

DIESEL GENERATOR SET



DE33E0

Image shown may not reflect actual package

Output Ratings		
Generator Set Model - 3 Phase	Prime*	Standby*
400/230 V, 50 Hz	30.0 kVA 24.0 kW	33.0 kVA 26.4 kW
480V, 60 Hz	33.8 kVA 27.0 kW	37.5 kVA 30.0 kW

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

Technical Data		
Engine Make & Model:	Cat® C3.3	
Generator Model:	LC1514F	
Control Panel:	EMCP 4.1	
Base Frame Type:	Heavy Duty Fabricated Steel	
Circuit Breaker Type:	3 Pole MCB / 3 Pole MCCB	
Frequency:	50 Hz	60 Hz
Engine Speed: RPM	1500	1800
Fuel Tank Capacity: litres (US gal)	161 (42.5)	
Fuel Consumption, Prime: l/hr (US gal/hr)	7.0 (1.8)	8.1 (2.1)
Fuel Consumption, Standby : l/hr (US gal/hr)	7.7 (2.0)	9.0 (2.4)

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Engine Technical Data

Physical Data	
Manufacturer:	Caterpillar
Model:	C3.3
No. of Cylinders/Alignment:	3 / In Line
Cycle:	4 Stroke
Induction:	Naturally Aspirated
Cooling Method:	Water
Governing Type:	Mechanical
Governing Class:	ISO 8528 G2
Compression Ratio:	19.25:1
Displacement: l (cu.in)	3.3 (201.4)
Bore/Stroke: mm (in)	105.0 (4.1)/127.0 (5.0)
Moment of Inertia: kg m² (lb. in²)	1.14 (3896)
Engine Electrical System:	
-Voltage/Ground:	12/Negative
-Battery Charger Amps:	65
Weight: kg (lb) - Dry:	412 (908)
- Wet:	430 (948)

Air System	50 Hz	60 Hz
Air Filter Type:	Replaceable Element	
Combustion Air Flow:		
m ³ /min (cfm)	-Standby: 2.2 (76)	2.6 (91)
	-Prime: 2.2 (76)	2.6 (92)
Max. Combustion Air Intake		
Restriction: kPa (in H₂O)	6.5 (26.1)	6.5 (26.1)
Radiator Cooling Air Flow:		
m ³ /min (cfm)	62.6 (2211)	84.8 (2995)
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)	10.2 (2.7)	10.2 (2.7)
Water Pump Type:	Centrifugal	
Heat Rejected to Water & Lube Oil: kW (Btu/min)		
	-Standby: 18.0 (1024)	22.0 (1251)
	-Prime: 16.0 (910)	18.0 (1024)
Heat Radiation to Room: Heat radiated from engine and alternator		
kW (Btu/min)	-Standby: 9.3 (529)	9.7 (552)
	-Prime: 7.9 (449)	8.2 (466)
Radiator Fan Load: kW (hp)	0.3 (0.4)	0.5 (0.7)
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	
Oil Filter Type:	Spin-On, Full Flow
Total Oil Capacity l (US gal):	8.3 (2.2)
Oil Pan l (US gal):	7.8 (2.1)
Oil Type:	API CG4 / CH4 15W-40
Cooling Method:	Water

Performance	50 Hz	60 Hz
Engine Speed: RPM	1500	1800
Gross Engine Power: kW (hp)		
-Standby:	31.0 (42.0)	36.5 (49.0)
-Prime:	28.2 (38.0)	33.1 (44.0)
BMEP: kPa (psi)		
-Standby:	752.0 (109.0)	738.0 (107.0)
-Prime:	684.0 (99.2)	669.0 (97.0)
Regenerative Power: kW	7.0	9.0

