

DIESEL GENERATOR SET



DE110E2

EU stage II emissions compliant.

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
480/277 V, 60 Hz	113.0 kVA 90.4 kW	125.0 kVA 100.0 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	1800
Fuel Tank Capacity: litres (US gal)	250 (66.0)	
Fuel Consumption, Prime: l/hr (US gal/hr)	21.7 (5.7)	26.1 (6.9)
Fuel Consumption, Standby : l/hr (US gal/hr)	23.9 (6.3)	29.0 (7.7)

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Engine Technical Data

Physical Data	
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 m ² (lb. in ²)	1.51 (5160)
Engine Electrical System:	
-Voltage/Ground:	12/Negative
-Battery Charger Amps:	65
Weight: kg (lb) - Dry:	401 (884)
- Wet:	414 (912)

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 H ₂ O)	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 H ₂ O)	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:	16.2 (921)	19.3 (1098)
-Prime:	13.9 (790)	17.2 (978)
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	
Oil Filter Type:	Spin-On, Full Flow
Total Oil Capacity I (US gal):	8.0 (2.1)
Oil Pan I (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				
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	23.9 (6.3)	21.7 (5.7)	16.5 (4.4)	11.6 (3.1)
60 Hz	29.0 (7.7)	26.1 (6.9)	19.7 (5.2)	14.1 (3.7)
Standby				
50 Hz		23.9 (6.3)	18.0 (4.8)	12.6 (3.3)
60 Hz		29.0 (7.7)	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)	3.56 (1.051)
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:	16.3 (576)	20.4 (720)
-Prime:	15.2 (537)	18.4 (650)
Exhaust Gas Temperature: °C (°F)		
-Standby:	543 (1009)	574 (1065)
-Prime:	514 (957)	517 (963)

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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	189	168	168	210	168	126	126		147
Short Circuit Capacity** %	300	300	300	300	300	300	300		300
Reactances: Per Unit									
Xd	2.430	2.620	2.900	2.160	2.470	2.860	3.290		2.930
X'd	0.190	0.200	0.220	0.170	0.190	0.290	0.250		0.220
X''d	0.088	0.094	0.104	0.078	0.089	0.138	0.119		0.106

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:	9.9 (563)

DIESEL GENERATOR SET



Technical Data

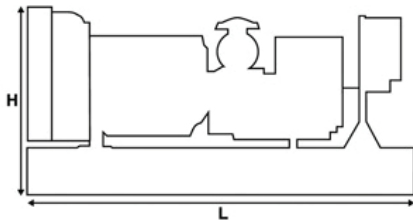
Voltage 50 Hz	Prime		Standby	
	kVA	kW	kVA	kW
415/240V	100.0	80.0	110.0	88.0
400/230V	100.0	80.0	110.0	88.0
380/220V	100.0	80.0	110.0	88.0
230/115V	100.0	80.0	110.0	88.0
220/127V	100.0	80.0	110.0	88.0
220/110V	100.0	80.0	110.0	88.0
200/115V	100.0	80.0	110.0	88.0

Voltage 60 Hz	Prime		Standby	
	kVA	kW	kVA	kW
480/277V	113.0	90.4	125.0	100.0
220/127V	113.0	90.4	125.0	100.0
380/220V	110.0	88.0	121.0	96.8
240/120V	113.0	90.4	125.0	100.0
440/254V	-	-	-	-
220/110V	110.0	88.0	121.0	96.8
208/120V	113.0	90.4	125.0	100.0
240/139V	113.0	90.4	125.0	100.0

Weights & Dimensions

Weights: kg (lb)	
Net (+ lube oil)	1198 (2641)
Wet (+ lube oil & coolant)	1215 (2679)
Fuel, lube oil & coolant	1427 (3145)

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.**



Enclosure pictured may include optional accessories

SOUND ATTENUATED LEVEL 2 ENCLOSURES

24 – 220 kVA Range

These sound attenuated Level 2, factory installed enclosures incorporate internally mounted critical level silencers, designed for safety and aesthetic value on an integral fuel tank base. Extremely durable, the enclosures are designed to resist corrosion and handling damage.

