JIANGHAO GENERATOR

➢Engine: Perkins 2206D-E13TAG3

➢Alternator:Stamford/Leroy Somer /Hengsheng

➢Controller:DeepSea/SmartGen /DEIF/ComAp

Genset

Model	JHP-350GF
Voltage	277/480V
Frequency&Speed	60HZ;1800RPM
Prime Power	350kW/438kVA
Standby Power	390kW/488kVA

Basic technical data

Number of cylinders 6
Cylinder arrangement ..... Vertical inline
Cycle ..... 4 stroke
Induction system ..... Turbocharged, air-to-air charge cooling
Combustion system ..... Direct injection diesel
Compression ratio 15.8:1
Bore ..... 130 mm
Stroke ..... 157 mm
Cubic capacity ..... 12.5 litres
Direction of rotation ..... Anti clockwise when viewed from flywheel
Firing order (number 1 cylinder furthest from flywheel 1, 5, 3, 6, 2, 4
Estimated total weight (dry) ..... 1478 kg
Estimated total weight (wet) ..... 1582 kg

Overall dimensions, ElectropaK

Height ..... 1725 mm
Length (air cleaner fitted) ..... 2410 mm
Width ..... 1120 mm

Moments of inertia

Engine ..... 1.36 kgm²
Flywheel ..... 1.41 kgm²

Centre of gravity, ElectropaK

Forward from rear of block (wet) ..... 650 mm
Above crankshaft centre line (wet) ..... 250 mm

Cyclic irregularity

1500 rev/min 1.54
1800 rev/min 1.82

Performance

Steady state speed capability at constant load - G2 ..... + 0.25%
All ratings certified to within ..... ±3%

Note: All data based on operation to ISO 3046-1/1, BS5514 and DIN 627 standard reference conditions.

Note: All data based on 42584 MJ/kg calorific value for diesel conforming to specification BS2869 Class A2.

Sound level

Sound pressure level (exhaust piped away, cooling pack and air cleaner fitted)
1500 rev/min ..... 102.5 dB(A)
1800 rev/min ..... 104.6 dB(A)

Test conditions

Air temperature ..... 25°C
Barometric pressure ..... 100 kPa
Relative humidity 30%
Air inlet restriction at maximum power (nominal) ..... 2.5 kPa
Exhaust back pressure at maximum power (nominal) ..... 6.8 kPa
Fuel temperature (inlet pump) ..... 40°C

Note: If the engine is to operate in ambient conditions other than those of the test conditions, suitable adjustments must be made for these changes. For full details, contact Perkins Technical Service Department. Emissions capability: Certified against the requirements of India CPCB II and EU Stage IIIA legislation for genset application, powered by constant speed engines.

General installation

Designation	Units	50 Hz @ 1500 rev/min
		Prime power
Gross engine power	kWb	367.0
Brake mean effective pressure (BMEP)	kPa	2347.0
Combustion air flow (at rated speed)	m³/min	25.6
Exhaust gas flow (maximum)	m³/min	68.3
Exhaust gas mass flow	kg/min	31.5
Exhaust gas temperature (turbocharger outlet)	°C	540.0
Boost pressure ratio		3.5
Overall thermal efficiency (nett)	%	39.1
Typical generator set electrical output (0.8pf 25°C)	kWe	320.0
	kVA	400.0
Assumed alternator efficiency	%	92.0

Rating definitions

Prime power

Variable load. Unlimited hours usage with an average load factor of 70% of the published prime power rating over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours of operation.

Standby power

Variable load. Limited to 500 hours annual usage up to 300 hours of which may be continuous running. No overload is permitted.

