Diesel Generator Set

**mtu 16V2000 DS1250**

380V - 415V/50 Hz/prime power/fuel consumption optimized/NOx emission optimized/16V2000G36F

**Product highlights**

**Benefits**
- Low fuel consumption
- Optimized system integration ability
- High reliability and availability of power
- Long maintenance intervals
- Optimized ratio between size and power
- Wide operating range without derating

**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 G3 according to ISO 8528
- Generator meets NEMA MG1, BS5000, ISO, DIN EN and IEC standards
- NFPA 110

**Power rating**
- System rating: 1135 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
- 75% load factor for prime power applications
- Verified product design, quality and performance integrity
- All engine systems are prototype and factory tested

**Complete range of accessories available**
- Control panel
- Power panel
- Fuel system
- Fuel connections with shut-off valve mounted to base frame
- Starting/charging system
- Exhaust system
- Mechanical radiator
- Water Charge-Air-Cooler
- Oversized voltage alternators

**Cooling System**
- Air-to-Air Charge-Air Cooling (TD)
- Water-to-Air Charge-Air Cooling (TB)

**Emissions**
- Fuel consumption optimized
- NOx emission optimized, Tier 2 compliant and NEA (ORDE) optimization optionally available

**Certifications**
- CE certification option
- Unit certificate acc. to VDE-AR-N 4110
### Application data

<table>
<thead>
<tr>
<th>Engine</th>
<th>Fuel consump. opt.</th>
<th>Emission opt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>mtu</td>
<td>mtu</td>
</tr>
<tr>
<td>Model</td>
<td>16V2000G36F</td>
<td>16V2000G36F</td>
</tr>
<tr>
<td>Type</td>
<td>4-cycle</td>
<td>4-cycle</td>
</tr>
<tr>
<td>Arrangement</td>
<td>16V</td>
<td>16V</td>
</tr>
<tr>
<td>Displacement: l</td>
<td>35.7</td>
<td>35.7</td>
</tr>
<tr>
<td>Bore: mm</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Stroke: mm</td>
<td>156</td>
<td>156</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>17.5</td>
<td>17.5</td>
</tr>
<tr>
<td>Rated speed: rpm</td>
<td>1500</td>
<td>1500</td>
</tr>
</tbody>
</table>

#### Fuel system

| Max. lube oil lift: m | 5 |
| Total fuel flow: l/min | 30 |

#### Fuel consumption

| At 100% of power rating: l/hr | g/kWh | 231/192 | 242/201 |
| At 75% of power rating: l/hr | g/kWh | 173/192 | 183/203 |
| At 50% of power rating: l/hr | g/kWh | 120/199 | 127/210 |

#### Lube oil system

| Total oil system capacity: l | 102 |
| Max. lube oil temp. (alarm): °C | 103 |
| Max. lube oil temp. (shutdown): °C | 105 |
| Min. lube oil pressure (alarm): bar | 4.5 |
| Min. lube oil pressure (shutdown): bar | 4 |

#### Combustion air requirements

| Combustion air volume: m³/s | 1.17 |
| Max. air intake restriction: mbar | 40 |

1. All data refers only to the engine and is based on ISO standard conditions (25°C and 100m above sea level).
2. Emission optimized data refer to NOx emission optimized and NEA (ORDE) optimized/Tier 2 compliant engines.
3. 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)

<table>
<thead>
<tr>
<th>Generator model</th>
<th>Voltage</th>
<th>with mechanical radiator (TD) or charge-air-cooler (TB)**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>kWel</td>
</tr>
<tr>
<td>Leroy Somer LSA 50.2 M6</td>
<td>380 V</td>
<td>908</td>
</tr>
<tr>
<td>(Low voltage Leroy Somer standard)</td>
<td>400 V</td>
<td>908</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>908</td>
</tr>
<tr>
<td>Leroy Somer LSA 50.2 L7</td>
<td>380 V</td>
<td>908</td>
</tr>
<tr>
<td>(Low voltage Leroy Somer oversized)</td>
<td>400 V</td>
<td>908</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>908</td>
</tr>
<tr>
<td>Marathon 740RSL7183</td>
<td>380 V</td>
<td>908</td>
</tr>
<tr>
<td>(Low voltage Marathon standard)</td>
<td>400 V</td>
<td>908</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>908</td>
</tr>
<tr>
<td>Marathon 742RSL7185</td>
<td>380 V</td>
<td>908</td>
</tr>
<tr>
<td>(Low voltage Marathon oversized)</td>
<td>400 V</td>
<td>908</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>908</td>
</tr>
</tbody>
</table>

