

# DIESEL GENERATOR SET



## DE33E3

Image shown may not reflect actual package

| <b>Output Ratings</b>                |                     |                     |
|--------------------------------------|---------------------|---------------------|
| <b>Generator Set Model - 3 Phase</b> | <b>Prime*</b>       | <b>Standby*</b>     |
| 400/230 V, 50 Hz                     | 30.0 kVA<br>24.0 kW | 33.0 kVA<br>26.4 kW |
|                                      | -                   | -                   |
|                                      | -                   | -                   |

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

| <b>Technical Data</b>                               |                             |              |
|---|-----------------------------|--------------|
| <b>Engine Make &amp; Model:</b>                     | Cat® C3.3                   |              |
| <b>Generator Model:</b>                             | R1555L4                     |              |
| <b>Control Panel:</b>                               | EMCP 4.1                    |              |
| <b>Base Frame Type:</b>                             | Heavy Duty Fabricated Steel |              |
| <b>Circuit Breaker Type:</b>                        | 3 Pole MCB                  |              |
| <b>Frequency:</b>                                   | <b>50 Hz</b>                | <b>60 Hz</b> |
| <b>Engine Speed: RPM</b>                            | 1500                        | -            |
| <b>Fuel Tank Capacity: litres (US gal)</b>          | 161 (42.5)                  |              |
| <b>Fuel Consumption, Prime: l/hr (US gal/hr)</b>    | 7.4 (2.0)                   | -            |
| <b>Fuel Consumption, Standby : l/hr (US gal/hr)</b> | 8.2 (2.2)                   | -            |

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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>   | Naturally Aspirated     |
| <b>Cooling Method:</b>  | Water                   |
| <b>Governing Type:</b>  | Mechanical              |
| <b>Governing Class:</b>   | ISO 8528 G2             |
| <b>Compression Ratio:</b>                                       | 19.25:1                 |
| <b>Displacement: l (cu.in)</b>                                  | 3.3 (201.4)             |
| <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>                                   | 329 (725)               |
| - Wet:  | 343 (756)               |

| 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> 2.2 (76) | -     |
|   | <b>-Prime:</b> 2.1 (75)   | -     |
| <b>Max. Combustion Air Intake</b>               |                           |       |
| <b>Restriction: kPa (in H<sub>2</sub>O)</b>     | 6.6 (26.5)                | -     |
| <b>Radiator Cooling Air Flow:</b>               |                           |       |
| m <sup>3</sup> /min (cfm)                       | 58.2 (2055)               | -     |
| <b>External Restriction to</b>                  |                           |       |
| <b>Cooling Air Flow: Pa (in H<sub>2</sub>O)</b> | 125 (0.5)                 | -     |

| Cooling System  | 50 Hz                      | 60 Hz |
|---|----------------------------|-------|
| <b>Cooling System Capacity:</b>   |                            |       |
| l (US gal)  | 10.2 (2.7)                 | -     |
| <b>Water Pump Type:</b>   | Centrifugal                |       |
| <b>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</b>  |                            |       |
| <b>-Standby:</b>  | 23.9 (1359)                | -     |
| <b>-Prime:</b>  | 21.3 (1211)                | -     |
| <b>Heat Radiation to Room:</b> Heat radiated from engine and alternator   |                            |       |
| kW (Btu/min)  | <b>-Standby:</b> 8.8 (500) | -     |
|   | <b>-Prime:</b> 7.6 (432)   | -     |
| <b>Radiator Fan Load: kW (hp)</b>   | 0.3 (0.4)                  | -     |
| 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                    |                      |
|---------------------------------------|----------------------|
| <b>Oil Filter Type:</b>               | Spin-On, Full Flow   |
| <b>Total Oil Capacity l (US gal):</b> | 8.3 (2.2)            |
| <b>Oil Pan l (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: RPM</b>           | 1500          | -     |
| <b>Gross Engine Power: kW (hp)</b> |               |       |
| <b>-Standby:</b>                   | 33.0 (44.0)   | -     |
| <b>-Prime:</b>                     | 29.7 (40.0)   | -     |
| <b>BMEP: kPa (psi)</b>             |               |       |
| <b>-Standby:</b>                   | 800.0 (116.1) | -     |
| <b>-Prime:</b>                     | 721.0 (104.5) | -     |
| <b>Regenerative Power: kW</b>      | 7.7           | -     |

