

Diesel Generator Set



mtu 18V2000 DS1400

380V - 415V/50 Hz/grid stability power/fuel consumption optimized/ NOx emission optimized/18V2000G26F



Optional equipment and finishing shown. Standard may vary.

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: 1250 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
- 100% load factor for continuous 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
- Water Charge-Air-Cooler
- Oversized voltage alternators

Cooling System

- Air-to-Air Charge-Air Cooling (TD)
- Water-to-Air Charge-Air Cooling (TB)

Emissions

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

Certifications

- CE certification option
- Unit certificate acc. to VDE-AR-N 4110



Application data¹⁾

| Engine | Fuel consump. opt. | Emission opt. ²⁾ | Cooling/radiator system TD/TB Fuel consump. opt. | Emission opt. ²⁾ |
|---|--------------------|-----------------------------|--|-----------------------------|
| Manufacturer | mtu | mtu | Coolant flow rate (HT circuit): m ³ /hr 46.3 | 46.3 |
| Model | 18V2000G26F | 18V2000G26F | Coolant flow rate (LT circuit for TB): m ³ /hr 17.5 | 17.5 |
| Туре | 4-cycle | 4-cycle | Heat radiated to charge air cooling (TB): | |
| Arrangement | 18V | 18V | kW (NOx) 215 | 280 |
| Displacement: l | 40.2 | 40.2 | Input pressure customer radiator (TB): bar (rel.) 1.4 | 1.4 |
| Bore: mm | 135 | 135 | Max. pressure loss customer radiator (TB): bar 0.7 | 0.7 |
| Stroke: mm | 156 | 156 | Heat dissipated by engine coolant: kW (NOx) 430 | 425 |
| Compression ratio | 17.5 | 17.5 | Heat radiated to ambient: kW 45 | 45 |
| Rated speed: rpm | 1500 | 1500 | Air flow required for mech. radiator (40°C) | |
| Engine governor | ADEC (ECU 9) | ADEC (ECU 9) | cooled unit: m³/min 1462 | 1462 |
| Speed regulation | ± 0.25% | ± 0.25% | Air flow required for mech. radiator (50°C) | |
| Max power: kWm | 1102 | 1102 | cooled unit: m³/min 1776 | 1776 |
| Mean effective pressure: bar | 21.9 | 21.9 | Engine coolant capacity | |
| Air cleaner | dry | dry | (without cooling equipment): l 73 | 73 |
| | | | Radiator coolant capacity (40°C): l 83 | 83 |
| Fuel system | | | Radiator coolant capacity (50°C): l 106 | 106 |
| Maximum fuel lift: m | 5 | 5 | Max. coolant temperature (warning): °C 102 | 102 |
| Total fuel flow: I/min | 30 | 30 | Max. coolant temperature (shutdown): °C 105 | 105 |
| Fuel consumption ³⁾ | | | Exhaust system | |
| At 100% of power rating: I/hr | g/kWh 251/189 | 264/199 | Exhaust gas temp. (after turbocharger): °C 485 | 480 |
| At 75% of power rating: l/hr | g/kWh 188/189 | 197/198 | Exhaust gas volume: m ³ /s 3.44 | 3.8 |
| At 50% of power rating: I/hr | g/kWh 130/196 | 135/204 | Maximum allowable back pressure: mbar 50 | 50 |
| | 0 | | Minimum allowable back pressure: mbar 30 | 30 |
| Lube oil system | | | · | |
| Total oil system capacity: l | 110 | 110 | Generator | |
| Max. lube oil temp. (alarm): °C | 103 | 103 | Protection class IP23 | IP23 |
| Max. lube oil temp. (shutdown): °C 105 | | 105 | Insulation class H | Н |
| Min. lube oil pressure (alarm): bar 4.5 | | 4.5 | Voltage regulation (steady state) ± 0.25% | ± 0.25% |
| Min. lube oil pressure (shutdow | /n): bar 4 | 4 | Rado interference class N | Ν |
| Combustion air requirements | | | | |
| Combustion air volume: m³/s | 1.34 | 1.48 | | |
| Max. air intake restriction: mba | r 40 | 40 | | |

