

GMS-022P



Main Features

Frequency	Hz	50
Voltage	V	400
Power factor	cos ϕ	0.8
Phase		3

Power Rating

Standby power LTP	kVA	21.50
Standby power LTP	kW	17.20
Prime power PRP	kVA	20.10
Prime power PRP	kW	16.08

Ratings definition (According to standard ISO8528 1:2005)

PRP - Prime Power:

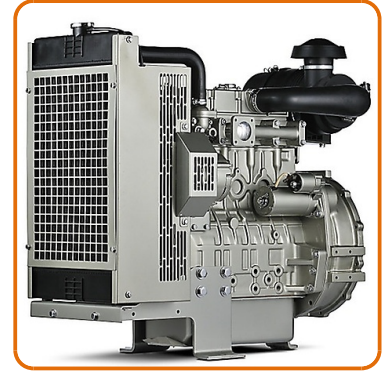
It is defined as being the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24 h of operation shall not exceed 70 % of the prime power.

LTP - Limited-Time running Power:

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 h of operation per year (whose no more than 300 for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

Engine specifications

Engine manufacturer	Perkins	
Model	404D-22G	
[50Hz] Exhaust emission level	Stage IIIA	
Engine cooling system	Water	
Nr. of cylinder and disposition	4 in line	
Displacement	cm ³	2216
Aspiration	Natural	
Speed governor	Mechanical	
Prime gross power PRP	kW	18.7
Maximum gross power LTP	kW	20.6
Oil capacity	l	10.6
Coolant capacity	l	7
Fuel	Diesel	
Specific fuel consumption @ 75% PRP	g/kWh	238
Specific fuel consumption @ PRP	g/kWh	237
Starting system	Electric	
Starting engine capability	kW	2
Electric circuit	V	12



Engine Equipment

Standards

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1

Fuel system

Rotary type pump

Lube oil system

Wet steel sump with filler and dipstick

Filter

- Fuel filter
- Air filter
- Oil filter

Cooling system

- Mounted radiator
- Thermostatically-controlled system with belt driven coolant pump and pusher fan

Alternator Specifications

Alternator	Mecc Alte	
Model	ECP28-M/4	
Voltage	V	400
Frequency	Hz	50
Power factor	cos ϕ	0.8
Type	Brushless	
Poles	4	
Standard AVR	DSR	
Voltage tolerance	%	1
Efficiency @ 75% load	%	87.8
Class	H	
IP protection	23	

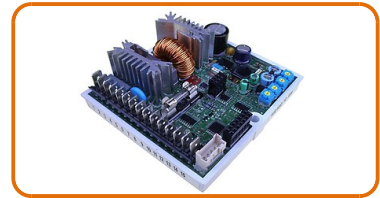


Mechanical structure

Robust mechanical structure which permits easy access to the connections and components during routine maintenance check-ups.

Voltage regulator

Voltage regulation with DSR. The digital DSR controls the range of voltage, avoiding any possible trouble that can be made by unskilled personnel. The voltage accuracy is $\pm 1\%$ in static condition with any power factor and with speed variation between 5% and +30% with reference to the rated speed.



Windings / Excitation system

Generator stator is wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th ...) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches. MAUX (Standard): The MAUX MeccAlte Auxiliary Winding is a separate winding within the main stators that feeds the regulator. This winding enables to take an overload of 300% forced current (short circuit maintenance) for 20 seconds. This is ideal for motor starting requirements.

Insulation / Impregnation

Insulation is of class H standard. Impregnation is made with premium tropicalised epoxy resins by dipping and dripping. High voltage parts are impregnated by vacuum, so the insulation level is always very good. In the high-power models, the stator windings undergo a second insulation process. Grey protection is applied on the main and exciter stator to give enhanced protection.

Reference standards

Alternator manufactured according to , and complies with , the most common specification such as CEI 2-3, IEC 34-1, EN 60034-1, VDE 0530, BS 4999-5000, CAN/CSA-C22.2 No14-95-No100-95.

Genset equipment

BASE FRAME MADE OF WELDED STEEL PROFILE, COMPLETE WITH:

- Anti-vibration mountings properly sized
- Welded support legs



PLASTIC FUEL TANK WITH THE FOLLOWING COMPONENT:

- Filler neck
- Air breather (ventilation pipe)
- Minimum fuel level sensor



OIL DRAINING PIPE WITH CAP:

- Oil draining facilities



ENGINE COMPLETE WITH:

- Battery
- Liquids (no fuel)

CANOPY:

- Soundproof canopy made up of modular panels, realized with zinc-coated steel as treatment against corrosion and aggressive conditions, properly fixed and sealed allowing a full weatherproof enclosure.
- Easy access to the genset for maintenance purposes thanks to: Wide lateral access doors fixed by stainless steel hinges and provided with plastic lockable handles and internal perforated galvanized steel-sheet; Detachable panels, with screws holes protected by rubber tap.
- Control panel protection door provided with suitable window and lockable handle.
- Lateral air inlet opening properly protected and soundproofed. Exhaust air outlet from the roof, through wet section protected by proper grid.
- Single detachable lifting eye placed on the roof.