Fuel System				
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	7.7 (2.0)	7.0 (1.8)	5.2 (1.4)	3.8 (1.0)
60 Hz	9.0 (2.4)	8.1 (2.1)	6.2 (1.6)	4.7 (1.2)
Standby				
50 Hz		7.7 (2.0)	5.7 (1.5)	4.1 (1.1)
60 Hz		9.0 (2.4)	6.8 (1.8)	5.0 (1.3)
(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)	1.80 (0.532)	2.00 (0.591)
Silencer Noise Reduction		
Level: dB	20	19
Max. Allowable Back		
Pressure: kPa (in. Hg)	8.0 (2.4)	10.0 (3.0)
Exhaust Gas Flow:		
m ³ /min (cfm)	-Standby: 5.8 (205)	6.6 (233)
	-Prime: 5.7 (201)	6.4 (226)
Exhaust Gas Temperature: °C (°F)		
	-Standby: 520 (968)	530 (986)
	-Prime: 500 (932)	520 (968)

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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	72	68	63	78	78	55	63	-	69
Short Circuit Capacity %	-	-	-	-	-	-	-	-	-
Reactances: Per Unit									
Xd	2.298	2.474	2.741	2.045	2.323	3.706	3.092	-	2.764
X'd	0.143	0.153	0.170	0.127	0.144	0.230	0.192	-	0.171
X''d	0.071	0.077	0.085	0.063	0.072	0.115	0.096	-	0.086

Reactances shown are applicable to prime ratings.
*Based on 30% voltage dip at 0.6 power factor.

Generator Technical Data

Physical Data	
LC Series	
Model:	LC1514F
No. of Bearings:	1
Insulation Class:	H
Winding Pitch - Code:	2/3 - 6
Wires:	12
Ingress Protection Rating:	IP23
Excitation System:	SHUNT
AVR Model:	R220

Operating Data	
Overspeed: RPM	2250
Voltage Regulation: (steady state)	+/- 1.0%
Wave Form NEMA = TIF:	50
Wave Form IEC = THF:	2.0%
Total Harmonic Content LL/LN:	5.0%
Radio Interference:	Suppression is in line with European Standard EN61000-6
Radiant Heat: kW (Btu/min)	
-50 Hz:	3.3 (188)
-60 Hz:	3.7 (210)

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Technical Data

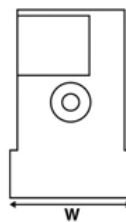
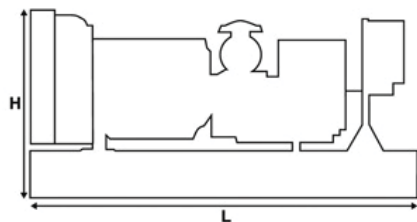
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	30.0	24.0	33.0	26.4
400/230V	30.0	24.0	33.0	26.4
380/220V	30.0	24.0	33.0	26.4
230/115V	30.0	24.0	33.0	26.4
220/127V	30.0	24.0	33.0	26.4
220/110V	30.0	24.0	33.0	26.4
200/115V	30.0	24.0	33.0	26.4

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	33.8	27.0	37.5	30.0
220/127V	33.8	27.0	37.5	30.0
380/220V	33.8	27.0	37.5	30.0
240/120V	33.8	27.0	37.5	30.0
440/254V	33.8	27.0	37.5	30.0
220/110V	33.8	27.0	37.5	30.0
208/120V	33.8	27.0	37.5	30.0
240/139V	33.8	27.0	37.5	30.0

Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	827 (1823)
Wet (+ lube oil & coolant)	840 (1852)
Fuel, lube oil & coolant	976 (2153)

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.

Performance No.: P2490A, P2490B

Feature Code: C03DE23, C03DE24, C03DE25, C03DE26, C03DE57,

C03DE58, C03DE59, C03DE60

Gen. Arr. Number: 459-4399

Source: European or China Sourced

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Picture shown may not represent actual package.

SOUND ATTENUATED LEVEL 1 ENCLOSURES

30 – 220 kVA

The compact modular design of the 30 – 220 kVA SA Level 1 enclosures ensure optimum performance in the harshest of environments. Designed on modular principles, they have interchangeable components permitting on-site repair. Lift off doors and access panels provide optimal service and maintenance access.

