Power Generation

SOLUTION GUIDE

Edition 2/21, valid from 11/2021

mtu A Rolls-Royce solution

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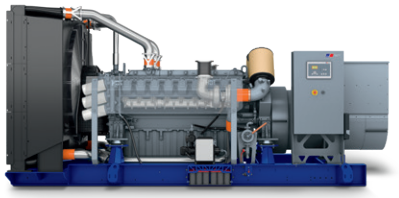
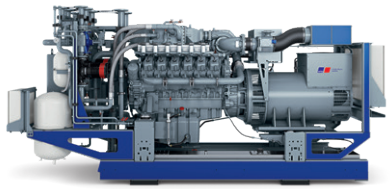
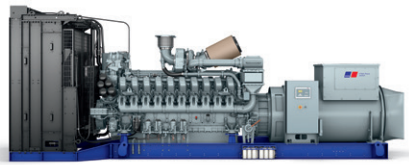






PIONEERING THE POWER THAT MATTERS.

Rolls-Royce provides world-class power solutions and complete life-cycle support under our product and solution brand ***mtu***. Through digitalization and electrification, we strive to develop drive and power generation solutions that are even cleaner and smarter and thus provide answers to the challenges posed by the rapidly growing societal demands for energy and mobility. We deliver and service comprehensive, powerful and reliable systems, based on both gas and diesel engines, as well as electrified hybrid systems. These clean and technologically-advanced solutions serve our customers in the marine and infrastructure sectors worldwide.

A solution provider

mtu systems power the largest yachts, the strongest tugboats and the biggest land vehicles and provide energy for the world's most important mission-critical applications. Through advanced solutions such as microgrids, we integrate renewable energies and manage the power needs of our customers.

Our customized service offerings help you maximize uptime and performance and are supported by our digital solutions, which enable remote monitoring, predictive maintenance and a range of other benefits that keep your systems running at their best.

For over 110 years, we have provided innovative power solutions for our customers – meeting even the most demanding drive requirements. Our products and services span a wide range of applications and power needs, with both standard and customized options.

An expert in technology

As part of Rolls-Royce, we have long been known for cutting-edge innovation and technological leadership in product development. That same spirit of innovation inspires our sustainability efforts. Our focus is on developing and implementing system solutions that both maximize efficiency and reduce emissions -- which in turn work to reduce our impact on the environment.

A passionate and reliable partner

We at Rolls-Royce spend every day working together with our customers, to deliver engines, systems and complete life-cycle solutions that best fit your needs. We understand that each application is different and has its own specific demands. Our engineers embrace the challenge of finding the perfect solution for your unique power requirements. Every step of the way – from project planning, through design, delivery and commissioning; to the lifetime care of your equipment – we are dedicated to helping you get the most from your ***mtu*** investment.

Rating definitions

FOR POWER SOLUTIONS.

Standby power

Standby power (3D)

Standby power applies to installations served by a reliable utility source. The standby ratings are applicable to varying loads for the duration of a power outage.

Prime power for stationary emergency (3E)

Prime power for stationary emergency provides classical standby power comparable to the application group standby power (3D). The difference is that this application group offers a 10% overload capability to cover for e.g. voltage variations or peak loads.

Data center continuous power (3F)

Data center continous power is a specific mission critical application. It is especially designed for the use in data centers as emergency standby units. “Data centre continous power” offers an economic and customer friendly solution to comply to the Uptime Institute* Tier III and Tier IV standards.

Continuous/Prime/Grid stability power

Continuous + CHP (3A)

Continuous power applies to installations where one or several generator sets serve as utility. At constant or varying load, the number of generator set operating hours is unlimited. Typical application here is CHP.

Prime power (3B)

Prime power applies to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited.

Grid stability power (3G)

Grid stability power is focused on providing additional short-term power to the grid (peak shaving). This application becomes relevant whenever renewable power sources like solar or wind are used that might not always be able to provide the full power demand for example during peak load times.

* The Uptime Institute is a pioneer in creating and operating knowledge communities for improving uptime effectiveness in data center facilities and information technology organizations.

A Only available for 50Hz markets

Rating definitions

OVERVIEW

Standby power		
Standby power (3D)	***mtu* Power Generation**	**ISO 8528-1 (ESP)**
Load	variable	variable
Load factor	**≤ 85 %**	≤ 70 %
10 % overload (ICXN)	no	not specified
Max. operating hours (per year)	**500 h**	200 h
Uptime compliant	Tier I & Tier II	not specified

Prime power for stationary emergency (3E)	***mtu* Power Generation**	**ISO 8528-1 (ESP)**
Load	variable	variable
Load factor	**≤ 85 %**	≤ 70 %
10 % overload (ICXN)	**yes**	not specified
Max. operating hours (per year)	**500 h**	200 h
Uptime compliant	Tier I & Tier II	not specified

Data center continuous power (3F)	***mtu* Power Generation**	**ISO 8528-1 (DCP)**
Load	continuous	continuous or variable
Load factor	≤ 100 %	≤ 100%
10 % overload (ICXN)	**yes**	not specified
Max. operating hours (per year)	unlimited [B]	unlimited
Uptime compliant	Tier I - Tier IV	not specified

Continuous/Prime/ Grid stability power		
Continuous power + CHP (3A)	***mtu* Power Generation**	**ISO 8528-1 (COP)**
Load	constant	constant
Load factor	≤ 100 %	≤ 100 %
10 % overload (ICXN)	Gas: no Diesel: **yes**	not specified
Max. operating hours (per year)	unlimited	unlimited

Prime power (3B)	***mtu* Power Generation**	**ISO 8528-1 (PRP)**
Load	variable	variable
Load factor	**≤ 75 %**	≤ 70 %
10 % overload (ICXN)	yes	yes
Max. operating hours (per year)	unlimited	unlimited

Grid stability power (3G)	***mtu* Power Generation**	**ISO 8528-1 (LTP)**
Load	continuous	continuous
Load factor	≤ 100 %	≤ 100%
10 % overload (ICXN)	Gas: no Diesel: **yes**	not specified
Max. operating hours (per year)	**1000 h; 500 h with 100% load w/o interruption**	500 h

A Only available for 50Hz markets
B Unlimited hours in data center application where a reliable grid/utility is present.

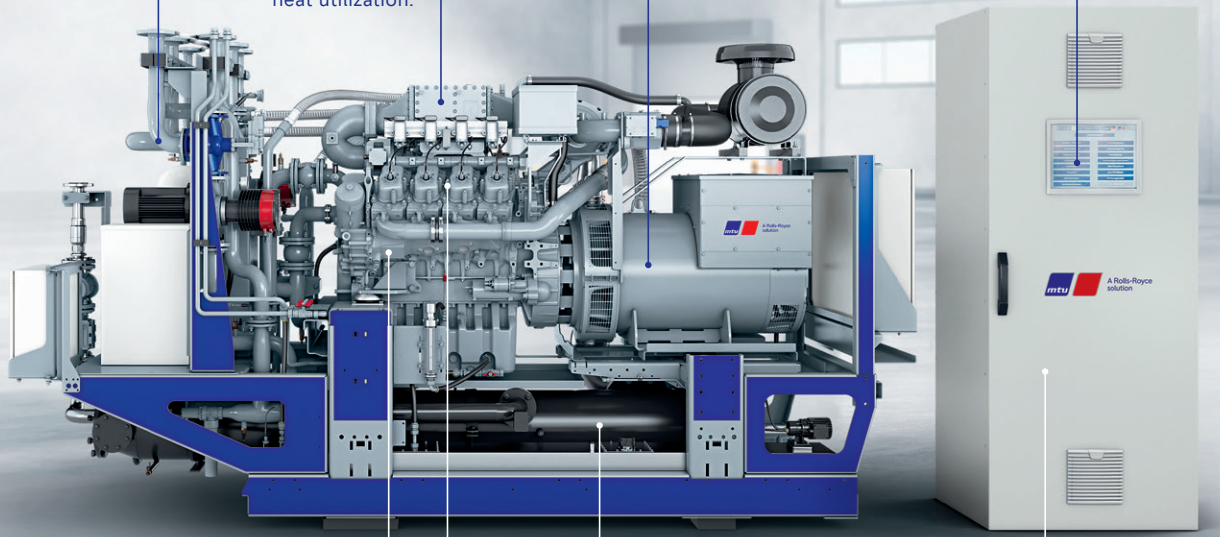
The next generation

NEW *mtu* SERIES 500 GAS GENERATOR SET

The new ***mtu*** Series 500 introduces natural gas generator sets to the 250-550 kWe power range. Available in 50 Hz and 60 Hz versions, these highly efficient units feature an optimized engine designed to greatly lower fuel costs, making them an ideal fit for a broad range of utility and industrial applications.

- **Fuel:** natural gas and biological gases
- **Output:** 250, 360 and 550 kWe
- **Frequency:** 50 Hz and 60 Hz
- **Compliant** with industry codes and standards
- **Efficiency:** 3.1% more efficient than the previous Series 400 genset, best in class
- **Flexibility:** the ***mtu*** Module Control (MMC) automation system simplifies system control, integrates easily with diverse microgrids and creates a direct link to expert digital service support

Depicted here is an *mtu* 8V500 genset in GC configuration with MMC. The standard scope of supply (GB configuration) comprises the engine, generator, base frame, fuel gas train and *mtu* Module Control automation system.



Flexible heat recovery unit (GR configuration)
This unit ensures highest thermal efficiencies for the jacket water, lube oil and coolant mixture.

Mixture cooler
The two-stage mixture cooler improves engine performance and heat utilization.

Generator
Optimally tailored to the engine, the generator provides best-in-class reliability and efficiency.

***mtu* Module Control (MMC)**
The ***mtu*** Module Control covers all important functions needed for controlling the whole system. It comes in a separate panel and is placed next to the genset.

Gas engine
Improved combustion technology increases engine efficiency and lowers fuel costs.

Ignition system
A microprocessor-controlled ignition system optimally adjusts the ignition time and ignition energy to the quality of the gas.

Exhaust heat recovery (GC configuration)
The exhaust heat recovery system with exhaust heat exchanger achieves highest thermal efficiencies in CHP systems. With the ***mtu*** 12V500 GS version, the exhaust heat exchanger is supplied separately.

Key features:
- Industrial PC with touch-screen colour display
- Monitors all system processes
- Logs all fault and status messages
- Integrates seamlessly with other controls
- Enables multi-module system networking
- Supports numerous protocols (e.g. Ethernet, Profbus DP)

Digital connectivity
The system can be equipped with a data logger providing access to our digital solutions, including remote monitoring, fast and reliable service support and, soon, further features such as predictive failure prevention and operational optimization.

The next generation

mtu SERIES 4000
NATURAL GAS GENERATOR SET

Operational flexibility
- Quick ramp-up and ramp-down plus a wide range of partial load operation make this product a perfect match for grid stabilization applications..
- Fulfills the highest emission standards.

30 % more power
- The new genset increases its performance by 30%, withstanding hot and humid conditions.
- Highly robust against derating.

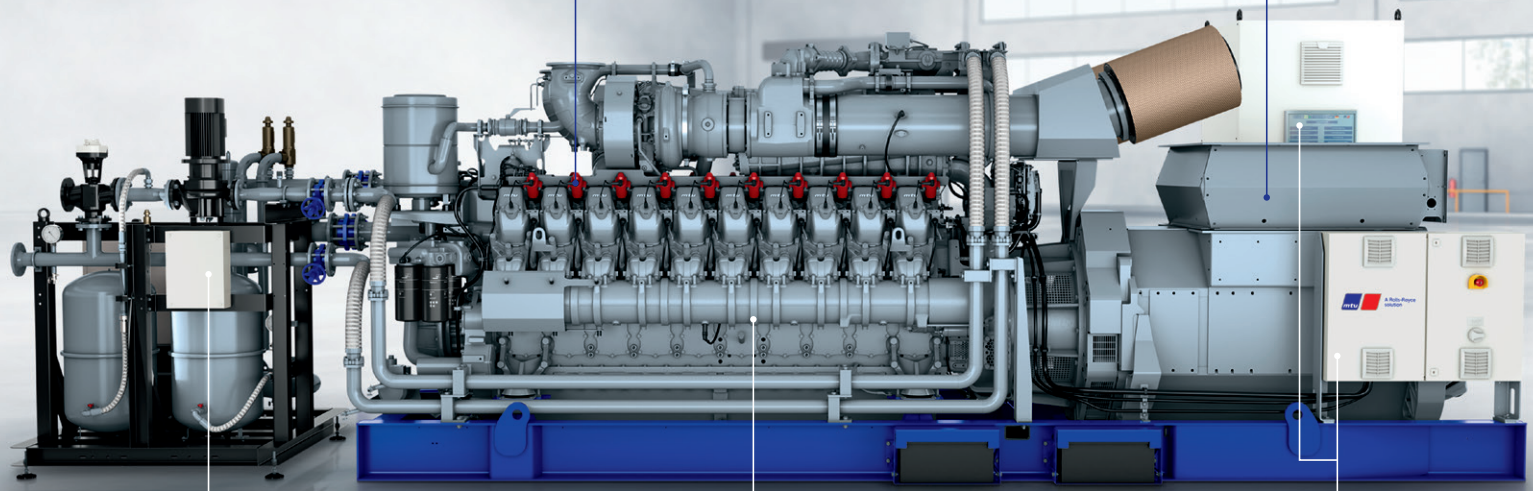
Low lifecycle costs
- Good serviceability
- Favorable maintenance intervals
- Reduced oil consumption
- No additional exchange of cylinder heads necessary before Life-Time (TBO)
- 84,000 oH lifetime to major overhaul (TBO)

Up to 44.4 % el. efficiency
- An advanced, proven Series 4000 engine optimized for natural gas operation. Its combustion chambers ensure top levels of efficiency in its performance category.

Ignition system
Ignition systems for individual cylinders allow for the most efficient level of operation for all cylinders, even with variable CH4 content. The ignition voltage display gives customers information on the state of the spark plugs.

Digitally connected
The system is equipped with a data logger providing access to digital *mtu* solutions, including remote monitoring, fast and reliable service support and – coming soon – further features such as predictive failure prevention and operational optimization.

Generator
Perfectly tuned to the engine and made by renowned manufacturers, the generator ensures a high level of reliability and optimum efficiency.



Heat Recovery Unit
Well proven design perfectly suits the genset and provides the basis for optimized auxiliary efficiencies. The unit is fully integrated in the automation concept and is both safe and certified (CE).

Knock detection
Cylinder-specific knock detection and regulation protect the engine from abnormal operating conditions, and guarantee safe operation even with natural gas containing low levels of methane.

Automation Systems MIP & MMC
Motor interface panel (MIP) with stand-alone *mtu* Module Control (MMC). The MMC provides all the functions necessary for controlling the system. All the auxiliary drives required for the CHP system can be operated from here. The integrated power circuitry minimizes the customer's need for cabling on site.

