MTU 16V4000 DS2250

380V – 11 kV/50 Hz/standby power/fuel consumption optimized
16V4000G74F/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: 2260 kVA - 2370 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
- Unit certificate acc. to BDEW (German Grid-Code)
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.

<table>
<thead>
<tr>
<th>System ratings (kW/kVA)</th>
<th>Generator model</th>
<th>Voltage</th>
<th>fuel consumption optimized</th>
<th>Liquid capacity (lubrication)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>without radiator</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>kWe</td>
<td>kVA*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1684</td>
<td>2330</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1808</td>
<td>2260</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1808</td>
<td>2260</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1008</td>
<td>2260</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1896</td>
<td>2370</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1896</td>
<td>2370</td>
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<td></td>
<td>1896</td>
<td>2370</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1184</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1180</td>
<td>123</td>
</tr>
</tbody>
</table>

|                        |                 |         | with mechanical radiator  |                              |
|                        |                 |         | kWe | kVA* | AMPS | Engine jacket water capacity: l |
|                        |                 |         | 1840 | 2300 | 3494 | 175 |
|                        |                 |         | 1840 | 2300 | 3494 | 50  |
|                        |                 |         | 1840 | 2300 | 3494 | 50  |
|                        |                 |         | 1840 | 2300 | 3494 | 90  |
|                        |                 |         | 1840 | 2300 | 3494 | 38  |
|                        |                 |         | 1184 | 122  |     |                              |

|                        |                 |         |                               |                              |
|                        |                 |         |                               |                              |
|                        |                 |         |                               |                              |

Standard and optional features

<table>
<thead>
<tr>
<th>Engine</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Type</th>
<th>Arrangement</th>
<th>Displacement: l</th>
<th>Bore: mm</th>
<th>Stroke: mm</th>
<th>Compression ratio</th>
<th>Rated speed: rpm</th>
<th>Engine governor</th>
<th>Max power: kWm</th>
<th>Air cleaner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MTU</td>
<td>16V4000G74F</td>
<td>4-cycle</td>
<td>16V</td>
<td>76.3</td>
<td>170</td>
<td>210</td>
<td>16.4</td>
<td>1500</td>
<td>ECU 9</td>
<td>dry</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fuel system</th>
<th>Maximum fuel lift: m</th>
<th>Total fuel flow: l/min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fuel consumption 2)</th>
<th>l/hr</th>
<th>g/kwh</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 100% of power rating:</td>
<td>452.23</td>
<td>191</td>
</tr>
<tr>
<td>At 75% of power rating:</td>
<td>342.7</td>
<td>193</td>
</tr>
<tr>
<td>At 50% of power rating:</td>
<td>240.3</td>
<td>203</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liquid capacity (lubrication)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total oil system capacity: l</td>
<td>300</td>
</tr>
<tr>
<td>Engine jacket water capacity: l</td>
<td>175</td>
</tr>
<tr>
<td>Intercooler coolant capacity: l</td>
<td>50</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Combustion air requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion air volume: m³/s</td>
<td>2.3</td>
</tr>
<tr>
<td>Max. air intake restriction: mbar</td>
<td>50</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Cooling/radiator system</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Coolant flow rate (HT circuit): m³/hr</td>
<td>68.5</td>
</tr>
<tr>
<td>Coolant flow rate (LT circuit): m³/hr</td>
<td>30</td>
</tr>
<tr>
<td>Heat rejection to coolant: kW</td>
<td>730</td>
</tr>
<tr>
<td>Heat radiated to charge air cooling: kW</td>
<td>320</td>
</tr>
<tr>
<td>Heat radiated to ambient: kW</td>
<td>90</td>
</tr>
<tr>
<td>Fan power for electr. radiator (40°C): kW</td>
<td>38</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exhaust system</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust gas temp. (after turbocharger): °C</td>
<td>485</td>
</tr>
<tr>
<td>Exhaust gas volume: m³/s</td>
<td>5.8</td>
</tr>
<tr>
<td>Maximum allowable back pressure: mbar</td>
<td>85</td>
</tr>
<tr>
<td>Minimum allowable back pressure: mbar</td>
<td>30</td>
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* cos phi = 0.8

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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

### 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: 2 core CT’s
- Winding pitch: 2/3 winding
- Voltage setpoint adjustment ± 10%
- Meets NEMA MG-1, BS 5000, IEC 60034-1, VDE 0530, DIN EN 12601, AS1359 and ISO 8528 requirements
- Leroy Somer low voltage generator
- Marathon low voltage generator
- Oversized generator
- Medium voltage generator
- Engine output optimized generator

### Cooling system
- Jacket water pump
- Thermostat(s)
- Water charge air cooling
- Mechanical radiator
- Electrical driven front-end cooler
- Jacket water heater

### 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 45kW – 75kW (PP 600x1000)

- Represents standard features
- Represents optional features
## 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
- [ ] Separate fuel cooler
- [ ] Fuel cooler integrated into cooling equipment

### Starting/charging system
- [ ] 24V starter
- [ ] Starter batteries, cables, rack, disconnect switch
- [ ] Battery charger

### 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

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- ■ 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>4766 x 1810 x 2330 mm</td>
<td>12428 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. No overload capability for this rating. 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.