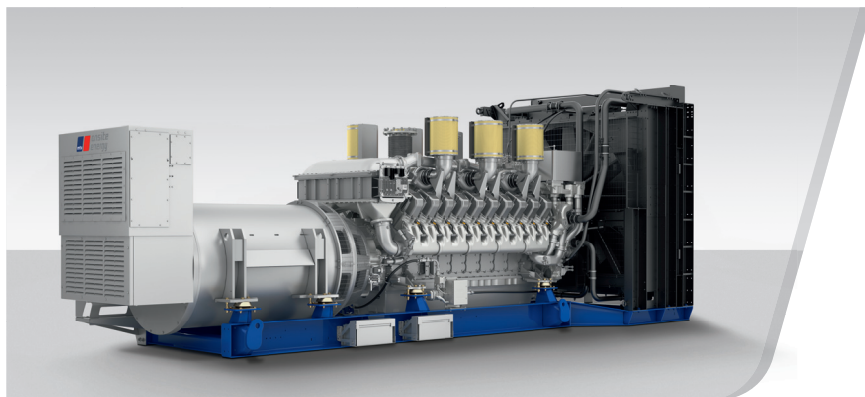


# DIESEL GENERATOR SET

## DS02650D5S

380V – 11 kV/50 Hz/Standby/NEA (ORDE) 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: 2650 kVA - 2900 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
- 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 voltage alternators

#### // Emissions

- NEA (ORDE) optimized

#### // Certifications

- CE certification option

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:	574.4	197
At 75% of power rating:	450.5	206
At 50% of power rating:	319.3	219

## // Liquid Capacity (Lubrication)

Total oil system capacity: l	390
Engine jacket water capacity: l	205
System coolant capacity: l	50

## // Combustion Air Requirements

Combustion air volume: m <sup>3</sup> /s	2.7
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	980
Heat radiated to charge air cooling: kW	410
Heat radiated to ambient: kW	105
Fan power for mech. radiator (40°C): kWm	70

## // Exhaust System

Exhaust gas temp. (after turbocharger): °C	540
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	NEA (ORDE) optimized 40°C/100m								
		without radiator			with mechanical radiator			with electr. driven radiator		
		kWel	kVA*	AMPS	kWel	kVA*	AMPS	kWel	kVA*	AMPS
Marathon 1020FDL7093 (Low voltage marathon standard)	380 V	2240	2800	4254	2200	2750	4178	2160	2700	4102
	400 V	2160	2700	3897	2120	2650	3825	2120	2650	3825
	415 V	2160	2700	3756	2120	2650	3687	2120	2650	3687
Marathon 1030FDL7094 (Low voltage marathon oversized)	380 V	2240	2800	4254	2200	2750	4178	2160	2700	4102
	400 V	2160	2700	3897	2120	2650	3825	2120	2650	3825
	415 V	2160	2700	3756	2120	2650	3687	2120	2650	3687
Leroy Somer LSA 53.1 M80 (Low voltage Leroy Somer)	380 V	2160	2700	3756	2240	2650	3687	2120	2650	3687
	400 V	2320	2900	4034	2240	2800	3895	2240	2800	3895
	415 V	2320	2900	4034	2240	2800	3895	2240	2800	3895
Marathon 1030FDH7101 (Medium volt. marathon)	11 kV	2320	2900	4034	2240	2800	3895	2240	2800	3895
Leroy Somer LSA 54 XL75 (Medium volt. Leroy Somer)	11 kV	2320	2900	152	2240	2800	147	2240	2800	147

\* 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

- NEA (ORDE) optimized engine

### // Generator

- NEMA MG1, BS5000, ISO, DIN EN and IEC standards
- Self-ventilated
- Superior voltage waveform
- Solid state, volts-per-Hertz regulator

- No load to full load regulation
- ±0,25% voltage regulation no load to full load
- Brushless alternator with brushless pilot exciter
- 4 pole, rotating field
- Sustained short circuit current of up to 250% of the rated current for up to 10 seconds (marathon generator)
- Sustained short circuit current of up to 300% of the rated current for up to 10 seconds (Leroy Somer generator)

- Marathon low voltage generator
- Leroy Somer generator  
(please contact your local MTU Onsite Energy distribution partner for system ratings)
- Oversized generator
- Medium voltage generator

## STANDARD AND OPTIONAL FEATURES, CONTINUATION

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### // 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
- Differential protection with multi-function protection relay
- Modbus RTU-TCP gateway

### // 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 switch box

### // Fuel System

- Flexible fuel connectors mounted to base frame
- Fuel filter with water separator
- Switchable fuel filter with water separator
- Seperate fuel cooler
- Fuel cooler integrated into cooling equipment

## STANDARD AND OPTIONAL FEATURES, CONTINUATION

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### // Starting/Charging System

- 24V starter
- Starter batteries
- Battery rack & cables
- Battery charger

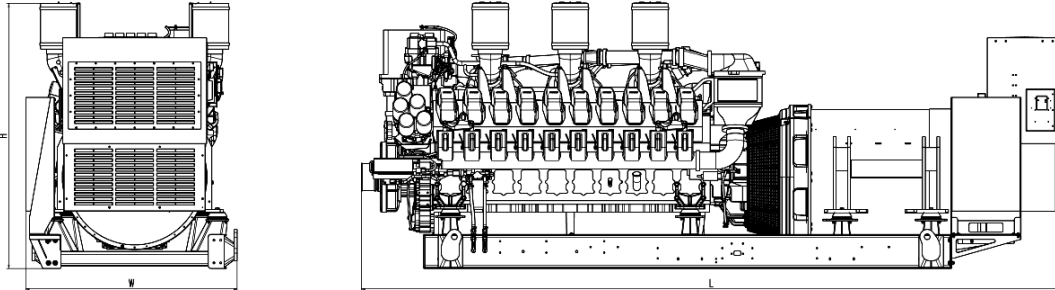
### // Mounting System

- 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

## 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

Open Power Unit (OPU)

### Dimensions (L x W x H)

6315 x 1810 x 2332 mm

### Weight (dry/less tank)

19955 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, AS 2789, and DIN 6271. Average Load Factor: < 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 100m above sea level.

Materials and specifications subject to change without notice.

MTU Onsite Energy

A Rolls-Royce Power Systems Brand

[www.mtuonsiteenergy.com](http://www.mtuonsiteenergy.com)