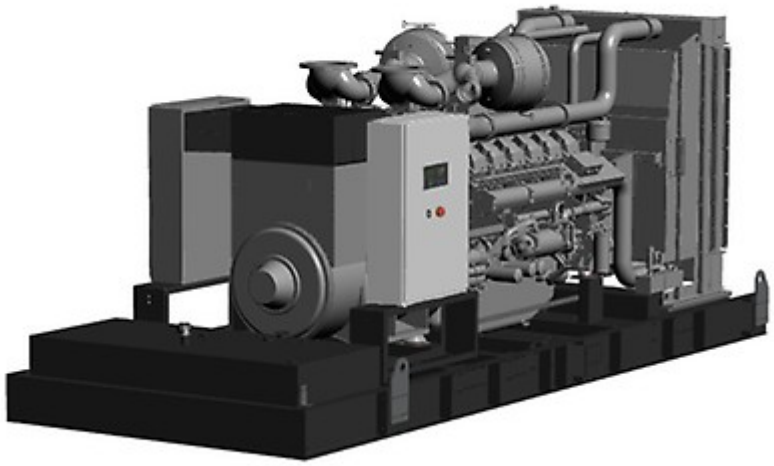
GSW1940B



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

Power Rating		
Emergency Standby Power ESP	kVA	1941.10
Emergency Standby Power ESP	kW	1552.88
Prime power PRP	kVA	1759.97
Prime power PRP	kW	1407.98

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.

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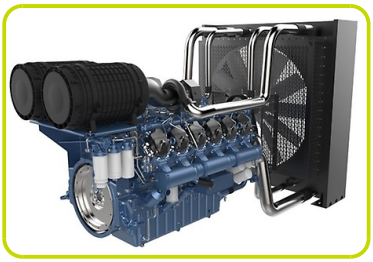
Engine specifications		
Engine Brand		Baudouin
Model		16M33 G1900/5
Version		50 Hz
[50Hz] Exhaust emission level		Non Emission Certified
Engine cooling system		Water
Nr. of cylinder and disposition		16 V angle
Displacement	cm³	52800
Aspiration		Turbocharged aftercooled
Speed governor		Electronic
Operating Speed-Nominal	rpm	1500
Prime gross power PRP	kW	1530
Maximum gross power LTP ESP	kW	1680
Oil capacity	l	171
Lube oil consumption PRP (max)	%	0.3
Coolant capacity	l	130
Fuel		Diesel
Specific fuel consumption 75% PRP	g/kWh	194.3
Specific fuel consumption PRP	g/kWh	200
Starting system		Electric
Starting engine capability	kW	17
Electric circuit	V	24

Radiator		
Dry weight	kg	1200
Wet weight	kg	1500
Coolant capacity	l	270
Cooling fan airflow rate	m³/min	2280
Electrical motor power	kW	70



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Fuel system
- High pressure common rail system with one high pressure pump gear driven in the V angle of cylinder block
- Duplex fine filter and water separation filter assembly with transparent cup for better efficiency
- Electric fuel priming pump

Cooling system
- Two separate circuits
- High temperature circuit equipped with thermostatically-controlled system with two gear driven coolant pumps
- Low temperature circuit equipped with belt driven coolant pump

Lubrication system
- Full flow screw able oil filters
- Lube oil purifier with replaceable cartridge

Air intake and exhaust system
- The 2 compressors are feeding a single water-air intercooler, mounted over the flywheel housing, with vertical flow
- Special rear mounted air filter with restriction indicator

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Alternator Specifications		
Alternator		Mecc Alte
Model		ECO46-1LN/4
Voltage	V	400
Frequency	Hz	50
Power factor	cos ϕ	0.8
Voltage regulation system		Electronic
Poles		4
Type		Brushless
Standard AVR		DER1
Voltage tolerance	%	1
Efficiency @ 75% load	%	96.8
Class		H
IP protection		21
Phases		3