20 years of top performance. Now in the 4th generation.

mtu SERIES 4000 DIESEL GENERATOR SET

Key technical data	*mtu* S4000 G04	50Hz
Cylinder version	12V, 16V, 20V	
Power output/ frequency	12V: 2100 – 2300 kVA – 50Hz 16V: 2600 – 2850 kVA – 50Hz 20V: 3380 – 4000 kVA – 50Hz	
Ratings	Standby power, prime power, data center continuous power, prime power for stationary emergency	
Optimization	Fuel consumption optimized, emission optimized (NEA & Tier 2 compliant)	

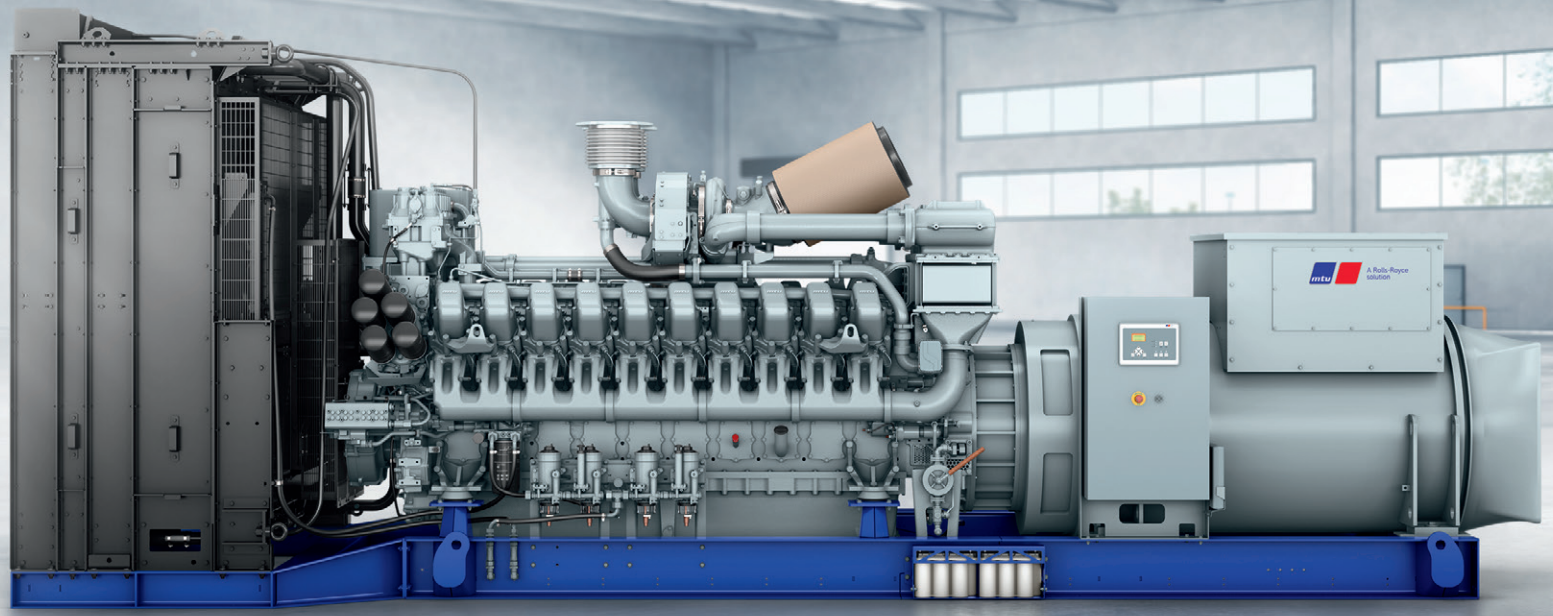
More available power
- Industry-leading load factors.
- More operating hours, compared to ISO 8528-1 requirements.

Highly robust against derating
- Even under rough ambient conditions.
- Engine Site Condition Management.

Excellent load acceptance
- Overachieving ISO 8528-5 performance class G3.
- Load steps with 1st load step > 50%.
- 100% block load acceptance (NFPA 110).

High-grade electricity
- Superior transient behavior.
- Protection for sensitive electrical infrastructure & IT equipment.
- Simplification of electrical infrastructure.

High power density
- Less investment in new installations.
- Easy retrofit and system integration.



mtu 20V4000 DS4000

Ready for a new perspective on dynamic UPS?

mtu KINETIC POWERPACK

Our ***mtu*** Kinetic PowerPack provides dynamic uninterruptible power supply through kinetic energy and is engineered to withstand the most demanding power supply challenges.

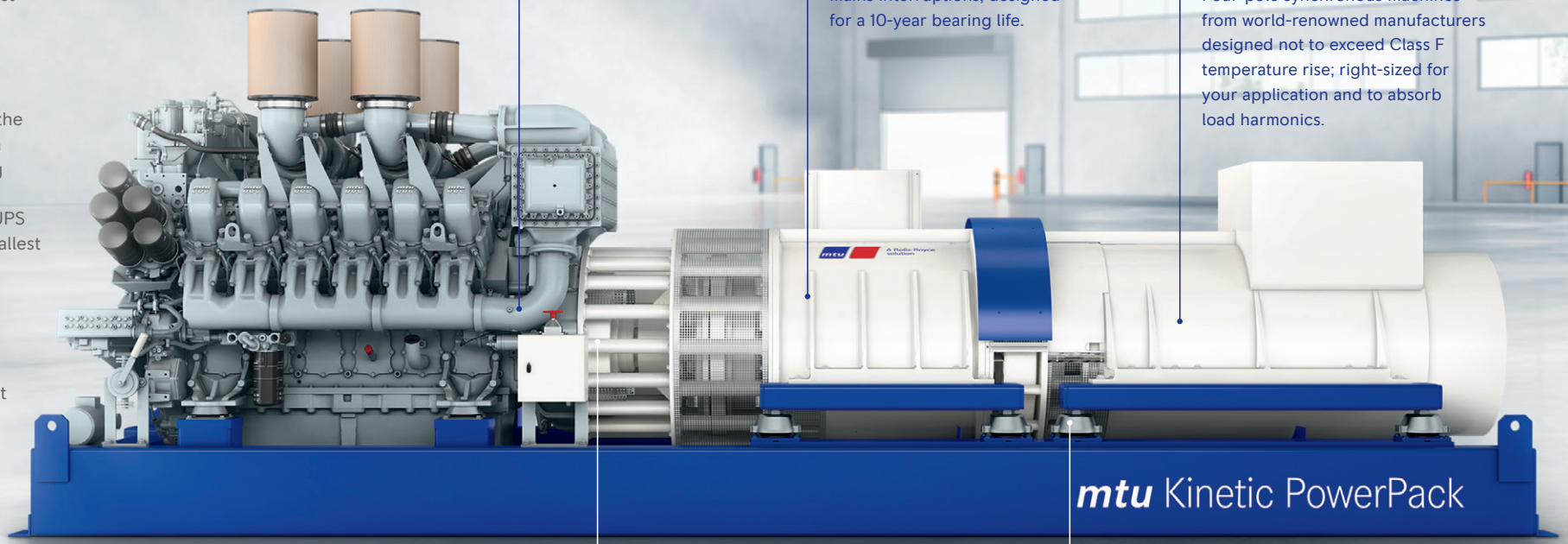
Lower TCO
— At medium and higher power ratings, ***mtu*** Kinetic PowerPacks are more cost-effective, reducing consumable electricity cost and maintenance.

Smaller footprint
— Its component count and monobloc structure give the ***mtu*** Kinetic PowerPacks a compact design, reducing its footprint to 40% of an equivalently rated static UPS system – making it the smallest in the market.

Units up to 3000 kVA
— The current-carrying capability of electronic components does not limit ***mtu*** Kinetic PowerPacks. Their perunit ratings are considerably more significant, leading to a much lower component count on higher power installations.

Optimal sustainability
— Static UPS systems require heavy batteries and generate chemical waste. Due to the kinetic energy storage unit's energy that is immediately available to generate power until the ***mtu*** diesel engine is activated, batteries belong to the past when using ***mtu*** Kinetic PowerPacks.

Medium voltage systems
— ***mtu*** Kinetic PowerPacks are the perfect solution for medium voltage critical loads or when more considerable distribution distances need to be covered.



mtu **diesel engine**
Complying with the latest emissions standards; preheated; quick start and not running during conditioning mode pre-lubricated.

Kinetic energy module
Patented accu provides stored kinetic energy to ride through mains interruptions; designed for a 10-year bearing life.

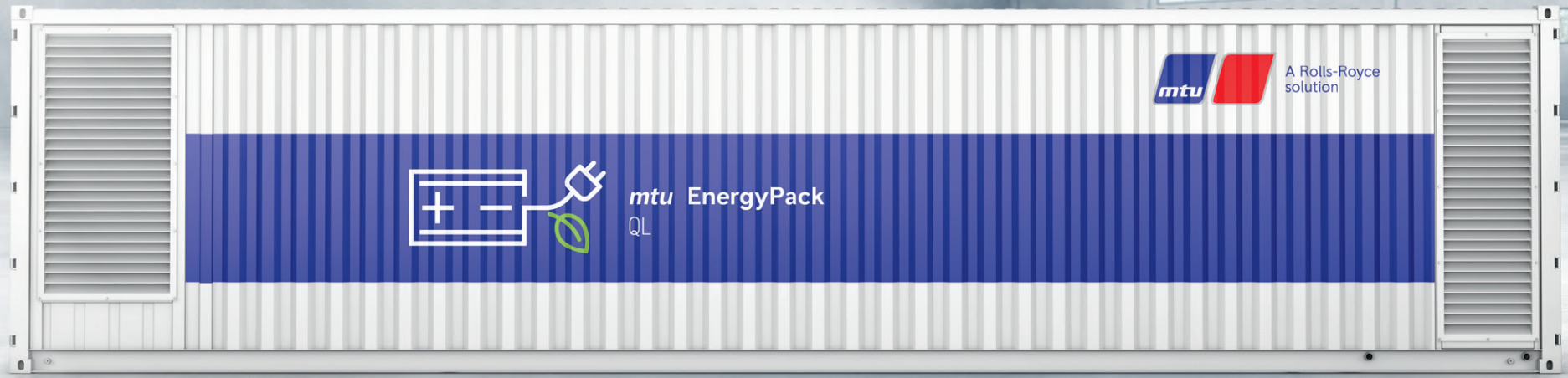
Synchronous machine
Four-pole synchronous machines from world-renowned manufacturers designed not to exceed Class F temperature rise; right-sized for your application and to absorb load harmonics.

Electromagnetic clutch
The prime starter system consists of standard engine starting motors. The clutch is maintenance-free and guarantees the diesel engine to start at all times, thanks to the redundant start feature.

Vibration isolation
Thanks to the solid base frame with isolators between frame and equipment and direct floor installation, vibrations are reduced >97%.

The scalable all-in-one solution

mtu ENERGYPACK



Flexibility
- Factory tested plug-and-play design.
- Scalable in size.

Ultra-fast
- Immediate response.

High power density
- Compact system design.
- Small footprint.

Power control
- Condition monitoring.

Digital connectivity
- Various applications in combination with ***mtu*** Microgrid Controller.

Integrated solution
- Optimized system integration ability.
- Easy integration into Rolls-Royce Microgrid Solutions.

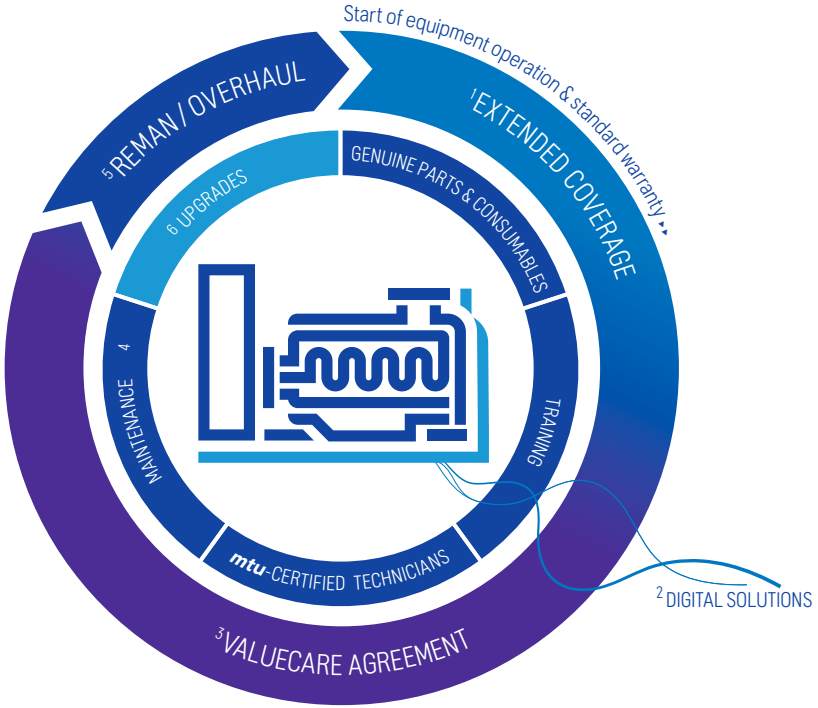
Safety features
- High safety & reliability.

Key technical data	***mtu*** EnergyPack
Dimensions	QS (Enclosure) / QM (20ft.) / QL (40ft.)
Nominal power output	60 - 2,000 kVA
Nominal capacities	90 - 2,200 kWh
Application	Continuous, prime/peak, standby power, mission critical (on- & off-grid)
Nominal grid voltages	515 V (400 V with internal transformer)
Nominal round trip efficiency (w/o HVAC)	up to 90%
Grid frequency	50/60 Hz
Power factor range (cos ϕ)	0 ind. ...1 ... 0 cap

Service solutions

FOCUS ON YOUR OPERATIONS. LEAVE THE REST TO US.

You've got a tough job. With us as your partner, you'll get the power, performance and peace of mind to get it done right. Our digitally-enabled ValueCare Agreements make it easy to keep your business running smoothly and reduce total cost of ownership by maximizing uptime, optimizing lifecycle costs and helping you avoid equipment-related business disruptions through preventive maintenance.



1 Avoid the unexpected with added protection beyond the standard warranty.
2 Make better decisions faster with digitally-enhanced tools.
3 Maximize availability and optimize lifecycle costs with a ValueCare Agreement.
4 Improve system performance and extend equipment life with on-demand support.
5 Keep a good thing going with factory reman/overhaul solutions.
6 Maximize the value of your equipment with custom upgrades for changing needs.

Service solutions designed around your priorities

With tailored solutions to meet your needs, there is a ValueCare Agreement that is just right for you.

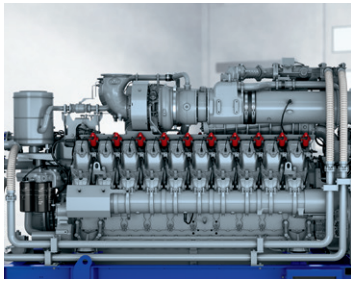
Bronze
Ensure parts availability and price stability

Silver
Eliminate unexpected maintenance costs

Gold
Maximize operational uptime

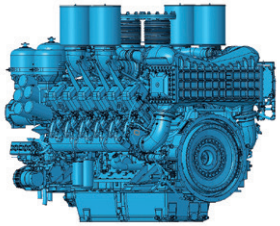
mtu Upgrade Solutions

We know that needs change over time, and that capital investments aren't for the short term. With upgrade solutions designed specifically for your ***mtu*** systems, you can get the most out of your equipment and extend its useful life.



L33 Efficiency Solution

The L33 Efficiency Solution is designed to extend the life of L61, L62 and L63 ***mtu*** Series 4000 gas systems. Through a cost-effective, sustainable system overhaul, the existing engine will be manufacturer-certified to the current status of an L33 remanufactured engine, achieving an electrical efficiency gain of about 1.4%. The upgrade also includes an alternator overhaul, new automation system and additional system enhancements. Best of all, it will fit onto the existing L61, L62 or L63 base frame, so no peripheral modifications are required.



Lifetime-Based Overhaul

Lifetime-Based Overhaul is our manufacturer-certified overhaul solution specifically designed for the needs of engines in standby power generation applications with low operating hours. This scheduled solution uses time as the key criteria and provides the same peace of mind as a traditional overhaul at a fraction of the cost. Only time worn components are replaced, which can be done onsite, eliminating the need for removal, transport and reinstallation that is typically required during an overhaul.

Service network

LOCAL SUPPORT. WORLDWIDE.

