

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	

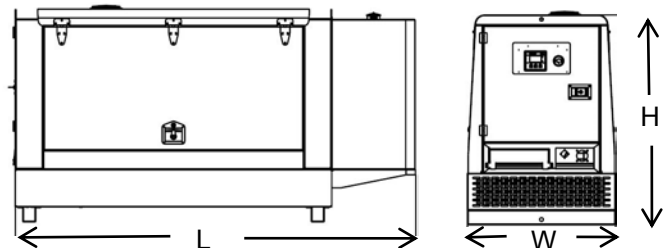
General Information

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)	1520mm	2150mm
Width (W)	550mm	730mm
Height (H)	1250mm	1136mm
Net Weight	480KG	700KG



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 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	m ³ /min	1,45	
Exhaust gas flow (max)	m ³ /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.
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: AMF20



Benefits

- Less wiring and components
- Integrated solution
- Less engineering and programming
- Perfect price/performance ratio

Features

- Support of engines equipped with Electronic Control Unit (J1939 interface)
- Comprehensive diagnostic messages; SPN/FMI codes; KWP2000 support
- Automatic or manual start/stop of the gen-set
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display 128x64 pixels
- 6 LED indicators
- Parameters adjustable via keyboard or PC
- Generator C.B. and Mains C.B. control with feedback and return timer
- RS232 interface (AT-LINK CONV cable is necessary for IL-AMF 20)
- Modem communication support (IL-AMF 25 only)
- Dimensions 180x120 mm (front panel)
- Sealed to IP65

- Mains measurements (50/60 Hz): U1-U3, Hz
- Generator measurements (50/60 Hz): U1-U3, I1-I3, Hz, kW, kVAr, kWh
- Selectable protections alarm/shutdown
- 3 phase Generator protections
 - Over-/under voltage
 - Over-/under frequency
 - Current/voltage asymmetry
 - Overcurrent/overload
- 3 phase AMF function
 - Over-/under frequency
 - Over-/under voltage
 - Voltage asymmetry
- Configurable analog inputs
- Battery voltage, engine speed (pick-up) measurement
- Configurable programmable binary inputs and outputs
- Warm-up and cooling functions

The Chart of Functions of IntelLite[®] Controllers

FUNCTIONS/CONTROLLERS	IL-AMF 20	IL-AMF 25	IL-MRS 10	IL-MRS 15	IL-MRS 11	IL-MRS 16
Binary inputs/outputs	7 / 7	7 / 7	6 / 6	6 / 6	6 / 6	6 / 6
Analog inputs	3	3	3	3	3	3
Pick-up	•	•	•	•	•	•
AMF function	•	•	-	-	-	-
Input configuration	•	•	•	•	•	•
Output configuration	•	•	•	•	•	•
Voltage measurement Gen./Mains	3ph / 3ph	3ph / 3ph	3ph / -	3ph / -	3ph / -	3ph / -
Current measurement	3ph	3ph, IDMT overcurrent	3ph	3ph, IDMT overcurrent	3ph	3ph, IDMT overcurrent
kW/kWh measurement	• / -	• / •	• / -	• / •	• / -	• / •
GCB/MCB control with feedback	• / •	• / •	- / -	- / -	• / -	• / -
Extension units (periph.)	-	IGL-RA15, IG-IOM, IGS-PTM	-	IGL-RA15, IG-IOM, IGS-PTM	-	IGL-RA15, IG-IOM, IGS-PTM
Communication interfaces	RS232 ²⁾	RS232, CAN ³⁾	RS232 ²⁾	RS232, CAN ³⁾	RS232 ²⁾	RS232, CAN ³⁾
Modem support	-	•	-	•	-	•
Battery charging alternator circuit	•	•	•	•	•	•

Key: • included; - excluded
 1) GCB control, but without feedback
 2) For IL-AMF 20, IL-MRS 10/11
 AT-LINK CONV cable necessary
 3) CAN for periph.

Legend: IG-IOM/IGS-PTM: I/O extension modules
 IGL-RA15: Remote annunciator
 I-RD: Remote display

