

# XQ200 GENERATOR



Frequency	Voltage	Standby kW (kVA)
60Hz	480/277V	200 (250)
60Hz	240/139V	200 (250)
60Hz	208/120V	200 (250)

## SPECIFICATIONS

### GENERATOR

Frame Size . . . . . LC5034H  
 Pitch . . . . . 0.667  
 No. of poles . . . . . 4  
 Excitation . . . . . Static regulated brushless PM excited  
 Number of bearings . . . . . Single bearing, close coupled  
 Insulation . . . . . Class H  
 Enclosure . . . . . Drip proof IP23  
 Alignment . . . . . Pilot shaft  
 Overspeed capability – % of rated . . . . . 125% of rated  
 Voltage regulator . . . . . 3 phase sensing with Volts-per-Hertz  
 Voltage regulation . . . . . Less than  $\pm 1/2\%$  voltage gain  
     Adjustable to compensate for engine speed droop and line loss  
 Wave form deviation . . . . . 2%  
 Telephone Influence Factor (TIF) . . . . . Less than 50  
 Harmonic Distortion (THD) . . . . . Less than 5%

### ENGINE

Manufacturer . . . . . Caterpillar  
 Model . . . . . C7.1  
 Type . . . . . 4-cycle  
 Aspiration . . . . . ATAAC  
 Cylinder configuration . . . . . In-line 6  
 Displacement – L (cu in) . . . . . 7.01 L (427.7 in<sup>3</sup>)  
 Bore – mm (in) . . . . . 105 (4.13)  
 Stroke – mm (in) . . . . . 135 mm (5.3 in)  
 Compression ratio . . . . . 16.5:1  
 Engine RPM . . . . . 2200  
 Aspiration . . . . . ATAAC  
 Fuel system . . . . . MEUIC  
 Governor type . . . . . ADEM™ A4  
 Fuel . . . . . Requires ULSD

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## TECHNICAL DATA

### XQ200

Materials and specifications are subject to change without notice.

Generator Set Technical Data				60Hz	
		Units		Standby	
<b>Power Rating</b>		kW	(kVA)	200	(250)
<b>Performance Specification</b>				DM	
<b>Lubricating System</b> Oil type required: API CF-4		L	(U.S. gal)	16.5	(4.4)
<b>Fuel System</b> Fuel Consumption			(gal/hr)		
100% load		L/hr		59.5	(15.7)
75% load		L/hr	(gal/hr)	44.6	(11.8)
50% load		L/hr	(gal/hr)	29.8	(7.9)
Fuel tank capacity		L	(gal)	1295	(350)
Running time @ 75% rating			Hr	29	
<b>Cooling System</b> Ambient Capability		°C	(°F)	28	43
Engine & Radiator coolant capacity		L	(gal)	28	(7.6)
Engine coolant capacity		L	(gal)	11.5	(3.1)
<b>Air Requirements</b> Combustion air flow		m <sup>3</sup> /min	(cfm)	14.3	(505)
Maximum dirty air cleaner restriction		kPa	(in H <sub>2</sub> O)		
<b>Exhaust System</b> Exhaust flow at rated kW		m <sup>3</sup> /min	(cfm)		N/A
Exhaust temperature at rated kW – dry exhaust		°C	(°F)	506	(942.8)
<b>Noise Rating (with enclosure)*</b> @ 7 meters (23 feet)		dBA		71	
<b>Emissions (Tier 4 interim regulation)</b> NOx		g/hp-hr		1.9	
CO		g/hp-hr		.2	
HC		g/hp-hr		.02	
PM		g/hp-hr		.005	
				<b>Weight</b>	
<b>Model</b>	<b>Length mm (in)</b>	<b>Width mm (in)</b>	<b>Height mm (in)</b>	<b>With Lube Oil and Coolant kg (lb)</b>	<b>With Fuel, Lube Oil and Coolant kg (lb)</b>
XQ200 w/o trailer	4083 (161)	1401(52)	2162(85)	4053 (8916)	5300 (11660)
XQ200 w/ trailer	6019 (237)	2235(88)	2577(101)	4969 (10932)	6300 (13860)