The most important part of your power system isn't a part at all—it's your local service team. With more than 1,200 service locations worldwide—backed by regional Parts Logistics Centers in Europe, Asia and America—you can count on responsive support by expert technicians, wherever work takes you. To find your local service partner, visit **www.mtu-solutions.com.**

Always on call, 24/7
Whether it's connecting you with a local service partner or assigning an urgent problem to a dedicated team of our experts, we're ready to assist you—wherever you are, whatever you need.

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Digital solutions

HOW DIGITAL SOLUTIONS OPTIMIZE YOUR BUSINESS.

Streamline your service requirements.
We offer you the best possible service for your equipment by incorporating digitalization in a holistic approach. This helps improve our service to you and helps you operate your equipment more effectively.

Monitor and manage your equipment.
Our digital platform ***mtu*** Go! offers you the opportunity to analyze system data quickly, determine important action steps, and plan them optimally, either independently or together with our service department.

Maintain your data security.
We always adhere to the highest data privacy and security standards of our industry. Because we understand and value the trust you put in us by having us analyze your data to create the best possible service solutions for your equipment.

A connectivity device transmits vital equipment data in near real-time to your screen.

Digital solutions

DELIVERING ACTIONABLE INSIGHTS THROUGH DIGITAL SOLUTIONS.

mtu Go!

Connect all your equipment

Data collection from your plant, asset, system and engine

Connectivity is the basis for all the advantages of digitally supported service. Using our edge software connected to the control unit, you and your service network can monitor relevant deviations from the optimum conditions remotely. We offer several ways to collecting data, including the creation of interfaces to already existing data sets. In doing so, we always adhere to the highest data privacy and security standards of our industry.

Access your data

- Remote monitoring, available for individual assets, as well as complete plants worldwide
- Different device and software options ensure optimal connectivity
- Data privacy and security to the highest industry standards

Monitor your plant

Visualization of data for a quick and accurate overview of your plant

With the ***mtu*** Go! platform, predefined users, such as on-site technicians or managers, can view the system data and perform initial analyses by using diagnostic tools. By accessing the same information, your service network can provide fast support in handling alarms and planning necessary maintenance together with you. Open APIs allow you to interface directly to your existing dashboards or systems.

Keep track of your data

- All important data and alarms available at a glance for efficient plant monitoring
- Intuitive and clear design for easy operation
- Visual comparison of data using the diagnostic tools for initial analyses

Manage your plant

Digital solutions for your detailed data analysis on necessary actions

Supported by ***mtu*** Go! your Service Network is able to analyze all relevant data from your equipment and compare it with data sets from other systems. From this we together can proactively derive recommendations for action. In future, the analysis can be enriched with additional external data sets, such as environmental influences or time schedules. Cross-linking data will create new opportunities for optimizing business processes.

Learn from your data (under development)

- Algorithms for proactive early detection of deviations
- Troubleshooting based on large amounts of data with artificial intelligence
- Comparison with data outside own plant leads for faster knowledge transfer and optimum service tool for initial analyses

Standby power – diesel generator sets

STANDBY POWER (3D) – 50 HZ/1500 RPM.

	Power output [1]		Available voltages			Emissions						Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kVA	kWe	380 - 415V (3 Phase)	6300 - 6600 kV (3 Phase)	10000 -11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 0080/0113 DS	56	45	x			x				x		x	x			x		x		x		F32 TM 1A	A2A	***mtu*** 4R0080 DS55
	67	53	x							x		x	x			x		x		x		NEF45 SM 1A	A2A	***mtu*** 4R0113 DS63
	82	66	x							x		x	x			x		x		x		NEF45 SM 2A	A2A	***mtu*** 4R0113 DS80
	90	72	x			x						x	x			x		x		x		NEF45 SM 5	A2A	***mtu*** 4R0113 DS94
mtu 1600 DS*	500	400	x			x		x			x	x	x	x		x	x	x		x		10V 1600 G70F	A2A	***mtu*** 10V1600 DS500
	540	432	x			x					x	x	x	x		x	x	x		x		10V 1600 G80F	A2A	***mtu*** 10V1600 DS540
	650	520	x			x		x				x	x	x		x	x	x		x		12V 1600 G70F	A2A	***mtu*** 12V1600 DS650
	720	576	x			x		x				x	x	x		x	x	x		x		12V 1600 G80F	A2A	***mtu*** 12V1600 DS720

* available soon, for detailed information please check website

Standby power – diesel generator sets

STANDBY POWER (3D) – 50 HZ/1500 RPM.

	Power output [1]		Available voltages			Emissions						Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kVA	kWe	380 - 415V (3 Phase)	6300 - 6600 kV (3 Phase)	10000 -11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 2000 DS	825	660	x				x	x	x			x	x	x		x	x	x				12V 2000 G76F	A2A	***mtu*** 12V2000 DS825
	1010	800	x			x						x	x	x	x	x	x	x				12V 2000 G86F	A2A	***mtu*** 12V2000 DS1000
	1100	880	x				x	x	x			x	x	x	x	x	x	x				16V 2000 G76F	A2A	***mtu*** 16V2000 DS1100
	1250	1000	x			x						x	x	x	x	x	x	x				16V 2000 G86F	A2A	***mtu*** 16V2000 DS1250
	1400	1120	x			x						x	x	x	x	x	x	x				18V 2000 G76F	A2A	***mtu*** 18V2000 DS1400
	1100	880	x				x	x	x			x	x	x	x	x	x	x				16V 2000 G76F	W2A*	***mtu*** 16V2000 DS1100
	1250	1000	x			x						x	x	x	x	x	x	x				16V 2000 G86F	W2A*	***mtu*** 16V2000 DS1250
	1400	1120	x			sx						x	x	x	x	x	x	x				18V 2000 G76F	W2A*	***mtu*** 18V2000 DS1400
mtu 4000 DS	1780	1424	x		x	x		x				x	x	x	x	x	x	x				12V 4000 G74F	W2A	***mtu*** 12V4000 DS1650
	1880	1504	x		x	x		x				x	x	x	x	x	x	x				12V 4000 G74F	W2A	***mtu*** 12V4000 DS1750
	2080	1664	x		x	x		x				x	x	x	x	x	x	x				12V 4000 G84F	W2A	***mtu*** 12V4000 DS2000
	2300	1840	x		x	x		x	x			x	x	x	x [11]	x	x	x				12V 4000 G94F	W2A	***mtu*** 12V4000 DS2250
	2330	1864	x		x	x		x				x	x	x	x	x	x	x				16V 4000 G74F	W2A	***mtu*** 16V4000 DS2250
	2610	2088	x		x	x		x				x	x	x	x	x	x	x				16V 4000 G84F	W2A	***mtu*** 16V4000 DS2500
	2850	2240	x		x	x		x	x			x	x	x	x [11]	x	x	x				16V 4000 G94F	W2A	***mtu*** 16V4000 DS2750
	2800	2240	x		x	x		x				x	x	x	x	x	x	x				20V 4000 G64F	W2A	***mtu*** 20V4000 DS2750
	3200	2560	x		x	x		x				x	x	x	x	x	x	x				20V 4000 G74F	W2A	***mtu*** 20V4000 DS3100
	3410	2728	x		x	x		x				x	x	x	x	x	x	x				20V 4000 G84F	W2A	***mtu*** 20V4000 DS3300
	3730	2984		x [11]	x	x		x	x			x	x	x	x [11]	x	x	x				20V 4000 G94F	W2A	***mtu*** 20V4000 DS3600
	4000	3200		x [11]	x	x		x	x			x	x	x		x	x	x				20V 4000 G94LF	W2A	***mtu*** 20V4000 DS4000

* available soon, for detailed information please check website

Standby power – dynamic uninterruptible power supply systems

STANDBY POWER (3D) – 50 HZ/1500 RPM.

	Power output [1]				Available voltages		Emissions					Accu arrang.	Certifications				Perform. class [2]		Uptime compl.		Housing	
	no-break kVA	no-break kWe	short-break kVA	short-break kWe	low voltage 380 - 415V (3 Phase)	medium voltages 6 - 36 kV (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)		ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G3	ISO 8528-5 - G4	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container
mtu KP5	250	200			x	x		x				single		x				x	x			x
	300	240			x	x		x				single		x				x	x			x
	400	320			x	x	x		x			single		x				x	x			x
	500	400			x	x	x					single		x				x	x			x
	630	504			x	x	x		x			single		x				x	x			x
	700	560			x	x	x					single		x				x	x			x
	900	720			x	x	x					single		x				x	x			x
	1000	800			x	x	x					single		x				x	x			x
	1250	1000			x	x	x		x			single		x				x	x			x
	1500	1200			x	x	x		x			single		x				x	x			x
	1650	1320	600	480	x	x	x		x			single		x				x	x			x
	1700	1360			x	x	x		x			single		x				x	x			x
	1875	1500	625	500	x	x	x		x			single		x				x	x			x
	2000	1600			x	x	x		x			single		x				x	x			x
	2250	1800			x	x	x		x			bi		x				x	x			x
	2500	2000			x	x	x		x			bi		x				x	x			x
	2750	2200			x	x	x		x			bi		x				x	x			x
mtu KP7	2250	1800			x	x	x		x			single		x				x	x			x
	2500	2000			x	x	x		x			single		x				x	x			x
	2750	2200			x	x	x		x			single		x				x	x			x

Standby power – diesel generator sets

STANDBY POWER (3D) – 60 HZ/1800 RPM.

	Power output [1]		Available voltages												Certifications				
	kWe	kVA	240 V Dedicated (1 Phase)	240 V Re-connectable (1 Phase)	208 V (3 Phase)	240 V (3 Phase)	380 V (3 Phase)	440 V (3 Phase)	480 V (3 Phase)	600 V (3 Phase)	4160 V (3 Phase)	12470 V (3 Phase)	13200 V (3 Phase)	13800 V (3 Phase)	ISO 8528	UL2200	NFPA 110	IBC 2015	IBC 2018
mtu 0096/0113 DS	30	37		x	x	x	x		x	x					x	x	x	x	
	40	50		x	x	x	x		x	x					x	x	x	x	
	50	62	x	x	x	x	x		x	x					x	x	x	x	
	60	75	x	x	x	x	x		x	x					x	x	x	x	
	80	100	x	x	x	x			x	x					x	x	x		
	100	125	x	x	x	x			x	x					x	x	x		
	125	156	x	x	x	x			x	x					x	x	x		
	150	187	x	x	x	x			x	x					x	x	x		
	180	225	x	x	x	x			x	x					x	x	x		
	200	250	x	x	x	x			x	x					x	x	x		
mtu 0120 DS	80	100	x	x	x	x	x		x	x					x	x	x		x
	100	125	x	x	x	x	x		x	x					x	x	x		x
	125	156	x	x	x	x	x		x	x					x	x	x		x
	150	187	x	x	x	x	x		x	x					x	x	x		x
	180	225	x	x	x	x	x		x	x					x	x	x		x
	200	250	x	x	x	x	x		x	x					x	x	x		x
mtu 0150/0225 DS	230	288		x	x	x	x		x	x					x	x	x		x
	230	288		x	x	x	x		x	x					x	x	x		x
	250	313		x	x	x	x		x	x					x	x	x		x
	250	313		x	x	x	x		x	x					x	x	x		x
	275	344			x	x	x		x	x					x	x	x		x
	275	344			x	x	x		x	x					x	x	x		x
	300	375			x	x	x		x	x					x	x	x		x
	300	375			x	x	x		x	x					x	x	x		x
	350	438			x	x	x		x	x					x	x	x		x
	350	438			x	x	x		x	x					x	x	x		x
	400	500			x	x	x		x	x					x	x	x		x
	400	500			x	x	x		x	x					x	x	x		x

	Emissions						Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	US EPA Tier 4	US EPA stat. EMERG Tier 3 (40 CF 60)	US EPA Nonroad Tier 3 compliant	US EPA stat. EMERG Tier 2 (40 CF 60)	US EPA Nonroad Tier 2 compliant	Fuel consumption optimized	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 0096/0113 DS		x					x		x		3029 TFG89	TC only	***mtu*** 3R0096 DS30
		x					x		x		4045 TF280	TC only	***mtu*** 4R0113 DS40
		x					x		x		4045 TF280	TC only	***mtu*** 4R0113 DS50
		x					x		x		4045 HF280	A2A	***mtu*** 4R0113 DS60
		x					x		x		4045 HF285	A2A	***mtu*** 4R0113 DS80
		x					x		x		4045 HF285	A2A	***mtu*** 4R0113 DS100
		x					x		x		4045 HF285	A2A	***mtu*** 4R0113 DS125
		x					x		x		6068 HF285	A2A	***mtu*** 6R0113 DS150
		x					x		x		6068 HFG85	A2A	***mtu*** 6R0113 DS180
		x					x		x		6068 HFG85	A2A	***mtu*** 6R0113 DS200
mtu 0120 DS		x					x		x		OM924LA	A2A	***mtu*** 4R0120 DS80
		x					x		x		OM924LA	A2A	***mtu*** 4R0120 DS100
		x					x		x		OM924LA	A2A	***mtu*** 4R0120 DS125
		x					x		x		OM926LA	A2A	***mtu*** 6R0120 DS150
		x					x		x		OM926LA	A2A	***mtu*** 6R0120 DS180
		x					x		x		OM926LA	A2A	***mtu*** 6R0120 DS200
mtu 0150/0225 DS		x					x	x	x		6090 HF484	A2A	***mtu*** 6R0150 DS230
	x						x	x	x		6090 HFG06	A2A	***mtu*** 6R0150 DS230
		x					x	x	x		6090 HF484	A2A	***mtu*** 6R0150 DS250
	x						x	x	x		6090 HFG06	A2A	***mtu*** 6R0150 DS250
		x					x	x	x		6090 HF484	A2A	***mtu*** 6R0150 DS275
	x						x	x	x		6090 HFG06	A2A	***mtu*** 6R0150 DS275
		x					x	x	x		6090 HFG86	A2A	***mtu*** 6R0150 DS300
	x						x	x	x		6090 HFG06	A2A	***mtu*** 6R0150 DS300
		x					x	x	x		6135 HFG84	A2A	***mtu*** 6R0225 DS350
	x						x	x	x		6135 HFG06	A2A	***mtu*** 6R0225 DS350
		x					x	x	x		6135 HFG84	A2A	***mtu*** 6R0225 DS400
	x						x	x	x		6135 HFG06	A2A	***mtu*** 6R0225 DS400

Standby power – diesel generator sets

STANDBY POWER (3D) – 60 HZ/1800 RPM.

mtu 1600 DS

Power output [1]		Available voltages												Certifications				
kWe	kVA	240 V (Dedicated (1 Phase))	240 V (Re-connectable (1 Phase))	208 V (3 Phase)	240 V (3 Phase)	380 V (3 Phase)	440 V (3 Phase)	480 V (3 Phase)	600 V (3 Phase)	4160 V (3 Phase)	12470 V (3 Phase)	13200 V (3 Phase)	13800 V (3 Phase)	ISO 8528	UL2200	NFPA 110	IBC 2015	IBC 2018
450	563			x	x	x	x	x	x					x	x	x		x
500	625			x	x	x	x	x	x					x	x	x		x
550	688			x	x	x	x	x	x					x	x	x		x
600	750			x	x	x	x	x	x					x	x	x		x

Emissions							Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
US EPA Tier 4	US EPA stat. EMERG Tier 3 (40 CF 60)	US EPA Nonroad Tier 3 compliant	US EPA stat. EMERG Tier 2 (40 CF 60)	US EPA Nonroad Tier 2 compliant	Fuel consumption optimized		Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
	x	x					x		x		10V 1600 G70S	A2A	***mtu*** 10V1600 DS450
			x	x			x		x		10V 1600 G80S	A2A	***mtu*** 10V1600 DS500
			x	x			x		x		12V 1600 G70S	A2A	***mtu*** 12V1600 DS550
			x	x			x		x		12V 1600 G80S	A2A	***mtu*** 12V1600 DS600

Standby power – diesel generator sets

STANDBY POWER (3D) – 60 HZ/1800 RPM.

