

# DIESEL GENERATOR SET



## DE7.5E3S

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                    | 6.8 kVA | 7.5 kVA  |
|                               | 6.8 kW  | 7.5 kW   |
| 240/120V, 60 Hz               | 8.0 kVA | 8.8 kVA  |
|                               | 8.0 kW  | 8.8 kW   |

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

| Technical Data                               |                             |           |
|--|-----------------------------|-----------|
| Engine Make & Model:                         | Cat® C1.1                   |           |
| Generator Model:                             | LCB1114D                    |           |
| Control Panel:                               | EMCP 4.1                    |           |
| Base Frame Type:                             | Heavy Duty Fabricated Steel |           |
| Circuit Breaker Type:                        | 3 Pole MCB                  |           |
| Frequency:                                   | 50 Hz                       | 60 Hz     |
| Engine Speed: RPM                            | 1500                        | 1800      |
| Fuel Tank Capacity: litres (US gal)          | 62 (16.4)                   |           |
| Fuel Consumption, Prime: l/hr (US gal/hr)    | 2.5 (0.7)                   | 2.9 (0.8) |
| Fuel Consumption, Standby : l/hr (US gal/hr) | 2.8 (0.7)                   | 3.3 (0.9) |

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## Engine Technical Data

| Physical Data  |                       |
|--|-----------------------|
| <b>Manufacturer:</b>   | Caterpillar           |
| <b>Model:</b>  | C1.1                  |
| <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              |
| <b>Compression Ratio:</b>  | 23:1                  |
| <b>Displacement:</b> l (cu.in)                                     | 1.1 (69.0)            |
| <b>Bore/Stroke:</b> mm (in)  | 77.0 (3.0)/81.0 (3.2) |
| <b>Moment of Inertia:</b> kg m <sup>2</sup> (lb. in <sup>2</sup> ) | 1.63 (5570)           |
| <b>Engine Electrical System:</b>                                   |                       |
| -Voltage/Ground:   | 12/Negative           |
| -Battery Charger Amps:   | 40                    |
| <b>Weight:</b> kg (lb) - Dry:                                      | 129 (284)             |
| - Wet:   | 139 (306)             |

| Air System  | 50 Hz               | 60 Hz       |
|---|---------------------|-------------|
| <b>Air Filter Type:</b>                           | Replaceable Element |             |
| <b>Combustion Air Flow:</b>                       |                     |             |
| m <sup>3</sup> /min (cfm)                         |                     |             |
| -Standby:   | 0.7 (25)            | 0.9 (32)    |
| -Prime:   | 0.7 (25)            | 0.9 (32)    |
| <b>Max. Combustion Air Intake</b>                 |                     |             |
| <b>Restriction:</b> kPa (in H <sub>2</sub> O)     | 6.4 (25.7)          | 6.4 (25.7)  |
| <b>Radiator Cooling Air Flow:</b>                 |                     |             |
| m <sup>3</sup> /min (cfm)                         | 24.0 (848)          | 32.7 (1155) |
| <b>External Restriction to</b>                    |                     |             |
| <b>Cooling Air Flow:</b> Pa (in H <sub>2</sub> O) | 125 (0.5)           | 125 (0.5)   |

| Cooling System  | 50 Hz       | 60 Hz      |
|---|-------------|------------|
| <b>Cooling System Capacity:</b>   |             |            |
| l (US gal)  | 5.2 (1.4)   | 5.2 (1.4)  |
| <b>Water Pump Type:</b>   | Centrifugal |            |
| <b>Heat Rejected to Water &amp; Lube Oil:</b> kW (Btu/min)  |             |            |
| -Standby:   | 9.5 (540)   | 12.0 (682) |
| -Prime:   | 8.3 (472)   | 10.0 (569) |
| <b>Heat Radiation to Room:</b> Heat radiated from engine and alternator   |             |            |
| kW (Btu/min)  |             |            |
| -Standby:   | 4.2 (239)   | 5.1 (290)  |
| -Prime:   | 3.2 (182)   | 4.4 (250)  |
| <b>Radiator Fan Load:</b> kW (hp)   | 0.2 (0.3)   | 0.4 (0.5)  |
| 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> | 4.9 (1.3)          |
| <b>Oil Pan I (US gal):</b>            | 4.4 (1.2)          |
| <b>Oil Type:</b>                      | API CH4 15W-40     |
| <b>Cooling Method:</b>                | N/A                |

| Performance                        | 50 Hz        | 60 Hz         |
|------------------------------------|--------------|---------------|
| <b>Engine Speed:</b> RPM           | 1500         | 1800          |
| <b>Gross Engine Power:</b> kW (hp) |              |               |
| -Standby:                          | 9.5 (13.0)   | 11.8 (16.0)   |
| -Prime:                            | 8.6 (12.0)   | 10.7 (14.0)   |
| <b>BMEP:</b> kPa (psi)             |              |               |
| -Standby:                          | 672.0 (97.4) | 695.0 (100.8) |
| -Prime:                            | 610.0 (88.5) | 630.0 (91.4)  |
| <b>Regenerative Power:</b> kW      | 3.5          | 3.9           |

