Diesel Generator Set

MTU 16V4000 DS2750

380V – 11 kV/50 Hz/prime power for stationary emergency/NEA (ORDE) + tier 2 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

MTU Onsite Energy is a single-source supplier

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: 2470 kVA - 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
— Tier 2 optimized engine
— NEA (ORDE) optimized engine

Certifications
— CE certification option

Optional equipment and finishing shown. Standard may vary.
### Application data

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

<table>
<thead>
<tr>
<th>Generator model</th>
<th>Voltage</th>
<th>Fuel consumption optimized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>without radiator</td>
<td>with radiator</td>
</tr>
<tr>
<td></td>
<td>kWel</td>
<td>kVA*</td>
</tr>
<tr>
<td><strong>Engine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>MTU</td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>16V4000G34F</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>4-cycle</td>
<td></td>
</tr>
<tr>
<td>Arrangement</td>
<td>16V</td>
<td></td>
</tr>
<tr>
<td>Displacement: l</td>
<td>76.3</td>
<td></td>
</tr>
<tr>
<td>Bore: mm</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>Stroke: mm</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>Compression ratio</td>
<td>16.4</td>
<td></td>
</tr>
<tr>
<td>Rated speed: rpm</td>
<td>1500</td>
<td></td>
</tr>
<tr>
<td>Engine governor</td>
<td>ADEC (ECU 9)</td>
<td></td>
</tr>
<tr>
<td>Max power: kWm</td>
<td>2387</td>
<td></td>
</tr>
<tr>
<td>Air cleaner</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fuel system</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum fuel lift: m</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total fuel flow: l/min</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td><strong>Fuel consumption</strong></td>
<td>l/hr</td>
<td>g/kwh</td>
</tr>
<tr>
<td>At 100% of power rating:</td>
<td>561</td>
<td>195</td>
</tr>
<tr>
<td>At 75% of power rating:</td>
<td>430</td>
<td>199</td>
</tr>
<tr>
<td>At 50% of power rating:</td>
<td>297</td>
<td>206</td>
</tr>
</tbody>
</table>

#### 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 2.7
- 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 920
- Heat radiated to charge air cooling: kW 500
- 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 6.8
- Maximum allowable back pressure: mbar 50

### System ratings (kW/kVA)

#### Generator model | Voltage | Fuel consumption optimized
<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
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</tr>
<tr>
<td></td>
<td>kWel</td>
<td>kVA*</td>
</tr>
<tr>
<td><strong>Leroy Somer LSA53.2 M7</strong> (Low voltage Leroy Somer standard)</td>
<td>380 V</td>
<td>2080</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>2080</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2080</td>
</tr>
<tr>
<td><strong>Leroy Somer LSA53.2 M9</strong> (Low voltage Leroy Somer oversized)</td>
<td>380 V</td>
<td>2080</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>2080</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2080</td>
</tr>
<tr>
<td><strong>Marathon 1020FDL7108</strong> (Low voltage Marathon)</td>
<td>380 V</td>
<td>2080</td>
</tr>
<tr>
<td></td>
<td>400 V</td>
<td>2080</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>2080</td>
</tr>
<tr>
<td><strong>Leroy Somer LSA 53.2 XL11</strong> (Medium volt. Leroy Somer)</td>
<td>11 kV</td>
<td>2080</td>
</tr>
<tr>
<td></td>
<td>11 kV</td>
<td>2032</td>
</tr>
</tbody>
</table>

* cos phi = 0.8
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 I, 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
- Jacket water heater
- Pulley for fan drive
- Pulley for fan drive

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)
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
- Seperate 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

<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.