

# DIESEL GENERATOR SET



## DE33E3

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	30.0 kVA 24.0 kW	33.0 kVA 26.4 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® C3.3	
<b>Generator Model:</b>	R1555L4	
<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	-
<b>Fuel Tank Capacity: litres (US gal)</b>	161 (42.5)	
<b>Fuel Consumption, Prime: l/hr (US gal/hr)</b>	7.4 (2.0)	-
<b>Fuel Consumption, Standby : l/hr (US gal/hr)</b>	8.2 (2.2)	-

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## Engine Technical Data

Physical Data	
<b>Manufacturer:</b>	Caterpillar
<b>Model:</b>	C3.3
<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 G2
<b>Compression Ratio:</b>	19.25:1
<b>Displacement: l (cu.in)</b>	3.3 (201.4)
<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>	1.14 (3896)
<b>Engine Electrical System:</b>	
-Voltage/Ground:	12/Negative
-Battery Charger Amps:	65
<b>Weight: kg (lb) - Dry:</b>	329 (725)
- Wet:	343 (756)

Air System	50 Hz	60 Hz
<b>Air Filter Type:</b>	Replaceable Element	
<b>Combustion Air Flow:</b>		
m <sup>3</sup> /min (cfm)	<b>-Standby:</b> 2.2 (76)	-
	<b>-Prime:</b> 2.1 (75)	-
<b>Max. Combustion Air Intake</b>		
<b>Restriction: kPa (in H<sub>2</sub>O)</b>	6.6 (26.5)	-
<b>Radiator Cooling Air Flow:</b>		
m <sup>3</sup> /min (cfm)	58.2 (2055)	-
<b>External Restriction to</b>		
<b>Cooling Air Flow: Pa (in H<sub>2</sub>O)</b>	125 (0.5)	-

Cooling System	50 Hz	60 Hz
<b>Cooling System Capacity:</b>		
l (US gal)	10.2 (2.7)	-
<b>Water Pump Type:</b>	Centrifugal	
<b>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</b>		
<b>-Standby:</b>	23.9 (1359)	-
<b>-Prime:</b>	21.3 (1211)	-
<b>Heat Radiation to Room:</b> Heat radiated from engine and alternator		
kW (Btu/min)	<b>-Standby:</b> 8.8 (500)	-
	<b>-Prime:</b> 7.6 (432)	-
<b>Radiator Fan Load: kW (hp)</b>	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>	8.3 (2.2)
<b>Oil Pan l (US gal):</b>	7.8 (2.1)
<b>Oil Type:</b>	API CG4 / CH4 15W-40
<b>Cooling Method:</b>	Water

Performance	50 Hz	60 Hz
<b>Engine Speed: RPM</b>	1500	-
<b>Gross Engine Power: kW (hp)</b>		
<b>-Standby:</b>	33.0 (44.0)	-
<b>-Prime:</b>	29.7 (40.0)	-
<b>BMEP: kPa (psi)</b>		
<b>-Standby:</b>	800.0 (116.1)	-
<b>-Prime:</b>	721.0 (104.5)	-
<b>Regenerative Power: kW</b>	7.7	-

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>				
	<b>110% Load</b>	<b>100% Load</b>	<b>75% Load</b>	<b>50% Load</b>
<b>Prime</b>				
50 Hz	8.2 (2.2)	7.4 (2.0)	5.7 (1.5)	4.0 (1.1)
60 Hz	-	-	-	-
<b>Standby</b>				
50 Hz	8.2 (2.2)	6.2 (1.6)	4.3 (1.1)	
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: kPa (in Hg)</b>	0.14 (0.041)	-
<b>Silencer Noise Reduction</b>		
<b>Level: dB</b>	20	-
<b>Max. Allowable Back</b>		
<b>Pressure: kPa (in. Hg)</b>	15.0 (4.4)	-
<b>Exhaust Gas Flow:</b>		
m <sup>3</sup> /min (cfm)	<b>-Standby:</b> 5.5 (194)	-
	<b>-Prime:</b> 5.3 (185)	-
<b>Exhaust Gas Temperature: °C (°F)</b>		
<b>-Standby:</b>	570 (1058)	-
<b>-Prime:</b>	515 (959)	-

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## Generator Performance Data

Data Item	50 Hz				60 Hz				
	415/240V	400/230V	380/220V						
Motor Starting Capability* kVA	45	45	38						
Short Circuit Capacity** %	300	300	300						
Reactances: Per Unit									
Xd	2.390	2.570	2.840						
X'd	0.220	0.230	0.260						
X''d	0.093	0.100	0.111						

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:	R1555L4
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:	3.8 (216)
-60 Hz:	-

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## Technical Data

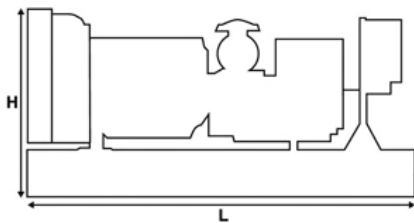
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	30.0	24.0	33.0	26.4
400/230V	30.0	24.0	33.0	26.4
380/220V	30.0	24.0	33.0	26.4

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW

## Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	838 (1847)
Wet (+ lube oil & coolant)	851 (1876)
Fuel, lube oil & coolant	987 (2177)

Dimensions: mm (in)	
Length	1540 (60.6)
Width	970 (38.2)
Height	1361 (53.6)



**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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