



Continuous 1475 kW
50/60 Hz Switchable

Image shown may not reflect actual configuration

Specifications

Frequency	Voltage	Continuous kW (kVA)	Speed rpm
50 Hz	400/230V	1475 (1844)	1800
60 Hz	480/240V	1475 (1844)	1800

Cat® G3516C Gas Engine	Metric	Imperial (English)
Number of Cylinders	V16	
Bore	170 mm	6.7 in
Stroke	190 mm	7.5 in
Displacement	69 L	4,210 in ³
Aspiration	Turbocharged Separate Circuit Aftercooled	
Compression Ratio	11.3:1	
Aftercooler Inlet	54°C	129°F
Jacket Water Outlet	98°C	208.4°F
Exhaust Manifold	Dry	
Engine rpm	1500/1800	
Fuel system	Cat Low Pressure with Air Fuel Ratio Control	
Fuel Pressure Range	0.206 - 0.483 Bar	3-7 PSI
Methane Number	55-100	
Governor Type	ADEM™ A3 Control System	



Standard Equipment

Cat G3516C Island Mode Gas Engine

- Operates on 31.5 to 47.2 MJ/Nm³ (800 to 1200 btu/ft³) dry pipeline natural gas)
- Cat Gas Engine Control Module (Cat GECM) includes electronic speed governor with hydrax actuator and provides transient richening and turbo bypass control
- Electronic Ignition System (controlled by ECM)
- Individual cylinder Detonation Sensitive Timing (DST)
- Engine installed electronic fuel metering valve
- Hydraulic actuated throttle plate electronically controlled by ECM
- Jacket Water Heater, 9kW, 400/480V, 50/60 Hz, 3-phase with isolation valves

Generator

- 826 Frame double bearing SR-4B generator, 6-lead design
- Three-phase brushless, form wound, permanent magnet excited
- Winding temperature detectors

Air Filter

- Heavy duty, single element canister type air cleaner with service indicator

Cat Cooling System

- Standard cooling provides 40C (104F) ambient capability with 500mg/Nm³ NO_x at 100% Continuous rating before derate
- Horizontally mounted radiator with vertical air discharge
- Energy efficient electric drive fan
- Variable frequency drive (VFD) for optimal partial load fuel consumption

Starting/Charging System

- Dual 24V electric starting motors
- 24 VDC/20A battery charger with float/equalize modes and charging ammeter
- Charging Alternator, 60-Amp
- Four (4) oversized maintenance-free batteries

Exhaust System

- Critical grade, internally mounted rectangular exhaust silencers with vertical discharge
- 2 m high vertical discharging exhaust stack with rain cap located in radiator discharge area (optional to mount rain cap only)

Lube Oil System

- Integral lube oil cooler, lube oil pump, oil filter, filler, and dipstick and oil drain lines routed to engine rail
- Prelube Pump, 24VDC continuous type
- Includes engine-mounted oil level regulator and 114-L (30gal) oil tank for maintaining oil pan levels in extended run applications

Control Panel

- Package mounted EMCP 4.2 provides power metering, protective relaying and engine and generator control and monitoring.
- Convenient service access for Cat service tools
- Integration with the Cat Digital Voltage Regulator (DVR) provides enhanced system monitoring.
- Ability to view and reset diagnostics of all controls networked on J1939 datalink eliminates need for separate service tools for troubleshooting
- Real-time clock allows for date and time-stamping of diagnostics and events
- True RMS AC metering, 3 phase: L-L volts, L-N volts, Phase, Amps, Hz, ekW, kVA, kVAR, kWhr, % kW, PF
- Graphical display with positive image, transfective LCD, adjustable white backlight/contrast
- Digital indication for:
 - Operating hours
 - DC Volts
 - Oil Temperature
 - Coolant Temperature
 - Oil pressure
 - RPM
- Two LED status indicators (1 red, 1 amber)
- Engine cool-down timer
- Engine cycle crank
- Three engine control keys and status indicators (Run/Auto/Stop)
- Lamp test and Alarm acknowledgement keys
- Warnings/shutdowns with indicating text for:
 - Low oil pressure
 - Emergency stop
 - Overcrank
 - High Oil Temperature
 - Overspeed
 - AGC-4
- Emergency stop pushbutton
- Display navigation keys including two shortcut keys for Engine Parameters or Generator Parameters
- Generator Protection features: 25, 32, 40, 46, 47, 50/51, 27/59, 81 O/U
- Reverse compatibility for interface to legacy power modules Quality and Product Support



