

# DIESEL GENERATOR SET



## DE33E0

Image shown may not reflect actual package

Output Ratings		
Generator Set Model - 3 Phase	Prime*	Standby*
400/230 V, 50 Hz	30.0 kVA 24.0 kW	33.0 kVA 26.4 kW
480V, 60 Hz	33.8 kVA 27.0 kW	37.5 kVA 30.0 kW

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

Technical Data		
Engine Make & Model:	Cat® C3.3	
Generator Model:	LC1514F	
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)	161 (42.5)	
Fuel Consumption, Prime: l/hr (US gal/hr)	7.0 (1.8)	8.1 (2.1)
Fuel Consumption, Standby : l/hr (US gal/hr)	7.7 (2.0)	9.0 (2.4)

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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>	Naturally Aspirated
<b>Cooling Method:</b>	Water
<b>Governing Type:</b>	Mechanical
<b>Governing Class:</b>	ISO 8528 G2
<b>Compression Ratio:</b>	19.25:1
<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>	412 (908)
- Wet:	430 (948)

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: 2.2 (76)	2.6 (91)
	-Prime: 2.2 (76)	2.6 (92)
<b>Max. Combustion Air Intake</b>		
Restriction: kPa (in H <sub>2</sub> O)	6.5 (26.1)	6.5 (26.1)
<b>Radiator Cooling Air Flow:</b>		
m <sup>3</sup> /min (cfm)	62.6 (2211)	84.8 (2995)
<b>External Restriction to</b>		
Cooling Air Flow: Pa (in H <sub>2</sub> O)	125 (0.5)	125 (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: 18.0 (1024)	22.0 (1251)
	-Prime: 16.0 (910)	18.0 (1024)
<b>Heat Radiation to Room:</b> Heat radiated from engine and alternator		
kW (Btu/min)	-Standby: 9.3 (529)	9.7 (552)
	-Prime: 7.9 (449)	8.2 (466)
<b>Radiator Fan Load: kW (hp)</b>	0.3 (0.4)	0.5 (0.7)
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:	31.0 (42.0)	36.5 (49.0)
-Prime:	28.2 (38.0)	33.1 (44.0)
<b>BMEP: kPa (psi)</b>		
-Standby:	752.0 (109.0)	738.0 (107.0)
-Prime:	684.0 (99.2)	669.0 (97.0)
<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>				
	110% Load	100% Load	75% Load	50% Load
<b>Prime</b>				
50 Hz	7.7 (2.0)	7.0 (1.8)	5.2 (1.4)	3.8 (1.0)
60 Hz	9.0 (2.4)	8.1 (2.1)	6.2 (1.6)	4.7 (1.2)
<b>Standby</b>				
50 Hz		7.7 (2.0)	5.7 (1.5)	4.1 (1.1)
60 Hz		9.0 (2.4)	6.8 (1.8)	5.0 (1.3)
(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>		
Silencer System: kPa (in Hg)	1.80 (0.532)	2.00 (0.591)
<b>Silencer Noise Reduction</b>		
Level: dB	20	19
<b>Max. Allowable Back</b>		
Pressure: kPa (in. Hg)	8.0 (2.4)	10.0 (3.0)
<b>Exhaust Gas Flow:</b>		
m <sup>3</sup> /min (cfm)	-Standby: 5.8 (205)	6.6 (233)
	-Prime: 5.7 (201)	6.4 (226)
<b>Exhaust Gas Temperature: °C (°F)</b>		
	-Standby: 520 (968)	530 (986)
	-Prime: 500 (932)	520 (968)

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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	72	68	63	78	78	55	63	-	69
Short Circuit Capacity %	-	-	-	-	-	-	-	-	-
Reactances: Per Unit									
Xd	2.298	2.474	2.741	2.045	2.323	3.706	3.092	-	2.764
X'd	0.143	0.153	0.170	0.127	0.144	0.230	0.192	-	0.171
X''d	0.071	0.077	0.085	0.063	0.072	0.115	0.096	-	0.086

Reactances shown are applicable to prime ratings.  
\*Based on 30% voltage dip at 0.6 power factor.

## Generator Technical Data

Physical Data	
LC Series	
Model:	LC1514F
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:	5.0%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	3.3 (188)
-60 Hz:	3.7 (210)

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## Technical Data

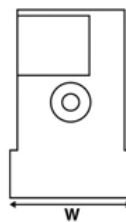
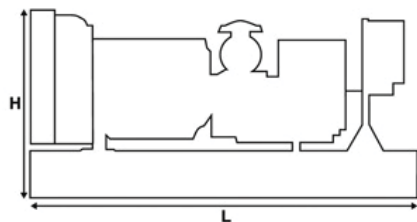
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	30.0	24.0	33.0	26.4
400/230V	30.0	24.0	33.0	26.4
380/220V	30.0	24.0	33.0	26.4
230/115V	30.0	24.0	33.0	26.4
220/127V	30.0	24.0	33.0	26.4
220/110V	30.0	24.0	33.0	26.4
200/115V	30.0	24.0	33.0	26.4

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	33.8	27.0	37.5	30.0
220/127V	33.8	27.0	37.5	30.0
380/220V	33.8	27.0	37.5	30.0
240/120V	33.8	27.0	37.5	30.0
440/254V	33.8	27.0	37.5	30.0
220/110V	33.8	27.0	37.5	30.0
208/120V	33.8	27.0	37.5	30.0
240/139V	33.8	27.0	37.5	30.0

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	827 (1823)
Wet (+ lube oil & coolant)	840 (1852)
Fuel, lube oil & coolant	976 (2153)

Dimensions: mm (in)	
Length	1540 (60.6)
Width	970 (38.2)
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.

Performance No.: P2490A, P2490B

Feature Code: C03DE23, C03DE24, C03DE25, C03DE26, C03DE57,

C03DE58, C03DE59, C03DE60

Gen. Arr. Number: 459-4399

Source: European or China Sourced

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