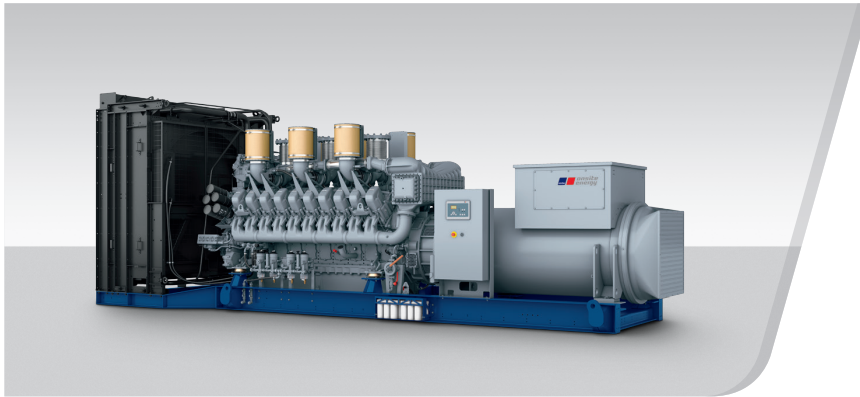


# DIESEL GENERATOR SET

## MTU 20V4000 DS2750

380V – 11 kV/50 Hz/Standby Power/Fuel Consumption Optimized  
MTU 20V4000G23/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

#### // MTU Onsite Energy is a single-source supplier

#### // 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: 2660 kVA - 2910 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)

APPLICATION DATA<sup>①</sup>

## // Engine

Manufacturer	MTU
Model	20V4000G23
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	ADEC (ECU 7)
Max power: kWm	2420
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:	554	190
At 75% of power rating:	419.9	192
At 50% of power rating:	293	201

## // 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	2.65
Max. air intake restriction: mbar	50

## // Cooling/Radiator System

Coolant flow rate (HT circuit): m <sup>3</sup> /h	80
Coolant flow rate (LT circuit): m <sup>3</sup> /h	32.5
Heat rejection to coolant: kW	910
Heat radiated to charge air cooling: kW	350
Heat radiated to ambient: kW	105
Fan power for electr. radiator (40°C): kW	44

## // Exhaust System

Exhaust gas temp. (after turbocharger): °C	560
Exhaust gas volume: m <sup>3</sup> /s	7.1
Maximum allowable back pressure: mbar	85
Minimum allowable back pressure: mbar	30

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

### // System Ratings (kW/kVA)

Generator model	Voltage	Fuel consumption optimized 40°C/400m					
		without radiator			with mechanical radiator		
		kWel	kVA*	AMPS	kWel	kVA*	AMPS
Leroy Somer LSA52.3 M7	380 V	2240	2800	4254	2240	2800	4254
(Low voltage Leroy Somer standard)	400 V	2240	2800	4041	2240	2800	4041
	415 V	2240	2800	3895	2240	2800	3895
Marathon 1020FDL7093	380 V	2272	2840	4315	2272	2840	4315
(Low voltage Marathon)	400 V	2184	2730	3940	2184	2730	3940
	415 V	2128	2660	3701	2128	2660	3701
Marathon 1030FDL7094	380 V	2272	2840	4315	2272	2840	4315
(Low voltage Marathon oversized)	400 V	2184	2730	3940	2184	2730	3940
	415 V	2128	2660	3701	2128	2660	3701
Marathon 1030FDL7094	380 V	2328	2910	4421	2288	2860	4345
(Low voltage Marathon engine output optimized)	400 V	2312	2890	4171	2272	2840	4099
	415 V	2320	2900	4034	2272	2840	3951
Marathon 1030FDH7101	11 kV	2312	2890	152	2272	2840	149
(Medium volt. marathon)							
Leroy Somer LSA53.2 ZL12	11 kV	2320	2900	152	2280	2850	150
(Medium volt. Leroy Somer)							

\* cos phi = 0,8

### // 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 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 ± 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
- Engine output optimized generator

■ Represents standard features

□ Represents optional features

## STANDARD AND OPTIONAL FEATURES, CONTINUATION

### // 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 electrical driven radiator from 45kW – 75kW (PP 600x1000)

### // 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

## STANDARD AND OPTIONAL FEATURES, CONTINUATION

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### // Fuel System

- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li>■ Flexible fuel connectors mounted to base frame</li> <li><input type="checkbox"/> Fuel filter with water separator</li> <li><input type="checkbox"/> Fuel filter with water separator heavy-duty</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Switchable fuel filter with water separator</li> <li><input type="checkbox"/> Switchable fuel filter with water separator heavy-duty</li> <li><input type="checkbox"/> Seperate fuel cooler</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Fuel cooler integrated into cooling equipment</li> </ul> |
|---|--|--|

### // Starting/Charging System

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>■ 24V starter</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Starter batteries, cables, rack, disconnect switch</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Battery charger</li> </ul> |
|---|---|--|

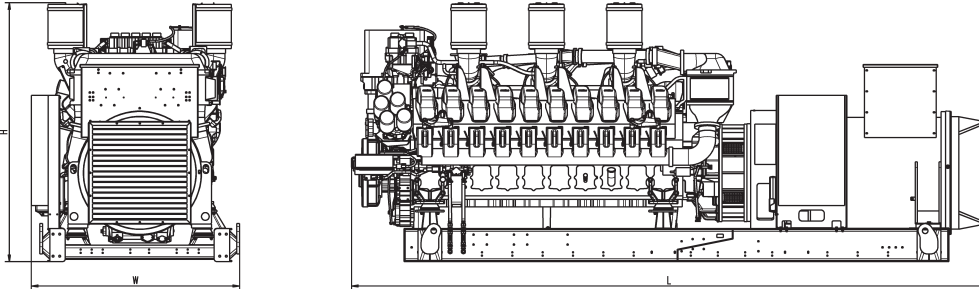
### // Mounting System

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>■ Welded base frame</li> </ul> | <ul style="list-style-type: none"> <li>■ Resilient engine and generator mounting</li> </ul> | <ul style="list-style-type: none"> <li>■ Modular base frame design</li> </ul> |
|---|---|---|

### // Exhaust System

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> Exhaust bellows with connection flange</li> <li><input type="checkbox"/> Exhaust silencer with 10 dB(A) sound attenuation</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Exhaust silencer with 30 dB(A) sound attenuation</li> <li><input type="checkbox"/> Exhaust silencer with 40 dB(A) sound attenuation</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Y-connection-pipe</li> </ul> |
|--|--|--|

## 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 Onsite Energy distributor for sound data.

## EMISSIONS DATA

// Consult your local MTU Onsite Energy 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. No overload capability for this rating. 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.

// Deration factor:

Altitude: Consult your local MTU Onsite Energy Power Generation distributor for altitude derations.

Temperature: Consult your local MTU Onsite Energy Power Generation distributor for temperature derations.

Rated power is available up to 40°C and 400m above sea level.

Materials and specifications subject to change without notice.