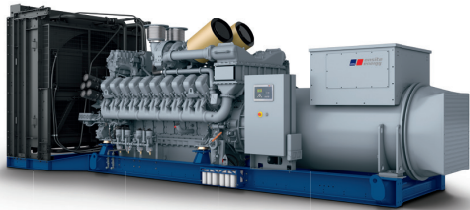




Diesel Generator Set

mtu 20V4000 DS4000

400 V - 11 kV/50 Hz/prime power for stationary emergency/
NEA (ORDE) + Tier 2 optimized/20V4000G44LF/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 rating: 3600 kVA - 3630 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
- Fuel system
- Fuel connections with shut-off valve mounted to base frame
- Starting/charging system
- Exhaust system
- Electrical driven radiators
- Medium and oversized voltage alternators
- Low voltage alternator

Emissions

- Tier 2 optimized engine
- 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 | 20V4000G44LF | Engine jacket water capacity: l | 260 |
| Type | 4-cycle | Intercooler coolant capacity: l | 50 |
| Arrangement | 20V | Combustion air requirements | |
| Displacement: l | 95.4 | Combustion air volume: m ³ /s | 4.4 |
| Bore: mm | 170 | Max. air intake restriction: mbar | 30 |
| 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 | 50 |
| Engine governor | ADEC (ECU 9) | Heat rejection to coolant: kW | 1045 |
| Max power: kWm | 3007 | Heat radiated to charge air cooling: kW | 835 |
| Air cleaner | dry | Heat radiated to ambient: kW | 105 |
| Fuel system | | Fan power for electr. radiator (40°C): kW | 105 |
| Maximum fuel lift: m | 5 | Exhaust system | |
| Total fuel flow: l/min | 27 | Exhaust gas temp. (after engine, max.): °C | 440 |
| Fuel consumption ²⁾ | | Exhaust gas temp. (before turbocharger): °C | 620 |
| At 100% of power rating: | l/hr | g/kwh | Exhaust gas volume: m ³ /s |
| At 75% of power rating: | 718 | 198 | 10.6 |
| At 50% of power rating: | 541 | 199 | Maximum allowable back pressure: mbar |
| | 392 | 216 | 50 |
| | | | Minimum allowable back pressure: mbar |
| | | | - |

Standard and optional features

System ratings (kW/kVA)

| Generator model | Voltage | NEA (ORDE) + Tier 2 optimized | | |
|--|---------|-------------------------------|------|------|
| | | without radiator | | |
| | | kWel | kVA* | AMPS |
| Leroy Somer LSA54.2 ZL17 (LV Leroy Somer standard) | 400 V | 2880 | 3600 | 5196 |
| Leroy Somer LSA54.2 ZL12 (Med. volt. Leroy Somer) | 11 kV | 2904 | 3630 | 191 |
| Marathon 1040FDH7105 (Medium volt. marathon) | 11 kV | 2904 | 3630 | 191 |
| Leroy Somer LSA54.2 ZL14 (MV Leroy Somer oversized) | 11 kV | 2904 | 3630 | 191 |

* cos phi = 0.8

** BE, fuel optimized: max. power available up to: open power unit 40°C/400m; TAL, 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

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
- Governor-electronic isochronous
- Common rail fuel injection
- Tier 2 optimized engine
- NEA (ORDE) optimized engine

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 + PMI
- Mounting of CT's: 3x 1 core CT's
- Winding pitch: 127° pitch
- Voltage setpoint adjustment ± 5%
- 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
- Leroy Somer medium voltage generator
- Marathon low voltage generator
- Oversized generator

Cooling system

- Jacket water pump
- Thermostat(s)
- Water charge air cooling
- Electrical driven front-end cooler
- Jacket water heater
- Pulley for fan drive

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
- 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

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

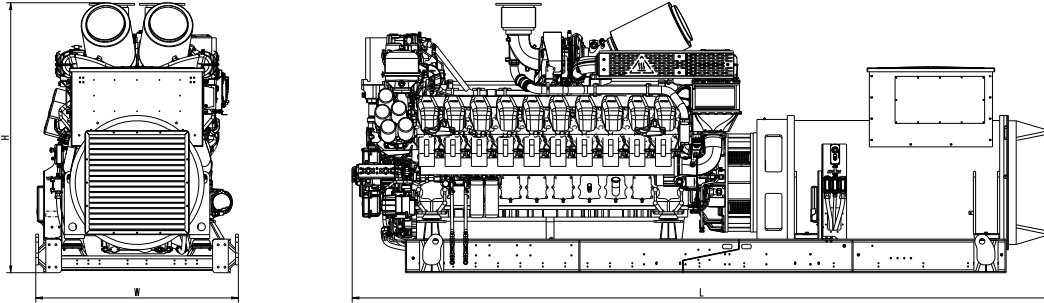
- Welded base frame
- Resilient engine and generator mounting
- Modular base frame design
- Base frame mounting on foundation/base plate with using clamping brackets

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) | 6343 x 1810 x 2421 mm | 20810 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: $\leq 85\%$. Operating hours/year: max. 500.
- Consult your local **mtu** distributor for derating information.