

# DIESEL GENERATOR SET



## DE55E3S

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 - 1 Phase | Prime*              | Standby*            |
| 230V, 50Hz                    | 50.0 kVA<br>50.0 kW | 55.0 kVA<br>55.0 kW |
|                               | -                   | -                   |

\* Refer to ratings definitions on page 4.  
Ratings at 1.0 power factor.

| Technical Data                               |                             |       |
|--|-----------------------------|-------|
| Engine Make & Model:                         | Cat® C4.4                   |       |
| Generator Model:                             | LCB3114D                    |       |
| 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)          | 219 (57.9)                  |       |
| Fuel Consumption, Prime: l/hr (US gal/hr)    | 16.5 (4.4)                  | -     |
| Fuel Consumption, Standby : l/hr (US gal/hr) | 18.2 (4.8)                  | -     |

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## Engine Technical Data

| Physical Data   |                            | 50 Hz            |                  | 60 Hz           |                 |
|---|----------------------------|------------------|------------------|-----------------|-----------------|
| <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               |                  |                  |                 |                 |
| <b>Cooling Method:</b>  | Water                      |                  |                  |                 |                 |
| <b>Governing Type:</b>  | Mechanical                 |                  |                  |                 |                 |
| <b>Governing Class:</b>   | ISO 8528 G2                |                  |                  |                 |                 |
| <b>Compression Ratio:</b>   | 18.23:1                    |                  |                  |                 |                 |
| <b>Displacement: l (cu.in)</b>  | 4.4 (268.5)                |                  |                  |                 |                 |
| <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>   | 401 (884)                  |                  |                  |                 |                 |
| - Wet:  | 408 (899)                  |                  |                  |                 |                 |
| <b>Air System</b>   |                            | <b>50 Hz</b>     |                  | <b>60 Hz</b>    |                 |
| <b>Air Filter Type:</b>   | Replaceable Element        |                  |                  |                 |                 |
| <b>Combustion Air Flow:</b>   |                            |                  |                  |                 |                 |
| m <sup>3</sup> /min (cfm)   | -Standby:                  | 4.9 (173)        | -                |                 |                 |
|   | -Prime:                    | 4.7 (166)        | -                |                 |                 |
| <b>Max. Combustion Air Intake</b>   |                            |                  |                  |                 |                 |
| <b>Restriction: kPa (in H<sub>2</sub>O)</b>   | 6.0 (24.1)                 | -                |                  |                 |                 |
| <b>Radiator Cooling Air Flow:</b>   |                            |                  |                  |                 |                 |
| m <sup>3</sup> /min (cfm)   | 84.0 (2966)                | -                |                  |                 |                 |
| <b>External Restriction to</b>  |                            |                  |                  |                 |                 |
| <b>Cooling Air Flow: Pa (in H<sub>2</sub>O)</b>   | 125 (0.5)                  | -                |                  |                 |                 |
| <b>Cooling System</b>   |                            | <b>50 Hz</b>     |                  | <b>60 Hz</b>    |                 |
| <b>Cooling System Capacity:</b>   |                            |                  |                  |                 |                 |
| l (US gal)  | 16.5 (4.4)                 | -                |                  |                 |                 |
| <b>Water Pump Type:</b>   | Centrifugal                |                  |                  |                 |                 |
| <b>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</b>  |                            |                  |                  |                 |                 |
|   | -Standby:                  | 46.8 (2661)      | -                |                 |                 |
|   | -Prime:                    | 47.0 (2673)      | -                |                 |                 |
| <b>Heat Radiation to Room:</b> Heat radiated from engine and alternator   |                            |                  |                  |                 |                 |
| kW (Btu/min)  | -Standby:                  | 14.9 (847)       | -                |                 |                 |
|   | -Prime:                    | 14.0 (796)       | -                |                 |                 |
| <b>Radiator Fan Load: kW (hp)</b>   | 1.0 (1.3)                  | -                |                  |                 |                 |
| 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. |                            |                  |                  |                 |                 |
| <b>Lubrication System</b>   |                            |                  |                  |                 |                 |
| <b>Oil Filter Type:</b>   | Spin-On, Full Flow         |                  |                  |                 |                 |
| <b>Total Oil Capacity l (US gal):</b>   | 8.0 (2.1)                  |                  |                  |                 |                 |
| <b>Oil Pan l (US gal):</b>  | 7.0 (1.8)                  |                  |                  |                 |                 |
| <b>Oil Type:</b>  | API CH4 15W-40             |                  |                  |                 |                 |
| <b>Cooling Method:</b>  | Water                      |                  |                  |                 |                 |
| <b>Performance</b>  |                            | <b>50 Hz</b>     |                  | <b>60 Hz</b>    |                 |
| <b>Engine Speed: RPM</b>  | 1500                       | -                |                  |                 |                 |
| <b>Gross Engine Power: kW (hp)</b>  |                            |                  |                  |                 |                 |
|   | -Standby:                  | 61.6 (83.0)      | -                |                 |                 |
|   | -Prime:                    | 56.6 (76.0)      | -                |                 |                 |
| <b>BMEP: kPa (psi)</b>  |                            |                  |                  |                 |                 |
|   | -Standby:                  | 1120.0 (162.5)   | -                |                 |                 |
|   | -Prime:                    | 1029.0 (149.3)   | -                |                 |                 |
| <b>Regenerative Power: kW</b>   | N/A                        | -                |                  |                 |                 |
| <b>Fuel System</b>  |                            |                  |                  |                 |                 |
| <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   | 18.2 (4.8)                 | 16.5 (4.4)       | 12.3 (3.2)       | 8.4 (2.2)       |                 |
| 60 Hz   | -                          | -                | -                | -               |                 |
| <b>Standby</b>  |                            |                  |                  |                 |                 |
| 50 Hz   | 18.2 (4.8)                 | 13.5 (3.6)       | 9.2 (2.4)        |                 |                 |
| 60 Hz   | -                          | -                | -                |                 |                 |
| (based on diesel fuel with a specific gravity of 0.85 and conforming to BS2869, Class A2)   |                            |                  |                  |                 |                 |
| <b>Exhaust System</b>   |                            | <b>50 Hz</b>     |                  | <b>60 Hz</b>    |                 |
| <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>   | 3.30 (0.974)               | -                |                  |                 |                 |
| <b>Silencer Noise Reduction</b>   |                            |                  |                  |                 |                 |
| <b>Level: dB</b>  | 19                         | -                |                  |                 |                 |
| <b>Max. Allowable Back</b>  |                            |                  |                  |                 |                 |
| <b>Pressure: kPa (in. Hg)</b>   | 12.0 (3.5)                 | -                |                  |                 |                 |
| <b>Exhaust Gas Flow:</b>  |                            |                  |                  |                 |                 |
| m <sup>3</sup> /min (cfm)   | -Standby:                  | 12.3 (435)       | -                |                 |                 |
|   | -Prime:                    | 11.2 (396)       | -                |                 |                 |
| <b>Exhaust Gas Temperature: °C (°F)</b>   |                            |                  |                  |                 |                 |
|   | -Standby:                  | 627 (1161)       | -                |                 |                 |
|   | -Prime:                    | 570 (1058)       | -                |                 |                 |

