Model:P400D5

Powered by PERKINS

Output Rating

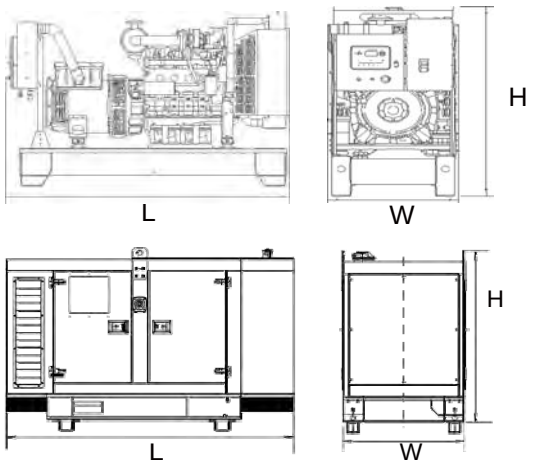
MODEL		Power rating		Voltage available
		PRIME(1)	STANDBY(2)	
P400D5	400V/50HZ	280KW	320KW	380/220V 400/230V 415/240V
	PF:0.8	350KVA	400KVA	

General Information

Model		P400D5
Engine		2206A-E13TAG2
Speed control type		Electronic
Phase		3
Control System		Digital
System voltage		24V
Frequency		50HZ
Engine Speed(RPM)		1500
Fuel Consumption (L/H)	Standby power(2)	80
	Prime Power(1)	71
	75% prime power	54
	50% prime power	37

Dimension and Weight

Dimension	Open	Silent
Length (L)	3500mm	4350mm
Width (W)	1150mm	1400mm
Height (H)	2000mm	2260mm
Net Weight	3420KG	5260KG



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 ... 6
Cylinder arrangement ... vertical in-line
Cycle ... 4 stroke
Induction system ... turbocharged, air-to-air charge cooling
Combustion system ... direct injection diesel
Compression ratio ... 16,3:1
Bore ... 130 mm
Stroke ... 157 mm
Cubic capacity ... 12,5 litres
Direction of rotation ... anticlockwise when viewed from flywheel
Firing order (number 1 cylinder furthest from flywheel) 1-5-3-6-2-4
Estimated total weight of Electropak (dry) ... 1478 kg
Estimated total weight of Electropak (wet) ... 1582 kg

Lubrication system

Maximum total system oil capacity ... 40 litres
Minimum oil capacity in sump ... 32,5 litres
Maximum oil capacity in sump ... 38 litres
Maximum engine operating angles -
front up, front down, right side, left side ... 7 °

Exhaust system

Maximum back pressure

-1800 rev/min ... 10,0 kPa
Exhaust outlet, internal diameter ... 123 mm

Electrical system

-type ... 24 Volt negative earth
Alternator type ... 22SI
-alternator voltage ... 24V

Cooling system

Radiator

Face area ... 1,238 m²
Number of rows and materials ... 1rows, aluminium
Matrix density and material ... 12 fins per inch, aluminium
Width of matrix ... 1048 mm
Height of matrix ... 1100 mm
Weight of radiator (dry) ... 132 kg
Pressure cap setting (min) ... 70 kPa

Charge cooler

Face area ... 1,006 m²
Number of rows and materials ... 1rows, aluminium
Matrix density and material ... 12 fins per inch, aluminium
Width of matrix ... 915 mm
Height of matrix ... 1100 mm

Coolant pump

Speed @ 1500 rev/min ... 2056 rev/min
Speed @ 1800 rev/min ... 2468 rev/min
Drive method ... Gear

Coolant

Total system capacity ... 51,4 litres
Max. top tank temperature ... 104 °C
Temperature rise across engine ... 10 °C
Max. pressure in engine cooling circuit ... 70 kPa
Max. permissible external system resistance ... 30 kPa
Max. static pressure head on pump ... 30 kPa
Coolant flow (min) against 30 kPa rstriction
@ 1500 rev/min ... 5,3 litres/sec
@ 1800 rev/min ... 6,7 litres/sec

General installation

Designation	Units	Prime	Standby	Prime	Standby
		50Hz @ 1500 rev/min		60Hz @ 1800 rev/min	
Gross engine power	kWb	324,2	368,4	373,4	406,5
Brake mean effective pressure	kPa	2061	2355	1984	2171
Combustion air flow (at rated speed)	m³/min	21,3	23,6	27,4	29,0
Exhaust gas flow (Max.)	m³/min	56,6	64,8	67,5	73,5
Exhaust gas mass flow	kg/min	25,1	27,8	32,6	34,5
Exhaust gas temperature (turbocharger outlet)	°C	630	630	630	660
Boost pressure ratio		2,8	3,2	3,1	3,4
Overall thermal efficiency (nett)	%	41,3	40,8	40,7	40,3
Typical genset electrical output (0.8pf 25 °C)	kWe	280	320	320	350
	kVA	350	400	400	438
Assumed alternator efficiency	%	92		92	
Energy balance					
Energy in fuel	kWt	739,9	854,1	857,0	945,7
Energy in power output (gross)	kWb	324,2	368,4	373,4	406,5
Energy to additional losses	kWb	4,9	5,5	5,6	6,1
Energy to cooling fan	kWm	14		19	
Energy in power output (nett)	kWt	305,3	348,9	348,8	381,4
Energy to exhaust	kWt	213,2	245,3	244,7	273,7
Energy to coolant and lubricating oil	kWt	113,5	128,5	130,2	139,5
Energy to charge cooler	kWt	64,8	79,7	68,4	76,5
Energy to radiation	kWt	24,1	32,2	40,3	49,5

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. (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