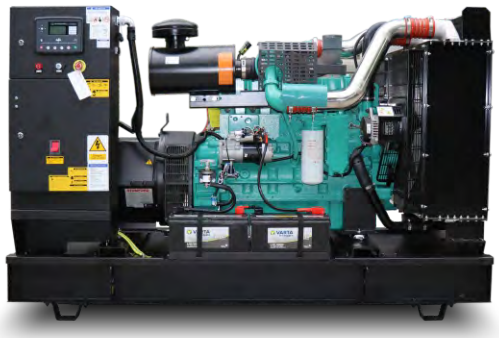
GRUPOS ELECTROGENOS PERÚ

Udustria Energy

# Model: C250D6

Powered by CUMMINS

## Generator Specification

| Service | PRP(1) | ESP(2) |
|---|---|---|
| Power (kVA) | 225 | 250 |
| Power (kW) | 180 | 200 |
| Rated speed ( r.p.m) | 1800 | |
| Standard voltage (V) | 220/127V | |
| Rated at power factor(cos phi) | 0.8 | |

ISO 9001 BUREAU VERITAS Certification CE

UDUSTRIA ENERGY Power gensets are compliant with ISO 9001 and CE standard, which include the following directives:

- 2006/42/EC Machinery safety.
- 2006/95/EC Low voltage
- EN 60204-1: 2006+A1: 2009, EN ISO 12100: 2010, EN ISO 13849-1: 2008, EN 12601 : 2010

**(1) PRP (Prime Power):**

According to ISO8528-1, prime power is the maximum power available during a variable power sequence, which may be run for an unlimited number of hours per year, between stated maintenance intervals. The permissible average power output during at 24 hours period shall not exceed 80% of the prime power. 10% overload available for governing purposes only.

**(2) ESP (Standby Power):**

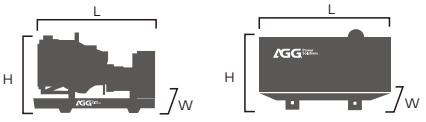
According to ISO 8528-1, It is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 hours of operation per year (of which no more than 300 hours for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

| Powers | ESP | | PRP | | Standby |
|---|---|---|---|---|---|
| Voltage (V) | KVA | KW | KVA | KW | Amps |
| 480/277 | 250 | 200 | 225 | 180 | 300.7 |
| 440/254 | 250 | 200 | 225 | 180 | 328.0 |
| 380/220 | 250 | 200 | 225 | 180 | 379.8 |
| 220/127 | 250 | 200 | 225 | 180 | 656.1 |
| 208/120 | 250 | 200 | 225 | 180 | 694.0 |

| Performance Data | | |
|---|---|---|
| Model | | C250D6 |
| Engine brand | | Cummins |
| Engine model | | 6CTAA8.3G2 |
| Speed control type | | Electronic |
| Phase | | 3 |
| Control system | | Digital |
| Starter motor voltage | | 24V |
| Frequency | | 60HZ |
| Engine speed (RPM) | | 1800 |
| Fuel Consumption (L/H) | 100% standby power | 80.7 |
| | 100% prime power | 73.4 |
| | 75% prime power | 56.1 |
| | 50% prime power | 38.4 |

**Standard reference Conditions**

Note: Standard reference condition 25℃ (77℉) air inlet temp, 100m(328ft) A.S.L 30% relative humidity. Fuel consumption dat with diesel fuel with specific gravity of 0.85 and conforming to BS 2869: 1998 , Class A2




| Dimension and Weight | | |
|---|---|---|
| Dimension | Open | Silent |
| Length (L) | 2500mm | 3870mm |
| Width (W) | 1055mm | 1150mm |
| Height (H) | 1615mm | 2112mm |
| Net Weight | 1755KG | 2566KG |
| Fuel Tank (L) | 320 | 342 |

