MTU 12V4000 DS1750

380V – 11 kV/50 Hz/data center continuous power/TA-Luft optimized
12V4000G14F/water charge air cooling

Product highlights

Benefits
- Low fuel consumption
- Optimized system integration ability
- High reliability
- High availability of power
- Long maintenance intervals

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

Performance assurance certification (PAC)
- Engine-generator set tested to ISO 8528-5 for transient response
- 100% 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
- TA-Luft optimized

Certifications
- CE certification option
- Unit certificate acc. to BDEW (German Grid-Code)
### Application data

#### Engine
- Manufacturer: MTU
- Model: 12V4000G14F
- Type: 4-cycle
- Arrangement: 12V
- Displacement: 57.2 l
- Bore: 170 mm
- Stroke: 210 mm
- Compression ratio: 16.4
- Rated speed: 1500 rpm
- Engine governor: ECU 9
- Max power: 1420 kWm
- Air cleaner: Dry

#### Fuel system
- Maximum fuel lift: 5 m
- Total fuel flow: 16 l/min

#### Fuel consumption
1. At 100% of power rating: 373 l/hr, 218 g/kwh
2. At 75% of power rating: 272 l/hr, 212 g/kwh
3. At 50% of power rating: 184.8 l/hr, 216 g/kwh

#### Liquid capacity (lubrication)
- Total oil system capacity: 260 l
- Engine jacket water capacity: 160 l
- Intercooler coolant capacity: 40 l

#### Combustion air requirements
- Combustion air volume: 2.1 m³/s
- Max. air intake restriction: 50 mbar

#### Cooling/radiator system
- Coolant flow rate (HT circuit): 56 m³/hr
- Coolant flow rate (LT circuit): 30 m³/hr
- Heat rejection to coolant: 590 kW
- Heat radiated to charge air cooling: 360 kW
- Heat radiated to ambient: 75 kW
- Fan power for electr. radiator (40°C): 70 kW

#### Exhaust system
- Exhaust gas temp. (after turbocharger): 470 °C
- Exhaust gas volume: 5.2 m³/s
- Maximum allowable back pressure: 85 mbar
- Minimum allowable back pressure: 30 mbar

#### Standard and optional features

### System ratings (kW/kVA)

<table>
<thead>
<tr>
<th>Generator model</th>
<th>Voltage</th>
<th>without radiator</th>
<th>fuel consumption optimized</th>
<th>with mechanical radiator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>kWel</td>
<td>kVA</td>
<td>AMPS</td>
</tr>
<tr>
<td>Leroy Somer LSA52.3 S5</td>
<td>380 V</td>
<td>1360</td>
<td>1700</td>
<td>2583</td>
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<tr>
<td>(Low voltage Leroy Somer standard)</td>
<td>400 V</td>
<td>1360</td>
<td>1700</td>
<td>2454</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>1360</td>
<td>1700</td>
<td>2365</td>
</tr>
<tr>
<td>Marathon 743RSL7090</td>
<td>380 V</td>
<td>1352</td>
<td>1690</td>
<td>2568</td>
</tr>
<tr>
<td>(Low voltage Marathon)</td>
<td>400 V</td>
<td>1352</td>
<td>1690</td>
<td>2365</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>1352</td>
<td>1690</td>
<td>2212</td>
</tr>
<tr>
<td>Marathon 744RSL7091</td>
<td>380 V</td>
<td>1352</td>
<td>1690</td>
<td>2568</td>
</tr>
<tr>
<td>(Low voltage Marathon oversized)</td>
<td>400 V</td>
<td>1352</td>
<td>1690</td>
<td>2365</td>
</tr>
<tr>
<td></td>
<td>415 V</td>
<td>1352</td>
<td>1690</td>
<td>2212</td>
</tr>
<tr>
<td>Marathon 1020FDH7095</td>
<td>11 kV</td>
<td>1352</td>
<td>1690</td>
<td>89</td>
</tr>
<tr>
<td>(Medium volt. marathon)</td>
<td>11 kV</td>
<td>1352</td>
<td>1690</td>
<td>89</td>
</tr>
<tr>
<td>Leroy Somer LSA53.2 VL6</td>
<td></td>
<td>1352</td>
<td>1690</td>
<td>89</td>
</tr>
<tr>
<td>(Med. volt. Leroy Somer)</td>
<td></td>
<td>1352</td>
<td>1690</td>
<td>89</td>
</tr>
</tbody>
</table>

* cos phi = 0.8

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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**

### Engine
- 4-Cycle
- Standard single stage air filter
- Oil drain extension & shut-off valve
- Closed crankcase ventilation
- Improved oil separator
- Governor-electronic isochronous
- Common rail fuel injection
- TA-Luft optimized engine
- Centrifugal oil filter

### 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

### Cooling system
- Jacket water pump
- Thermostat(s)
- Water charge air cooling

### 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)

### 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 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 heavy-duty
- Switchable fuel filter with water separator
- 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
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>4059 x 1810 x 2330 mm</td>
<td>10654 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

<table>
<thead>
<tr>
<th>NOx + NMHC</th>
<th>CO</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700</td>
<td>300</td>
<td>50</td>
</tr>
</tbody>
</table>

All units are in mg/Nm³
Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided refers to ISO standard ambient conditions (25°C and 100m above sea level). The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation.

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: ≤ 100%.
— Consult your local MTU distributor for derating information.