Extremely durable and robust, the enclosures are designed to resist corrosion and handling damage with the ability to withstand rough handling common on many construction sites.

Developed through continuing research and development by our specialist engineers, the enclosures are fully weatherproof and incorporate internally mounted exhaust silencers.

The sound attenuated Level 1 enclosures reduce sound levels to comply with the stage II levels of the European Community Directive 2000/14/EC, effective from 3 January 2006

Features

DURABLE AND ROBUST CONSTRUCTION

- Galvanised steel protected by powder coat paint
- Black finish stainless steel locks and hinges
- Zinc plated / stainless steel fasteners

SECURITY AND SAFETY

- Control panel viewing via large viewing window in lockable enclosure door
- Emergency stop push button mounted on enclosure exterior below control panel
- Cooling fan and battery charging alternator fully guarded
- Fuel fill and battery can only be reached via lockable access doors
- Fully enclosed exhaust silencing system for operator safety

TRANSPORTABILITY

- Lifting points on base frame facilitating handling from both sides

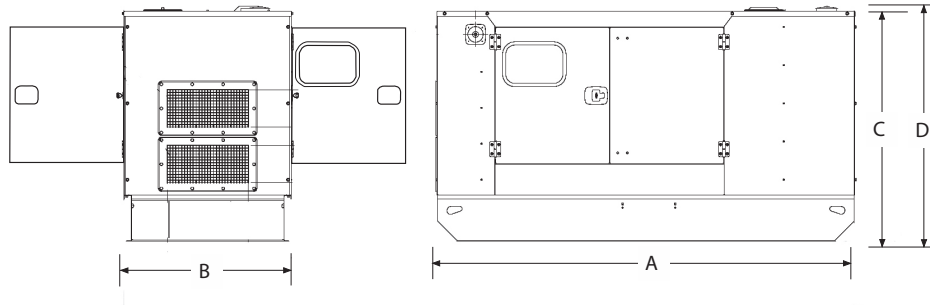
EXCELLENT SERVICE AND MAINTENANCE ACCESS

- Side hinged doors on both sides of the enclosure opening to 180°
- Side hinged doors lift off at 90°
- Removable front and rear access panels
- Lube oil and coolant drain valves

Sound Pressure Levels (dBA)

Generator Set Model Three Phase		LWA	50 Hz						60 Hz					
			15m (50ft)		7m (23ft)		1m (3.3ft)		15m (50ft)		7m (23ft)		1m (3.3ft)	
			75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load
DE33E0	Prime	94	61.0	62.4	67.0	68.4	77.7	79.1	62.2	63.1	68.2	69.1	79.4	80.8
	Standby	94	61.4	63.1	67.4	69.1	78.1	79.8	62.4	63.6	68.4	69.6	79.8	81.4
DE50E0	Prime	93	56.1	57.0	62.1	63.0	73.7	74.8	59.5	61.2	65.5	67.2	78.2	80.2
	Standby	93	56.4	57.5	62.4	63.5	74.0	75.3	60.1	62.1	66.1	68.1	78.9	81.4
DE55E0	Prime	93	56.4	57.5	62.4	63.5	74.0	75.3	60.1	62.1	66.1	68.1	78.9	81.4
	Standby	93	56.7	58.1	62.7	64.1	74.4	76.0	60.7	63.1	66.7	69.1	79.7	82.6
DE65E0	Prime	93	57.0	58.7	63.0	64.7	74.8	76.7	61.4	64.2	67.4	70.2	80.5	84.0
	Standby	93	57.3	59.4	63.3	65.4	75.2	77.5	62.1	65.4	68.1	71.4	81.4	85.5
DE88E0	Prime	93	59.2	61.0	65.2	67.0	77.4	79.5	60.6	62.5	66.6	68.5	79.4	81.1
	Standby	93	59.7	61.8	65.7	67.8	78.0	80.5	61.1	63.4	67.1	69.4	79.8	81.9
DE110E2	Prime	97	65.3	66.0	71.3	72.0	81.8	82.4	65.7	66.7	71.7	72.7	81.9	82.4
	Standby	97	65.5	66.3	71.5	72.3	82.0	82.7	66.0	67.2	72.0	73.2	82.1	82.7
DE165E0	Prime	-	62.2	62.5	68.2	68.5	80.6	80.8	64.9	65.1	70.9	71.1	84.2	84.4
	Standby	-	62.3	62.6	68.3	68.6	80.6	80.8	65.0	65.1	71.0	71.1	84.3	84.4
DE200E0	Prime	-	66.0	66.2	72.0	72.2	85.3	85.5	-	-	-	-	-	-
	Standby	-	66.0	66.4	72.0	72.4	85.4	85.6	-	-	-	-	-	-
DE220E0	Prime	-	66.0	66.4	72.0	72.4	85.4	85.6	-	-	-	-	-	-
	Standby	-	66.1	66.6	72.1	72.6	85.4	85.7	-	-	-	-	-	-