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## Engine Specification: 6CTAA8.3G2

| Basic technical data | |
|---|---|
| No. of cylinders | 6 |
| Cylinder arrangement | In-line |
| Cycle | 4 stroke |
| Induction system | Turbocharger |
| Compression ratio | 18.0:1 |
| Bore | 114mm |
| Stroke | 135mm |
| Displacement | 8.3L |
| Engine idle speed | 700-900 RPM |
| Approximate engine weght | 684kg |

| Cooling system | |
|---|---|
| Coolant capacity-engine | 12.3L |
| Maximum coolant friction head external to engine: | |
| -1800 rpm | 35kPA |
| -1500 rpm | 28kPA |
| Maximum static head of coolant above engine crank centerline | 18.3m |
| Standard Thermostat (Modulating) Range | 82 - 93℃ |
| Minimum Pressure Cap | 103 kPa |
| Maximum Top Tank Temperature for Standby / Prime Power | 110 / 104℃ |

| Fuel system | |
|---|---|
| Injection system | BYC P7100 |
| Governor type | Electronic |
| Maximum restriction at lift pump | 20.3kPa |
| Maximum fuel inlet temperature | 70℃ |
| Total drain flow (constant for all loads) | 30 L/H |

| Air intake system | |
|---|---|
| Maximum intake air restriction with heavy duty air cleaner: | |
| -Dirty element | 6.2kpa |
| -Clean element | 3.7kpa |

| Lubrication system | |
|---|---|
| Engine oil pressure for engine protection devices: | |
| — Idle speed(Minimum ) | 103kPa |
| — Governed speed(Maximum ) | 276-414kPa |
| Maximum oil temperature | 121 ℃ |
| Minimum required lube system capacity-sump plus filters | 23.8L |

| Electrical system | |
|---|---|
| Cranking motor (Heavy duty, positive engagement | 24V |
| Battery charging system, negative ground | 40 ampere |
| Maximum allowable resistance of cranking circuit | 0.002 ohm |
| Minimum recommended battery capacity- cold soak | TBD |

| General installation | Prime power |
|---|---|
| Gross engine power output | 190kw |
| Piston speed | 8.1 m/s |
| Friction horsepower | 17 kW |
| Engine water flow to engine | 4 l/sec |
| Intake air flow | 254 l/sec |
| Exhaust gas flow | 675 l/sec |
| Exhaust gas temperature | 520 ℃ |
| Radiated heat to ambient | 29 kW |
| Heat rejection to coolant | 107 kW |
| Heat rejection to fuel | 157 kW |

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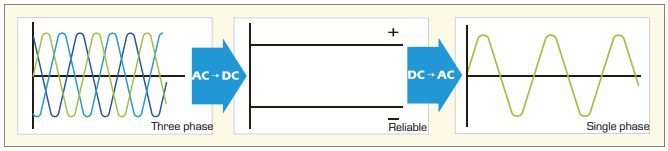
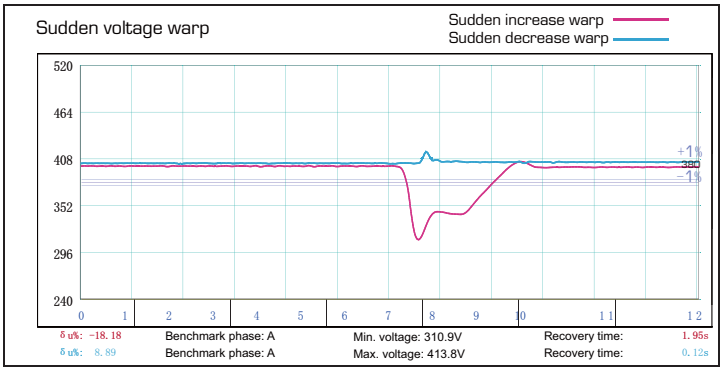
## Alternator Specification

