

XQ30 GENERATOR

24KW



SPECIFICATIONS

GENERATOR

Voltage regulation	± 0.5% at steady state from no load to full load
Frequency	± 0.25% for constant load from no load to 100% load
Waveform distortion	.THD < 4%
Radio interference	Compliance with EN61000-6
Telephone interference	.TIF < 50, THF < 2%
Overspeed limit	.2250 rpm
Insulation	.Class H
Temperature rise	Within Class H limits
Available voltages	Switchable voltage output 480/277 volt, 240/139 volt 3-phase to 240/120 volt single phase
Deration	.Consult factory for available outputs
Ratings	.At 30° C (86° F), 152.4 m (500 ft) 60% humidity, 0.8 pf

ENGINE

Manufacturer	Caterpillar
Model	C2.2
Type	4-cycle
Aspiration	ATAAC
Cylinder configuration	In-line 4
Displacement – L (cu in)	2.2 (135)
Bore – mm (in)	84 (3.3)
Stroke – mm (in)	100 (3.9)
Compression ratio	23:3
Governor	
Type	Electronic
Class	ISO8528 G1 and G2
Piston speed – m/sec (ft/sec)	6.0 (19.7)
Engine speed – rpm	1800
Maximum power at rated rpm – kW (hp)	
Standby	36.4 (49)
Prime	32.8 (44)
BMEP – kPa (psi)	
Standby	1095 (158.8)
Prime	987 (143.1)
Regenerative power – kW (hp)	7.2 (9.7)

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TECHNICAL DATA

XQ30

Materials and specifications are subject to change without notice.

Generator Set Technical Data - 1800 rpm/60 Hz			Standby	
Power Rating	kW	(kVA)	24	(37.5)
Lubricating System				
Total oil capacity	L	(U.S. gal)	10.0	(2.8)
Oil pan	L	(U.S. gal)	8.9	(2.4)
Fuel System				
Generator set fuel consumption				
100% load	L/hr	(gal/hr)	10.0	(2.6)
75% load	L/hr	(gal/hr)	7.2	(1.9)
50% load	L/hr	(gal/hr)	5.1	(1.4)
Fuel tank capacity	L	(U.S. gal)	291	(77)
Running Time at 100% load	Hours		29+	
Cooling System				
Radiator system capacity including engine	L/hr	(gal/hr)	12.7	(3.4)
Heat rejected to coolant at rated power	kW	(Btu/min)	38.2	(2,172)
Air Requirements				
Combustion air flow	m ³ /min	(cfm)	2.5	(88)
Radiator cooling air	m ³ /min	(cfm)	81.6	(2,882)
Generator cooling air	m ³ /min	(cfm)	81.6	(2,882)
Generator Set Noise Rating* [with enclosure at 7 meters (23 feet)]	dBA		61	

*dBA levels are for guidance only

Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight	
				With Lube Oil and Coolant kg (lb)	With Fuel, Lube Oil and Coolant kg (lb)
XQ30	2328 (91.7)	1161 (45.7)	1577 (62.1)	1500 (3,307)	1748 (3,854)
XQ30 with trailer	3764 (148.2)	1943.4 (76.5)	2065.4 (81.3)	1908 (4,206)	2156 (4,753)

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STANDARD CONTROLS

FEATURES

EPA TIER 4 AND CARB CERTIFIED FOR NON-ROAD MOBILE APPLICATIONS

SOUND ATTENUATED ENCLOSURE

- The fully weatherproof enclosures incorporate internally mounted exhaust silencers.
- Highly corrosion resistant construction.
 - Body made from sheet steel components pretreated with zinc phosphate prior to polyester powder coating at 200° C (392° F)
 - Black stainless steel padlockable latches.
 - Zinc die cast hinges/grab handles.
- Excellent access for maintenance.
 - Two large doors on each side. Two rear doors for distribution/control panel.
 - Front panel for air discharge box access.
 - Lube oil and cooling water drains piped to exterior of the enclosure.
- Security and safety.
 - Safety glass control panel viewing window in a lockable access door.
 - Cooling fan and battery charging alternator fully guarded.
 - Fuel fill and battery can only be reached through lockable access doors.
- Transportability.
 - Tested and certified single point lifting eye.
 - Lifting points on baseframe.

ROBUST DESIGN FOR RENTAL ENVIRONMENT

- Packages designed to survive in a rugged environment.

DISTRIBUTION PANEL

- Switchable voltage from 480/277V 3-phase to 240/139V 3-phase (adjustable to 208/120V 3-phase), 240/120V single phase.*

REAR CUSTOMER ACCESS

- Access through two doors.
- Separate control panel access.
- Separate connection console.
- Hinged door over main connectors.
- Emergency stop on panel.

