

DIESEL GENERATOR SET

MTU 16V2000 DS1000

PRIME POWER: 910 KVA

380V - 415V/50 Hz/Air Charge Air Cooling



Optional equipment and finishing shown. Standard may vary.

PRODUCT HIGHLIGHTS

// Benefits

- Low fuel consumption
- Optimized system integration ability
- High reliability and availability of power
- Long maintenance intervals
- Optimized ratio between size and power
- Wide operating range without derating

// MTU Onsite Energy is a single-source supplier

// Global product support

// Standards

- Engine-generator set is designed and manufactured in facilities certified to standards ISO 2008:9001 and ISO 2004:14001
- Generator set complies to G3 according to ISO 8528
- Generator meets NEMA MG1, BS5000, ISO, DIN EN and IEC standards
- NFPA 110

// Power Rating

- System rating: 910 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
- 75% load factor for prime power applications
- 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 radiator
- Container and Canopy

// Emissions

- Fuel consumption optimized
- TA-Luft, Tier 2 and NEA (ORDE) optimization optionally available

// Certifications

- CE certification option
- German Grid Code Certification (BDEW) option

APPLICATION DATA^①

// Engine

		Fuel consumption optimized	Emission optimized ^②
Manufacturer		MTU	MTU
Model		16V2000G16F	16V2000G16F
Type		4-cycle	4-cycle
Arrangement		16V	16V
Displacement:	l	35.7	35.7
Bore:	mm	135	135
Stroke:	mm	156	156
Compression ratio		17.5	17.5
Rated speed:	rpm	1500	1500
Engine governor		ADEC	ADEC
Speed regulation		± 0.25%	± 0.25%
Max power:	kWm	806	806
Mean effective pressure:	bar	18.1	18.1
Air cleaner		Dry	Dry

// Fuel System

Maximum fuel lift:	m	5	5
Total fuel flow:	l/min	30	30

// Fuel Consumption^③

At 100% of power rating:	l/hr	186.5	196.2
At 75% of power rating:	l/hr	142.0	150.0
At 50% of power rating:	l/hr	99.0	103.9

// Lube oil system

Total oil system capacity:	l	102	102
Max. lube oil temperature (alarm):	°C	103	103
Max. lube oil temperature (shutdown):	°C	105	105
Min. lube oil pressure (alarm):	bar	4.5	4.5
Min. lube oil pressure (shutdown):	bar	4	4

// Combustion Air Requirements

Combustion air volume:	m³/s	0.93	1.10
Max. air intake restriction:	mbar	40	40

① All data refers only to the engine and is based on ISO standard conditions (25°C and 100m above sea level).

② Emission optimized data refer to TA-Luft optimized and NEA (ORDE) optimized/Tier 2 compliant engines.

③ 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.

APPLICATION DATA^①

// Cooling/Radiator System

		Fuel consumption optimized	Emission optimized ^②
Coolant flow rate (HT circuit):	m ³ /h	41.6	41.6
Heat rejection to coolant:	kW	340	325
Heat rejection to charge air:	kW	115	170
Heat radiated to ambient:	kW	40	40
Fan power for mech. radiator (40°C):	kWm	43.4	43.4
Fan power for mech. radiator (50°C):	kWm	43.4	43.4
Air flow required for mech. radiator (40°C) cooled unit:	m ³ /min	1462	1462
Air flow required for mech. radiator (50°C) cooled unit:	m ³ /min	1462	1462
Engine coolant capacity (without cooling equipment):	l	70	70
Radiator coolant capacity (40°C):	l	83	83
Radiator coolant capacity (50°C):	l	104	104
Max. coolant temperature (warning):	°C	102	102
Max. coolant temperature (shutdown):	°C	105	105

// Exhaust System

Exhaust gas temp. (after turbocharger):	°C	540	520
Exhaust gas volume:	m ³ /s	2.5	2.85
Maximum allowable back pressure:	mbar	50	50
Minimum allowable back pressure:	mbar	30	30

// Generator

Protection class	IP23	IP23
Insulation class	H	H
Voltage regulation (steady state)	± 0.25%	± 0.25%
Rado interference class	N	N

① All data refers only to the engine and is based on ISO standard conditions (25°C and 100m above sea level).

② Emission optimized data refer to TA-Luft optimized and NEA (ORDE) optimized/Tier 2 compliant engines.