| 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   | 2.8 (0.7)                  | 2.5 (0.7)        | 1.9 (0.5)       | 1.5 (0.4)       |
| 60 Hz   | 3.3 (0.9)                  | 2.9 (0.8)        | 2.2 (0.6)       | 1.8 (0.5)       |
| <b>Standby</b>  |                            |                  |                 |                 |
| 50 Hz   |                            | 2.8 (0.7)        | 2.1 (0.6)       | 1.6 (0.4)       |
| 60 Hz   |                            | 3.3 (0.9)        | 2.4 (0.6)       | 1.8 (0.5)       |
| (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)     | 0.43 (0.127) | 0.80 (0.236) |
| <b>Silencer Noise Reduction</b>         |              |              |
| <b>Level:</b> dB                        | 20.5         | 10           |
| <b>Max. Allowable Back</b>              |              |              |
| <b>Pressure:</b> kPa (in. Hg)           | 10.2 (3.0)   | 10.2 (3.0)   |
| <b>Exhaust Gas Flow:</b>                |              |              |
| m <sup>3</sup> /min (cfm)               |              |              |
| -Standby:                               | 1.8 (64)     | 2.4 (85)     |
| -Prime:                                 | 1.7 (59)     | 2.2 (78)     |
| <b>Exhaust Gas Temperature:</b> °C (°F) |              |              |
| -Standby:                               | 420 (788)    | 515 (959)    |
| -Prime:                                 | 368 (694)    | 437 (819)    |

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## Generator Performance Data

| Data Item                      | 50 Hz |       |       |  | 60 Hz |           |           |  |
|--------------------------------|-------|-------|-------|--|-------|-----------|-----------|--|
|                                | 240V  | 230V  | 220V  |  |       | 220V/110V | 240V/120V |  |
| Motor Starting Capability* kVA | 18    | 17    | 16    |  |       | 14        | 16        |  |
| Short Circuit Capacity %       | -     | -     | -     |  |       | -         | -         |  |
| Reactances:<br>Per Unit        |       |       |       |  |       |           |           |  |
| Xd                             | 1.150 | 1.250 | 1.360 |  |       | 1.920     | 1.620     |  |
| X'd                            | 0.210 | 0.230 | 0.250 |  |       | 0.360     | 0.300     |  |
| X''d                           | 0.106 | 0.116 | 0.126 |  |       | 0.179     | 0.150     |  |

Reactances shown are applicable to prime ratings.  
\*Based on 30% voltage dip at 0.9 power factor.

## Generator Technical Data

| Physical Data              |           |
|----------------------------|-----------|
| LC Series                  |           |
| Model:                     | LCB1114D  |
| No. of Bearings:           | 1         |
| Insulation Class:          | H         |
| Winding Pitch - Code:      | 2/3 - M   |
| Wires:                     | 4         |
| Ingress Protection Rating: | IP23      |
| Excitation System:         | SHUNT     |
| AVR Model:                 | R220/R221 |

| Operating Data                     |   |
|------------------------------------|---|
| Overspeed: RPM                     | 2250  |
| Voltage Regulation: (steady state) | +/- 2.0%  |
| Wave Form NEMA = TIF:              | 100   |
| Wave Form IEC = THF:               | 3.0%  |
| 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:                            | 1.7 (97)  |
| -60 Hz:                            | 2.0 (114)   |

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## Technical Data

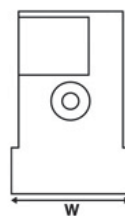
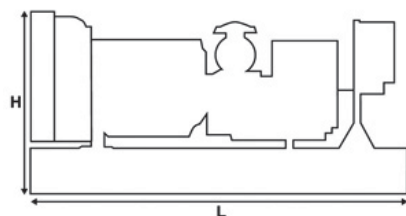
| Voltage<br>50 Hz | Prime |     | Standby |     |
|------------------|-------|-----|---------|-----|
|                  | kVA   | kW  | kVA     | kW  |
| 240V             | 6.8   | 6.8 | 7.5     | 7.5 |
| 230V             | 6.8   | 6.8 | 7.5     | 7.5 |
| 220V             | 6.8   | 6.8 | 7.5     | 7.5 |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |

| Voltage<br>60 Hz | Prime |     | Standby |     |
|------------------|-------|-----|---------|-----|
|                  | kVA   | kW  | kVA     | kW  |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
|                  |       |     |         |     |
| 220V/110V        | 8.0   | 8.0 | 8.8     | 8.8 |
| 240V/120V        | 8.0   | 8.0 | 8.8     | 8.8 |
|                  |       |     |         |     |

## Weights & Dimensions

| Weights: kg (lb)           |           |
|----------------------------|-----------|
| Net (+ lube oil)           | 303 (668) |
| Wet (+ lube oil & coolant) | 308 (679) |
| Fuel, lube oil & coolant   | 361 (795) |

| Dimensions: mm (in) |             |
|---------------------|-------------|
| Length              | 1400 (55.1) |
| Width               | 620 (24.4)  |
| Height              | 996 (39.2)  |



**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.**

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