



Continuous 400 kW
60 Hz 1800 rpm

Image shown may not reflect actual configuration

Specifications

Frequency	Voltage	Continuous kW (kVA)	Speed rpm
60 Hz	600/346	400 (500)	1800
60 Hz	480/277	400 (500)	1800
60 Hz	240/139	400 (500)	1800
60 Hz	208/120	400 (500)	1800

Cat® CG137-12 TA Gas Engine	Metric	Imperial (English)
Number of Cylinders	V12	
Type	4-Stroke-Cycle	
Emissions	U.S. EPA Tier 2 for Large Non-road Spark-ignition Engines	
Bore	137.2 mm	5.4 in
Stroke	164 mm	6.46 in
Displacement	29 L	1770 in ³
Compression Ratio	8.3:1	
Engine Speed rpm	1800	
Aspiration	Turbocharged Aftercooled	
Governor	Electronic ADEM™ A4	
Aftercooler Inlet	54°C	129°F
Jacket Water Inlet	99°C	210°F
Cooling System	Separate Circuit	
Fuel	Commercial Natural Gas and Field Gas	
Minimum Inlet Fuel Pressure (kPA)	10-35	
Minimum Methane Number	30	

Benefits & Features

Fuel/Emissions Strategy

- U.S. EPA Tier 2 for large non-road spark-ignition engines
- Proper air-fuel-ratio-control and three way catalyst provided to reduce emissions
- Subject to NSPS SI emissions site compliance if on site for more than 12 months and permitted as a stationary engine

Cat CG137-12 TA Gas Engine

- Tough and durable with field-proven head design
- Caterpillar supplied air/fuel ratio control and three-way catalyst
- Fuel flexibility enables operation on a wide range of gas quality – from wellhead gas to pipeline quality natural gas
- Engine ratings developed to accept low-quality gas down to Cat MN 30

Cat EMCP 4.4 Control Panel

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

Cat Generator

- Cat SR4B 593 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 (Cat IVR)

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

Sound Attenuated Container

- 30' ISO high cube container designed to meet CSC certifications (not factory CSC certified)
- Painted standard Cat power module white
- Sound attenuated air intake louvers
- Floor insulated with acoustic glass and covered by galvanized steel
- Three lockable personnel doors with panic release
- Two fire extinguishers
- External drain access to standard fluids
- Meets 75 dB(A) at 7 meters sound performance per SAE J1074
- 110% spill containment of onboard engine fluids

Distribution Panel

- 600/346V, 480/277V, 240/139V, 208/120V, 3-phase

Side Customer Access

- Separate control panel and distribution panel access doors
- Hinged door for main buss connectors w/safety switch
- One (1) Internal emergency stop on control panel and three (3) external emergency stop pushbuttons
- Remote start/stop contacts

Rental-ready Features

- Anti-condensation heater 110-120 VAC
- Coolant heater 110-120 VAC
- UL Listed battery charger

Cooling System

- Provides 40°C (104°F) ambient capability with 0.5 g/bhp-hr NOx per NSPS SI test methods at 100% continuous rating before derate

Factory-installed Standard Equipment

Engine

- Cat CG137-12 TA, V12, 4-stroke-cycle, gas engine

Air Inlet

- Single, single element, canister-type air cleaner with service indicator

Generator

- SR4B 593 frame, three-phase, 480V, random wound, 12-lead design, permanent magnet excited, 0.6667 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 IVR with VAR/PF control, RFI suppression, exciter diode monitor
- 120 VAC anti-condensation heater

Charging System

- UL/CSA listed 120V, 20 amp battery charger, shock-mounted and enclosed in dust-proof housing
- Charging alternator; 24V-65A

Control Panel

- EMCP 4.4 generator set 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
- CSA certified internal electronics and components

Cooling System

- 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
- Coolant sight gauge, level switch and shutdown
- 50/50 coolant antifreeze (NGEC)

Distribution System

- Side buss bar access door, external access load connection buss bars
- Shore power connection via distribution block connections for jacket water heater, battery charger, and generator condensation heaters, one single duplex service receptacle
- Main circuit breaker 1200A with 24V DC shunt trip wired to load door safety switch
- Current transformers, hard mounted
- Two wire remote start/stop terminals and 120 VAC shore power connection for rapid starting

