AGG Power Solutions

**Your Professional Power Assistant**

# Model: P2500D5

Powered by PERKINS

## Output Rating

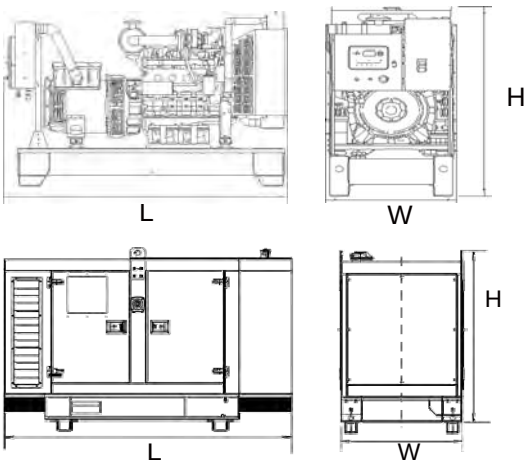
| MODEL | | Power rating | | Voltage available |
|---|---|---|---|---|
| | | PRIME(1) | STANDBY(2) | |
| P2500D5 | 400V/50HZ | 1760KW | 2000KW | 380/220V 400/230V 415/240V |
| | PF:0.8 | 2200KVA | 2500KVA | |

## General Information

| | | |
|---|---|---|
| Model | | P2500D5 |
| Engine | | 4016-61TRG3 |
| Speed control type | | Electronic |
| Phase | | 3 |
| Control System | | Digital |
| System voltage | | 12V/24V |
| Frequency | | 50HZ |
| Engine Speed(RPM) | | 1500 |
| Fuel Consumption L/hr | Standby power(2) | 528 |
| | Prime Power(1) | 473 |
| | 75% prime power | 346 |
| | 50% prime power | 235 |

## Dimension and Weight

| Dimension | Open | Silent |
|---|---|---|
| Length (L) | 5030mm | 12192mm |
| Width (W) | 2180mm | 2438mm |
| Height (H) | 2600mm | 2896mm |
| Net Weight | 13800KG | 20320KG |




AGG POWER gensets are compliant with EC mark 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)Prime Power(PRP):

According to ISO 8528-1:2005, Prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operation conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output (Ppp) over 24h of operation shall not exceed 70% of the PRP.

(2) Standby Power (ESP):

According to ISO 8528-1:2005, standby power is the maximum power available during a variable electrical power sequence, under the stated operation conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200h of operation per year with the maintenance intervals and procedures being caried out as prescribed by the manufacturers. The permissible average power output over 24h of operation shall not exceed 70% of the ESP.

ISO 9001

AGG POWER SOLUTIONS CO, LTD | MINHOU INDUSTRIAL ZONE, FUZHOU, CHINA | T:+86 591 86396829
F: +86 591 86396929 | EMAIL: sales@aggpower.com | WEB: www.aggpower.com

# Engine Specification

## Basic technical data

Number of cylinders ... 16
Cylinder arrangement ... 60° Vee
Cycle ... 4 stroke
Induction system ... turbocharged, air to water charge cooled
Combustion system ... direct injection
Compression ratio ... 13:1
Bore ... 160 mm
Stroke ... 190 mm
Cubic capacity ... 61.123 litres
Direction of rotation ... anti-clockwise viewed on flywheel
Firing order ... 1A, 1B, 3A, 3B, 7A, 7B, 5A, 5B
... 8A, 8B, 6A, 6B, 2A, 2B, 4A, 4B
Cylinder 1 ... furthest from flywheel

## Moment of inertia (mk²)

-engine ... 11.15 kgm²
-flywheel ... 9,57 kgm²

## Cooling system

Recommended coolant: 50% inhibited ethylene glycol or 50% inhibited propylene glycol and 50% clean fresh water. For CHP systems and where there is no likelihood of ambient temperature below 10 °C, then clean soft water may be used, treated with 1% by volume
Maximum pressure in crankcase water jacket ... 170 kPa
Maximum top tank temperature (standby) ... 98°C
Maximum static pressure on pump ... 70 kPa

## Lubrication system

Recommended SAE viscosity:
Multigrade oil conforming to the following must be used API CG 15W/40 CH4.
**Note:** For additional notes on lubricating oil specifications, refer to the OMM manual.

