

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			

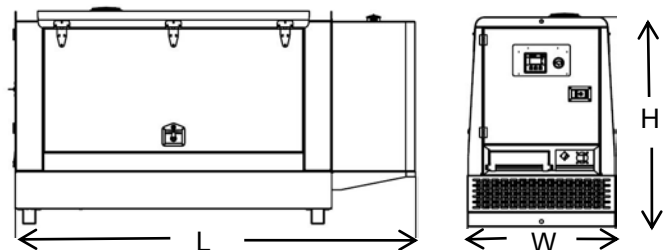
General Information

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)	1910mm	2280mm
Width (W)	750mm	900mm
Height (H)	1410mm	1276mm
Net Weight	780KG	1000KG



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.
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