The enclosures are the result of continuing research and development by our specialist acoustic engineers. These enclosures reduce sound levels to comply with the stage 2 levels of the European Community Directive 2000/14/EC which became effective 3 January 2006.

FEATURES

DURABLE AND ROBUST CONSTRUCTION

- Manufactured from galvanised steel
- Advanced powder coating paint finish
- Single piece main roof
- Baseframe extends beyond enclosure protecting against handling damage
- Minimal external fixings exposed to environment
- Zinc plated fasteners
- Corner posts and air handling units manufactured from high grade composite material

EXCELLENT SERVICE AND MAINTENANCE ACCESS

- Side hinged doors on both sides of the enclosure incorporating lift-off hinges at 45 degrees
- Radiator fill via removable, flush mounted rain cap fitted with compression seal
- Lube oil cooling water drains piped to baseframe side rail, on exterior
- Removable end panels allow access to radiator, exhaust outlet and alternator rear
- Doors positioned for optimum access of frequently service items

SECURITY AND SAFETY

- Secure, lockable doors prevent unauthorised access to control panel, fuel fill and battery
- Emergency stop button mounted on exterior, convenient to control panel
- Cooling fan and battery charging alternator fully guarded

TRANSPORTABILITY

- Tested and certified single point lifting facility
- Lifting and drag points on baseframe facilitating handling from both sides

SOUND PRESSURE LEVELS (dBA)

Generator Set Model Three Phase		LWA	50 Hz						60 Hz					
			15 m		7 m		1 m		15 m		7 m		1 m	
			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	60.5	61.8	66.5	67.8	76.3	78.4	60.6	62.7	66.6	68.7	77.6	79.9
	Standby	94	60.9	62.4	66.9	68.4	76.9	79.4	61.2	63.8	67.2	69.8	78.2	81.1
DE33E3	Prime	94	59.4	61.3	65.4	67.3	76.5	78.6	-	-	-	-	-	-
	Standby	94	60.0	62.1	66.0	68.1	77.1	79.6	-	-	-	-	-	-
DE50E0	Prime	93	56.7	57.7	62.7	63.7	76.7	77.9	59.7	60.8	65.7	66.8	79.5	80.8
	Standby	93	56.9	58.2	62.9	64.2	77.0	78.5	60.1	61.5	66.1	67.5	80.0	81.6
DE50E2	Prime	93	55.7	56.4	61.7	62.4	75.3	75.5	-	-	-	-	-	-
	Standby	93	55.9	56.7	61.9	62.7	75.4	75.6	-	-	-	-	-	-
DE55E0	Prime	93	56.9	58.2	62.9	64.2	77.0	78.5	60.1	61.5	66.1	67.5	80.0	81.6
	Standby	93	57.3	58.9	63.3	64.9	77.4	79.2	60.5	62.2	66.5	68.2	80.5	82.4
DE55E2	Prime	93	56.2	56.5	62.2	62.5	75.3	75.5	-	-	-	-	-	-
	Standby	93	56.3	56.7	62.3	62.7	75.3	75.6	-	-	-	-	-	-
DE65E0	Prime	93	57.6	59.4	63.6	65.4	77.8	79.7	61.0	63.0	67.0	69.0	81.0	83.3
	Standby	93	58.1	60.5	64.1	66.5	78.3	80.8	61.5	63.8	67.5	69.8	81.6	84.2
DE65E3	Prime	93	57.7	58.5	63.7	64.5	75.8	77.1	-	-	-	-	-	-
	Standby	93	57.9	58.9	63.9	64.9	76.2	77.8	-	-	-	-	-	-
DE88E0	Prime	93	57.7	59.1	63.7	65.1	76.0	77.0	60.6	61.2	66.6	67.2	79.0	79.5
	Standby	93	58.1	59.8	64.1	65.8	76.2	77.4	60.8	61.5	66.8	67.5	79.2	79.6
DE88E3	Prime	97	61.3	61.4	67.3	67.4	80.1	80.2	-	-	-	-	-	-
	Standby	97	61.3	61.5	67.3	67.5	80.2	80.3	-	-	-	-	-	-
DE110E2	Prime	97	62.4	63.1	68.4	69.1	80.4	81.0	65.2	65.4	71.2	71.4	84.4	84.6
	Standby	97	62.6	63.5	68.6	69.5	80.6	81.3	65.2	65.5	71.2	71.5	84.5	84.7
DE110E3	Prime	97	61.4	61.6	67.4	67.6	80.2	80.3	-	-	-	-	-	-
	Standby	97	61.5	61.7	67.5	67.7	80.2	80.4	-	-	-	-	-	-
DE165E0	Prime	-	58.5	58.9	64.5	64.9	78	78.2	61.3	61.9	67.3	67.9	82.1	82.4
	Standby	-	58.6	59.1	64.6	65.1	78.1	78.3	61.5	62.1	67.5	68.1	82.2	82.7
DE200E0	Prime	97	62.0	62.4	68.0	68.4	80.2	80.4	-	-	-	-	-	-
	Standby	97	62.1	62.7	68.1	68.7	80.2	80.5	-	-	-	-	-	-
DE220E0	Prime	97	62.3	63.5	68.3	69.5	80.0	80.7	-	-	-	-	-	-
	Standby	97	62.7	64.0	68.7	70.0	80.2	81.1	-	-	-	-	-	-