	Power output [1]		Available voltages														Certifications			
	kWe	kVA	240 V Dedicated (1 Phase)	240 V Re-connectable (1 Phase)	208 V (3 Phase)	240 V (3 Phase)	380 V (3 Phase)	416 V (3 Phase)	440 V (3 Phase)	480 V (3 Phase)	600 V (3 Phase)	4160 V (3 Phase)	12470 V (3 Phase)	13200 V (3 Phase)	13800 V (3 Phase)	ISO 8528	UL2200	NFPA 110	IBC 2018
mtu 2000 DS	1000	1250			x	x	x			x	x	x				x	x	x	x
	1250	1562					x			x	x	x				x	x	x	x
	1250	1562					x			x	x	x				x	x	x	
mtu 4000 DS	1250	1562					x	x	x	x	x	x	x	x	x	x	x	x	x
	1500	1875					x	x	x	x	x	x	x	x	x	x	x	x	x
	1500	1875					x	x	x	x	x	x	x	x	x	x	x	x	x
	1750	2187					x	x	x	x	x	x	x	x	x	x	x	x	x
	1750	2187					x	x	x	x	x	x	x	x	x	x	x	x	x
	2000	2500					x	x	x	x	x	x	x	x	x	x	x	x	x
	2250	2812					x	x	x	x	x	x	x	x	x	x	x	x	x
	2500	3125					x	x	x	x	x	x	x	x	x	x	x	x	x
	2500	3125					x	x	x	x	x	x	x	x	x	x	x	x	x
	2800	3500					x	x	x	x	x	x	x	x	x	x	x	x	x
	3000	3750					x			x	x	x	x	x	x	x	x	x	x
	3250	4062								x	x	x	x	x	x	x	x	x	x

	Emissions					Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	US EPA stat. EMERG Tier 3 (40 CF 60)	US EPA Nonroad Tier 3 compliant	US EPA stat. EMERG Tier 2 (40 CF 60)	US EPA Nonroad Tier 2 compliant	Fuel consumption optimized	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 2000 DS			x	x		x				16V 2000 G86S	W2A	***mtu*** 16V2000 DS1000
			x	x		x				16V 2000 G86S	W2A	***mtu*** 16V2000 DS1250
			x	x		x				18V 2000 G76S	A2A	***mtu*** 18V2000 DS1250
mtu 4000 DS			x	x		x				12V 4000 G74S	W2A	***mtu*** 12V4000 DS1250
			x	x		x				12V 4000 G74S	W2A	***mtu*** 12V4000 DS1500
			x			x				12V 4000 G75S	W2A	***mtu*** 12V4000 DS1500
			x	x		x				12V 4000 G84S	W2A	***mtu*** 12V4000 DS1750
			x			x				12V 4000 G85S	W2A	***mtu*** 12V4000 DS1750
			x	x		x				16V 4000 G74S	W2A	***mtu*** 16V4000 DS2000
			x	x		x				16V 4000 G84S	W2A	***mtu*** 16V4000 DS2250
			x	x		x				16V 4000 G94S	W2A	***mtu*** 16V4000 DS2500
			x	x		x				20V 4000 G64S	W2A	***mtu*** 20V4000 DS2500
			x	x		x				20V 4000 G74S	W2A	***mtu*** 20V4000 DS2800
			x	x		x				20V 4000 G94S	W2A	***mtu*** 20V4000 DS3000
			x	x		x				20V 4000 G94S	W2A	***mtu*** 20V4000 DS3250

Standby power – dynamic uninterruptible power supply systems

STANDBY POWER (3D) – 60 HZ/1800 RPM.

	Power output [1]				Available voltages		Emissions					Accu arrang.	Certifications				Uptime compl.		Housing	
	no-break kVA	no-break kWe	short-break kVA	short-break kWe	low voltage 208 - 480V (3 Phase)	medium voltages 4 - 36 kV (3 Phase)	US EPA stationary EMERG Tier 3 (40 CF 60)	US Nonroad Tier 3 compliant	US EPA stationary EMERG Tier 2 (40 CF 60)	US Nonroad Tier 2 compliant	Fuel consumption optimized		ISO 8528	UL2200	NFPA 110	IBC 2012	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container
mtu KP5	250	200			x	x					x	single			x		x			x
	300	240			x	x					x	single			x		x			x
	400	320			x	x					x	single			x		x			x
	500	400			x	x			x	x		single			x		x			x
	625	500			x	x			x	x		single			x		x			x
	800	640			x	x				x		single			x		x			x
	1000	800			x	x				x		single			x		x			x
	1250	1000			x	x				x		single			x		x			x
	1500	1200			x	x			x	x	x	single			x		x			x
	1700	1360			x	x			x	x	x	single			x		x			x
	1875	1500	1125	900	x	x			x	x	x	single			x		x			x
	2000	1600			x	x			x	x	x	single			x		x			x
	2000	1600	500	400	x	x			x	x	x	single			x		x			x
	2500	2000			x	x			x	x	x	bi			x		x			x
	3000	2400			x	x			x	x	x	bi			x		x			x
	3000	2400	300	240	x	x			x	x	x	bi			x		x			x
mtu KP7	2500	2000			x	x			x	x	x	single			x		x			x
	3000	2400			x	x			x	x	x	single			x		x			x
	3000	2400	300	240	x	x			x	x	x	single			x		x			x

Standby power – gas generator sets

STANDBY POWER (3D) – 60 HZ/1800 RPM.

Power output [1]		Available voltages											Emissions	Certifications				Fuel type		Housing		Engine type	Genset type
kWe	kVA	240 V Dedicated (1 Phase)	240 V Re-connectable (1 Phase)	208 V (3 Phase)	240 V (3 Phase)	380 V (3 Phase)	480 V (3 Phase)	600 V (3 Phase)	4160 V (3 Phase)	12470 V (3 Phase)	13200 V (3 Phase)	13800 V (3 Phase)	EPA Certified	ISO 8528	UL2200	NFPA 110	IBC 2018	Natural gas	Propane gas/ liquid propane	Enclosure	Container		
30	38	x	x	x	x	x	x	x					x	x	x	x	x	x		x		2.5L	***mtu*** 4R0063 GS30
40	50	x	x	x	x	x	x	x					x	x	x	x	x	x		x		2.5LT	***mtu*** 4R0063 GS40
50	63	x	x	x	x	x	x	x					x	x	x	x	x	x		x		6.2L	***mtu*** 8V0078 GS50
60	75	x	x	x	x	x	x	x					x	x	x	x	x	x		x		6.2L	***mtu*** 8V0078 GS60
70	88	x	x	x	x		x	x					x	x	x	x	x	x		x		6.8L	***mtu*** 10V0068 GS75
100	125	x	x	x	x		x	x					x	x	x	x	x	x		x		6.8LT	***mtu*** 10V0068 GS100
125	156	x	x	x	x		x	x					x	x	x	x	x	x		x		6.8LT CAC	***mtu*** 10V0068 GS125
150	187	x	x	x	x		x	x					x	x	x	x		x		x		8.1L CAC	***mtu*** 6R0135 GS150
200	250	x	x	x	x		x	x					x	x	x	x		x		x		11.1L CAC	***mtu*** 6R0185 GS200
260	325		x	x	x		x	x					x	x	x	x		x		x		14.6L CAC	***mtu*** 8V0183 GS260
350	437		x	x	x		x	x					x	x	x	x		x		x		18.3L CAC	***mtu*** 10V0183 GS350
400	500		x	x	x		x	x					x	x	x	x		x				21.9L CAC	***mtu*** 12V0183 GS400
500	625			x	x	x	x	x	x				x	x	x	x		x				31.8L CAC	***mtu*** 12V0265 GS500
550	688			x	x	x	x	x	x				x	x	x	x		x				31.8L CAC	***mtu*** 12V0265 GS550
600	750			x	x	x	x	x	x				x	x	x	x		x				31.8L CAC	***mtu*** 12V0265 GS600
650	813			x	x	x	x	x	x				x	x	x	x		x				31.8L CAC	***mtu*** 12V0265 GS650

mtu 0063 - 0265 GS/natural gas

Standby power – gas generator sets

STANDBY POWER (3D) – 60 HZ/1800 RPM.

mtu 0063 - 0183 GS/propane gas

Power output[1]		Available voltages											Emissions	Certifications				Fuel type		Housing		Engine type	Genset type
kWe	kVA	240 V Dedicated (1 Phase)	240 V Re-connectable (1 Phase)	208 V (3 Phase)	240 V (3 Phase)	380 V (3 Phase)	480 V (3 Phase)	600 V (3 Phase)	4160 V (3 Phase)	12470 V (3 Phase)	13200 V (3 Phase)	13800 V (3 Phase)	EPA Certified	ISO 8528	UL2200	NFPA 110	IBC 2018	Natural gas	Propane gas/ liquid propane	Enclosure	Container		
30	38	x	x	x	x	x	x	x					x	x	x	x	x		x	x		2.5L	***mtu*** 4R0063 GS30
40	50	x	x	x	x	x	x	x					x	x	x	x	x		x	x		2.5L	***mtu*** 4R0063 GS40
50	63	x	x	x	x	x	x	x					x	x	x	x	x		x	x		6.2L	***mtu*** 8V0078 GS50
60	75	x	x	x	x	x	x	x					x	x	x	x	x		x	x		6.2L	***mtu*** 8V0078 GS60
75	94	x	x	x	x		x	x					x	x	x	x	x		x	x		6.8L	***mtu*** 10V0068 GS75
100	125	x	x	x	x		x	x					x	x	x	x	x		x	x		6.8LT	***mtu*** 10V0068 GS100
125	156	x	x	x	x		x	x					x	x	x	x	x		x	x		6.8LT CAC	***mtu*** 10V0068 GS125
100	125	x	x	x	x		x	x					x	x	x	x			x	x		8.1L CAC	***mtu*** 6R0135 GS150
130	162	x	x	x	x		x	x					x	x	x	x			x	x		11.1L CAC	***mtu*** 6R0185 GS200
160	200		x	x	x		x	x					x	x	x	x			x	x		14.6L CAC	***mtu*** 8V0183 GS260
245	306		x	x	x		x	x					x	x	x	x			x	x		18.3L CAC	***mtu*** 10V0183 GS350
295	368		x	x	x		x	x					x	x	x	x			x	x		21.9L CAC	***mtu*** 12V0183 GS400
350	438			x	x	x	x	x	x				x	x	x	x			x			31.8L CAC	***mtu*** 12V0265 GS500
400	500			x	x	x	x	x	x				x	x	x	x			x			31.8L CAC	***mtu*** 12V0265 GS500

Standby power – diesel generator sets

PRIME POWER FOR STATIONARY EMERGENCY (3E) – 50 HZ/1500 RPM.

	Power output [1]		Available voltages								Emissions						Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kVA	kWe	380 V (3 Phase)	400 V (3 Phase)	415 V (3 Phase)	6300 V (3 Phase)	6600 V (3 Phase)	10000 V (3 Phase)	10500 V (3 Phase)	11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 1600 DS*	450	360	x	x	x						x	x	x			x	x	x	x	x		x		x		10V 1600 G10F	A2A	***mtu*** 10V1600 DS500
	500	400	x	x	x						x	x	x			x	x	x	x	x		x		x		10V 1600 G20F	A2A	***mtu*** 10V1600 DS540
	590	472	x	x	x						x	x	x				x	x	x	x		x		x		12V 1600 G10F	A2A	***mtu*** 12V1600 DS650
	650	520	x	x	x						x	x	x				x	x	x	x		x		x		12V 1600 G20F	A2A	***mtu*** 12V1600 DS720
mtu 2000 DS	800	640	x	x	x						x	x	x	x			x	x	x	x	x	x	x				12V 2000 G26F	A2A	***mtu*** 12V2000 DS1000
	910	730	x	x	x						x	x	x	x			x	x	x	x	x	x	x				16V 2000 G16F	A2A	***mtu*** 16V2000 DS1000
	1000	800	x	x	x						x	x	x	x			x	x	x	x	x	x	x				16V 2000 G26F	A2A	***mtu*** 16V2000 DS1100
	1135	900	x	x	x						x	x	x	x			x	x	x	x	x	x	x				16V 2000 G36F	A2A	***mtu*** 16V2000 DS1250
	1250	1000	x	x	x						x	x	x	x			x	x	x	x	x	x	x				18V 2000 G26F	A2A	***mtu*** 18V2000 DS1400
	910	730	x	x	x						x	x	x	x			x	x	x	x	x	x	x				16V 2000 G16F	W2A*	***mtu*** 16V2000 DS1000
	1000	800	x	x	x						x	x	x	x			x	x	x	x	x	x	x				16V 2000 G26F	W2A*	***mtu*** 16V2000 DS1100
	1135	900	x	x	x						x	x	x	x			x	x	x	x	x	x	x				16V 2000 G36F	W2A*	***mtu*** 16V2000 DS1250
	1250	1000	x	x	x						x	x	x	x			x	x	x	x	x	x	x				18V 2000 G26F	W2A*	***mtu*** 18V2000 DS1400
mtu 4000 DS	1600	1280	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x				12V 4000 G14F	W2A	***mtu*** 12V4000 DS1650
	1700	1360	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x				12V 4000 G14F	W2A	***mtu*** 12V4000 DS1750
	1880	1504	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x				12V 4000 G24F	W2A	***mtu*** 12V4000 DS2000
	2100	1680	x	x	x			x	x	x	x		x	x			x	x	x	x [11]	x	x	x				12V 4000 G34F	W2A	***mtu*** 12V4000 DS2250
	2160	1728	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x				16V 4000 G14F	W2A	***mtu*** 16V4000 DS2250
	2360	1888	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x				16V 4000 G24F	W2A	***mtu*** 16V4000 DS2500
	2600	2080	x	x	x			x	x	x	x		x	x			x	x	x	x [11]	x	x	x				16V 4000 G34F	W2A	***mtu*** 16V4000 DS2750
	2640	2112	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x				20V 4000 G14F	W2A	***mtu*** 20V4000 DS2750
	2910	2328	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x				20V 4000 G24F	W2A	***mtu*** 20V4000 DS3100
	3110	2488	x	x	x			x	x	x	x	x	x				x	x	x	x [11]	x	x	x				20V 4000 G34F	W2A	***mtu*** 20V4000 DS3300
	3630	2904					x [11]		x	x	x		x	x			x	x	x		x	x	x				20V 4000 G44LF	W2A	***mtu*** 20V4000 DS4000

* available soon, for detailed information please check website

Standby power – diesel generator sets

PRIME POWER FOR STATIONARY EMERGENCY (3E) – 60 HZ/1800 RPM.

