

# GSW2805M



## Main Features

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

## Power Rating

|                                                   |     |      |
|---------------------------------------------------|-----|------|
| Standby power LTP                                 | kVA | 2750 |
| Standby power LTP                                 | kW  | 2200 |
| Prime power PRP                                   | kVA | 2538 |
| Prime power PRP                                   | kW  | 2030 |
| PRP Rating available only with engine supplement: |     | DPA  |

## Ratings definition (According to standard ISO8528 1:2005)

### PRP - Prime Power:

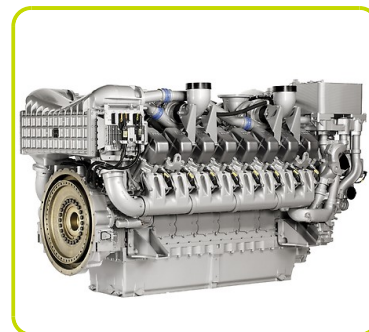
It is defined as being the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24 h of operation shall not exceed 70 % of the prime power.

### LTP - Limited-Time running Power:

It is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 h of operation per year (whose no more than 300 for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

## Engine specifications

|                                     |                             |       |
|-------------------------------------|-----------------------------|-------|
| Engine manufacturer                 | MTU                         |       |
| Model                               | 20V4000G64F<br>3D           |       |
| Version                             | 50 Hz                       |       |
| PRP Rating only with supplement:    | DPA                         |       |
| Engine cooling system               | Water                       |       |
| Nr. of cylinder and disposition     | 20 V                        |       |
| Displacement                        | cm <sup>3</sup>             | 95400 |
| Aspiration                          | Turbocharged<br>aftercooled |       |
| Speed governor                      | Electronic                  |       |
| Operating Speed-Nominal             | rpm                         | 1500  |
| Prime gross power PRP               | kW                          | 2200  |
| Maximum gross power LTP             | kW                          | 2420  |
| Oil capacity                        | l                           | 390   |
| Fuel                                | Diesel                      |       |
| Specific fuel consumption @ 75% PRP | g/kWh                       | 199   |
| Specific fuel consumption @ PRP     | g/kWh                       | 193   |
| Starting system                     | Electric                    |       |
| Electric circuit                    | V                           | 24    |



### Fuel system:

- Electronically controlled high-pressure injection with single unit injection pumps (EUP)
- Fuel delivery pump
- Fuel main filter
- Fuel priming pump for initial system filling and venting
- Closed fuel system

### Lube oil system:

- 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

### Combustion air system:

- Exhaust turbochargers
- Set of dry-type air filters with contamination indicator

### Cooling system :

- Coolant circulation pump and coolant thermostat for jacket water cooling systems
- Electric radiator for jacket water and charge air cooling circuit with integrated expansion tank
- Coolant level sensor

## Alternator Specifications

|                           |             |      |
|---------------------------|-------------|------|
| Alternator                | Leroy Somer |      |
| Model                     | LSA52.3 L12 |      |
| Voltage                   | V           | 400  |
| Frequency                 | Hz          | 50   |
| Power factor              | cos $\phi$  | 0.8  |
| Voltage regulation system | Electronic  |      |
| Poles                     | 4           |      |
| Standard AVR              | R449        |      |
| Voltage tolerance         | %           | 0.5  |
| Efficiency @ 75% load     | %           | 96.5 |
| Class                     | H           |      |
| IP protection             | 23          |      |
| Phases                    | 3           |      |



### SPECIALLY ADAPTED TO APPLICATIONS

The LSA 52.3 alternator is designed to be suitable for typical generator applications, such as: backup, marine applications, rental, telecommunications, etc.

### TOP OF THE RANGE ELECTRICAL PERFORMANCE

- Class H insulation.
- Standard 6 wire winding, 2/3 pitch, type no. 6S.
- High efficiency and motor starting capacity.
- R 791 interference suppression conforming to standard EN 61000-6-3, EN 61000-6-2, EN 55011 group 1 class B standard for European zone (CE marking).

### EXCITATION AND REGULATION SYSTEM

- Excitation system: AREP
- Voltage A.V.R.: R 449

### REINFORCED MECHANICAL STRUCTURE

- Compact rigid assembly to better withstand generator vibrations.
- Steel frame
- Cast iron flanges and shields.
- single-bearing designed to be suitable for heat engines.
- Half-key balancing bearing.
- Regreasable bearings.
- Clockwise rotation in standard.

### PROTECTION SYSTEM SUITED TO THE ENVIRONMENT

- The LSA is IP 23.
- Winding Protection for clean environments with relative humidity  $\leq 95\%$ , including indoor marine environments.

### COMPLIANT WITH INTERNATIONAL STANDARDS

The LSA alternator conforms to the main international standards and regulations:

- IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C 22.2 n°100-14, UL 1146 (UL 1004 on request), marine regulations, etc.

It can be integrated into a CE marked generator.

The LSA is designed, manufactured and marketed in an ISO 9001 environment and ISO 14001.

## 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 DRAININ PUMP:

- Oil draining facilities

### CONTAINER 40':

Soundproof Container made by monoblock structure and designed to satisfy the most disparate needs of the Customer.

Main feature are:

- Structure similar to shipping containers (upper and lower corner castings, monolithic structure, walls and roof made of corrugated steel sheet), making them particularly strong and suitable.
- High resistance to the atmospheric agents.
- Polyester powder painting and automatic blasting SA 2.5.
- Air inlet and exhaust openings air outlet for genset cooling.
- It is foreseen space for housing the electrical panel, if necessary the control panel can be separated from alternator, in a dedicated room.
- The floor is made of textured sheeting reinforced with profiles at steady pace bent.
- Doors single or double swing, these are fixed by sturdy steel hinges and equipped with various systems of locks, such as lever bolt locks, panic bars etc.

