

# DIESEL GENERATOR SET



## DE50E0

Image shown may not reflect actual package

Output Ratings		
Generator Set Model - 3 Phase	Prime*	Standby*
400/230 V, 50 Hz	45.0 kVA	50.0 kVA
	36.0 kW	40.0 kW
480V, 60 Hz	50.0 kVA	56.3 kVA
	40.0 kW	45.0 kW

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

Technical Data		
Engine Make & Model:	Cat® C3.3	
Generator Model:	LC1514L	
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)	10.5 (2.8)	11.7 (3.1)
Fuel Consumption, Standby : l/hr (US gal/hr)	11.7 (3.1)	12.9 (3.4)

# DIESEL GENERATOR SET



## Engine Technical Data

Physical Data		50 Hz		60 Hz	
<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:	3.1 (109)	3.9 (138)			
-Prime:	2.9 (102)	3.7 (131)			
<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)	86.4 (3051)	105.6 (3729)			
<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:	30.0 (1706)	34.0 (1934)			
-Prime:	26.1 (1484)	31.0 (1763)			
<b>Heat Radiation to Room: Heat radiated from engine and alternator</b>					
kW (Btu/min)					
-Standby:	13.2 (751)	14.4 (819)			
-Prime:	11.4 (648)	12.6 (717)			
<b>Radiator Fan Load: kW (hp)</b>	0.5 (0.7)	0.9 (1.2)			

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		50 Hz		60 Hz	
<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:	46.5 (62.0)	55.6 (75.0)			
-Prime:	42.2 (57.0)	50.5 (68.0)			
<b>BMEP: kPa (psi)</b>					
-Standby:	1127.0 (163.5)	1124.0 (163.0)			
-Prime:	1023.0 (148.4)	1020.0 (148.0)			
<b>Regenerative Power: kW</b>	7.0	9.0			

Fuel System		50 Hz		60 Hz	
<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>					
		110% Load	100% Load	75% Load	50% Load
<b>Prime</b>					
50 Hz	11.7 (3.1)	10.5 (2.8)	7.8 (2.1)	5.5 (1.5)	
60 Hz	12.9 (3.4)	11.7 (3.1)	9.0 (2.4)	6.6 (1.7)	
<b>Standby</b>					
50 Hz		11.7 (3.1)	8.7 (2.3)	6.0 (1.6)	
60 Hz		12.9 (3.4)	9.7 (2.6)	7.0 (1.9)	

(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>	0.82 (0.242)	1.08 (0.319)			
<b>Silencer Noise Reduction</b>					
<b>Level: dB</b>	20	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:	7.7 (272)	9.5 (335)			
-Prime:	7.0 (247)	8.8 (311)			
<b>Exhaust Gas Temperature: °C (°F)</b>					
-Standby:	537 (999)	551 (1024)			
-Prime:	492 (918)	510 (950)			

# DIESEL GENERATOR SET



## 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 Capacity* kVA	109	104	96	118	118	84	96	-	104
Short Circuit Capacity** %	300	300	300	300	300	300	300	-	300
Reactances: Per Unit									
Xd	2.583	2.780	3.080	1.991	2.574	3.778	3.427	-	3.063
X'd	0.140	0.150	0.166	0.108	0.139	0.204	0.185	-	0.165
X''d	0.070	0.075	0.083	0.054	0.070	0.102	0.093	-	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:	LC1514L
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:	5.2 (296)
-60 Hz:	5.4 (307)

# DIESEL GENERATOR SET



## Technical Data

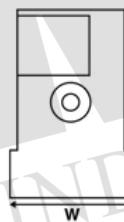
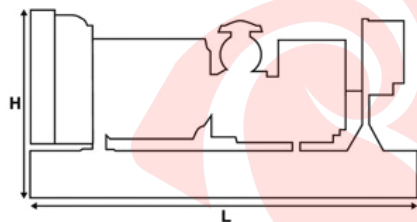
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	45.0	36.0	50.0	40.0
400/230V	45.0	36.0	50.0	40.0
380/220V	45.0	36.0	50.0	40.0
230/115V	45.0	36.0	50.0	40.0
220/127V	39.0	31.2	42.9	34.3
220/110V	45.0	36.0	50.0	40.0
200/115V	45.0	36.0	50.0	40.0

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	50.0	40.0	56.3	45.0
220/127V	50.0	40.0	56.3	45.0
380/220V	46.0	36.8	50.6	40.5
240/120V	50.0	40.0	55.0	44.0
440/254V	50.0	40.0	56.3	45.0
220/110V	46.0	36.8	50.6	40.5
208/120V	50.0	40.0	56.3	45.0
240/139V	50.0	40.0	55.0	44.0

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	858 (1891)
Wet (+ lube oil & coolant)	871 (1920)
Fuel, lube oil & coolant	1056 (2329)

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.