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

Voltage regulator

Voltage regulation with DER 1. The digital DER 1 is a Digital controlled regulator, based on DSP (Digital Signal Processor) that combines function as Voltage Regulation and Alternator Protections and Diagnostic into a very small single board.
Voltage supply: 40Vac÷270Vac
Maximum continuous output current: 4Adc
Frequency range: 12Hz÷72Hz
Single phase sensing automatic recognition
Average value of voltage regulation
Voltage regulation range (sensing) from 75Vac to 300Vac
Precision of voltage regulation: ± 1% from no-load to nominal load in static condition, with any power factor and for frequency variations ranging from -5% to +20% of the nominal value.
Precision of voltage regulation: ± 0,5% in stabilized conditions (load, temperature).
Transient voltage drop and overvoltage within ± 15%
Voltage recovery time within ± 3% of the value set, in less than 300 msec.
Underspeed protection with adjustable threshold and slope
Overvoltage and undervoltage alarms
Excitation overcurrent protection with delayed intervention
Alarm conditions storage (type of alarm, number of events, duration of the last event, total time)
Memorization of the regulator operation time

Windings / Excitation system
Generator stator is wound to 2/3 pitch. This eliminates triple (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.

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

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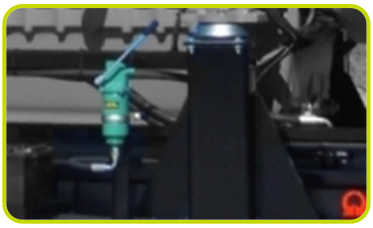
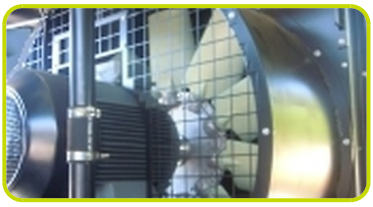
Genset equipment

BASE FRAME:
Base frame 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.



ENGINE COMPLETE WITH:
• Liquids (no fuel)
• Manual oil Draining pump

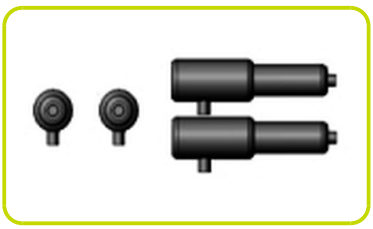
PROTECTIONS:
• Moving and rotating parts protection against accidental contacts

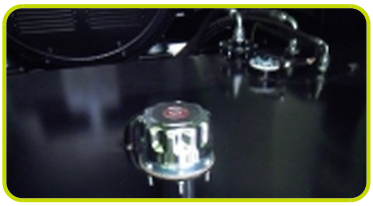


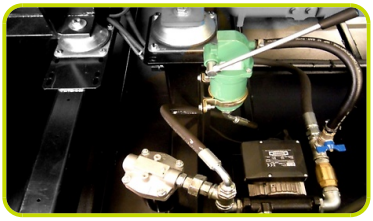
LIFTING:
• Lifting points frame structure.

Genset Equipment - Basic Configurations Available:

BAT – LEAD-ACID STARTING BATTERIES KIT		:
Battery	n	4
Battery Capacity	Ah	200
MBS - Manual Battery Switch		●
EXHAUST SILENCER - VERSIONS AVAILABLE		:
IES - Industrial silencer	dB(A)	-15
RES - Residential silencer	dB(A)	-35/38
FEC - Flexible Exhaust Compensator Bellow and flanges		●
Hot parts protection		●
INTEGRATED FUEL TANK - VERSIONS AVAILABLE		:
IFT1 - Integrated Fuel Tank (steel)	l	500
IFT2 - Integrated Fuel Tank (steel)	l	1000
FBD - Fully bunded base frame		●
LDS - Leakage detection sensor (only with FBD)		●
FCV - Fuel Cut Off Valve		●
AFP - Automatic Fuel Pump		●
DFP - Double Automatic Fuel Pump		●
PHS - Coolant Pre-Heating System - available for models:		●
ALS - Automatic Lube Oil Top Up System with lube oil tank 100L		●
[●] = Supplement available		.
Other Configurations and-or special versions available on requests		.







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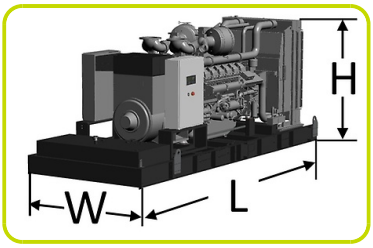
Dimensional data		
Length	(L) mm	5500
Width	(W) mm	2400
Height	(H) mm	2980
Dry weight	kg	13660



Consumption		
Fuel consumption @ 75% PRP	l/h	252.33
Fuel consumption @ 100% PRP	l/h	352.49

Installation data		
Total air flow	m³/min	2521.00
Exhaust gas flow PRP	m³/min	347.9
Exhaust gas temperature LTP ESP	°C	550

