



## DIESEL GENSET MODEL **SGB 500 PR-IV**



Optional equipment and finishing shown. Standard may vary.

**Rating**      **500 kVA / 400 kWe**

**Voltage**      **415 Volts**

**Frequency**      **50 Hz**

**Speed**      **1500 RPM**

### PRODUCT HIGHLIGHTS

#### **Diesel Gen Set Package**

- Genset Designed to comply with ISO 8528.
- Excellent performance under most demanding environmental conditions
- Near zero down time for continuous power supply
- Sturdy base frame
- Efficient anti-vibration mounts
- Stringent shop floor testing to ensure class leading, hassle-free performance
- Testing carried out using state-of-the-art PLC based, resistive load bank

#### **Engine Features**

- Cooling System Designed for 50°C ambient
- Cast iron cylinder block with rugged body construction designed to minimize vibration & noise level
- High carbon steel forged crankshaft with induction hardening
- Full flow oil filter along with lube oil cooling to maintain optimum temperature
- Cast iron dry liners, lube oil cooled aluminium alloy piston with high performance piston rings
- High power to weight ratio with low life cycle cost
- Air intake, exhaust manifold and turbocharger provided with shield to isolate heat
- HPCR Pump with ECU control providing efficient performance in terms of power & fuel consumption
- Electronic governing
- Fast load response
- Stable frequency
- Excellent fuel and lube oil consumption
- Engine complying to ISO 3046-1/1, ISO 15550 standard reference conditions.

#### **Alternator Features**

- Brushless type, screen protected, self-excited alternator complying to IS:13364/IEC 60034 – 1
- Excellent motor start capability
- Excellent alternator efficiency across the load range
- Compact design with sealed bearings for longer life and lower maintenance
- Optimised engine compatibility

## APPLICATION DATA

### ► Engine

Engine Make	Baudouin, India
Engine Model	6M21G6D4/5
Distribution	4 Strokes
Aspiration	Turbocharged
No. of Cylinders	6
Type of Construction	In line
Displacement	12.54 L
Bore / Stroke	127x165 mm
Mean Piston Speed	8.25 m/s
Compression ratio	15.7:1
Gross Engine Power @ 100% PRP	450 kWm/604 bhp
Gross Engine Power @ 110%	490 kWm/657 bhp
Rated Speed	1500 RPM
Frequency	50 Hz

### ► Cooling System

Method of Cooling	Radiator
Coolant Capacity	62L
Radiator Fan Power	12kW
Thermostat Operating Range	76 / 88 °C
Coolant Alarm (Shutdown) Temperature	106 °C

### ► Fuel System

Governor	Electronic (ECU)
Governing Class	G3 as per ISO:8528-5
Fuel Injection type	High Pressure Common Rail (HPCR)
Recommended Fuel	IS 1460/ BS2869 Part1 Class A1

Fuel Consumption: L/hr @ Specific Gravity 850 gms/Litre

100% Load	99.0
75% Load	75.4

\*Note: Fuel Data Confirms to ISO 3046 with +5% tolerance

### ► Lubrication System

Recommended Lube Oil	15W 40 CK4
Lube Oil System Capacity	34 L
Lube Oil Consumption	<0.2 % of FC

### ► Exhaust System

After Treatment System	Available
Location	In Front of Radiator
Max Back Pressure Total System	12 kPa
Exhaust outlet pipe size (min)	105 mm
Exhaust Gas Temperature	≤ 600 °C
DEF Tank Capacity	70 L

### ► Induction System

Air Filter Type	Paper Element
Air Intake Restriction (Dirty element)	6.5 kPa

### ► Electrical System

Electrical System Voltage	24 V DC
Starter Motor Power	8.5 kW
Battery Size	2x12V, 150 Ah

