Model:P22D5

Powered by PERKINS

Output Rating

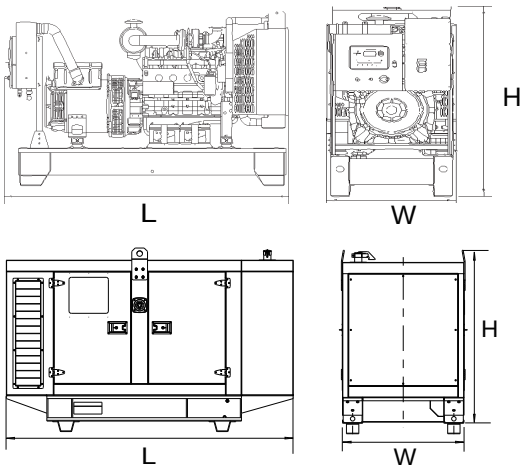
MODEL		Power rating		Voltage available
		PRIME(1)	STANDBY(2)	
P22D5	400V/50HZ	16KW	18KW	380/220V 400/230V 415/240V
	PF:0.8	20KVA	22KVA	

General Information

Model		P22D5
Engine		404A-22G1
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)	6.1
	Prime Power(1)	5.3
	75% prime power	4.0
	50% prime power	2.9

Dimension and Weight

Dimension	Open	Silent
Length (L)	1750mm	1900mm
Width (W)	750mm	800mm
Height (H)	1050mm	1140mm
Net Weight	410KG	762KG



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. 4
Cylinder arrangement .. .. Vertical in-line
Cycle ... ... four stroke
Induction system.. ... ... Naturally aspirated
Compression ratio 23,3:1
Bore . ... 84 mm
Stroke .. .. 100 mm
Cubic capacity . ... .2·216 litres
Direction of rotation.. ... anti-clockwise when viewed from flywheel
Firing order 1, 3, 4, 2
Estimated total weight (dry) . ... 242 kg

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

Lubrication system

Lubricating oil capacity

Max. sump capacity ... ... .10,6 litres
Min. sump capacity ... ...8,9 litres
Maximum engine operating angles
-front up, front down, right side or left side. ... ... 35° continuous

Lubricating oil pressure

-relief valve opens.. ... ...352 - 448kPa
Min. oil pressure. ... ... 120 kPa
-at maximum no-load speed .. .. tba
Oil flow at rated speed ... ...109 litres/min
Normal oil temperature .. .. 125°C

Cooling system

Radiator

-face area... ... ... 0,167 m²
-rows and materials ... ...2 rows, Aluminium
-matrix density and material... ... . 14,5 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

Fan

-diameter ... ... 320 mm
-drive ratio 1,25:1
-number of blades 7
-material . ...Plastic
-type ... ... .Pusher

Coolant

Total system capacity
-with radiator .. ..7,0 litres
-without radiator . ...3,6 litres
Maximum top tank temperature . ... 112°C
Temperature rise across engine ... ... 7,5°C
Max.permissible external system resistance . ... tba kPa
Thermostat operation range... ... ... .82 - 95°C
Recommended coolant:
Recommended coolant: 50% anti freeze / 50% water. For complete details of recommended coolant specifications, refer to the Operation and Maintenance Manual for this engine model.

General installation

Designation	Units	Type of operation and application	
		Prime	Stand-by
		50Hz	50Hz
Gross engine power	kWb	18,7	20,6
Brake mean effective pressure	kPa	669	650
Mean piston speed	m/s	5	
Engine coolant flow (coolant pump ratio 1·25:1)	l/min	40,3	
Combustion air flow	m³/min	1,45	
Exhaust gas flow (max)	m³/min	3,64	3,94
Exhaust gas temperature (max)	°C	445	505
Overall thermal efficiency (nett)	%	35	33
Typical genset electrical output (0,8 pf 25°C)	kWe	16,0	17,7
	kVA	20,0	22,1
Assumed alternator efficiency	%	87	
Energy balance			
Energy in fuel (heat of combustion)	kWt	53,0	61,2
Energy in power output (gross)	kWb	18,7	20,6
Energy to cooling fan	kWt	0,3	
Energy in power output (nett)	kWm	18,4	20,3
Energy to coolant and lubricating oil	kWt	17,0	19,6
Energy to exhaust	kWt	14,0	16,6
Energy to radiation	kWt	3,3	4,4

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