JIANGHAO GENERATOR

➢Engine: Perkins 403D-15G

➢Alternator:Stamford/Leroy Somer /Hengsheng

➢Controller:DeepSea/SmartGen /DEIF/ComAp

Genset

Model	JHP-12GF
Voltage	277/480V
Frequency&Speed	60HZ;1800RPM
Prime Power	13kW/16kVA
Standby Power	14kW/18kVA

Basic technical data

Number of cylinders ... 3
Cylinder arrangement ... Vertical in-line
Cycle ... four stroke
Induction system ... Naturally aspirated
Compression ratio ... 22,5:1
Bore ... 84 mm
Stroke ... 90 mm
Cubic capacity ... 1·496 litres
Direction of rotation ... anticlockwise when viewed from flywheel
Firing order ... 1, 2, 3
Estimated total weight of Electropak (dry) ... 197 kg

Overall dimensions of Electropak

-height ... 791 mm
-length ... 820 mm
-width ... 476 mm

Moments of inertia (GD²)

-engine rotational components ... TBA kg m²
-flywheel ... 2,01 kg m²

Centre of gravity (fan face to flywheel housing)

-forward from rear of block ... 101 mm
-above crank centre ... 65 mm
-offset to RHS of centre line ... 3 mm

Performance

Note: All data based on operation to ISO 3046-1:2002 standard reference conditions

Speed variation at constant load - G2 ... ± 0,75%
Cyclic irregularity
-at 110% stand-by power ... TBA

Test conditions

-air temperature ... 25 °C
-barometric pressure ... 100 kPa
-relative humidity ... 31.5%
-air inlet restriction at maximum power (nominal) ... 3 kPa
-exhaust back pressure at maximum power (nominal) ... 10,2 kPa
-fuel temperature (inlet pump) ... 40 °C

Sound level

Average sound pressure level for bare engine (without inlet and exhaust) at 1 metre ... 79.4 dB(A)
-all ratings certified to within ... ± 5%
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 Statement:** Certified against the requirements of EU2007 (EU 97/68/EC Stage II) and EPA Tier 4 (EPA 40 CFR Part 1039 Tier 4 legislation for non-road mobile machinery, powered by constant speed engines

General installation

Designation	Units	Type of operation and application	
		Prime	Stand-by
Gross engine power	kWb	14,7	16,2
ElectropaK net engine power	kWm	14,4	15,9
Brake mean effective pressure	kPa	649,7	721,9
Engine coolant flow (coolant pump ratio 1·15:1)	l/min	45,4	
Combustion air flow	m³/min	1,23	
Exhaust gas flow (max)	m³/min	3,14	3,36
Exhaust gas temperature (max)	°C	455	505
Overall thermal effeciency (nett)	%	35	34
Typical genset electrical output (0.8 pf 25 °C)	kWe	12,7	14,0
	kVA	15,8	17,5
Assumed alternator efficiency	%	88	
Energy balance			
Energy in fuel	kWt	42,5	47,5
Energy in power output (gross)	kWb	14,7	16,2
Energy to cooling fan	kWm	0,3	0,3
Energy in power output (nett)	kWt	14,4	15,9
Energy to coolant and lubricating oil	kWt	13,6	15,2
Energy to exhaust	kWt	10,3	11,8
Energy to radiation	kWt	3,9	4,3

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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 mm
-pressure cap setting 90 kPa
Estimated cooling air flow reserve 0,125 kPa

Fan

-diameter 320 mm
-drive ratio 1,15:1
-number of blades 7
-material Plastic
-type Pusher

Coolant

Total system capacity
-with radiator 6,0 litres
-without radiator 2,6 litres
Maximum top tank temperature 112 °C
Temperature rise across engine TBA °C
Max permissible external system resistance. TBA kPa
Thermostat operation range. 82 - 95 °C
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

Duct allowance

Maximum additional retsriction (duct allowance) to cooling airflow and resultant minimum airflow		
Ambient clearance 50% Glycol	Duct allowance Pa	m³/sec
53°C	0	0,85
46°C	125	0,72

Electrical system

-alternator.. 65 amps, 12 V
-starter motor .. 2 kW, 12 V

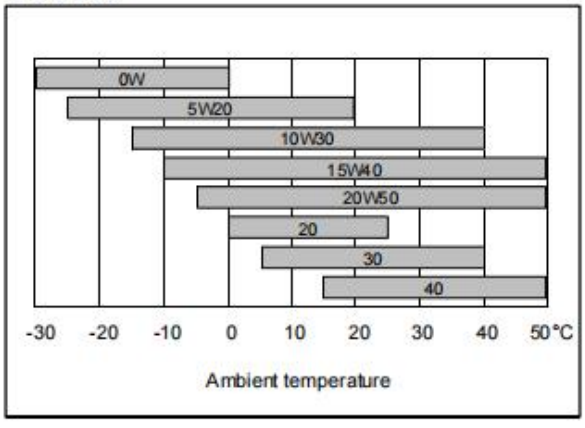
Cold start recommendations

Minimum cranking speed . TBA rev/min

Minimum starting temperature	Grade of engine lubricating oil	Battery specifications			
		BS3911 Cold start amps	SAEJ537 Cold cranking amps	Number of batteries needed	Commercial ref number
0°C	20W	420	590	1	072
-15°C	10W	420	590	1	072
-20°C	5W	540	740	1	647

Recommended SAE viscosity

A single or multigrade oil must be used which conforms API-CH-4 or ACEA E5..



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

Fuel lift pump

-flow/hour . 63 litres/hr
-pressure .. 10 kPa
Maximum suction head .. 0,8 m
Maximum static pressure head .. 3 m
Governor type. Mechanical

Fuel specification

USA Fed Off Highway - EPA2D 89.330-96
Europe Off Highway - CEC RF-06-99
Note: For further information on fuel specifications and restrictions, refer to the OMM Fuels section for this engine model

Fuel consumption

Power rating %			
g/kWh			
110%	100%	75%	50%
249	247	249	275

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 ANSI 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,

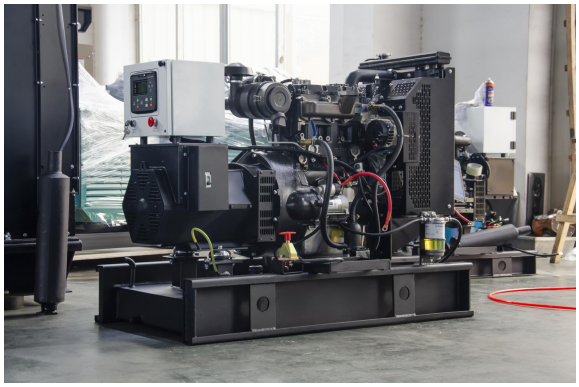
Emergency stop

Low oil pressure;

High water temperature

Failure to start

Battery charger failure



Dimension:1250*700*1100mm

Weight:350kg

Automatic shutdown occurs under:

Low engine oil pressure;

High engine water temperature;

Over speed/Low speed;

Failure to start after three attempts.

Electrical system

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

Dimension:2200*1000*1550mm

Weight:900kg

Fuel Tank Capacity:180L

Packing

- Wrapping film packaging
- Tray packaging
- plywood box packaging

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