

# GENERATING SET GE 225 PS

The images are for reference



## FEATURES

- Automatic voltage regulation "AVR"
- Large doors for better and easy maintenance (air, oil, fuel filters replacement)
- Oil drain pump
- Control panel with digital control unit available with automatic or manual version
- Bunded base suitable to contain any liquids leakage from engine avoiding environmental pollution
- Single point lifting eye
- Meets EC directives for noise and safety



water  
cooled



diesel



three-phase  
power



electric



silenced

## POWER RATINGS

* Stand-By three-phase power (LTP)	220 kVA (176 kW) / 400 V / 317.5 A
* PRP three-phase power	200 kVA (160 kW) / 400 V / 288.7 A
* COP power	/
Frequency	50 Hz
Cos φ	0.8

\* Output powers according to ISO 8528-1

## DEFINITION

Valid declared powers up to the followings environmental conditions: temperature 25°C, altitude 100 meters above sea level)

**LTP power: stand-by power:** Maximum available power for use with variable loads for a yearly number of hours limited at 500 h. No overload is admitted.

**PRP power:** continue power with variable loads. Maximum power for use with variable loads for a yearly illimited nubers of hours.

**COP power:** continuous power with constant load. Maximum power for use with constant loads for a yearly unlimited numbers of hours.

## ENGINE 1500 RPM

### 4 STROKE, DIRECT INJECTION, TURBOCHARGED

Model	PERKINS 1106A - 70TAG4
* Stand-By net power	191.3 kW (202.2 hp)
* PRP net power	174 kW (236.6 hp)
* COP net power	/
Cylinders / Displacement	6 / 7.01 lit. (7010 cm³)
Bore / Stroke	105 / 135 (mm)
Compression ratio	16 : 1
BMEP (Brake Mean Effective Pressure : LTP - PRP)	2240 kPa - 2042 kPa
Speed governor type	Electronic
<b>FUEL CONSUMPTION</b>	
110 % (Stand-by power)	209 g/kWh - 49.4 lit./h
100 % to PRP	213 g/kWh - 45.8 lit./h
75 % to PRP	215 g/kWh - 34.7 lit./h
50 % to PRP	215 g/kWh - 23.1 lit./h
<b>COOLING SYSTEM</b>	
Total system cap. - only engine	21 lit. - 9,5 lit.
Fan air flow	282 m³/min.
<b>LUBRICATION SYSTEM</b>	
Total oil system capacity	16.5 lit.
Oil capacity in sump	12.4 lit. (min) - 14.9 lit. (max)
Oil consumption at full load	< 0.04 lit./h

### EXHAUST SYSTEM

Maximum exhaust gas flow	36.8 m³/min.
Max. exhaust gas temp.	550 °C
Maximum back pressure	6 kPa (0.06 bar)
External diameter exhaust pipe	/

### ELECTRICAL SYSTEM

12 Vdc	
Starter motor power	4.2 kW
Battery charging alternator cap.	85 A
Cold start	- 10 °C
With cold start aid	- 20 °C

### AIR FILTER

Dry	
Combustion air flow	13.2 m³/min.

### HEAT REJECTED AT FULL LOAD

To exhaust system	148.1 kW
To water and oil	78.2 kW
Radiated to room	12.8 kW
To charge cooler	32.8 kW

## ALTERNATOR

SYNCHRONOUS, THREE-PHASE, SELF-EXCITED, SELF-REGULATED, BRUSHLESS	
Continuous power	220 kVA
Stand-by power	240 kVA
Three phase voltage	380-415 Vac
Frequency	50 Hz
Cos $\varphi$	0.8
Model A.V.R.	MARK I
Voltage regulation acc.	$\pm 0.5 \%$
Sustained short circuit current	3 In
Transient dip (100% load)	< 20 %
Recovery time	< 0.3 sec
Efficiency at 100% load	93.2 % (400V - Cos $\varphi$ 0.8)
Insulation	Class H
Connection - Terminals	Star - N°12
Electromagnetic compatibility (R.F.I. suppr.)	EN55011
Waveform distorsion - THD	< 2 %
Telephone interference - THF	< 2 %

REACTANCES (220 kVA - 400V)	
Direct axis synchronuos - Xd	305 %
Direct axis transient - X'd	24 %
Subdirect axis transient - X''d	11.3 %
Quadrature axis synchronuos - Xq	150 %
Quadr. axis subtransient - X''q	12.6 %
Negative sequence - X2	12 %
Zero sequence - X0	2.4 %
TIME CONSTANTS	
Transient - T'd	0.095 sec
Subtransient - T''d	0.011 sec
Open circuit - T'do	1.00 sec
Armature - Ta	0.013 sec
Short-circuit ratio Kcc	0.40
Cooling air flow	0.42 m³/sec.
Coupling I Bearing	Direct SAE 2 - 11 ½ - N°1

