



## Diesel Generator Set

# mtu 12V4000 DS2250

380V – 11 kV/50 Hz/standby power/fuel consumption optimized  
12V4000G94F/water charge air cooling



Optional equipment and finishing shown. Standard may vary.

## Product highlights

### Benefits

- Low fuel consumption
- Optimized system integration ability
- High reliability
- High availability of power
- Long maintenance intervals

### Support

- Global product support offered

### Standards

- Engine-generator set is designed and manufactured in facilities certified to standards ISO 2008:9001 and ISO 2004:14001
- Generator set complies to ISO 8528
- Generator meets NEMA MG1, BS5000, ISO, DIN EN and IEC standards
- NFPA 110

### Power rating

- System ratings: 2220 kVA - 2300 kVA
- Accepts rated load in one step per NFPA 110
- Generator set complies to G3 according to ISO 8528-5
- Generator set exceeds load steps according to ISO 8528-5

### Performance assurance certification (PAC)

- Engine-generator set tested to ISO 8528-5 for transient response
- 85% load factor
- Verified product design, quality and performance integrity
- All engine systems are prototype and factory tested

### Complete range of accessories available

- Control panel
- Power panel
- Circuit breaker/power distribution
- Fuel system
- Fuel connections with shut-off valve mounted to base frame
- Starting/charging system
- Exhaust system
- Mechanical and electrical driven radiators
- Medium and oversized voltage alternators

### Emissions

- Fuel consumption optimized

### Certifications

- CE certification option

## Application data <sup>1)</sup>

### Engine

Manufacturer	<b>mtu</b>
Model	12V4000G94F
Type	4-cycle
Arrangement	12V
Displacement: l	57.2
Bore: mm	170
Stroke: mm	210
Compression ratio	16.4
Rated speed: rpm	1500
Engine governor	ECU 9
Max power: kWm	1930
Air cleaner	dry

### Fuel system

Maximum fuel lift: m	5
Total fuel flow: l/min	27

### Fuel consumption <sup>2)</sup>

	l/hr	g/kwh
At 100% of power rating:	463	199
At 75% of power rating:	339	194
At 50% of power rating:	233	200

### Liquid capacity (lubrication)

Total oil system capacity: l	260
Engine jacket water capacity: l	160
Intercooler coolant capacity: l	40

### Combustion air requirements

Combustion air volume: m <sup>3</sup> /s	2.4
Max. air intake restriction: mbar	50

### Cooling/radiator system

Coolant flow rate (HT circuit): m <sup>3</sup> /hr	55
Coolant flow rate (LT circuit): m <sup>3</sup> /hr	30
Heat rejection to coolant: kW	790
Heat radiated to charge air cooling: kW	475
Heat radiated to ambient: kW	75
Fan power for electr. radiator (40°C): kW	55

### Exhaust system

Exhaust gas temp. (after engine): °C	460
Exhaust gas temp., max (after engine): °C	550
Exhaust gas temp. (before turbocharger): °C	700
Exhaust gas volume: m <sup>3</sup> /s	6.2
Maximum allowable back pressure: mbar	50

## Standard and optional features

### System ratings (kW/kVA)

Generator model	Voltage	fuel consumption optimized					
		without radiator			with mechanical radiator		
		kWel	kVA*	AMPS	kWel	kVA*	AMPS
Leroy Somer LSA52.3 S7 (Low voltage Leroy Somer standard)	380 V	1840	2300	3494	1784	2230	3388
	400 V	1840	2300	3320	1784	2230	3219
	415 V	1840	2300	3200	1784	2230	3102
Leroy Somer LSA52.3 L12 (Low voltage Leroy Somer oversized)	380 V	1840	2300	3494	1784	2230	3388
	400 V	1840	2300	3320	1784	2230	3219
	415 V	1840	2300	3200	1784	2230	3102
Leroy Somer LSA53.2 XL9 (Medium volt. Leroy Somer)	11 kV	1840	2300	121	1792	2240	118
Marathon 744RSL7092 (Low voltage Marathon)	380 V	1824	2280	3464	1776	2220	3373
	400 V	1824	2280	3291	1776	2220	3204
	415 V	1808	2260	3434	1776	2220	3088
Marathon 1020FDH7097 (Medium volt. Marathon)	11 kV	1824	2280	120	1776	2220	117

\* cos phi = 0.8

1 All data refers only to the engine and is based on ISO standard conditions (25°C and 100m above sea level).

2 Values referenced are in accordance with ISO 3046-1. Conversion calculated with fuel density of 0.83 g/ml. All fuel consumption values refer to rated engine power.