Standard Equipment

Container

- 40' ISO high cube container, 9-high stack CSC certified
- Sound attenuated 72 dB(A) @ 15 m (50 ft)
- Four (4) sound attenuated air intake louvers and 3 lockable personnel doors with panic release
- Interior walls and ceilings insulated with 100 mm of acoustic paneling
- Floor of container is undercoated for corrosion protection
- Side bus bar access door, external access load connection bus bars
- Shore power connection via distribution block connections for jacket water heater, battery charger, generator
- Six (6) compact LED type internal DC lights with timers located at each personnel door
- 3" ANSI flange customer fuel connection with cover to prevent vandalism
- Energized-to-run (ETR) shutoff valve (double solenoid, low/high pressure switch, CSA/FM approved)
- Cat Brand fuel filter, wall mounted and gas pressure regulator
- Vibration isolators, stainless steel fastening hardware and hinges
- External drain access to standard fluids
- One 4.5 kg (10 lb) carbon dioxide fire extinguisher
- LH and RH engine service panels integrated into container side walls
- 110% spill containment system for on-board engine fluids
- One (1) duplex service receptacle

Distribution System

- 3500:5 rated Current Transformers with secondary wired to shorting terminal strip protection
- Three phase, plus full rated neutral, bus bars are tin-plated copper with NEMA standard hole pattern for connection of customer load cables and generator cables
- 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.
- 50/60 Hz Transformer distributes utility voltage or customer supplied line voltage, which is selectable via onboard switch, for the Power Module AC auxiliaries
- Provides 240/120 VAC for all module accessories except Jacket water heater (400/480V)
- Includes controls to de-energize jacket water heaters and generator space heater when the engine is running

Protective Relaying

- Generator protective features
 - 25 sync-check (AGC-4)
 - 32 rev. power (EMCP 4.2 and AGC-4)
 - 40 loss of excitation (Cat DVR and AGC-4 impedance based)
 - 50/51 Inst. and time overcurrent (GCB trip unit and AGC-4)
 - 47 Negative Voltage Sequence (AGC-4)
 - 46 Negative Sequence Current (AGC-4)
 - 27/59 phase under/over voltage (EMCP 4.2 and AGC-4)
 - 81O/U under/over frequency (EMCP 4.2 and AGC-4)
- Package mounted AGC-4 controls provides auto paralleling, CAN-bus, Ethernet communications, PWM and Analog outputs, and legacy analog load sharing (real and reactive)
- AGC-4 main display/ AOP secondary display



Standard Equipment

Modes of Operation

- Provides for single unit stand-alone operation, island mode paralleling and load sharing with other power modules, and single unit-to-utility mode paralleling for base load control (with open transition between paralleling modes)*
- Island mode paralleling features:
 - AGC-4 control allows single unit to connect to a dead bus
 - Auto synchronization (voltage & phase matching)
 - Load sharing (kW) analog signal (like units & legacy compatible)
 - Load sharing (kVAR) analog signal (like units only)
- Utility mode paralleling features:
 - Auto synchronization (voltage & phase matching)
 - Base-load control (selectable: programmable set-point or potentiometer adjust)
 - Soft load/unload (programmable, shared setpoint)
 - Power Factor control (programmable setpoint)

Power Factor Control Circuitry

- Manual raise/lower voltage adjust capability and VAR/power factor control circuitry, all via AGC-4, for maintaining constant generator power factor while paralleled with utility
- Includes RFI suppression, exciter limiter and exciter diode monitoring

Optional Equipment

Utility Multi-Functional Relay*

- Intertie protection provided via utility grade Basler
- BE1-11i
- Provides the following utility/intertie enabled protections:
 - 25 (sync-check, utility mode)
 - 27 (under voltage, 2 stage)
 - 32 (rev. power)
 - 40Z (loss of excitation, impedance based)*
 - 47 (neg. sequence over voltage)
 - 51 (phase, time over current)
 - 51N (neutral, over current)
 - 59 (over voltage, 2 stage)
 - 81U (under frequency, 2 stage)
 - 81O (over frequency)
 - 60FL (fuse loss, 'major alarm' LED - no trip)
 - Modbus interface via 485 serial connection
 - Real or Reactive Load High Demand, 'minor alarm' LED - no trip, requires site-specific setpoint values programmed

