Cat® XQP20 Rental Generator Set



Image shown may not reflect actual configuration.

Prime 20 kVA (16 kW)
50 Hz
EU Stage V

Specifications

Frequency Hz	Speed (rpm)	Voltage	Prime		Output Amps (A)	Breaker Rating (A)
			kVA	kW		
50	1500	415 / 240 V	20	16	31	40
		400 / 230 V	20	16	32	
		380 / 220 V	20	16	34	

Cat® C2.2 Diesel Engine	Metric	Imperial (English)
Configuration	Inline 4-cylinder, 4-Stroke-Cycle, Water Cooled, Diesel	
Bore	84 mm	3.3 in
Stroke	100 mm	3.9 in
Displacement	2.2 L	134 in^3
Aspiration	Naturally Aspirated	
Compression Ratio	23.3:1	
Engine rpm	1500	
Fuel System	Indirect Injection	
Governor Type	Mechanical	
Fuel	See Fuel Specification Table	

Benefits & Features

Rental-ready Features

- 12 hr dual wall fuel tank with tie down points and robust skid plate base
- Externally certified single point lift
- Coolant and drain lines
- Externally certified spark arrester/silencer
- 50 Hz frequency
- Optimized cable entry for easy hook-up
- Robust busbar connection for lugged cable connection
- Sound isolated side mounted control panel with integrated power distribution access
- AC protected by limit switch on distribution door
- Enclosure protection

Fuel/Emissions Strategy

- EU Stage V

Single-source Supplier

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

Cat® C2.2 Diesel Engine

- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

Cat GCCP1.3 Control Panel

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

Cat LC1100 Generator

- Designed to match performance and output of Cat diesel engines
- Coastal insulation protection
- Self (shunt) excitation

R220 Automatic Voltage Regulator (AVR)

- Provides precise control, excellent block loading, and constant voltage in the normal operating range

Enclosure

- Galvanized sheet steel construction
- Two coat polyester powder-coated finish
- 3 access doors for improved service access
- Secure design with safety glass control panel viewing window and padlockable or keylock access doors
- Fuel fill, battery and controls accessible only through lockable access doors

Environmental Considerations

- Dual wall base tank
- 110% spill containment of all on-board engine fluids
- Bund level alarm
- Low noise enclosure
- Inboard mounted 3-way valve for external fuel connection

Cat Connect

- Fleet management and asset tracking*

**Subject to local certifications*

Options

- CE socket box with integrated breaker protection
- CEE sockets with protection
- Anti condensation heater 230V AC
- Coolant heater 230V AC
- 12V battery charger
- Earth leakage detection
- Earth Fault detection
- Lube oil sump pump
- Common Alarm
- Volt Free Contacts for Genset running
- Forklift pockets

Standard Equipment

Generator and Voltage Regulation

- Screen protected and drip-proof (IP23), self-regulating, 12-lead, 4-pole, brushless generator
- Sealed-for-life bearing
- Electrical design in accordance with IEC60034-1, EN61000-6, NEMA MG-1.22, and CSA
- Self-excited for self-protection against short circuits
- Insulation System:
  - Class H insulation system
  - Windings are impregnated in a thermo-setting moisture, oil, and acid resisting varnish
  - Heavy coat of anti-tracking varnish for additional protection against moisture or condensation (CIP)
- Wave form distortion, THF, and TIF Factors:
  - Total distortion of voltage waveform with open circuit between phases of Total distortion <5%, on a 3-phase, balanced, harmonic-free load
  - Total distortion <2%, under no load
  - Waveform: NEMA (TIF <50)
  - 2/3 pitch standard on all stator windings

Cat® C2.2 Diesel Engine

- Cat C2.2 heavy-duty, EU-V certified
- Block heater, 220 VAC
- Requires Ultra Low Sulfur Diesel (ULSD) fuel
- Engine Electrical System:
  - 12-volt, DC electrical system
  - 65amp, DC charging alternator
  - Oil pressure, coolant temperature, and coolant level shutdown switches
- Engine Filtration System:
  - Canister type air filter with service indicator
  - Cartridge-type fuel filter with upstream pre-filter and water separator
  - Spin-on, full-flow lube oil filter, requires API CH-4 lube oil (or later)
- Regulator and belt guards

Generator Set Packaging

- Base frame and containment tray
  - Heavy-duty, fabricated steel base frame with specially designed lifting points
  - Spill containment attached to base frame, with leak-detection switch
- Canopy
  - Sound attenuated to 65 dBA at 7m (23 ft)
  - Single door access on each side, and one dedicated access for power distribution and control panel access

Generator Set Packaging (cont'd.)

