### Output Ratings

<table>
<thead>
<tr>
<th>Generator Set Model - 3 Phase</th>
<th>Prime*</th>
<th>Standby*</th>
</tr>
</thead>
<tbody>
<tr>
<td>400/230 V, 50 Hz</td>
<td>60.0 kVA</td>
<td>65.0 kVA</td>
</tr>
<tr>
<td></td>
<td>48.0 kW</td>
<td>52.0 kW</td>
</tr>
<tr>
<td>480/277 V, 60 Hz</td>
<td>68.8 kVA</td>
<td>75.0 kVA</td>
</tr>
<tr>
<td></td>
<td>55.0 kW</td>
<td>60.0 kW</td>
</tr>
</tbody>
</table>

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

### Technical Data

| Engine Make & Model:          | Cat® C3.3 |
|                              | Generator Model: R1953L4 |
| 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) | 13.7 (3.6) 16.3 (4.3) |
| Fuel Consumption, Standby : l/hr (US gal/hr) | 15.0 (4.0) 18.0 (4.8) |
### Engine Technical Data

#### Physical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Caterpillar</td>
</tr>
<tr>
<td>Model</td>
<td>C3.3</td>
</tr>
<tr>
<td>No. of Cylinders/Alignment</td>
<td>3 / In Line</td>
</tr>
<tr>
<td>Cycle</td>
<td>4 Stroke</td>
</tr>
<tr>
<td>Induction</td>
<td>Turbocharged</td>
</tr>
<tr>
<td>Cooling Method</td>
<td>Water</td>
</tr>
<tr>
<td>Governing Type</td>
<td>Mechanical</td>
</tr>
<tr>
<td>Governing Class</td>
<td>ISO 8528 G2</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>17.25:1</td>
</tr>
<tr>
<td>Displacement (cu.in)</td>
<td>3.3</td>
</tr>
<tr>
<td>Bore/Stroke (mm/in)</td>
<td>105.0 (4.1)/127.0 (5.0)</td>
</tr>
<tr>
<td>Moment of Inertia, kg m² (lb. in²)</td>
<td>1.14 (3896)</td>
</tr>
<tr>
<td>Voltage/Ground</td>
<td>12/Negative</td>
</tr>
<tr>
<td>Battery Charger Amps</td>
<td>65</td>
</tr>
<tr>
<td>Weight (kg) - Dry</td>
<td>341 (752)</td>
</tr>
<tr>
<td>Weight (kg) - Wet</td>
<td>348 (767)</td>
</tr>
</tbody>
</table>

#### Air System

**50 Hz**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Filter Type</td>
<td>Replaceable Element</td>
</tr>
<tr>
<td>Combustion Air Flow</td>
<td></td>
</tr>
<tr>
<td>- Standby</td>
<td>3.9 (138) / 4.9 (173)</td>
</tr>
<tr>
<td>- Prime</td>
<td>3.8 (134) / 4.7 (166)</td>
</tr>
<tr>
<td>Max. Combustion Air Intake</td>
<td></td>
</tr>
<tr>
<td>Restriction (kPa in H₂O)</td>
<td>8.0 (32.1) / 8.0 (32.1)</td>
</tr>
<tr>
<td>Radiator Cooling Air Flow</td>
<td></td>
</tr>
<tr>
<td>m³/min (cfm)</td>
<td>110.4 (3899) / 145.8 (5149)</td>
</tr>
<tr>
<td>External Restriction to</td>
<td></td>
</tr>
<tr>
<td>Cooling Air Flow (Pa in H₂O)</td>
<td>125 (0.5) / 125 (0.5)</td>
</tr>
</tbody>
</table>