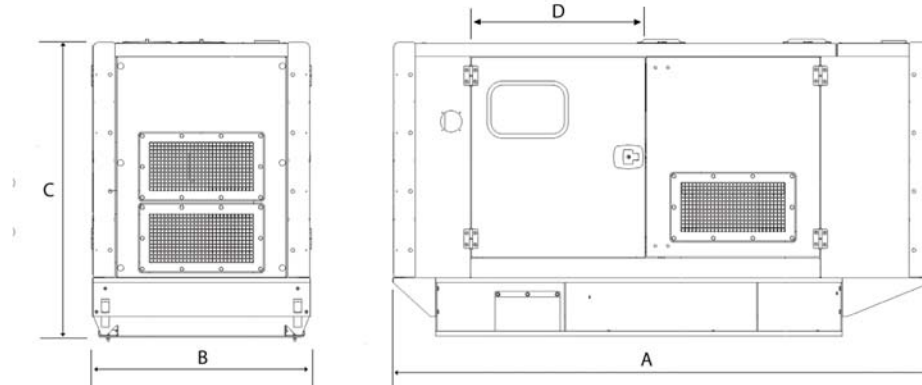
Levels in accordance with European Noise Directive (2000/14/EC).

SOUND PRESSURE LEVELS (dBA)

Generator Set Model Single Phase		LWA	50 Hz						60 Hz					
			15 m		7 m		1 m		15 m		7 m		1 m	
			75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load	100% Load
DE26E0S	Prime	94	60.5	61.8	66.5	67.8	76.3	78.4	-	-	-	-	-	-
	Standby	94	60.9	62.4	66.9	68.4	76.9	79.4	-	-	-	-	-	-
DE26E3S	Prime	94	60.5	61.8	66.5	67.8	76.3	78.4	-	-	-	-	-	-
	Standby	94	60.9	62.4	66.9	68.4	76.9	79.4	-	-	-	-	-	-
DE40E2S	Prime	93	55.7	56.4	61.7	62.4	75.3	75.5	-	-	-	-	-	-
	Standby	93	55.9	56.7	61.9	62.7	75.4	75.6	-	-	-	-	-	-
DE40E0S	Prime	93	56.7	57.7	62.7	63.7	76.7	77.9	59.7	60.8	65.7	66.8	79.5	80.8
	Standby	93	56.9	58.2	62.9	64.2	77.0	78.5	60.1	61.5	66.1	67.5	80.0	81.6
DE50E0S	Prime	93	58.1	59.1	64.1	65.1	76.6	77.3	61.1	62.1	67.1	68.1	78.9	80.0
	Standby	93	58.5	59.5	64.5	65.5	76.9	77.6	61.4	62.5	67.4	68.5	79.3	80.5
DE55E3S	Prime	93	57.7	58.5	63.7	64.5	75.8	77.1	-	-	-	-	-	-
	Standby	93	57.9	58.9	63.9	64.9	76.2	77.8	-	-	-	-	-	-
DE90E2S	Prime	97	62.2	62.8	68.2	68.8	80.2	80.8	65.1	65.3	71.1	71.3	84.4	84.6
	Standby	97	62.4	63.1	68.4	69.1	80.4	81.0	65.2	65.4	71.2	71.4	84.4	84.6
DE90E3S	Prime	97	61.3	61.5	67.3	67.5	80.2	80.3	-	-	-	-	-	-
	Standby	97	61.4	61.6	67.4	67.6	80.2	80.3	-	-	-	-	-	-

