



CONTINUOUS 135 kW

60 Hz

Frequency (Hz)	Voltage (V)	Continuous kW (kVA)
60	480/277	135 (169)
60	240/139	135 (169)
60	208/120	135 (169)

FEATURES

FUEL/EMISSIONS STRATEGY

- Factory certified Non-Road Mobile NSPS SI emissions
- Capable of running on field, pipeline and liquid propane gas with primary application field gas
- Fuel auto-switch capable with customer supplied pressure switch
- Caterpillar supplied air-fuel-ratio-control and three way catalyst
- Fuel flexibility to Caterpillar 30 methane number

CAT® G3306B TA GAS ENGINE

- Robust high speed diesel block design provides prolonged life and lower owning and operating costs
- Designed for maximum performance on effective low pressure gaseous fuel supply
- Simple open chamber combustion system for reliability and fuel flexibility

CAT EMCP 4.4 CONTROL PANEL

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

CAT GENERATOR

- Cat SR4B 445 frame generator designed to match performance and output characteristics of the Cat gas engine
- 4 pole, permanent magnet excitation, random wound
- Segregated AC/DC, low voltage accessory box provides single point access to accessory connections

CAT INTEGRATED VOLTAGE REGULATOR (IVR)

- Three-phase or single phase generator voltage (RMS) sensing with adjustable volts-per-hertz regulation
- Provides precise control, excellent block loading, and constant voltage in the normal operating range

ENCLOSURE / BASE

- Highly corrosion resistant 12 gauge sheet steel construction
- Two coat polyester powder-coated finish
- Four access doors for ease of maintenance
- Secure and safe design with safety glass control panel viewing window with pad-lockable access door
- Single point lifting eye and lifting points on the base frame
- Heavy-duty base with towbars for oilfield conditions

DISTRIBUTION PANEL

- 480/277V 3 phase
- 240/139/208/120V 3 phase

REAR CUSTOMER ACCESS

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

ENVIRONMENTALLY FRIENDLY

- Factory certified Non-Road Mobile NSPS SI
- 110% spill containment of onboard engine fluids
- Meets 75 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

COOLING SYSTEM

- Provides 40 C (122 F) ambient capability with 0.5 g/bhp-hr NOx per NSPS 2010 at 100% continuous rating

FACTORY INSTALLED STANDARD EQUIPMENT

SYSTEM	STANDARD EQUIPMENT
Engine	G3306B TA, I-6, 4-stroke-cycle natural gas engine
Air Inlet	Single element, canister-type air cleaner with service indicator
Generator	SR4B 445 frame, three-phase, 480V, random wound, 12-lead design, permanent magnet excited, 0.750 pitch – Class H Coastal insulation protection. Windings impregnated in a triple dip, thermo-setting moisture, oil and acid resisting polyester varnish. Heavy coat of anti-tracking varnish for additional protection. Cat digital voltage regulator (IVR) with VAR/PF control, RFI suppression, exciter diode monitor 120VAC anti-condensation heater
Charging System	UL/CSA listed 120V, 20 Amp battery charger, shock mounted and enclosed in dust proof housing Charging alternator, 24V-45A Solar powered battery maintainer
Control Panel	EMCP 4.4 genset mounted controller NEMA 2, IP23 dust proof enclosure, UL508 listed Idle/rated switch Generator Protection features: 32, 32RV, 46, 50/51, 27/59, 81 O/U Metering display: voltage, current, frequency, power factor, kW, WHM, and kVAR Panel illumination lights and Emergency stop switch Manual and automatic paralleling capability Automatic start/stop with cool down timer Dual voltage with link board
Cooling System	Heavy-duty split core cooling system with low power draw and high ambient capability Package mounted radiator with vertical air discharge provides 40° C ambient capability Blower fan, fan drive, fan guard and belt guards Externally accessible coolant drain line with internal brass ball control valve piped to base-frame Coolant sight gauge, level switch and shutdown 50/50 coolant antifreeze (NGEC)
Distribution System	NEMA 1 steel enclosure, separate hinged, lockable door with rust resistant pinned hinges Main bus connections with hinged load cover with Plexiglas window closed for operation EO main circuit breaker 3-pole, 480V-250A (600A multi-voltage) with 24V DC undervoltage trip wired to load door safety switch Current transformers, hard mounted Multiple duplex and twist-lock receptacles with individual circuit breakers – Ground Fault protected (GFI) Two wire remote start/stop terminals and 120 VAC shore power connection for rapid starting 120/240V customer convenience panel
Enclosure	Sound attenuating, 12 gauge sheet metal enclosure limits overall noise to 75 dB(A) @ 7m Modular panel construction and one piece welded roof design with 2 degree pitch Interior walls and ceilings insulated with flame retardant, precision cut foam materials meeting NFPA220 Black stainless steel pad-lockable latches, doorkeepers on all doors and zinc die-cast hinges/grab handles Single point lifting Painted Cat power module white with Cat rental decals
Exhaust System	Catalyst w/spark arresting muffler Crankcase fumes disposal system
Fuel System	Dedicated fuel trains for natural gas and propane fuels including gas pressure regulator, Energize-to-Run (ETR) gas shutoff valve, air-fuel-ratio-control controlled by ADEM™, Coalescing Filter, Methane detection
Lube System	Pump, integral oil cooler, lube oil, filter, filler and dipstick, and oil sampling valve Oil makeup tank (5 gal/19 L) Externally accessible oil drain connection
Mounting System	Generator set soft mounted to the heavy duty, fabricated steel base frame Skid-able steel base frame w/ tie down eyes, tow bars and fork pockets, single point lift Provides integral 110% spill containment system for all engine fluids
Starting System	Single electric starting motor, 24VDC Dual 12V (1400 CCA) maintenance free batteries with disconnect switch, battery rack, and cables UL listed, 120 volt single phase jacket water heater with thermostat and shut off valves, auto disconnect on start-up
General	Factory testing of standard generator set Full manufacturer's warranty Meets ISO 8528 transient capability

