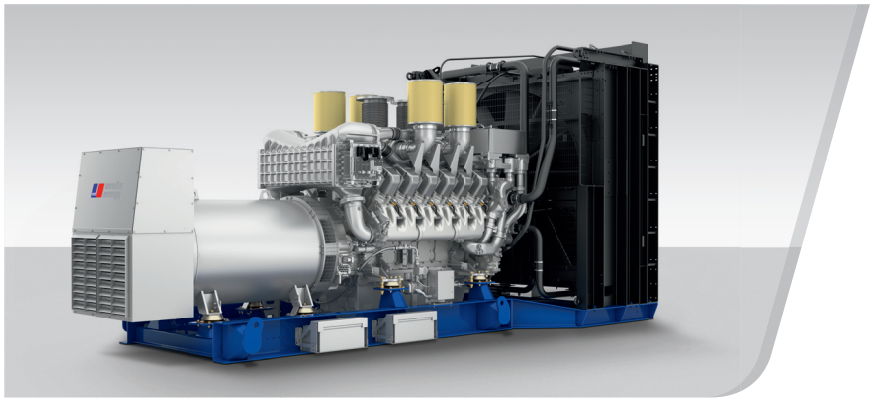
DIESEL GENERATOR SET
DS01650D5S

380V – 11 kV/50 Hz/Standby/Fuel Consumption Optimized
MTU 12V4000G23/Water Charge Air Cooling



Optional equipment and finishing shown. Standard may vary.

PRODUCT HIGHLIGHTS

// **Benefits**
- Low fuel consumtion
- 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: 1650 kVA - 1700 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**
- Fuel consumption optimized

// **Certifications**
- CE certification option

APPLICATION DATA①

// Engine

Manufacturer	MTU
Model	12V4000G23
Type	4-cycle
Arrangement	12V
Displacement: l	57.2
Bore: mm	170
Stroke: mm	210
Compression ratio	16.4
Rated speed: rpm	1500
Engine governor	ADEC (ECU 7)
Max power: kWm	1575
Air cleaner	Dry

// Fuel System

Maximum fuel lift: m	5
Total fuel flow: l/min	16

// Fuel Consumption②

	l/hr	g/kwh
At 100% of power rating:	358.6	189
At 75% of power rating:	276.1	194
At 50% of power rating:	189.8	200

// Liquid Capacity (Lubrication)

Total oil system capacity: l	260
Engine jacket water capacity: l	160
System coolant capacity: l	40

// Combustion Air Requirements

Combustion air volume: m^3/s	1.8
Max. air intake restriction: mbar	50

// Cooling/Radiator System

Coolant flow rate (HT circuit): m^3/h	56
Coolant flow rate (LT circuit): m^3/h	30
Heat rejection to coolant: kW	580
Heat radiated to charge air cooling: kW	260
Heat radiated to ambient: kW	75
Fan power for mech. radiator (40°C): kWm	38

// Exhaust System

Exhaust gas temp. (after turbocharger): °C	440
Exhaust gas volume: m^3/s	4.5
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			with electr. driven radiator		
		kWel*	kVA**	AMPS	kWel*	kVA**	AMPS	kWel*	kVA*	AMPS
Marathon 743RSL7090 (Low voltage marathon standard)	380 V	1360	1700	2583	1320	1650	2507	1320	1650	2507
	400 V	1360	1700	2454	1320	1650	2382	1320	1650	2382
	415 V	1320	1650	2295	1320	1650	2295	1320	1650	2295
Marathon 744RSL7091 (Low voltage marathon oversized)	380 V	1360	1700	2583	1320	1650	2507	1320	1650	2507
	400 V	1360	1700	2454	1320	1650	2382	1320	1650	2382
	415 V	1320	1650	2295	1320	1650	2295	1320	1650	2295
n.a. (Low voltage marathon De-rating optimized)	380 V	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	400 V	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	415 V	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Marathon 1020FDH7095 (Medium volt. marathon)	11 kV	1360	1700	89	1320	1650	87	1360	1700	89

* cos phi = 1,0
** 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

- ■ 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

■ 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
- ☐ Differential protection with multi-finction 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 seperate 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

■ Represents standard features ☐ Represents optional features

STANDARD AND OPTIONAL FEATURES, CONTINUATION

// 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

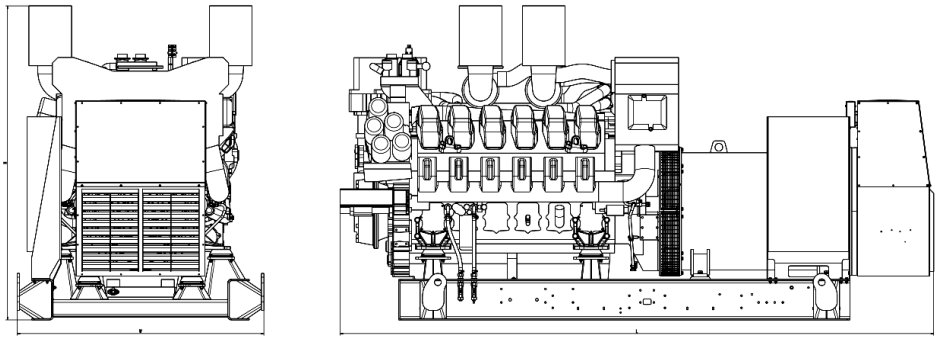
// Exhaust System

- ☐ 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

■ Represents standard features

☐ Represents optional features

WEIGHTS AND DIMENSIONS



Drawing above for illustration purposes only, based an 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)	4419 x 1836 x 2330 mm	10477 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 400m above sea level.

Subject to change. | 3237551 | Edition 01/14 | ENC 2014-01.

Materials and specifications subject to change without notice.