

**GENSET MODEL**  
**SGM 640PR / 700SR**

**STERLING**

GENERATORS (P) LTD

(A Shapoorji Pallonji Company)



**Powered by**



**ENGINE MODEL : 12V2000G25**

**ALTERNATOR : Leroysoner / Stamford**

**GENSET RATING - Radiator Cooled**



Prime - kVA/kWe

Standby - kVA/kWe

50 HZ

640/512

700/560

**FEATURES**

**MTU Diesel Engines**

MTU history dates back to 19th century  
Headquartered in Freidrichshafen, Germany  
Global presence with superior technology  
Wholly owned subsidiary of Daimler-Chrysler until 2006  
Now part of TOGNUM group

The MTU 2000 series diesel engines are turbocharged and air-to-air charge cooled, 12 cylinder 'V' configuration. Their premium features like full authority electronics are achieved by complete digital electronic governor (ADEC). Electronically controlled unit fuel injection system provides economic and durable power, resulting in exceptional fuel consumption, low emissions meeting global norms and single step block load acceptance.

**About Sterling Generators**

A Shapoorji Pallonji Company  
One of the **largest integrated genset manufacturing facility** in Asia with separate EOU & DTA unit  
Facilities to test upto 3000 kW on 415V, 3.3 kV, 6.6 kV & 11 kV  
Inhouse acoustic enclosure and control panel (LT/HT/C&R) manufacturing  
Nationwide installation and network for Sales and Support

**Rating Definitions**

Performance based on ISO 8528/1, ISO 3046/1, BS 5000

**MTU Powered Sterling Gensets**

Sterling provides the range of MTU powered gensets which are recognized globally for reliability, better efficiency and eco-friendliness  
Gensets are designed and tested as per MTU guidelines  
Single window responsibility for Sales, Service and Spares  
Genset Warranty : Standard 1 year with Unlimited hours of operation

**Prime Power** : Variable load not exceeding 75%. Overload of 10% permitted for 1 hour in every 12 hour of operation

**Standby Power** : 85% load factor with a maximum of 500 hours running per year



**ISO 9001:2000**



# SGM-640PR / 700SR

## ENGINE TECHNICAL SPECIFICATIONS

Description	Units	50 HZ
<b>Manufacturer</b>		
Type		<b>MTU 12V2000G25</b>
Cylinder arrangement	Vec	Turbocharged, air-to-air charge cooling
Displacement	Litres	12
Bore and stroke	MM	23.88
Compression ratio	Ratio	130 X 150
Rated speed	RPM	16 : 1
Altitude capability above MSL	Mtrs	1500
Lube oil & filter change period	Hours	1500
Minimum continuous load	%	500
Piston speed	Mtrs/Sec	20
Engine kW at rated RPM	kW (HP)	7.5
Fuel stop power as per ISO-3046	kW (HP)	580 kW (777 HP)
Frequency regulation, steady state	%	638 kW (855 HP)
BMEP	kPa	+ / - 0.25
Governor type	-	1940
Governor class	-	Electronic, Isochronous (Droop adjustable to 4%)
Engine overspeed shutdown	RPM	ISO 8528-5, better than Class G3
<b>Exhaust System</b>		
Exhaust gas flow	m3/min	117
Exhaust gas temperature	Deg C	545
Exhaust back pressure - Design value/Maximum	mbar	30/85
<b>Fuel System</b>		
Type of injection		Electronic Unit Injection
Fuel supply flow - Max	LPM	8
Fuel temperature at fuel inlet - Max	Deg C	55
Fuel pressure at return - Max	Bar	0.5
Maximum suction head at pump inlet	Mtrs	2.5
Fuel filter filtration capacity - Secondary	Microns	5
Fuel filter pressure differential - Max	Bar	1
<b>Lube Oil System</b>		
Total system capacity	Litres	77
Normal lube oil pressure	Bar	6.2 - 7.5
Normal lube oil temperature	Deg C	88 - 98
Lube oil differential pressure	Bar	0.8
Lube oil filter filtration capacity	Microns	9
Recommended lube oil grade		API-CI4
<b>Heat Balance @ 100% Load</b>		
Energy to coolant	kW	280
Energy to charge air cooler	kW	100
Energy to radiation	kW	40
<b>Combustion/Air Intake</b>		
Combustion air flow	m3/min	42
Charge air pressure	Bar	2.8
Air filter	Type	Dry paper type - 2 Nos.
<b>Coolant System</b>		
Total system capacity	Litres	90
Cooling sytem operating pressure	Bar	2.2
Coolant temperature	Deg C	95
Coolant flow	m3/Hr	40
Coolant pump inlet pressure - Min/Max	Bar	0.4/1.52
Radiator fan power	kWm	38
Radiator fan air flow (with 200 pa duct allowance)	m3/min	1062
Cooling system ambient capability	Deg C	50
Recommended coolant		MTU extended life coolant
<b>Engine Electrical System</b>		
Type		24V negative earth
Charging alternator volts / Current	VDC / Amps	28 / 70
Starter power	kW	9.0
Lube oil consumption	% of Fuel	0.5% of fuel consumption