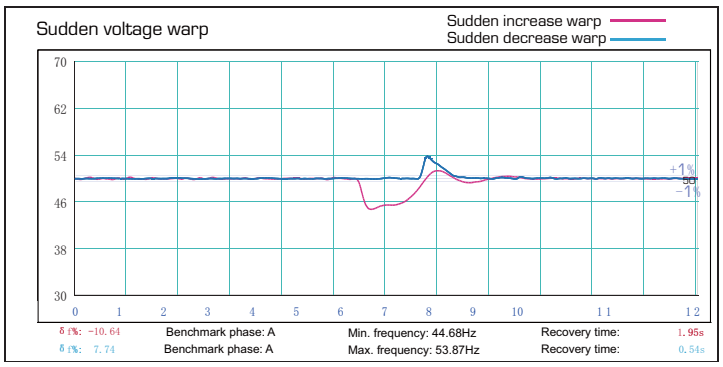
| Alternator | |
|---|---|
| Number of phase | 3 |
| Power factor (Cos Phi) | 0.8 |
| Poles | 4 |
| Winding Connections (standard) | Star-serie |
| Terminals | 12 |
| Insulation type | H class |
| Winding Pitch | 2/3 |
| IP rating | IP23 |
| Excitation system | Self-excited |
| Bearing | Single bearing |
| Coating | Vacuum impregnation |
| Voltage regulator | A.V.R |
| Couping | Flexible disc |




Emergency voltage curve




Emergency frequency curve




## Options

| Engine | Alternator | Generator Sets | Fuel System |
|---|---|---|---|
| • Water Jacket Pre-heater<br>• Fuel heater | • Winding Temp measuring Instrument<br>• Alternator Pre-heater<br>• PMG<br>• Anti-damp and anti-corrosion treatment<br>• Anti-condensation heater<br>• Winding and bearing RTD | • Tools with the machine<br>• Extended range fuel tank<br>• Bunded fuel tank | • Low fuel level alarm<br>• Automatic fuel feeding system<br>• Fuel T-valves |
| **Canopy** | **Lub oil system** | **Cooling System** | **Control Panel** |
| • Rental type Canopy<br>• Trailer | • Oil Pre-heater<br>• Oil temp sensor | • Front heat protection | • Remote control panel<br>• ATS<br>• Synchronizing controller<br>• Adjustable earth leakage relay |

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# Control Panel

## Configuration

- Emergency stop button
- Protection MCB
- Battery charger
- Integrated aviation plug
- ATS connection
- Digital control module

## Features

- 3 phase generator set monitoring
- Support of engines equipped with electronic control unit
- Comprehensive diagnostic message
- Automatic or manual start/stop of the gensets
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display
- Parameters adjustable via keyboard or PC
- Mains measurements（50HZ/60HZ）
- Generator measurements（50HZ/60HZ）
- Comprehensive shutdown or warning on fault condition
- 3 phase Generator protections
  - Over-/under voltage
  - Over-/under frequency
  - Current/voltage asymmetry
  - Over current/overload
- 3 phase AMF function
  - Over-/under frequency
  - Over-/under voltage
  - Voltage asymmetry
- Configurable analog inputs
- Battery voltage, engine speed (pick-up) measurement
- Configurable programmable binary inputs and outputs
- Warm-up and cooling functions
- Generator C.B. and Mains C.B. control with feedback and return timer
- RS232 interface
- Modem communication support
- Hours counter
- Sealed to Ip65
- Event log

## Benefits

- Less wiring and components
- Integrated solution
- Less engineering and programming
- User friendly set-up and button layout
- Module can be configured to suit individual applications
- PC software for simplified configuration
- Wide range of communication capabilities

## Operation conditions

- Operation temp: -20 ℃ to + 70 ℃
- Storage temp: -30 ℃ to + 80 ℃
- Operating humidity: 95% w/o condensation
- Vibration : 5-25Hz, ±1.6 mm
  5-100Hz, a=4g
- Shocks: a= 500m/s²

## Options

- Ethernet interface (Remote monitoring and control)
- GSM modem/wireless internet (Remote monitoring and control)
- RS232-RS485 Dual port interface
- Synchronizing control panel
- Distribution board with sockets kit and power busbar
- Battery trickle charge ammeter
- Earth leakage protection
- Earth fault protection
- Low fuel level alarm
- Low fuel level shutdown
- High fuel level alarm
- Fuel transfer system control
- Low coolant level shutdown
- High lube oil temp shutdown
- Overload via alarm switch on breaker
- Engine coolant heater controls
- Control panel heater
- Speed adjust switch
- Oil temp displayed on LCD screen
- Additional 8 inputs and outputs