SOUNDPROOF:

- Noise attenuation thanks to soundproofing material
- Efficient residential silencer placed inside the canopy



Dimensional data

Length	(L) mm	1800
Width	(W) mm	850
Height	(H) mm	1260
Dry weight	Kg	715
Fuel tank capacity	l	68
Fuel tank material		Plastic



Autonomy

Fuel consumption @ 75% PRP	l/h	3.98
Fuel consumption @ 100% PRP	l/h	5.28
Running time @ 75% PRP	h	17.09
Running time @ 100% PRP	h	12.88

Noise level

Guaranteed noise level (LWA)	dB(A)	87
Noise pressure level @ 7 m	dB(A)	58

Installation data

Exhaust gas flow @ PRP	m ³ /min	3.64
Exhaust gas temperature @ LTP	°C	445

Electrical Data

Battery capacity	Ah	70
MAX current	A	31.03
Circuit breaker	A	32

ACP - Automatic control panel

Mounted on the genset, complete with digital control unit for monitoring, control and protection of the generating set, protected through door with lockable handle.

DIGITAL INSTRUMENTATION

- Generating set voltage (3 phases).
- Mains voltage.
- Generating set frequency.
- Generating set current (3 phases).
- Battery voltage.
- Power (kVA - kW - kVAr).
- Power factor Cos ϕ .
- Hours-counter.
- Engine speed r.p.m.
- Fuel level (%).
- Engine temperature (depending on model)

COMMANDS AND OTHERS

- Four operation modes: OFF - Manual starting - Automatic starting - Automatic test.
- Pushbutton for forcing Mains contactor or Genset contactor.
- Push-buttons: start/stop, fault reset, up/down/page/enter selection.
- Remote starting availability.
- DC system disconnection switch.
- Acoustic alarm.
- Automatic battery charger.
- RS232 Communication port.
- Settable PASSWORD for protection level.

PROTECTIONS WITH ALARM

- Engine protections: low fuel level, low oil pressure, high engine temperature.
- Genset protections: under/over voltage, overload, under/over frequency, starting failure, under/over battery voltage

PROTECTIONS WITH SHUTDOWN

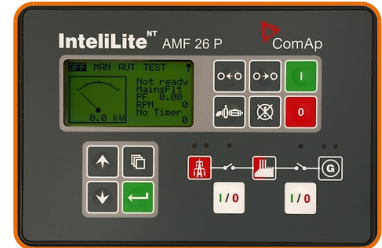
- Engine protections: low fuel level, low oil pressure, high engine temperature,
- Genset protection: under/over voltage, overload, under/over battery voltage, battery charger failure.
- Circuit breaker protection: III poles.
- Earth Fault included in the control unit.

OTHERS PROTECTIONS

- Emergency stop button.
- Panel protected through door with lockable handle.

OUT PUT PANEL ACP

3P+N+T CEE 400V 32A	n	1
Predisposed for remote control optional:		RCG
Socket kit		Optional



Supplements:

To be ordered with the equipment :

CONTROL PANEL SUPPLEMENT

RCG - Various supplements for remote controls - available for models:	ACP
TLP - Various supplements for remote signals - available for models:	ACP
ADI - Adjustable Differential Intensity - available only for models:	ACP
TIF - IV Poles Circuit Breaker instead of III - available for models:	ACP
ETB - External Terminal Board - available for models:	ACP



Socket kit

SKB socket kit B:		
Component version		SKB1
Individual CB and Earth Fault protection		√
3P+N+T CEE 400V 32A IP67	n	1
230V/16A 2P+T CEE IP67	n	1
230V 16A SCHUKO IP68	n	1
3P+N+T CEE 400V 16A IP67	n	1

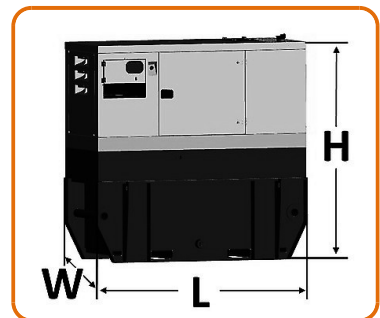


GENSET EQUIPMENT

KPR - Premium Kit (Leak Proof Tray - Leakage detection sensor - Manual oil drain pump)	
AFP - Automatic Fuel Pump	ACP
KRT - Kit Rental which includes fuel filter with water separator, 3-way fuel valve, battery switch, earth rod, docs folder)	

Extended Fuel Tank

Fuel tank capacity	l	210
Length (Genset)	(L) mm	1805
Width (Genset)	(W) mm	996
Height (Genset)	(H) mm	1597



ENGINE SUPPLEMENTS

PHS - Coolant Pre-Heating System - available for models:	ACP
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Accessories

Items available as accessory equipment

LTS - Load Transfer Switch [Accessories for ACP Automatic Control Panel]

The Load Transfer Switch (LTS) panel operates the power supply changeover between the generator and the Mains in backup applications, guarantying the feeding to the load within a short period of time.

It consists of a standalone cabinet which can be installed separate from the generating set. The logic control of the power supply changeover is operated by means of the Automatic Control Panel (ACP) mounted on the generating set, so therefore none logic device is required on the LTS panel.

LTS Type ATyS_dM:

- Box type: steel enclosures
- Installation mode: Wall mounted
- Door: Hinged door closed with double barb locking.
- Ingress Protection: IP54
- Gland Plates: Removable on the top & bottom side
- Connections: Bottom/Bottom
- Motor unit
- Switch position indicator
- Auto/Manual cover selector
- Housing for manual handle
- Padlocking mechanism
- Two side by side mounted load break switches
- Poles 4
- Double coils self-powered
- Voltage (coils): 230/240VAC (Tolerance+/-20% 176/288VAC)
- Frequency 50 & 60HZ
- Compliant with IEC 60947-3, EN 61439-6-1 and GB 14048-11

SUPPLEMENTS AVAILABLE ON REQUEST (Only for LTS Version ATyS_dM):

- **ESB** - Emergency Stop Button (installed on the panel front)
- **APP** - Additional IPXXB Protection (internal plexiglass)

