

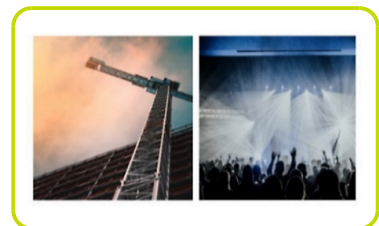
## GRW60 HY 30/24LI



### COMPACT, VERSATILE AND EFFICIENT HYBRID POWER SYSTEM

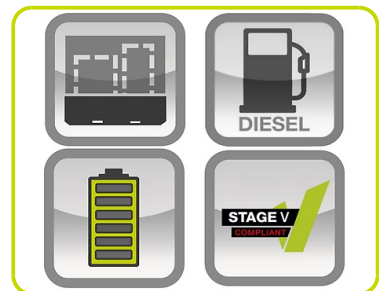
Innovative and unique solution for a mobile hybrid generator suitable for a large variety of final applications. All-in-one product which combines diesel AC genset with hybrid power package, set inside same enclosure, in order to satisfy the growing demand from rental business for low fuel consumption, low emissions and low noise solutions.

The hybrid power package consists of an electronic power module and an energy storage system with lithium batteries.



### Main Features

Power System	Type	HYBRID
Frequency	Hz	50
Voltage	V	400/230
Phases		3
Fuel		Diesel
Exhaust emission level		Stage V
Battery	Type	LMN



### Power Rating - Diesel Genset (According to standard ISO8528 1:2005)

Emergency Standby Power ESP	kVA	61.0
Emergency Standby Power ESP	kW	48.8
Prime power PRP	kVA	60.0
Prime power PRP	kW	48.0
Power factor	cos $\phi$	0.8



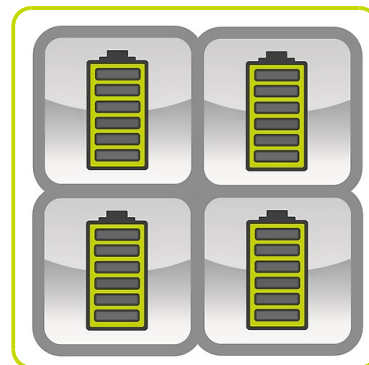
### Power Rating Hybrid Package

Emergency Standby Power	kVA	80.0
Emergency Standby Power	kW	70.0
Prime Power	kVA	78.7
Prime Power	kW	70.0



### Battery specifications

Battery	Type	LMN
Battery rated Voltage	V	51.8
Battery Nominal Energy (single pack)	kWh	6
Battery Nominal Current	Ah	126
Number of battery pack	n.	4
Battery Nominal Energy (Total)	kWh	24
Cycles @80%DoD 25°C	n.	3000



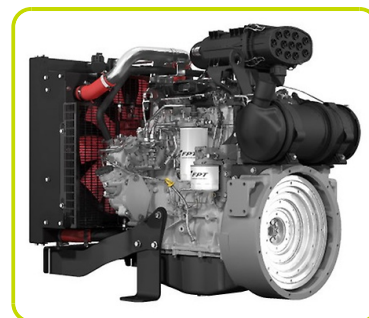
### Inverter specifications

Inverter AC - Nominal Power	kW	30
Inverter AC - Nominal Power	kVA	30
Power factor	cos $\phi$	1
AC Voltage Input	V	400
AC Voltage Output	V	400



### Engine specifications

Engine brand	FPT	
Model	F34TEVP01	
Operation Speed Nominal	rpm	1500
Engine cooling system	Water	
Exhaust emission level	Stage V	
Nr. of cylinder and disposition	4 in line	
Displacement	cm <sup>3</sup>	3400
Aspiration	Type	Turbocharged aftercooled
Speed governor	Electronic	
Total Oil capacity	l	9.5
Lube oil consumption PRP (max)	% fuel consumption	0.2
Total Coolant capacity	l	5.1
Fuel	Diesel	
Specific Fuel consumption ESP	g/kWh	214
Specific Fuel consumption 75% PRP	g/kWh	171
Electric circuit	V	12



### Alternator specifications

Alternator brand	LEROY SOMER	
Model	LSA 42.3 L9	
Insulation Protection Systems	Protection System 2	
Frequency	Hz	50
Voltage	V	400
Voltage regulation system	Electronic	
Voltage tolerance	%	0.5
Class	H	
IP protection	23	



## Hybrid System

### 1) Hybrid Storage Module – Battery:

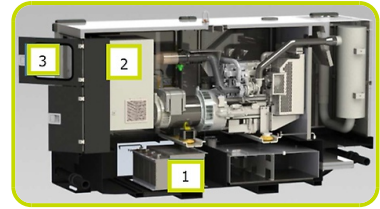
The battery pack is composed by Li-Ion batteries. Being maintenance free, low self-discharge and capable to deliver high currents on demand make these batteries one of the best choice for mobile hybrid power applications.