### Total system capacity

Maximum sump capacity ... 213 litres
Minimum sump capacity ... 157 litres
Oil temperature at normal operating conditions ... 95°C
Oil temperature (in rail) maximum continuous operation ... 105°C

### Lubricating oil pressure

At rated speed ... 400 kPa
Minimum @ 80°C ... 340 kPa
Oil filter screen spacing ... 40 microns
Sump drain plug tapping size ... G1
Oil pump speed and drive method ... 1.4 x e r/min engine driven
Shutdown switch - pressure setting ... 193 kPa Falling

### Oil consumption

Prime power after running in (typically after 250 hours) 0.52 g/kWhr
Oil flow rate from pump ... 6.7 litres / sec

## Exhaust system

Exhaust outlet size (internal) ... 2 x 254 mm
Exhaust outlet flange size ... 10 inch table D
Back pressure for total system ... 4 kPa

## General installation 4016-61TRG3

| Designation | Units | Baseload | Prime | Standby |
|---|---|---|---|---|
| Gross engine power | kWm | 1600 | 1975 | 2183 |
| Fan and battery charging alternator power | kW | 100 | | |
| Net engine power | kWm | 1500 | 1875 | 2083 |
| Brake mean effective pressure | kPa | 2094 | 2585 | 2857 |
| Combustion air flow | m³/min | 135 | 160 | 175 |
| Exhaust gas temperature maximum after turbocharger | °C | 460 | 475 | 560 |
| Exhaust gas flow (max) | m³/min | 490 | | |
| Boost pressure ratio | :1 | 4 | | |
| Mechanical efficiency | % | 94.0 | | |
| Overall thermal efficiency (net) | % | 40 | 40 | 40 |
| Friction and pumping power losses | kWm | 160 | | |
| Mean piston speed | m/s | 9.5 | | |
| Engine coolant flow - minimum | l/s | 23 | | |
| Typical GenSet electrical output (0.8pf) | kVA | 1800 | 2250 | 2500 |
| | kWe | 1440 | 1800 | 2000 |
| Assumed alternator efficiency | % | 96 | | |

## Alternator

| Alternator | | |
|---|---|---|
| Poles | Num | 4 |
| Winding Connections (standard) | | Star-serie |
| Insulation | Class | H class |
| Enclosure (according IEC-34-5) | | IP23 |
| Exciter System | | Brushless |
| Voltage Regulator | | A.V.R. (Electronic) |
| Bearing | | Single bearing |
| Coupling | | Flexible disc |
| Coating type | | Standard (Vacuum impregnation) |

## Options

| Engine | Alternator | Generator Sets | Fuel System | Canopy |
|---|---|---|---|---|
| ●Water Jacket Preheater<br>●Oil Preheater | ●Winding Temperature measuring Instrument<br>●Alternator Preheater<br>●PMG<br>●Anti-damp and anti-corrosion treatment<br>●Anti-condensation heater | ●Tools with the machine | ● Low fuel level alarm<br>●Automatic fuel feeding system<br>●Fuel T-valves | ●Rental Type Canopy<br>●Trailer |
| **Lubricating System** | **Exhaust System** | **Cooling System** | **Control Panel** | **Voltages** |
| ●Oil with the machine | ●Protection board from hotness | ● Front heat protection<br>● Coolant (-30°C) | ●Remote control panel<br>● ATS<br>● Remote controller<br>● Synchronizing controller | ● 415/240V<br>● 380/220V<br>● 220/127V<br>● 220/127V<br>● 200-115V |

## ▪ Control Panel

## Product description

- Single gen-set controller for Stand-by and Prime-power applications
- Direct communication with EFI engines
- Total remote monitoring and control

## Key features

- Easy to install, configure and use
- Wide range of communication capabilities including:
  - connection via RS232, RS485, CAN and on board USB
  - internet access using Ethernet or GPRS
  - support for Modbus and SNMP protocols
- Cloud-based monitoring and control
- Active SMS and emails in different languages
- 2x 5 A binary outputs for cranking and fuel solenoid
- Option for up to 16 additional binary inputs/outputs
- Flexible event based history with up to 350 events
- Load shedding, dummy load capability
- Automatic temperature based cooling/heating
- Comprehensive gen-set protections
- Multipurpose flexible timers
- True RMS measurement

## Available extension modules

| Product | Description | Order code |
|---|---|---|
| **CM-Ethernet** | Ethernet interface | CM2ETHERXBX |
| **CM-GPRS** | GSM modem / wireless internet | CM2GPRSXXBX |
| **CM-RS232-485** | Dual port interface | CM223248XBX |
| **EM-BIO8-EFCP** | 8 additional binary inputs/outputs | EM2BIO8EXBX |

## Functions and protections

| Description | ANSI code | Descritption | ANSI code |
|---|---|---|---|
| **Over voltage** | 59 | **Load shedding** | 32P |
| **Under voltage** | 27 | **Overload** | 32 |
| **Voltage asymmetry and Phase rotation**** | 47 | **Power factor** | 55 |
| **Over frequency** | 81H | **Temperature** | 49T |
| **Under frequency** | 81L | **Gas (fuel) level** | 71 |
| **Over current*** | 50 + 51 | **Earth fault current** | 50N + 64 |
| **Current unbalance** | 46 | | |

* Short current only

** Fixed setting