FACTORY INSTALLED OPTIONAL EQUIPMENT

Available Options	Tandem axle trailer with electric brakes Cold weather package
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SPECIFICATIONS

GENERATOR

Frame Size	445 SR4B
Pitch	0.75
No. of poles	4
Excitation	PM excited
Constructions	Single bearing, close coupled
Insulation	UL 1446 Class H
Coastal Protection	Yes
Enclosure	Drip proof IP23
Temperature rise	90 deg C
Alignment	Pilot shaft
Overspeed capability – % of rated	125% of rated
Voltage regulator	3 phase sensing with Volts-per-Hertz
Voltage regulation	Less than ± 0.5% voltage gain
Adjustable to compensate for engine speed droop and line loss	
Wave form deviation	Less than 5%
Telephone Influence Factor (TIF)	Less than 50
Harmonic Distortion (THD)	Less than 5%

CAT G3306 TA GAS ENGINE

Number of Cylinders	In-Line 6
Type	4-Stroke-Cycle, Spark Ignited
Bore – mm (in)	121 (4.75)
Stroke – mm (in)	152 (6.0)
Displacement – L (cu in)	10.5 (641)
Compression ratio	8:1
Engine Speed (rpm)	1800
Aspiration	Turbocharged Aftercooled
Governor	Electronic ADEM A4
Aftercooler Inlet (deg C)	54
Jacket Water Inlet (deg C)	99
Cooling System	Separate Circuit
Fuel	Natural Gas
Minimum Inlet Fuel Pressure (PSI)	12 - 25
Minimum Methane Number	30

TECHNICAL DATA*

Generator Set Technical Data	Units	60 Hz Continuous
Power Rating	kW (KVA)	135 (169)
Performance Specification		DM9398
Engine Speed		1800
Lubricating System		
Oil pan capacity	L (gal)	44.5 (11.9)
Fuel System		
Fuel consumption		
100% Load	Btu/hp-hr	8,083
75% Load	Btu/hp-hr	8,455
50% Load	Btu/hp-hr	9,311
Cooling System		
Ambient Capability at 25 deg C (77 deg F)	°C (°F)	40 (101)
Altitude Capability @ Max. Ambient Capability	ft (m)	886 (270)
Coolant Capacity	L (gal)	75 (20)
Air Requirements		
Combustion air flow	m ³ /min (cfm)	8.55 (302)
Exhaust System		
Exhaust stack temperature	°C (°F)	576 (1,068)
Exhaust flow (at stack temperature)	m ³ /min (cfm)	27.30 (964)
Sound Performance		
Noise Rating @ 7 meters per SAE J1074	dB (A)	75
Emissions Data		
NOx (as NO2)	g/hp-hr	0.50
CO	g/hp-hr	2.00
THC	g/hp-hr	1.05
NMHC	g/hp-hr	0.16
CO2	g/hp-hr	496
EXHAUST O2	%	0.0

*Materials and specifications are subject to change without notice. Data is at standard conditions.

