Model:P16.5D5

Powered by PERKINS

Output Rating

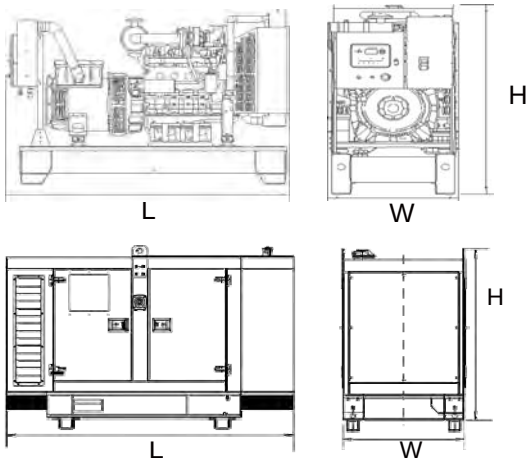
MODEL		Power rating		Voltage available
		PRIME(1)	STANDBY(2)	
P16.5D5	400V/50HZ	12KW	13KW	380/220V 400/230V 415/240V
	PF:0.8	15KVA	16.55KVA	

General Information

Model		P16.5D5
Engine		403A-15G2
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)	6
	Prime Power(1)	5
	75% prime power	NA
	50% prime power	NA

Dimension and Weight

Dimension	Open	Silent
Length (L)	1480mm	1900mm
Width (W)	750mm	730mm
Height (H)	1270mm	1140mm
Net Weight	423KG	603KG



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.

Engine Specification

Basic technical data

Number of cylinders 3
Cylinder arrangement... ... ... Vertical in-line
Cycle ... ...four stroke
Induction system.. ... ... .Naturally aspirated
Compression ratio 22.5:1
Bore . ... 84 mm
Stroke .. .. 90 mm
Displacement... ... ... .1·496 litres
Direction of rotation.. ... anti-clockwise when viewed from flywheel
Firing order 1, 2, 3
Estimated total weight (dry) . ... 197 kg

Lubrication system

Lubricating oil capacity

Maximum sump capacity . ... 6.0 litres
Minimum sump capacity .. .. 4.5 litres

Maximum engine operating angles

-front up, front down, right side or left side . ...35° continuous

Lubricating oil pressure

-relief valve opens ... ... 262 - 359 kPa
Minimum oil pressure .. ..120 kPa
-at maximum no-load speed ... ... TBA
Max. oil temperature - continous operation . ... .125°C
Max. oil temperature - intermittent operation... ... ... .135°C
Oil flow at rated speed. ... ... 10.9 litres /min

Electrical System

-alternator ... ... 15 amps, 12 V
-starter motor... ... ... 2 kW, 12 V

Exhaust system

Maximum back pressure .. .. 10.2 kPa
Exhaust outlet size... ... ... 42 mm

Fuel system

Type of injection ... ... Indirect injection
Fuel injection pump... ... ... Cassette type
Fuel injector .. .. Pintle nozzle
Nozzle opening pressure .. ..14.7 MPa
Max particle size ... ... 25 microns

Cooling system

Radiator

-face area ... ... .0.167 m²
-rows and materials . ... 2 rows, Aluminium
-matrix density and material ... ...4.5 fins per inch, Aluminium
-width of matrix ... ...334.2 mm
-height of matrix... ... ...500.0 mm
-pressure cap setting... ... ... 90 kPa
Estimated cooling air flow reserve... ... ...0.125 kPa

Coolant

Total system capacity
With radiator ... ... 6.0 litres
Without radiator ... ... 2.6 litres
Maximum top tank temperature... ... ... .112°C
Max static pressure head on pump . ... .30.4 kPa
Temperature rise across engine.. ... ...5.1°C
Max permissible external system resistance... ... ... .TBA kPa
Thermostat operation range ... ... 82 - 95°C

General installation

Designation	Units	Type of operation and application	
		Prime	Stand-by
		50Hz	50Hz
Gross engine power	kWb	14	15.4
Brake mean effective pressure	kPa	746	820
Mean piston speed	m/s	4.5	
ElectropaK net engine power	kW	13.84	15.24
Engine coolant flow against 35 kPa restriction	l/min	40.3	
Combustion air flow	m³/min	1.0	TBA
Exhaust gas flow (max)	m³/min	2.2	TBA
Exhaust gas temperature (max)	°C	470	580
Overall thermal efficiency	%	33.35	33.42
Typical genset electrical output (0.8 pf 25°C)	kWe	12.04	13.26
	kVA	15.05	16.57
Assumed alternator efficiency	%	87	
Energy balance			
Energy in fuel (heat of combustion)	kW	41.5	45.6
Energy in power output (gross)	kW	14.0	15.4
Energy to cooling fan	kWt	0.16	
Energy in power output (nett)	kWm	13.84	15.24
Energy to coolant and lubricating oil	kW	13.3	14.6
Energy to exhaust	kW	10.7	11.6
Energy to radiation	kW	3.5	4.0

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 ●Oil Preheater	●Winding Temperature measuring Instrument ●Alternator Preheater ●PMG ●Anti-damp and anti-corrosion treatment ●Anti-condensation heater	●Tools with the machine	● Low fuel level alarm ●Automatic fuel feeding system ●Fuel T-valves	●Rental Type Canopy ●Trailer
Lubricating System	**Exhaust System**	**Cooling System**	**Control Panel**	**Voltages**
●Oil with the machine	●Protection board from hotness	● Front heat protection ● Coolant (-30°C)	●Remote control panel ● ATS ● Remote controller ● Synchronizing controller	● 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	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