



## Diesel Generator Set

# MTU 20V4000 DS2750

380V – 11 kV/50 Hz/prime power for stationary emergency/  
fuel consumption 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, BS5000, ISO, DIN EN and IEC standards
- NFPA 110

### Power rating

- System ratings: 2620 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
- 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

- Fuel consumption optimized

### Certifications

- CE certification option
- Unit certificate acc. to BDEW (German Grid-Code)



A Rolls-Royce  
solution

## Application data <sup>1)</sup>

### Engine

|                   |             |
|-------------------|-------------|
| Manufacturer      | MTU         |
| Model             | 20V4000G14F |
| Type              | 4-cycle     |
| Arrangement       | 20V         |
| Displacement: l   | 95.4        |
| Bore: mm          | 170         |
| Stroke: mm        | 210         |
| Compression ratio | 16.4        |
| Rated speed: rpm  | 1500        |
| Engine governor   | ECU 9       |
| Max power: kWm    | 2200        |
| Air cleaner       | Dry         |

### Fuel system

|                        |    |
|------------------------|----|
| Maximum fuel lift: m   | 5  |
| Total fuel flow: l/min | 27 |

### Fuel consumption <sup>2)</sup>

|                          |       |       |
|--------------------------|-------|-------|
|                          | l/hr  | g/kwh |
| At 100% of power rating: | 508.9 | 192   |
| At 75% of power rating:  | 387.7 | 195   |
| At 50% of power rating:  | 279.6 | 211   |

### Liquid capacity (lubrication)

|                                 |     |
|---------------------------------|-----|
| Total oil system capacity: l    | 390 |
| Engine jacket water capacity: l | 205 |
| Intercooler coolant capacity: l | 50  |

### Combustion air requirements

|  |     |
|--|-----|
| Combustion air volume: m <sup>3</sup> /s | 2.4 |
| Max. air intake restriction: mbar        | 50  |

### Cooling/radiator system

|  |      |
|--|------|
| Coolant flow rate (HT circuit): m <sup>3</sup> /hr | 80   |
| Coolant flow rate (LT circuit): m <sup>3</sup> /hr | 32.5 |
| Heat rejection to coolant: kW                      | 860  |
| Heat radiated to charge air cooling: kW            | 300  |
| Heat radiated to ambient: kW                       | 105  |
| Fan power for electr. radiator (40°C): kW          | 44   |

### Exhaust system

|  |     |
|--|-----|
| Exhaust gas temp. (after turbocharger): °C | 580 |
| Exhaust gas volume: m <sup>3</sup> /s      | 6.5 |
| Maximum allowable back pressure: mbar      | 85  |
| Minimum allowable back pressure: mbar      | 30  |

## Standard and optional features

### System ratings (kW/kVA)

| Generator model   | Voltage | Fuel consumption optimized |      |      |                          |      |      |
|---|---------|----------------------------|------|------|--------------------------|------|------|
|   |         | without radiator           |      |      | with mechanical radiator |      |      |
|   |         | kWel                       | kVA* | AMPS | kWel                     | kVA* | AMPS |
| Leroy Somer LSA53.2 M7<br>(Low voltage<br>Leroy Somer standard) | 380 V   | 2112                       | 2640 | 4011 | 2072                     | 2590 | 3935 |
|   | 400 V   | 2112                       | 2640 | 3811 | 2072                     | 2590 | 3738 |
|   | 415 V   | 2112                       | 2640 | 3673 | 2072                     | 2590 | 3603 |
| Marathon 1020FDL7093<br>(Low voltage Marathon)                  | 380 V   | 2128                       | 2660 | 4041 | 2088                     | 2610 | 3965 |
|   | 400 V   | 2096                       | 2620 | 3782 | 2056                     | 2570 | 3709 |
|   | 415 V   | 2096                       | 2620 | 3645 | 2056                     | 2570 | 3575 |
| Marathon 1030FDL7094<br>(Low voltage Marathon<br>oversized)     | 380 V   | 2128                       | 2660 | 4041 | 2088                     | 2610 | 3965 |
|   | 400 V   | 2096                       | 2620 | 3782 | 2056                     | 2570 | 3709 |
|   | 415 V   | 2096                       | 2620 | 3645 | 2056                     | 2570 | 3575 |
| Marathon 1030FDH7101<br>(Medium volt. marathon)                 | 11 kV   | 2112                       | 2640 | 139  | 2072                     | 2590 | 136  |
| Leroy Somer LSA53.2 ZL12<br>(Medium volt. Leroy Somer)          | 11 kV   | 2112                       | 2640 | 139  | 2072                     | 2590 | 136  |

\* 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
- Governor-electronic isochronous
- Common rail fuel injection
- Fuel consumption 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 EN55011, group 1, cl. B
- Short circuit capability  $3 \times I_n$  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, AS1359 and ISO 8528 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

- 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

### Power panel

- Available in 600x600 and 600x1000
- Phase monitoring relay 230V/400V
- Supply for battery charger
- Supply for jacket water heater
- Supply for anti condensation heating
- Plug socket cabinet for 230V compatible Euro/USA
- Supply for electrical driven radiator from 45kW – 75kW (PP 600x1000)

- Represents standard features
- Represents optional features

## Standard and optional features

### Circuit breaker/power distribution

- 3-pole circuit breaker
- 4-pole circuit breaker
- Manual-actuated circuit breaker
- Electrical-actuated circuit breaker
- Stand-alone solution in separate cabinet

### 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
- Separate fuel cooler
- Fuel cooler integrated into cooling equipment

### Starting/charging system

- 24V starter
- Starter batteries, cables, rack, disconnect switch
- Battery charger

### Mounting system

- Welded base frame
- Resilient engine and generator mounting
- Modular base frame design

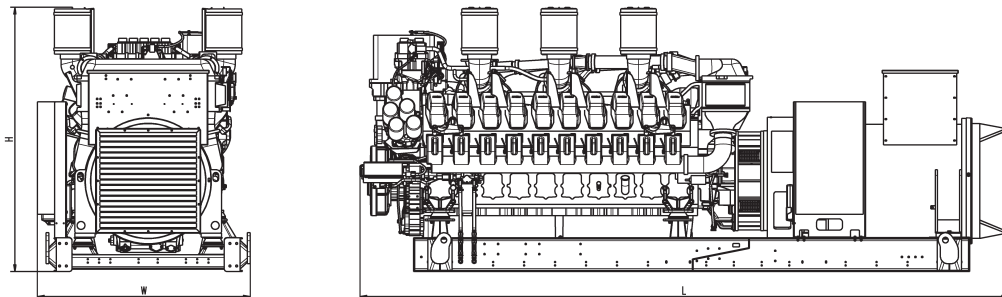
### Exhaust system

- 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 (L x W x H) | Weight (dry/less tank) |
|-----------------------|------------------------|------------------------|
| Open power unit (OPU) | 5760 x 1887 x 2332 mm  | 16919 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.