

# DIESEL GENERATOR SET



## DE110E3

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

Image shown may not reflect actual package

Output Ratings		
Generator Set Model - 3 Phase	Prime*	Standby*
400/230 V, 50 Hz	100.0 kVA 80.0 kW	110.0 kVA 88.0 kW
	-	-
	-	-

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

Technical Data		
Engine Make & Model:	Cat® C4.4	
Generator Model:	R2253L4	
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	-
Fuel Tank Capacity: litres (US gal)	250 (66.0)	
Fuel Consumption, Prime: l/hr (US gal/hr)	23.4 (6.2)	-
Fuel Consumption, Standby : l/hr (US gal/hr)	24.7 (6.5)	-

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## Engine Technical Data

Physical Data	
<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>	16.7:1
<b>Displacement:</b> l (cu.in)	4.4 (268.4)
<b>Bore/Stroke:</b> mm (in)	105.0 (4.1)/127.0 (5.0)
<b>Moment of Inertia:</b> kg m <sup>2</sup> (lb. in <sup>2</sup> )	1.32 (4524)
<b>Engine Electrical System:</b>	
-Voltage/Ground:	12/Negative
-Battery Charger Amps:	65
<b>Weight:</b> kg (lb) - Dry:	439 (968)
- Wet:	448 (988)

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:	6.7 (238)	-
-Prime:	6.4 (227)	-
<b>Max. Combustion Air Intake</b>		
<b>Restriction:</b> kPa (in H <sub>2</sub> O)	5.0 (20.1)	-
<b>Radiator Cooling Air Flow:</b>		
m <sup>3</sup> /min (cfm)	201.0 (7098)	-
<b>External Restriction to</b>		
<b>Cooling Air Flow:</b> Pa (in H <sub>2</sub> O)	125 (0.5)	-

Cooling System	50 Hz	60 Hz
<b>Cooling System Capacity:</b>		
l (US gal)	17.0 (4.5)	-
<b>Water Pump Type:</b>	Centrifugal	
<b>Heat Rejected to Water &amp; Lube Oil:</b> kW (Btu/min)		
-Standby:	51.9 (2952)	-
-Prime:	47.1 (2679)	-
<b>Heat Radiation to Room:</b> Heat radiated from engine and alternator		
kW (Btu/min)		
-Standby:	23.0 (1308)	-
-Prime:	20.2 (1149)	-
<b>Radiator Fan Load:</b> kW (hp)	2.8 (3.8)	-
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 I (US gal):</b>	8.4 (2.2)
<b>Oil Pan I (US gal):</b>	6.9 (1.8)
<b>Oil Type:</b>	API CH4 15W-40
<b>Cooling Method:</b>	Water

Performance	50 Hz	60 Hz
<b>Engine Speed:</b> RPM	1500	-
<b>Gross Engine Power:</b> kW (hp)		
-Standby:	105.1 (141.0)	-
-Prime:	95.8 (128.0)	-
<b>BMEP:</b> kPa (psi)		
-Standby:	1911.0 (277.2)	-
-Prime:	1742.0 (252.7)	-
<b>Regenerative Power:</b> kW	0.0	-

Fuel System				
<b>Fuel Filter Type:</b>	Replaceable Element			
<b>Recommended Fuel:</b>	Class A2 Diesel or BSEN590			
<b>Fuel Consumption:</b> l/hr (US gal/hr)				
	<b>110% Load</b>	<b>100% Load</b>	<b>75% Load</b>	<b>50% Load</b>
<b>Prime</b>				
50 Hz	24.7 (6.5)	23.4 (6.2)	19.5 (5.2)	14.5 (3.8)
60 Hz	-	-	-	-
<b>Standby</b>				
50 Hz		24.7 (6.5)	20.7 (5.5)	15.6 (4.1)
60 Hz		-	-	-
(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:</b> kPa (in Hg)	2.10 (0.620)	-
<b>Silencer Noise Reduction</b>		
<b>Level:</b> dB	22	-
<b>Max. Allowable Back</b>		
<b>Pressure:</b> kPa (in. Hg)	15.0 (4.4)	-
<b>Exhaust Gas Flow:</b>		
m <sup>3</sup> /min (cfm)		
-Standby:	17.4 (614)	-
-Prime:	16.4 (580)	-
<b>Exhaust Gas Temperature:</b> °C (°F)		
-Standby:	675 (1247)	-
-Prime:	657 (1215)	-

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## Generator Performance Data

Data Item	50 Hz			60 Hz				
	415/240V	400/230V	380/220V					
Motor Starting Capability* kVA	189	168	168					
Short Circuit Capacity** %	300	300	300					
Reactances: Per Unit								
Xd	2.430	2.620	2.900					
X'd	0.190	0.200	0.220					
X''d	0.088	0.094	0.104					

Reactances shown are applicable to prime ratings.

\*Based on 30% voltage dip at 0 power factor and SHUNT excitation system.

\*\*With optional Auxiliary Winding.

## Generator Technical Data

Physical Data	
R Frame	
Model:	R2253L4
No. of Bearings:	1
Insulation Class:	H
Winding Pitch - Code:	2/3 - M0
Wires:	12
Ingress Protection Rating:	IP23
Excitation System:	SHUNT
AVR Model:	Mark V

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:	8.7 (495)
-60 Hz:	-

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## Technical Data

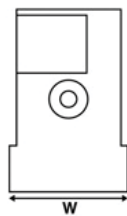
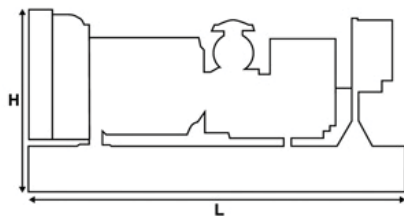
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	100.0	80.0	110.0	88.0
400/230V	100.0	80.0	110.0	88.0
380/220V	100.0	80.0	110.0	88.0

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	1324 (2919)
Wet (+ lube oil & coolant)	1344 (2963)
Fuel, lube oil & coolant	1556 (3430)

Dimensions: mm (in)	
Length	2089 (82.2)
Width	1120 (44.1)
Height	1495 (58.9)



**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.

www.Cat-ElectricPower.com

Price List: C4.4PGBI, C4.4PGBT

Gen. Arr. Number: 502-7326

Source: China, Europe

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