Diesel Generator Set

MTU 12V4000 DS2250

380V – 11 kV/50 Hz/prime power for stationary emergency/ fuel consumption optimized/12V4000G34F/water charge air cooling

Optional equipment and finishing shown. Standard may vary.

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

Power rating
- System ratings: 2100 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
Application data 

Engine
Manufacturer MTU
Model 12V4000G34F
Type 4-cycle
Arrangement 12V
Displacement: l 57.2
Bore: mm 170
Stroke: mm 210
Compression ratio 16.4
Rated speed: rpm 1500
Engine governor ADEC (ECU 9)
Max power: kWm 1755
Air cleaner dry

Fuel system
Maximum fuel lift: m 5
Total fuel flow: l/min 27

Fuel consumption
At 100% of power rating: l/hr 413 g/kwh 195
At 75% of power rating: 307 193
At 50% of power rating: 211 199

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

Combustion air requirements
Combustion air volume: m³/s 2.2
Max. air intake restriction: mbar 50

Cooling/radiator system
Coolant flow rate (HT circuit): m³/hr 55
Coolant flow rate (LT circuit): m³/hr 30
Heat rejection to coolant: kW 690
Heat radiated to charge air cooling: kW 425
Heat radiated to ambient: kW 75
Fan power for electr. radiator (40°C): kW 55

Exhaust system
Exhaust gas temp. (after engine): °C 440
Exhaust gas temp., max (after engine): °C 550
Exhaust gas temp. (before turbocharger): °C 645
Exhaust gas volume: m³/s 5.5
Maximum allowable back pressure: mbar 50

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>kWe</td>
<td>kVA</td>
<td>AMPS</td>
</tr>
<tr>
<td>Leroy Somer LSA52.3 S7</td>
<td>380 V</td>
<td>1680</td>
<td>2100</td>
<td>3191</td>
</tr>
<tr>
<td>(Low voltage</td>
<td>400 V</td>
<td>1680</td>
<td>2100</td>
<td>3031</td>
</tr>
<tr>
<td>Leroy Somer standard)</td>
<td>415 V</td>
<td>1680</td>
<td>2100</td>
<td>2922</td>
</tr>
<tr>
<td>Leroy Somer LSA52.3 L12</td>
<td>380 V</td>
<td>1680</td>
<td>2100</td>
<td>3191</td>
</tr>
<tr>
<td>(Low voltage Leroy Somer oversized)</td>
<td>400 V</td>
<td>1680</td>
<td>2100</td>
<td>3031</td>
</tr>
<tr>
<td>415 V</td>
<td>1680</td>
<td>2100</td>
<td>2922</td>
<td>1624</td>
</tr>
<tr>
<td>Marathon 744RSL7092</td>
<td>380 V</td>
<td>1672</td>
<td>2090</td>
<td>3175</td>
</tr>
<tr>
<td>(Low voltage Marathon)</td>
<td>400 V</td>
<td>1672</td>
<td>2090</td>
<td>3017</td>
</tr>
<tr>
<td>415 V</td>
<td>1672</td>
<td>2090</td>
<td>2908</td>
<td>1616</td>
</tr>
<tr>
<td>Leroy Somer LSA53.2 XL9</td>
<td>11 kV</td>
<td>1680</td>
<td>2100</td>
<td>110</td>
</tr>
<tr>
<td>(Medium volt. Leroy Somer)</td>
<td>11 kV</td>
<td>1664</td>
<td>2080</td>
<td>109</td>
</tr>
</tbody>
</table>

* cos phi = 0.8

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
- Governor-electronic isochronous
- Fuel consumption optimized engine
- Common rail fuel injection

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 + PMI
- Mounting of CT’s: 3x 2 core CT’s
- Winding pitch: 2/3 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
- Marathon 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
- Pulley for Fan drive
- Jacket water heater
- 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 55kW (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
- [ ] 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

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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>4077 x 1810 x 2330 mm</td>
<td>11.130 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.