ENVIRONMENTALLY FRIENDLY DESIGN

- EPA Tier 4 off-highway compliant engine.
- UL single walled fuel tank base with 24 hour @ 75% load Prime minimum fuel supply.

OPTIONS

- EPA Tier 4 off-highway compliant engine.
- AH1H – Anti-condensation heater 110-120 volt AC
- WHH – Coolant heater 110-120 volt AC
- LOLR – Lube oil make-up system with REN automatic leveller
- Double wall fuel tanks
- Battery charger
- Hydraulic or Electrical Brake Trailer
- PFT – 0.8 pF test

* Refer to distribution panel specifications for details.

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STANDARD CONTROLS

1. ENGINE

Heavy duty industrial EPA Tier 4 compliant diesel engine.

1.1 Governor

Electronic

1.2 Electrical System

12 volt DC. Energized to run shutdown solenoid. Oil pressure and coolant temperature/level shutdown switches and gauge senders.

1.3 Derates

Genset power derates will be required in accordance with engine manufacturers above 37° C (98.6° F).

2. COOLING RADIATOR

Radiator and cooling fan complete with protection guards, designed to cool the engine in ambient temperatures up to 49° C (120° F).

3. ENGINE FILTRATION SYSTEM

Cartridge type dry air filters with restriction indicator. Racor fuel filter in addition to engine filter. Cartridge type fuel filters and full flow lube oil filters. All filters have replaceable elements.

4. EXHAUST SYSTEM

Critical silencer with flexible connector. All internal pipework lagged.

5. ELECTRICAL SYSTEM

12 volt system with battery charging alternator, and starter motor on engine, battery rack mounted on the generator set baseframe and optional battery charger mounted on control panel. Battery rack will accept a variety of battery sizes. Includes Cat® maintenance free 880CCA Battery.

6. GENERATOR

Screen protected and drip-proof, self-regulating brushless generator with fully interconnected damper windings, IC06 cooling system and sealed-for-life bearings. Switchable voltage output.

6.1 Insulation System

The insulation system is Class H. 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 or condensation.

6.2 Electrical Characteristics

Electrical design in accordance with BS5000 Part 99, IEC60034-1, EN61000-6, NEMA MG-1.22.

6.3 Generator Excitation

Self Excited – self protecting against short circuit.

6.4 Automatic Voltage Regulator (AVR)

The R250 is a fully sealed automatic voltage regulator, which maintains the voltage within the limits of $\pm 0.5\%$ at steady state from no load to full load. Nominal adjustment is by means of a trimmer incorporated in the AVR. The panel door incorporates an additional voltage adjustment potentiometer.

6.5 Waveform Distortion, THF and TIF Factors

The total distortion of the voltage waveform with open circuit between phases or phase and neutral is in the order of 1.8. On a 3-phase balanced harmonic-free load the total distortion is 4%. Machines are designed to have a THF less than 2% and a TIF less than 50. A 2/3 pitch factor is standard on all stator windings.

6.6 Radio Interference

Suppression is in line with the provisions of EN61000-6.

7. MOUNTING ARRANGEMENT

7.1 Baseframe

The complete generator set is mounted on a heavy duty fabricated steel baseframe. The baseframe includes a UL listed closed top fuel tank and incorporates specially designed lifting points.

7.2 Coupling

The engine and generator are directly coupled by means of an SAE flange so that there is no possibility of misalignment after prolonged use. The engine flywheel is flexibly coupled to the generator rotor and a full torsional analysis has been carried out to guarantee no harmful vibration will occur in the assembly.

7.3 Anti-Vibration Mounting Pads

Captive anti-vibration pads are affixed between engine/generator feet and the baseframe ensuring complete vibration isolation of the rotating assemblies and enabling the machine to be placed on an uneven surface without detrimental effects.

7.4 Safety Guards

The fan, fan drive and battery charging alternator drive are fully guarded for personnel protection. Heat guards protect personnel from the exhaust pipe. All guards are to OSHA standards.

8. FUEL SYSTEM

Fuel feed and return lines to the engine are terminated at the baseframe mounted 24 hour @ 75% load Prime extended capacity fuel tank. 3-way valves to allow connection of auxiliary fuel tank.

9. CONTROL SYSTEM

9.1 Control Panel

Set mounted autostart panel in a vibration isolated NEMA 1 sheet steel enclosure with a hinged lockable door.

a. DC and AC Wiring Looms

DC and AC wiring looms utilizing industrial type multi-pin connectors to permit fast fault finding.

9.2 Circuit Breaker

3-pole UL CSA listed molded case circuit breaker mounted on the generator set in a vibration isolated NEMA 1 distribution panel.

9.3 Small power receptacles housed in a NEMA 1 distribution panel.

Receptacles accept industry standard male plugs. Each receptacle is protected by a miniature circuit breaker which also acts as an on/off switch.

10. DOCUMENTATION

A full set of operation and maintenance manuals, circuit wiring diagrams, and instruction leaflets is provided.