### 2) Hybrid Power Module – Inverter:

Set inside the enclosure the HPM integrating the inverter and BMS, to allow get three phase AC voltage output combining diesel and battery power output in several operating modes.

### 3) Genset Control Unit:

It allows 6 operating modes according to the use/combination of diesel gens and battery pack according to the functional mode selected



## Genset Equipment

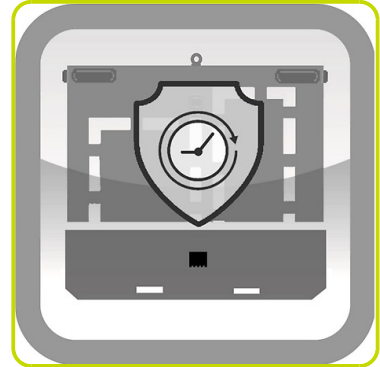
### CANOPY

Canopy painted made up of modular panels with 1000h+ tested salt spray resistant zinc metal sheet, with access doors on each side with high quality gaskets and lockable handles for easy maintenance and service.

### BASE FRAME

Heavy duty base guarantees the highest standards of durability and resistance, painted using a high quality powder coating process (1000+h tested salt spray resistance).

Fully bundled, able to retain 110% of all the sets fluids, the base frame is provided with integrated fork pockets and pull bar for easy maneuverability and site positioning.



### SINGLE LIFTING POINT

Access easy by rung and handle incorporated (available on both sides).

### MANUAL BATTERY SWITCH

### EARTH ROD

Earth stock with cable fixed inside the genset.

### DOCS HOLDER

Box intenal for documents, manuals and electrical drawings.

### HOT PARTS PROTECTIONS

### LUBE OIL DRAIN PUMP

Makes it easier to the engine oil change.

### FUEL VALVE (6 WAY)

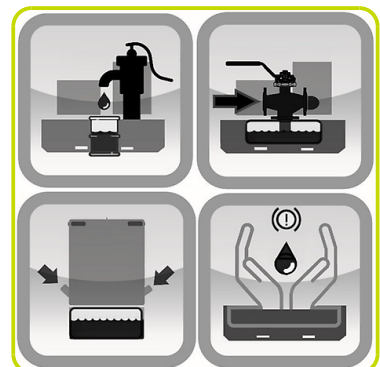
System designed for use the fuel from external tank and increase the autonomy of the generator.

### FUEL TANK

Integrated metal fuel tank complete with double fuel refiling point (one each side).

### LEAK PROOF TRAY WITH DETECTOR SENSOR

Fluid leak check in the leak proof tray.



## Control Panel

### CONTROL SECTION:

- ON/OFF selector switch
- Emergency push button (in the border outside and to the left of the control section)
- Differential protection with internal switch
- 5A Battery charger.
- Potentiometer for voltage adjustment (internal)
- Alternator AVR (single plug wiring)

### Control unit:

- Generating set voltage (3 phases).
- Mains voltage.
- Generating set frequency.
- Generating set current (3 phases).
- Battery voltage.
- Power (kVA - kW - kVA<sub>r</sub> - Cos φ).
- Hours-counter.
- Engine speed r.p.m.
- Fuel level (%).
- Engine temperature.
- 6 operating modes according to the use/combination of diesel gens and battery pack
- Battery charge status (Ah)
- Charging/Discharging current Battery voltage
- Estimated remaining time

