Diesel Generator Set

MTU 16V2000 DS1100

380V - 415V/50 Hz/prime/fuel consumption optimized
16V2000G26F/air charge air cooling

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: 1000 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
- Oversized voltage alternators

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

Certifications
- CE certification option
- VDE4110 certification
### Application data 1)

<table>
<thead>
<tr>
<th>Engine</th>
<th>Fuel consump. opt.</th>
<th>Emission opt. 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>MTU</td>
<td>MTU</td>
</tr>
<tr>
<td>Model</td>
<td>16V2000G26F</td>
<td>16V2000G26F</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>
<tr>
<td>Engine governor</td>
<td>ADEC (ECU 9)</td>
<td>ADEC (ECU 9)</td>
</tr>
<tr>
<td>Speed regulation</td>
<td>± 0.25%</td>
<td>± 0.25%</td>
</tr>
<tr>
<td>Max power: kWm</td>
<td>890</td>
<td>890</td>
</tr>
<tr>
<td>Mean effective pressure: bar</td>
<td>19.9</td>
<td>19.9</td>
</tr>
<tr>
<td>Air cleaner</td>
<td>dry</td>
<td>dry</td>
</tr>
</tbody>
</table>

**Fuel system**

- Maximum fuel lift: m
  - 5
- Total fuel flow: l/min
  - 30

**Fuel consumption 3)**

- At 100% of power rating: l/hr g/kWh
  - 205/191
- At 75% of power rating: l/hr g/kWh
  - 156/194
- At 50% of power rating: l/hr g/kWh
  - 108/202

**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
  - 1.03
- Max. air intake restriction: mbar
  - 40

<table>
<thead>
<tr>
<th>Cooling/radiator system</th>
<th>Fuel consump. opt.</th>
<th>Emission opt. 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coolant flow rate (HT circuit): m³/hr</td>
<td>41.6</td>
<td>41.6</td>
</tr>
<tr>
<td>Heat rejection to coolant: kW</td>
<td>370</td>
<td>350</td>
</tr>
<tr>
<td>Heat radiated to charge air cooling: kW</td>
<td>145</td>
<td>205</td>
</tr>
<tr>
<td>Heat radiated to ambient: kW</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Fan power for mech. radiator (40°C):</td>
<td>43.4</td>
<td>43.4</td>
</tr>
<tr>
<td>Fan power for mech. radiator (50°C):</td>
<td>43.4</td>
<td>43.4</td>
</tr>
<tr>
<td>Air flow required for mech. radiator (40°C) cooled unit: m³/min</td>
<td>1462</td>
<td>1462</td>
</tr>
<tr>
<td>Air flow required for mech. radiator (50°C) cooled unit: m³/min</td>
<td>1462</td>
<td>1462</td>
</tr>
</tbody>
</table>

**Exhaust system**

- Exhaust gas temp. (after turbocharger): °C
  - 530
- Exhaust gas volume: m³/s
  - 2.78
- 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%
  - ± 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. 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**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kWel</td>
<td>kVA</td>
</tr>
<tr>
<td>Leroy Somer LSA 50.2 M6 (Low voltage Leroy Somer standard)</td>
<td>380 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>800</td>
</tr>
<tr>
<td>Leroy Somer LSA 50.2 L7 (Low voltage Leroy Somer oversized)</td>
<td>380 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>800</td>
</tr>
<tr>
<td>Marathon 740RSL7183 (Low voltage Marathon standard)</td>
<td>380 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>800</td>
</tr>
<tr>
<td>Marathon 742RSL7185 (Low voltage Marathon oversized)</td>
<td>380 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>800</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
- ADEC electronic isochronous engine governor
- 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 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 distorsion
- 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
- **Standard features**
  - Jacket water pump
  - Thermostat(s)
  - Air charge air cooling
  - Mechanical radiator
- **Optional features**
  - Jacket water heater

## Control Panel
- **Standard features**
  - 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)
- **Optional features**
  - 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

## Power Panel
- **Optional features**
  - 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
- **Standard features**
  - Flexible fuel connectors mounted to base frame
  - Fuel filter with water separator
  - Switchable fuel filter with water separator
- **Optional features**
  - Fuel cooler

## Starting/charging system
- **Standard features**
  - 24V starter
- **Optional features**
  - Starter batteries, cables, rack, disconnect switch
  - Battery charger
  - Redundant starter 2x 7.5KW

## Mounting system
- **Standard features**
  - Welded base frame
  - Resilient engine and generator mounting
- **Optional features**
  - Modular base frame design

## Exhaust system
- **Optional features**
  - 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
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>4440 x 1990 x 2200 mm</td>
<td>6550 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

— 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

Rolls-Royce Group

www.mtu-solutions.com/powergen