## Standard and optional features

### Engine

- 4-cycle
- Standard single stage air filter
- Oil drain extension & shut-off valve
- Closed crankcase ventilation
- Governor-electronic isochronous
- Common rail fuel injection
- Fuel consumption optimized engine

### Generator

- 4 pole three-phase synchronous generator
- Brushless, self-excited, self-regulating, self-ventilated
- Digital voltage regulator
- Anti condensation heater
- Stator winding Y-connected, accessible neutral (brought out)
- Protection IP23
- Insulation class H, utilization acc. to H
- Radio suppression EN55011, group 1, cl. B
- Short circuit capability 3xIn for 10sec
- Winding and bearing RTDs (without monitoring)
- Excitation by AREP + PMI
- Mounting of CT's: 3x 2 core CT's
- Winding pitch: 2/3 winding
- Voltage setpoint adjustment ± 5%
- Meets NEMA MG-1, BS 5000, IEC 60034-1, VDE 0530, DIN EN 12601, AS1359 and ISO 8528 requirements
- Leroy Somer low voltage generator
- Marathon low voltage generator
- Oversized generator
- Medium voltage generator

### Cooling system

- Jacket water pump
- Thermostat(s)
- Water charge air cooling
- Mechanical radiator
- Electrical driven front-end cooler
- Jacket water heater
- Pulley for fan drive

### Control panel

- Pre-wired control cabinet for easy application of customized controller (V1+)
- Island operation (V2)
- Automatic mains failure operation with ATS (V3a)
- Automatic mains failure operation incl. control of generator and mains breaker (V3b)
- Island parallel operation of multiple gensets (V4)
- Automatic mains failure operation with short (< 10s) mains parallel overlap synchronization (V5)
- Mains parallel operation of a single genset (V6)
- Mains parallel operation of multiple gensets (V7)
- Basler controller
- Deif controller
- Complete system metering
- Digital metering
- Engine parameters
- Generator protection functions
- Engine protection
- SAE J1939 engine ECU communications
- Parametrization software
- Multilingual capability
- Multiple programmable contact inputs
- Multiple contact outputs
- Event recording
- IP 54 front panel rating with integrated gasket
- Different expansion modules
- Remote annunciator
- Daytank control
- Generator winding temperature monitoring
- Generator bearing temperature monitoring
- Modbus TCP-IP

### Power panel

- Available in 600x600 and 600x1000
- Phase monitoring relay 230V/400V
- Supply for battery charger
- Supply for jacket water heater
- Supply for anti condensation heating
- Plug socket cabinet for 230V compatible Euro/USA
- Supply for electrical driven radiator from 55kW (PP 600x1000)

- Represents standard features
- Represents optional features

## Standard and optional features

### Circuit breaker/power distribution

- 3-pole circuit breaker
- 4-pole circuit breaker
- Manual-actuated circuit breaker
- Electrical-actuated circuit breaker
- Stand-alone solution in separate cabinet

### Fuel system

- Flexible fuel connectors mounted to base frame
- Fuel filter with water separator
- Fuel filter with water separator heavy-duty
- Switchable fuel filter with water separator
- Switchable fuel filter with water separator heavy-duty
- Separate fuel cooler
- Fuel cooler integrated into cooling equipment

### Starting/charging system

- 24V starter
- Starter batteries, cables, rack, disconnect switch
- Battery charger
- Redundant starter 2x 15KW

### Mounting system

- Welded base frame
- Resilient engine and generator mounting
- Modular base frame design

### Exhaust system

- Exhaust bellows with connection flange
- Exhaust silencer with 10 dB(A) sound attenuation
- Exhaust silencer with 30 dB(A) sound attenuation
- Exhaust silencer with 40 dB(A) sound attenuation
- Y-connection-pipe

Represents standard features

Represents optional features

## Weights and dimensions



Drawing above for illustration purposes only, based on a standard open power 400 Volt engine-generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

System	Dimensions (LxWxH)	Weight (dry/less tank)
Open power unit (OPU)	4077 x 1810 x 2330 mm	11.130 kg

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific engine-generator set.

## Sound data

– Consult your local **mtu** distributor for sound data.

## Emissions data

– Consult your local **mtu** distributor for emissions data.

## Rating definitions and conditions

- Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO 8528-1, ISO-3046-1, BS 5514 and AS 2789.  
Average load factor:  $\leq 85\%$ . operating hours/year: max. 500.
- Consult your local **mtu** distributor for derating information.