Trailer

- Three axle with Anti-lock brake system
- Ladders, handrails, internal storage provisions
- Goodyear G314 295/75R225 Load Range G



Technical Data*

Cat Generator	
Frame size	826
Pitch	2/3
No. of poles	4
Insulation	Class H
Excitation	Static regulated brushless PM excited
Constructions	Double bearing, close coupled
Enclosure	Drip proof IP22
Temperature rise	105°C (221°F)
Alignment	Pilot shaft
Overspeed capability – % of rated	125% of rated
Voltage regulator	3-phase sensing with volts-per-hertz
Voltage regulation	Less than $\pm 0.5\%$ voltage gain Adjustable to compensate for engine speed droop and line loss
Wave form deviation	Less than 3% deviation
Telephone Influence Factor (TIF)	Less than 50
Harmonic Distortion (THD)	Less than 5%

	Units	50 Hz	60 Hz
Power Rating	kW (kVA)	1475 (1844)	
Performance Specification		EM0765	EM0754
Lubricating System Lube Oil Refill Volume with filter change for standard sump	L (gal)	416 (110)	
Fuel System Fuel consumption (ISO 3046/1)			
100% Load			
Max VFD (50kW)	MJ/ekW-hr	9.62	10.34
Min VFD (3kW)	MJ/ekW-hr	9.35	10.05
75% Load			
Max VFD (50kW)	MJ/ekW-hr	9.92	10.74
Min VFD (3kW)	MJ/ekW-hr	9.57	10.39
50% Load			
Max VFD (50kW)	MJ/ekW-hr	10.59	11.86
Min VFD (3kW)	MJ/ekW-hr	9.97	11.14
Altitude Capability At 25° C (77° F) ambient, above sea level	m (ft)	1500 (4921)	



Technical Data (continued)

	Units	50 Hz	60 Hz
Cooling System Package ambient capability Jacket water temperature (maximum outlet) System coolant capacity System required airflow	° C (° F) ° C (° F) L (gal) m ³ /min (ft ³ /min)	40 (104) 99 (210) 770 (203) 2,604 (91,959)	
Exhaust System Combustion air inlet flow rate Exhaust stack gas temperature Exhaust gas flow rate	m ³ /min (ft ³ /min) ° C (° F) Nm ³ /min	116 (4,907) 467 (877) 113	111 (3,920) 492 (918) 118
Sound Performance** Noise rating @ 15 m (49 feet)	dB(A)	72	
Emissions at 100% Load No _x (as NO ₂)(corr. 5% O ₂) CO (corr. 5% O ₂) THC (corr. 5% O ₂) NMHC (corr. To 5% O ₂) Exhaust O ₂	mg/Nm ³ (dry) mg/Nm ³ (dry) mg/Nm ³ (dry) mg/Nm ³ (dry) % (dry)	500 906 2,584 388 9.9	453 937 1,521 228 9.3

*Materials and specifications are subject to change without notice. Reference SRR GR-3500-158-02 For Max VFD Power and SRR GR-3500-157-02 for Min VFD Power Data at 50 Hz. Reference SRR GR-3500-136-00 For Max VFD Power and SRR GR-3500-137-00 for Min VFD Power Data at 60 Hz. 60 Hz emissions data pending factory testing results.

**per SAE J1074

Dimensions and Weights				
Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight with Lube oil and Coolant kg (lb)
XQ1475G without Trailer	12,192 (480)	2,438 (96)	2,896 (114)	31,920 (70,372)
XQ1475G with Trailer	12,192 (480)	2,438 (96)	2,896 (114)	36,003 (79,372)



Methane Number Operation Guidelines**

Fuel Usage Guidelines

Cat Methane Number	30	35	40	45	50	55	60	65	70	75	80	85 to 100
Ignition Timing	Contact Factory					24	24	25	27	27	28	28
Deration Factor	Contact Factory					0.90	0.91	0.93	1.00	1.00	1.00	1.00

**This table shows the derate factor required for a given fuel. Note that deration occurs as the methane number decreases. Methane number is a scale to measure detonation characteristics of various fuels. The methane number of a fuel is determined by using the Cat Methane Number Calculation program. Contact factory for operation with methane numbers below 55.