	Power output [1]		Available voltages											Emissions					Certifications				Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kWe	kVA	240 V	240 V	208 V	240 V	380 V	480 V	600 V	4160 V	12470 V	13200 V	13800 V	US EPA stationary EMERG Tier 3 (40 CF 60)	US EPA Nonroad Tier 3 compliant	US EPA stationary EMERG Tier 2 (40 CF 60)	US EPA Nonroad Tier 2 compliant	Fuel consumption optimized	ISO 8528	UL2200	NFPA 110	IBC 2012	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
			Dedicated (1 Phase)	Re-connectable (1 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)																
mtu 1600 DS	450	563	x	x	x	x	x	x	x	x					x				x	x	x	x	x		x		10V 1600 G20S	A2A	***mtu*** 10V1600 DS500
	500	625	x	x	x	x	x	x	x	x					x				x	x	x	x	x		x		12V 1600 G10S	A2A	***mtu*** 12V1600 DS550
	550	688	x	x	x	x	x	x	x	x					x				x	x	x	x	x		x		12V 1600 G20S	A2A	***mtu*** 12V1600 DS600
mtu 2000 DS	900	1125			x	x	x	x	x	x					x				x	x	x	x	x				16V 2000 G26S	W2A	***mtu*** 16V2000 DS1000
	1125	1406					x	x	x	x					x				x	x	x	x	x		x		12V 4000 G14S	W2A	***mtu*** 12V4000 DS1250
	1400	1750					x	x	x	x					x				x	x	x	x	x		x		12V 4000 G14S	W2A	***mtu*** 12V4000 DS1500
	1600	2000					x	x	x	x					x				x	x	x	x	x		x		12V 4000 G24S	W2A	***mtu*** 12V4000 DS1750
mtu 4000 DS	1800	2250					x	x	x	x	x	x	x		x				x	x	x	x	x		x		16V 4000 G14S	W2A	***mtu*** 16V4000 DS2000
	2045	2556					x	x	x	x	x	x	x		x				x	x	x	x	x				16V 4000 G24S	W2A	***mtu*** 16V4000 DS2250
	2250	2813					x	x	x	x	x	x	x		x				x	x	x	x	x				20V 4000 G14S	W2A	***mtu*** 20V4000 DS2500
	2500	3125					x	x	x	x	x	x	x		x				x	x	x	x	x				20V 4000 G24S	W2A	***mtu*** 20V4000 DS2800
	2800	3500					x	x	x	x	x	x	x		x				x	x	x	x	x				20V 4000 G44S	W2A	***mtu*** 20V4000 DS3000

Standby power – diesel generator sets

DATA CENTER CONTINUOUS POWER (3F) – 50 HZ/1500 RPM.

	Power output [1]		Available voltages								Emissions						Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kVA	kWe	380 V (3 Phase)	400 V (3 Phase)	415 V (3 Phase)	6300 V (3 Phase)	6600 V (3 Phase)	10000 V (3 Phase)	10500 V (3 Phase)	11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 1600 DS*	450	360	x	x	x						x	x	x			x	x	x	x	x	x	x	x	x		10V 1600 G10F	A2A	***mtu*** 10V1600 DS500
	500	400	x	x	x						x	x	x			x	x	x	x	x	x	x	x	x		10V 1600 G20F	A2A	***mtu*** 10V1600 DS540
	590	472	x	x	x						x	x	x				x	x	x	x	x	x	x	x		12V 1600 G10F	A2A	***mtu*** 12V1600 DS650
	650	520	x	x	x						x	x	x				x	x	x	x	x	x	x	x		12V 1600 G20F	A2A	***mtu*** 12V1600 DS720
mtu 2000 DS	1000	800	x	x	x						x	x	x	x			x	x	x	x	x	x	x	x		16V 2000 G26F	A2A	***mtu*** 16V2000 DS1100
	1250	1000	x	x	x						x	x	x	x			x	x	x	x	x	x	x	x		18V 2000 G26F	A2A	***mtu*** 18V2000 DS1400
	1000	800	x	x	x						x	x	x	x			x	x	x	x	x	x	x	x		16V 2000 G26F	W2A*	***mtu*** 16V2000 DS1100
	1250	1000	x	x	x						x	x	x	x			x	x	x	x	x	x	x	x		18V 2000 G26F	W2A*	***mtu*** 18V2000 DS1400
mtu 4000 DS	1600	1280	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		12V 4000 G14F	W2A	***mtu*** 12V4000 DS1650
	1700	1360	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		12V 4000 G14F	W2A	***mtu*** 12V4000 DS1750
	1880	1504	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		12V 4000 G24F	W2A	***mtu*** 12V4000 DS2000
	2100	1680	x	x	x		x[11]	x[13]			x		x	x			x	x	x	x	x	x	x	x		12V 4000 G34F	W2A	***mtu*** 12V4000 DS2250
	2160	1728	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		16V 4000 G14F	W2A	***mtu*** 16V4000 DS2250
	2360	1888	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		16V 4000 G24F	W2A	***mtu*** 16V4000 DS2500
	2600	2080	x	x	x		x[11]	x[13]			x		x	x			x	x	x	x	x	x	x	x		16V 4000 G34F	W2A	***mtu*** 16V4000 DS2750
	2640	2112	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		20V 4000 G14F	W2A	***mtu*** 20V4000 DS2750
	2910	2328	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		20V 4000 G24F	W2A	***mtu*** 20V4000 DS3100
	3110	2488	x	x	x			x	x	x	x	x	x				x	x	x	x	x	x	x	x		20V 4000 G34F	W2A	***mtu*** 20V4000 DS3300
	3390	2712					x[11]	x[13]	x[11]	x	x		x	x			x	x	x	x	x	x	x	x		20V 4000 G44F	W2A	***mtu*** 20V4000 DS3600
	3630	2904					x[11]		x[11]	x	x		x	x			x	x	x	x	x	x	x	x		20V 4000 G44LF	W2A	***mtu*** 20V4000 DS4000

* available soon, for detailed information please check website

Standby power – dynamic uninterruptible power supply systems

DATA CENTER CONTINUOUS POWER (3F) – 50 HZ/1500 RPM.

	Power output [1]				Available voltages		Emissions					Accu arrang.	Certifications				Perform. class [2]		Uptime compl.		Housing	
	no-break kVA	no-break kWe	short-break kVA	short-break kWe	low voltage 380 - 415V (3 Phase)	medium voltages 6 - 36 kV (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)		ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G3	ISO 8528-5 - G4	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container
mtu KP5	400	400			x	x	x	x	x			single		x	x			x	x	x		x
	480	384			x	x	x	x	x			single		x	x			x	x	x		x
	630	504			x	x	x	x	x			single		x	x			x	x	x		x
	1250	1000			x	x	x	x	x			single		x	x			x	x	x		x
	1500	1200			x	x	x	x	x			single		x	x			x	x	x		x
	1650	1320	600	480	x	x	x	x	x			single		x	x			x	x	x		x
	1700	1360			x	x	x	x	x			single		x	x			x	x	x		x
	1875	1500	625	500	x	x	x	x	x			single		x	x			x	x	x		x
	2000	1600			x	x	x	x	x			single		x	x			x	x	x		x
	2200	1760			x	x	x	x	x			bi		x	x			x	x	x		x
	2500	2000			x	x	x	x	x			bi		x	x			x	x	x		x
	2750	2200			x	x	x	x	x			bi		x	x			x	x	x		x
mtu KP7	2250	1800			x	x	x	x	x			single		x	x			x	x	x		x
	2500	2000			x	x	x	x	x			single		x	x			x	x	x		x
	2750	2200			x	x	x	x	x			single		x	x			x	x	x		x

Standby power – diesel generator sets

DATA CENTER CONTINUOUS POWER (3F) – 60 HZ/1800 RPM.

	Power output [1]		Available voltages													Emissions				
	kWe	kVA	240 V Dedicated (1 Phase)	240 V Re-connectable (1 Phase)	208 V (3 Phase)	240 V (3 Phase)	380 V (3 Phase)	416 V (3 Phase)	440 V (3 Phase)	480 V (3 Phase)	600 V (3 Phase)	4160 V (3 Phase)	12470 V (3 Phase)	13200 V (3 Phase)	13800 V (3 Phase)	US EPA stationary EMERG Tier 3 (40 CF 60)	US EPA Nonroad Tier 3 compliant	US EPA stationary EMERG Tier 2 (40 CF 60)	US EPA Nonroad Tier 2 compliant	Fuel consumption optimized
mtu 2000 DS	900	1125			x	x	x			x	x	x						x	x	x
mtu 4000 DS	1135	1419					x	x	x	x	x	x	x	x	x			x	x	x
	1350	1688					x	x	x	x	x	x	x	x	x			x	x	
	1400	1750					x	x	x	x	x	x	x	x	x			x	x	x
	1600	2000					x	x	x	x	x	x	x	x	x			x	x	
	1600	2000					x	x	x	x	x	x	x	x	x			x	x	x
	1825	2281					x	x	x	x	x	x	x	x	x			x	x	x
	2045	2556					x	x	x	x	x	x	x	x	x			x	x	x
	2275	2843					x	x	x	x	x	x	x	x	x			x	x	x
	2500	3125					x	x	x	x	x	x	x	x	x			x	x	x
	2800	3500					x	x	x	x	x	x	x	x	x			x	x	x

	Certifications				Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	ISO 8528	UL2200	NFPA 110	IBC 2012	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 2000 DS	x	x	x	x	x	x			16V 2000 G26S	W2A	***mtu*** 16V2000 DS1000
mtu 4000 DS	x	x	x	x	x	x			12V 4000 G14S	W2A	***mtu*** 12V4000 DS1250
	x	x	x	x	x	x			12V 4000 G15S	W2A	***mtu*** 12V4000 DS1500
	x	x	x	x	x	x			12V 4000 G14S	W2A	***mtu*** 12V4000 DS1500
	x	x	x	x	x	x			12V 4000 G25S	W2A	***mtu*** 12V4000 DS1750
	x	x	x	x	x	x			12V 4000 G24S	W2A	***mtu*** 12V4000 DS1750
	x	x	x	x	x	x			16V 4000 G14S	W2A	***mtu*** 16V4000 DS2000
	x	x	x	x	x	x			16V 4000 G24S	W2A	***mtu*** 16V4000 DS2250
	x	x	x	x	x	x			20V 4000 G14S	W2A	***mtu*** 20V4000 DS2500
	x	x	x	x	x	x			20V 4000 G24S	W2A	***mtu*** 20V4000 DS2800
	x	x	x	x	x	x			20V 4000 G44S	W2A	***mtu*** 20V4000 DS3000

Standby power – dynamic uninterruptible power supply systems

DATA CENTER CONTINUOUS POWER (3F) – 60 HZ/1800 RPM.

	Power output [1]				Available voltages		Emissions					Accu arrang.	Certifications				Uptime compl.		Housing	
	no-break kVA	no-break kWe	short-break kVA	short-break kWe	low voltage 208 - 480V (3 Phase)	medium voltages 4 - 36 kV (3 Phase)	US EPA stationary EMERG Tier 3 (40 CF 60)	US Nonroad Tier 3 compliant	US EPA stationary EMERG Tier 2 (40 CF 60)	US Nonroad Tier 2 compliant	Fuel consumption optimized		ISO 8528	UL2200	NFPA 110	IBC 2012	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container
mtu KP5	500	400			x	x			x	x		single			x		x	x		x
	625	500			x	x			x	x		single			x		x	x		x
	1500	1200			x	x			x	x	x	single			x		x	x		x
	1700	1360			x	x			x	x	x	single			x		x	x		x
	1875	1500	1125	900	x	x			x	x	x	single			x		x	x		x
	2000	1600			x	x			x	x	x	single			x		x	x		x
	2000	1600	500	400	x	x			x	x	x	bi			x		x	x		x
	2500	2000			x	x			x	x	x	bi			x		x	x		x
	3000	2400			x	x			x	x	x	bi			x		x	x		x
mtu KP7	2500	2000			x	x			x	x	x	single			x		x	x		x
	3000	2400			x	x			x	x	x	single			x		x	x		x

Continuous/prime/grid stability power – diesel generator sets

CONTINUOUS POWER + CHP (3A) – 50 HZ/1500 RPM.

mtu 2000 DS

Power output [1]		Available voltages								Emissions						Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
kVA	kWe	380 V (3 Phase)	400 V (3 Phase)	415 V (3 Phase)	6300 V (3 Phase)	6600 V (3 Phase)	10000 V (3 Phase)	10500 V (3 Phase)	11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
750	600	x	x	x						x						x	x	x	x	x	x	x	x			12V 2000 B26F	A2A	***mtu*** 12V2000 DS1000
800	640	x	x	x						x						x	x	x	x	x	x	x	x			16V 2000 B26F	A2A	***mtu*** 16V2000 DS1250
1000	800	x	x	x						x						x	x	x	x	x	x	x	x			18V 2000 B26F	A2A	***mtu*** 18V2000 DS1400
800	640	x	x	x						x						x	x	x	x	x	x	x	x			16V 2000 B26F	W2A*	***mtu*** 16V2000 DS1250
1000	800	x	x	x						x						x	x	x	x	x	x	x	x			18V 2000 B26F	W2A*	***mtu*** 18V2000 DS1400

* available soon, for detailed information please check website

Continuous/prime/grid stability power – gas generator sets

CONTINUOUS POWER + CHP (3A) – 50 HZ (NO_X 500 MG/NM^3 @ 5% O_2 DRY).

Fuel type			Output						Energy input [9]	Efficiency		
Ambient condition	Natural gas	Biogas, sewage gas, landfill gas	Electr. [6] kW_{el}	Therm. [7] kW_{th}	Exhaust [8] kW_{th} (°C)	Reference temp. for exhaust gas heat (°C)	Low Temp. kW_{th} (°C)	Mixture cooling water temp. (°C)	kW	Electr. n_{el} (%)	Therm. n_{th} (%)	Total n_{tot} (%)
ISO	x		250	131	129	120	26	40	598	41,8	43,4	85,2
ISO	x		360	188	193	120	31	40	846	42,6	45,0	87,6
ISO	x		499	263	271	120	46	40	1188	42,1	45,0	87,1
ISO	x		550	287	290	120	51	40	1290	42,6	44,8	87,4
ISO		x	250	154	92	180	24	40	590	42,4	41,6	84,0
ISO		x	360	199	146	180	29	40	846	42,5	40,8	83,3
ISO		x	550	309	217	180	45	40	1293	42,5	40,7	83,2

Methane number [10]	NOx raw gas @5% O_2 dry		Options							Engine type	Genset type
Reference	500 mg/Nm^3	250 mg/Nm^3	400V alternator	415V alternator	6300V alternator	10500V alternator	11000V alternator	120s FAST Start	Heat recovery unit		
80	x	x	x						x	E406-ct80	***mtu*** 6RA500 GS
80	x	x	x						x	E408-ct80	***mtu*** 8VA500 GS
80	x	x	x						x	E412-ct80	***mtu*** 12VA500 GS
80	x	x	x						x	E412-ct80	***mtu*** 12VA500 GS
135	x	x	x						x	B406-ct135	***mtu*** 6RA500 GS
135	x	x	x						x	B408-ct135	***mtu*** 8VA500 GS
135	x	x	x						x	B412-ct135	***mtu*** 12VA500 GS

Continuous/prime/grid stability power – gas generator sets

CONTINUOUS POWER + CHP (3A) – 50 HZ (NO_X 500 MG/NM^3 @ 5% O_2 DRY).

