

# DIESEL GENERATOR SET



## DE165E0

Image shown may not reflect actual package

Output Ratings		
Generator Set Model - 3 Phase	Prime*	Standby*
400/230 V, 50 Hz	150.0 kVA 120.0 kW	165.0 kVA 132.0 kW
480V, 60 Hz	168.8 kVA 135.0 kW	187.5 kVA 150.0 kW

\* Refer to ratings definitions on page 4.  
Ratings at 0,8 power factor.

Technical Data		
Engine Make & Model:	Cat® C7.1	
Generator Model:	LC3114J	
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)	349 (92.2)	
Fuel Consumption, Prime: l/hr (US gal/hr)	32.4 (8.6)	37.5 (9.9)
Fuel Consumption, Standby : l/hr (US gal/hr)	35.1 (9.3)	41.1 (10.9)



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## Engine Technical Data

Physical Data		50 Hz		60 Hz	
<b>Manufacturer:</b>	Caterpillar				
<b>Model:</b>	C7.1				
<b>No. of Cylinders/Alignment:</b>	6 / 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>	Mechanical				
<b>Governing Class:</b>	ISO 8528 G2				
<b>Compression Ratio:</b>	16.0:1				
<b>Displacement: l (cu.in)</b>	7.0 (427.8)				
<b>Bore/Stroke: mm (in)</b>	105.0 (4.1)/135.0 (5.3)				
<b>Moment of Inertia: kg m<sup>2</sup> (lb. in<sup>2</sup>)</b>	1.53 (5228)				
<b>Engine Electrical System:</b>					
-Voltage/Ground:	12/Negative				
-Battery Charger Amps:	85				
<b>Weight: kg (lb) - Dry:</b>	788 (1737)				
- Wet:	822 (1812)				

Air System		50 Hz		60 Hz	
<b>Air Filter Type:</b>	Paper Element				
<b>Combustion Air Flow:</b>					
m <sup>3</sup> /min (cfm)					
-Standby:	10.7 (377)	15.0 (529)			
-Prime:	10.0 (354)	14.4 (509)			
<b>Max. Combustion Air Intake</b>					
<b>Restriction: kPa (in H<sub>2</sub>O)</b>	3.0 (12.0)	3.0 (12.0)			
<b>Radiator Cooling Air Flow:</b>					
m <sup>3</sup> /min (cfm)	303.4 (10714)	239.4 (8454)			
<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)		21.0 (5.5)	21.0 (5.5)		
<b>Water Pump Type:</b>	Centrifugal				
<b>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</b>					
-Standby:	75.7 (4305)	80.1 (4555)			
-Prime:	69.1 (3930)	73.5 (4180)			
<b>Heat Radiation to Room:</b> Heat radiated from engine and alternator					
kW (Btu/min)					
-Standby:	22.4 (1274)	23.4 (1331)			
-Prime:	19.9 (1132)	20.8 (1183)			
<b>Radiator Fan Load: kW (hp)</b>	4.5 (6.0)	8.0 (10.7)			
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		50 Hz		60 Hz	
<b>Oil Filter Type:</b>	Spin-On, Full Flow				
<b>Total Oil Capacity l (US gal):</b>	16.5 (4.4)				
<b>Oil Pan l (US gal):</b>	14.9 (3.9)				
<b>Oil Type:</b>	API CH4 / CI4 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:	149.1 (200.0)	171.8 (230.0)			
-Prime:	136.0 (182.0)	155.4 (208.0)			
<b>BMEP: kPa (psi)</b>					
-Standby:	1701.0 (246.7)	1633.0 (236.8)			
-Prime:	1551.0 (225.0)	1477.0 (214.2)			
<b>Regenerative Power: kW</b>	6.7	7.7			

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	35.1 (9.3)	32.4 (8.6)	24.9 (6.6)	16.6 (4.4)	
60 Hz	41.1 (10.9)	37.5 (9.9)	28.9 (7.6)	19.7 (5.2)	
<b>Standby</b>					
50 Hz		35.1 (9.3)	27.2 (7.2)	18.3 (4.8)	
60 Hz		41.1 (10.9)	31.9 (8.4)	21.8 (5.8)	
(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>	-				
<b>Silencer Model &amp; Quantity:</b>	EXSY1 (-)				
<b>Pressure Drop Across</b>					
<b>Silencer System: kPa (in Hg)</b>		-	-		
<b>Silencer Noise Reduction</b>					
<b>Level: dB</b>		-	-		
<b>Max. Allowable Back</b>					
<b>Pressure: kPa (in. Hg)</b>		6.0 (1.8)	6.0 (1.8)		
<b>Exhaust Gas Flow:</b>					
m <sup>3</sup> /min (cfm)					
-Standby:	25.5 (902)	32.2 (1137)			
-Prime:	23.9 (843)	31.9 (1125)			
<b>Exhaust Gas Temperature: °C (°F)</b>					
-Standby:	484 (903)	407 (765)			
-Prime:	484 (903)	407 (765)			

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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	414	390	358	455	452	307	358	-	393
Short Circuit Capacity** %	300	300	300	300	300	300	300	-	300
Reactances: Per Unit									
Xd	2.834	3.050	3.380	2.185	2.860	4.326	3.808	-	3.404
X'd	0.136	0.147	0.163	0.105	0.138	0.208	0.183	-	0.164
X''d	0.082	0.088	0.098	0.063	0.083	0.125	0.110	-	0.098

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:	LC3114J
No. of Bearings:	1
Insulation Class:	H
Winding Pitch - Code:	2/3 - 6
Wires:	12
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:	2.0%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	10.2 (580)
-60 Hz:	11.1 (631)

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## Technical Data

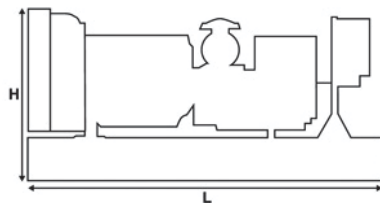
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	150.0	120.0	165.0	132.0
400/230V	150.0	120.0	165.0	132.0
380/220V	150.0	120.0	165.0	132.0
230/115V	150.0	120.0	165.0	132.0
220/127V	130.0	104.0	143.0	114.4
220/110V	150.0	120.0	165.0	132.0
200/115V	150.0	120.0	165.0	132.0

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	168.8	135.0	187.5	150.0
220/127V	168.8	135.0	187.5	150.0
380/220V	160.0	128.0	176.0	140.8
240/120V	168.8	135.0	187.5	150.0
440/254V	-	-	-	-
220/110V	160.0	128.0	176.0	140.8
208/120V	168.8	135.0	187.5	150.0
240/139V	168.8	135.0	187.5	150.0

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	1610 (3549)
Wet (+ lube oil & coolant)	1631 (3596)
Fuel, lube oil & coolant	1927 (4247)

Dimensions: mm (in)	
Length	2500 (98.4)
Width	1120 (44.1)
Height	1528 (60.2)



**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.