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)

| Generator model | Voltage | with mechanical radiator (TD) or charge-air-cooler (TB)** | | |
|---|---------|---|------|------|
| | | kWel | kVA* | AMPS |
| Leroy Somer LSA 50.2 L7 (Low voltage Leroy Somer standard) | 380 V | 1000 | 1250 | 1899 |
| | 400 V | 1000 | 1250 | 1804 |
| | 415 V | 1000 | 1250 | 1739 |
| Leroy Somer LSA 50.2 L8 (Low voltage Leroy Somer oversized) | 380 V | 1000 | 1250 | 1899 |
| | 400 V | 1000 | 1250 | 1804 |
| | 415 V | 1000 | 1250 | 1739 |
| Marathon 742RSL7185 (Low voltage Marathon standard) | 380 V | 1000 | 1250 | 1899 |
| | 400 V | 1000 | 1250 | 1804 |
| | 415 V | 1000 | 1250 | 1739 |
| Marathon 743RSL7187 (Low voltage Marathon oversized) | 380 V | 1000 | 1250 | 1899 |
| | 400 V | 1000 | 1250 | 1804 |
| | 415 V | 1000 | 1250 | 1739 |

* 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/ECU9
 Common rail fuel injection

Governor-electronic isochronous

- 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 8528-3 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 3xln 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

Standard and optional features

Cooling system

Air-to-Air Charge-Air-Cooling TD

- Mechanical radiator
- Jacket water pump

Water-to-Air Charge-Air-Cooling TB

- Coolant pump
- Manifold with thermostatic valves

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)

□ Phase monitoring relay 230V/400V

Flexible fuel connectors mounted to

 Mains parallel operation of a single genset (V6)

□ Available in 600x600

Power panel

Fuel system

base frame

Expansion tank
 Fan

- WCAC-base frame with safety covers
- Thermostat(s)Jacket water heater

IP 54 front panel rating with

□ Different expansion modules

temperature monitoring

Differential protection with

multi-function protection relay

integrated gasket

□ Remote annunciator

Daytank control

□ Modbus TCP-IP

 \Box HT-piping with flexible engine connection

□ Generator winding- and bearing bearing

- 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
- □ Supply for battery charger
 □ Plug socket cabinet for 230V

 □ Supply for jacket water heater
 □ compatible Euro
- Fuel filter with water separatorSwitchable fuel filter with water separator

Resilient engine and generator mounting

- □ Fuel cooler (for TD-only)

□ Redundant starter 2x 7.5KW

Modular base frame design

□ Battery charger

Starting/charging system

24V starter

Mounting system

- Welded base frame
- Exhaust system
- Exhaust bellows with connection flange
 Exhaust silencer with
 10 dB(A) sound attenuation
- Exhaust silencer with
 30 dB(A) sound attenuation

□ Starter batteries, cables, rack,

disconnect switch

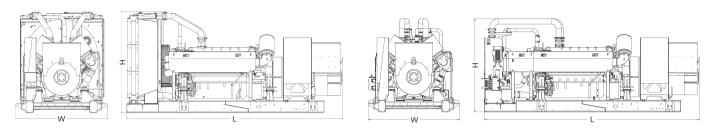
Exhaust silencer with
 40 dB(A) sound attenuation
 Y-connection-pipe

- Represents standard features
- Represents optional features

Weights and dimensions

Air-to-Air Charge-Air Cooling (TD)

Water-to-Air Charge-Air Cooling (TB)



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.

| System | Dimensions (LxWxH) | Weight (incl. engine-oil and coolant) |
|--|-----------------------|---------------------------------------|
| Open power unit (OPU) Air-to-Air (TD) | 4720 x 1990 x 2200 mm | 7850 kg |
| Open power unit (OPU) Water-to-Air (TB) | 4711 x 1988 x 2046 mm | 7500 kg |

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

Emissions data

- Consult your local *mtu* distributor for sound data.
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Rating definitions and conditions

- Grid stability power ratings apply to installations serving electric utility programs. At constant or varying load, the number of generator set operating hours is limited to 1000 hours per year with no more than 500 hours per year at 100% load without interruption. 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.