

Model: P33D5

Powered by PERKINS

Output Rating

| MODEL | | Power rating | | Voltage available | | |
|-------|-----------|--------------|------------|-------------------|----------|----------|
| | | PRIME(1) | STANDBY(2) | | | |
| P33D5 | 400V/50HZ | 24KW | 26KW | 380/220V | 400/230V | 415/240V |
| | PF:0.8 | 30KVA | 33KVA | | | |

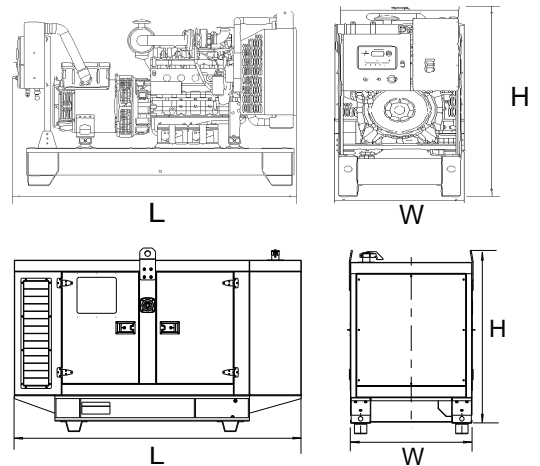
General Information

| | | |
|------------------------|------------------|-----|
| Model | P33D5 | |
| Engine | 1103A-33G | |
| Speed control type | Mechanical | |
| Phase | 3 | |
| Control System | Digital | |
| System voltage | 12V | |
| Frequency | 50HZ | |
| Engine Speed(RPM) | 1500 | |
| Fuel Consumption (L/H) | Standby power(2) | 7.9 |
| | Prime Power(1) | 7.1 |
| | 75% prime power | 5.4 |
| | 50% prime power | 3.9 |



Dimension and Weight

| Dimension | Open | Silent |
|------------|--------|---------|
| Length (L) | 1780mm | 2400mm |
| Width (W) | 750mm | 1100mm |
| Height (H) | 1430mm | 11723mm |
| Net Weight | 762KG | 1300KG |



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 carried out as prescribed by the manufacturers. The permissible average power output over 24h of operation shall not exceed 70% of the ESP.



Engine Specification

Basic technical data

Number of cylinders 3
 Cylinder arrangement Vertical in-line
 Cycle Four stroke
 Induction system Naturally Aspirated
 Compression ratio 19.25 : 1
 Bore 105 mm (4.13 in)
 Stroke 127 mm (4.99 in)
 Cubic capacity 3.3 litres
 Direction of rotation Clockwise view from front
 Firing order 1,2,3
 Total weight (engine only)
 -dry 412 kg
 -wet 430 kg

Exhaust system

Maximum back pressure
 - 1500 rev/min 8 kPa
 - 1800 rev/min 10 kPa
 Exhaust outlet size 56 mm (2.2 in)

Fuel System

Type of injection Direct
 Fuel injection pump Rotary
 Fuel atomiser Multi-hole
 Nozzel opening pressure 29,0 MPa (290 bar)

Lubrication system

Lubricating oil capacity

Total system 8,3 l (17.5 pt)
 Sump minimum 6,2 l (13.1 pt)
 Sump maximum 7.8 l (16.4 pt)
 Maximum engine operating angles:
 - front up, front down, right side or left side 25°

Lubricating oil pressure

- relief valve opens 415 - 470 kPa
 - at maximum no-load speed 276 - 414 kPa
 Max continuous oil temperature (in rail) 125 °C (257 °F)
 Oil consumption at full load as a % of fuel consumption 0.15%

Cooling system

Radiator

- face area 0.276 m² (2.97 ft²)
 - rows and materials single row aluminium
 - matrix density and material Aluminium 12,5 fins/inch
 - width of matrix 526 mm (20.7 in)
 - height of matrix 524 mm (20.6 in)
 - pressure cap setting 107 kPa

Fan

- diameter 457mm (18 in)
 - drive ratio 0.85 : 1
 - number of blades 7
 - material Composite
 - type Pusher

Coolant

Recommended coolant: 50 % ethylene glycol with a corrosion inhibitor (BS 658 : 1992 or MOD AL39) and 50% clean fresh water.
 Total system capacity
 - with radiator 10.2 l (21.5 pt)
 - without radiator 4.4 l (9.2 pt)
 Maximum top tank temperature 110 °C (230 °F)
 Thermostat operating range 82 - 93 °C (180 - 199 °F)