### ► Alternator

Make***	Leroy Somer
Frame	LSAP 47 C
Power Factor	0.8
No. of Phase	3
Frequency	50 Hz
Rated Voltage (L-L)	415 V
Rated Current	695 Amps
Voltage Regulation	±1%
Insulation System	H Class
Temperature Rise Limit	H Class
Winding Pitch	2/3
Over Load	10 % Over Load for 1 hour once in 12 hours
Waveform Distortion	No-Load < 1.5%
Design Ambient for Alternator	40 °C
Altitude	1000 m
Protection	IP23
Cooling	Air Cooled
Air flow	0.9 m3/sec
Coupling	Single bearing
Maximum Over Speed	1650 RPM
Stator Winding	Double layer concentric
Control System	Self regulated & self excited
Excitation System	Brushless (Shunt)
AVR Type	Analogue
AVR Model	R 150
Performance: Efficiency @0.8 p.f.	
100%	94.10%
75%	94.40%
Short Circuit Ratio	0.337
Xd Dir Axis Reactance	2.97
X'd Dir Axis Transient Reactance	0.198
X" d Dir Axis Sub Transient Reactance	0.163
Xq Quad Axis Reactance	1.459
X" q Quad Axis Subtransient Reactance	0.182
Xl Leakage Reactance	0.09
X2 Negative Sequence Reactance	0.171
X0 Zero Sequence Reactance	0.007

\*\*\*Alternator Options available with CG & Stamford.

## DG CONTROL PANEL

### ► Operating Features

- Microprocessor based digital controller
- Accurate LCD display
- Local Start/Stop
- Remote Start/Stop
- Generator breaker control
- Easily Accessible through Fascia
- Flexibility for selecting Manual, Auto operations
- Easily Convertible AMF by giving Mains Fail Signal

### ► Metering

#### Engine Parameters:

- Engine Speed
- Lube Oil pressure
- Coolant temperature
- Engine Running Hour
- Engine Battery voltage
- Running status
- Fuel level in Percentage
- Event Log with date and time

#### Electrical Parameter

- Generator Voltage (Ph-Ph)
- Generator Voltage (Ph-N)
- Generator Current (R,Y,B)
- Generator Apparent power (kVA)
- Generator active power(kW)
- Generator reactive power (kVAr)
- Generator Power Factor
- Generator Frequency (Hz)
- Cumulative Power Consumption in kWh
- Cumulative Power Consumption in kVAh
- Cumulative Power Consumption in kVArh
- Control Supply Voltage

### ► Protection

#### Engine

- High Water Temperature
- Low oil pressure
- Low Fuel Level
- Over Speed
- Engine Fails to Start

#### Electrical

- Generator under Voltage (ANSI-27)
- Generator over Voltage (ANSI-59)
- Generator under Frequency (ANSI-81L)
- Generator over Frequency (ANSI-81H)
- Generator over Current (ANSI-51)
- Control Supply under Voltage
- Control Supply over Voltage
- Phase Reversal
- Unbalanced Load

### ► Controller

DEIF, Denmark make SGC 420 MK II controllers are modern genset controllers for AMF applications with an electronically controlled engine (CANbus) and AMF applications with electronic governor.



### ► Controller Feature

- User-friendly interface and backlite full graphics LCD
- Battery voltage monitoring & reverse protection to aux supply
- 7/9 configurable analogue/digital inputs
- Auto, Manual and Remote Start/Stop Operation
- Island Operation
- Automatic Mains Failure Function
- CANbus Engine interface for communication
- Log with latest 100 events
- Fully configurable via PC using USB, RS485 communication
- DC Battery supply voltage range 8 to 32V
- -20 to 65 °C operating temperature range
- IP65 Protection class with gasket
- LCD alarm indication
- Power save mode
- 7 configurable Digital output

### ► Electrical Specification

- Supply Voltage Range: Nominal Voltage - 12/24 V DC
- Cranking drop out period: 50 ms
- Maximum reverse voltage protection: -32 V DC
- Measurement accuracy (battery voltage): ±1 % Full scale
- Resolution: 0.1 V
- Maximum current consumption ~200 mA
- Measurement accuracy (battery voltage) - ±1 % full scale

