

Model: P450E5

Powered by PERKINS



Generator Specification

Service	PRP ⁽¹⁾	ESP ⁽²⁾
Power (kVA)	400	450
Power (kW)	320	360
Rated speed (r.p.m)	1500	
Standard voltage (V)	400/230V	
Rated at power factor(cos phi)	0.8	



AGG Power gensets are compliant with ISO 9001 and CE standard, 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) PRP (Prime Power):

According to ISO8528-1, prime power is the maximum power available during a variable power sequence, which may be run for an unlimited number of hours per year, between stated maintenance intervals. The permissible average power output during at 24 hours period shall not exceed 80% of the prime power. 10% overload available for governing purposes only.

(2) ESP (Standby Power):

According to ISO 8528-1, It is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 hours of operation per year (of which no more than 300 hours for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

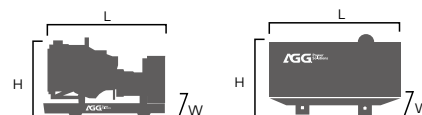
Powers Voltage (V)	ESP KVA KW	PRP KVA KW	Standby Amps
415/240	450 360	400 320	626.1
400/230	450 360	400 320	649.5
380/220	450 360	400 320	683.7

Performance Data

Model	P450E5	
Engine brand	Perkins	
Engine model	2206A-E13TAG3	
Speed control type	ECM	
Phase	3	
Control system	Digital	
Starter motor voltage	24V	
Frequency	50HZ	
Engine speed (RPM)	1500	
Fuel Consumption (L/H)	100% standby power	90
	100% prime power	81
	75% prime power	62
	50% prime power	42

Standard reference Conditions

Note: Standard reference condition 25°C (77°F) air inlet temp, 100m(328ft) A.S.L 30% relative humidity. Fuel consumption dat with diesel fuel with specific gravity of 0.85 and conforming to BS 2869: 1998 , Class A2



Dimension and Weight

Dimension	Open	Silent
Length (L)	3180mm	4400mm
Width (W)	1160mm	1400mm
Height (H)	2100mm	2525mm
Net Weight	3216KG	4551KG
Fuel Tank (L)	600L	750L

Note: This parameters allows for some acceptable deviations.

■ Engine Specification: 2206A-E13TAG3

Basic technical data	
No. of cylinders	6
Cylinder arrangement	Vertical in-line
Cycle	4 stroke
Induction system	Turbocharged, air-to-air charge cooling
Compression ratio	16.3:1
Bore	130mm
Stroke	157mm
Displacement	12.5L
All ratings certified to within	1-5-3-6-2-4
Estimated total weight	1478kg

Cooling system	
Radiator	
Face area	1,238 m ²
Number of rows and materials	1 rows, 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
Fan diameter	927 mm
Drive ratio	0,92:1
Number of blades	9

Fuel system	
Injection system	MEUI
Injector type	MEUI
Governor type	electronic
Governing conforms to	ISO 8528-5 Class G2
Injector pressure	207 MPa
Fuel lift pump	
max. static pressure head	4 m
max. fuel inlet temperature	55 °C
fuel filter spacing primary	10 microns
fuel filter spacing secondary	2 microns

Induction system	
Clean filter	2.5kpa
Dirty filter	6.4kpa
Air filter type	Paper element - 15 inch diameter

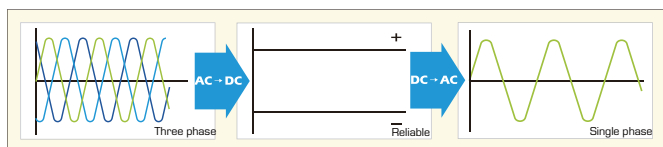
Lubrication system	
Maximum total system oil capacity	40L
Minimum oil capacity in sump	32,5 litres
Maximum oil capacity in sump	38 litres
Maximum engine operating angles - front up, front down, right side, left side	7 °
Lubricating oil	
oil flow @ 1500 rev/min	140 litres/min
oil pressure at bearings@1500rev/min	310 kPa
oil pressure at bearings (min)	270 kPa
oil temperature (continuous operation)	113 °C
Oil filter screen spacing	30 microns

Electrical system	
Type	Negative ground
Alternator voltage	24 volts
Alternator output	70 amps
Starter motor voltage	24 volts
Starter motor power	TBD

