

# DIESEL GENERATOR SET



## DE65E0 (LC Frame)

Image shown may not reflect actual package

| Output Ratings                |                     |                     |
|-------------------------------|---------------------|---------------------|
| Generator Set Model - 3 Phase | Prime*              | Standby*            |
| 400/230 V, 50 Hz              | 60.0 kVA<br>48.0 kW | 65.0 kVA<br>52.0 kW |
| 480V, 60 Hz                   | 68.8 kVA<br>55.0 kW | 75.0 kVA<br>60.0 kW |

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

| Technical Data                               |                             |            |
|--|-----------------------------|------------|
| Engine Make & Model:                         | Cat® C3.3                   |            |
| Generator Model:                             | LC1514P                     |            |
| 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)          | 219 (57.9)                  |            |
| Fuel Consumption, Prime: l/hr (US gal/hr)    | 13.6 (3.6)                  | 15.4 (4.1) |
| Fuel Consumption, Standby : l/hr (US gal/hr) | 14.9 (3.9)                  | 17.0 (4.5) |

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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>  | Turbocharged            |
| <b>Cooling Method:</b>   | Water                   |
| <b>Governing Type:</b>   | Mechanical              |
| <b>Governing Class:</b>  | ISO 8528 G2             |
| <b>Compression Ratio:</b>  | 17.25:1                 |
| <b>Displacement:</b> l (cu.in)                                     | 3.3 (201.4)             |
| <b>Bore/Stroke:</b> mm (in)  | 105.0 (4.1)/127.0 (5.0) |
| <b>Moment of Inertia:</b> kg m <sup>2</sup> (lb. in <sup>2</sup> ) | 1.14 (3896)             |
| <b>Engine Electrical System:</b>                                   |                         |
| -Voltage/Ground:   | 12/Negative             |
| -Battery Charger Amps:   | 65                      |
| <b>Weight:</b> kg (lb) - Dry:                                      | 420 (926)               |
| - Wet:   | 438 (966)               |

| 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> 3.9 (138) | 4.9 (173)    |
|   | <b>-Prime:</b> 3.8 (134)   | 4.7 (166)    |
| <b>Max. Combustion Air Intake</b>                 |                            |              |
| <b>Restriction:</b> kPa (in H <sub>2</sub> O)     | 8.0 (32.1)                 | 8.0 (32.1)   |
| <b>Radiator Cooling Air Flow:</b>                 |                            |              |
| m <sup>3</sup> /min (cfm)                         | 110.4 (3899)               | 145.8 (5149) |
| <b>External Restriction to</b>                    |                            |              |
| <b>Cooling Air Flow:</b> Pa (in H <sub>2</sub> O) | 120 (0.5)                  | 120 (0.5)    |

| Cooling System  | 50 Hz                       | 60 Hz       |
|---|-----------------------------|-------------|
| <b>Cooling System Capacity:</b>   |                             |             |
| l (US gal)  | 10.2 (2.7)                  | 10.2 (2.7)  |
| <b>Water Pump Type:</b>   | Centrifugal                 |             |
| <b>Heat Rejected to Water &amp; Lube Oil:</b> kW (Btu/min)  |                             |             |
| <b>-Standby:</b>  | 37.7 (2144)                 | 42.8 (2434) |
| <b>-Prime:</b>  | 35.2 (2002)                 | 41.0 (2332) |
| <b>Heat Radiation to Room:</b> Heat radiated from engine and alternator   |                             |             |
| kW (Btu/min)  | <b>-Standby:</b> 16.7 (950) | 17.0 (967)  |
|   | <b>-Prime:</b> 15.0 (853)   | 16.1 (916)  |
| <b>Radiator Fan Load:</b> kW (hp)   | 1.0 (1.3)                   | 1.7 (2.3)   |
| 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. |                             |             |

| Lubrication System                    |                      |
|---------------------------------------|----------------------|
| <b>Oil Filter Type:</b>               | Spin-On, Full Flow   |
| <b>Total Oil Capacity I (US gal):</b> | 8.3 (2.2)            |
| <b>Oil Pan I (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:</b> RPM           | 1500           | 1800           |
| <b>Gross Engine Power:</b> kW (hp) |                |                |
| <b>-Standby:</b>                   | 60.5 (81.0)    | 69.6 (93.0)    |
| <b>-Prime:</b>                     | 55.0 (74.0)    | 63.3 (85.0)    |
| <b>BMEP:</b> kPa (psi)             |                |                |
| <b>-Standby:</b>                   | 1467.0 (212.8) | 1407.0 (204.0) |
| <b>-Prime:</b>                     | 1333.0 (193.4) | 1279.0 (185.5) |
| <b>Regenerative Power:</b> kW      | 7.0            | 9.0            |

