

# DIESEL GENERATOR SET



## DE65E0

Image shown may not reflect actual package

Output Ratings		
Generator Set Model - 3 Phase	Prime*	Standby*
400/230 V, 50 Hz	60.0 kVA 48.0 kW	65.0 kVA 52.0 kW
480V, 60 Hz	68.8 kVA 55.0 kW	75.0 kVA 60.0 kW

\* Refer to ratings definitions on page 4.  
Ratings at 0.8 power factor.

Technical Data		
Engine Make & Model:	Cat® C3.3	
Generator Model:	LC1514P	
Control Panel:	EMCP 4.1	
Base Frame Type:	Heavy Duty Fabricated Steel	
Circuit Breaker Type:	3 Pole MCB / 3 Pole MCCB	
Frequency:	50 Hz	60 Hz
Engine Speed: RPM	1500	1800
Fuel Tank Capacity: litres (US gal)	219 (57.9)	
Fuel Consumption, Prime: l/hr (US gal/hr)	13.6 (3.6)	15.4 (4.1)
Fuel Consumption, Standby : l/hr (US gal/hr)	14.9 (3.9)	17.0 (4.5)

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## Engine Technical Data

Physical Data	
<b>Manufacturer:</b>	Caterpillar
<b>Model:</b>	C3.3
<b>No. of Cylinders/Alignment:</b>	3 / In Line
<b>Cycle:</b>	4 Stroke
<b>Induction:</b>	Turbocharged
<b>Cooling Method:</b>	Water
<b>Governing Type:</b>	Mechanical
<b>Governing Class:</b>	ISO 8528 G2
<b>Compression Ratio:</b>	17.25:1
<b>Displacement: l (cu.in)</b>	3.3 (201.4)
<b>Bore/Stroke: mm (in)</b>	105.0 (4.1)/127.0 (5.0)
<b>Moment of Inertia: kg m<sup>2</sup> (lb. in<sup>2</sup>)</b>	1.14 (3896)
<b>Engine Electrical System:</b>	
-Voltage/Ground:	12/Negative
-Battery Charger Amps:	65
<b>Weight: kg (lb) - Dry:</b>	420 (926)
- Wet:	438 (966)

Air System	50 Hz	60 Hz
<b>Air Filter Type:</b>	Replaceable Element	
<b>Combustion Air Flow:</b>		
m <sup>3</sup> /min (cfm)	-Standby: 3.9 (138)	4.9 (173)
	-Prime: 3.8 (134)	4.7 (166)
<b>Max. Combustion Air Intake</b>		
<b>Restriction: kPa (in H<sub>2</sub>O)</b>	8.0 (32.1)	8.0 (32.1)
<b>Radiator Cooling Air Flow:</b>		
m <sup>3</sup> /min (cfm)	110.4 (3899)	145.8 (5149)
<b>External Restriction to</b>		
<b>Cooling Air Flow: Pa (in H<sub>2</sub>O)</b>	120 (0.5)	120 (0.5)

Cooling System	50 Hz	60 Hz
<b>Cooling System Capacity:</b>		
l (US gal)	10.2 (2.7)	10.2 (2.7)
<b>Water Pump Type:</b>	Centrifugal	
<b>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</b>		
	-Standby: 37.7 (2144)	42.8 (2434)
	-Prime: 35.2 (2002)	41.0 (2332)
<b>Heat Radiation to Room:</b> Heat radiated from engine and alternator		
kW (Btu/min)	-Standby: 16.7 (950)	17.0 (967)
	-Prime: 15.0 (853)	16.1 (916)
<b>Radiator Fan Load: kW (hp)</b>	1.0 (1.3)	1.7 (2.3)
Cooling system designed to operate in ambient conditions up to 50°C (122°F). Contact your local Cat dealer for power ratings at specific site conditions.		

Lubrication System	
<b>Oil Filter Type:</b>	Spin-On, Full Flow
<b>Total Oil Capacity l (US gal):</b>	8.3 (2.2)
<b>Oil Pan l (US gal):</b>	7.8 (2.1)
<b>Oil Type:</b>	API CG4 / CH4 15W-40
<b>Cooling Method:</b>	Water

Performance	50 Hz	60 Hz
<b>Engine Speed: RPM</b>	1500	1800
<b>Gross Engine Power: kW (hp)</b>		
-Standby:	60.5 (81.0)	69.6 (93.0)
-Prime:	55.0 (74.0)	63.3 (85.0)
<b>BMEP: kPa (psi)</b>		
-Standby:	1467.0 (212.8)	1407.0 (204.0)
-Prime:	1333.0 (193.4)	1279.0 (185.5)
<b>Regenerative Power: kW</b>	7.0	9.0

