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## Diesel Generating Sets

60 Hz

## Model: SM1238

INDUSTRIAL RANGE

Powered by MTU



## Generating Rates

POWER RATING		PRIME	STANDBY
POWER	kVA	1125	1238
	kW	900	990
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	1010		1114	
Manufacturer		MTU			
Model		16V2000G85			
No. of Cylinders and Build		4 Cycle;16V 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	200			
Starting System		Electric 24 volt DC			
Displacement	L	31.84			
Lubricant system Capacity	L	102			
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	243.0	186.0	126.0	70.0

**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			HCI634H
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- ComAp AMF20

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

- Instruments: Analogue Voltmeter, Hours Run Meter, Water pressure Meter.
- Controls: Emergency Stop Pushbutton, Voltmeter Phase Selector Switch.
- Control module: Standard collocation is ComAp AMF20 Auto start with AMF.



#### Main Features:

- Δ Automatic mains failure
- Δ Engine control, Generator protection
- Δ Built in alarms and warnings
- Δ Remote Start operation available
- Δ Daily / weekly / monthly exerciser
- Δ Weekly operation schedule programs
- Δ Fuel pump control
- Δ ECU control and monitoring via J1940 CANBUS
- 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 Phrase 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

4700\*1910\*2430 / 9500

Open type:LxWxH (mm) Net Weight Kgs

20' Standard Container / 12500



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