Levels in accordance with European Noise Directive (2000/14/EC)

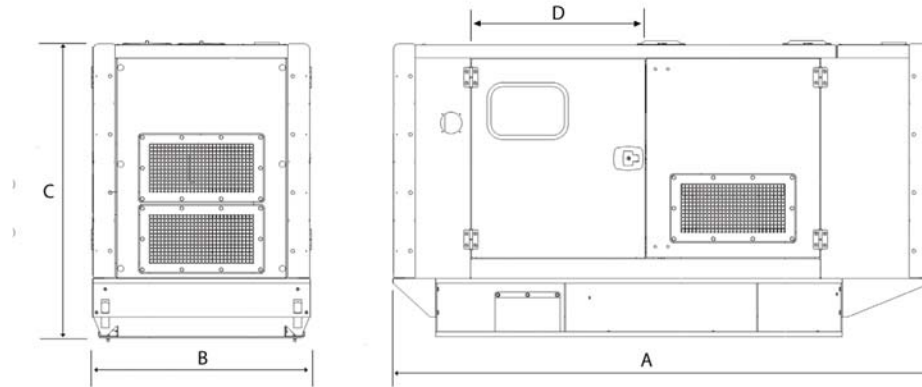
DIMENSIONS AND WEIGHTS



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	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE33E3	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE50E2	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1183 (2608)
DE50E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1191 (2626)
DE55E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1196 (2637)
DE55E2	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1236 (2725)
DE65E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1207 (2661)
DE65E3	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1247 (2749)
DE88E0	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1391 (3067)
DE88E3	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1529 (3371)
DE110E2	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1547 (3411)
DE110E3	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1637 (3609)
DE165E0	3520 (138.6)	1120 (44.1)	1815 (71.5)	1145 (45.1)	349 (92.2)	2016 (4445)
DE200E0	3520 (138.6)	1320 (52.0)	1815 (71.5)	1080 (42.5)	418 (110.0)	2198 (4836)
DE220E0	3520 (138.6)	1320 (52.0)	1815 (71.5)	1080 (42.5)	418 (110.0)	2238 (4934)

*Clearance required on both sides of set.
Weight with lube oil and coolant, no fuel.

DIMENSIONS AND WEIGHTS



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)
DE26E0S	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE26E3S	2120 (83.5)	970 (38.2)	1525 (60.0)	718 (28.3)	161 (43.0)	991 (2185)
DE40E2S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1199 (2643)
DE40E0S	2300 (90.6)	1120 (44.1)	1525 (60.0)	795 (31.3)	219 (58.0)	1247 (2749)
DE50E0S	2300 (90.6)	1120 (44.1)	1519 (59.8)	795 (31.3)	219 (58.0)	1315 (2899)
DE55E3S	2300 (90.6)	1120 (44.1)	1519 (59.8)	795 (31.3)	219 (58.0)	1355 (2987)
DE90E2S	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1613 (3556)
DE90E3S	2770 (109.1)	1120 (44.1)	1525 (60.0)	899 (35.4)	250 (66.0)	1653 (3644)

*Clearance required on both sides of set.
Weight with lube oil and coolant, no fuel.

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