



Image shown may not reflect actual package.

PRIME 1020 e kW 1275 kVA 50 Hz 1500 rpm 11 000 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 per NFPA 110 and meets ISO 8528-5 transient response.

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

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

CAT® 3512 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 HV GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Single point access to accessory connections
- UL 1446 Recognized Class F 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"> • Single element canister type air cleaner • Service indicator 	<input type="checkbox"/> Dual element & heavy duty air cleaners <input type="checkbox"/> Air inlet adapters & shut-off
Cooling	<ul style="list-style-type: none"> • Radiator with guard • Coolant drain line with valve • Fan and belt guards • Cat® Extended Life Coolant* 	<input type="checkbox"/> Radiator duct flange <input type="checkbox"/> Jacket water heater
Exhaust	<ul style="list-style-type: none"> • Dry exhaust manifold • Flanged faced outlets 	<input type="checkbox"/> Mufflers and Silencers <input type="checkbox"/> Stainless steel exhaust flex fittings <input type="checkbox"/> Elbows, flanges, expanders & Y adapters
Fuel	<ul style="list-style-type: none"> • Secondary fuel filters • Fuel priming pump • Flexible fuel lines • Fuel cooler* 	<input type="checkbox"/> Water separator <input type="checkbox"/> Duplex fuel filter
Generator	<ul style="list-style-type: none"> • Class F insulation • Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing • Winding temperature detectors • Anti-condensation space heaters 	<input type="checkbox"/> Oversized generators <input type="checkbox"/> Cross current compensation transformer <input type="checkbox"/> Bearing temperature detectors
Power Termination	<ul style="list-style-type: none"> • Bus bar (NEMA mechanical lug holes) • Right hand cable entry • Top or bottom cable entry 	<input type="checkbox"/> Left hand cable entry
Governor	<ul style="list-style-type: none"> • Woodward 2301A isochronous 	<input type="checkbox"/> Electronic load sharing governor
Control Panels	<ul style="list-style-type: none"> • EMCP 4.2 • User Interface panel (UIP) - wall mounted • AC & DC customer wiring area (right side) • Emergency stop pushbutton 	<input type="checkbox"/> Option for right or left mount UIP <input type="checkbox"/> Local & remote annunciator modules <input type="checkbox"/> Digital I/O Module <input type="checkbox"/> Generator temperature monitoring & protection <input type="checkbox"/> Remote monitoring software
Lube	<ul style="list-style-type: none"> • Lubricating oil and filter • Oil drain line with valves • Fumes disposal • Gear type lube oil pump 	<input type="checkbox"/> Oil level regulator <input type="checkbox"/> Deep sump oil pan <input type="checkbox"/> Electric & air prelube pumps <input type="checkbox"/> Manual prelube with sump pump <input type="checkbox"/> Duplex oil filter
Mounting	<ul style="list-style-type: none"> • Rails - Engine / generator / radiator mounting • Rubber anti-vibration mounts (shipped loose) 	<input type="checkbox"/> Isolator removal <input type="checkbox"/> Spring-type vibration isolator (shipped loose) <input type="checkbox"/> IBC Isolators
Starting/Charging	<ul style="list-style-type: none"> • 24 volt starting motor(s) • Batteries with rack and cables • Battery disconnect switch 	<input type="checkbox"/> Battery chargers (5 or 10 amp) <input type="checkbox"/> 45 amp charging alternator <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Ether starting aid <input type="checkbox"/> Heavy duty starting motors <input type="checkbox"/> Barring device (manual)
General	<ul style="list-style-type: none"> • Right-hand service • Paint - Caterpillar Yellow except rails and radiators are gloss black • SAE standard rotation • Flywheel and flywheel housing - SAE No. 00 	<input type="checkbox"/> CSA certification <input type="checkbox"/> CE Certificate of Conformance <input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 * Not included with packages without radiators

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SPECIFICATIONS

CAT GENERATOR

Cat HV Generator	
Frame size.....	2730
Excitation.....	Permanent Magnet
Pitch.....	0.6670
Number of poles.....	4
Number of bearings.....	2
Number of Leads.....	006
Insulation.....	Class H with tropicalization and antiabrasion
Insulation.....	Class F with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages	
IP Rating.....	IP23
Alignment.....	Closed Coupled
Overspeed capability.....	125
Wave form Deviation (Line to Line).....	002.00
Voltage regulator.....	3 Phase sensing with 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

3512 TA, V-12, 4-Stroke Water-cooled Diesel	
Bore.....	170.00 mm (6.69 in)
Stroke.....	190.00 mm (7.48 in)
Displacement.....	51.80 L (3161.03 in ³)
Compression Ratio.....	13.5:1
Aspiration.....	TA
Fuel System.....	Direct unit injection
Governor Type.....	Woodward

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 (kVA) (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/11 000 Volts	DM8222	
Low Fuel Consumption		
Generator Set Package Performance Genset Power rating @ 0.8 pf Genset Power rating with fan	1275 kVA 1020 ekW	
Coolant to aftercooler Coolant to aftercooler temp max	82 ° C	180 ° F
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	264.6 L/hr 203.2 L/hr 140.8 L/hr	69.9 Gal/hr 53.7 Gal/hr 37.2 Gal/hr
Cooling System¹ 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 1246 m ³ /min 286.8 L 156.8 L 130.0 L	0.48 in. water 44002 cfm 75.8 gal 41.4 gal 34.3 gal
Inlet Air Combustion air inlet flow rate	92.0 m ³ /min	3249.0 cfm
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	449.2 ° C 231.8 m ³ /min 203.2 mm 6.7 kPa	840.6 ° F 8185.9 cfm 8.0 in 26.9 in. water
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	616 kW 1016 kW 159 kW 115 kW 52.6 kW	35032 Btu/min 57780 Btu/min 9042 Btu/min 6540 Btu/min 2991.4 Btu/min
Alternator² Motor starting capability @ 30% voltage dip Frame Temperature Rise	2963 skVA 2730 105 ° C	189 ° F
Lube System Sump refill with filter	310.4 L	82.0 gal

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 40°C ambient per NEMA MG1-32.

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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	5544.8 mm	218.3 in
Width	2073.1 mm	81.62 in
Height	2367.2 mm	93.2 in
Weight	14 229 kg	31,370 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2748719).

Performance No.: DM8222

Feature Code: 512DE5D

Gen. Arr. Number: 2524214

Source: U.S. Sourced

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