**60 Hz**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Filter Type</td>
<td>Replaceable Element</td>
</tr>
<tr>
<td>Combustion Air Flow</td>
<td></td>
</tr>
<tr>
<td>- Standby</td>
<td>3.9 (138) / 4.9 (173)</td>
</tr>
<tr>
<td>- Prime</td>
<td>3.8 (134) / 4.7 (166)</td>
</tr>
<tr>
<td>Max. Combustion Air Intake</td>
<td></td>
</tr>
<tr>
<td>Restriction (kPa in H₂O)</td>
<td>8.0 (32.1) / 8.0 (32.1)</td>
</tr>
<tr>
<td>Radiator Cooling Air Flow</td>
<td></td>
</tr>
<tr>
<td>m³/min (cfm)</td>
<td>110.4 (3899) / 145.8 (5149)</td>
</tr>
<tr>
<td>External Restriction to</td>
<td></td>
</tr>
<tr>
<td>Cooling Air Flow (Pa in H₂O)</td>
<td>125 (0.5) / 125 (0.5)</td>
</tr>
</tbody>
</table>

#### Cooling System

**50 Hz**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling System Capacity</td>
<td></td>
</tr>
<tr>
<td>I (US gal)</td>
<td>10.2 (2.7) / 10.2 (2.7)</td>
</tr>
<tr>
<td>Water Pump Type</td>
<td>Centrifugal</td>
</tr>
<tr>
<td>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</td>
<td>37.7 (2144) / 42.8 (2434)</td>
</tr>
<tr>
<td>- Standby</td>
<td>37.7 (2144) / 42.8 (2434)</td>
</tr>
<tr>
<td>- Prime</td>
<td>35.2 (2002) / 41.0 (2332)</td>
</tr>
<tr>
<td>Heat Radiation to Room: kW (Btu/min)</td>
<td>17.0 (967) / 18.0 (1024)</td>
</tr>
<tr>
<td>- Standby</td>
<td>17.0 (967) / 18.0 (1024)</td>
</tr>
<tr>
<td>- Prime</td>
<td>15.2 (864) / 17.1 (972)</td>
</tr>
<tr>
<td>Radiator Fan Load: kW (hp)</td>
<td>1.0 (1.3) / 1.7 (2.3)</td>
</tr>
</tbody>
</table>

**60 Hz**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling System Capacity</td>
<td></td>
</tr>
<tr>
<td>I (US gal)</td>
<td>10.2 (2.7) / 10.2 (2.7)</td>
</tr>
<tr>
<td>Water Pump Type</td>
<td>Centrifugal</td>
</tr>
<tr>
<td>Heat Rejected to Water &amp; Lube Oil: kW (Btu/min)</td>
<td>37.7 (2144) / 42.8 (2434)</td>
</tr>
<tr>
<td>- Standby</td>
<td>37.7 (2144) / 42.8 (2434)</td>
</tr>
<tr>
<td>- Prime</td>
<td>35.2 (2002) / 41.0 (2332)</td>
</tr>
<tr>
<td>Heat Radiation to Room: kW (Btu/min)</td>
<td>17.0 (967) / 18.0 (1024)</td>
</tr>
<tr>
<td>- Standby</td>
<td>17.0 (967) / 18.0 (1024)</td>
</tr>
<tr>
<td>- Prime</td>
<td>15.2 (864) / 17.1 (972)</td>
</tr>
<tr>
<td>Radiator Fan Load: kW (hp)</td>
<td>1.0 (1.3) / 1.7 (2.3)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Filter Type</td>
<td>Spin-On, Full Flow</td>
</tr>
<tr>
<td>Total Oil Capacity I (US gal)</td>
<td>8.3 (2.2) / 7.8 (2.1)</td>
</tr>
<tr>
<td>Oil Pan I (US gal)</td>
<td>API CG4 / CH4 15W-40</td>
</tr>
<tr>
<td>Cooling Method</td>
<td>Water</td>
</tr>
</tbody>
</table>