Altitude		XQ1475G 1500rpm (50 Hz) Altitude / Ambient Derate Chart																		
Meters	Feet	Switchable Cams & High Ambient Air Intake System																		
2,400	7,874	84.9%	66.3%	62.0%	61.2%	59.5%	57.9%	56.3%	54.7%	53.0%	42.4%	31.8%	21.2%	10.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2,250	7,382	88.0%	71.6%	66.7%	65.8%	64.1%	62.5%	60.9%	59.2%	57.6%	46.1%	34.6%	23.0%	11.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2,000	6,562	92.0%	79.3%	75.3%	74.4%	72.6%	70.8%	68.9%	67.1%	65.3%	52.2%	39.2%	26.1%	13.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1,750	5,741	97.1%	85.9%	82.7%	82.1%	80.0%	78.0%	76.0%	73.9%	71.9%	68.8%	65.8%	62.7%	59.7%	56.6%	45.3%	34.0%	22.6%	11.3%	0.0%
1,500	4,921	100.0%	92.7%	89.8%	89.2%	87.3%	85.3%	83.4%	81.5%	79.5%	76.5%	73.4%	70.4%	67.3%	64.2%	56.6%	48.9%	41.3%	33.6%	26.0%
1,250	4,101	100.0%	99.1%	96.8%	96.4%	94.5%	92.7%	90.9%	89.0%	87.2%	84.3%	81.4%	78.5%	75.6%	72.7%	69.3%	65.9%	62.6%	59.2%	55.8%
1,000	3,281	100.0%	100.0%	100.0%	100.0%	100.0%	99.2%	97.8%	96.5%	95.1%	92.0%	89.0%	85.9%	82.8%	79.8%	76.3%	72.8%	69.4%	65.9%	62.4%
900	2,953	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.5%	98.7%	97.9%	94.8%	91.8%	88.7%	85.7%	82.6%	79.1%	75.7%	72.2%	68.7%	65.3%
800	2,625	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	97.9%	94.8%	91.8%	88.7%	85.7%	82.2%	78.7%	75.3%	71.8%	68.3%
700	2,297	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	98.9%	96.4%	93.8%	91.3%	88.7%	85.1%	81.6%	78.0%	74.4%	70.9%
600	1,969	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	97.9%	95.8%	93.8%	91.8%	88.1%	84.4%	80.8%	77.1%	73.4%
500	1,640	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	98.9%	97.4%	95.8%	94.3%	90.9%	87.4%	83.9%	80.5%	77.0%
400	1,312	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	98.9%	97.9%	96.9%	93.6%	90.3%	87.1%	83.8%	80.6%
300	984	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	99.4%	96.8%	94.1%	91.5%	88.8%	86.2%
200	656	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	99.0%	97.9%	95.8%	93.8%	91.8%
100	328	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	99.0%	98.3%	97.6%	97.0%	96.3%
0	0	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	99.0%	98.3%	97.6%	97.0%	96.3%
Ambient (C)		20	25	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

Chart applicable to 1g/bhp-hr operation only.

For derates less than 50%, refer to partial load operation section in OMM.