Electrical Data		
Battery capacity	Ah	200
MAX current	A	2801.82
Circuit breaker	A	3200

Control panel availability	
AUTOMATIC CONTROL PANEL	ACP
MODULAR PARALLEL PANEL	MPP

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ACP - Automatic control panel

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

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

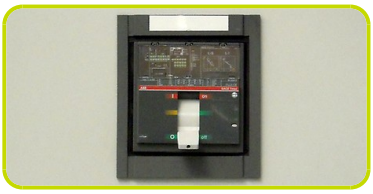
COMMANDS AND OTHERS
- Four operation modes: OFF - Manual starting - Automatic starting - Automatic test
- Pushbutton for forcing Mains contactor or Genset contactor
- Push-buttons: start/stop, fault reset, up/down/page/enter selection
- Remote starting availability
- Acoustic alarm
- Automatic battery charger
- USB 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

ACP - Basic Configurations Available:

POWER PANEL - BREAKERS AVAILABLE:		:
GCB1 - Genset Circuit Breaker 3-pole	A	3200
GCB2 - Genset Circuit Breaker 4-pole	A	3200
ETB - External Terminal Board (with GCB)		Standard
Various Supplement fof Remote Control		RGW [●]
Various supplements for remote signals		ARM [●]
Control Panel Anti-Condensation Heater (ACP)		CAH [●]
[●] = Supplement available		
Other Configurations and-or special versions available on requests		.



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MPP - Modular parallel panel

Mounted on the genset, complete with digital control unit 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 (5'TFT COLOUR SCREEN)

- 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 - Cos f).
- Generating set kWh and kVAh.
- Battery voltage.
- Hours-counter.
- Engine speed r.p.m.
- Fuel level (%).
- Engine temperature - Oil pressure

COMMAND AND OTHERS

- Single Parallel to Mains and Multiple parallel genset Island applications
- Operation modes: OFF- MAN - AUTO - TEST
- Pushbutton for forcing Mains Breaker/contactor or Genset Breaker/contactor.
- Push-buttons: start/stop, fault reset, up/down/page/enter selection.
- Multiple parallel and Power Management operation available.
- Automatic synchronizing and power control (via speed goveroner or ECU)
- Baseload Import/Export and Peak shaving
- Voltage and PF control.
- Configurable digital I/O (8/8) and analogue inputs (4).
- Integrate PLC programmable functions.
- Event-based history (up to 500records).
- Remote starting and Blocking signal availability.
- Acoustic alarm.
- Automatic battery charger.
- Ethernet RJ45, USB A, USB B and RS485 Comunication ports.
- Multi-pin connettor (in and out) for parallel with other generators

PROTECTION

- 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.
- Emergency stop button.

MPP - Basic Configurations Available:

POWER PANEL - BREAKERS AVAILABLE:		:
GMB1 - Genset Circuit Breaker 3-pole motorized	A	3200
GMB2 - Genset Circuit Breaker 4-pole motorized	A	3200
ETB - External Terminal Board (with GMB)		Standard
Various Supplement fof Remote Control		●
Various supplements for remote signals		●
Control Panel Anti-Condensation Heater (MPP)		●
[●] = Supplement available		.
Other Configurations and-or special versions available on requests		.

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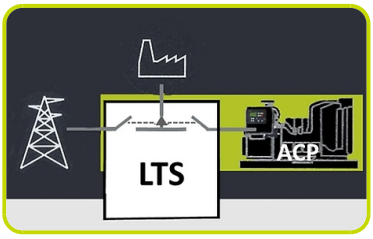
Accessories

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_D:

- Box type: steel enclosures
- Installation mode: Standing
- Door: Hinged door closed with double barb locking.
- Ingress Protection: IP43
- Gland Plates: Removable on the top & bottom side
- Connections: Bottom/Bottom
- Motor unit
- 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): 208/277VAC (Tollerance+/-20% 166/333VAC)
- Frequency 50 & 60HZ
- Interface ATyS D10, fixed on the door for the status indication: Two lights to indicate the voltage presence of the grid and the diesel generator; Two lights for the switch position; Functionality mode (auto/manual) and cover protection IP65.
- *Compliant with IEC 60947-3, EN 61439-6-1 and GB 14048-11*

LTS SUPPLEMENTS AVAILABLE ON REQUEST:

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

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