Enclosure

- 30' ISO high cube container
- Sound attenuated air intake louvers and three lockable personnel doors with panic release
- Interior walls and ceilings insulated with 100 mm of acoustic paneling
- Floor of container insulated with acoustic glass and covered with galvanized steel
- Sound attenuated 75 dB(A) @ 7 m
- Side buss bar access door, external

Exhaust System

- Catalyst w/spark arresting muffler
- Crankcase fumes disposal system

Fuel System

- Gas pressure regulator, low pressure fuel system, Energize to Run (ETR) gas shutoff valve, air-fuel-ratio-control controlled by ADEM, water separating coalescing filter w/level detection, methane detection



Factory-installed Standard Equipment (continued)

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 w/ internal control valve

Mounting System

- Generator set soft mounted to container floor
- 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/CSA 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

Optional Equipment

Available Options

- 2-axle, 30' ISO container air ride chassis
- Cold weather package

Technical Data

Cat Generator	
Frame Size	593 SR4B
Pitch	0.6667
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	105°C
Alignment	Close coupled
Overspeed Capability – % of rated	150% of rated
Voltage Regulator	3-phase sensing with volts-per-hertz
Voltage Regulation (adjustable to compensate for engine speed droop and line loss)	Less than ± 0.5% voltage gain
Wave Form Deviation	Less than 3%
Telephone Influence Factor (TIF)	Less than 50
Harmonic Distortion (THD)	Less than 5%

Cat Generator Set		
	Units	DM9292-00
Generator Set Data		
Rated power (includes fan power)	ekW	400
kVA rating	kVA	500
Rated power factor	pf	0.8
Frequency	Hz	60
Performance Specification		
Engine power	bkW (bhp)	448 (600)
Engine speed	rpm	1800
Min, Cat methane number without derate		45
BSFC @ 100% load	MJ/bkW-hr (Btu/bhp-hr)	10.47 (7405)
BSFC @ 75% load	MJ/bkW-hr (Btu/bhp-hr)	10.98 (7766)
BSFC @ 50% load	MJ/bkW-hr (Btu/bhp-hr)	12.08 (8544)
Air flow rate (@ 0°C 101.3 kPa)	m³/min (ft³/min)	22.7 (800)
Inlet manifold pressure @ rated power	kPa (psi)	200 (29.0)
Aftercooler water temperature	°C (°F)	54 (129)
Jacket water temperature	°C (°F)	99 (210)
Exhaust stack temperature (engine out)	°C (°F)	543 (1009)
Exhaust flow rate (@ stack temperature, 101.3 kPa)	m³/min (ft³/min)	72.9 (2574)
Lube oil system capacity	L (gal)	170 (45)
Engine coolant capacity	L (gal)	55.5 (15)
Radiator coolant capacity (JW)	L (gal)	144 (38)
Radiator coolant capacity (AC)	L (gal)	144 (38)
Oil change interval	Hours	500



Technical Data (continued)

Cat Generator Set		
	Units	EM-1438
Emissions (NTE)		
NOx	g/bkw-hr (g/bhp-hr)	0.67 (0.50)
CO	g/bkw-hr (g/bhp-hr)	2.68 (2.00)
THC	g/bkw-hr (g/bhp-hr)	3.08 (2.30)
NMHC	g/bkw-hr (g/bhp-hr)	0.46 (0.34)
NMNEHC (VOC)	g/bkw-hr (g/bhp-hr)	0.31 (0.23)
HCHO (formaldehyde)	g/bkw-hr (g/bhp-hr)	0.11 (0.08)

This data is for reference only. Refer to TMI Data for current emissions data and permitting purposes. Materials and specifications are subject to change without notice. Data provided is at standard conditions. Not to exceed data at 100% engine load.