Altitude		XQ1475G 1800rpm (60 Hz) Altitude / Ambient Derate Chart																		
Meters	Feet	Switchable Cams & High Ambient Air Intake System																		
2,400	7,874	84.9%	80.7%	76.8%	76.0%	74.0%	72.1%	70.1%	68.1%	66.1%	56.8%	47.4%	38.0%	28.7%	19.3%	14.8%	10.2%	5.7%	1.1%	0.0%
2,250	7,382	88.0%	83.8%	80.5%	79.8%	77.7%	75.6%	73.5%	71.4%	69.3%	66.1%	63.0%	59.8%	56.6%	53.5%	42.1%	30.7%	19.3%	7.9%	0.0%
2,000	6,562	92.0%	89.7%	86.8%	86.2%	84.0%	81.9%	79.8%	77.7%	75.6%	72.4%	69.3%	66.1%	63.0%	59.8%	47.1%	34.5%	21.8%	9.2%	0.0%
1,750	5,741	97.1%	95.0%	92.1%	91.4%	89.5%	87.6%	85.7%	83.8%	81.9%	78.8%	75.6%	72.4%	69.3%	66.1%	63.0%	59.8%	56.6%	53.5%	50.3%
1,500	4,921	100.0%	100.0%	98.2%	97.7%	95.9%	94.0%	92.1%	90.2%	88.3%	85.3%	82.4%	79.4%	76.5%	73.5%	69.9%	66.3%	62.7%	59.2%	55.6%
1,250	4,101	100.0%	100.0%	100.0%	100.0%	100.0%	99.0%	97.5%	96.1%	94.6%	91.4%	88.3%	85.1%	81.9%	78.8%	75.2%	71.6%	68.0%	64.4%	60.9%
1,000	3,281	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	97.7%	94.6%	91.4%	88.3%	85.1%	81.5%	77.9%	74.3%	70.8%	67.2%
900	2,953	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	98.6%	95.9%	93.1%	90.4%	87.6%	84.0%	80.3%	76.6%	73.0%	69.3%
800	2,625	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.4%	97.1%	94.8%	92.5%	90.2%	86.4%	82.7%	78.9%	75.1%	71.4%
700	2,297	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	98.2%	96.3%	94.4%	92.5%	88.8%	85.1%	81.3%	77.6%	73.9%
600	1,969	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.0%	97.5%	96.1%	94.6%	91.0%	87.5%	84.0%	80.4%	76.9%
500	1,640	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	98.8%	97.7%	96.7%	93.3%	89.9%	86.6%	83.2%	79.8%
400	1,312	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.4%	98.8%	95.9%	93.1%	90.2%	87.3%
300	984	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	98.6%	96.2%	93.8%	91.5%	89.1%
200	656	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	99.0%	98.3%	96.9%	95.2%	93.5%
100	328	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	99.0%	98.3%	97.6%	97.0%	96.3%
0	0	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	99.0%	98.3%	97.6%	97.0%	96.3%
Ambient (C)		20	25	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

Chart applicable to 1g/bhp-hr operation only.

For derates less than 50%, refer to partial load operation section in OMM.

ITEM	DESCRIPTION
1	2000S BLUNT 2.5 GOLF 4000000
2	2000S 190000 2000S 190000 2000S 190000 2000S 190000
3	2000S 190000 2000S 190000 2000S 190000 2000S 190000
4	2000S 190000 2000S 190000 2000S 190000 2000S 190000
5	2000S 190000 2000S 190000 2000S 190000 2000S 190000
6	2000S 190000 2000S 190000 2000S 190000 2000S 190000
7	2000S 190000 2000S 190000 2000S 190000 2000S 190000
8	2000S 190000 2000S 190000 2000S 190000 2000S 190000
9	2000S 190000 2000S 190000 2000S 190000 2000S 190000
10	2000S 190000 2000S 190000 2000S 190000 2000S 190000
11	2000S 190000 2000S 190000 2000S 190000 2000S 190000
12	2000S 190000 2000S 190000 2000S 190000 2000S 190000
13	2000S 190000 2000S 190000 2000S 190000 2000S 190000
14	2000S 190000 2000S 190000 2000S 190000 2000S 190000
15	2000S 190000 2000S 190000 2000S 190000 2000S 190000
16	2000S 190000 2000S 190000 2000S 190000 2000S 190000
17	2000S 190000 2000S 190000 2000S 190000 2000S 190000



Overall Package Derate Guidance

To determine the actual package rating at site conditions, one must consider, separately, limitations due to fuel characteristics and air system limitations. The Fuel Usage Guide deration establishes fuel limitations while the Altitude/Temperature deration factors and RPC (reference the Cat Methane Program) establish air system limitations. RPC is considered when the Altitude/Temperature deration is less than 1.0 (100%). Under this condition, add the two factors together.

When the site conditions do not require an Altitude/Temperature derate (factor is 1.0), it is assumed the turbocharger has sufficient capability to overcome the low fuel relative power and RPC is ignored.

To determine the actual power available, take the lowest rating between 1. and 2. below:

1. Fuel Usage Guide Deration
2. $1 - ((1 - \text{Altitude/Temperature Deration}) + (1 - \text{RPC}))$

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.