### Protections:

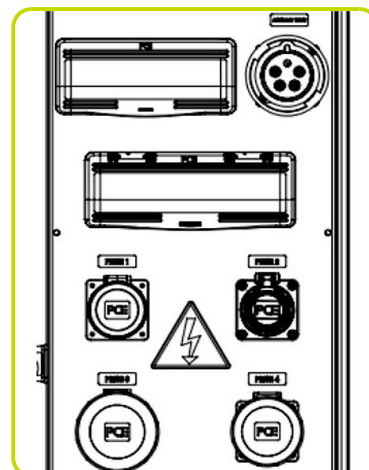
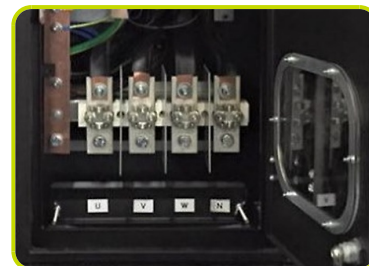
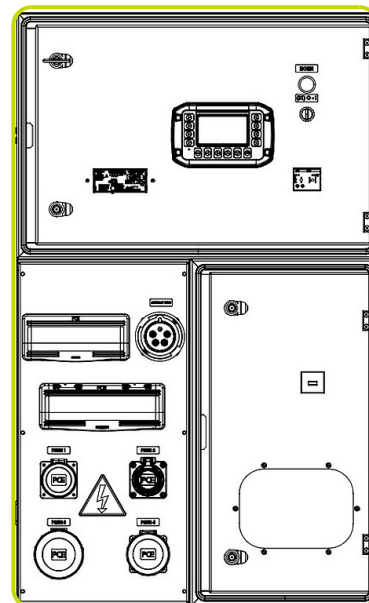
- Engine protections: low fuel level, low oil pressure, high engine temperature,
- Genset protection: under/over voltage, overload, under/over battery voltage, battery charger failure.

### POWER SECTION

- It integrates 4 poles modular circuit breaker suitably rated with thermal and magnetic overloads.
- Large and robust bus bar with cables passage opening from the bottom for easy power cable connection.
- Provided with safety switch to trip circuit breaker if operator open the powersection door to operate on the bus bar.

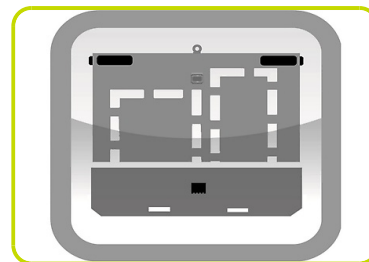
### SOCKET SECTION

Plug for auxiliary power supply and battery charge from grid	Type	:
3P+N+T 400V 32A	n	1
SUPPLEMENT - Only available when order		
Socket Kit	Type	SPKH1
3P+N+T 400V 63A	n	1
3P+N+T CEE 400V 32A	n	1
2P+T CEE 230V 16A	n	1
230V 16A SCHUKO	n	1
Each socket with its own circuit breaker		•
Each three phase provided with differential protection		•
Each single phase provided with earth fault protection		•
Other Kit Socket combinations available		√



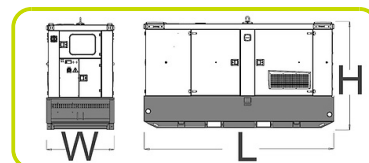
## CANOPY VERSION

- Weatherproof Enclosure made of galvanized sheet metal allows to protect genset from corrosion and aggressive condition.
- Soundproofing by means washable and fireproof soundproofing material, to get noise attenuation. Exhaust silencer integrated in the genset shape with flat rain flap.
- Plastic Bumper (protections for the transport and stocking).



### Dimensional data Canopy Version

Length	(L) mm	3400
Width	(W) mm	1206
Height	(H) mm	2050



Weight	kg	2570
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### Fuel Tank - Autonomy (Just Diesel Genset)

Fuel tank capacity	l	266
Fuel tank material		Metal
Fuel tank location		Internal
Fuel consumption 100% PRP	l/h	13.78
Fuel consumption 75% PRP	l/h	8.22
Running time 100% PRP	h	19.30
Running time 75% PRP	h	32.36



### Installation data (Diesel Genset)

Cooling air	m³/min	92
Exhaust gas flow PRP	m³/min	3.375
Exhaust gas temperature	°C	760



### Noise Level (Just Diesel Genset)

Guaranteed noise level (LWA)	dB(A)	91
Noise pressure level @ 1 m	dB(A)	73
Noise pressure level @ 7 m	dB(A)	62



### Performances (Just Battery)

Noise level (LWA)	Silent Mode
Exhaust emission level	No Emissions
Fuel Consumption	No Consumption

