



## General Technical Data

|                |  |
|----------------|--|
| Engine type:   | four-stroke, direct-injection  |
| Cylinders :    | 10 cylinder in V-form, wet replaceable cylinder liners   |
| Aspiration :   | turbocharger, intercooler  |
| Cooling :      | water circulation by centrifugal pump on engine  |
| Lubrication:   | force-feed lubrication by gear pump, lubricating oil cooler in cooling water circuit of engine |
| Injection:     | Bosch in-line pump with integrated, electromagnetic actuator                                   |
| Generator:     | Bosch three-phase generator with rectifier and transistorized governor, 28 V, 35 A             |
| Starter motor: | Bosch solenoid-operated starter, typ KB, 24 V, 6.6 kW  |

## POWERED BY:



### GENERATING SET MODEL (EP 520)

| Output Ratings               | Prime (PRP)      | Standby (LTP)     |
|------------------------------|------------------|-------------------|
| 400 V, 3 ph, 50 Hz, 1500 rpm | 520KVA<br>416 KW | 570 KVA<br>456 KW |
| 480 V, 3 ph, 60 Hz, 1800 rpm | 580KVA<br>464 KW | 640 KVA<br>512 KW |

Alternators ratings may change at different voltages.

Ratings at 0.8 Power Factor

### ENGINE / TECHNICAL DATA

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| Engine Make                          | MAN                                   |
| Engine Model                         | MAN2840LE201                          |
| Governing Type                       | Bosch - Electronic                    |
| Number of Cylinders                  | 10                                    |
| Cylinder Arrangement                 | V-Form                                |
| Bore and Stroke mm                   | 128 x 142                             |
| Displacement / Cubic Capacity litres | 18.27                                 |
| Induction System                     | Turbocharged and Intercooled          |
| Cycle                                | 4 stroke                              |
| Combustion System                    | Direct Injection                      |
| Compression Ratio                    | 15.5:1                                |
| Rotation                             | Counter-clockwise, viewed on flywheel |
| Cooling System                       | Water - cooled                        |

| Frequency and Engine Speed               | 50Hz & 1500rpm |              | 60Hz & 1800rpm |              |
|--|----------------|--------------|----------------|--------------|
|  | Prime(PRP)     | Standby(LTP) | Prime(PRP)     | Standby(LTP) |
| Mechanical Power Output KW               | 451            | 545          | 515            | 585          |
| Fuel Consumption@100%load(g/kWh)         | 196            | 199          | 204            | 203          |
| Fuel consumption @75%load (g/kWh)        | 194            | 193          | 200            | 199          |
| Fuel consumption @50%load (g/kWh)        | 198            | 195          | 203            | 204          |
| Total Lubrication system capacity litres | 30             | 30           | 30             | 30           |
| Total Coolant Capacity litres            | 86             | 86           | 86             | 86           |
| Exhaust gas volume flow(m3/h)            | 4850           | 5515         | 6365           | 6380         |
| Air for Combustion -Volume flow (m3/h)   | 1680           | 1870         | 2345           | 2350         |
| Starter battery capacity (Ah)            | 180(24V)       | 180(24V)     | 180(24V)       | 180(24V)     |
| Dimensions for open set (LXBXH)in mm     | 3500x1500x2218 |              |                |              |
| Dimensions for silent set (LXBXH)in mm   | 5250x2000x2725 |              |                |              |

### ALTERNATOR DATA

|                             |                       |
|-----------------------------|-----------------------|
| Make                        | Leroy Somer           |
| Model                       | TAL 047E              |
| No. of bearings             | 1                     |
| Insulation class            | H                     |
| Total Harmonic Content      | <3.5% on load         |
| Wires                       | 6                     |
| Ingress Protection          | IP23                  |
| Excitation System           | SHUNT                 |
| Winding Pitch               | 2/3 (n° 6)            |
| AVR Model                   | R150                  |
| Overspeed                   | 2250 mn <sup>-1</sup> |
| Voltage Regulation (steady) | ± 1%                  |
| Short Circuit Capacity      | -                     |

AREP & PMG Excitation System Available as Optional.

### CONTROL PANEL

|       |          |
|-------|----------|
| Make  | Deep Sea |
| Model | D7320    |

DSE7320 is an Auto Mains (Utility) Failure Control Module. It is operated via the START, STOP, AUTO and MANUAL soft touch membrane buttons on the front panel. DSE7320 can be controlled remotely using either a GSM Modem, Ethernet via DSE860/865 or via RS485.