Fuel Usage Guide

Cat Methane Number	30	35	40	45	50	55	60	65	70	75	80
Setpoint Timing	16	15.5	15.5	15	17	19	20.5	24.5	26.5	28	30
Deration Factor	0.90	0.93	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Altitude and Ambient Deration Factors

	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C
0 m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
250 m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
500 m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
750 m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1000 m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1250 m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1500 m	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1750 m	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83

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.
- 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.
- True RMS AC metering, 3 phase
- Multiple stored setpoint group selection via switched input eliminates need to reprogram control when switching voltages and frequencies

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
 - L-L volts, L-N volts, phase amps, Hz
 - ekW, kVA, kVAR, kW-hr, %kW, PF
 - DC volts
 - Oil pressure
 - Oil temperature
- Shutdowns with common indicating light for
 - Low oil pressure
 - High coolant temp
 - Failure to start (overcrank)
 - Low coolant level
 - Overspeed
 - High oil temp
 - Emergency stop
- Emergency stop pushbutton
- Display navigation keys including four shortcut keys for engine parameters, generator parameters, control and main menu

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)
 - Buss Phase Sequence

Voltage Regulation and Power Factor Control Circuitry

- Generator mounted automatic voltage regulator, microprocessor based
- Automatic voltage and VAR/power factor control for maintaining constant generator power factor while paralleled with the utility. Voltage and power factor adjustments are performed on the
- Generator Paralleling Control
- Includes RFI suppression, exciter limiter and exciter diode monitoring

Circuit Breaker

- 1200A fixed type, 3 poles, generator set mounted, electrically operated, insulated case circuit breaker
- Solid state trip unit for overload (time overcurrent) and fault (instantaneous) overcurrent protection
- 65 KA-interrupting capacity at 480 VAC
- Undervoltage release

Current Transformers

- CTs rated 2000:5

Potential Transformers

- 4:1 ratio with primary and secondary fuse Protection (optional)

Buss Bars

- Three phase, plus full rated neutral, buss bars are tin-plated copper with NEMA standard hole pattern for connection of customer load cables and generator cables
- Buss bars are sized for full load capacity of the generator set at 0.8 power factor
- Includes ground studs for connection to the generator frame ground and field ground cable

Voltage Selection

- Voltage selector switch for 208/240/480/600V line-to-line wye operation
- EMCP 4.4 includes automatic settings to sense the mode of operation

Standard Features (continued)

Container

- 30' ISO high cube container designed to meet CSC but not certified
- Painted standard Cat power module white
- Sound attenuated air intake louvers
- Floor insulated with acoustic glass and covered by galvanized steel
- Three lockable personnel doors with panic release
- Two fire extinguishers
- External drain access to standard fluids
- External e-stop buttons located at each personnel door

Exhaust Silencer

- Internally insulated exhaust silencer with vertical discharge and spark arrestor

Shore Power

- Shore power connection for jacket water heater
- One for generator space heater and battery charger

Internal Lighting

- Three internal DC lights with one timer installed at the container door
- One single duplex service receptacle connected to shore and generator power with automatic switchover

Battery Charger and Batteries

- 24 VDC/20A battery charger with float/equalize modes and charging ammeter
- Two oversized maintenance free batteries
- Solar power battery maintainer

Optional Features

Cold Weather Package

- Temperature controlled variable pitch fan
- Battery heaters
- Fumes disposal heat wrap
- Upsized JWH
- Control panel heaters
- Oil pan heater

AC Distribution

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

Fuel System

- Gas pressure regulator – requires 10.3-34.5 kPa (1.5-5 psi) gas
- Natural gas carburetor
- Air-fuel ratio controlled by ADEM
- 1 micron gas filter
- Low pressure fuel system
- Energize to Run (ETR) gas shutoff valve
- Water separating coalescing filter w/level detection
- Methane detection

Lube System

- Crankcase breather, top-mounted
- Oil filter, spin-on, left-hand service
- Dipstick, left-hand service
- Oil pump – gear-driven
- Oil cooler
- Lube oil makeup tank and regulator

Cooling System

- High ambient radiator design for gas fuel applications
- Stacked aftercooler and jacket water cores
- Metal top and bottom tanks
- Coolant drain
- Fan and belt pulley guard
- Coolant level sensor

Trailer

- Two axle with anti-lock brake system
- 295/75R225 load range G tires
- Air suspension chassis



Weights and Dimensions

Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight with Lube oil and Coolant kg (lb)
XG400 w/o trailer	9,144 (360)	2,438 (96)	2,896 (114)	15,014 (33,100)
XG400 w/trailer	9,144 (360)	2,438 (96)	4,115 (162)	17,917 (39,500)

Ratings 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 ISO03036. 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). For values in excess of altitude, ambient temperature, inlet/exhaust restriction, or different from the conditions listed, contact your local Cat dealer.

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