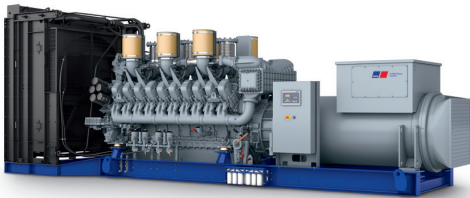




Diesel Generator Set

mtu 20V4000 DS2750

380V – 11 kV/50 Hz/data center continuous power/
NEA (ORDE) optimized/20V4000G14F/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, BS 5000, ISO, DIN EN and IEC standards
- NFPA 110

Power rating

- System ratings: 2530 kVA - 2660 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
- 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

* Changes to the standard parameter sets (alternator-regulator and genset-controller) are necessary



A Rolls-Royce
solution

Application data ¹⁾

Engine			Liquid capacity (lubrication)	
Manufacturer		mtu	Total oil system capacity: l	390
Model	20V4000G14F		Engine jacket water capacity: l	205
Type	4-cycle		Intercooler coolant capacity: l	50
Arrangement	20V		Combustion air requirements	
Displacement: l	95.4		Combustion air volume: m ³ /s	2.4
Bore: mm	170		Max. air intake restriction: mbar	50
Stroke: mm	210		Cooling/radiator system	
Compression ratio	16.4		Coolant flow rate (HT circuit): m ³ /hr	80
Rated speed: rpm	1500		Coolant flow rate (LT circuit): m ³ /hr	32.5
Engine governor	ECU 9		Heat rejection to coolant: kW	930
Max power: kWm	2420		Heat radiated to charge air cooling: kW	350
Air cleaner	dry		Heat radiated to ambient: kW	105
Fuel system			Fan power for electr. radiator (40°C): kW	70
Maximum fuel lift: m		5	Exhaust system	
Total fuel flow: l/min		27	Exhaust gas temp. (after turbocharger): °C	540
Fuel consumption ²⁾			Exhaust gas volume: m ³ /s	6.5
At 100% of power rating:	l/hr	g/kwh	Maximum allowable back pressure: mbar	85
At 75% of power rating:	580.2	199	Minimum allowable back pressure: mbar	30
At 50% of power rating:	457.0	209		
	320.7	220		

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 UL16 (Low voltage Leroy Somer standard)	380 V	2104	2630	3996	2048	2560	3890
	400 V	2104	2630	3796	2048	2560	3695
	415 V	2104	2630	3659	2048	2560	3561
Marathon 1020FDL7093 (Low voltage Marathon)	380 V	2128	2660	4041	2056	2570	3905
	400 V	2096	2620	3782	2032	2540	3666
	415 V	2096	2620	3645	2024	2530	3520
Marathon 1030FDL7094 (Low voltage Marathon oversized)	380 V	2128	2660	4041	2056	2570	3905
	400 V	2096	2620	3782	2032	2540	3666
	415 V	2096	2620	3645	2024	2530	3520
Marathon 1030FDH7101 (Medium volt. marathon)	11 kV	2104	2630	138	2040	2550	134
Leroy Somer LSA53.2 ZL12 (Medium volt. Leroy Somer)	11 kV	2104	2630	138	2048	2560	134

* 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 with improved oil separator
- Governor-electronic isochronous
- Common rail fuel injection
- NEA (ORDE) optimized engine
- Centrifugal oil filter

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 EN 55011, group 1, cl. B
- Short circuit capability 3xIn for 10sec
- Winding and bearing RTDs (without monitoring)
- Excitation by AREP
- Mounting of CT's: 2 core CT's
- Winding pitch: 2/3 winding
- Voltage setpoint adjustment $\pm 10\%$
- Meets NEMA MG-1, BS 5000, IEC 60034-1, VDE 0530, DIN EN 12601, AS 1359 and ISO 8528-3 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
- Jacket water heater

Control panel

- Unit cabling with coded plugs for easy connection of customer-specific controls (V0)
- 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

Connectivity

The engine system automatically collects and transfers engine data to the manufacturer from time to time. The data is used by the manufacturer for the purposes of product

development and improvement as well as service optimization. Users can log in or register via <https://mtu-go.com> and also gain insight into the data.

- Represents standard features
- Represents optional features

Standard and optional features

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 starter
- Redundant starting system
- Starter batteries, cables, rack, disconnect switch (lockable)
- Battery charger
- Alternator

Mounting system

- Welded base frame
- Resilient engine and generator mounting
- Modular base frame design
- Base frame mounting on foundation/base plate with using clamping brackets

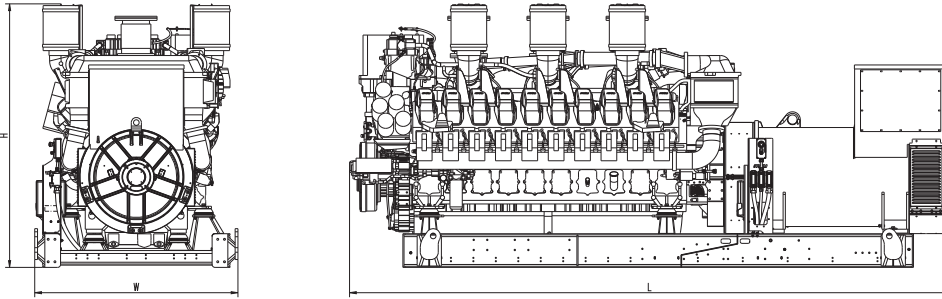
Exhaust system

- 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



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)	5350 x 1810 x 2348 mm	16554 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

- Data center continuous power ratings (DCP) apply to data center installations where a reliable utility power is available and comply with Uptime Institute Tier III and IV requirements. At constant or 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: ≤ 100%.
- Consult your local **mtu** distributor for derating information.