share module
Lube	• Lubricating oil and filter • Oil drain line with valves • Fumes disposal • Gear type lube oil pump	• Deep sump oil pan • Electric & air pre-lube pumps • Manual pre-lube with sump pump • Duplex oil filter • Oil level regulator
Mounting	• Structural Steel Tube • Anti-vibration mounts (shipped loose)	• Isolator removal • Spring-tuype, zone 4
Starting/Charging	• 24 volt starting motor(s) • Batteries with rack and cables • Battery disconnect switch	• Battery chargers (10&20 amp) • Oversize batteries • Ether starting aids • Heavy duty starting motors • Barring device (manual) • Air starting motor with control & silencer

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SPECIFICATIONS

CAT GENERATOR

SR4B Generator	
Frame size.....	667
Excitation.....	Permanent Magnet
Pitch.....	0.8333
Number of poles.....	6
Number of bearings.....	002
Insulation.....	UL 1446 Recognized Class H with tropicalization and antiabrasion
IP rating.....	Drip Proof IP22
Alignment.....	Closed Coupled
Overspeed capability - % of rated.....	180
Wave form.....	003.00
Voltage regulation.....	Less than +/- 1/2% (steady state)
Less than +/- 1% (no load to full load)	
Paralleling kit/Droop transformer.....	Standard
Voltage regulator.....	3 Phase sensing with selectable volts/Hz
Telephone Influence Factor.....	Less than 50
Harmonic distortion.....	Less than 5%

CAT DIESEL ENGINE

3508 TA, 4-stroke-cycle watercooled diesel	
Bore - mm.....	170.00 mm (6.69 in)
Stroke - mm.....	190.00 mm (7.48 in)
Displacement - L.....	34.53 L (2107.15 in ³)
Compression ratio.....	13:1
Aspiration.....	TA
Fuel system.....	Direct unit injection
Governor type.....	Woodward

CAT EMCP CONTROLS

- EMCP 3.1 (standard)
- 24 Volt DC control
- NEMA 1, IP22 enclosure
- Electrically dead front
- Lockable hinged door
- Single location customer connection point
- Panel illuminating lights
- Auto start/stop control
- Voltage adjust potentiometer
- Three phase, true RMS metering
- Digital indications for:
 - RPM
 - Operating hours
 - Oil pressure
 - Coolant Temperature
 - System DC volts
 - AC volts, phase amps, Hz
 - Power metering (kW, kVA, kVAR, kWhr, kVARhr)
- Shutdowns with indicating lights for:
 - Low oil pressure
 - Overspeed
 - Emergency stop
 - Failure to start (overcrank)
- Programmable protective relaying functions:
 - Under and over voltage
 - Under and over frequency
 - Reverse power
 - Overcurrent

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TECHNICAL DATA

Open Generator Set - 1000 rpm/50 Hz/415 Volts		DM6761	
Low Fuel Consumption			
Generator Set Package Performance			
Genset Power rating @ 0.8 pf		500 kVA	
Genset Power rating with fan		400 kW	
Coolant to aftercooler			
Coolant to aftercooler temp max		82 °C	180 °F
Fuel Consumption			
100% load with fan		109.1 L/hr	28.8 Gal/hr
75% load with fan		83.4 L/hr	22.0 Gal/hr
50% load with fan		58.9 L/hr	15.6 Gal/hr
Cooling System ¹			
Air flow restriction (system)		0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)		946 m ³ /min	33408 cfm
Engine Coolant capacity with radiator/exp. tank		278.7 L	73.6 gal
Engine coolant capacity		102.7 L	27.1 gal
Radiator coolant capacity		176.0 L	46.5 gal
Inlet Air			
Combustion air inlet flow rate		32.1 m ³ /min	1133.6 cfm
Exhaust System			
Exhaust stack gas temperature		489.1 °C	912.4 °F
Exhaust gas flow rate		87.1 m ³ /min	3075.9 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)		228 kW	12966 Btu/min
Heat rejection to exhaust (total)		395 kW	22464 Btu/min
Heat rejection to atmosphere from engine		86 kW	4891 Btu/min
Heat rejection to atmosphere from generator		24.2 kW	1376.3 Btu/min
Alternator ²			
Motor starting capability @ 30% voltage dip		1418 skVA	
Frame		667	
Temperature Rise		80 °C	144 °F
Lube System			
Sump refill with filter		219.6 L	58.0 gal
Emissions (Nominal) ³			
NOx mg/nm ³		mg/nm ³	
CO mg/nm ³		mg/nm ³	
HC mg/nm ³		mg/nm ³	
PM mg/nm ³		mg/nm ³	

