POWER RATING

	kVA	kWe
PRP - Prime Power	**1266**	**1013**
LTP - Limited-Time running Power	**1399**	**1119**

Reference conditions: 100m (100kPA) a.s.l., T 25°C, 30% H.R.

Ratings definitions (according to the 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.

GENSET DATA

Nominal voltage: 400/230V Three phases.
Nominal frequency: 50 Hz.
Nominal speed: 1500 rpm
Power factor: 0,8.
Total air Flow (Max rated speed with standard cooling radiator): 1879 m^3/min

The generating set will be manufactured in accordance with the following rules and directives:

- IEC 60034, IEC 60947, IEC 60255
- ISO 3046-1 & 2, ISO 8528
- 2006/42/EC, 2004/108/EC, 2006/95/EC.

PRAMAC quality system is ISO9001:2008 certified

Image shown may not reflect actual package

1 ENGINE

Brand: PERKINS

Model: 4012-46 TWG2A Fuel Optimized

FUEL :		Diesel
GROSS PRP CONTINUOS POWER (ISO 3046):		1113 kW
GROSS LTP FUEL STOP POWER (ISO 3046):		1224 kW
Rating condition		
Intake Air Temperature :		25°C
Barometric Pressure :		1000 mbar
Site Altitude Above Sea level:		100 m
Engine Rated Speed :		1500 rpm
Displacement :		45.8 liters
Fuel Consumption (PRP) :		
%	g/KWh	l/h
100	212	259
75	216	196
50	233	143
25	218	59
Aspiration System :		Turbocharged Intercooler

1.1 Standards

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

1.2 Starting system :

Electric starter , 24 volt starter motor, 24 volt 70 amp battery charging alternator with integral regulator and DC output
Rated power : 16.4 kW

1.3 Fuel system :

Unit fuel injectors with lift pump and hand stop control
Governor to ISO 8528-5 class G3 with isochronous
Full-flow spin-on fuel oil filters
Closed fuel system

1.4 Lube oil system :

Recommended lubricating oil to conforms with the specification of API CG4 15W/40
Low oil pressure switch
Wet sump with filler and dipstick
Lubrication oil filters
Twin low oil pressure shutdown switches
Full-flow spin-on oil filters
Engine jacket water/lube oil temperature stabilize
Lubrication oil capacity

- Oil pan : 157.5 liter
- Oil total : 177 liter

Lube oil consumption max 0.28 % of fuel consumption at 100 % PRP

1.5 Combustion air system

Mounted air filter Fuel system
Direct fuel injection system, fuel lift pump
Fuel cooler

1.6 Cooling system :

Gear driven circulating pump
Twin thermostats
Crankshaft pulley for fan drive
Powder coated radiator assemblies comprising: water radiator; air charge cooled radiator;
Air inlet restriction at maximum power (Nominal) : 19.3 mbar

1.7 Exhaust system

Exhaust gas emission (values at max power)

NO_x	< 5400 mg/m^3_N	at 5 % O_2
CO	< 350 mg/m^3_N	at 5 % O_2
HC	< 130 mg/m^3_N	at 5 % O_2
Particulate (soot)	< 50 mg/m^3_N	at 5 % O_2

Exhaust volume flow : 3.9 m^3/s
Exhaust temperature after turbocharger : 422 °C
Exhaust back pressure : 40 mbar

1.8 Engine mounting:

Set of engine mounting brackets at engine free and driving end

2 ALTERNATOR:

Brand: MECC-ALTE

Model: ECO 43-2L/4

STANDBY 163/27°C (Temp. Rise/Ambient °C):	1420 kVA
FREQUENCY:	50 Hz
VOLTAGE (parallel star):	400 V
EFFICIENCY 4/4:	96 %
PROTECTION :	IP 21
EXECUTION :	BRUSHLESS
INSULATION CLASS :	H
STATOR WINDING :	12 ends
ROTOR :	with damping cage
REGULATION :	+/-1% with any power factor and speed variations between -5% + 30 %

2.1 Mechanical structure

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

2.2 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 ±1% in static condition with any power factor and with speed variation between 5% and +30% with reference to the rated speed.

2.3 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.
PMAUX (optional)
Alternator can be equipped with the optional PMAUX (Permanent Magnet Generator) which matches the performance and is capable of supporting both linear and distorted loads.

2.4 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.

2.5 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-

3 GENSET EQUIPMENT

3.1 Lead-acid starting batteries kit : 4 x 200 Ah
Suitable for 3 starting attempts.

3.2 Fully bunded baseframe made of welded steel profiles, complete with anti-vibration mountings properly sized.
The baseframe has a grounding point to connect all metal parts of the generating set and it provides a high structural strength.
For the Open version is possible to move the genset thanks two lifting points (holes) located on both sides of the baseframe.
With Soundproof version it is possible to move the genset trough lifting points located on the canopy/container structure.

3.3 Integrated single wall fuel tank of 1000 Lt. with the following components:
- Filler neck.
- Air breather (ventilation pipe).
- Minimum fuel level sensor.

3.4 Manual oil draining pump

3.5 Industrial silencer(s) kit
- N° of silencer for genset : 2
- N° of gas entry : 1
- N° of gas exit: 1

3.6 Pre-wired box

3.7 Not necessary with ACP/MPP panel

4 GENSET CONTROL PANELS

4.1 Automatic/Manual Control Panel (ACP)

The Automatic/Manual Control Panel (ACP) is installed within the genset, fully integrated and connected to the machine.
The ACP is located in a metal cabinet , on the side of the generating set.
It allows genset start/stop trough manual command or trough remote signal (Mains Failure / external contact)

4.2 Modular Parallel Panel (MPP)

The Modular Parallel Panel (MPP) is installed within the genset, fully integrated and connected to the machine.
The MPP is located in a metal cabinet , on the side of the generating set.
It allows genset start/stop trough manual command or trough remote signal (Mains Failure / external contact) and genset synchronization for the following applications:

Single genset running in parallel to the Mains (back synchro / peak shaving / export)

Multiple genset running in parallel as Production / Emergency power plant.
No Mains synchronization.