Fuel type			Output						Energy input [9]	Efficiency		
Ambient condition	Natural gas	Biogas, sewage gas, landfill gas	Electr. [6] kW_{el}	Therm. [7] kW_{th}	Exhaust [8] kW_{th} (°C)	Reference temp. for exhaust gas heat (°C)	Low Temp. kW_{th} (°C)	Mixture cooling water temp. (°C)	kW	Electr. n_{el} (%)	Therm. n_{th} (%)	Total n_{tot} (%)
ISO	x		776	414	422	120	47	40	1832	42,4	45,6	88,0
ISO	x		854	422	435	120	51	43	1967	43,4	43,6	87,0
ISO	x		999	522	490	120	68	43	2258	44,2	44,8	89,1
ISO	x		1013	530	494	120	69	43	2287	44,3	44,8	89,1
ISO	x		1286	703	650	120	90	40	2949	43,6	45,9	89,5
ISO	x		1521	788	742	120	115	43	3443	44,2	44,4	88,6
ISO	x		1712	1015	825	120	127	40	3979	43,0	46,3	89,3
ISO	x		2028	1060	995	120	145	43	4583	44,3	44,8	89,1
ISO	x		2145	1196	1078	120	142	40	4985	43,0	45,6	88,6
ISO	x		2538	1241	1212	120	176	43	5751	44,1	42,7	86,8
ISO	x		2540	1241	1212	120	176	43	5751	44,2	42,7	86,8
ISO		x	776	390	396	120	74	40	1806	43,0	43,5	86,5
ISO		x	800	401	402	180	78	40	1861	43,0	43,1	86,1
ISO		x	1169	586	602	120	103	40	2716	43,0	43,8	86,8
ISO		x	1560	825	800	120	133	40	3616	43,1	45,0	88,1
ISO		x	1950	1030	1046	120	97	40	4493	43,4	46,2	89,6

Methane number [10]	NOx raw gas @5% O_2 dry		Options							Engine type	Genset type
Reference	500 mg/Nm^3	250 mg/Nm^3	400V alternator	415V alternator	6300V alternator	10500V alternator	11000V alternator	120s FAST Start	Heat recovery unit		
70	x	x	x						x	L33	***mtu*** 8V4000 GS
70	x	x	x	x	x	x	x		x	L64	***mtu*** 8V4000 GS
72	x	x	x	x	x	x	x		x	L64FNER	***mtu*** 8V4000 GS
72	x	x	x	x	x	x	x		x	L64FNER	***mtu*** 8V4000 GS
80	x	x	x	x	x	x	x		x	L33	***mtu*** 12V4000 GS
72	x	x	x	x	x	x	x		x	L64FNER	***mtu*** 12V4000 GS
80	x	x	x	x	x	x	x		x	L33	***mtu*** 16V4000 GS
72	x	x	x	x	x	x	x	x	x	L64FNER	***mtu*** 16V4000 GS
80	x	x	x	x	x	x	x		x	L33	***mtu*** 20V4000 GS
72	x	x	x	x	x	x	x	x	x	L64FNER	***mtu*** 20V4000 GS
80	x	x	x	x	x	x	x		x	L64	***mtu*** 20V4000 GS
120	x		x						x	L32FB	***mtu*** 8V4000 GS
120	x		x						x	L32FB	***mtu*** 8V4000 GS
120	x	x	x	x	x	x	x		x	L32FB	***mtu*** 12V4000 GS
120	x	x	x	x	x	x	x		x	L32FB	***mtu*** 16V4000 GS
120	x		x	x	x	x	x		x	L32FB	***mtu*** 20V4000 GS

Continuous/prime/grid stability power – gas generator sets

CONTINUOUS POWER + CHP (3A) – 50 HZ (NO_X 500 MG/NM^3 @ 5% O_2 DRY).

Fuel type			Output						Energy input [9]	Efficiency		
Ambient condition	Natural gas	Biogas, sewage gas, landfill gas	Electr. [6] kW_{el}	Therm. [7] kW_{th}	Exhaust [8] kW_{th}	Reference temp. for exhaust gas heat (°C)	Low Temp. kW_{th} (°C)	Mixture cooling water temp. (°C)	kW	Electr. n_{el} (%)	Therm. n_{th} (%)	Total n_{tot} (%)
H&H	x		776	460	420	120	32	53	1853	41,9	47,5	89,4
H&H	x		999	595	476	120	50	58	2300	43,4	46,6	90,0
H&H	x		1169	680	624	120	58	53	2732	42,8	47,7	90,5
H&H	x		1521	849	717	120	79	58	3428	44,4	45,7	90,1
H&H	x		1560	954	802	120	79	53	3661	42,6	48,0	90,6
H&H	x		1948	1068	1101	120	78	53	4577	42,6	47,3	89,9
H&H	x		2028	1173	974	120	93	58	4622	43,9	46,5	90,3
H&H	x		2540	1441	1243	120	150	58	5781	43,9	46,4	90,4
H&H		x	776	430	424	120	67	53	1854	41,9	46,0	87,9
H&H		x	1169	636	631	120	90	53	2755	42,4	46,0	88,4
H&H		x	1560	877	815	120	119	53	3652	42,7	46,4	89,1
H&H		x	1950	1039	1044	120	84	53	4576	42,6	45,5	88,1
LM	x		1560	951	937	120	99	53	3848	40,5	49,1	89,6
LM	x		1948	1180	1181	120	99	53	4812	40,5	49,1	89,6

H&H = Hot & Humid, LM = Low Methan

Methane number [10]	NOx raw gas @5% O_2 dry		Options							Engine type	Genset type
Reference	500 mg/Nm^3	250 mg/Nm^3	400V alternator	415V alternator	6300V alternator	10500V alternator	11000V alternator	120s FAST Start	Heat recovery unit		
80	x	x	x						x	L32	***mtu*** 8V4000 GS
80	x	x	x	x	x	x	x		x	L64FNER	***mtu*** 8V4000 GS
80	x	x	x	x	x	x	x		x	L32	***mtu*** 12V4000 GS
80	x	x	x	x	x	x	x		x	L64FNER	***mtu*** 12V4000 GS
80	x	x	x	x	x	x	x		x	L32	***mtu*** 16V4000 GS
80	x	x	x	x	x	x	x		x	L32	***mtu*** 20V4000 GS
80	x	x	x	x	x	x	x		x	L64FNER	***mtu*** 16V4000 GS
80	x	x	x	x	x	x	x		x	L64FNER	***mtu*** 20V4000 GS
120	x		x						x	L32FB	***mtu*** 8V4000 GS
120	x	x	x	x	x	x	x		x	L32FB	***mtu*** 12V4000 GS
120	x	x	x	x	x	x	x		x	L32FB	***mtu*** 16V4000 GS
120	x		x	x	x	x	x		x	L32FB	***mtu*** 20V4000 GS
60	x		x	x	x	x	x			L32ER	***mtu*** 16V4000 GS
60	x		x	x	x	x	x			L32ER	***mtu*** 20V4000 GS

Continuous/prime/grid stability power – gas generator sets

CONTINUOUS POWER + CHP (3A) – 60 HZ (NO_X 1 G/BHP-HR @ 5% O_2 DRY).

Fuel type			Output						Energy input [9]	Efficiency		
Ambient condition	Natural gas	Biogas, sewage gas, landfill gas	Electr. [6] kW_{el}	Therm. [7] kW_{th}	Exhaust [8] kW_{th}	Reference temp. for exhaust gas heat (°C)	Low Temp. kW_{th}	Mixture cooling water temp. (°C)	kW	Electr. n_{el} (%)	Therm. n_{th} (%)	Total n_{tot} (%)
ISO	x		250	143	144	120	21	40	618	40,5	46,4	86,9
ISO	x		360	189	211	120	33	40	882	40,8	45,4	86,2
ISO	x		550	304	325	120	51	40	1359	40,5	46,3	86,8
ISO		x	250	144	117	180	19	40	607	41,2	42,9	84,1
ISO		x	360	191	194	180	36	40	882	40,8	43,6	84,4
ISO		x	550	306	299	180	49	40	1359	40,5	44,5	85,0

Methane number [10]	NOx raw gas				Options							Engine type	Genset type
Reference	500 mg/Nm³ @5%O² dry	1 g/bhp-hr	250 mg/Nm³ @5%O² dry	0,5 g/bhp-hr	480V alternator	600V alternator	4160V alternator	12470V alternator	13200/13800V altern.	120s FAST Start	Heat recovery unit		
80		x		x	x						x	E406-ct80	***mtu*** 6RA500 GS
80		x		x	x						x	E408-ct80	***mtu*** 8VA500 GS
80		x		x	x						x	E412-ct80	***mtu*** 12VA500 GS
130		x		x	x						x	B406-ct135	***mtu*** 6RA500 GS
130		x		x	x						x	B408-ct135	***mtu*** 8VA500 GS
130		x		x	x						x	B412-ct135	***mtu*** 12VA500 GS

Continuous/prime/grid stability power – gas generator sets

CONTINUOUS POWER + CHP (3A) – 60 HZ (NO_X 500 MG/NM^3 @ 5% O_2 DRY).

Fuel type			Output						Energy input [9]	Efficiency		
Ambient condition	Natural gas	Biogas, sewage gas, landfill gas	Electr. [6] kW_{el}	Therm. [7] kW_{th}	Exhaust [8] kW_{th}	Reference temp. for exhaust gas heat (°C)	Low Temp. kW_{th}	Mixture cooling water temp. (°C)	kW	Electr. n_{el} (%)	Therm. n_{th} (%)	Total n_{tot} (%)
ISO	x		842	452	448	120	49	40	1993	42,2	45,2	87,4
ISO	x		997	540	494	120	69	43	2287	43,6	45,2	88,8
ISO	x		1272	675	659	120	88	43	2974	42,8	44,9	87,6
ISO	x		1506	800	742	120	115	43	3456	43,6	44,6	88,2
ISO	x		1705	974	821	120	113	40	3991	42,7	45,0	87,7
ISO	x		2014	1072	995	120	145	43	4583	43,9	45,1	89,0
ISO	x		2129	1208	1077	120	142	40	4985	42,7	45,8	88,5
ISO	x		2519	1368	1236	120	211	43	5781	43,6	45,0	88,6
ISO		x	764	388	321	180	74	40	1806	42,3	39,3	81,6
ISO		x	1152	581	488	180	103	40	2716	42,5	39,4	81,9
ISO		x	1549	638	652	180	313	40	3616	42,8	35,7	78,5
ISO		x	1934	745	873	180	373	40	4493	43,0	36,0	79,1
H&H	x		764	454	420	120	32	53	1853	41,2	47,2	88,4
H&H	x		997	614	480	120	51	58	2329	42,8	47,0	89,8
H&H	x		1155	642	638	120	43	53	2747	42,0	46,6	88,6
H&H	x		1506	861	717	120	79	58	3428	43,9	46,0	90,0
H&H	x		1549	901	805	120	76	53	3651	42,4	46,7	89,2
H&H	x		1934	1046	1101	120	78	53	4577	42,3	46,9	89,2
H&H	x		2014	1185	974	120	93	58	4622	43,6	46,7	90,3
H&H	x		2519	1454	1243	120	150	58	5781	43,6	46,6	90,2
H&H		x	764	427	349	180	67	53	1854	41,2	41,9	83,1
H&H		x	1155	647	519	180	90	53	2755	41,9	42,3	84,2
H&H		x	1549	677	671	180	330	53	3652	42,4	46,0	88,4
H&H		x	1934	775	856	180	425	53	4576	42,3	35,6	77,9
LM	x		1547	932	937	120	84	53	3848	40,2	48,6	88,8
LM	x		1934	1154	1181	120	99	53	4812	40,2	48,5	88,7

H&H = Hot & Humid, LM = Low Methan

Methane number [10]	NOx raw gas				Options							Engine type	Genset type
Reference	500 mg/Nm^3 @5%O^2 dry	1 g/bhp-hr	250 mg/Nm^3 @5%O^2 dry	0,5 g/bhp-hr	480V alternator	600V alternator	4160V alternator	12470V alternator	13200/13800V altern.	120s FAST Start	Heat recovery unit		
80	x	x	*	*	x	x					*	L33	***mtu*** 8V4000 GS
72	x	x	x	x	x						*	L64FNER	***mtu*** 8V4000 GS
80	x	x	*	*	x	x	x	x	x		*	L33	***mtu*** 12V4000 GS
72	x	x	x	x	x	x	x	x	x		*	L64FNER	***mtu*** 12V4000 GS
80	x	x	*	*	x	x	x	x	x		*	L33	***mtu*** 16V4000 GS
72	x	x	x	x	x	x	x	x	x		*	L64FNER	***mtu*** 16V4000 GS
80	x	x	*	*	x	x	x	x	x		*	L33	***mtu*** 20V4000 GS
72	x	x	x	x	x	x	x	x	x		*	L64FNER	***mtu*** 20V4000 GS
120	x	x			x	x					*	L32FB	***mtu*** 8V4000 GS
120	x	x	x		x	x	x	x	x		*	L32FB	***mtu*** 12V4000 GS
120	x	x	x		x	x	x	x	x		*	L32FB	***mtu*** 16V4000 GS
120	x	x			x	x	x	x	x		*	L32FB	***mtu*** 20V4000 GS
80	x	x	*	*	x	x					*	L32	***mtu*** 8V4000 GS
80	x	x	x	x	x						*	L64FNER	***mtu*** 8V4000 GS
80	x	x	*	*	x	x	x	x	x		*	L32	***mtu*** 12V4000 GS
80	x	x	x	x	x	x	x	x	x		*	L64FNER	***mtu*** 12V4000 GS
80	x	x	*	*	x	x	x	x	x		*	L32	***mtu*** 16V4000 GS
80	x	x	*	*	x	x	x	x	x		*	L32	***mtu*** 20V4000 GS
80	x	x	x	x	x	x	x	x	x		*	L64FNER	***mtu*** 16V4000 GS
80	x	x	x	x	x	x	x	x	x		*	L64FNER	***mtu*** 20V4000 GS
120	x	x			x	x					*	L32FB	***mtu*** 8V4000 GS
120	x	x	x		x	x	x	x	x		*	L32FB	***mtu*** 12V4000 GS
120	x	x	x		x	x	x	x	x		*	L32FB	***mtu*** 16V4000 GS
120	x	x			x	x	x	x	x		*	L32FB	***mtu*** 20V4000 GS
60	x	x			x	x	x	x	x		*	L32ER	***mtu*** 16V4000 GS
60	x	x			x	x	x	x	x		*	L32ER	***mtu*** 20V4000 GS

* on request

Continuous/prime/grid stability power – diesel generator sets

PRIME POWER (3B) – 50 HZ/1500 RPM.

	Power output [1]		Available voltages			Emissions					
	25°C kVA	25°C kWe	380 - 415V (3 Phase)	6300 - 6600 kV (3 Phase)	10000 -11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)
mtu 0080/0113 DS	50	40	x							x	
	60	48	x							x	
	75	60	x							x	
	84	67	x			x					
mtu 1600 DS*	450	360	x			x	x	x			x
	500	400	x			x	x	x			x
	590	472	x			x	x	x			
	650	520	x			x	x	x			

* available soon, for detailed information please check website

	Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 0080/0113 DS	x	x			x		x				F32 TM 1A	A2A	***mtu*** 4R0080 DS55
	x	x			x		x				NEF45 SM 1A	A2A	***mtu*** 4R0113 DS63
	x	x			x		x				NEF45 SM 2A	A2A	***mtu*** 4R0113 DS80
	x	x			x		x				NEF45 SM 5	A2A	***mtu*** 4R0113 DS94
mtu 1600 DS*	x	x	x		x	x	x		x		10V 1600 G10F	A2A	***mtu*** 10V1600 DS500
	x	x	x		x	x	x		x		10V 1600 G20F	A2A	***mtu*** 10V1600 DS540
	x	x	x		x	x	x		x		12V 1600 G10F	A2A	***mtu*** 12V1600 DS650
	x	x	x		x	x	x		x		12V 1600 G20F	A2A	***mtu*** 12V1600 DS720

Continuous/prime/grid stability power – diesel generator sets

PRIME POWER (3B) – 50 HZ/1500 RPM.