* cos phi = 0.8
** BE, fuel optimized: max. power available up to: open power unit 40°C/400m; NOx emission optimized, EPA Tier 2 compl., NEA: standard operating conditions/open power unit 25°C/100m

Electrical outputs may vary depending on generator voltage and ambient conditions. For power outputs consult your mtu dealer.

Intake air depression/mbar: 15mbar
Exhaust back pressure/mbar: 30mbar

Engine

- 4-cycle
- Standard single stage air filter
- Oil drain extension & shut-off valve
- Full flow oil filters
- Closed crankcase ventilation
- Governor-electronic isochronous ADEC/ECU9
- Common rail fuel injection
- Dry exhaust manifold
- Electric starting motor (24V)
- Fuel consumption optimized engine
- NOx emission optimized engine
- Tier 2 optimized engine
- NEA (ORDE) optimized engine

Generator

- Leroy Somer low voltage generator
- Meets NEMA MG1, BS5000, IEC 60034-1, VDE 0530, DIN EN 12601, AS1359 and ISO 8528-3 requirements
- Superior voltage waveform
- Solid state, volts-per-Hertz regulator
- 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 IP 23
- less than 5% harmonic distortion
- 2/3 pitch stator windings
- No load to full load regulation
- ± 0.25% voltage regulation no load to full load
- Insulation class H, utilization acc. to H
- Radio suppression EN55011, group 1, cl. B
- Short circuit capability 3xIn for 10sec
- Sustained short circuit current of up to 300% of the rated current for up to 10 seconds (Leroy Somer generator)
- Winding and bearing RTDs (without monitoring)
- Excitation by AREP + PMI
- Mounting of CT’s: 3x 2 core CT’s
- Voltage setpoint adjustment ±10V
- Sustained short circuit current of up to 250% of the rated current for up to 10 seconds (Marathon generator)
- Marathon low voltage generator
- Oversized generator

▪ Represents standard features
☐ Represents optional features
Standard and optional features

Cooling system

*Air-to-Air Charge-Air-Cooling TD*

- [ ] Mechanical radiator
- [ ] Jacket water pump
- [ ] Expansion tank
- [ ] Fan
- [ ] Thermostat(s)
- [ ] Jacket water heater

*Water-to-Air Charge-Air-Cooling TB*

- [ ] Coolant pump
- [ ] Manifold with thermostatic valves
- [ ] WCAC-base frame with safety covers
- [ ] HT-piping with flexible engine connection

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- and bearing temperature monitoring
- [ ] Differential protection with multi-function protection relay
- [ ] Modbus TCP-IP

Power panel

- [ ] Available in 600x600
- [ ] Phase monitoring relay 230V/400V
- [ ] Supply for battery charger
- [ ] Supply for jacket water heater
- [ ] Plug socket cabinet for 230V compatible Euro

Fuel system

- [ ] Flexible fuel connectors mounted to base frame
- [ ] Fuel filter with water separator
- [ ] Switchable fuel filter with water separator
- [ ] Fuel cooler (for TD-only)

Starting/charging system

- [ ] 24V starter
- [ ] Starter batteries, cables, rack, disconnect switch
- [ ] Battery charger
- [ ] Redundant starter 2x 7.5KW

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

Sound data

— Consult your local mtu distributor for sound data.

Emissions data

— Consult your local mtu distributor for emissions data.

Rating definitions and conditions

— Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity 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: ≤ 75%. Operating hours/year: unlimited

— Consult your local mtu distributor for derating information.