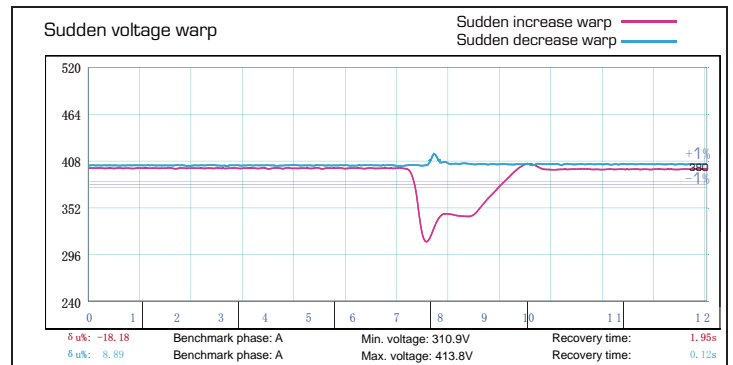
General installation	Prime power
Gross engine power	368,4kW
Brake mean effective pressure	2344kPa
Combustion air flow	24,3m ³ /min
Exhaust gas flow	64,6m ³ /min
Exhaust gas mass flow	28,1kg/min
Exhaust gas temperature	630°C
Boost pressure ratio	3.2
Overall thermal efficiency	41,4%
Assumed alternator efficiency	92%

■ Alternator Specification

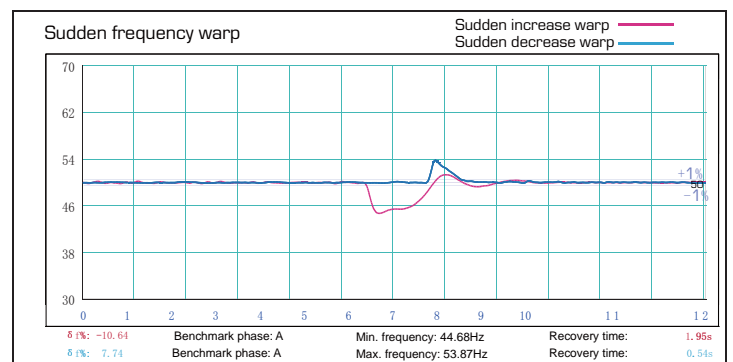
Alternator	
Number of phase	3
Power factor (Cos Phi)	0.8
Poles	4
Winding Connections (standard)	Star-serie
Terminals	12
Insulation type	H class
Winding Pitch	2/3
IP rating	IP23
Excitation system	Self-excited
Bearing	Single bearing
Coating	Vacuum impregnation
Voltage regulator	A.V.R
Couping	Flexible disc



Emergency voltage curve



Emergency frequency curve



■ Options

Engine	Alternator	Generator Sets	Fuel System
<ul style="list-style-type: none"> Water Jacket Pre-heater Fuel heater 	<ul style="list-style-type: none"> Winding Temp measuring Instrument Alternator Pre-heater PMG Anti-damp and anti-corrosion treatment Anti-condensation heater Winding and bearing RTD 	<ul style="list-style-type: none"> Tools with the machine Extended range fuel tank Bunded fuel tank 	<ul style="list-style-type: none"> Low fuel level alarm Automatic fuel feeding system Fuel T-valves
Canopy	Lub oil system	Cooling System	Control Panel
<ul style="list-style-type: none"> Rental type Canopy Trailer 	<ul style="list-style-type: none"> Oil Pre-heater Oil temp sensor 	<ul style="list-style-type: none"> Front heat protection 	<ul style="list-style-type: none"> Remote control panel ATS Synchronizing controller Adjustable earth leakage relay

■ Control Panel

Configuration

- Emergency stop button
- Protection MCB
- Battery charger
- Integrated aviation plug
- ATS connection
- Digital control module

Features

- 3 phase generator set monitoring
- Support of engines equipped with electronic control unit
- Comprehensive diagnostic message
- Automatic or manual start/stop of the gensets
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display
- Parameters adjustable via keyboard or PC
- Mains measurements (50HZ/60HZ)
- Generator measurements (50HZ/60HZ)
- Comprehensive shutdown or warning on fault condition
- 3 phase Generator protections
 - Over-/under voltage
 - Over-/under frequency
 - Current/voltage asymmetry
 - Over current/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
- Generator C.B. and Mains C.B. control with feedback and return timer
- RS232 interface
- Modem communication support
- Hours counter
- Sealed to Ip65
- Event log

Benefits

- Less wiring and components
- Integrated solution
- Less engineering and programming
- User friendly set-up and button layout
- Module can be configured to suit individual applications
- PC software for simplified configuration
- Wide range of communication capabilities

Operation conditions

- Operation temp: -20 °C to + 70 °C
- Storage temp: -30 °C to + 80 °C
- Operating humidity: 95% w/o condensation
- Vibration : 5-25Hz, ± 1.6 mm
5-100Hz, $a=4g$
- Shocks: $a= 500m/s^2$

Options

- Ethernet interface (Remote monitoring and control)
- GSM modem/wireless internet (Remote monitoring and control)
- RS232-RS485 Dual port interface
- Synchronizing control panel
- Distribution board with sockets kit and power busbar
- Battery trickle charge ammeter
- Earth leakage protection
- Earth fault protection
- Low fuel level alarm
- Low fuel level shutdown
- High fuel level alarm
- Fuel transfer system control
- Low coolant level shutdown
- High lube oil temp shutdown
- Overload via alarm switch on breaker
- Engine coolant heater controls
- Control panel heater
- Speed adjust switch
- Oil temp displayed on LCD screen
- Additional 8 inputs and outputs