

# DIESEL GENERATOR SET



## DE13.5E3

EU stage IIIA emissions compliant.  
Suitable for Mobile Applications in the European Community.

Image shown may not reflect actual package

<b>Output Ratings</b>		
<b>Generator Set Model - 3 Phase</b>	<b>Prime*</b>	<b>Standby*</b>
400/230 V, 50 Hz	12.5 kVA 10.0 kW	13.5 kVA 10.8 kW
220/127V, 60 Hz	15.0 kVA 12.0 kW	16.5 kVA 13.2 kW

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

<b>Technical Data</b>		
<b>Engine Make &amp; Model:</b>	Cat® C1.5	
<b>Generator Model:</b>	LC1114D	
<b>Control Panel:</b>	EMCP 4.1	
<b>Base Frame Type:</b>	Heavy Duty Fabricated Steel	
<b>Circuit Breaker Type:</b>	3 Pole MCB	
<b>Frequency:</b>	<b>50 Hz</b>	<b>60 Hz</b>
<b>Engine Speed: RPM</b>	1500	1800
<b>Fuel Tank Capacity: litres (US gal)</b>	62 (16.4)	
<b>Fuel Consumption, Prime: l/hr (US gal/hr)</b>	3.7 (1.0)	4.3 (1.1)
<b>Fuel Consumption, Standby : l/hr (US gal/hr)</b>	4.0 (1.1)	4.9 (1.3)

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## Engine Technical Data

Physical Data	
<b>Manufacturer:</b>	Caterpillar
<b>Model:</b>	C1.5
<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
<b>Compression Ratio:</b>	22.5:1
<b>Displacement: l (cu.in)</b>	1.5 (91.3)
<b>Bore/Stroke: mm (in)</b>	84.0 (3.3)/90.0 (3.5)
<b>Moment of Inertia: kg m<sup>2</sup> (lb. in<sup>2</sup>)</b>	2.17 (7415)
<b>Engine Electrical System:</b>	
-Voltage/Ground:	12/Negative
-Battery Charger Amps:	65
<b>Weight: kg (lb) - Dry:</b>	197 (434)
- Wet:	202 (445)

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:	1.1 (38)	1.2 (43)
-Prime:	1.1 (38)	1.2 (43)
<b>Max. Combustion Air Intake</b>		
<b>Restriction: kPa (in H<sub>2</sub>O)</b>	6.4 (25.7)	6.4 (25.7)
<b>Radiator Cooling Air Flow:</b>		
m <sup>3</sup> /min (cfm)	28.8 (1017)	37.2 (1314)
<b>External Restriction to</b>		
<b>Cooling Air Flow: Pa (in H<sub>2</sub>O)</b>	125 (0.5)	125 (0.5)

Cooling System	50 Hz	60 Hz
<b>Cooling System Capacity:</b>		
l (US gal)	6.0 (1.6)	6.0 (1.6)
<b>Water Pump Type:</b>	Centrifugal	
<b>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</b>		
-Standby:	12.9 (734)	15.2 (864)
-Prime:	11.6 (660)	13.6 (773)
<b>Heat Radiation to Room:</b> Heat radiated from engine and alternator		
kW (Btu/min)		
-Standby:	6.0 (341)	7.1 (404)
-Prime:	5.4 (307)	6.3 (358)
<b>Radiator Fan Load: kW (hp)</b>	0.2 (0.2)	0.3 (0.4)
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>	6.0 (1.6)
<b>Oil Pan l (US gal):</b>	4.5 (1.2)
<b>Oil Type:</b>	API CH4 15W-40
<b>Cooling Method:</b>	N/A

Performance	50 Hz	60 Hz
<b>Engine Speed: RPM</b>	1500	1800
<b>Gross Engine Power: kW (hp)</b>		
-Standby:	13.5 (18.0)	16.2 (22.0)
-Prime:	12.2 (16.0)	14.7 (20.0)
<b>BMEP: kPa (psi)</b>		
-Standby:	722.0 (104.7)	722.0 (104.7)
-Prime:	652.0 (94.6)	655.0 (95.0)
<b>Regenerative Power: kW</b>	4.1	5.3

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	4.0 (1.1)	3.7 (1.0)	2.8 (0.7)	2.0 (0.5)
60 Hz	4.9 (1.3)	4.3 (1.1)	3.2 (0.8)	2.4 (0.6)
<b>Standby</b>				
50 Hz		4.0 (1.1)	3.0 (0.8)	2.1 (0.6)
60 Hz		4.9 (1.3)	3.5 (0.9)	2.5 (0.7)
(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>	0.58 (0.171)	0.80 (0.236)
<b>Silencer Noise Reduction</b>		
<b>Level: dB</b>	22.8	10.8
<b>Max. Allowable Back</b>		
<b>Pressure: kPa (in. Hg)</b>	10.2 (3.0)	10.2 (3.0)
<b>Exhaust Gas Flow:</b>		
m <sup>3</sup> /min (cfm)		
-Standby:	2.9 (102)	3.4 (119)
-Prime:	2.7 (95)	3.1 (111)
<b>Exhaust Gas Temperature: °C (°F)</b>		
-Standby:	490 (914)	505 (941)
-Prime:	445 (833)	455 (851)

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## Generator Performance Data

Data Item	50 Hz				60 Hz				
	415/240V	400/230V	380/220V						220/127V
Motor Starting Capability* kVA	28	27	25	-	-	-	-	-	27
Short Circuit Capacity %	-	-	-	-	-	-	-	-	-
Reactances: Per Unit									
Xd	1.938	2.086	2.311	-	-	-	-	-	2.482
X'd	0.200	0.216	0.239	-	-	-	-	-	0.257
X''d	0.100	0.108	0.119	-	-	-	-	-	0.128

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:	LC1114D
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:	4.0%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	2.5 (142)
-60 Hz:	2.8 (159)

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## Technical Data

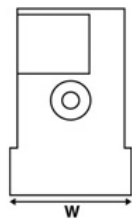
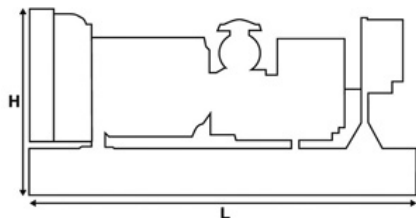
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	12.5	10.0	13.5	10.8
400/230V	12.5	10.0	13.5	10.8
380/220V	12.5	10.0	13.5	10.8

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
220/127V	15.0	12.0	16.5	13.2

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	371 (818)
Wet (+ lube oil & coolant)	377 (831)
Fuel, lube oil & coolant	430 (947)

Dimensions: mm (in)	
Length	1400 (55.1)
Width	620 (24.4)
Height	1054 (41.5)



**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.

## SOAR POWER GROUP

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