#### Performance

**50 Hz**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Speed (RPM)</td>
<td>1500 / 1800</td>
</tr>
<tr>
<td>Gross Engine Power (kW (hp))</td>
<td></td>
</tr>
<tr>
<td>- Standby</td>
<td>60.5 (81.0) / 69.8 (93.0)</td>
</tr>
<tr>
<td>- Prime</td>
<td>65.0 (74.0) / 63.3 (85.0)</td>
</tr>
<tr>
<td>BMEP (kPa (psi))</td>
<td>1467.0 (212.8) / 1407.0 (204.0)</td>
</tr>
<tr>
<td>- Standby</td>
<td>1333.0 (193.4) / 1279.0 (185.5)</td>
</tr>
<tr>
<td>- Prime</td>
<td>7.0 / 9.0</td>
</tr>
</tbody>
</table>

**60 Hz**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Speed (RPM)</td>
<td>1500 / 1800</td>
</tr>
<tr>
<td>Gross Engine Power (kW (hp))</td>
<td></td>
</tr>
<tr>
<td>- Standby</td>
<td>60.5 (81.0) / 69.8 (93.0)</td>
</tr>
<tr>
<td>- Prime</td>
<td>65.0 (74.0) / 63.3 (85.0)</td>
</tr>
<tr>
<td>BMEP (kPa (psi))</td>
<td>1467.0 (212.8) / 1407.0 (204.0)</td>
</tr>
<tr>
<td>- Standby</td>
<td>1333.0 (193.4) / 1279.0 (185.5)</td>
</tr>
<tr>
<td>- Prime</td>
<td>7.0 / 9.0</td>
</tr>
</tbody>
</table>

#### Fuel System

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Filter Type</td>
<td>Replaceable Element</td>
</tr>
<tr>
<td>Recommended Fuel</td>
<td>Class A2 Diesel or BSEN590</td>
</tr>
<tr>
<td>Fuel Consumption (l/hr (US gal/hr))</td>
<td></td>
</tr>
<tr>
<td>110% Load</td>
<td></td>
</tr>
<tr>
<td>100% Load</td>
<td></td>
</tr>
<tr>
<td>75% Load</td>
<td></td>
</tr>
<tr>
<td>50% Load</td>
<td></td>
</tr>
<tr>
<td>Prime</td>
<td></td>
</tr>
<tr>
<td>50 Hz</td>
<td>15.0 (4.0) / 13.7 (3.6) / 10.2 (2.7) / 7.1 (1.9)</td>
</tr>
<tr>
<td>60 Hz</td>
<td>18.0 (4.8) / 16.3 (4.3) / 12.3 (3.2) / 8.8 (2.3)</td>
</tr>
<tr>
<td>Standby</td>
<td></td>
</tr>
<tr>
<td>50 Hz</td>
<td>15.0 (4.0) / 11.0 (2.9) / 7.6 (2.0)</td>
</tr>
<tr>
<td>60 Hz</td>
<td>18.0 (4.8) / 13.4 (3.5) / 9.4 (2.5)</td>
</tr>
</tbody>
</table>

(based on diesel fuel with a specific gravity of 0.85 and conforming to BS52869, Class A2)

#### Exhaust System

**50 Hz**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silencer Type</td>
<td>Industrial</td>
</tr>
<tr>
<td>Silencer Model &amp; Quantity</td>
<td>EXSY1 (1)</td>
</tr>
<tr>
<td>Pressure Drop Across</td>
<td></td>
</tr>
<tr>
<td>Silencer System: kPa (in Hg)</td>
<td>0.98 (0.289) / 1.22 (0.360)</td>
</tr>
<tr>
<td>Silencer Noise Reduction</td>
<td></td>
</tr>
<tr>
<td>Level: dB</td>
<td>19 / 18</td>
</tr>
<tr>
<td>Max. Allowable Back</td>
<td></td>
</tr>
<tr>
<td>Pressure: kPa (in Hg)</td>
<td>10.0 (3.0) / 15.0 (4.4)</td>
</tr>
<tr>
<td>Exhaust Gas Flow: m³/min (cfm)</td>
<td>10.4 (367) / 12.5 (441)</td>
</tr>
<tr>
<td>- Standby</td>
<td>10.4 (367) / 12.5 (441)</td>
</tr>
<tr>
<td>- Prime</td>
<td>10.1 (357) / 11.8 (417)</td>
</tr>
<tr>
<td>Exhaust Gas Temperature °C (°F)</td>
<td>571 (1060) / 564 (1047)</td>
</tr>
<tr>
<td>- Standby</td>
<td>557 (1035) / 534 (993)</td>
</tr>
</tbody>
</table>
Generator Performance Data