¹ For ambient and altitude capabilities consult your Caterpillar 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 40°C 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 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

Meets or Exceeds International Specifications: AS1359, CSA, IEC60034, ISO 3046, ISO 8528, NEMA MG 1-33, UL508A, 98/37/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 ISO 3046. 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 ISO 3046 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 Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Caterpillar dealer.

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DIMENSIONS

Package Dimensions		
Length	4661.1 mm	183.51 in
Width	2051.1 mm	80.75 in
Height	2252.2 mm	88.67 in
Weight	8165 kg	18,001 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2001177).

Performance No.: DM6761

Feature Code: 508DE1Q

Gen. Arr. Number: 1586412

Source: U.S. Sourced

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Electric Power Technical Data Sheet

3508 DITA

1000 RPM/50 Hz/400 volts

PRIME RATING - DM6761-00

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NOT CERTIFIED

Package Performance				
Power rating @ 0.8 PF	kVA		500	
Power rating with fan	eKW		400.0	
Coolant to aftercooler temperature (max)	°C		82	
Fuel Consumption				
100% load with fan	L/hr	gph	109.1	28.8
75% load with fan	L/hr	gph	83.4	22.0
50% load with fan	L/hr	gph	58.9	15.6
Cooling System				
Ambient air temperature	°C	°F	73	163
Air flow restriction (system)	kPa	in. H2O	0.12	.48
Air flow (maximum @ rated speed for standard radiator arrangement)	m³/min	cfm	946	33408
Engine coolant capacity with radiator	L	gal	278.7	73.6
Engine coolant capacity without radiator	L	gal	102.7	27.1
Separate circuit aftercooler				
Aftercooler capacity	L	gal	n/a	n/a
Aftercooler pump flow @ 4.6 m H2O head	L/min	gpm	n/a	n/a
Exhaust System				
Combustion air inlet flow rate	m³/min	cfm	32.1	1134
Exhaust stack gas temperature	°C	°F	489	912
Exhaust gas flow rate	m³/min	cfm	87.1	3076
Exhaust flange size (internal diameter)	mm	in	203.2	8
Exhaust system backpressure (maximum allowable)	kPa	in. H2O	6.7	26.92
Heat Rejection				
Heat rejection to coolant (total)	kW	Btu/min	228	12966
Heat rejection to aftercooler	kW	Btu/min	33	1877
Heat rejection to exhaust (total)	kW	Btu/min	395	22464
Heat rejection to atmosphere from engine	kW	Btu/min	86	4891
Heat rejection to atmosphere from generator	kW	Btu/min	35.7	2030
Alternator				
Motor starting capability @ 30% voltage dip	kVA		726	
Frame			663	
Temperature rise	°C		105	
Lube System				
Refill volume with filter change for standard sump	L	qt	220	232.1
Emissions				
NOx	mg/nm³	g/hp-hr	n/a	n/a
CO	mg/nm³	g/hp-hr	n/a	n/a
HC	mg/nm³	g/hp-hr	n/a	n/a
PM	mg/nm³	g/hp-hr	n/a	n/a

Engine Arrangement 1955885
 Generator Arrangement 1586410
 Radiator Arrangement 7C6207
 Part Number LE0041, LE0047
 Feature Code 508DE1Q, 508DE1S
 Drawing Number 2001177