# SGM-640PR / 700SR

## Genset Controllers

**SGDF-C2**



**SGDF-C3**



### SGDF-C2 : AMF Controller (Standard Supply)

**Features:**

- Auto Start /Stop.
- Local & Remote Start/Stop
- Engine Parameters Reading via CANBUS.
- Genset Breaker and Mains Breaker Control.
- Easily accessible.
- MODBUS for BMS connectivity.

**Display**

- Engine Parameters
- Running Status
- Event Recording
- Fault Code Display
- Hourmeter
- Voltage, Current, Hz, KW, KVA, Pf and KVAr
- Breaker Status
- Service Timer Indication
- Real Time Clock for Time and Date

**Protection**

- Under Voltage / Over Voltage
- Under Frequency / Over Frequency
- Reverse Power
- Over Current
- Engine Protections

### SGDF-C3 Automatic Genset Controller (Optional).

**Features:**

- AMF & Synchronising Controller
- Synchronising upto 16 Genset each with Individual Controller
- Momentarily Mains Paralleling
- Auto Load Sharing
- Load Dependent Start /Stop
- Load Limiting Device
- Mains Power Export
- Simple Logic Configuration Tool
- Need based Priority changeover / Power Management (Programmable)
- Genset Breaker and Mains Breaker Controller
- Auto Start / Stop
- Local & Remote Start/Stop
- Engine Parameters & Protections Reading via CANBUS
- Easy accessibility
- MODBUS for BMS connectivity
- Utility Software for PC interface
- Grid Paralleling (**SGDF-C4 Mains Optional**)

**Display**

- Engine Parameters
- Running Status
- Event Recording
- Fault Code Display
- Service Timer Indication
- Hour Meter, Real Time Clock for Time and Date
- Voltage, Current, Hz, KW, KVA, Pf and KVAr
- Breaker Status
- Synchronous Scope

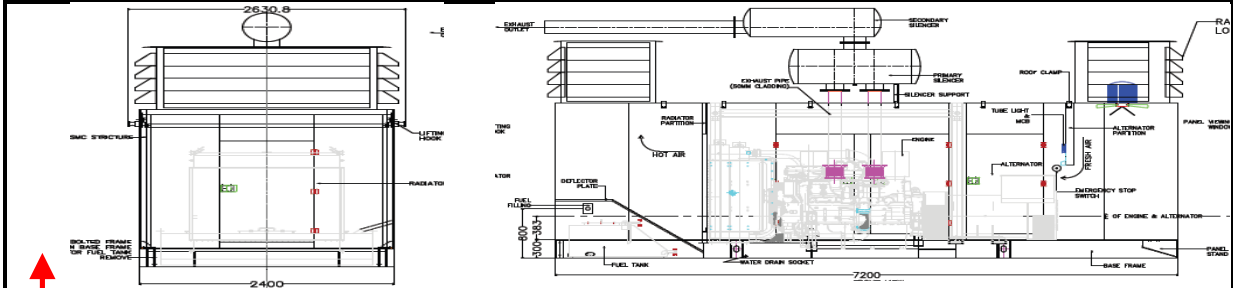
**Protection**

- Engine Protections
- Under Voltage / Over Voltage (27/59)
- Under Frequency / Over Frequency (81)
- Reverse Power (active and re-active) (32)
- Over Current (2 Level) (51)
- Peak Current (50)
- Loss of Excitation (40)
- Current Unbalance (46)
- Voltage Asymmetry (47)

