

# DIESEL GENERATOR SET



## DE90E2S

EU stage II emissions compliant.

Image shown may not reflect actual package

Output Ratings		
Generator Set Model - 1 Phase	Prime*	Standby*
230V, 50Hz	82.0 kVA	90.0 kVA
	82.0 kW	90.0 kW
240/120V, 60 Hz	90.0 kVA	99.5 kVA
	90.0 kW	99.5 kW

\* Refer to ratings definitions on page 4.  
Ratings at 1.0 power factor.

Technical Data		
Engine Make & Model:	Cat® C4.4	
Generator Model:	LCB3114H	
Control Panel:	EMCP 4.1	
Base Frame Type:	Heavy Duty Fabricated Steel	
Circuit Breaker Type:	3 Pole MCCB	
Frequency:	50 Hz	60 Hz
Engine Speed: RPM	1500	1800
Fuel Tank Capacity: litres (US gal)	250 (66.0)	
Fuel Consumption, Prime: l/hr (US gal/hr)	22.1 (5.8)	26.0 (6.9)
Fuel Consumption, Standby : l/hr (US gal/hr)	24.3 (6.4)	28.8 (7.6)



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## Engine Technical Data

Physical Data		50 Hz		60 Hz	
<b>Manufacturer:</b>	Caterpillar				
<b>Model:</b>	C4.4				
<b>No. of Cylinders/Alignment:</b>	4 / In Line				
<b>Cycle:</b>	4 Stroke				
<b>Induction:</b>	Turbocharged Air To Air Charge Cooled				
<b>Cooling Method:</b>	Water				
<b>Governing Type:</b>	Electronic				
<b>Governing Class:</b>	ISO 8528 G2				
<b>Compression Ratio:</b>	18.3:1				
<b>Displacement: l (cu.in)</b>	4.4 (268.5)				
<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>	1.51 (5160)				
<b>Engine Electrical System:</b>					
-Voltage/Ground:	12/Negative				
-Battery Charger Amps:	65				
<b>Weight: kg (lb) - Dry:</b>	500 (1102)				
- Wet:	520 (1146)				

  

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:	6.3 (221)	7.8 (275)		
	-Prime:	6.0 (212)	7.8 (274)		
<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)		187.8 (6632)	244.2 (8624)		
<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)		17.5 (4.6)	17.5 (4.6)		
<b>Water Pump Type:</b>	Centrifugal				
<b>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</b>					
	-Standby:	50.7 (2883)	64.0 (3640)		
	-Prime:	46.1 (2622)	57.7 (3281)		
<b>Heat Radiation to Room:</b> Heat radiated from engine and alternator					
kW (Btu/min)	-Standby:	15.3 (870)	18.9 (1075)		
	-Prime:	13.6 (773)	16.6 (944)		
<b>Radiator Fan Load: kW (hp)</b>		2.8 (3.8)	4.8 (6.4)		
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		50 Hz		60 Hz	
<b>Oil Filter Type:</b>	Spin-On, Full Flow				
<b>Total Oil Capacity l (US gal):</b>	8.0 (2.1)				
<b>Oil Pan l (US gal):</b>	7.0 (1.8)				
<b>Oil Type:</b>	API CC/SE				
<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:	103.0 (138.0)	117.5 (158.0)		
	-Prime:	93.6 (126.0)	106.8 (143.0)		
<b>BMEP: kPa (psi)</b>					
	-Standby:	1873.0 (271.7)	1781.0 (258.3)		
	-Prime:	1702.0 (246.9)	1619.0 (234.8)		
<b>Regenerative Power: kW</b>		8.2	13.8		

  

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>					
		<b>110% Load</b>	<b>100% Load</b>	<b>75% Load</b>	<b>50% Load</b>
<b>Prime</b>					
50 Hz	24.3 (6.4)	22.1 (5.8)	16.8 (4.4)	11.9 (3.1)	
60 Hz	28.8 (7.6)	26.0 (6.9)	19.7 (5.2)	14.1 (3.7)	
<b>Standby</b>					
50 Hz	24.3 (6.4)	18.3 (4.8)	12.8 (3.4)		
60 Hz	28.8 (7.6)	21.6 (5.7)	15.3 (4.0)		
(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>		2.10 (0.620)	3.21 (0.948)		
<b>Silencer Noise Reduction</b>					
<b>Level: dB</b>		22	17		
<b>Max. Allowable Back</b>					
<b>Pressure: kPa (in. Hg)</b>		18.0 (5.3)	15.0 (4.4)		
<b>Exhaust Gas Flow:</b>					
m <sup>3</sup> /min (cfm)	-Standby:	15.0 (530)	18.0 (636)		
	-Prime:	14.0 (494)	17.0 (600)		
<b>Exhaust Gas Temperature: °C (°F)</b>					
	-Standby:	494 (921)	517 (963)		
	-Prime:	463 (865)	469 (876)		

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## Generator Performance Data

Data Item	50 Hz				60 Hz				
	240V	230V	220V			220V/110V	240V/120V		
Motor Starting Capability* kVA	247	233	219	-	-	191	217	-	-
Short Circuit Capacity** %	300	300	300	-	-	300	300	-	-
Reactances: Per Unit									
Xd	1.850	2.014	2.202	-	-	2.900	2.437	-	-
X'd	0.169	0.184	0.202	-	-	0.265	0.223	-	-
X''d	0.102	0.111	0.121	-	-	0.159	0.134	-	-

Reactances shown are applicable to prime ratings.

\*Based on 30% voltage dip at 0.9 power factor and SHUNT excitation system.

\*\* With optional Permanent Magnet generator.

## Generator Technical Data

Physical Data	
LC Series	
Model:	LCB3114H
No. of Bearings:	1
Insulation Class:	H
Winding Pitch - Code:	2/3 - M
Wires:	4
Ingress Protection Rating:	IP23
Excitation System:	SHUNT
AVR Model:	R250

Operating Data	
Overspeed: RPM	2250
Voltage Regulation: (steady state)	+/- 0.5%
Wave Form NEMA = TIF:	50
Wave Form IEC = THF:	2.0%
Total Harmonic Content LL/LN:	2.5%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	7.8 (444)
-60 Hz:	9.5 (540)

