

GSW110I



Main Features

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

Power Rating

Standby power LTP	kVA	110.87
Standby power LTP	kW	88.70
Prime power PRP	kVA	100.84
Prime power PRP	kW	80.67

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	FPT	
Model	NEF45TM2A	
Version	50 Hz	
Exhaust emission level	Stage II	
Engine cooling system	Water	
Nr. of cylinder and disposition	4 in line	
Displacement	cm ³	4500
Aspiration	Turbocharged aftercooled	
Speed governor	Mechanical	
Prime gross power PRP	kW	89.3
Maximum gross power LTP	kW	98
Oil capacity	l	12.8
Lube oil consumption @ PRP (max)	%	0.1
Coolant capacity	l	18.5
Fuel	Diesel	
Specific fuel consumption @ 75% PRP	g/kWh	203.5
Specific fuel consumption @ PRP	g/kWh	207.7
Starting system	Electric	
Starting engine capability	kW	3
Electric circuit	V	12



Standards

Class G2 of ISO 8528 standard certification of excellent performance related to load acceptance.

Injection system

The system, is based on direct fuel injection for accurate fuel delivery and is consistent with standard and alternative fuels.

Air handling

NEF series engines are available in Naturally Aspirated, turbocharged and turbocharged with aftercooler versions in order to reach the highest engine performance in terms of load acceptance & fuel consumption.

600h Oil interval change

NEF series adopt combustion chambers optimized to reduce oil dilution and are designed with an optimum engine design in terms of mechanical clearances, piston rings and engine oil system calculation.

Engine design

Balancer counterweights incorporated in crankshaft webs, rear gear train layout, camshaft in crankcase, suspended oil pan, ladder frame cylinder block

Alternator Specifications

Brand	Mecc Alte	
Model	ECP34-2S/4	
Voltage	V	400
Frequency	Hz	50
Power factor	$\cos \phi$	0.8
Poles	4	
Type	Brushless	
Voltage regulation system	Electronic	
Standard AVR	DSR	
Voltage tolerance	%	1.5
Efficiency @ 75% load	%	92.5
Class	H	
IP protection	21	

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

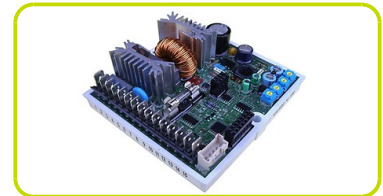
Generator stator is wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th ...) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches. 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

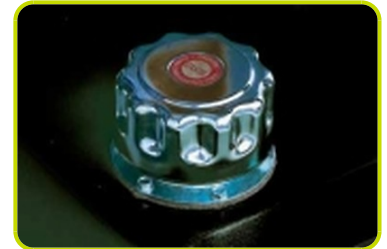
BASE FRAME MADE OF WELDED STEEL PROFILE, COMPLETE WITH:

- Steel base frame with support legs
- Anti-vibration mountings properly sized
- Grounding point to connect all metal parts of the generating set



FUEL TANK WITH THE FOLLOWING COMPONENT:

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



PROTECTIONS:

- Moving and rotating parts protection against accidental contacts.



ENGINE COMPLETE WITH:

- Battery
- Liquids (no fuel)

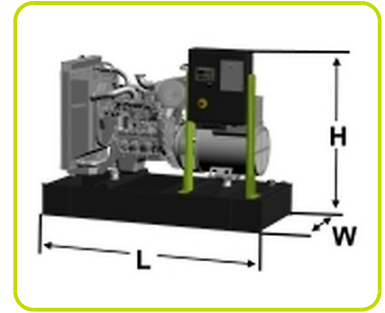
EXHAUST (Standard):

- Industrial silencer (loose)



Dimensional data

Length	(L) mm	2200
Width	(W) mm	1000
Height	(H) mm	1743
Dry weight	Kg	1310
Fuel tank capacity	l	240



Autonomy

Fuel consumption @ 75% PRP	l/h	16.28
Fuel consumption @ 100% PRP	l/h	22.08
Running time @ 75% PRP	h	14.74
Running time @ 100% PRP	h	10.87

Installation data

Total air flow	m ³ /min	NaN
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Data Current

Battery capacity	Ah	140
MAX current	A	160.04
Circuit breaker	A	160

Control panel availability

MANUAL CONTROL PANEL	MCP
AUTOMATIC CONTROL PANEL	ACP
MODULAR PARALLEL PANEL	MPP

MCP - Manual control panel

Mounted on the genset and complete of: instrumentation, control, protection of the generating set.

INSTRUMENTATION (ANALOGUE)

- Voltmeter (1 phase)
- Ammeter (1 phase)
- Hours-counter

COMMANDS

- Start/stop selector switch with key (Glow plugs preheating function also included).
- Emergency stop button

PROTECTION WITH ALARM

- Low fuel level
- Battery charger failure
- low oil pressure
- high engine temperature
- Earth Fault.

