

Diesel Generator Set

mtu 16V2000 DS1100

380V - 415V/50 Hz/grid stability power/fuel consumption optimized/NOx emission optimized/16V2000G26F





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: 1000 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 and NEA (ORDE) optimization optionally available

Certifications

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



Application data 1)

Engine	Fuel consump. opt.	Emission opt. 2)	Cooling/radiator system TD/TB Fuel consump. op	ot. Emission opt. 2)
Manufacturer	mtu	mtu	Coolant flow rate (HT circuit): m³/hr 41.	.6 41.6
Model	16V2000G26F	16V2000G26F	Coolant flow rate (LT circuit for TB): m³/hr 17	.5 17.5
Туре	4-cycle	4-cycle	Heat radiated to charge air cooling (TB):	
Arrangement	16V	16V	kW (NOx) 14	15 205
Displacement: l	35.7	35.7	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) 37	70 350
Compression ratio	17.5	17.5	Heat radiated to ambient: kW 4	40
Rated speed: rpm	1500	1500	Air flow required for mech. radiator (40°C)	
Engine governor	ADEC	ADEC	cooled unit: m³/min 146	52 1462
Speed regulation	± 0.25%	± 0.25%	Air flow required for mech. radiator (50°C)	
Max power: kWm	890	890	cooled unit: m³/min 146	52 1462
Mean effective pressure: bar	19.9	19.9	Engine coolant capacity	
Air cleaner	dry	dry	(without cooling equipment): l 7	70 70
			Radiator coolant capacity (40°C): l	74 74
Fuel system			Radiator coolant capacity (50°C): I	06 106
Maximum fuel lift: m	5	5	Max. coolant temperature (warning): °C 10)2 102
Total fuel flow: I/min	30	30	Max. coolant temperature (shutdown): °C 10	05 105
Fuel consumption 3)			Exhaust system	
At 100% of power rating: I/hr	205/191	216/201	Exhaust gas temp. (after turbocharger): °C 53	50 515
At 75% of power rating: I/hr	156/194	165/205	Exhaust gas volume: m³/s 2.7	78 3.07
At 50% of power rating: I/hr	108/202	115/214	Maximum allowable back pressure: mbar 5	50
			Minimum allowable back pressure: mbar 3	30
Lube oil system				
Total oil system capacity: l	102	102	Generator	
Max. lube oil temp. (alarm): °C	103	103	Protection class IP2	23 IP23
Max. lube oil temp. (shutdown): °	C 105	105	Insulation class	Н Н
Min. lube oil pressure (alarm): ba	r 4.5	4.5	Voltage regulation (steady state) ± 0.25	% ± 0.25%
Min. lube oil pressure (shutdown): bar 4	4	Rado interference class	N N
Combustion air requirements				
Combustion air volume: m³/s	1.03	1.19		
Max. air intake restriction: mbar	40	40		

All data refers only to the engine and is based on ISO standard conditions (25°C and 100m above sea level).

 $^{2\}qquad \hbox{Emission optimized data refer to NOx emission optimized and NEA (ORDE) optimized/Tier~2~compliant~engines.}$

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 M6 (Low voltage Leroy Somer standard)	380 V	800	1000	1519	
	400 V	800	1000	1443	
	415 V	800	1000	1391	
Leroy Somer LSA 50.2 L7 (Low voltage Leroy Somer oversized)	380 V	800	1000	1519	
	400 V	800	1000	1443	
	415 V	800	1000	1391	
Marathon 740RSL7183 (Low voltage Marathon standard)	380 V	800	1000	1519	
	400 V	800	1000	1443	
	415 V	800	1000	1391	
Marathon 742RSL7185 (Low voltage Marathon oversized)	380 V	800	1000	1519	
	400 V	800	1000	1443	
	415 V	800	1000	1391	

^{*} cos phi = 0.8

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
- $\hfill \square$ 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

^{**} 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

Represents standard features

Represents optional features

Standard and optional features

Cooling system

Air-to-Air Charge-Air-Cooling TD

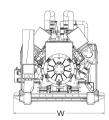
Represents standard featuresRepresents optional features

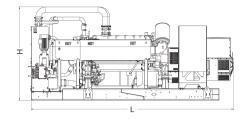
Mechanical radiatorJacket water pump	Expansion tankFan	■ Thermostat(s) □ Jacket water heater
Water-to-Air Charge-Air-Cooling TB		
Coolant pumpManifold with thermostatic valves	■ WCAC-base frame with safety covers	☐ HT-piping with flexible engine connection
Control panel		
 ■ Pre-wired control cabinet 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- and bearing temperature monitoring □ Differential protection with multi-function protection relay □ Modbus TCP-IP
Power panel		
□ Available in 600x600□ Phase monitoring relay 230V/400V	☐ Supply for battery charger☐ Supply for jacket water heater☐	☐ Plug socket cabinet for 230V compatible Euro
Fuel system		
Flexible fuel connectors mounted to base frame	☐ Fuel filter with water separator ☐ Switchable fuel filter with water separator	☐ Fuel cooler (for TD-only)
Starting/charging system		
■ 24V starter	☐ Starter batteries, cables, rack, disconnect switch	☐ Battery charger ☐ Redundant starter 2x 7.5kW
Mounting system		
■ Welded base frame	Resilient engine and generator mounting	■ Modular base frame design
Exhaust system		
Exhaust bellows with connection flangeExhaust silencer with10 dB(A) sound attenuation	☐ Exhaust silencer with 30 dB(A) sound attenuation	□ Exhaust silencer with40 dB(A) sound attenuation□ Y-connection-pipe

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)	4440 x 1990 x 2200 mm	7300 kg
Open power unit (OPU) Water-to-Air (TB)	4447 x 1988 x 2046 mm	6900 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

Consult your local mtu distributor for sound data.

Emissions data

- Consult your local *mtu* distributor for emissions data.

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.