FUEL USAGE GUIDE**

Derate Factor/Engine Timing vs Methane Number											
Methane Number	30	35	40	45	50	55	60	65	70	75	80
Set Point Timing	21	22	22	23	25	26	28	30	31	33	35
Derate Factor	1	1	1	1	1	1	1	1	1	1	1

**Table advises air-fuel ratio control required for maximum rating.

STANDARD FEATURES

EMCP 4.4 LOCAL CONTROL PANEL

- Generator mounted EMCP 4.4 provides power metering, protective relaying and engine and generator control and monitoring.
- NEMA 12, IP44 Dust Proof Enclosure
- UL508A Listed
- Convenient service access for Cat Service tools (service tools not included)
- Integration with the Cat IVR provides enhanced system monitoring
- Ability to view and reset diagnostics of all controls networked on primary CAN data link eliminates need for separate service tools for troubleshooting
- Real-time clock allows for date and timestamping of diagnostics and events
- True RMS AC metering, 3 phasephase: L-L volts, L-N volts, Phase, Amps, Hz, ekW, kVA, kVAR, kWhr, % kW, PF

EMCP 4.4 ENGINE OPERATOR INTERFACE

- Controls
 - Run/Auto/Stop
 - Speed Adjust
 - Voltage Adjust
 - Emergency Stop
 - Cycle crank
 - Cool-down timer
- Engine Monitoring
 - RPM
 - Operating hours
 - Coolant Temperature
 - DC Volts
 - Oil pressure
 - Oil Temperature
- Generator Monitoring
 - 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
 - Emergency stop
 - Failure to Start (Overcrank)
 - Overspeed
 - High Oil Temperature
 - Low Coolant level
- Emergency stop pushbutton
- Panel illuminating lights
- Display navigation keys including two shortcut keys for Engine Parameters or Generator Parameters

DISTRIBUTION PANEL

- Separate load and control sections
- Access using a hinged padlock-able door
- Main busbar with hinged cover door with a clear
- Plexi-glass window
- Customer convenience power receptacles protected by miniature circuit breaker:
 - 1 – 240V, 50A California style Twist Lock
 - 1 – 240V, 20A Twist Lock
 - 2 – 120V, 20A Twist Lock with Ground Fault
 - 2 – 120V, 15A Duplex Receptacles with GFI

CIRCUIT BREAKER

- Includes DC undervoltage trip coil activated on any monitored engine or electrical fault
- Multi-Voltage Version
 - 25 KA interrupting capacity at 440 VAC
 - 600A 100% rated fixed type, 3 pole, generator set mounted

EMCP 4.4 GENERATOR PROTECTIVE RELAYING

- Generator protective features provided by EMCP 4.4
 - 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) (Cat IVR)
 - Generator Phase Sequence

OPTIONAL FEATURES

COLD WEATHER PACKAGE

- Package designed to operate to -40 deg C ambient equipped with the following
 - Temperature controlled fan
 - Battery heaters
 - Fumes disposal heat wrap
 - JWH
 - Control panel heater
 - Oil pan heater
 - Heated oil tank and lines

TRAILER

- Tandem axle trailer with electric brakes

WEIGHTS AND DIMENSIONS

Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight with Lube oil, Coolant kg (lb)
XG135 w/o Trailer	4,998 (197)	1,594 (61)	2,616 (103)	4,786 (10,550)
XG135 w/ Trailer	6,960 (274)	2,286 (90)	3,200 (126)	7,747 (17,074)

RATING DEFINITIONS AND CONDITIONS

Continuous — Output available without varying load for an unlimited time. Continuous power is in accordance with ISO8528, AS2789, and BS5514.

Fuel stop power is in accordance with ISO3036. Natural gas ratings have been established on natural gas with net calorific Low Heat Value (LHV) of approximately 35.6 MJ/Nm³ (905 Btu/cu ft) and 80 Methane Number (MN). Fuel rate is based on a cubic meter at 100 kPa (29.61 in Hg) and 15.6°C (60.1°F). Air flow is based on a cubic foot at 100 kPa (29.61 in Hg) and 25°C (77°F). Exhaust flow is based on a cubic foot at 100 kPa (29.61 in Hg) and stack temperature. For values in excess of altitude, ambient temperature, inlet/exhaust restriction, or different from the conditions listed, contact your local Caterpillar dealer.

Engine performance is obtained in accordance with SAE J1995, ISO3046/1, BS5514/1, and DIN6271/1 standards.

Transient response data is acquired from an engine/generator combination at normal operating temperature and in accordance with ISO3046/1 standard ambient conditions. Also in accordance with SAE J1995, BS5514/1, and DIN6271/1 standard reference conditions.

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