STANDARD AND OPTIONAL FEATURES

// System Ratings (kW/kVA)

Generator model	Voltage	with mechanical radiator		
		kWel	kVA*	AMPS
Basic: Marathon 740RSL7182	380 V	728	910	1383
Advanced: Marathon 740RSL7183	400 V	728	910	1313
(Low voltage Marathon standard)	415 V	728	910	1266
Basic: Marathon 742RSL7184	380 V	728	910	1383
Advanced: Marathon 742RSL7185	400 V	728	910	1313
(Low voltage Marathon oversized)	415 V	728	910	1266
Leroy Somer LSA 50.2 M6	380 V	728	910	1383
(Low voltage Leroy Somer)	400 V	728	910	1313
	415 V	728	910	1266
Leroy Somer LSA 50.2 L7	380 V	728	910	1383
(Low voltage Leroy Somer oversized)	400 V	728	910	1313
	415 V	728	910	1266

* $\cos \phi = 0,8$

// Engine

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> ■ 4-Cycle ■ Standard single stage air filter ■ Oil drain extension & shut-off valve ■ Full flow oil filters ■ Closed crankcase ventilation | <ul style="list-style-type: none"> ■ ADEC electronic isochronous engine governor ■ Common rail fuel injection ■ Dry exhaust manifold ■ Electric starting motor (24V) | <ul style="list-style-type: none"> ■ Fuel consumption optimized engine □ TA-Luft optimized engine □ Tier 2 optimized engine □ NEA (ORDE) optimized engine |
|--|--|---|

// Generator

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> ■ NEMA MG1, BS5000, ISO, DIN EN and IEC standards ■ Self-ventilated ■ Superior voltage waveform ■ Solid state, volts-per-Hertz regulator ■ Ingress protection IP 23 ■ 3 phase voltage sensing ■ 3% maximum harmonic content ■ 2/3 pitch stator windings | <ul style="list-style-type: none"> ■ No load to full load regulation ■ $\pm 0.25\%$ voltage regulation no load to full load ■ Brushless alternator with brushless pilot exciter ■ 4 pole, rotating field ■ Sustained short circuit current of up to 300% of the rated Prime Power/Continuous Power current for up to 10 seconds (Marathon Generators) □ Sustained short circuit current of up to 300% of the rated current for up to 10 seconds (Leroy Somer Generators) | <ul style="list-style-type: none"> ■ Marathon low voltage generator □ Leroy Somer generator □ Oversized generator |
|--|---|--|

■ Represents standard features

□ Represents optional features

STANDARD AND OPTIONAL FEATURES, CONTINUATION

// Cooling System

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|--|---|
| <input checked="" type="checkbox"/> Jacket water pump | <input checked="" type="checkbox"/> Mechanical radiator |
| <input checked="" type="checkbox"/> Thermostat(s) | <input type="checkbox"/> Jacket water heater |
| <input checked="" type="checkbox"/> Air charge air cooling | |

// Control Panel

- | | | |
|---|---|---|
| <input checked="" type="checkbox"/> Pre-wired control cabinet for easy application of customized controller (V1+) | <input type="checkbox"/> Basler controller | <input type="checkbox"/> Different expansion modules |
| <input type="checkbox"/> Island operation (V2) | <input type="checkbox"/> Deif controller | <input type="checkbox"/> Remote annunciator |
| <input type="checkbox"/> Automatic mains failure operation with ATS (V3a) | <input checked="" type="checkbox"/> Complete system metering | <input type="checkbox"/> Daytank control |
| <input type="checkbox"/> Automatic mains failure operation incl. control of generator and mains breaker (V3b) | <input checked="" type="checkbox"/> Digital metering | <input type="checkbox"/> Generator winding temperature monitoring |
| <input type="checkbox"/> Island parallel operation of multiple gensets (V4) | <input checked="" type="checkbox"/> Engine parameters | <input type="checkbox"/> Generator bearing temperature monitoring |
| <input type="checkbox"/> Automatic mains failure operation with short (< 10s) mains parallel overlap synchronization (V5) | <input checked="" type="checkbox"/> Generator protection functions | <input type="checkbox"/> Differential protection with multi-function protection relay |
| <input type="checkbox"/> Mains parallel operation of a single genset (V6) | <input checked="" type="checkbox"/> Engine protection | <input type="checkbox"/> Modbus RTU-TCP gateway |
| <input type="checkbox"/> Mains parallel operation of multiple gensets (V7) | <input checked="" type="checkbox"/> SAE J1939 engine ECU communications | |
| | <input checked="" type="checkbox"/> Parametrization software | |
| | <input checked="" type="checkbox"/> Multilingual capability | |
| | <input checked="" type="checkbox"/> Multiple programmable contact inputs | |
| | <input checked="" type="checkbox"/> Multiple contact outputs | |
| | <input checked="" type="checkbox"/> Event recording | |
| | <input checked="" type="checkbox"/> IP 54 front panel rating with integrated gasket | |