### SOUNDPROOF:

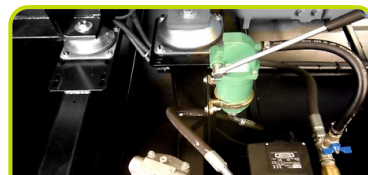
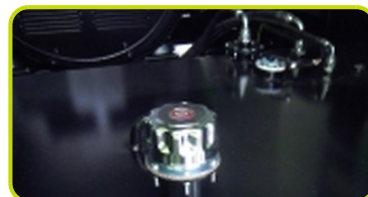
The walls, divisors and roof are self supporting and with high acoustic absorption. They are produced in galvanized steel-sheet and subsequently painted with a galvanic deposition of polyester powder. Inside they are composed by a sheet of rock wool.

Exhaust silencers placed inside or outside the container depending on genset model.



### Genset Equipment - Basic Configurations Available:

|                                                                    |    |      |   |
|--------------------------------------------------------------------|----|------|---|
| BAT – LEAD-ACID STARTING BATTERIES KIT                             |    |      | : |
| Battery                                                            | n  | 4    |   |
| Battery Capacity                                                   | Ah | 220  |   |
| MBS - Manual Battery Switch                                        |    |      | • |
| 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 |    |      | . |



### Dimensional data

|            |        |       |
|------------|--------|-------|
| Length     | (L) mm | 12190 |
| Width      | (W) mm | 2438  |
| Height     | (H) mm | 2896  |
| Dry weight | Kg     | 28500 |



### Consumption

|                             |     |        |
|-----------------------------|-----|--------|
| Fuel consumption @ 75% PRP  | l/h | 395.06 |
| Fuel consumption @ 100% PRP | l/h | 505.48 |

### Installation data

|                               |        |         |
|-------------------------------|--------|---------|
| Total air flow                | m³/min | 2806.00 |
| Exhaust gas flow @ PRP        | m³/min | 408     |
| Exhaust gas temperature @ LTP | °C     | 530     |

### Electrical Data

|                 |   |         |
|-----------------|---|---------|
| MAX current     | A | 3969.40 |
| Circuit breaker | A | 4000    |

### Control panel availability

|                         |     |
|-------------------------|-----|
| AUTOMATIC CONTROL PANEL | ACP |
| MODULAR PARALLEL PANEL  | MPP |

## ACP - Automatic control panel

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

### 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  $\phi$
- 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

### OTHERS PROTECTIONS

- Emergency stop button
- Panel protected through door with lockable handle



### ACP - Basic Configurations Available:

#### POWER PANEL - BREAKERS AVAILABLE:

|                                                                    |   |          |
|--------------------------------------------------------------------|---|----------|
| GCB1 - Genset Circuit Breaker 3-pole                               | A | 4000     |
| GCB2 - Genset Circuit Breaker 4-pole                               | A | 4000     |
| ETB - External Terminal Board (with GCB)                           |   | Standard |
| Various Supplement for Remote Control                              |   | RGW [●]  |
| Various supplements for remote signals                             |   | ARM [●]  |
| Control Panel Anti-Condensation Heater (ACP)                       |   | CAH [●]  |
| Other Configurations and-or special versions available on requests |   | .        |

## MPP - Modular parallel panel

Mounted on the genset, complete with digital control unit Intelivision5 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 (Graphical display 320x240 pixels)

- Mains: voltage, Intensity, Frequency.
- Mains kW - kVAr -Power factor Cos  $\phi$ .
- Generating set voltage (3 phases).
- Generating set frequency.
- Generating set current (3 phases).
- Generating set Power (kVA - kW - kVAr - Cos  $\phi$ ).
- Generating set kWh and kVAh.
- Battery voltage.
- Hours-counter.
- Engine speed r.p.m.
- Fuel level (%).
- Engine temperature - Oil pressure

### COMMAND AND OTHERS

- Operation modes: OFF - AMF function - Single Parallel to mains Island application - Single Parallel to Mains AMF application - Multiple parallel genset Island application.
- Pushbutton for forcing Mains Breaker/contact or Genset Breaker/contact.
- Push-buttons: start/stop, fault reset, up/down/page/enter selection.
- Multiple parallel and Power Management operation with digital load AVR sharing.
- Automatic synchronizing and power control (via speed governor or ECU)
- Baseload Import/Export and Peak shaving
- Voltage and PF control (AVR).
- Configurable digital I/O (12/12) and analogue inputs (3).
- Integrate PLC programmable functions.
- Event-based history (up to 500records).
- Selectable measurement range 120/277V and 0-1/0-5A.
- Remote starting and Blocking signal availability.
- DC system disconnection switch.
- Acoustic alarm.
- Automatic battery charger.
- 2xRS232/RS485/USB Communication ports.
- Multi-pin connector (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, Earth fault
- Emergency stop button.
- Panel protected through door with lochetable handle

### MPP - Basic Configurations Available:

POWER PANEL - BREAKERS AVAILABLE:

|                                                |          |      |
|------------------------------------------------|----------|------|
| GMB1 - Genset Circuit Breaker 3-pole motorized | A        | 4000 |
| GMB2 - Genset Circuit Breaker 4-pole motorized | A        | 4000 |
| ETB - External Terminal Board (with GMB)       | Standard |      |
| Various Supplement for 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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