| 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   | 14.9 (3.9)                 | 13.6 (3.6)       | 10.2 (2.7)      | 7.1 (1.9)       |
| 60 Hz   | 17.0 (4.5)                 | 15.4 (4.1)       | 11.7 (3.1)      | 8.4 (2.2)       |
| <b>Standby</b>  |                            |                  |                 |                 |
| 50 Hz   |                            | 14.9 (3.9)       | 11.0 (2.9)      | 7.6 (2.0)       |
| 60 Hz   |                            | 17.0 (4.5)       | 12.8 (3.4)      | 9.0 (2.4)       |
| (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)     | 0.98 (0.289)                | 1.22 (0.360) |
| <b>Silencer Noise Reduction</b>         |                             |              |
| <b>Level:</b> dB                        | 19                          | 18           |
| <b>Max. Allowable Back</b>              |                             |              |
| <b>Pressure:</b> kPa (in. Hg)           | 10.0 (3.0)                  | 15.0 (4.4)   |
| <b>Exhaust Gas Flow:</b>                |                             |              |
| m <sup>3</sup> /min (cfm)               | <b>-Standby:</b> 10.4 (367) | 12.5 (441)   |
|   | <b>-Prime:</b> 10.1 (357)   | 11.8 (417)   |
| <b>Exhaust Gas Temperature:</b> °C (°F) |                             |              |
| <b>-Standby:</b>                        | 571 (1060)                  | 564 (1047)   |
| <b>-Prime:</b>                          | 557 (1035)                  | 534 (993)    |

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## Generator Performance Data

| Data Item                      | 50 Hz    |                                  |                      |          | 60 Hz                |                      |                      |   |                      |
|--------------------------------|----------|----------------------------------|----------------------|----------|----------------------|----------------------|----------------------|---|----------------------|
|                                | 415/240V | 400/230V<br>230/115V<br>200/115V | 380/220V<br>220/110V | 220/127V | 480/277V<br>240/139V | 380/220V<br>220/110V | 240/120V<br>208/120V |   | 440/254V<br>220/127V |
| Motor Starting Capability* kVA | 145      | 138                              | 128                  | 158      | 157                  | 111                  | 128                  | - | 139                  |
| Short Circuit Capacity %       | 300      | 300                              | 300                  | 300      | 300                  | 300                  | 300                  | - | 300                  |
| Reactances:<br>Per Unit        |          |                                  |                      |          |                      |                      |                      |   |                      |
| Xd                             | 2.648    | 2.850                            | 3.158                | 2.041    | 2.723                | 3.726                | 3.425                | - | 3.241                |
| X'd                            | 0.136    | 0.146                            | 0.162                | 0.105    | 0.140                | 0.191                | 0.176                | - | 0.166                |
| X''d                           | 0.068    | 0.073                            | 0.081                | 0.052    | 0.070                | 0.096                | 0.088                | - | 0.083                |

Reactances shown are applicable to prime ratings.

\* Based on 30% voltage dip at 0.6 power factor and SHUNT excitation system.

## Generator Technical Data

| Physical Data              |         |
|----------------------------|---------|
| LC Frame                   |         |
| Model:                     | LC1514P |
| 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:      | 2.0%  |
| Radio Interference:                | Suppression is in line with European Standard EN61000-6 |
| Radiant Heat: kW (Btu/min)         |   |
| -50 Hz:                            | 5.7 (324)   |
| -60 Hz:                            | 6.0 (341)   |

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## Technical Data

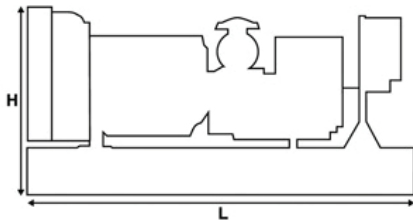
| Voltage<br>50 Hz | Prime |      | Standby |      |
|------------------|-------|------|---------|------|
|                  | kVA   | kW   | kVA     | kW   |
| 415/240V         | 60.0  | 48.0 | 65.0    | 52.0 |
| 400/230V         | 60.0  | 48.0 | 65.0    | 52.0 |
| 380/220V         | 60.0  | 48.0 | 65.0    | 52.0 |
| 230/115V         | 60.0  | 48.0 | 65.0    | 52.0 |
| 220/127V         | 52.0  | 41.6 | 57.2    | 45.8 |
| 220/110V         | 60.0  | 48.0 | 65.0    | 52.0 |
| 200/115V         | 60.0  | 48.0 | 65.0    | 52.0 |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |

| Voltage<br>60 Hz | Prime |      | Standby |      |
|------------------|-------|------|---------|------|
|                  | kVA   | kW   | kVA     | kW   |
| 480/277V         | 68.8  | 55.0 | 75.0    | 60.0 |
| 220/127V         | 68.8  | 55.0 | 75.0    | 60.0 |
| 380/220V         | 59.0  | 47.2 | 64.9    | 51.9 |
| 240/120V         | 65.0  | 52.0 | 71.5    | 57.2 |
|                  |       |      |         |      |
| 440/254V         | 68.8  | 55.0 | 75.0    | 60.0 |
| 220/110V         | 59.0  | 47.2 | 64.9    | 51.9 |
| 208/120V         | 68.8  | 55.0 | 75.0    | 60.0 |
| 240/139V         | 65.0  | 52.0 | 71.5    | 57.2 |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |

## Weights & Dimensions

| Weights: kg (lb)           |             |
|----------------------------|-------------|
| Net (+ lube oil)           | 874 (1926)  |
| Wet (+ lube oil & coolant) | 887 (1955)  |
| Fuel, lube oil & coolant   | 1072 (2364) |

| 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.**

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Price Lists: C3.3PGBI, C3.3PGBT

Gen. Arr. Number: 459-4405

Source: European or China Sourced

LEHE0698-01 (04/16)