

Diesel Generator Set

mtu 12V4000 DS1750

380V – 11 kV/50 Hz/prime power for stationary emergency/ NEA (ORDE) optimized/12V4000G14F/water charge air cooling





Optional equipment and finishing shown. Standard may vary.

Product highlights

Benefits

- Approved for renewable fuels (e.g. HVO)
- 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 EC 60034-1, ISO 8528-3; IEC 60044-1;
 Declaration of conformity; EN55011, group 1, cl. B
- NFPA 110*

Power rating

- System ratings: 1690 kVA 1700 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

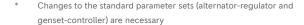
- NEA (ORDE) optimized

Certifications

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



Renew able



Application data 1)

Engine		Liquid capacity (lubrication)	
Manufacturer	mtu	Total oil system capacity: l	260
Model	12V4000G14F	Engine jacket water capacity: l	160
Туре	4-cycle	Intercooler coolant capacity: l	40
Arrangement	12V		
Displacement: l	57.2	Combustion air requirements	
Bore: mm	170	Combustion air volume: m³/s	1.8
Stroke: mm	210	Max. air intake restriction: mbar	50
Compression ratio	16.4		
Rated speed: rpm	1500	Cooling/radiator system	
Engine governor	ECU 9	Coolant flow rate (HT circuit): m³/hr	56
Max power: kWm	1420	Coolant flow rate (LT circuit): m³/hr	30
Air cleaner	dry	Heat rejection to coolant: kW	545
		Heat radiated to charge air cooling: kW	260
Fuel system		Heat radiated to ambient: kW	75
Fuel specification	EN 590, Grade No.1-D/2-D (ASTM D975-00),	Fan power for electr. radiator (40°C): kW	55
	EN 15940 (e.g. HVO)		
Maximum fuel lift: m	5	Exhaust system	
Total fuel flow: I/min	16	Exhaust gas temp. (after turbocharger): °C	505
		Exhaust gas volume: m³/s	4.9
Fuel consumption 2)	l/hr g/kwh	Maximum allowable back pressure: mbar	85
At 100% of power rating:	342.2 200	Minimum allowable back pressure: mbar	30
At 75% of power rating:	274.6 214		
At 50% of power rating:	200.2 234		

Standard and optional features

System ratings (kW/kVA)

Generator model	Voltage	NEA (ORDE) optimized					
		without radiator		,	with mechanical	radiator	
		kWel	kVA*	AMPS	kWel	kVA*	AMPS
Leroy Somer LSA52.3 S5 (Low voltage Leroy Somer standard)	380 V	1360	1700	2583	1296	1620	2461
	400 V	1360	1700	2454	1296	1620	2338
	415 V	1360	1700	2365	1296	1620	2254
Leroy Somer LSA53.2 VL6 (Medium volt. Leroy Somer)	11 kV	1352	1690	89	1296	1620	85

^{*} cos phi = 0.8

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 Closed crankcase ventilation ■ NEA (ORDE) optimized engine Standard single stage air filter ■ Governor-electronic isochronous Oil drain extension & shut-off valve ■ Common rail fuel injection Generator ■ 4 pole three-phase synchronous ■ Insulation class H, utilization acc. to H ■ Meets NEMA MG-1, BS 5000, IEC 60034-1, Radio suppression EN 55011, group 1, cl. B VDE 0530. DIN EN 12601. AS 1359 and generator Brushless, self-excited, self-regulating, ■ Short circuit capability 3xln for 10sec ISO 8528-3 requirements self-ventilated ■ Winding and bearing RTDs Leroy Somer low voltage generator ■ Digital voltage regulator (without monitoring) ☐ Oversized generator ■ Excitation by AREP Anti condensation heater ☐ Medium voltage generator ■ Stator winding Y-connected, accessible ■ Mounting of CT's: 2 core CT's neutral (brought out) ■ Winding pitch: 2/3 winding ■ Protection IP23 ■ Voltage setpoint adjustment ± 10% Oil system ☐ Automatic oil refilling system ☐ Extended test run kit (including pre-lubrication pump) Cooling system Jacket water pump ☐ Mechanical radiator $\hfill \square$ Jacket water heater with plate heat ■ Thermostat(s) ☐ Electrical driven front-end cooler exchanger Water charge air cooling ☐ Jacket water heater ☐ Pulley for fan drive Control panel Unit cabling with coded plugs for \square Mains parallel operation of Event recording easy connection of customer-specific a single genset (V6) ☐ IP 54 front panel rating with controls (VO) \square Mains parallel operation of integrated gasket $\ \square$ Pre-wired control cabinet for easy multiple gensets (V7) ☐ Different expansion modules ☐ Basler controller ☐ Remote annunciator application of customized controller (V1+) ☐ Island operation (V2) ☐ Deif controller ☐ Daytank control ☐ Automatic mains failure operation with ☐ Complete system metering ☐ Generator winding temperature ATS (V3a) Digital metering monitoring ☐ Automatic mains failure operation Engine parameters ☐ Generator bearing temperature incl. control of generator and mains Generator protection functions monitorina

■ Engine protection

Parametrization software

Multiple contact outputs

Multilingual capability

■ SAE J1939 engine ECU communications

■ Multiple programmable contact inputs

☐ Modbus TCP-IP

- Represents standard features
- Represents optional features

breaker (V3b)

gensets (V4)

☐ Island parallel operation of multiple

short (< 10s) mains parallel

overlap synchronization (V5)

 $\hfill \square$ Automatic mains failure operation with

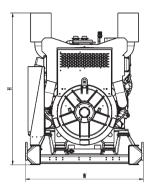
Standard and optional features

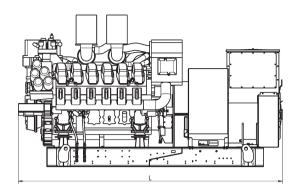
Connectivity

transfers engine data to the manufacturer from time to time. The data is used by the	development and improvement as well as service optimization.	https://mtu-go.com and also gain insight int the data.	
Power panel			
□ Supply electrical driven radiator from 45kW – 75kW			
Circuit breaker/power distribution			
☐ 3-pole circuit breaker ☐ 4-pole circuit breaker	☐ Electrical-actuated circuit breaker	☐ Base frame mounted GCB, pre-wired with generator, ready for commissioning	
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 Seperate fuel cooler 	☐ Fuel cooler integrated into cooling equipment	
Starting/charging system			
24V starterRedundant starting system	☐ Starter batteries, cables, rack, disconnect switch (lockable)	☐ Battery charger ☐ Alternator	
Mounting system			
Welded base frameResilient engine and generator mounting	 Modular base frame design Base frame mounting on foundation/base plate with using clamping brackets 	□ Spring mounts with 95% degree of isolation	
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	

- 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.

System	Dimensions (LxWxH)	Weight (dry/less tank)
Open power unit (OPU)	4059 x 1810 x 2330 mm	10654 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

- 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 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: ≤ 85%. Operating hours/year: max. 500.
- Consult your local *mtu* distributor for derating information.