Diesel Generator Set

MTU 16V4000 DS2750

380V – 11 kV/50 Hz/standby power/NEA (ORDE) + tier 2 optimized/
16V4000G94F/water charge air cooling

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: 2800 kVA - 2860 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

Optional equipment and finishing shown. Standard may vary.

A Rolls-Royce solution
**Engine**

- Manufacturer: MTU
- Model: 16V4000G94F
- Type: 4-cycle
- Arrangement: 16V
- Displacement: l 76.3
- Bore: mm 170
- Stroke: mm 210
- Compression ratio: 16.4
- Rated speed: rpm 1500
- Engine governor: ADEC (ECU 9)
- Max power: kW 2387
- Air cleaner: Dry

**Fuel system**

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

**Fuel consumption**

1. At 100% of power rating: l/hr 567, g/kWh 197
2. At 75% of power rating: l/hr 430, g/kWh 199
3. At 50% of power rating: l/hr 294, g/kWh 204

**Liquid capacity (lubrication)**

- Total oil system capacity: l 300
- Engine jacket water capacity: l 175
- Intercooler coolant capacity: l 50

**Combustion air requirements**

- Combustion air volume: m³/s 2.9
- Max. air intake restriction: mbar 30

**Cooling/radiator system**

- Coolant flow rate (HT circuit): m³/hr 53
- Coolant flow rate (LT circuit): m³/hr 25
- Heat rejection to coolant: kW 1025
- Heat radiated to charge air cooling: kW 585
- Heat radiated to ambient: kW 90

**Exhaust system**

- Exhaust gas temp. (after engine): °C 450
- Exhaust gas temp., max (after engine): °C 550
- Exhaust gas temp. (before turbocharger): °C 680
- Exhaust gas volume: m³/s 7.4
- Maximum allowable back pressure: mbar 50

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**Standard and optional features**

### System ratings (kW/kVA)

<table>
<thead>
<tr>
<th>Generator model</th>
<th>Voltage</th>
<th>kWeI</th>
<th>kVA*</th>
<th>AMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leroy Somer LSA53.2 M7</strong> <em>(Low voltage Leroy Somer standard)</em></td>
<td>380 V</td>
<td>2240</td>
<td>2800</td>
<td>4254</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>2240</td>
<td>2800</td>
<td>4254</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2240</td>
<td>2800</td>
<td>4254</td>
</tr>
<tr>
<td><strong>Leroy Somer LSA53.2 M9</strong> <em>(Low voltage Leroy Somer oversized)</em></td>
<td>380 V</td>
<td>2240</td>
<td>2800</td>
<td>4254</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
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<td></td>
<td>415 V</td>
<td>2240</td>
<td>2800</td>
<td>4254</td>
</tr>
<tr>
<td><strong>Leroy Somer LSA53.2 M9</strong> <em>(Low voltage Leroy Somer engine output oversized)</em></td>
<td>380 V</td>
<td>2296</td>
<td>2870</td>
<td>4361</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>2296</td>
<td>2870</td>
<td>4361</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2296</td>
<td>2870</td>
<td>4361</td>
</tr>
<tr>
<td><strong>Marathon 1020FDL7108</strong> <em>(Low voltage Marathon)</em></td>
<td>380 V</td>
<td>2240</td>
<td>2800</td>
<td>4254</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>2240</td>
<td>2800</td>
<td>4254</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2176</td>
<td>2720</td>
<td>3784</td>
</tr>
<tr>
<td><strong>Leroy Somer LSA 53.2 XL11</strong> <em>(Medium volt. Leroy Somer)</em></td>
<td>11 kV</td>
<td>2280</td>
<td>2850</td>
<td>350</td>
</tr>
<tr>
<td><strong>Marathon 1030FDH7100</strong> <em>(Medium volt. Marathon)</em></td>
<td>11 kV</td>
<td>2280</td>
<td>2850</td>
<td>350</td>
</tr>
</tbody>
</table>

* cos phi = 0.8

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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
- 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
- Mounting of CTs: 3x 2 core CT's
- Winding pitch: 5/6 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
- Oversized generator
- Engine output optimized generator
- Medium voltage generator

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

## 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 75kW (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

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- ■ 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.

<table>
<thead>
<tr>
<th>System</th>
<th>Dimensions (L x W x H)</th>
<th>Weight (dry/less tank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open power unit (OPU)</td>
<td>5290 x 1810 x 2350 mm</td>
<td>approx. 14.520 kg</td>
</tr>
</tbody>
</table>

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. A 10% overload capability is available for one hour in twelve. Ratings are in accordance with ISO 8528-1, ISO-3046-1, BS 5514 and AS 2789. Average Load Factor: ≤ 85%. Operating hours/year: max. 500.
— Consult your local MTU distributor for derating information.