### RATING DEFINITIONS AND CONDITIONS

#### Meets or Exceeds International Specifications:

CSA 22.0 No. 100, IEC60034-22, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-16, UL1004B, NEC,CEC, 2006/42/EEC, 2006/95/EC, 2004/108/EC, 2000/EC/14, UL142, ULc601, IBC CGSB43, API 546, EGSA 101P, IEEE 43, DEFRA, UL1741, NFPA 99/110, OSHA, 97/68/EC, BS4999, BS5000, IEC60034-5

**Fuel Rates** are based on fuel oil of 35o API {16oC (60oF)} gravity having an LHV of 42780 kJ/kg (18390 Btu/lb) when used at 29oC (85oF) and weighing 838.9 g/liter (7.001 /b/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, consult your Cat Dealer.

**Standby** – Applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The generator on the generator set is peak prime rated (as defined in ISO852 at 30° C (86° F).

**Ratings** are based on SAE J1349 standard conditions. These ratings also apply at ISO0346 standard conditions.

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## STANDARD CONTROLS

### FEATURES

#### FUEL/EMISSIONS STRATEGY

- EPA Tier 4 Interim and CARB Certified for Non-Road Mobile applications at all 60 Hz ratings

#### SINGLE-SOURCE SUPPLIER

- Factory designed and fully prototype tested with certified torsional vibration analysis available
- ISO 9001:2000 compliant facility

#### CAT® C7.1 Interim 4 ACERT™ DIESEL ENGINE

- Utilizes ACERT Technology and Cat NOx Reduction System (NRS)
- Cat CEM exhaust after treatment
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic engine control

#### CAT LC SERIES GENERATOR

- Matched to the performance and output characteristics of Cat engines
- UL 1446 Recognized Class H insulation

#### CAT EMCP 4.2 CONTROL PANEL

- Fully featured power metering, protective relaying and engine/generator control and monitoring
- Simple user friendly interface and navigation
- Automatic set-point adjustment

#### CAT DIGITAL VOLTAGE REGULATOR (CDVR)

- Three-phase sensing
- Adjustable volts-per-hertz regulation
- Provides precise control, excellent block loading, and constant voltage in the normal operating range

#### ENCLOSURE

- Highly corrosion resistant 12 gauge galvanealed sheet steel construction
- Two coat polyester powder-coated finish
- Six access doors for ease of maintenance
- Secure and safe design with safety glass control panel viewing window with lockable access door
- Fuel fill and battery can only be reached through lockable access doors
- Certified single point lifting eye and lifting points on the base frame

#### DISTRIBUTION PANEL

- Switchable voltage from 480/277V 3 phase to 240/139V 3 phase (can be adjusted down to 208/120V 3 Phase), 240/120V 1 phase

#### REAR CUSTOMER ACCESS

- Separate control panel and distribution panel access doors
- Hinged door over main bus connectors
- Emergency stop on panel
- Remote start/stop contacts

#### ENVIRONMENTALLY FRIENDLY DESIGN

- EPA Tier 4 Interim certified
- 110% spill containment of onboard engine fluids
- Meets 71 dB(A) at 7 m per SAE J1074

#### RENTAL READY FEATURES

- Anti-condensation heater 110-120 VAC
- Coolant heater 110-120 VAC
- UL Listed battery charger
- Solar powered battery maintainer
- Cam lock distribution system

