

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)

DIESEL GENERATOR SET



Engine Technical Data

Physical Data		50 Hz		60 Hz	
Manufacturer:	Caterpillar				
Model:	C4.4				
No. of Cylinders/Alignment:	4 / In Line				
Cycle:	4 Stroke				
Induction:	Turbocharged Air To Air Charge Cooled				
Cooling Method:	Water				
Governing Type:	Electronic				
Governing Class:	ISO 8528 G2				
Compression Ratio:	18.3:1				
Displacement: l (cu.in)	4.4 (268.5)				
Bore/Stroke: mm (in)	105.0 (4.1)/127.0 (5.0)				
Moment of Inertia: kg m² (lb. in²)	1.51 (5160)				
Engine Electrical System:					
-Voltage/Ground:	12/Negative				
-Battery Charger Amps:	65				
Weight: kg (lb) - Dry:	500 (1102)				
- Wet:	520 (1146)				

Air System		50 Hz		60 Hz	
Air Filter Type:	Replaceable Element				
Combustion Air Flow:					
m ³ /min (cfm)	-Standby:	6.3 (221)	7.8 (275)		
	-Prime:	6.0 (212)	7.8 (274)		
Max. Combustion Air Intake					
Restriction: kPa (in H₂O)		8.0 (32.1)	8.0 (32.1)		
Radiator Cooling Air Flow:					
m ³ /min (cfm)		187.8 (6632)	244.2 (8624)		
External Restriction to					
Cooling Air Flow: Pa (in H₂O)		125 (0.5)	125 (0.5)		

Cooling System		50 Hz		60 Hz	
Cooling System Capacity:					
l (US gal)		17.5 (4.6)	17.5 (4.6)		
Water Pump Type:	Centrifugal				
Heat Rejected to Water & Lube Oil: kW (Btu/min)					
	-Standby:	50.7 (2883)	64.0 (3640)		
	-Prime:	46.1 (2622)	57.7 (3281)		
Heat Radiation to Room: Heat radiated from engine and alternator					
kW (Btu/min)	-Standby:	15.3 (870)	18.9 (1075)		
	-Prime:	13.6 (773)	16.6 (944)		
Radiator Fan Load: kW (hp)		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	
Oil Filter Type:	Spin-On, Full Flow				
Total Oil Capacity l (US gal):	8.0 (2.1)				
Oil Pan l (US gal):	7.0 (1.8)				
Oil Type:	API CC/SE				
Cooling Method:	Water				

Performance		50 Hz		60 Hz	
Engine Speed: RPM		1500	1800		
Gross Engine Power: kW (hp)					
	-Standby:	103.0 (138.0)	117.5 (158.0)		
	-Prime:	93.6 (126.0)	106.8 (143.0)		
BMEP: kPa (psi)					
	-Standby:	1873.0 (271.7)	1781.0 (258.3)		
	-Prime:	1702.0 (246.9)	1619.0 (234.8)		
Regenerative Power: kW		8.2	13.8		

Fuel System		50 Hz		60 Hz	
Fuel Filter Type:	Replaceable Element				
Recommended Fuel:	Class A2 Diesel or BSEN590				
Fuel Consumption: l/hr (US gal/hr)					
		110% Load	100% Load	75% Load	50% Load
Prime					
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)	
Standby					
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	
Silencer Type:	Industrial				
Silencer Model & Quantity:	EXSY1 (1)				
Pressure Drop Across					
Silencer System: kPa (in Hg)		2.10 (0.620)	3.21 (0.948)		
Silencer Noise Reduction					
Level: dB		22	17		
Max. Allowable Back					
Pressure: kPa (in. Hg)		18.0 (5.3)	15.0 (4.4)		
Exhaust Gas Flow:					
m ³ /min (cfm)	-Standby:	15.0 (530)	18.0 (636)		
	-Prime:	14.0 (494)	17.0 (600)		
Exhaust Gas Temperature: °C (°F)					
	-Standby:	494 (921)	517 (963)		
	-Prime:	463 (865)	469 (876)		

DIESEL GENERATOR SET



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)

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Technical Data

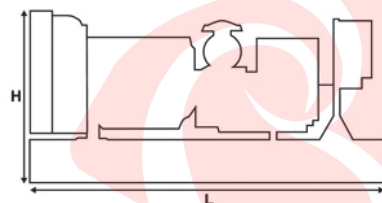
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
240V	82.0	82.0	90.0	90.0
230V	82.0	82.0	90.0	90.0
220V	82.0	82.0	90.0	90.0

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
220V/110V	90.0	90.0	99.5	99.5
240V/120V	90.0	90.0	99.5	99.5

Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	1195 (2635)
Wet (+ lube oil & coolant)	1213 (2674)
Fuel, lube oil & coolant	1424 (3139)

Dimensions: mm (in)	
Length	2089 (82.2)
Width	1120 (44.1)
Height	1375 (54.1)



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.