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# DIESEL GENERATOR SET

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Image shown may not reflect actual package

## PRIME 920 kW 1150 kVA 50 Hz 1500 rpm 400 Volts

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

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### 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

### SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

### WORLDWIDE PRODUCT SUPPORT

- Cat<sup>®</sup> 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<sup>®</sup> S•O•S<sup>SM</sup> program effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

### CAT 3512 DIESEL ENGINE

- Reliable, rugged, durable design
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

### CAT SR5 GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Single point access to accessory connections
- UL 1446 Recognized Class H insulation

### CAT EMCP 3 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>• Single element canister type air cleaner</li> <li>• Service indicator</li> </ul>	<input type="checkbox"/> Dual element & heavy duty air cleaners <input type="checkbox"/> Air inlet adapters & shutoff
Cooling	<ul style="list-style-type: none"> <li>• Radiator with guard</li> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Cat Extended Life Coolant*</li> </ul>	<input type="checkbox"/> Radiator duct flange <input type="checkbox"/> Jacket water heater
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Flanged faced outlets</li> </ul>	<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"> <li>• Secondary fuel filters</li> <li>• Fuel priming pump</li> <li>• Flexible fuel lines</li> <li>• Fuel cooler*</li> </ul>	<input type="checkbox"/> Water separator <input type="checkbox"/> Duplex fuel filter
Generator	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing</li> <li>• Reactive droop</li> </ul>	<input type="checkbox"/> Oversize & premium generators <input type="checkbox"/> Winding temperature detectors <input type="checkbox"/> Bearing temperature detectors <input type="checkbox"/> Anti-condensation space heaters
Power Termination	<ul style="list-style-type: none"> <li>• Bus bar (IEC mechanical lug holes)</li> <li>• Top cable entry</li> </ul>	<input type="checkbox"/> Circuit breakers, IEC compliant, 3 or 4 pole with shunt trip (low voltage only), choice of trip units, manual or electrically operated <input type="checkbox"/> Bottom cable entry <input type="checkbox"/> Power terminations can be located on the right, left and/or rear as an option.
Governor	<ul style="list-style-type: none"> <li>• Woodward 2301A isochronous</li> </ul>	<input type="checkbox"/> Electronic load sharing governor
Control Panel	<ul style="list-style-type: none"> <li>• EMCP 3.1</li> <li>• User Interface panel (UIP) - wall mounted</li> <li>• AC &amp; DC customer wiring area (right side)</li> <li>• Emergency stop pushbutton</li> </ul>	<input type="checkbox"/> EMCP 3.2 ... <input type="checkbox"/> EMCP 3.3 <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"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valves</li> <li>• Fumes disposal</li> <li>• Gear type lube oil pump</li> </ul>	<input type="checkbox"/> Oil level regulator <input type="checkbox"/> Deep sump oil pan <input type="checkbox"/> Electric & air prelube pumps <input type="checkbox"/> Duplex oil filter <input type="checkbox"/> Manual prelube with sump pump
Mounting	<ul style="list-style-type: none"> <li>• Rails - Engine / generator / radiator mounting</li> <li>• Rubber anti-vibration mounts (shipped loose)</li> </ul>	<input type="checkbox"/> Isolator removal <input type="checkbox"/> Spring-type vibration isolator (shipped loose) <input type="checkbox"/> IBC Isolator
Starting / Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor</li> <li>• Battery rack with cables</li> <li>• Battery disconnect switch</li> </ul>	<input type="checkbox"/> 45 amp charging alternator <input type="checkbox"/> Battery chargers (5 or 10 Amp) <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Heavy duty starting motors <input type="checkbox"/> Ether starting aids <input type="checkbox"/> Barring device (manual)
General	<ul style="list-style-type: none"> <li>• Right hand service</li> <li>• Paint - Caterpillar Yellow (with high gloss black rails &amp; radiator)</li> <li>• SAE standard rotation</li> <li>• Flywheel and flywheel housing - SAE No. 00</li> </ul>	<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

