Diesel Generator Set

MTU 16V4000 DS2750

380V – 11 kV/50 Hz/prime power for stationary emergency/fuel consumption optimized/16V4000G34F/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: 2600 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

**Engine**

- **Manufacturer**: MTU
- **Model**: 16V4000G34F
- **Type**: 4-cycle
- **Arrangement**: 16V
- **Displacement**: 76.3 l
- **Bore**: 170 mm
- **Stroke**: 210 mm
- **Compression ratio**: 16.4
- **Rated speed**: 1500 rpm
- **Engine governor**: ADEC (ECU 9)
- **Max power**: 2170 kW
- **Air cleaner**: dry

**Fuel system**

- **Fuel type**: Optimized

<table>
<thead>
<tr>
<th>Generator model</th>
<th>Voltage (kV)</th>
<th>kWe (kW)</th>
<th>kVA (kVA)</th>
<th>AMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leroy Somer LSA53.2 M7</strong></td>
<td>380 V</td>
<td>2080</td>
<td>2600</td>
<td>3950</td>
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<tr>
<td>(Low voltage</td>
<td></td>
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<tr>
<td>Leroy Somer standard)</td>
<td>400 V</td>
<td>2080</td>
<td>2600</td>
<td>3753</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2080</td>
<td>2600</td>
<td>3617</td>
</tr>
<tr>
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<tr>
<td>(Low voltage</td>
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</tr>
<tr>
<td>Leroy Somer oversized)</td>
<td>400 V</td>
<td>2080</td>
<td>2600</td>
<td>3753</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2080</td>
<td>2600</td>
<td>3617</td>
</tr>
<tr>
<td><strong>Marathon 1020FDL7108</strong></td>
<td>380 V</td>
<td>2080</td>
<td>2600</td>
<td>3950</td>
</tr>
<tr>
<td>(Low voltage Marathon)</td>
<td>400 V</td>
<td>2080</td>
<td>2600</td>
<td>3753</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2080</td>
<td>2600</td>
<td>3617</td>
</tr>
<tr>
<td><strong>Leroy Somer LSA 53.2 XL11</strong></td>
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<tr>
<td>(Medium volt. Leroy</td>
<td></td>
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<tr>
<td>Somer)</td>
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<tr>
<td><strong>Marathon 1030FDH7100</strong></td>
<td>11 kV</td>
<td>2032</td>
<td>2540</td>
<td>133</td>
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<tr>
<td>(Medium volt. Marathon)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Without radiator</th>
<th>With radiator</th>
</tr>
</thead>
<tbody>
<tr>
<td>kWe</td>
<td>kWm</td>
</tr>
<tr>
<td>2170</td>
<td>2170</td>
</tr>
</tbody>
</table>

### Liquid capacity (lubrication)

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

### Combustion air requirements

- **Combustion air volume**: 2.7 m³/s
- **Max. air intake restriction**: 50 mbar

### Cooling/radiator system

- **Coolant flow rate (HT circuit)**: 53 m³/hr
- **Coolant flow rate (LT circuit)**: 25 m³/hr
- **Heat rejection to coolant**: 920 kW
- **Heat radiated to charge air cooling**: 500 kW
- **Heat radiated to ambient**: 90 kW

### Exhaust system

- **Exhaust gas temp. (after engine)**: 450 °C
- **Exhaust gas temp., max (after engine)**: 550 °C
- **Exhaust gas temp. (before turbocharger)**: 680 °C
- **Exhaust gas volume**: 6.8 m³/s
- **Maximum allowable back pressure**: 50 mbar

### Standard and optional features

#### System ratings (kW/kVA)

- **Engine**: MTU
  - **Model**: 16V4000G34F
  - **Type**: 4-cycle
  - **Arrangement**: 16V
  - **Displacement**: 76.3 l
  - **Bore**: 170 mm
  - **Stroke**: 210 mm
  - **Compression ratio**: 16.4
  - **Rated speed**: 1500 rpm
  - **Engine governor**: ADEC (ECU 9)
  - **Max power**: 2170 kW
  - **Air cleaner**: dry

**Fuel consumption**

- **At 100% of power rating**: 508 l/hr, 194 g/kwh
- **At 75% of power rating**: 371 l/hr, 189 g/kwh
- **At 50% of power rating**: 254 l/hr, 194 g/kwh

**Combustion air volume**: 2.7 m³/s

**Max. air intake restriction**: 50 mbar

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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 CT’s: 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
- 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
- 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

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)
- Supply for anti condensation heating
- Plug socket cabinet for 230V compatible Euro/USA
- Supply for electrical driven radiator from 75kW (PP 600x1000)

Power panel
- Available in 600x600 and 600x1000
- Phase monitoring relay 230V/400V
- Supply for battery charger
- Supply for jacket water heater

- Represents standard features
- Represents optional features
Standard and optional features

Circuit breaker/power distribution

- 3-pole circuit breaker
- Manual-actuated circuit breaker
- 4-pole 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.

<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.