- Cooling System:
  - Radiator with protective guards
  - Ambient clearance – 45 Deg @ Prime Power
- Electrical System:
  - 12-volt, DC electrical system
  - Battery disconnect switch (Optional)
- Engine and generator mounting
  - Engine and generator are directly coupled by an SAE flange
  - Engine flywheel is flexibly coupled to the generator rotor, with full torsional analysis completed to ensure no harmful vibration will occur in the assembly
  - Anti-vibration pads between engine/generator feet and base frame
- Fuel System:
  - 12-hour runtime @ 75% prime load

Generator Controls and Power Distribution

- Industry leading Caterpillar GCCP1.3 Diesel Generator Set Digital Controller
- Circuit Breaker: 4-pole breaker, 40A with Shunt trip
- Safety switch on hinged main bus cover-trips breaker if cover is opened
- Two-wire, remote start-stop terminals
- Customer auxiliary power connections (Optional):
  - CEE Sockets
  - Each receptacle is protected by a miniature circuit breaker, which also acts as an on/off switch
- Main customer connections:
  - Copper bus bars with phase separators, located behind a protective door with shunt trip switch
  - Bus bars sized for full load capacity of generator set at 0.8 power factor

Quality and Product Support

- Factory load-testing of complete generator set
- Factory test certificate available upon request
- Equipment meets the following standards: IEC60034, EN61000-6
- Full set of operation and maintenance manuals
- walls, ceilings and ducts insulated with precision cut noise insulating materials
- Outlet box mounted with vertical discharge

Fuel Specifications

Specification Standard	Grade Class	Fuel Description
EU Stage V specifies Ultra Low Sulphur Diesel		Ultra-Low Sulphur Diesel Only (ULSD). ULSD with a maximum fuel sulphur level of either 15 or 20 ppm1 is required. Bio-diesel fuel may be used up to B20 (80% standard ULSD with 20% bio-fuel dilution by volume), provided an appropriate approved additive is used.

Oil Specifications

Specification Standard	Oil Description
EU Stage V Recommended oil 15W-40 CK-4 1E1867F	CAT DEO-ULS (Preferred)

DEF Specifications

Specification Standard	DEF Description
EU Stage V DEF Requirements ISO 22241-1	Diesel Exhaust Fluid

Technical Data

Cat® Generator	
Frame size	LC1114M
Pitch	2/3
No. of poles	4
Excitation	Static regulated, brushless, self excited
Number of bearings	Single bearing, close coupled
Insulation	Class H
Temperature rise	125/40°C
Enclosure	Drip proof IP23
Overspeed capability — % of rated	25%
Voltage regulator	R220
Voltage regulation	Less than ± 0.5%
Wave form deviation Telephone Influence Factor (TIF) Harmonic Distortion (THD)	 Less than 5% Less than 5%

Cat Generator Set		
	TMI Performance No. Units	**Prime — 50 Hz P6324B**
Power Rating	kVA (kW)	20 (16)
Performance Specification		
Lubricating System Oil pan capacity	 L (gal)	 6 (1.6)
Fuel System Fuel consumption — 100% Load 75% Load 50% Load Fuel tank capacity Running time @ 75% rating	 L/hr (gal/hr) L/hr (gal/hr) L/hr (gal/hr) L (gal) Hr	 5.5 (1.45) 4.0 (1.05) 3.0 (0.76) 56 (14.8) 13
Cooling System Ambient capability @ 750m Engine & radiator coolant capacity Engine coolant capacity	 °C (°F) L (gal) L (gal)	 45 (113) 10.6 (2.8) 7.0 (1.8)
Air Requirements Combustion air flow at 110% Load	 m^3/min (cfm)	 6.7 (236.6)
Exhaust System Exhaust flow at rated — dry exhaust Exhaust temperature at rated kW	 m^3/min (cfm) °C (°F)	 3.64 (128) 490 (914)

Technical Data (continued)

Cat Generator Set		
	TMI Performance No. Units	**Prime — 50 Hz P6324B**
Noise Rating (with enclosure) ** **Sound Power*** @ 7 meters @ 75% load @ 7 meters @ 100% load @ 1 meter @ 75% load @ 1 meter @ 100% load	 dB(A) dB(A) dB(A) dB(A) dB(A)	 90 64 65 72 73
Emissions data at 100% Load NOx CO HC PM	 g/hp-hr g/hp-hr g/hp-hr g/hp-hr	 3.72 1.25 – –

**Guaranteed sound power as per 2000/14/EC

For full Engine & Emissions data please refer to TMI using the engine performance no.