# SGM-640PR / 700SR

Sterling Standard Scope of Supply	OPTIONALS
<b>Basic Engine</b> Cylinder block Flywheel housing - SAE 0 High inertia flywheel - SAE J620 size 18 Oil pan Forged crankshaft Forged connecting rods Four-valve per cylinder, Individual cylinder head Aluminium pistons Piston cooling via oil spray nozzle Dry exhaust manifolds Vibration damper Mounted air filter All necessary on-engine air, exhaust, coolant, fuel and oil pipework	<b>Engine</b> Jacket water heater - 110V/240V Lube oil heaters Dual electric starters Critical silencers Additional manuals
<b>Starting System</b> Electric starter Battery charging alternator, V-belt driven Battery, Battery stand & Leads Engine wiring harness and sensors	<b>Control Panel</b> Standard breaker panels Remote annunciators AMF panel Auto / Manual synchronising panel Auto load sharing / load dependant panel IP 54/55 enclosure Isolator panel Project specific / custom built panels H T panels for 1000 kVa & above ratings L T distribution boards PCC/MCC panels PLC panels
<b>Fuel System</b> Electronically controlled high-pressure injection with single unit injection pumps Fuel delivery pump Fuel main filter Fuel priming pump for initial system filling and venting Closed fuel system Engine standard version for fuel consumption-optimized operation Primary Fuel Filter Fuel Water Separator	<b>Alternator</b> Space heaters RTD/BTD with scanners Oversized alternator IP 54/55 enclosure HT Alternators - 1000 kVA & above PMG Differential CT mounted on alternator Different cooling options
<b>Lube Oil System</b> Forced-feed lubrication system with piston cooling Lube oil circulation pump with safety valve Lube oil multi-stage filter Lube oil heat exchanger Oil filler neck and oil dipstick for measurement on non-running engine Closed crankcase venting system	<b>Others</b> Acoustic enclosures - Above 1010 kVA Additional spare parts manuals Additional O&M manuals Ni-Cd starting batteries & chargers Fuel level sensors Lube oil priming pump - Electric/Manual Heavy duty air cleaners Soot arrestors Exhaust scrubbers Containerized gensets Duplex fuel filters Multi spring vibration Isolators DG Sets for special applications
<b>Combustion Air System</b> Exhaust turbochargers with insulation Intercooler, integrated in radiator Exhaust flexible bellows - 2 nos. Exhaust silencers - Residential Set of dry-type air filters with contamination indicator	<b>Genset Controllers</b> SGDF-C1 Controller - Digital display module SGDF-C3 Controller - Auto sync module SGDF-C4 Mains Controller - For grid paralleling PLC based load management system
<b>Cooling System</b> Coolant circulation pump (Tandem pump) for jacket water and charge air cooling Coolant thermostat for jacket water cooling system Coolant thermostat for charge air cooling system Radiator with fan, fan guard and fan belts	
<b>Engine Mounting</b> Set of engine mounting brackets at engine free end and driving end Resilient engine mounts (Rubber Elements) on engine free end and driving end Alternator mounts (Rubber Elements) (AVM between Engine/Alt and Base frame)	
<b>Genset Management System - SGDF-C2 (Supplied as standard)</b> Electronic controller for indicating genset parameters Emergency stop push button Genset monitoring and display of engine-alternator operating parameters and alarms Genset protection against critical operating parameters - Automatic start sequence control - Acquisition and display of plant-related measuring data - Communication with an external system	
<b>Generator</b> 415 Volts, 50 HZ, 1500 RPM, 4 pole, Single Bearing, 3 phase connected with IP23 protection. Alternator confirms to IS-4722 or equivalent	
<b>Paintwork</b> Standard paintwork, single-coat, water-based	
<b>Documentation</b> Standard factory test report Engine alternator test certificate Warranty certificate Set of standard operating and maintenance documentation & spare parts manual	

# SGM-640PR / 700SR



Approved Enclosure		STD 20 Foot Container for Export	
Length	7200	Length	6096
Width	2400	Width	2438
Height(incl. Hood)	3500	Height	2591
Weight in Kgs (Wet)	9500(apprx.)	Weight in Kgs (Wet)	12500(apprx.)



**Head Quarters**  
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Marketing & Support offices			
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BRANCHES			
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