Fuel System				
<b>Fuel Filter Type:</b>	Replaceable Element			
<b>Recommended Fuel:</b>	Class A2 Diesel or BSEN590			
<b>Fuel Consumption: l/hr (US gal/hr)</b>				
	<b>110% Load</b>	<b>100% Load</b>	<b>75% Load</b>	<b>50% Load</b>
<b>Prime</b>				
50 Hz	14.9 (3.9)	13.6 (3.6)	10.2 (2.7)	7.1 (1.9)
60 Hz	17.0 (4.5)	15.4 (4.1)	11.7 (3.1)	8.4 (2.2)
<b>Standby</b>				
50 Hz	14.9 (3.9)	11.0 (2.9)	7.6 (2.0)	
60 Hz	17.0 (4.5)	12.8 (3.4)	9.0 (2.4)	
(based on diesel fuel with a specific gravity of 0.85 and conforming to BS2869, Class A2)				

Exhaust System	50 Hz	60 Hz
<b>Silencer Type:</b>	Industrial	
<b>Silencer Model &amp; Quantity:</b>	EXSY1 (1)	
<b>Pressure Drop Across</b>		
<b>Silencer System: kPa (in Hg)</b>	0.98 (0.289)	1.22 (0.360)
<b>Silencer Noise Reduction</b>		
<b>Level: dB</b>	19	18
<b>Max. Allowable Back</b>		
<b>Pressure: kPa (in. Hg)</b>	10.0 (3.0)	15.0 (4.4)
<b>Exhaust Gas Flow:</b>		
m <sup>3</sup> /min (cfm)	-Standby: 10.4 (367)	12.5 (441)
	-Prime: 10.1 (357)	11.8 (417)
<b>Exhaust Gas Temperature: °C (°F)</b>		
-Standby:	571 (1060)	564 (1047)
-Prime:	557 (1035)	534 (993)

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## Generator Performance Data

Data Item	50 Hz				60 Hz				
	415/240V	400/230V 230/115V 200/115V	380/220V 220/110V	220/127V	480/277V 240/139V	380/220V 220/110V	240/120V 208/120V		440/254V 220/127V
Motor Starting Capability* kVA	145	138	128	158	157	111	128	-	139
Short Circuit Capacity** %	300	300	300	300	300	300	300	-	300
Reactances: Per Unit									
Xd	2.648	2.850	3.158	2.041	2.723	3.726	3.425	-	3.241
X'd	0.136	0.146	0.162	0.105	0.140	0.191	0.176	-	0.166
X''d	0.068	0.073	0.081	0.052	0.070	0.096	0.088	-	0.083

Reactances shown are applicable to prime ratings.

\*Based on 30% voltage dip at 0.6 power factor and SHUNT excitation system.

\*\* With optional Permanent Magnet generator

## Generator Technical Data

Physical Data	
LC Series	
Model:	LC1514P
No. of Bearings:	1
Insulation Class:	H
Winding Pitch - Code:	2/3 - 6
Wires:	12
Ingress Protection Rating:	IP23
Excitation System:	SHUNT
AVR Model:	R220

Operating Data	
Overspeed: RPM	2250
Voltage Regulation: (steady state)	+/- 1.0%
Wave Form NEMA = TIF:	50
Wave Form IEC = THF:	2.0%
Total Harmonic Content LL/LN:	2.0%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	5.7 (324)
-60 Hz:	6.0 (341)

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## Technical Data

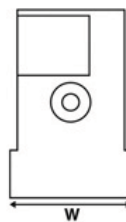
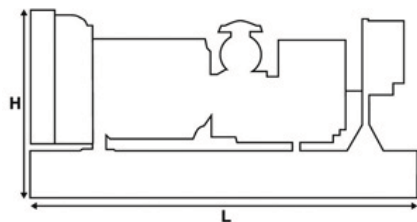
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	60.0	48.0	65.0	52.0
400/230V	60.0	48.0	65.0	52.0
380/220V	60.0	48.0	65.0	52.0
230/115V	60.0	48.0	65.0	52.0
220/127V	52.0	41.6	57.2	45.8
220/110V	60.0	48.0	65.0	52.0
200/115V	60.0	48.0	65.0	52.0

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	68.8	55.0	75.0	60.0
220/127V	68.8	55.0	75.0	60.0
380/220V	59.0	47.2	64.9	51.9
240/120V	65.0	52.0	71.5	57.2
440/254V	68.8	55.0	75.0	60.0
220/110V	59.0	47.2	64.9	51.9
208/120V	68.8	55.0	75.0	60.0
240/139V	65.0	52.0	71.5	57.2

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	874 (1926)
Wet (+ lube oil & coolant)	887 (1955)
Fuel, lube oil & coolant	1072 (2364)

Dimensions: mm (in)	
Length	1925 (75.8)
Width	1120 (44.1)
Height	1361 (53.6)



**Note:** General configuration not to be used for installation. See general dimension drawings for detail.

## Definitions

### Standby Rating

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

### Prime Rating

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 kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

### Standard Reference Conditions

Note: Standard reference conditions 25°C (77°F) air inlet temp, 100m (328ft) A.S.L. 30% relative humidity. Fuel consumption data at full load with diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, Class A2.

## General Data

### Documents

A full set of operation and maintenance manuals and circuit wiring diagrams.

### Quality Standards

The equipment meets the following standards: **IEC60034-1, IEC60034-22, ISO3046, ISO8528, NEMA MG 1-32, NEMA MG 1-33, 2004/108/EC, 2006/42/EC, 2006/95/EC.**