Weights & Dimensions

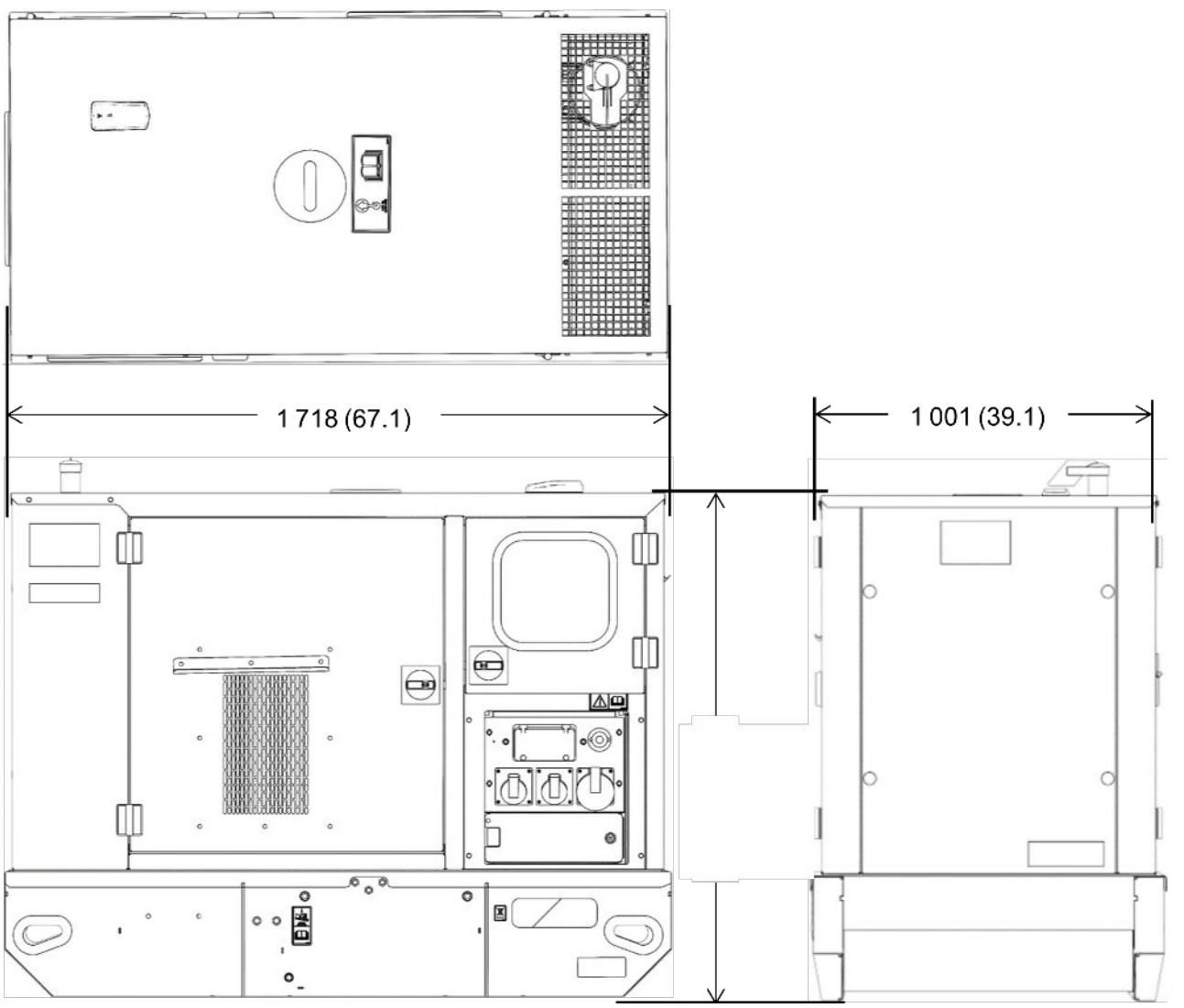
Dimensions			
	Length mm (in)	Width mm (in)	Height mm (in)
Generator Set	1 718 (67.1)	1 001 (39.1)	1 300 (50.78)

Weight	
	Weight — kg (lb)
Lube Oil & Coolant — Empty Fuel Tank	752 (1 654)
Full Fuel Tank	815 (1 793)

Socket Box Option						
Sockets	15A	16A	32A	50A	63A	125A
CEE Form*	–	2x1ph+N+E	2x3ph+N+E	–	–	–

Layout for General Dimensions

Dimensions in millimeters (inches)



Cat® XQP20 Rental Generator Set

Rating Definitions and Conditions

Designed to Meet Specifications: ISO 8528, EN 12601, EN 60204-1, ISO 3046, IEC 60034.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

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.

Fuel rates are based on fuel oil of 35º API [16ºC (60ºF)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29ºC (85ºF) 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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