	Power output [1]		Available voltages			Emissions						Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kVA	kWe	380 - 415V (3 Phase)	6300 - 6600 kV (3 Phase)	10000 -11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 2000 DS	800	640	x			x	x	x	x			x	x	x	x	x	x	x				12V 2000 G26F	A2A	***mtu*** 12V2000 DS1000
	910	730	x			x	x	x	x			x	x	x	x	x	x	x				16V 2000 G16F	A2A	***mtu*** 16V2000 DS1000
	1000	800	x			x	x	x	x			x	x	x	x	x	x	x				16V 2000 G26F	A2A	***mtu*** 16V2000 DS1100
	1135	900	x			x	x	x	x			x	x	x	x	x	x	x				16V 2000 G36F	A2A	***mtu*** 16V2000 DS1250
	1250	1000	x			x	x	x	x			x	x	x	x	x	x	x				18V 2000 G26F	A2A	***mtu*** 18V2000 DS1400
	910	730	x			x	x	x	x			x	x	x	x	x	x	x				16V 2000 G16F	W2A*	***mtu*** 16V2000 DS1000
	1000	800	x			x	x	x	x			x	x	x	x	x	x	x				16V 2000 G26F	W2A*	***mtu*** 16V2000 DS1100
	1135	900	x			x	x	x	x			x	x	x	x	x	x	x				16V 2000 G36F	W2A*	***mtu*** 16V2000 DS1250
	1250	1000	x			x	x	x	x			x	x	x	x	x	x	x				18V 2000 G26F	W2A*	***mtu*** 18V2000 DS1400
mtu 4000 DS	1600	1280	x		x	x	x	x				x	x	x	x	x	x	x				12V 4000 G14F	W2A	***mtu*** 12V4000 DS1650
	1700	1360	x		x	x	x	x				x	x	x	x	x	x	x				12V 4000 G14F	W2A	***mtu*** 12V4000 DS1750
	1880	1504	x		x	x	x	x				x	x	x	x	x	x	x				12V 4000 G24F	W2A	***mtu*** 12V4000 DS2000
	2160	1728	x		x	x	x	x				x	x	x	x	x	x	x				16V 4000 G14F	W2A	***mtu*** 16V4000 DS2250
	2360	1888	x		x	x	x	x				x	x	x	x	x	x	x				16V 4000 G24F	W2A	***mtu*** 16V4000 DS2500
	2640	2112	x		x	x	x	x				x	x	x	x	x	x	x				20V 4000 G14F	W2A	***mtu*** 20V4000 DS2750
	2910	2328	x		x	x	x	x				x	x	x	x	x	x	x				20V 4000 G24F	W2A	***mtu*** 20V4000 DS3100
	3110	2488	x		x	x	x	x				x	x	x	x	x	x	x				20V 4000 G34F	W2A	***mtu*** 20V4000 DS3300
	3390	2712		x [11]	x	x		x	x			x	x	x	x [11]	x	x	x				20V 4000 G44F	W2A	***mtu*** 20V4000 DS3600

* available soon, for detailed information please check website

Continuous/prime/grid stability power – diesel generator sets

PRIME POWER (3B) – 50 HZ/1500 RPM – NORTH AND LATIN AMERICA

	Power output [1]		Available voltages									Emissions					
	kVA	kWe	220 V (1 Phase)	220 V (3 Phase)	380 V (3 Phase)	400 V (3 Phase)	415 V (3 Phase)	3300 V (3 Phase)	10000 V (3 Phase)	10500 V (3 Phase)	11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)
mtu 0096 DS	34	27	x	x	x	x	x					x					
	44	35	x	x	x	x	x					x					
	55	44	x	x	x	x	x					x					
mtu 1600 DS	450	360			x	x	x					x	x				
	500	400			x	x	x					x	x				
	590	472			x	x	x					x	x				
	650	520			x	x	x					x	x				
mtu 2000 DS	1250	1000			x	x	x	x				x					

	Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
mtu 0096 DS	x		x		x		x				3029 TFG89	TC only	***mtu*** 3R0096 DS34
	x		x		x		x				4045 TF280	TC only	***mtu*** 3R0096 DS44
	x		x		x		x				4045 HF280	TC only	***mtu*** 3R0096 DS55
mtu 1600 DS	x		x		x		x				10V 1600 G10F	A2A	***mtu*** 10V1600 DS500
	x		x		x		x				10V 1600 G20F	A2A	***mtu*** 10V1600 DS550
	x		x		x		x				12V 1600 G10F	A2A	***mtu*** 12V1600 DS650
	x		x		x		x				12V 1600 G20F	A2A	***mtu*** 12V1600 DS715
mtu 2000 DS	x		x		x	x	x				18V 2000 G26F	A2A	***mtu*** 18V2000 DS1400

Continuous/prime/grid stability power – diesel generator sets

PRIME POWER (3B) – 60 HZ/1800 RPM.

	Power output [1]		Available voltages												Emissions					Certifications				Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kWe	kVA	240 V	240 V	208 V	240 V	380 V	440 V	480 V	600 V	4160 V	12470 V	13200 V	13800 V	US EPA stationary EMERG Tier 3 (40 CF 60)	US EPA Nonroad Tier 3 compliant	US EPA stationary EMERG Tier 2 (40 CF 60)	US EPA Nonroad Tier 2 compliant	Fuel consumption optimized	ISO 8528	UL2200	NFPA 110	IBC 2012	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
			Dedicated (1 Phase)	Re-connectable (1 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)																
mtu 0096/0113 DS	27	33	x	x	x	x	x		x	x					x					x	x	x	x	x		x		3029 TFG89	TC only	***mtu*** 3R0096 DS30
	40	50		x	x	x	x		x	x					x					x	x	x	x	x		x		4045 TF280	TC only	***mtu*** 4R0113 DS40
	45	56	x	x	x	x	x		x	x					x					x	x	x	x	x		x		4045 TF280	TC only	***mtu*** 4R0113 DS50
	55	68	x	x	x	x	x		x	x					x					x	x	x	x	x		x		4045 HF280	A2A	***mtu*** 4R0113 DS60
	80	100	x	x	x	x			x	x					x					x	x	x		x		x		4045 HF285	A2A	***mtu*** 4R0113 DS80
	90	113	x	x	x	x			x	x					x					x	x	x		x		x		4045 HF285	A2A	***mtu*** 4R0113 DS100
	111	139	x	x	x	x			x	x					x					x	x	x		x		x		4045 HF285	A2A	***mtu*** 4R0113 DS125
	135	169	x	x	x	x			x	x					x					x	x	x		x		x		6068 HF285	A2A	***mtu*** 6R0113 DS150
	180	225	C/F	C/F	x	x			x	x					x					x	x	x		x		x		6068 HFG85	A2A	***mtu*** 6R0113 DS180
	210	263		x	x	x			x	x					x					x	x	x		x		x		6090 HF484	A2A	***mtu*** 6R0150 DS230
	230	288			x	x			x	x					x					x	x	x		x		x		6090 HF484	A2A	***mtu*** 6R0150 DS250
	250	313			x	x			x	x					x					x	x	x		x		x		6090 HF484	A2A	***mtu*** 6R0150 DS275
mtu 0120 DS	72	90	x	x	x	x	x		x	x					x					x	x	x	x	x		x		4R 924 G10S	A2A	***mtu*** 4R0120 DS80
	90	113	x	x	x	x	x		x	x					x					x	x	x	x	x		x		4R 924 G20S	A2A	***mtu*** 4R0120 DS100
	111	139	x	x	x	x	x		x	x					x					x	x	x	x	x		x		4R 924 G20S	A2A	***mtu*** 4R0120 DS125
	135	169	x	x	x	x	x		x	x					x					x	x	x	x	x		x		6R 926 G10S	A2A	***mtu*** 6R0120 DS150
	163	204	x	x	x	x	x		x	x					x					x	x	x	x	x		x		6R 926 G20S	A2A	***mtu*** 6R0120 DS180
	180	225	x	x	x	x	x		x	x					x					x	x	x	x	x		x		6R 926 G30S	A2A	***mtu*** 6R0120 DS200

Continuous/prime/grid stability power – diesel generator sets

PRIME POWER (3B) – 60 HZ/1800 RPM.

	Power output [1]		Available voltages												Emissions					Certifications				Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	kWe	kVA	240 V	240 V	208 V	240 V	380 V	440 V	480 V	600 V	4160 V	12470 V	13200 V	13800 V	US EPA stationary EMERG Tier 3 (40 CF 60)	US EPA Nonroad Tier 3 compliant	US EPA stationary EMERG Tier 2 (40 CF 60)	US EPA Nonroad Tier 2 compliant	Fuel consumption optimized	ISO 8528	UL2200	NFPA 110	IBC 2012	Tier I & Tier II	Tier III & Tier IV	Enclosure	Container			
			Dedicated (1 Phase)	Re-connectable (1 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)	(3 Phase)																
mtu 1600 DS	400	500			x	x	x	x	x	x					x					x	x	x	x	x		x		10V 1600 G10S	A2A	***mtu*** 10V1600 DS450
	450	563			x	x	x	x	x	x								x		x	x	x	x	x		x		10V 1600 G20S	A2A	***mtu*** 10V1600 DS500
	500	625			x	x	x	x	x	x								x		x	x	x	x	x		x		12V 1600 G10S	A2A	***mtu*** 12V1600 DS550
	550	687			x	x	x	x	x	x								x		x	x	x	x	x		x		12V 1600 G20S	A2A	***mtu*** 12V1600 DS600
mtu 2000 DS	900	1125			x	x	x		x	x	x						x	x		x	x	x	x	x				16V 2000 G26S	W2A	***mtu*** 16V2000 DS1000
	1000	1250					x		x	x	x								x	x	x	x	x	x				18V 2000 B76	A2A	***mtu*** 18V2000 DS1250
mtu 4000 DS	1125	1406					x		x	x	x						x			x	x	x	x	x		x		12V 4000 G14S	W2A	***mtu*** 12V4000 DS1250
	1400	1750					x		x	x	x						x			x	x	x	x	x		x		12V 4000 G14S	W2A	***mtu*** 12V4000 DS1500
	1600	2000					x		x	x	x						x			x	x	x	x	x		x		12V 4000 G24S	W2A	***mtu*** 12V4000 DS1750
	1800	2250					x		x	x	x	x	x	x			x			x	x	x	x	x		x		16V 4000 G14S	W2A	***mtu*** 16V4000 DS2000
	2045	2556					x		x	x	x	x	x	x			x			x	x	x	x	x				16V 4000 G24S	W2A	***mtu*** 16V4000 DS2250
	2250	2812					x		x	x	x	x	x	x			x			x	x	x	x	x				20V 4000 G14S	W2A	***mtu*** 20V4000 DS2500
	2500	3125					x		x	x	x	x	x	x			x			x	x	x	x	x				20V 4000 G24S	W2A	***mtu*** 20V4000 DS2800
	2800	3500					x		x	x	x	x	x	x			x			x	x	x	x	x				20V 4000 G44S	W2A	***mtu*** 20V4000 DS3000

Continuous/prime/grid stability power – gas generator sets

PRIME POWER (3B) – 60 HZ/1800 RPM.

Power output [1]		Available voltages											Emissions
kWe	kVA	240 V Dedicated (1 Phase)	240 V Re-connectable (1 Phase)	208 V (3 Phase)	240 V (3 Phase)	380 V (3 Phase)	480 V (3 Phase)	600 V (3 Phase)	4160 V (3 Phase)	12470 V (3 Phase)	13200 V (3 Phase)	13800 V (3 Phase)	EPA certified
130	162	x	x	x	x		x	x					x
175	218	x	x	x	x		x	x					x
235	293		x	x	x		x	x					x
300	375		x	x	x		x	x					x
355	443		x	x	x		x	x					x

Certifications				Fuel type		Housing		Engine type	Genset type
ISO 8528	UL2200	NFPA 110	IBC 2012	Natural gas	Propane gas	Enclosure	Container		
x	x	x		x		x		8.1L CAC	***mtu*** 6R0135 GS150
x	x	x		x		x		11.1L CAC	***mtu*** 6R0185 GS200
x	x	x		x		x		14.6L CAC	***mtu*** 8V0183 GS260
x	x	x		x		x		18.3L CAC	***mtu*** 10V0183 GS350
x	x	x		x		x		21.9L CAC	***mtu*** 12V0183 GS400

Continuous/prime/grid stability power – diesel generator sets

GRID STABILITY POWER (3G) – 50 HZ/1500 RPM.

	Power output [1]		Available voltages								Emissions					
	kVA	kWe	380 V (3 Phase)	400 V (3 Phase)	415 V (3 Phase)	6300 V (3 Phase)	6600 V (3 Phase)	10000 V (3 Phase)	10500 V (3 Phase)	11000 V (3 Phase)	Fuel consumption optimized	NOx emission optimized	NEA Singapore for ORDE	US EPA Tier 2 compliant	EU Nonroad Stage II compliant (97/68/EC)	EU Nonroad Stage IIIA compliant (97/68/EC)
mtu 2000 DS	1000	800	x	x	x						x	x	x	x		
	1250	1000	x	x	x						x	x	x	x		
	1000	800	x	x	x						x	x	x	x		
	1250	1000	x	x	x						x	x	x	x		
mtu 4000 DS	1600	1280	x	x	x			x	x	x	x	x	x			
	1700	1360	x	x	x			x	x	x	x	x	x			
	1880	1504	x	x	x			x	x	x	x	x	x			
	2160	1728	x	x	x			x	x	x	x	x	x			
	2360	1888	x	x	x			x	x	x	x	x	x			
	2640	2112	x	x	x			x	x	x	x	x	x			
	2910	2328	x	x	x			x	x	x	x	x	x			
	3110	2488	x	x	x			x	x	x	x	x	x			

	Certifications				Perform. class [2]		Uptime compl.		Housing		Engine type	Cooling variant [3]	Genset type
	ISO 8528	CE/IEC	NFPA 110	VDE-AR-N 4110 (German Grid Code)	ISO 8528-5 - G2	ISO 8528-5 - G3	Tier I & Tier II	Tier III & Tier IV	Enclosure	Comtainer			
mtu 2000 DS	x	x	x	x	x	x	x	x			16V 2000 G26F	A2A	***mtu*** 16V2000 DS1100
	x	x	x	x	x	x	x	x			18V 2000 G26F	A2A	***mtu*** 18V2000 DS1400
	x	x	x	x	x	x	x	x			16V 2000 G26F	W2A*	***mtu*** 16V2000 DS1100
	x	x	x	x	x	x	x	x			18V 2000 G26F	W2A*	***mtu*** 18V2000 DS1400
mtu 4000 DS	x	x	x	x	x	x	x				12V 4000 G14F	W2A	***mtu*** 12V4000 DS1650
	x	x	x	x	x	x	x				12V 4000 G14F	W2A	***mtu*** 12V4000 DS1750
	x	x	x	x	x	x	x				12V 4000 G24F	W2A	***mtu*** 12V4000 DS2000
	x	x	x	x	x	x	x				16V 4000 G14F	W2A	***mtu*** 16V4000 DS2250
	x	x	x	x	x	x	x				16V 4000 G24F	W2A	***mtu*** 16V4000 DS2500
	x	x	x	x	x	x	x				20V 4000 G14F	W2A	***mtu*** 20V4000 DS2750
	x	x	x	x	x	x	x				20V 4000 G24F	W2A	***mtu*** 20V4000 DS3100
	x	x	x	x	x	x	x				20V 4000 G34F	W2A	***mtu*** 20V4000 DS3300

* available soon, for detailed information please check website

Diesel generator sets

ENCLOSURES – 50 HZ/1500 RPM.