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## FACTORY INSTALLED STANDARD AND OPTIONAL FEATURES

System	Standard Features
<b>Air Inlet</b>	<ul style="list-style-type: none"> <li>Air cleaner, two stage cyclonic/paper with dust cup and service indicator</li> <li>Series turbocharger and air-to-air aftercooler</li> </ul>
<b>Charging System</b>	<ul style="list-style-type: none"> <li>12V – 100A charging alternator</li> <li>UL/CSA listed 120V-10A battery charger</li> <li>Solar powered battery maintainer</li> </ul>
<b>Control Panel</b>	<ul style="list-style-type: none"> <li>EMCP 4.2 genset mounted controller</li> <li>Automatic start/stop with cool down timer</li> <li>Idle/rated switch</li> <li>Generator Protection features: 32, 32RV, 46, 50/51, 27/59, 81 O/U</li> <li>Metering display: voltage, current, frequency, power factor, kW, WHM, and kVAR</li> </ul>
<b>Cooling System</b>	<ul style="list-style-type: none"> <li>Package mounted radiator with vertical air discharge provides 43° C ambient capability at standby rating</li> <li>120VAC coolant heater, fuse protected, thermostatically controlled, automatically disconnected on start-up</li> <li>Coolant drain line with internal control valve piped to base-frame</li> <li>Coolant sight gauge, level switch and shutdown</li> <li>50% Coolant antifreeze with corrosion inhibitor</li> </ul>
<b>Distribution Panel</b>	<ul style="list-style-type: none"> <li>NEMA 1 steel enclosure with separate hinged, lockable door</li> <li>Main bus connections with hinged load cover with clear Plexiglas window closed for operation</li> <li>4-pole 800A 100% UL circuit breaker with 12V DC shunt trip wired to load door safety switch</li> <li>Multiple duplex and twist lock receptacles with individual circuit breakers</li> <li>Two wire remote start/stop terminals and 120 VAC shore power connection for rapid starting</li> <li>CamLock distribution system</li> </ul>
<b>Enclosure</b>	<ul style="list-style-type: none"> <li>Sound attenuating, 12gauge galvanealed sheet metal enclosure limits overall noise to 71 dB(A) @ 7m (23')</li> <li>Interior walls and ceilings insulated with sound attenuating foam</li> <li>Black stainless steel pad-lockable latches, doorkeepers on all doors and zinc die-cast hinges/grab handles</li> <li>All components are pretreated for anti-corrosive protection prior to painting with polyester powder coat</li> <li>Painted Cat power module white with Cat rental decals</li> </ul>
<b>Engine</b>	<ul style="list-style-type: none"> <li>EPA approved Tier 4 Interim Cat C7.1 ATAAC heavy duty diesel engine</li> <li>Electronic ADEM™ A4 controls</li> <li>12VDC energized to shutdown solenoid</li> </ul>
<b>Exhaust System</b>	<ul style="list-style-type: none"> <li>Cat Clean Emissions Module and integrated silencer with flexible connectors</li> </ul>
<b>Fuel System</b>	<ul style="list-style-type: none"> <li>350 gal fuel tank, UL listed, double wall, 24 hr runtime @ 100% prime rating</li> <li>Fuel cooler, primary fuel filters with integral water separator, and engine mounted secondary</li> <li>Switch operated electric priming pump</li> <li>Interconnected three way fuel for switching between remote and integral tank</li> </ul>
<b>Generator</b>	<ul style="list-style-type: none"> <li>Three-phase, random wound, 12-lead design, 0.667 pitch</li> <li>Screen protected and drip proof, self regulating, brushless generator with fully interconnected damper windings, IC06 cooling system and sealed for life bearings</li> <li>Class H insulation with coastal insulation protection. Windings are impregnated in a triple dip, thermo-setting moisture, oil and acid resisting polyester varnish. Heavy coat of anti-tracking varnish for additional protection against moisture and condensation</li> <li>Permanent magnet provides 350% short circuit, enhanced motor starting and non-linear performance</li> <li>120VAC anti-condensation heater</li> <li>Cat digital voltage regulator (Cat DVR) with VAR/PF control</li> </ul>
<b>Lube System</b>	<ul style="list-style-type: none"> <li>Lubricating oil system including pump, integral oil cooler, lube oil, filter, open crankcase breather with filter</li> <li>Oil drain line with internal valve routed to connection point accessible from exterior</li> <li>500 hour oil change intervals</li> </ul>
<b>Mounting System</b>	<ul style="list-style-type: none"> <li>Generator set soft mounted to the heavy duty, fabricated steel base frame using captive anti-vibration pads between the generator set and base-frame to ensure complete isolation of rotating assemblies</li> <li>Base frame includes integral fuel tank and provides 110% spill containment of all engine fluids</li> </ul>
<b>Starting System</b>	<ul style="list-style-type: none"> <li>Single 12V electric starting motor on engine</li> <li>One 12V-1000 CCA Cat brand maintenance free battery with disconnect switch, battery rack, and cables</li> <li>Glow plugs fitted on the engine</li> </ul>
<b>General</b>	<ul style="list-style-type: none"> <li>Factory testing of standard generator set and complete power module</li> <li>Full manufacturer's warranty</li> <li>O&amp;M manuals</li> </ul>
System	Optional Features
<b>Available Options</b>	<ul style="list-style-type: none"> <li>Canadian Standards Authority certification (CSA)</li> <li>Transport Canada compliant fuel tank (IBC CGSB43)</li> <li>Tandem axle trailers with either hydraulic or electric brakes</li> </ul>

