

## GSW-65D (ALT. P)



### Main Features

Frequency	Hz	50
Voltage	V	400
Power factor	$\cos \phi$	0.8
Phase		3

### Power Rating

Emergency Standby Power ESP	kVA	63.00
Emergency Standby Power ESP	kW	50.40
Prime power PRP	kVA	57.72
Prime power PRP	kW	46.18

### Ratings definition (ISO-8528)

#### ESP - Emergency Standby Power:

It is the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200 h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24 h of operation shall not exceed 70 % of the ESP.

#### 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.

## Engine specifications

Engine Brand	Deutz	
Model	BF4M-2012	
[50Hz] Exhaust emission level	Non Emission Certified	
Engine cooling system	Water	
Nr. of cylinder and disposition	4 in line	
Displacement	cm <sup>3</sup>	4040
Aspiration	Turbocharged intercooled	
Speed governor	Electronic	
Prime gross power PRP	kW	54
Maximum gross power LTP ESP	kW	60
Oil capacity	l	8.5
Lube oil consumption PRP (max)	%	0.15
Coolant capacity	l	21.9
Fuel	Diesel	
Specific fuel consumption 75% PRP	g/kWh	214
Specific fuel consumption PRP	g/kWh	216
Starting system	Electric	
Starting engine capability	kW	3
Electric circuit	V	12



## Engine and block

- Watercooled cylinder in-line engine.
- Turbocharging and turbocharging with charge air cooling.
- Modern high-pressure fuel injection system with single injection pumps.
- All servicing points on one side.
- Exemplarily low fuel and oil consumption, long service intervals save operating costs.
- Outstanding load acceptance ensures immediate power supply.

## Cooling system:

- HT cooling system, incl. charge air cooler, depending on engine type, pusher-type fan.

## Exhaust system:

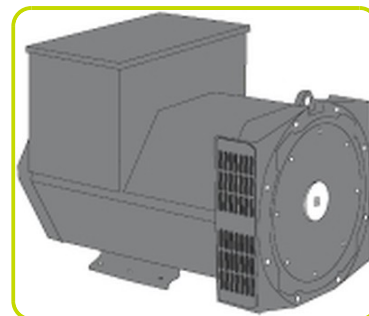
- Counterflange for exhaust system on turbocharger.

## Filter:

- Lubeoil filter, air filter.

## Alternator Specifications

Alternator	Pramac	
Model	PB22E/4	
Voltage	V	400
Frequency	Hz	50
Power factor	cos $\phi$	0.8
Poles	4	
Type	Brushless	
Voltage tolerance	%	1
Efficiency @ 75% load	%	89.9
Class	H	
IP protection	22	



### Mechanical structure

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

### Voltage regulator

AVR - STANDARD

With this self excited control system the main stator supplies power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semiconductors of the AVR ensure positive build-up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three phase full wave bridge rectifier. This rectifier is protected by a surge suppressor against surges caused, for example, by short circuit.

### Windings & Electrical performance

All generator stators are 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, when in parallel with the mains. A fully connected damper winding reduces oscillations during paralleling. This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

### Insulation / Impregnation

The insulation system is class 'H'.

All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

### Reference standards

Pramac Alternators meet the requirements of BS EN 60034 and the relevant sections of other national and international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2-100, AS1359.

## Genset equipment

### BASE FRAME MADE OF WELDED STEEL PROFILE, COMPLETE WITH:

- Anti-vibration mountings properly sized
- Welded or Screwed support legs. (according to canopy size)

### PLASTIC FUEL TANK WITH THE FOLLOWING COMPONENT:

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

### OIL DRAININ PIPE WITH CAP:

- Oil draining facilities

### ENGINE COMPLETE WITH:

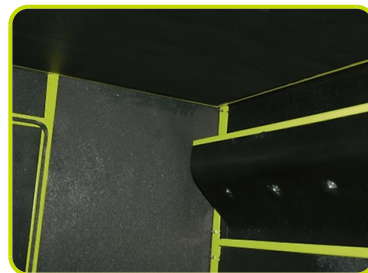
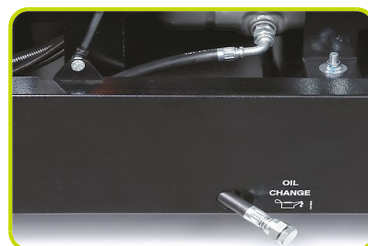
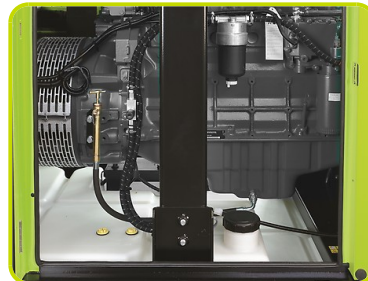
- Battery
- Liquids (no fuel)

### CANOPY:

- Soundproof canopy made up of modular panels, realized with zincd 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; 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, trough 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	2408
Width	(W) mm	1034
Height	(H) mm	1600
Dry weight	kg	1300
Fuel tank capacity	l	209
Fuel tank material	Plastic	



### Autonomy

Fuel consumption @ 75% PRP	l/h	10.32
Fuel consumption @ 100% PRP	l/h	13.89
Running time 75% PRP	h	20.25
Running time 100% PRP	h	15.05

### Noise level

Guaranteed noise level (LWA)	dB(A)	92
Noise pressure level @ 7 m	dB(A)	63



### Installation data

Total air flow	m³/min	106.62
Exhaust gas flow	m³/min	8.76
Exhaust gas temperature	°C	526

### Electrical Data

Battery capacity	Ah	120
Max current	A	90.94
Circuit breaker	A	100

### Control panel availability

AUTOMATIC CONTROL PANEL	ACP
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## ACP - Automatic control panel

Mounted on the genset, complete with digital control unit AC03 for monitoring, control and protection of the generating set, protected through door with lockable handle

### 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  $\phi$
- 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

Plinth row for connection from ACP to LTS panel.	✓
Power cables connection to Circuit Breaker.	✓



**Supplements:**

To be ordered with equipment (when necessary) :

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**ENGINE SUPPLEMENTS**

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PHS - Coolant Pre-Heating System	ACP
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## Accessories

Items available as accessory equipment

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

Load Transfer Switch panel complete with:

- Change-over switch 4pole made by means of two switch disconnectors mechanically interlocked.
- Emergency stop button

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 mounted on the generating set, so therefore none logic device is required on the LTS panel.



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