<table>
<thead>
<tr>
<th>Data Item</th>
<th>50 Hz</th>
<th>60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Starting Capability* kVA</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td>Short Circuit Capacity** %</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Reactances:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X'd</td>
<td>0.280</td>
<td>0.300</td>
</tr>
<tr>
<td>X''d</td>
<td>0.112</td>
<td>0.121</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>R Frame</th>
<th>R1953L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td></td>
</tr>
<tr>
<td>No. of Bearings</td>
<td>1</td>
</tr>
<tr>
<td>Insulation Class</td>
<td>H</td>
</tr>
<tr>
<td>Winding Pitch - Code</td>
<td>2/3 - M0</td>
</tr>
<tr>
<td>Wires</td>
<td>12</td>
</tr>
<tr>
<td>Ingress Protection Rating</td>
<td>IP23</td>
</tr>
<tr>
<td>Excitation System</td>
<td>SHUNT</td>
</tr>
<tr>
<td>AVR Model</td>
<td>Mark V</td>
</tr>
</tbody>
</table>

**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: | 6.0 (341) |
| -60 Hz: | 7.0 (398) |
**Technical Data**

### Voltage 50 Hz

<table>
<thead>
<tr>
<th>Voltage 50 Hz</th>
<th>Prime</th>
<th>Standby</th>
</tr>
</thead>
<tbody>
<tr>
<td>415/240V</td>
<td>60.0 kW</td>
<td>65.0 kW</td>
</tr>
<tr>
<td>400/230V</td>
<td>60.0 kW</td>
<td>65.0 kW</td>
</tr>
<tr>
<td>380/220V</td>
<td>60.0 kW</td>
<td>65.0 kW</td>
</tr>
<tr>
<td>230/115V</td>
<td>60.0 kW</td>
<td>65.0 kW</td>
</tr>
<tr>
<td>220/127V</td>
<td>60.0 kW</td>
<td>65.0 kW</td>
</tr>
<tr>
<td>220/110V</td>
<td>60.0 kW</td>
<td>65.0 kW</td>
</tr>
<tr>
<td>200/115V</td>
<td>60.0 kW</td>
<td>65.0 kW</td>
</tr>
</tbody>
</table>

### Voltage 60 Hz

<table>
<thead>
<tr>
<th>Voltage 60 Hz</th>
<th>Prime</th>
<th>Standby</th>
</tr>
</thead>
<tbody>
<tr>
<td>480/277V</td>
<td>68.8 kW</td>
<td>75.0 kW</td>
</tr>
<tr>
<td>220/127V</td>
<td>68.8 kW</td>
<td>75.0 kW</td>
</tr>
<tr>
<td>240/120V</td>
<td>68.3 kW</td>
<td>75.0 kW</td>
</tr>
<tr>
<td>220/110V</td>
<td>62.9 kW</td>
<td>69.2 kW</td>
</tr>
<tr>
<td>208/120V</td>
<td>68.8 kW</td>
<td>75.0 kW</td>
</tr>
<tr>
<td>240/139V</td>
<td>68.3 kW</td>
<td>75.0 kW</td>
</tr>
</tbody>
</table>

### Weights & Dimensions

**Weights:** kg (lb)
- Net (+ lube oil): 946 (2086)
- Wet (+ lube oil & coolant): 959 (2114)
- Fuel, lube oil & coolant: 1144 (2523)

**Dimensions:** mm (in)
- Length: 1925 (75.8)
- Width: 1120 (44.1)
- Height: 1361 (53.6)

### 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.