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### CAT GENERATOR

Frame ..... 1424  
Excitation ..... IE  
Pitch..... 0.6667  
Number of poles..... 4  
Number of bearings ..... Single Bearing  
Insulation .....Class H  
IP rating ..... IP23  
Over speed capability - % of rated.....150%  
Wave form deviation..... 3%  
Voltage regulator..... 3 phase sensing with load  
adjustable module  
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 (7.48in)  
Displacement .....51.80 L (3161.03 in<sup>3</sup>)  
Compression ratio.....13.5:1  
Aspiration.....TA  
Fuel system.....Direct unit injection  
Governor Type.....Woodward

### CAT EMCP 3 CONTROL PANELS

- EMCP 3.1 Standard
- EMCP 3.2 & 3.3 (Optional)
- 24 Volt DC Control
- Single location for customer connection
- Auto start/stop control
- True RMS metering, 3-phase
- Digital indications for:
  - RPM
  - Operating hours
  - Oil pressure
  - Coolant temperature
  - System DC volts
  - L-L volts, L-N volts, Phase amps, Hz
  - ekW, kVA, kVAR, kWhr, %kW, PF (EMCP 3.2/3.3)
- Shutdowns with common indicating light for:
  - Low oil pressure
  - High coolant temperature
  - Low coolant level
  - Overspeed
  - Emergency stop
  - Failure to start (overcrank)
- Programmable protective relaying functions (EMCP 3.2 & 3.3)
  - Under and over voltage
  - Under and over frequency
  - Reverse power
  - Overcurrent
- Modbus isolated data link (RS-485 half-duplex EMCP 3.2 & 3.3)

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## TECHNICAL DATA

Open Generator Set - 1500 rpm/50 Hz/400 Volts	PRIME DM8219	
<b>Package Performance</b> Power rating Power rating @ 0.8 pf	920 ekW 1150 kVA	
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	241.8 L/hr 185.2 L/hr 129.1 L/hr	63.9 Gal/hr 48.9 Gal/hr 34.1 Gal/hr
<b>Cooling System*</b> Engine coolant Capacity with radiator arrangement) Engine coolant capacity Radiator coolant capacity	286.8 L 156.8 L 130.0 L	75.8 US Gal 41.4 US Gal 34.3 US Gal
<b>Inlet Air</b> Combustion air inlet flow rate	84.0 m <sup>3</sup> /min	2966.4 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	451.3 °C 212.5 m <sup>3</sup> /min 203.2 mm 6.7 kPa	844.3 °F 7504.4 cfm 8 in 26.9 in. water
<b>Heat Rejection</b> 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	556 kW 916 kW 125 kW 111 kW 53.5 kW	31619.7 Btu/min 52092.8 Btu/min 7108.7 Btu/min 6312.6 Btu/min 3042 Btu/min
<b>Alternator**</b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	2883 SKVA 1424 125°C	225 °F
<b>Lube System</b> Lube oil refill volume with filter change for standard sump	310.4 L	82.0 US Gal
<b>Emissions (Nominal)</b> NO <sub>x</sub> mg/nm <sup>3</sup> CO mg/nm <sup>3</sup> HC mg/nm <sup>3</sup> PM mg/nm <sup>3</sup>	n/a n/a n/a n/a	

\* For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

\*\* 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 degree C ambient per NEMA MG1-32.

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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

**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 the prime rated ekW with overload capability equal to the standby rating available 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 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 Caterpillar 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	5137.1 mm	202.25 in
Width	1974.8 mm	77.75 in
Height	2367.2 mm	93.2 in
Weight	11,280 kg	24,868 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions.

[www.Cat-ElectricPower.com](http://www.Cat-ElectricPower.com)

Performance No.: DM8219  
Feature Code: 512DE6U  
Gen. Arr. Number: 252-3774

Sourced: European Sourced

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