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Cooling system

Radiator

Face area ..... 1.238 mm²
Number of rows and materials ..... 1 row, 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 (minimum) ..... 70 kPa

Charge cooler

Face area ..... 1.006 mm²
Number of rows and materials ..... 1 row, 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
Drive method ..... Gear

Fan

Diameter ..... 927 mm
Drive ratio 0.92:1
Number of blades 9
Material ..... Composite
Type ..... Pusher
Cooling fan air flow @ 1500 rev/min ..... 654 m³/min

Coolant

Total system capacity ..... 51.4 litres
Maximum top tank temperature ..... 104 °C
Temperature rise across engine ..... 10 °C
Maximum pressure in engine cooling circuit ..... 70 kPa
Maximum permissible external system resistance ..... 30 kPa
Maximum static pressure head on pump ..... 30 kPa

Coolant flow against 30 kPa restriction
1500 rev/min ..... 5.3 litres/sec
Thermostat operation range ..... 87 to 98°C

Note: For details of recommended coolant specifications, refer to the Operation and Maintenance Manual for this engine model

Fuel consumption

Load	2206D-E13TAG3 - 1500 rev/min	
	g/kWh	litres/hr
100% Prime power	205.8	90.0
75% Prime power	218.7	72.0
50% Prime power	228.7	50.0

Duct allowance

Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow			
Engine speed rev/min	Ambient clearance inhibited coolant °C	Duct allowance Pa	m3/min
1500	52	200	563

Electrical system

Type ..... 24 volts negative earth
Alternator ..... 13 SI
Alternator voltage ..... 24 volts
Alternator output ..... 40 amps
Starter motor type ..... 39 MT
Starter motor voltage ..... 24 volts
Starter motor power ..... 7.8 kW
Number of teeth on the flywheel 113
Number of teeth on starter pinion 11
Minimum cranking speed ..... 106 rev/min
Starter solenoid maximum
Pull-in current @ 25°C ..... 200 amps
Hold-in current @ 25°C ..... 25 amps

Cold start recommendations

Minimum required cranking speed over TDC ..... 60 rpm

	5 to -10°C	-11 to -25°C
SAE grade Oil	15W40	5W40
Starter	42MT	
Battery	24 volts	
Maximum breakaway current	1311 amps	1585 amps
Cranking current	588 amps	828 amps
Starting Aids (ECM controlled)	None	Block heater 1,5 (110V/240V)
Minimum mean cranking speed	106 rev/min	

Notes:

- battery capacity is defined by the 20 hour rate
- the oil specification should be for the minimum ambient temperature as the oil will not be warmed by the immersion heater
- breakaway current is dependent on the battery capacity available. Cables should capable of handling transient current twice that of cranking current.

Exhaust system

Maximum back pressure - 1500rev/min ..... 10 kPa
Exhaust outlet, internal diameter ..... 123 mm

Alternator

Pole No.	4-Pole
Exciter Type	Single bearing, Brushless, Self-excited
Power factor	0.8
Voltage adjust range	≦5%
Insulation Grade	H
Protection Grade	IP23/22
Phase / wire	3 phase 4 wires

- ✧ NEMAMG1.JIANGHAO,and ANSl standards compliance for temperature rise and motor starting.
- ✧ Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- ✧ Sustained short-circuit current enabling down stream circuit breakers to trip without collapsing the generator field.
- ✧ Self-ventilated and dripproof construction.
- ✧ Superior voltage waveform from two-thirds pitch windings and skewed stator.
- ✧ Digital solid-state.volts-per-hertz voltage regulator with +1% no-load to full-load regulation.

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Control Panel




The control module gives digital readouts of:

Generator voltage;

Output frequency;

Engine speed;

Battery voltage;

Engine hours run.

The **control panel** is an Digital Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the module will display warnings, shutdown and engine status information on the back-lit LCD screen and illuminated LEDs.

The control module has indicators for failure information:

Over speed/Low speed,

Emergency stop

Low oil pressure;

High water temperature

Failure to start

Battery charger failure

Automatic shutdown occurs under:

Low engine oil pressure;

High engine water temperature;

Over speed/Low speed;

Failure to start after three attempts.

Dimension:3650*1100*2000mm

Weight:3300kg

Dimension:4700*2100*2400mm

Weight:6200kg

Fuel Tank Capacity:1000L

Electrical system

- Maintenance-free and anti-explosion battery
- Standard breaker
- ABB breaker (optional)
- ATS (optional)
- Battery charger (optional)
- GMS monitoring (optional)

Packing

- Wrapping film packaging
- Tray packaging
- plywood box packaging

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