## GENERAL SPECIFICATIONS

Fuel tank capacity	230 lt.
Running time (75% to PRP)	6.5 h
Starter battery	12 Vdc - 105Ah
IP protection degree	IP 44

* Measured acoustic power LwA (pressure LpA)	96 dB(A) (71 dB(A) @ 7m)
* Guaranteed acoustic power LwA (pressure LpA)	97 dB(A) (72 dB(A) @ 7m)
Performance class (ISO 8528)	G2

\* Acoustic power according to European Directive 2000/14/CE



## CONTROL PANEL

- Controller AMF 25
- Controller supply switch
- Siren
- Emergency stop button
- TCM 35 remote control plug
- Four pole circuit breaker
- PAC (ATS) plug - Automatic control panel only
- Battery charger - Automatic control panel only
- Earth terminal (PE)

### AMF25 CONTROLLER CHARACTERISTICS

Operating mode	<ul style="list-style-type: none"> <li>• OFF - MAN. - AUTO - TEST</li> </ul>
Display	<ul style="list-style-type: none"> <li>• Graphic back-light LCD display 128x64 pixels</li> </ul>
LEDs	<ul style="list-style-type: none"> <li>• Gen-set voltage OK</li> <li>• Gen-set failure</li> <li>• GCB ON (only for Automatic transfer unit)</li> <li>• Mains voltage OK (only for Automatic transfer unit)</li> <li>• Mains failure (only for Automatic transfer unit)</li> <li>• MCB ON (only for Automatic transfer unit)</li> </ul>
Buttons	<ul style="list-style-type: none"> <li>• START button</li> <li>• STOP button</li> <li>• FAULT RESET button</li> <li>• RESET HORN button</li> <li>• MODE selection button</li> <li>• Pulsante chiusura/apertura GCB button</li> <li>• Pulsante chiusura/apertura MCB button</li> <li>• N° 4 buttons for controller programming</li> </ul>
Generator Measures	<ul style="list-style-type: none"> <li>• Voltage : L1-L2 / L2-L3 / L3-L1 - N-L1/N-L2/N-L3</li> <li>• Current : I1 - I2 - I3</li> <li>• Powers : kVA - kW - kVAR (totali e per fase)</li> <li>• Energy : kVAh - kWh - kVARh</li> <li>• Cos φ (medium and per phase)</li> <li>• Frequency</li> </ul>
Engine Measures	<ul style="list-style-type: none"> <li>• Water temperature</li> <li>• Oil pressure</li> <li>• Fuel level</li> <li>• Rpm meter</li> <li>• Battery voltage</li> <li>• Maintenance</li> <li>• Hours meter</li> <li>• Starts number</li> </ul>
Generator Protections	<ul style="list-style-type: none"> <li>• Overload</li> <li>• Overcurrent</li> <li>• Short circuit</li> <li>• Over-Undervoltage</li> <li>• Over-Underfrequency</li> <li>• Voltage asymmetry</li> <li>• Unbalanced current</li> <li>• Phase sequence</li> </ul>
Engine Protections	<ul style="list-style-type: none"> <li>• Overspeed</li> <li>• High water temperature warning</li> <li>• Low oil pressure warning</li> <li>• Low fuel level warning</li> <li>• Over-Under battery voltage</li> <li>• Battery charge alternator failure</li> <li>• Start failure</li> <li>• Stop failure</li> <li>• Emergency stop</li> <li>• Low water level shutdown (option)</li> </ul>

### AMF functions (Automatic control panel only)

- Measure mains voltage : L1-L2 / L2-L3 / L3-L1 - N-L1/N-L2/N-L3
- Measure mains frequency
- Three phase detection
- Over-Under mains voltage
- Over-Under mains frequency
- Voltage asymmetry
- Phase sequence
- Dual mutual stand-by application

### Features

- Event log and alarms
- 2 tests run scheduler (Automatic test or scheduled starts)
- Engine idle management (Idle)
- Remote Start and Stop
- Pre-heating
- 2 selectable languages (other languages available)
- Setpoints adjustable via controller buttons or PC
- Direct connection to engines with ECU via Can bus J1939
- Configurable inputs and outputs (only via PC)
- IP65 protection
- Operation temperature: -20°C / +70°C

### Communication

- RTU Modbus (optional board with RS232 & RS485 outputs is needed)
- TCP/IP Modbus (optional Ethernet board with RJ45 output is needed)
- SNMP Modbus (optional Ethernet board with RJ45 output is needed)
- Internet (optional Ethernet board optional is needed)
- GSM/GPRS (integrated Modem board optional is needed) for Gen-set remote control via SMS or internet

### CONTROL PANEL VERSION WITH OUTPUT SOCKETS

#### SOCKETS

Each socket is protect by own automatic switch.  
Circuit breaker for 125A and 63A sockets.  
GFI and circuit breaker 30mA for 32A and 16A socket.