PROTECTIONS WITH SHUTDOWN

- Low fuel level
- Battery charger failure
- low oil pressure
- high engine temperature.
- Circuit breaker protection: III poles
- Emergency stop button

OUT PUT PANEL MCP

Power cables connection to Circuit Breaker.



ACP - Automatic control panel

Mounted on the genset, complete with digital control unit for monitoring, control and protection of the generating set.

DIGITAL INSTRUMENTATION (through AC-03)

- 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.



OUT PUT PANEL ACP

Plinth row for connection from ACP to LTS panel.

Power cables connection to Circuit Breaker.

MPP - Modular parallel panel

Mounted on the genset, complete with digital control unit IG-NTC for monitoring, control, protection and load sharing for both single and multiple gen-sets operating in standby or parallel modes (up to 32 gen-sets in island).

DIGITAL INSTRUMENTATION (through IG-NTC control unit)

- Mains: voltage, Intensity, Frequency.
- Mains kW - kVAr -Power factor Cos f.
- Generating set voltage (3 phases).
- Generating set frequency.
- Generating set current (3 phases).
- Generating set Power (kVA - kW - kVAr).
- Generating set Power factor Cos f.
- Generating set kWh and kVAh.
- Battery voltage.
- Hours-counter.
- Engine speed r.p.m.
- Fuel level (%).
- Engine temperature (depending on model).

COMMAND AND OTHERS

- Oil pressure (depending on model).
- Graphical display 128x64 pixels.
- Operation modes: OFF - AMF function - Single Parallel to mains Island application - Single Parallel to Mains AMF application - Multiple parallel genset Island application.
- Pushbutton for forcing Mains Breaker/contact or Genset Breaker/contact.
- Push-buttons: start/stop, fault reset, up/down/page/enter selection.
- Multiple parallel and Power Management operation with digital load AVR sharing.
- Automatic synchronizing and power control (via speed governor or ECU)
- Baseload Import/Export and Peak shaving
- Voltage and PF control (AVR).
- Configurable digital I/O (12/12) and analogue inputs (3).
- Integrate PLC programmable functions.
- Event-based history (up to 500records).
- Selectable measurement range 120/277V and 0-1/0-5A.
- Remote starting and Blocking signal availability.
- DC system disconnection switch.
- Acoustic alarm.
- Automatic battery charger.
- 2xRS232/RS485/USB Comunication ports.
- Setable PASSWORD for protection level.

PROTECTION WITH ALARM AND SHUTDOWN

- 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
- Others: overcurrent, shortcircuit, reverse power, Earth fault

OTHERS PROTECTION:

- Circuit breaker protection: IV poles Motorized.
- Emergency stop button.

OUT PUT PANEL MPP

Multi-pin connectors (in and out) for parallel with other generators	n	2
Connecting cable with 2 connectors multipin (length 10m)	n	1
ETB External terminal board		ETB



Supplements:Only Available when order :

CONTROL PANEL SUPPLEMENT

RCG - Various supplements for remote controls - available for models:	ACP MPP
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TLP - Various supplements for remote signals - available for models:	ACP MPP
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ADI - Adjustable Differential Intensity - available only for models:	ACP
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TIF - IV Poles Circuit Breaker instead of III - available for models:	ACP MCP
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GENSET EQUIPMENT

AFP - Automatic Fuel Pump	ACP MPP
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ENGINE SUPPLEMENTS

PHS - Coolant Pre-Heating System - available for models:	ACP MPP
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EEG - Engine Electronic Governor	
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Accessories

Items available as accessory equipment

FEC - Flexible Exhaust Compensator Bellow and flanges

RES - Residential silencer

LTS - LOAD TRANSFER SWITCH - Accessories ACP

Automatic under-load change-over (AC22, AC23) from and to any of positions "1", "0", "2" both electrical and manual (emergency change-over), transfer function with direct transition from position "1" to position "2" and vice versa.

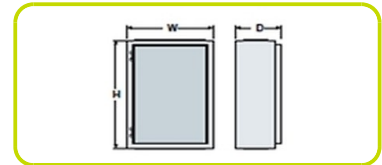
- Safety: locking by padlock preventing any electrical or manual operation, key lock for the selection of electrical or manual operation.- Quick operating time from pos. "1" to "2" and vice versa.
- Easy and fast electrical connections by means of terminal blocks of quick connection type.
- Conformity to standards: IEC 60947-1 IEC 60947-3, CEI EN 60947-1 / CEI EN 60947-3 IEC 439-1, CEI EN 60439-1 IEC 204-1, CEI EN 60204-1, VDE 0660 Teil 107



NOMINAL CURRENT & DIMENSIONS PANEL LTS (standard*)

Nominal Current	A	160
Width	(W) mm	600
Height	(H) mm	400
Depth	(D) mm	200

* = Available electrical power more



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