# DIESEL GENERATOR SET



## Generator Performance Data

| Data Item                      | 50 Hz |       |       |   | 60 Hz |   |   |   |   |
|--------------------------------|-------|-------|-------|---|-------|---|---|---|---|
|                                | 240V  | 230V  | 220V  |   |       |   |   |   |   |
| Motor Starting Capability* kVA | 145   | 136   | 128   | - | -     | - | - | - | - |
| Short Circuit Capacity** %     | 300   | 300   | 300   | - | -     | - | - | - | - |
| Reactances:<br>Per Unit        |       |       |       |   |       |   |   |   |   |
| Xd                             | 1.603 | 1.746 | 1.908 | - | -     | - | - | - | - |
| X'd                            | 0.135 | 0.147 | 0.161 | - | -     | - | - | - | - |
| X''d                           | 0.081 | 0.088 | 0.096 | - | -     | - | - | - | - |

Reactances shown are applicable to prime ratings.

\*Based on 30% voltage dip at 0.9 power factor and SHUNT excitation system.

\*\* With optional Permanent Magnet generator

## Generator Technical Data

| Physical Data              |          |
|----------------------------|----------|
| LC Series                  |          |
| Model:                     | LCB3114D |
| No. of Bearings:           | 1        |
| Insulation Class:          | H        |
| Winding Pitch - Code:      | 2/3 - M  |
| Wires:                     | 4        |
| 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:      | 2.5%  |
| Radio Interference:                | Suppression is in line with European Standard EN61000-6 |
| Radiant Heat: kW (Btu/min)         |   |
| -50 Hz:                            | 5.6 (318)   |
| -60 Hz:                            | -   |

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## Technical Data

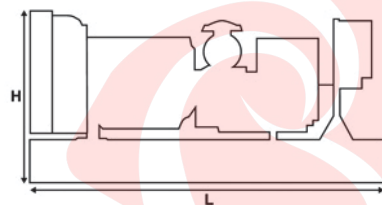
| Voltage<br>50 Hz | Prime |      | Standby |      |
|------------------|-------|------|---------|------|
|                  | kVA   | kW   | kVA     | kW   |
| 240V             | 50.0  | 50.0 | 55.0    | 55.0 |
| 230V             | 50.0  | 50.0 | 55.0    | 55.0 |
| 220V             | 50.0  | 50.0 | 55.0    | 55.0 |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |

| Voltage<br>60 Hz | Prime |    | Standby |    |
|------------------|-------|----|---------|----|
|                  | kVA   | kW | kVA     | kW |
|                  |       |    |         |    |
|                  |       |    |         |    |
|                  |       |    |         |    |
|                  |       |    |         |    |
|                  |       |    |         |    |
|                  |       |    |         |    |
|                  |       |    |         |    |
|                  |       |    |         |    |
|                  |       |    |         |    |

## Weights & Dimensions

| Weights: kg (lb)           |             |
|----------------------------|-------------|
| Net (+ lube oil)           | 1022 (2253) |
| Wet (+ lube oil & coolant) | 1035 (2282) |
| Fuel, lube oil & coolant   | 1220 (2691) |

| Dimensions: mm (in) |             |
|---------------------|-------------|
| Length              | 1925 (75.8) |
| Width               | 1120 (44.1) |
| 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.