### Protection:

- Fail to start
- Low oil pressure
- High engine temperature
- U/O Voltage shutdown
- U/O Frequency shutdown
- Underspeed, Overspeed
- Loss of engine speed detection
- High/Low battery voltage
- kW overload
- Unbalanced load
- Low fuel alarm (if fitted)
- Battery charger failure (if fitted)



POWERED BY:



## RATINGS DEFINITION

### Prime Power (PRP):

- Power output available with varying load for unlimited time. Average power output is 80 % of the prime power rating .
- With 10 % overload capability for technical purposes for a maximum of one hour in twelve Overload operation cannot exceed 50 hours per year.
- Prime power in accordance with ISO 8528.
- Fuel stop power in accordance with ISO 3046.

### Limited Time Power (LTP):

- Power output available with varying load for the duration of the interruption of the normal source power .
- Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year, within the following limits of maximum operating time: 100 % load 50 hours per year and 90 % load 200 hours per year.
- No overload available .
- Fuel stop power in accordance with ISO 3046.

## STANDARD REFERENCE CONDITIONS

Output ratings are presented at 25°C air inlet temperature, barometric pressure 100 kPa, relative humidity 30%. This generating set is designed to operate at high ambient temperatures (up to 55°C), humidity (up to 99%) and higher altitudes. De-ration may apply, please consult your dealer for specific site ratings.

Some of the specifications are not standard on all Genset models.

## AVAILABLE OPTIONS & ACCESSORIES

We offer a range of optional features and accessories to tailor our generating sets to meet your power needs.

### OPTIONS

- A variety of generating set control and synchronizing panels
- Additional protection alarms and shutdowns
- Water fuel separator
- Water jacket heater
- Battery charger

### ACCESSORIES

- Genuine spare parts
- Load banks
- Auxiliary fuel tanks
- Manual & automatic transfer switches

For further information on all of the standard and optional features accompanying this product please contact your local dealer or visit [www.alhuthelymotors.com](http://www.alhuthelymotors.com)

## STANDARD SPECIFICATIONS

### 1. ENGINE

MAN four stroke heavy duty high performance industrial type diesel engine.

### 2. TROPICAL COOLING RADIATOR

Radiator and cooling fan, complete with safety guards, designed to cool the engine at high ambient temperatures (consult your dealer for de-ration factors)

### 3. CIRCUIT BREAKER TYPE

3 pole MCBB (4 pole is optional)

### 4. ALTERNATOR

#### 4.1 INSULATION SYSTEM

- The insulation system is Class H.
- All windings are impregnated in either a triple dip thermosetting liquid, oil and acid resisting polyester varnish or vacuum pressure impregnated with a special polyester resin.
- Heavy coat of antitracking varnish additional protection against moisture or condensation.

#### 4.2 AUTOMATIC VOLTAGE REGULATOR (AVR)

The fully sealed Automatic Voltage Regulator maintains the Voltage Regulation at  $\pm 1\%$ . Nominal adjustment by means of a trim pot incorporated on the AVR.

### 5. MOUNTING ARRANGEMENT

#### 5.1 BASE FRAME

The complete Generating Set is mounted as a whole on a heavy duty fabricated steel Baseframe.

#### 5.2 COUPLING

The Engine and Alternator are directly coupled by means of an SAE flange. The Engine flywheel is flexibly coupled to the Alternator rotor.

#### 5.3 ANTI-VIBRATION MOUNTING PADS

Anti-Vibration pads are affixed between the Engine / Alternator feet and the Baseframe thus ensuring complete vibration isolation of the rotating assembly.

#### 5.4 SAFETY GUARDS

The Fan & Fan Drive along with the Battery Charging Alternator are Safety Guard protected for personnel protection.

### 6. FACTORY TESTS

- The Generating set is load tested before dispatch
- All protective devices control functions and site load conditions are simulated. The generator and it's systems are checked before dispatch.

### 7. EQUIPMENT FINISHING

All mild steel components are fully degreased and painted with powder coated paint to ensure maximum scuff resistance and durability.

### 8. DOCUMENTATIONS

Operation & Maintenance manual, Circuit wiring diagrams and Commissioning / Fault Finding instruction leaflets are accompanied with the Generator.

### 9. WARRANTY

MAN engines are covered under a warranty policy for a period of 24 months. Warranty of the complete genset is in line with manufacturers standard warranty terms & conditions.

(check warranty statement for more details, as it may vary for different countries)

### 10. QUALITY STANDARDS

The equipment meets the following standards: BS4999, BS5000, BS5514 IEC 60034, VDE0530, NEMA MG 1.22 and ISO 8528.