

Diesel Generator Set



mtu 18V2000 DS1400

380V - 415V/50 Hz/prime 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
- 75% load factor for prime 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: l/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: m³/s 3.44	3.8
At 50% of power rating: l/hr	g/kWh 130/196	135/204	Maximum allowable back pressure: mbar 50	50
	-		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): k	bar 4.5	4.5	Voltage regulation (steady state) ± 0.25%	± 0.25%
Min. lube oil pressure (shutdow	vn): bar 4	4	Rado interference class N	Ν
Combustion air requirements				
Combustion air volume: m³/s	Combustion air volume: m³/s 1.34			
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
- Governor-electronic isochronous ADEC/ECU9
- Common rail fuel injection
- Dry exhaust manifold
- Electric starting motor (24V)
- Fuel consumption optimized engine
- \Box 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 3xIn 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
- \Box Oversized generator

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)

Power panel

Fuel system

base frame

Expansion tankFan

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

IP 54 front panel rating with

□ Different expansion modules

□ Generator winding- and bearing

multi-function protection relay

temperature monitoring

Differential protection with

integrated gasket

□ Remote annunciator

Daytank control

□ Modbus TCP-IP

 \Box HT-piping with flexible engine connection

- 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
 □ Supply for jacket water heater
 □ Plug socket cabinet for 230V compatible Euro
 - Fuel filter with water separatorSwitchable fuel filter with water separator
- \Box Fuel cooler (for TD-only)

□ Battery charger

Starting/charging system

□ Available in 600x600

24V starter

Mounting system

- Welded base frame
- Resilient engine and generator mounting

disconnect switch

□ Starter batteries, cables, rack,

Modular base frame design

□ Redundant starter 2x 7.5KW

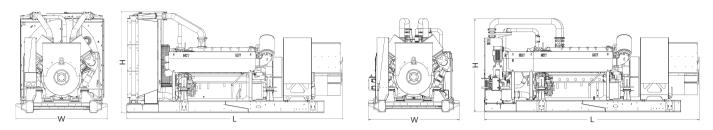
- Exhaust system
- Exhaust bellows with connection flange
 Exhaust silencer with
 10 dB(A) sound attenuation
- Exhaust silencer with
 30 dB(A) sound attenuation
- Exhaust silencer with
 40 dB(A) sound attenuation
 Y-connection-pipe

- Represents standard features
- Represents optional features

Weights and dimensions

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

- 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: ≤ 75%. Operating hours/year: unlimited
- Consult your local *mtu* distributor for derating information.