



# DIESEL GENSET MODEL SGB 2000 SR



Optional equipment and finishing shown. Standard may vary.

<b>Rating</b>	<b>2000 kVA / 1600 kWe (ESP)</b>
<b>Voltage</b>	<b>11 kV</b>
<b>Frequency</b>	<b>50 Hz</b>
<b>Speed</b>	<b>1500 RPM</b>

## 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
- Full flow multi level type oil filters
- 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, separately-excited with PMG, alternator complying to BS:5000 / 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	16M33G2000/5
Distribution	4 Strokes
Aspiration	Turbocharged
No. of Cylinders	16
Type of Construction	Vee type
Displacement	52.3 L
Bore / Stroke	150x185 mm
Mean Piston Speed	9.25 m/s
Compression ratio	15:1
Gross Engine Power @ 100% ESP	1800 kWm/2414 bhp
Rated Speed	1500 RPM
Frequency	50 Hz

### ► Cooling System

Method of Cooling	Radiator
Coolant Capacity	542 L
Radiator Fan Power	74 kW
Thermostat Operating Range	80 - 92 °C
Coolant Alarm (Shutdown) Temperature	103 °C

### ► Fuel System

Governor	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	414.9

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

### ► Lubrication System

Recommended Lube Oil	CI4+SAE15W-40
Lube Oil System Capacity	171 L
Lube Oil Consumption	<0.2 % of FC

### ► Exhaust System

Silencer Type	Residential-grade
Number of Silencers	2 Nos.
Max Back Pressure Total System	7.5 kPA
Exhaust outlet pipe size (min)	200 mm
Exhaust Gas Temperature	≤ 550 °C

### ► Induction System

Air Filter Type	Paper Element
Air Intake Restriction (Dirty element)	6.2 kPa

### ► Electrical System

Electrical System Voltage	24 V DC
Starter Motor Power	2x8.5 kW
Battery Size	4x12V, 200 Ah

### ► Alternator

Make	TDPS
Frame	TD84-V1
Power Factor	0.8
No. of Phase	3
Frequency	50 Hz
Rated Voltage (L-L)	11 kV
Rated Current	105 Amps
Voltage Regulation	±0.5%
Insulation System	F Class
Temperature Rise Limit	F Class
Winding Pitch	Star (3/3)
Over Load	No over load allowed
Bearing Type	Antifriction
Design Ambient for Alternator	50 °C
Altitude	1000 m
Protection	IP23 / IP54
Cooling	Air Cooled
Lubrication	Grease - Lithium Based
Coupling	Two bearing
Maximum Over Speed	1650 RPM
Excitation system type	Brushless
Control System	Separately Excited
Excitation supply	PMG
AVR Type	Analogue
AVR Model	As Per OEM
Performance: Efficiency @0.8 p.f	
100%	95.30%
Short Circuit Ratio	0.45
Xd Dir Axis Reactance	222.5
X'd Dir Axis Transient Reactance	21.3
X''d Dir Axis Sub Transient Reactance	16.7
X2 Negative Sequence Reactance	22.8
X0 Zero Sequence Reactance	13.6

## 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 Advanced Genset Controller-150 specifically designed to suit the requirement for Synchronisation & Multi-purpose applications with an electronically controlled engine (CANbus) and with electronic governor.



### ► Electrical Specification

#### Display Unit

- Graphical display screen (monochrome)
- 240 x 128 pixels resolution
- Five key menu navigation
- Data log & trending facility
- Multi language display

#### Power Supply

- Nominal Voltage: 12 VDC or 24 VDC
- Voltage withstand-Reverse polarity
- Power supply drop out immunity - 0 VDC for 50 ms
- Load dump protected according to ISO:16750-2 test A
- Power consumption - 5W typical, 12W max
- RTC clock - Time and data backup

#### Supply Voltage monitoring

- Measuring range - 0 VDC to 36 VDC
- Resolution: 0.1 V
- Accuracy -  $\pm 0.35$  V