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## CONTROL PANEL

### FEATURES

- EMCP 4.2 engine operator interface
- Battery charger indicator
- Fuel level display
- Idle /rated switch
- Panel light momentary pushbutton
- Voltage adjust potentiometer
- Regeneration alarm indications for DPF 80% soot level and high exhaust temperature
- Coolant alarm
- Emergency stop pushbutton
- Alarm horn
- Convenient service access for Cat (service tools not included).

### EMCP 4.2 ENGINE OPERATOR INTERFACE

- Controls
  - Run/Auto/Stop
  - Speed Adjust
  - Cool-down timer
  - Emergency Stop
  - Cycle crank
- Engine Monitoring:
  - RPM
  - Operating hours
  - Coolant Temperature
  - DC Volts
  - Oil pressure
  - Oil Temperature
- True RMS AC metering, 3 phase
  - L-L volts, L-N volts, phase amps
  - Average volts, Amps, Frequency
  - ekW, kVA, kVAR, kW-hr, %kW
  - Power Factor (Average, Phase)
  - kW-hr, kVA-hr (total)
- Shutdowns with common indicating light for:
  - Low oil pressure
  - High Coolant Temp
  - Failure to Start (Overcrank)
  - Emergency stop
  - Overspeed
  - High Oil Temperature
  - Low Coolant level
- Fuel level monitoring and control.

### EMCP 4.2 GENERATOR PROTECTIVE RELAYING

- Fuel level monitoring and control.
  - Phase over/under voltage (Device 27/59)
  - Over/Under frequency (Device 81 O/U)
  - Reverse Power (Device 32/32RV)
  - Current Balance (46)
  - Overcurrent (Device 50/51) (GCB trip unit)
  - Loss of Excitation (Device 40) (CDVR)
  - Generator Phase Sequence



### FEATURES

- One 4 pole 800 A MCCB, with 12 VDC shunt trip coil activated on any monitored engine or electrical
- Under-voltage release NEMA 1 steel enclosure with hinged lockable door with clear Plexiglas window
- Bus bars are sized for full load capacity of the generator set at 0.8 power factor.
- Includes ground bus, tin-plated copper, for connection to the generator frame ground and field ground cable.
- Customer convenience panel with multiple output receptacles:
  - 1 - 125V, 30 A single phase auxiliary supply
  - 2 - 240V, 50A California style Twist Lock.
  - 2 - 120/208V, 20A Twist Lock.
  - 2 - 120V, 20A Duplex Receptacles with GFI..
- CamLock distribution system
- Consistent 120VAC output from GFCI receptacles independent of bus bar voltage

### AC DISTRIBUTION

- Provides 120 VAC for all module accessories.
- Includes controls to de-energize jacket water heaters, battery charger, and generator space heater when the engine is running.

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