Generator Set Model Single Phase		LWA	50 Hz						60 Hz					
			15m (50ft)		7m (23ft)		1m (3.3ft)		15m (50ft)		7m (23ft)		1m (3.3ft)	
			75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load
DE40E0S	Prime	93	56.1	57.0	62.1	63.0	73.7	74.8	59.5	61.2	65.5	67.2	78.2	80.2
	Standby	93	56.4	57.5	62.4	63.5	74.0	75.3	60.1	62.1	66.1	68.1	78.9	81.4
DE50E0S	Prime	93	57.0	58.7	63.0	64.7	74.8	76.7	61.4	64.2	67.4	70.2	80.5	84.0
	Standby	93	57.3	59.4	63.3	65.4	75.2	77.5	62.1	65.4	68.1	71.4	81.4	85.5
DE90E2S	Prime	97	65.3	66.0	71.3	72.0	81.8	82.4	65.7	66.7	71.7	72.7	81.9	82.4
	Standby	97	65.5	66.3	71.5	72.3	82.0	82.7	66.0	67.2	72.0	73.2	82.1	82.7



Generator Set Model Three Phase	A: mm (in)	B: mm (in)	C: mm (in)	D*: mm (in)	Fuel Capacity: l (US gal)	Weight: kg (lb)
DE33E0	1864 (73.4)	898 (35.4)	1253 (49.3)	1349 (53.1)	56.0 (14.8)	835 (1840)
DE50E0	2291 (90.2)	1026 (40.4)	1426 (56.1)	–	145 (38.3)	978 (2156)
DE55E0	2291 (90.2)	1026 (40.4)	1426 (56.1)	–	145 (38.3)	983 (2167)
DE65E0	2291 (90.2)	1026 (40.4)	1426 (56.1)	–	145 (38.3)	994 (2191)
DE88E0	2291 (90.2)	1126 (44.3)	1527 (60.1)	–	188 (49.6)	1177 (2594)
DE110E2	2761 (108.7)	1126 (44.3)	1535 (60.4)	–	212 (56.0)	1332 (2936)
DE165E0	3515 (138.4)	1126 (44.3)	1681 (66.2)	–	289 (76.3)	1795 (3957)
DE200E0	3511 (138.2)	1326 (52.2)	1681 (66.2)	–	384 (101.4)	2084 (4594)
DE220E0	3511 (138.2)	1326 (52.2)	1681 (66.2)	–	384 (101.4)	2124 (4682)

Generator Set Model Single Phase	A: mm (in)	B: mm (in)	C: mm (in)	D*: mm (in)	Fuel Capacity: l (US gal)	Weight: kg (lb)
DE40E0S	2291 (90.2)	1026 (40.4)	1426 (56.1)	–	145 (38.3)	994 (2191)
DE50E0S	2291 (90.2)	1026 (40.4)	1426 (56.1)	–	145 (38.3)	1102 (2429)
DE90E3S	2761 (108.7)	1126 (44.3)	1535 (60.4)	–	212 (56.0)	1398 (3082)

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