#### Current measurement

- Burden - Max. 0.5 VA
- Current withstand - 7A continuous/40A for 1 sec

#### Input/output

- 28 nos digital inputs
- 10 nos digital outputs
- 12 nos analogue inputs
- 2 nos analogue outputs

#### Voltage regulator output

- Isolated DC voltage output
- Voltage range: -10 to +10 VDC
- Resolution in voltage mode - better than 1 mV
- Max common mode voltage -  $\pm 3$  kV
- Max load in voltage mode - 500  $\Omega$
- Accuracy -  $\pm 1\%$  of setting value
- EMI/EMC in compliance with IEC 61000-6-2, 4

#### Speed governor output

- Isolated DC voltage output/isolated PWM output
- PWM frequency range - 1 to 2500 Hz  $\pm 25$  Hz
- PWM duty cycle resolution ( $\sim 100\%$ ) - 12 bits (4096 steps)
- PWM voltage range - 1 to 10.5 V
- Voltage accuracy -  $\pm 1\%$  of setting value

### ► Environmental Specification

- Operating temperature (incl. display screen): -40 to 70  $^{\circ}$ C

### ► Approvals

- CE Compliant
- cULus recognized to ULC6200:2019 for stationary engine

## STANDARD SCOPE OF SUPPLY

- Water cooled DIESEL engine
- Radiator with Fuel Cooler
- Electric starter & charging alternator
- Electronic governor
- Microprocessor based genset controller
- Dry Type air filter
- Single bearing IP 23 Alternator
- Space Heater, RTD & BTD sensor (w/o scanner) in 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
- 990 litres. Standard fuel tank with High / Low level switch
- First Fill lube oil
- First Fill Coolant
- 1 Set Of Documents

## Output Rating & Definition

DG Set Rating @ 11kV - 50 Hz | 2000 KVA | 1600 kWe (ESP)

Note: Ratings at 0.8 power factor.

### ► Definition

Emergency Standby Power: is the maximum power available for varying electrical load for the duration of a main power network failure. Emergency Standby Power (ESP) is in accordance with ISO 8528-1. Typical operational hours of DG set is 200 hours per year.

## 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.

## Optional Supply

### Engine

- Coolant heater
- Oversize batteries
- Extra fuel pre-filter water separator

### Alternator

- Alternator of 415V, 3.3kV & 6.6kV
- Upgrade to 3 phase sensing AVR
- Air inlet filters

### Cooling System

- Heat exchanger
- Remote Radiator

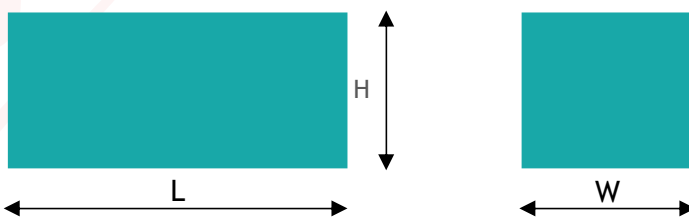
### General

- Synchronisation module
- Isolator panel
- Automatic transfer switch
- Fuel transfer pump Automatic / Manual

## Dimensions & Weights

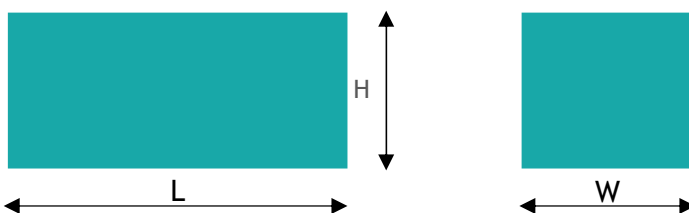
### ► Open Set

Length = L	mm	6453
Width = W	mm	2206
Height = H	mm	2712
Weight, Dry	kg	14650
Standard Fuel tank (Litres)		990



### ► Acoustic Set

Length = L	mm	Available On Request
Width = W	mm	
Height = H	mm	
Weight, Dry	kg	
Standard Fuel tank (Litres)		



Note: Dimensions are without silencer and for Reference only.

## 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