11. SOUND ATTENUATED ENCLOSURES

A noise reducing enclosure surrounds the entire generator set. Combined with a critical engine silencer this provides an overall noise reduction from 65 to 68 dBA at 23 feet through the range.

12. FACTORY TESTS

The generator set is load tested before dispatch. All protective devices, control functions and site load conditions are simulated and the generator and its systems checked, proved and then passed for dispatch. A test certificate can be provided upon request.

13. EQUIPMENT FINISH

All sheet metal components including the enclosure and the base tank are fully degreased, phosphated and chromated for anti-corrosive protection prior to painting with polyester powder. The powder is cured at a temperature of 200° C (392° F) to ensure maximum scuff resistance and durability. All fasteners are electroplated. The engine and generator are thoroughly cleaned and finished in temperature controlled ovens with industrial high gloss polyurethane paint.

14. STANDARDS

The equipment meets the following standards: BS4999, BS5000, BS5514, IEC60034, EN61000-6, NEMA MG-1.22.

15. WARRANTY

Full manufacturer's warranty.

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CONTROL PANEL

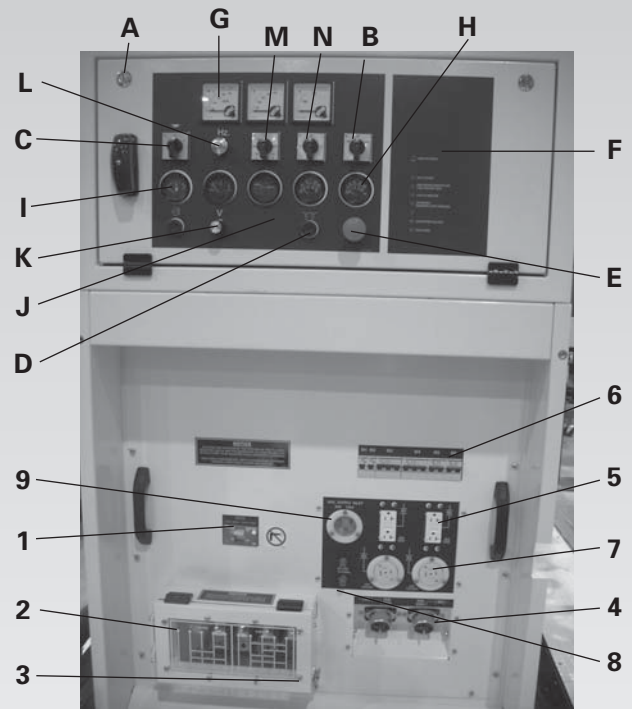
- A** NEMA 1 steel enclosure with hinged lockable door with viewing window.
- B** Manual run/off.
- C** Panel light ON/OFF switch.
- D** Separate pre-heat pushbutton.
- E** Red emergency stop pushbutton.
- F** Lamp test/reset pushbutton.
- G** Voltmeter and ammeter.
- H** Engine gauges for: oil pressure, coolant temperature, battery volts, fuel level.
- I** Fuel level display with momentary activation pushbutton.
- J** Hours run meter.
- K** Voltage adjust potentiometer.
- L** Frequency adjust potentiometer.
- M** 1 — 7 Position voltmeter phase selector switch.
- N** 1 — 4 Position ammeter phase selector switch.

OTHER FEATURES

- Shutdowns: high coolant temperature/low coolant level, low oil pressure, overcrank, overspeed.
- Low fuel level/fuel tank leak alarm.
- Printed circuit board control logic.
- Autostart standard.
- Cycle cranking with 3 adjustable time crank/rest periods.
- Battery charger, 5 Amp constant voltage, UL listed (optional).

DISTRIBUTION PANEL

- 1** 1 — 3 Pole MCCB with solid neutral (4 Wire). UL/CSA listed with shunt trip. Integral trip unit for thermal and magnetic overload protection on MCCB.
- 2** Main bus connection studs enclosed with hinged transparent cover for easy access and operator safety.
- 3** Cover for bus studs includes safety lockout feature to keep unit from operating with door open.



- 4** 2 — Single phase — California style Twistlocks, 50 Amps @ 208 Volt phase to phase, 120 Volt phase to neutral (adjustable to 240/139) or 240/120 single phase when operating in single phase voltage position.
- 5** 2 — Single phase — GFCI Duplex receptacles, 20 Amps @ 120 Volts.***
- 6** Individual circuit breaker protection for receptacles. Also act as on/off switches.
- 7** 2 — 3-phase NEMA locking receptacles, 20 Amps at 208/120V
- 8** Two wire remote start connection terminals.
- 9** 1 — 30A, 125V single phase NEMA locking inlet receptacle

*** Receptacles not for use with unit operating at 480/277V or 240/139V 3 phase.

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