Power Generation

# Diesel Powered Generating Sets C220 D5

## Standard Genset Features

Cummins water cooled Diesel engine,
Oil and fuel filter fitted, water separator
Lube-oil drain valve fitted
Electric starter & Charge alternator 12 v D.C.
Electronic governor
Normal duty air filter
Single bearing alternator, class H/H
Standard voltage 400/230 volts 50 Hz
Exciter/Voltage reg - Torque Match as standard
PCC1301 as standard
Steel base frame with A/V mounting,
Engine, Alternator, Chassis & Control Box
Munsell Jade Green
Radiator
Packing under shrunk plastic film
Operation & Maintenance manual
Standard set of labels

## Generator Set Performance

**Voltage Regulation**
Maintains voltage output to within ±1.0%.
At any power factor between 0.8 and 1.0
At any variations from No load to Full load
At any variations from Cold to Hot.
At speed droop variations up to 4.5%.
**Frequency Regulation**
Isochronous under varying loads from no load to 100% full load when electronic governor is fitted
**Random Frequency Variation**
Will not exceed ±0.25% of its mean value for constant loads – no load to full load.
**Waveform**
Total harmonic distortion open circuit voltage waveform in the order of 1.8%. Three-phase balanced load in the order of 5.0%.
**Telephone Influence Factor (TIF)**
TIF better than 50.
THF to BS 4999 Part 40 better than 2%.
**Alternator Temperature Rise**
Class H insulation.
**Radio Interference**
In compliance with BS 800 and VDE levels G and N.

## Generator Set Options

**Fuel options**
Fuel Tank

**Exhaust Options**
Exhaust Silencer - Industrial In-Line
Exhaust Bellows
Exhaust Silencer - Residential , In-Line
Installation Kit - Industrial Silencer
Installation Kit - Residential Silencer

**Voltage Connections**
254/440V, 240/416V, 230/400V, 220/380V, 127/220V, 115/200V, 110/190V

**Miscellaneous Options**
3 pole or 4 pole Circuit Breaker
Optional Set mounted starting batteries
Coolant Heater 240V
Battery Charger 240V,5A
AUTO START - AMF Module (Loose)
Packing - Export Box

## Engine Specification

**6CTAA8.3G1**
In-line direct injection
6-cylinder diesel engine.
**Type**
Water cooled, four cycle, turbocharged
**Construction**
Two valves per cylinder, forged steel crankshaft and connecting rods, cast iron block.
**Starting**
12 volt negative earth. Battery charging alternator 37 amp on engine. Cranking current 625 amps at 0°C.
**Fuel System**
12 volt fail safe actuator. Spin-on paper element fuel filters with fuel pump injection system with integral electronic governor. Dual flexible fuel lines and connectors. Standard fuel water separator.
**Filters**
Air cleaner with dry element
Spin-on full flow lube oil filter.
**Cooling**
40°C ambient temperature standard
Stone guard. Oil cooler. Drain Tap

## Alternator Specification

**Type**
Brushless single bearing, revolving field, pole, drip proof, screen protected.
Class H Insulation.
Fully interconnected damper winding.
AC exciter and rotating rectifier unit.
Epoxy coated stator winding.
Rotor and exciter impregnated with tropical grade insulating oil and acid resisting polyester resin. Dynamically balanced rotor BS 5625 grade 2.5.
Sealed for life bearings.
Layer wound mechanically wedged rotor

**Exciter**
Triple dipped in moisture, oil and acid resisting polyester varnish and coated with anti-tracking varnish.

Output windings with 2/3 pitch for improved harmonics and paralleling ability.
Close coupled engine/alternator for perfect alignment.

