

# DIESEL GENERATOR SET

## MTU 12V4000 DS2250

380V – 11 kV/50 Hz/Standby Power/NEA (ORDE) + Tier 2 Optimized  
MTU 12V4000G94LF/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

#### // MTU Onsite Energy is a single-source supplier

#### // 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: 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

- Tier 2 optimized engine
- NEA (ORDE) optimized engine

#### // Certifications

- CE certification option

APPLICATION DATA<sup>①</sup>

## // Engine

Manufacturer	MTU
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	ADEC (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:	360	206
At 50% of power rating:	249	214

## // 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> /h	55
Coolant flow rate (LT circuit): m <sup>3</sup> /h	30
Heat rejection to coolant: kW	790
Heat radiated to charge air cooling: kW	480
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

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

### // System Ratings (kW/kVA)

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

\*  $\cos \phi = 0,8$

### // Engine

- 4-Cycle
- Standard single stage air filter
- Oil drain extension & shut-off valve
- Closed crankcase ventilation
- Governor-electronic isochronous
- Common rail fuel injection
- Tier 2 optimized engine
- NEA (ORDE) 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  $\pm 5\%$
- 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

■ Represents standard features

□ Represents optional features

## STANDARD AND OPTIONAL FEATURES, CONTINUATION

### // Cooling System

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Jacket water pump        | <input type="checkbox"/> Mechanical radiator                | <input type="checkbox"/> Pulley for Fan drive |
| <input checked="" type="checkbox"/> Thermostat(s)            | <input type="checkbox"/> Electrical driven front-end cooler |   |
| <input checked="" type="checkbox"/> Water charge air cooling | <input type="checkbox"/> Jacket water heater                |   |

### // Control Panel

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

### // Power Panel

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

### // Circuit Breaker/Power Distribution

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> 3-pole circuit breaker | <input type="checkbox"/> Manual-actuated circuit breaker     | <input type="checkbox"/> Stand-alone solution in separate cabinet |
| <input type="checkbox"/> 4-pole circuit breaker | <input type="checkbox"/> Electrical-actuated circuit breaker |   |

## STANDARD AND OPTIONAL FEATURES, CONTINUATION

### // Fuel System

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>■ Flexible fuel connectors mounted to base frame</li> <li>□ Fuel filter with water separator</li> <li>□ Fuel filter with water separator heavy-duty</li> </ul> | <ul style="list-style-type: none"> <li>□ Switchable fuel filter with water separator</li> <li>□ Switchable fuel filter with water separator heavy-duty</li> <li>□ Seperate fuel cooler</li> </ul> | <ul style="list-style-type: none"> <li>□ Fuel cooler integrated into cooling equipment</li> </ul> |
|---|---|---|

### // Starting/Charging System

- |   |  |   |
|---|--|---|
| <ul style="list-style-type: none"> <li>■ 24V starter</li> </ul> | <ul style="list-style-type: none"> <li>□ Starter batteries, cables, rack, disconnect switch</li> </ul> | <ul style="list-style-type: none"> <li>□ Battery charger</li> <li>□ Redundant Starter 2x15KW</li> </ul> |
|---|--|---|

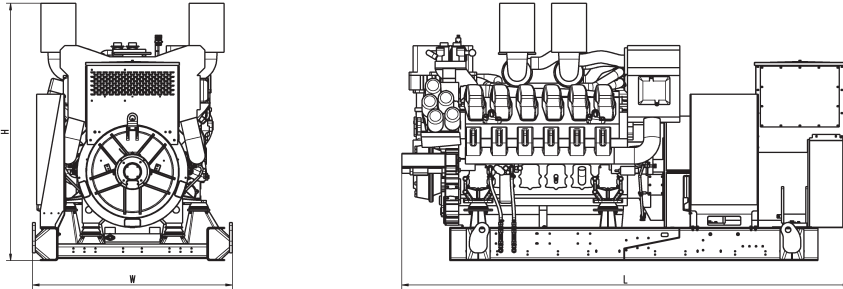
### // Mounting System

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>■ Welded base frame</li> </ul> | <ul style="list-style-type: none"> <li>■ Resilient engine and generator mounting</li> </ul> | <ul style="list-style-type: none"> <li>■ Modular base frame design</li> </ul> |
|---|---|---|

### // Exhaust System

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>□ Exhaust bellows with connection flange</li> <li>□ Exhaust silencer with 10 dB(A) sound attenuation</li> </ul> | <ul style="list-style-type: none"> <li>□ Exhaust silencer with 30 dB(A) sound attenuation</li> <li>□ Exhaust silencer with 40 dB(A) sound attenuation</li> </ul> | <ul style="list-style-type: none"> <li>□ Y-connection-pipe</li> </ul> |
|--|--|---|

## 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 (L x W x H)	Weight (dry/less tank)
Open Power Unit (OPU)	4077 x 1810 x 2330 mm	11130 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 Onsite Energy distributor for sound data.

## EMISSIONS DATA

// Consult your local MTU Onsite Energy 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 Onsite Energy Power Generation Distributor for derating information.

Materials and specifications subject to change without notice.