General installation

| Designation | Units | Type of Operation and Application | | | |
|---|--|-----------------------------------|---------------|---------------|---------------|
| | | Prime | Stand-by | Prime | Stand-by |
| | | 50 Hz | 50 Hz | 60 Hz | 60 Hz |
| Gross engine power | kWm | 28,2 | 31,0 | 33,2 | 36,5 |
| Brake mean effective pressure | kPa (lbf/in ²) | 684 (99.2) | 752 (109.0) | 669 (97.0) | 736 (106.7) |
| Mean piston speed | m/s (ft/s) | 6,35 (20.8) | 6,35 (20.8) | 7,62 (25.0) | 7,62 (25.0) |
| ElectropaK net engine power | kWm | 27,7 | 30,4 | 32,2 | 35,4 |
| Engine coolant flow 35 kPa restriction | l/min (UK gal/min) | 125,5 (27.6) | 125,5 (27.6) | 151,0 (33.2) | 151,0 (33.2) |
| Combustion air flow | m ³ /min (ft ³ /min) | 2,16 (76.2) | 2,15 (75.9) | 2,6 (91.8) | 2,57 (90.7) |
| Exhaust gas flow (max) | m ³ /min (ft ³ /min) | 5,7 (201.2) | 5,8 (204.8) | 6,4 (226.0) | 6,6 (233.0) |
| Exhaust gas temperature (max) in manifold | °C (°F) | 500 (932) | 520 (968) | 520 (968) | 530 (986) |
| Cooling fan air flow | m ³ /min (ft ³ /min) | 53,0 (1871.6) | 53,0 (1871.6) | 70,0 (2472.0) | 70,0 (2472.0) |
| Overall thermal efficiency | % | 39,2 | 39,2 | 40,0 | 37,3 |
| Typical genset electrical unit (0.8 pf 25° C) | kWe | 24,0 | 26,4 | 27,9 | 30,6 |
| | kVA | 30,0 | 33,0 | 34,9 | 38,2 |
| Assumed alternator efficiency | % | 87 | | | |
| Energy balance | | | | | |
| Power in fuel (Fuel heat of combustion) | kW (Btu/min) | 72,0 (4098.2) | 79,0 (4496.6) | 83,0 (4724.3) | 98,0 (5578.1) |
| Power output (gross) | kW (Btu/min) | 28,2 (1605.1) | 31,0 (1764.5) | 33,2 (1889.7) | 36,5 (2077.5) |
| Power to cooling fan | kW (Btu/min) | 0,5 (28.4) | 0,6 (34.1) | 1,0 (56.9) | 1,1 (62.6) |
| Power output (net) | kW (Btu/min) | 27,7 (1576.6) | 30,4 (1730.3) | 32,2 (1832.8) | 35,4 (2014.9) |
| Power to coolant and lubricating oil | kW (Btu/min) | 16,0 (910.7) | 18,0 (1024.5) | 18,0 (1024.5) | 22,0 (1252.2) |
| Power to exhaust | kW (Btu/min) | 22,0 (1252.2) | 25,0 (1422.9) | 27,0 (1536.8) | 34,0 (1935.2) |
| Power to radiation | kW (Btu/min) | 5,0 (284.5) | 6,0 (341.5) | 5,0 (284.5) | 6,0 (341.5) |



▪ 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 |
|---|--|--|---|--|
| <ul style="list-style-type: none"> •Water Jacket Preheater •Oil Preheater | <ul style="list-style-type: none"> •Winding Temperature measuring Instrument •Alternator Preheater •PMG •Anti-damp and anti-corrosion treatment •Anti-condensation heater | <ul style="list-style-type: none"> •Tools with the machine | <ul style="list-style-type: none"> • Low fuel level alarm •Automatic fuel feeding system •Fuel T-valves | <ul style="list-style-type: none"> •Rental Type Canopy •Trailer |
| Lubricating System | Exhaust System | Cooling System | Control Panel | Voltages |
| <ul style="list-style-type: none"> •Oil with the machine | <ul style="list-style-type: none"> •Protection board from hotness | <ul style="list-style-type: none"> • Front heat protection • Coolant (-30°C) | <ul style="list-style-type: none"> •Remote control panel • ATS • Remote controller • Synchronizing controller | <ul style="list-style-type: none"> • 415/240V • 380/220V • 220/127V • 220/127V • 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 | Description | 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