## Compliance Standards

To BS4999/5000 pt 99,
VDE 0530, UTE5100,
NEMA MG1-22, CEMA,
IEC 34, CSA A22.2,
AS1359, BSS 5514,
ISO 3046 and ISO 8528

| Model name | kVA | | kWe | |
|---|---|---|---|---|
| | Standby | Prime | Standby | Prime |
| C220 D5 | 220 | 200 | 176 | 160 |

# Technical Data

| | | | |
|---|---|---|---|
| **Model** | C220 D5 | **Speed** | 1500 rpm |
| **Set output** | 380-440 V 50 Hz | **Alternator voltage regulation** | ±1.0% |
| **Prime Rating** | 160 kWe 200 kVA | **Alternator insulation class** | H |
| **Standby Rating** | 176 kWe 220 kVA | **Fuel consumption (Prime)** | 45 l/hr |
| **Engine Make** | Cummins | **Fuel consumption (Standby)** | 50 l/hr |
| **Engine Model** | 6CTAA8.3G1 | **Lubrication system oil capacity** | 23.8 Litres |
| **Cylinders** | Six | **Base fuel tank capacity – open set** | 340 Litres |
| **Engine build** | In-line | **Coolant capacity** | 26 Litres |
| **Standard Governor/Class** | Electronic | **Exhaust temp – prime** | 553°C |
| **Aspiration and cooling** | Turbocharged and Charged Air cooled | **Exhaust gas flow – prime** | 530 l/s |
| **Bore and stroke** | 114 mm x 135 mm | **Exhaust gas back pressure max** | 75 mm Hg |
| **Compression Ratio** | 16.8:1 | **Air flow – radiator** | 3.7 m³/s |
| **Cubic capacity** | 8.3 Litres | **Air intake – engine (Prime)** | 200 Litre/s |
| **Starting/Min °C** | 10°C | **Minimum air opening to room** | 1.4 m² |
| **Battery capacity** | 120 A/hr | **Minimum discharge opening** | 1.1 m² |
| **Gross Engine output – Prime** | 183kWm | **Pusher fan head (duct allowance)** | 10 mmWg |
| **Gross Engine output – Standby** | 203kWm | **Heat radiated by eng (Prime)** | 28kWm |

PRIME POWER

Prime power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO8528-1.

A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation, in accordance with ISO 3046-1.

STANDBY POWER

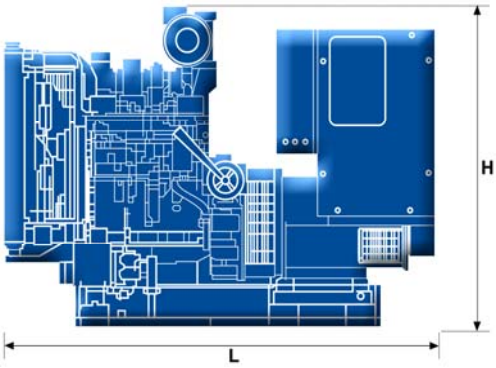
The Standby Power is applicable for supplying emergency power for the duration of a utility power interruption. No overload, utility parallel or negotiated outage operation capability is available at this rating.

In installations served by unreliable utility sources (where outages last longer or occur more frequently), where operation is likely to exceed 200 hours per year, the prime power rating should be applied.

The Standby Power rating is only applicable for emergency and standby applications where the generator set serves as the back up to the normal utility source.

All ratings are based on the following reference conditions:

- Ambient temperature : 27°C - Altitude above sea level : 150 metres - Relative humidity : 60%




# Dimensions and Weights

**Open Version**

| Model | Engine | Length (mm) | Width (mm) | Height (mm) | Dry weight without tank (Kg) | Wet weight without tank (Kg) |
|---|---|---|---|---|---|---|
| C220 D5 | 6CTAA8.3G1 | 2623 | 1020 | 1685 | 2018 | 2083 |

**Enclosed Version**

| Model | Engine | Length (mm) | Width (mm) | Height (mm) | Dry weight with tank (Kg) | Wet weight with tank (Kg) |
|---|---|---|---|---|---|---|
| C220 D5 | 6CTAA8.3G1 | 3700 | 1600 | 2100 | 3320 | 3670 |

**See your distributor for more information.**

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