Diesel Generator Set

mtu 16V2000 DS1250

380V - 415V/50 Hz/continuous power/fuel consumption optimized/
16V2000B26F

Optional equipment and finishing shown. Standard may vary.

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: 800 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
— 100% load factor for continuous 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

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

#### Engine
- **Manufacturer**: mtu
- **Model**: 16V2000B26F
- **Type**: 4-cycle
- **Arrangement**: 16V
- **Displacement**: l 35.7
- **Bore**: mm 135
- **Stroke**: mm 156
- **Compression ratio**: 17.5
- **Rated speed**: rpm 1500
- **Engine governor**: ADEC (ECU 9)
- **Speed regulation**: ± 0.25%
- **Max power**: kW 709
- **Mean effective pressure**: bar 15.9
- **Air cleaner**: Dry

#### Fuel system
- **Maximum fuel lift**: m 5
- **Total fuel flow**: l/min 30

#### Fuel consumption
- **At 100% of power rating**: l/hr 165, g/kwh 193
- **At 75% of power rating**: l/hr 127, g/kwh 199
- **At 50% of power rating**: l/hr 89, g/kwh 208

#### Lube oil system
- **Total oil system capacity**: l 102
- **Max. lube oil temperature (alarm)**: °C 103
- **Max. lube oil temperature (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 0.83
- **Max. air intake restriction**: mbar 40

#### Cooling/radiator system TD
- **Coolant flow rate (HT circuit)**: m³/hr 41.6
- **Coolant flow rate (LT circuit for TB)**: m³/hr 17.5
- **Heat radiated to charge air cooling (TB)**: kW 80
- **Input pressure customer radiator (TB)**: bar (rel.) 1.4
- **Max. pressure loss customer radiator (TB)**: bar 0.7
- **Heat dissipated by engine coolant**: kW 320
- **Air flow required for mech. radiator (40°C cooled unit)**: m³/min 1462
- **Air flow required for mech. radiator (50°C cooled unit)**: m³/min 1462
- **Engine coolant capacity (without cooling equipment)**: l 70
- **Radiator coolant capacity (40°C)**: l 74
- **Radiator coolant capacity (50°C)**: l 106
- **Max. coolant temperature (warning)**: °C 102
- **Max. coolant temperature (shutdown)**: °C 105

#### Exhaust system
- **Exhaust gas tem. (after turbocharger)**: °C 540
- **Exhaust gas volume**: m³/s 2.22
- **Maximum allowable back pressure**: mbar 50
- **Minimum allowable back pressure**: mbar 30

#### Generator
- **Protection class**: IP23
- **Insulation class**: H
- **Voltage regulation (steady state)**: ± 0.25%
- **Rado interference class**: N

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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

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>
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</thead>
<tbody>
<tr>
<td></td>
<td>kWel</td>
<td>kVA*</td>
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<tr>
<td>Leroy Somer LSA 50.2 M6 (Low voltage Leroy Somer standard)</td>
<td>380 V</td>
<td>632</td>
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<td></td>
<td></td>
<td>400 V</td>
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<tr>
<td></td>
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<td>415 V</td>
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<tr>
<td>Leroy Somer LSA 50.2 L7 (Low voltage Leroy Somer oversized)</td>
<td>380 V</td>
<td>632</td>
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<td>400 V</td>
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<td></td>
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<td>415 V</td>
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<tr>
<td>Marathon 740RSL7183 (Low voltage Marathon standard)</td>
<td>380 V</td>
<td>632</td>
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<tr>
<td>Marathon 742RSL7185 (Low voltage Marathon oversized)</td>
<td>380 V</td>
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</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

### 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 I, 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)

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

Air-to-Air Charge-Air Cooling (TD)

Water-to-Air Charge-Air Cooling (TB)

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 (LxWxH)</th>
<th>Weight (incl. engine-oil and coolant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open power unit (OPU) Air-to-Air (TD)</td>
<td>4440 x 1990 x 2200 mm</td>
<td>7300 kg</td>
</tr>
<tr>
<td>Open power unit (OPU) Water-to-Air (TB)</td>
<td>4447 x 1988 x 2046 mm</td>
<td>6900 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

— Continuous power ratings apply to installations where the generator set serves as utility. At constant 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: ≤ 100%. Operating hours/year: unlimited.
— Consult your local mtu distributor for derating information.