// Circuit Breaker/Power Distribution

- | | | |
|---|--|---|
| <input type="checkbox"/> 3-pole circuit breaker | <input type="checkbox"/> Manual-actuated circuit breaker | <input type="checkbox"/> Base frame mounted circuit breaker |
| <input type="checkbox"/> 4-pole circuit breaker | <input type="checkbox"/> Electrical-actuated circuit breaker | <input type="checkbox"/> Stand-alone circuit breaker in separate switch box |

// Fuel System

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|--|--------------------------------------|
| <input checked="" type="checkbox"/> Flexible fuel connectors mounted to base frame | <input type="checkbox"/> Fuel cooler |
| <input type="checkbox"/> Fuel filter with water separator | |
| <input type="checkbox"/> Switchable fuel filter with water separator | |

STANDARD AND OPTIONAL FEATURES, CONTINUATION

// Starting/Charging System

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|---|--|
| <input checked="" type="checkbox"/> 24V starter | <input type="checkbox"/> Battery charger |
| <input type="checkbox"/> Starter batteries | <input type="checkbox"/> Redundant starter |

// Mounting System

- | | | |
|---|---|---|
| <input checked="" type="checkbox"/> Welded base frame | <input checked="" type="checkbox"/> Resilient engine and generator mounting | <input checked="" type="checkbox"/> Modular base frame design |
|---|---|---|

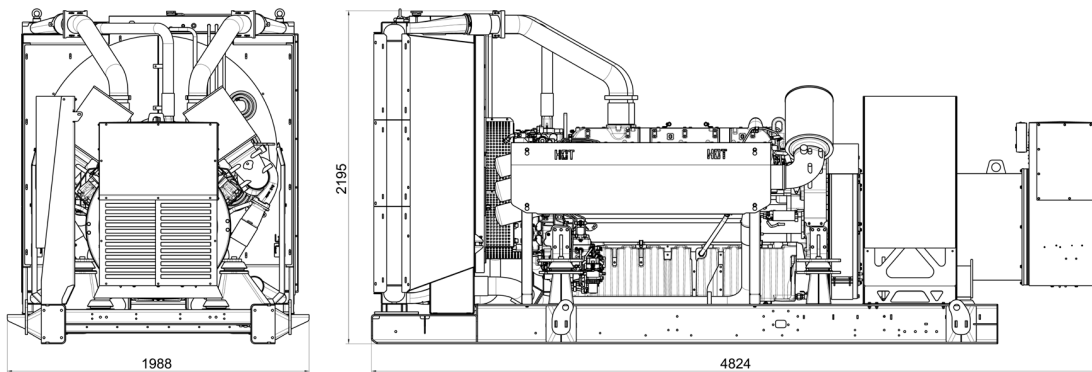
// Enclosures and Containers

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|---------------------------------|--|
| <input type="checkbox"/> Canopy | <input type="checkbox"/> 20 foot container |
|---------------------------------|--|

// Exhaust System

- | | |
|---|---|
| <input type="checkbox"/> Exhaust bellows with connection flange | <input type="checkbox"/> Exhaust silencer with 40 dB(A) sound attenuation |
| <input type="checkbox"/> Exhaust silencer with 10 dB(A) sound attenuation | <input type="checkbox"/> Y-connection-pipe |
| <input type="checkbox"/> Exhaust silencer with 30 dB(A) sound attenuation | |

WEIGHTS AND DIMENSIONS



Drawing above for illustration purposes only, based on 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)	4830 x 1990 x 2200 mm	7100 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

// Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. 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: $\leq 75\%$. Operating hours/year: unlimited

// Consult your local MTU Onsite Energy Power Generation Distributor for derating information.

Materials and specifications subject to change without notice.