

60  
Hz

Model: **ETBG990**

INDUSTRIAL RANGE

Powered by MTU



### Generating Rates

| POWER RATING          |         | PRIME                           | STANDBY |
|-----------------------|---------|---------------------------------|---------|
| POWER                 | kVA     | 900                             | 990     |
|                       | kW      | 720                             | 792     |
| Rated Speed           | r.p.m   | 1800                            |         |
| Standard Voltage      | V       | 480                             |         |
| Available Voltages    | V       | 480/277-440/254-220/127-208/120 |         |
| Rated at power factor | Cos Phi | 0.8                             |         |

**Ambient conditions of reference:** 1000 mbar, 25°C, 30% relative humidity. Power according to ISO 3046 normative.

**P.R.P. Prime Power - ISO 8528 :** prime power is the maximum power available during a variable power sequence, which may be run for an unlimited number of hours per year, between stated maintenance intervals. The permissible average power output during a 24

**Standby Power (ISO 3046 Fuel Stop power):** power available for use at variable loads for limited annual time (500h), within the following limits of maximum operating time: 100% load 25h per year – 90% load 200h per year. No overload available. Applicable i



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## Engine Specifications 1800 r.p.m.

| ENGINE                     |        | CONTINUOUS  |       | STANDBY |      |
|----------------------------|--------|---|-------|---------|------|
| Rated Output               | kW     | 810   |       | 890     |      |
| Manufacturer               |        | MTU   |       |         |      |
| Model                      |        | 12V2000G85  |       |         |      |
| No. of Cylindirs and Build |        | 4 Cycle;12V Cylinder Diesel                       |       |         |      |
| Aspiration and Cooling     |        | Exhaust turbo charger and Air charge air cooling; |       |         |      |
| Bore/Stroke                | mm     | 130X150   |       |         |      |
| Compress the ratio         |        | 16:01   |       |         |      |
| Cooling system             |        | Water-cooled                                      |       |         |      |
| Engine Speed/Frequency     | rpm/Hz | 1800/60HZ   |       |         |      |
| Coolant Capacity           | L      | 164   |       |         |      |
| Starting System            |        | Electric 24 volt DC                               |       |         |      |
| Displacement               | L      | 23.88   |       |         |      |
| Lubricant system Capacity  | L      | 77  |       |         |      |
| Battery Volatge / Capacity |        | 24VDC   |       |         |      |
| Governing Type             | Type   | Electronic engine management system "ADEC"        |       |         |      |
| Air Filter                 | Type   | Dry   |       |         |      |
| Fuel Consumption           | Load   | 100%  | 75%   | 50%     | 25%  |
|                            | L/h    | 199.0   | 150.0 | 101.0   | 56.0 |

**ENGINE**--Industrial 4 stroke cooled diesel engine complete with air,fuel and oil filters,electric starting and charging equipment,engine protection against low water level.

**COOLING**--Radiator and colling fan complete with protection guards,designed to cool engine at specified output in air temperatures upto 45 °C,radiators suitable for higher temperatures are available.Low water level protection fitted as standard.

**ELECTRICAL SYSTEM**--24V upto.Axial type starter motor,battery charging alternator,high capacity lead acid battery,and battery tray mounted on the generator base frame,and heavy duty interconnecting cable with terminations.

**EXHAUST SYSTEM**--Heavy duty industrial exhaust silencer with flexible piping.



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## Alternator Technical Specifications

| ALTERNATOR BRAND          |       | LEROY SOMER             | STAMFORD |
|---------------------------|-------|-------------------------|----------|
| Model                     |       |                         | LVI634B  |
| Exciter System            |       | Self-excited, brushless |          |
| Poles                     | Num   | 4                       |          |
| Cooling Fan               |       | Cast alloy aluminum     |          |
| Bearing                   |       | Single,double shielded  |          |
| Windings                  |       | 100% copper             |          |
| Connection Type           |       | Reconnectable           |          |
| Insulation Type           | Class | Class H                 |          |
| Pitch                     |       | 2/3                     |          |
| Amortisseur Winding       |       | Full                    |          |
| Voltage Regulator         |       | A.V.R. (Electronic)     |          |
| Steady Voltage Precision  |       | ± 1%                    |          |
| Underspeed Protection     |       | Standard                |          |
| Overexcitation Protection |       | IP23                    |          |
| TIF (1960 Weightings)     |       | <50                     |          |

**ALTERNATOR**--Brushless,self exciting,self regulation,sreen protected,drip proof rated in accordance with IEC60034.Voltage regulation maintainted within ±0.5% from no load to full load.between 0.8 lagging and unity.All standard voltages available.