- 1x 400V 125A 3P+T CEE
- 1x 400V 63A 3P+T CEE
- 1x 400V 32A 3P+T CEE
- 1x 400V 16A 3P+T CEE
- 1x 230V 16A 2P+T CEE
- 1x 230V 16A 2P+T SCHUKO

# WEIGHT - DIMENSIONS AND ACCESSORIES

GE 225 PS



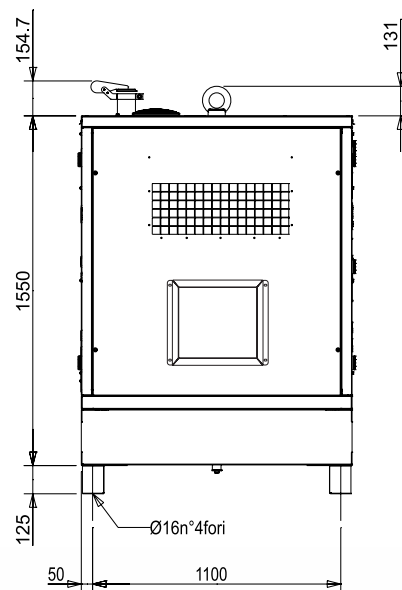
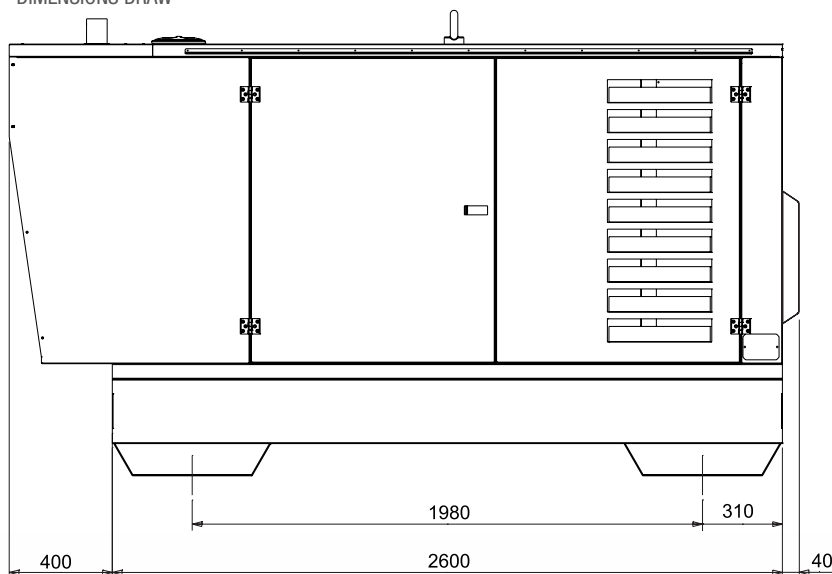
## DRY WEIGHT MACHINE:

- 2300 Kg

Generating set pictured may include optional accessories.



## DIMENSIONS DRAW



## OPTIONS ON REQUEST

- Automatic transfer switch unit (ATS) PAC 275M (400A)
- Remote control TCM35
- Earthing kit



## VERSIONS ON REQUEST

- The electrical panel with Sockets CEE
- 1x 125A 400V 3P-N-T
- 1x 63A 400V 3P-N-T
- 1x 32A 400V 3P-N-T
- 1x 16A 400V 3P-N-T
- 1x 230V 2P-T
- 1x 230V 2P-T Schuko



## FACTORY INSTALLATION OPTIONS

- Electronic leakage relay
- Isometer
- Volt adjustable from control panel
- PMG - permanent magnet alternator excitation
- Radio control
- Tank: 120 lt/ 350 lt/ 840 lt
- Spark arrestor
- Low level water sensor
- Automatic fuel transfer pump
- 3-way valve fuel system with quick connection for external fuel tank supply
- Engine heater
- Main battery switch
- Plug-in module with dual port RS232 and RS485
- GSM modem with antenna
- Internet-Ethernet plug-in module including Web server

## GENERAL INFORMATION

### COMPLIANCE GENERATING SETS WITH EC DIRECTIVES AND STANDARDS

2006/42 / EC (Machines Directive)  
2014/35 / EU (Low Voltage Directive)  
2014/30 / EU (EMC Directive)  
2000/14 / EC (Directive Acoustic Emission for machines for use outdoors)  
ISO 8528 (Reciprocating internal combustion engine driven alternating current generating sets )



ISO 9001:2008 - Cert. 0192

### WARRANTY

All devices are covered by the manufacturer's warranty.

The company reserves the right to change this specification without notice. For further information please contact the sales department.

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