

Model: P220D5

Powered by PERKINS

Output Rating

MODEL		Power rating		Voltage available		
		PRIME(1)	STANDBY(2)			
P220D5	400V/50HZ	160KW	176KW	380/220V	400/230V	415/240V
	PF:0.8	200KVA	220KVA			

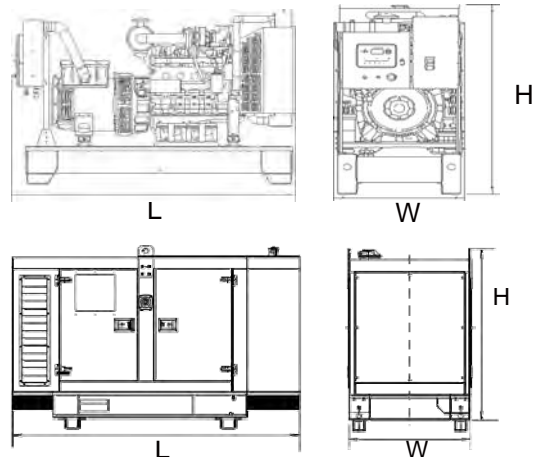
General Information

Model	P220D5	
Engine	1106A-70TAG4	
Speed control type	ECM	
Phase	3	
Control System	Digital	
System voltage	12V	
Frequency	50HZ	
Engine Speed(RPM)	1500	
Fuel Consumption (L/H)	Standby power(2)	49.4
	Prime Power(1)	45.8
	75% prime power	34.7
	50% prime power	23.1



Dimension and Weight

Dimension	Open	Silent
Length (L)	2620mm	3400mm
Width (W)	770mm	1100mm
Height (H)	1570mm	1900mm
Net Weight	1416KG	2234KG



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 6
 Cylinder arrangement In-line
 Cycle 4 stroke
 Induction system Turbocharged and air charge cooled
 Combustion system Direct injection diesel
 Compression ratio 16
 Bore 105 mm (4.1 in)
 Stroke 135 mm (5.3 in)
 Cubic capacity 7.01 litres (427.8 in³)
 Direction of rotation Anti clockwise when viewed from flywheel
 Firing order 1, 5, 3, 6, 2, 4
 Estimated total weight (dry) 788 kg (1737 lb)
 Estimated total weight (wet) 822 kg (1812 lb)

Overall dimensions (ElectropaK)

-height 1142 mm (45.0 in)
 -length (air cleaner fitted) 1763 mm (69.4 in)
 -width 756 mm (29.8 in)

Moments of inertia

Engine rotational components 0.27 kgm²
 Flywheel 1.26 kgm²

Lubrication system

Maximum total system oil capacity 16.5 litres (29.0 UK pints)
 Minimum oil capacity in sump 12.5 litres (26.4 UK pints)
 Maximum oil capacity in sump 15.5 litres (32.8 UK pints)
 Maximum engine operating angles - front up,
 front down, right side, left side 25 °
 Sump drain plug tapping size 3/4 - 16 UNF
 Shutdown switch setting (where fitted)
 -no Temp. switch °C
 -oil pressure 9-13 Psi

Cooling system

Cooling pack

-overall weight (wet) 70 kg
 -overall face area 540000 mm²
 -width 718 mm
 -height 1080 mm

Radiator

Face area 351200 mm²
 Number of rows and materials 4 rows, Aluminium
 Matrix density and material 10 fins per inch, Aluminium
 Width of matrix 439 mm (17.3 in)
 Height of matrix 800 mm (31.5 in)
 Pressure cap setting (min) 100 kPa (14.5 lb/in²)

Charge cooler

Face area 173,580 mm²
 Number of rows and materials 2 rows, Aluminium
 Matrix density and material 10 fins per inch, Aluminium
 Width of matrix 220 mm
 Height of matrix 789 mm

Exhaust system

Maximum back pressure
 -1500 rev/min 10,0 kPa (3.0 in Hg)
 Exhaust outlet, internal diameter 90 mm (3.54 in)

Electrical system

Alternator A115i
 Alternator voltage 12 volts
 Alternator output 85 amps
 Starter AZF
 Starter motor voltage 12 volts

General installation

General installation	Units	Prime	Standby
Gross engine power	kW	178.9	196.3
Brake mean effective pressure	kPa	2041.8	2240.3
Mean piston speed	m/s	6.75	6.75
ElectropaK net engine power	kW	173.9	191.3
Engine coolant flow (against 35 kPa restriction)	l/min)	180	
Combustion air flow (at STP)	m ³ /min	13.0	14.5
Exhaust gas flow (max)	m ³ /min	32.9	36.6
Exhaust gas temperature (max) in manifold (after turbocharger)	°C	580	
Net engine thermal efficiency	%	41.2	40.8
Typical genset electrical output (0.8pf 25°C)	kWe	160.0	176.0
	kVA	200.0	220.0
Regenerative power (estimated)	kW	9.3	
Assumed alternator efficiency	%	92.0%	92.0%
Energy balance			
Heat in fuel	kW	433.9	480.7
Power to cooling fan	kW	5.0	5.0
Power to coolant and lubricating oil	kW	78.2	86.0
Power to exhaust	kW	129.8	143.7
Energy to charge coolers	kW	32.5	37.0
Power to radiation	kW	14.4	17.7



▪ 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