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## Control Panel Technical Specifications

### Control Panel- SMARTGEN 6110/6120

The base mounted control panel in a vibration isolated sheet steel enclosure. The control panel is equipped as follows:

- a) Instruments: Analogue Voltmeter, Hours Run Meter, Water pressure Meter.
- b) Controls: Emergency Stop Pushbutton, Voltmeter Phase Selector Switch.
- c) Control module: Standard collocation is smartgen Auto start with AMF.

**Smartgen®**

#### Main Features:

- Δ Automatic mains failure
- Δ Engine control, Generator protection
- Δ Built in alarms and warnings
- Δ Remote Start operation available
- Δ Fuel pump control
- Δ Mains simulation
- Δ Block heater control
- Δ Field adjustable parameters
- Δ Free MS-Windows Remote monitoring
- Δ LED displays
- Δ Configurable analogue inputs
- Δ I/O expansion capability



#### Protection Circuits

- WARNING
- Battery charge failure
- Low battery voltage
- SHUT DOWNS
- Fail to start
- Emergency stop
- Low oil pressure
- High engine temperature
- Over /Under speed
- Under/over generator frequency
- Failed to reach loading voltage
- Electrical trip
- Generator over current

#### Instruments

- ENGINE
- Engine speed
- Oil pressure
- Coolant temperature
- Run time
- Battery volts
- TOR
- Voltage (L-N)
- Current (L1-L2-L3)
- Frequency
- Mains
- Voltage (L-L, L-N)



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## Generating Sets Standard Features

Three phase four wire, output voltage 480V/277V, 60HZ, between 0.8 lagging, protection capability according with the standard of NAME1 and IP23.

### General Features:

- Δ Composed of MTU diesel engine and Stamford or Leroy somer alternator
- Δ Oil and fuel filter fitted, water separator
- Δ Lube-oil drain valve fitted
- Δ Electric Starter Charge motor 24 V.D.C
- Δ Water-cooled
- Δ 8-hours operation base tank
- Δ Auto start
- Δ Optional soundproof and weatherproof canopy
- Δ 3 pole MCCB Delixi breaker
- Δ Operation & Maintenance manual
- Δ Special Integrated Steel Base tank and sprayed overall in gloss enamel paint

### Voltage Regulation:

- Voltage regulation maintained within  $\pm 0.5\%$
- Between 0.8 and 1.0 lagging and unity
- From no load to full load
- At speed droop variation upto 4.5%

### Frequency Adjustable Ratio:

- Change load from 0-100%, within 1.0% (electric speed regulator), within 4.5% (mechanical speed regulator)

### Frequency Undulation:

- load from 0-100%, frequency undulation within 0.25%
- No load wire volts max undulation ration\ within 1.8%
- Three Phase balanced load in the order of 5%
- Effect factor of Telecom
- TIF better than 50
- THF to IEC60034 Part 40 better than 2%

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## Soundproofed Version Features

### Robust Corrosion Resistant Construction

- Δ Black finish stainless steel lock and hinges
- Δ Body made from steel components treated with polyester powder coating

### Excellent Access for Maintenance

- Δ Two large doors on each side
- Δ Radiator fill access plate
- Δ Lube oil and cooling water drains pipes to exterior of the enclosure

### Security and Safety

- Δ Control panel viewing window in a lockable access door
- Δ Emergency stop push button (red) mounted on enclosure interior
- Δ Cooling fan and battery charging alternator fully guarded
- Δ Exhaust silencing system totally enclosed for operator safety





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## Generating Sets other Features

### Generating Sets Optional Features

- ΔLow fuel level alarm shutdown
- ΔAutomatic Fuel Filling System
- ΔEngine oil feeding and drain pump
- ΔAuto Transfer Switch( ATS)
- ΔParallel control panels
- ΔCircuit Breaker MCCB & ACB
- ΔRemote Control Panel
- Δweatherproof/soundproof Canopy
- ΔTrailer type Gensets

### Quality Standards

- ISO9001:2000,ISO14000,ISO3046
- ISO8528 BS4999
- BS5514,AS1359,ICE34
- CE Compliance

### Gensets Dimensions & Weight

- Open type:LxWxH (mm) Net Weight Kgs
- 4500\*1580\*2280 / 8500
- Open type:LxWxH (mm) Net Weight Kgs
- 20' Standard Container / 11500

**Authorized**