### ► Environmental Specification

- Operating Temp: -20 to 65°C in compliance with 60068-2-1, 2
- Vibration: 2G in X, Y and Z axes for 8 to 500Hz in compliance with IEC 60068-2-6
- Shock: 15 g for 11 ms in compliance with IEC 60068-2-27
- Humidity: 0 to 95% RH in compliance with IEC 60068-2-78
- Protection Degree: IP65 Protection class with gasket in compliance with IEC60529
- EMI/EMC in compliance with IEC 61000-6-2, 4

### ► Approvals

- CE Compliant
- UL/cUL Recognized to UL/ULC6200:2019 1st edition

## **STANDARD SCOPE OF SUPPLY**

- Water cooled DIESEL engine
- Engine driven Radiator
- Electric starter & charging alternator
- Electronic governor
- Microprocessor based genset controller
- Dry Type air filter
- Single bearing IP 23 Alternator
- Base frame with anti vibration mounts
- Flexible fuel lines & lube oil drain pump
- Fuel water separator filter (engine mounted)
- Exhaust outlet with Flexible and flanges
- DG Control Panel
- Battery, Battery Lead & Battery stand
- Day fuel tank with High / Low level switch
- First Fill lube oil
- First Fill Coolant
- 1 Set Of Documents

## **Optional Supply**

- Engine**
  - Coolant heater
  - Oversize batteries
  - Extra fuel pre-filter water separator
- Alternator**
  - Permanent Magnet Generator (PMG)
  - Space Heater, RTD & BTD sensor
  - Upgrade to 3 phase sensing AVR
  - Air inlet filters
- Cooling System**
  - Heat exchanger
  - Remote Radiator
- General**
  - Synchronisation module
  - Isolator panel
  - Automatic transfer switch
  - Fuel transfer pump Automatic / Manual

## **Output Rating & Definition**

DG Set Rating @ 415V - 50 Hz | 500 KVA | 400 kWe

Note: Ratings at 0.8 power factor.

### ► Definition

Prime Power: Applicable for supplying power for varying electrical load for unlimited hours. Prime power (PRP) is in accordance with ISO 8528. A 10% overload capability is available in accordance with ISO 3046.

## **Salient Features of Sterling Generators**

- Sterling provides a range of Baudouin engine powered generating sets which are recognized for reliability.
- Global technology available in India.
- Most energy efficient D. G. set.
- Microprocessor based control panels.
- Wider maintenance intervals.
- Pre tested at factory with PLC test bench.
- Well experienced and trained engineers for after sales support.
- Designed to meet the latest environmental norms
- Seamless 24 x 7 service support
- Energetic team with highly experience in troubleshooting.

## **General Information**

### ► Documentation

A full set of operation and maintenance manuals and circuit wiring diagrams.

### ► Warranty

Please refer warranty policy.

### ► Factory

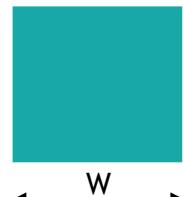
**Sterling Generators Pvt Ltd**

Survey No: 59, 343/1, Village Kala, Kherdi,  
Khanvel, Silvassa, UT of Dadra & Nagar Haveli - 396 230.

## **Dimensions & Weights**

### ► Open Set

Length = L	mm	
Width = W	mm	
Height = H	mm	
Weight, Dry	kg	
Day Fuel tank (Litres)		NA



### ► Acoustic Set

Length = L	mm	5700
Width = W	mm	2100
Height = H	mm	3113
Weight, Dry	kg	6871
Day Fuel tank (Litres)		900



## **Special Condition**

For specific site conditions of installation, please refer to application engineering.



The Data Mentioned in this Data Sheet are Subject to Change without Prior Notice , Due To Continuous Improvement & Research