| Fuel System   |                            |                  |                 |                 |
|---|----------------------------|------------------|-----------------|-----------------|
| <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   | 8.2 (2.2)                  | 7.4 (2.0)        | 5.7 (1.5)       | 4.0 (1.1)       |
| 60 Hz   | -                          | -                | -               | -               |
| <b>Standby</b>  |                            |                  |                 |                 |
| 50 Hz   | 8.2 (2.2)                  | 6.2 (1.6)        | 4.3 (1.1)       |                 |
| 60 Hz   | -                          | -                | -               |                 |
| (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: kPa (in Hg)</b>     | 0.14 (0.041)               | -     |
| <b>Silencer Noise Reduction</b>         |                            |       |
| <b>Level: dB</b>                        | 20                         | -     |
| <b>Max. Allowable Back</b>              |                            |       |
| <b>Pressure: kPa (in. Hg)</b>           | 15.0 (4.4)                 | -     |
| <b>Exhaust Gas Flow:</b>                |                            |       |
| m <sup>3</sup> /min (cfm)               | <b>-Standby:</b> 5.5 (194) | -     |
|   | <b>-Prime:</b> 5.3 (185)   | -     |
| <b>Exhaust Gas Temperature: °C (°F)</b> |                            |       |
| <b>-Standby:</b>                        | 570 (1058)                 | -     |
| <b>-Prime:</b>                          | 515 (959)                  | -     |

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## Generator Performance Data

| Data Item                      | 50 Hz    |          |          |  | 60 Hz |  |  |  |  |
|--------------------------------|----------|----------|----------|--|-------|--|--|--|--|
|                                | 415/240V | 400/230V | 380/220V |  |       |  |  |  |  |
| Motor Starting Capability* kVA | 45       | 45       | 38       |  |       |  |  |  |  |
| Short Circuit Capacity** %     | 300      | 300      | 300      |  |       |  |  |  |  |
| Reactances:<br>Per Unit        |          |          |          |  |       |  |  |  |  |
| Xd                             | 2.390    | 2.570    | 2.840    |  |       |  |  |  |  |
| X'd                            | 0.220    | 0.230    | 0.260    |  |       |  |  |  |  |
| X''d                           | 0.093    | 0.100    | 0.111    |  |       |  |  |  |  |

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:                     | R1555L4  |
| 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:                            | 3.8 (216)   |
| -60 Hz:                            | -   |

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## Technical Data

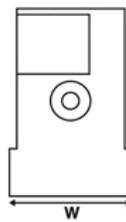
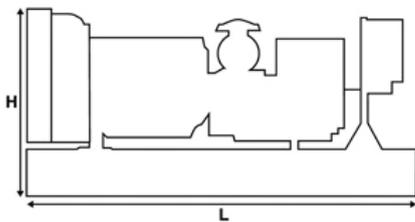
| Voltage<br>50 Hz | Prime |      | Standby |      |
|------------------|-------|------|---------|------|
|                  | kVA   | kW   | kVA     | kW   |
| 415/240V         | 30.0  | 24.0 | 33.0    | 26.4 |
| 400/230V         | 30.0  | 24.0 | 33.0    | 26.4 |
| 380/220V         | 30.0  | 24.0 | 33.0    | 26.4 |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |
|                  |       |      |         |      |

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

## Weights & Dimensions

| Weights: kg (lb)           |            |
|----------------------------|------------|
| Net (+ lube oil)           | 838 (1847) |
| Wet (+ lube oil & coolant) | 851 (1876) |
| Fuel, lube oil & coolant   | 987 (2177) |

| 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.**

## SOAR POWER GROUP

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