	Dimensions			Noise level [4] Standard		Fuel tank (option)	Genset type
	Length (mm)	Width (mm)	Height (mm)	Level 1 (dBA @ 7m)	Level 2 (dBA @ 7m)	Capacity (l)	
mtu 0080/0113 DS	2100	957	1349	60,0	–	100	***mtu*** 4R0080 DS45
	2300	1050	1458	59,3	–	130	***mtu*** 4R0080 DS55
	2750	1100	1760	61,2	–	288	***mtu*** 4R0113 DS63
	2750	1100	1760	61,3	–	288	***mtu*** 4R0113 DS80
	2750	1100	1760	61,5	–	288	***mtu*** 4R0113 DS94
mtu 0120 DS	2750	1100	1760	C/F	–	288	***mtu*** 4R0120 DS90
	2750	1100	1760	C/F	–	288	***mtu*** 4R0120 DS110
	2750	1100	1760	C/F	–	288	***mtu*** 4R0120 DS140
	C/F	C/F	C/F	C/F	–	C/F	***mtu*** 6R0120 DS175
	C/F	C/F	C/F	C/F	–	C/F	***mtu*** 6R0120 DS200
	C/F	C/F	C/F	C/F	–	C/F	***mtu*** 6R0120 DS235
	C/F	C/F	C/F	C/F	–	C/F	***mtu*** 6R0120 DS250
mtu 1600 DS*	5400	2140	2852	70	75	800	***mtu*** 10V1600 DS500
	5400	2140	2852	70	75	800	***mtu*** 10V1600 DS540
	5400	2140	2852	70	75	800	***mtu*** 12V1600 DS650
	5400	2140	2852	70	75	800	***mtu*** 12V1600 DS720

* available soon, for detailed information please check website

Diesel generator sets

ENCLOSURES – 60 HZ/1800 RPM.

	Prime power			Standby power			Certifications				Genset type
	Level 1 (dBA @ 7m)	Level 2 (dBA @ 7m)	Level 3 (dBA @ 7m)	Level 1 (dBA @ 7m)	Level 2 (dBA @ 7m)	Level 3 (dBA @ 7m)	UL 2200	CSA	ISO 9001:2008	IBC 2012/OSHPD	
mtu 0060/0113 DS	79,2	72,4	69,6	79,2	72,4	69,6	x	x	x	x	***mtu*** 4R0060 DS30
	84,2	76,7	70,8	84,2	76,7	70,8	x	x	x	x	***mtu*** 4R0113 DS35
	84,3	77,0	71,0	84,3	77,0	71,0	x	x	x	x	***mtu*** 4R0113 DS40
	84,6	76,7	71,5	84,6	76,7	71,5	x	x	x	x	***mtu*** 4R0113 DS50
	83,9	77,2	73,4	83,9	77,2	73,4	x	x	x	x	***mtu*** 4R0113 DS60
	78,9	75,2	70,9	78,9	75,2	70,9	x	x	x	x	***mtu*** 4R0113 DS80
	79,0	74,9	70,9	78,9	75,2	70,9	x	x	x	x	***mtu*** 4R0113 DS100
	82,5	81,8	71,9	82,8	81,7	72,0	x	x	x	x	***mtu*** 4R0113 DS125
	84,3	82,9	73,1	84,5	83,0	73,4	x	x	x	x	***mtu*** 6R0113 DS150
	85,1	83,0	73,9	85,1	83,0	73,9	x	x	x	x	***mtu*** 6R0113 DS180
mtu 0120 DS	82,0	81,7	73,6	82,2	81,5	73,7	x	x	x	x	***mtu*** 4R0120 DS80
	82,1	81,8	74,1	82,2	81,3	74,4	x	x	x	x	***mtu*** 4R0120 DS100
	82,7	81,8	74,4	82,2	81,8	74,5	x	x	x	x	***mtu*** 4R0120 DS125
	91,1	88,7	72,5	91,2	88,4	72,8	x	x	x	x	***mtu*** 6R0120 DS150
	91,1	88,7	72,7	91,2	88,7	73,0	x	x	x	x	***mtu*** 6R0120 DS180
	91,1	88,7	73,0	91,2	88,7	73,1	x	x	x	x	***mtu*** 6R0120 DS200

Diesel generator sets

ENCLOSURES – 60 HZ/1800 RPM.

	Prime power			Standby power			Certifications				Genset type
	Level 1 (dBA @ 7m)	Level 2 (dBA @ 7m)	Level 3 (dBA @ 7m)	Level 1 (dBA @ 7m)	Level 2 (dBA @ 7m)	Level 3 (dBA @ 7m)	UL 2200	CSA	ISO 9001:2008	IBC 2012/OSHPD	
mtu 1600 DS	88,0	79,7	73,9	88,5	80,5	74,1	x	x	x	x	***mtu*** 6R0150 DS230
	88,5	80,5	74,1	88,6	80,1	74,6	x	x	x	x	***mtu*** 6R0150 DS250
	88,6	80,1	74,6	88,3	80,6	74,3	x	x	x	x	***mtu*** 6R0150 DS275
	N/A	N/A	N/A	90,3	81,9	75,1	x	x	x	x	***mtu*** 6R0150 DS300
	N/A	N/A	N/A	89,5	80,9	75,6	x	x	x	x	***mtu*** 6R0225 DS350 [12)]
	N/A	N/A	N/A	90,1	81,1	76,2	x	x	x	x	***mtu*** 6R0225 DS350 [12)]
	N/A	N/A	N/A	89,9	81,6	76,5	x	x	x	x	***mtu*** 6R0225 DS350
	N/A	N/A	N/A	91,0	82,1	75,5	x	x	x	x	***mtu*** 6R0225 DS400
	90,7	86,0	74,0	91,0	86,5	74,5	x	x	x	x	***mtu*** 10V1600 DS450
	91,0	86,5	74,5	91,0	86,6	74,9	x	x	x	x	***mtu*** 10V1600 DS500
	92,8	88,0	81,0	92,9	88,0	81,2	x	x	x	x	***mtu*** 12V1600 DS550
	92,9	88,0	81,2	92,8	89,0	81,5	x	x	x	x	***mtu*** 12V1600 DS600
mtu 2000 DS	95,0	87,0	75,2	95,0	87,0	75,2	x	x	x	x	***mtu*** 12V2000 DS750
	94,0	87,0	75,2	94,0	87,0	75,2	x	x	x	x	***mtu*** 12V2000 DS800
	92,0	86,0	74,7	92,0	86,4	74,7	x	x	x	x	***mtu*** 16V2000 DS1000
	N/A	N/A	N/A	93,0	86,0	75,0	x	x	x	x	***mtu*** 16V2000 DS1250

Diesel generator sets

POWER MODULES[14] - 50/60 HZ – EUROPE, AFRICA, ASIA AND AUSTRALIA

mtu 4000 DS

Power output[1]		Available voltages				Emissions		Noise level	Dimensions			
kWe	kVA	280 V	400 V	480 V	600 V	Fuel consumption optimized	US EPA Nonroad Tier 2 compliant	dBA @ 1m	Size	Length (mm)	Width (mm)	Height (mm)
1531	1914		x			x		99	40ft HC	12192	2438	2896
1807	2259			x		x		103	40ft HC	12192	2438	2896
1836	2295		x			x		99	40ft HC	12192	2438	2896
2109	2636			x		x		103	40ft HC	12192	2438	2896
2048	2560		x			x		99	40ft HC	12192	2438	2896
2321	2901			x		x		105	40ft HC	12192	2438	2896
1888	2360			x		x		[11]	40ft HC	12192	2438	2896
1440	1800			x		x		[11]	40ft HC	12192	2438	2896

Frequency		Application			Certifications			Engine type	Cooling variant[3]	Genset type
Hz	50/60Hz switchable	Continuous power	Prime power	Standby power	ISO 8528	NFPA 110	CSC certification			
50	x	x			x		x	16V 4000 B24F	W2A	***mtu*** 16V4000 DS2560
60	x	x			x		x	16V 4000 B24S	W2A	***mtu*** 16V4000 DS2560
50	x		x		x		x	16V 4000 G24F	W2A	***mtu*** 16V4000 DS2560
60	x		x		x		x	16V 4000 G24S	W2A	***mtu*** 16V4000 DS2560
50	x			x	x		x	16V 4000 G84F	W2A	***mtu*** 16V4000 DS2560
60	x			x	x		x	16V 4000 G84S	W2A	***mtu*** 16V4000 DS2560
60			x		x		x	16V 4000 G24S	Tabletop radiator	Caribic configuration
60		x			x		x	16V 4000 B24S	Tabletop radiator	Caribic configuration

Gas generator sets – continuous/prime/grid stability power

POWER MODULES - 50/60 HZ.

Power output [1]	Available voltages		Emissions	Dimensions				Frequency		Application	Engine type	Fuel type	Genset type
kWe	400 V	480 V	NOx<500 mg/Nm³ NOx<250 mg/Nm³	Size	Length (mm)	Width (mm)	Height (mm)	50 Hz	60 Hz	Continuous power		NG = Natural gas NNG = Non-natural Gas (biogas/ sewage/landfill)	
Power application													
762 - 1013	x		x	40ft HC	12203	2438	2896	x		x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 8V4000 GS
1151 - 1523	x	x	x	40ft HC	12203	2438	2896	x	x	x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 12V4000 GS
1537 - 2030	x		x	40ft HC	12203	2438	2896	x		x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 16V4000 GS
1948 - 2535	x		x	40ft HC	12203	2438	2896	x		x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 20V4000 GS
CHP application													
762 - 1013	x		x	40+	12203	3200	3200	x		x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 8V4000 GS
1151 - 1523	x		x	40+	12203	3200	3200	x		x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 12V4000 GS
1537 - 2030	x		x	47+	14200	3200	3200	x		x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 16V4000 GS
1948 - 2535	x		x	47+	14200	3200	3200	x		x	L32/L33/L64/L64FNER	NG/NNG	***mtu*** 20V4000 GS

mtu EnergyPack

BATTERY STORAGE.

Nominal capacity	Nominal apparent power	C-Rates [15]	Nominal power factor	Frequency
kWh_{nom}	kVA_{nom}	C	λ_{nom}	Hz
up to 550	60 - 400	0.5 / 1 / (2)	-1 to 1	50/60
up to 800	400 - 800	0.5 / 1 / (2)	-1 to 1	50/60
up to 2,200	400 - 2,000	0.5 / 1 / (2)	-1 to 1	50/60

Overall dimensions [16]				Certifications		Battery storage type
Size	Length (mm)	Width (mm)	Height (mm)	UL	CE	
Enclosure	3.000	2.230	2.400	on request	x	***mtu*** EnergyPack QS
20ft. HC	6.096	2.438	2.896	on request	x	***mtu*** EnergyPack QM
40ft. HC	12.192	2.438	2.896	on request	x	***mtu*** EnergyPack QL

Classification for data center continuous power

ACCORDING TO THE UPTIME INSTITUTE.

Tier I
Tier I is composed of a single path for power and cooling distribution, without redundant components.

Tier II
Tier II is composed of a single path for power and cooling distribution, with redundant components.

Tier III
Tier III is composed of multiple active power and cooling distribution paths, but only one active path has redundant components and is concurrently maintainable.

Tier IV
Tier IV is composed of multiple active power and cooling distribution paths, has redundant components and is fault tolerant.

	Tier I	Tier II	Tier III	Tier IV
Delivery paths	One	One	One active + one passive	Two active
Redundant components	No	Yes	Yes (for active path)	Yes (for two active path)
Simultaneously maintainable	No	No	Yes	Yes
Fault tolerance (single event)	No	No	No	Yes
Compartmentalisation	No	No	No	Yes
Suitable ***mtu*** power generation application	Standby power (3D) Prime power for stationary emergency (3E) Prime power (3B) Grid stability power (3G)		Data center continuous power (3F) Continuous power (3A)	

For complete definition see http://uptimeinstitute.com/

Conversion table

NUMBERS TO BACK YOU UP.

1 kW	= 1.360 PS	g	= 9.80665 m/s^2
1 kW	= 1.341 bhp	Л	= 3.14159
1 bhp	= 1.014 PS	e	= 2.71828
1 oz	= 28.35 g		
1 lb	= 453.59 g	1 lb	= 16 oz
1 short ton	= 907.18 kg	1 short ton	= 2000 lbs
1 lb/bhp	= 447.3 g/PSh	1 ft lb	= 1.356 Nm
1 lb/bhp	= 608.3 g/kWh	1 ft/min	= 0.00508 m/s
1 gal/bhp (US)	= 4264 g/kWh	pDiesel	= 0.83 kg/l
1 kWh	= 860 kcal	1 lb/sqin	= 0.069 bar (1 psi)
1 cal	= 4.187 J	1 mm Hg	= 1.333 mbar (133.3 Pa)
1 BTU	= 1.055 kJ	1 mm H_2O	= 0.0981 mbar (9.81 Pa)
1 inch	= 2.540 cm	T (K)	= t (°C) + 273.15
1 sq. inch	= 6.542 cm^2	t (°C)	= 5/9 x (t (°F) -32)
1 cu. inch	= 16.387 cm^3	t (°C)	= 5/4 x t (°R)
1 foot	= 3.048 dm	1 foot	= 12 inches
1 sq. foot	= 9.290 dm^2	1 yard	= 3 feet
1 mile	= 1.609 km	1 mile	= 5280 feet
1 naut. mile	= 1.853 km	1 naut. mile	= 6080 feet
1 UK Gallon	= 4.546 l	1 US Barrel	= 0.159 m^3
1 US Gallon	= 3.785 l		= 42 US Gallons
Energy:	1 J = 1 Ws = 1 VAs = 1 Nm		
Power:	1 W = 1 VA = 1 Nm/s		
Force:	1 N = 1 kgm/s^2		
Pressure:	1 Pa = 1 N/m^2 (1 bar = 10^5 Pa)		
MEP (bar)	$= \frac{P_{cyl}(kW) \times 1200}{n(1/min) \times V_{cyl}(l)}$		
Torque (Nm)	$= \frac{P_{ges}(kW) \times 30000}{n(1/min) \times \pi}$		

FOOTNOTES.

A Only available for 50Hz markets
B Unlimited hours in data center application where a reliable grid/utility is present.

Application descriptions, e.g. load factor, applies to *mtu* powered equipment.

(1) Power output based on 400V, fuel consumption opt. emission level and standard or optional generator. For arrangements with other emissions, voltages and/or optional generators, ratings may vary. Series 4000 without cooling package.

(2) Ambient conditions and load application acc. to ISO 8528

(3) Cooling variants:
A2A: air-to-air charge air cooling (TD)
W2A: water-to-air charge air cooling (TB)

(4) Sound levels in accordance with European Noise Directive (2000/14/EC), for further information on acoustic data see datasheets

(5) Power available up to 25°C intake air temperature / 100m site altitude above sea level

(6) Rated power at nominal voltage, power factor = 1,0 and nominal frequency

(7) Heat output from engine cooling with tolerance of ± 8%

(8) Heat output from exhaust with tolerance of ± 8%

(9) Performance data in accordance with ISO 3046/I-2002 with tolerance of 5%

(10) Referenced methane number

(11) Availability on request

(12) Single-phase units only

(13) Availability on request only for VDE-AR-N 4110

(14) Datacenter configuration available level

15) C-Rate availability dependend on requested capacity-power combination 2C configurations with limited availablity.

16) Transformer can be within shown dimensions or additional, dependend on requested capacity-power combination. For details please submit request.

* available soon, for detailed information please check website

50Hz – Power available up to:
Standard:
Site altitude above sea level: 400 m
Intake air temperature: 40° C

NOx emission optimized:
Site altitude above sea level: 100 m
Intake air temperature: 25° C

NEA Singapore:
Site altitude above sea level: 100 m
Intake air temperature: 40° C

60Hz – Power available up to:
Standard:
Site altitude above sea level: 400 m
Intake air temperature: 25° C

Available power for battery storage solutions:
Standard:
Site altitude above sea level: 2000 m
Ambient temperature: -20°C to 40°C

C/F: Consult factory

D: Lambda = 1 with 2-way-catalyst

L: Leanburn with single stage intercooling

Z: Leanburn with two stage intercooling

Cooling variants:
A2A: air-to-air charge air cooling (TD)
W2A: water-to-air charge air cooling (TB)

NOTES

Further special solution guides

Marine
Rail
C&I, Agricultural, Mining
Oil & Gas
Gendrive

NOTES

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