

Power Generation

mtu Series 4000 diesel generator sets | 1,125-3,250 kWe | 60Hz

ENSURING A CONSTANT FLOW
OF POWER – AND PEACE OF MIND



A Rolls-Royce
solution

25 YEARS OF EXCELLENCE, FINE-TUNED

Our **mtu** Series 4000 engines have been a global success story for more than 25 years.

No matter how special your energy requirements are, **mtu** power generator systems will always give you the best independent power supply solution. Our generator sets meet the highest demands in terms of quality, performance and reliability. They ensure reliable power supply in the event of a grid failure – in hospitals, data centers, airports, healthcare, waste water treatment plants, industrial manufacturing plants, residential buildings, public facilities, decentralized power stations, microgrids, and hybrid power plants.

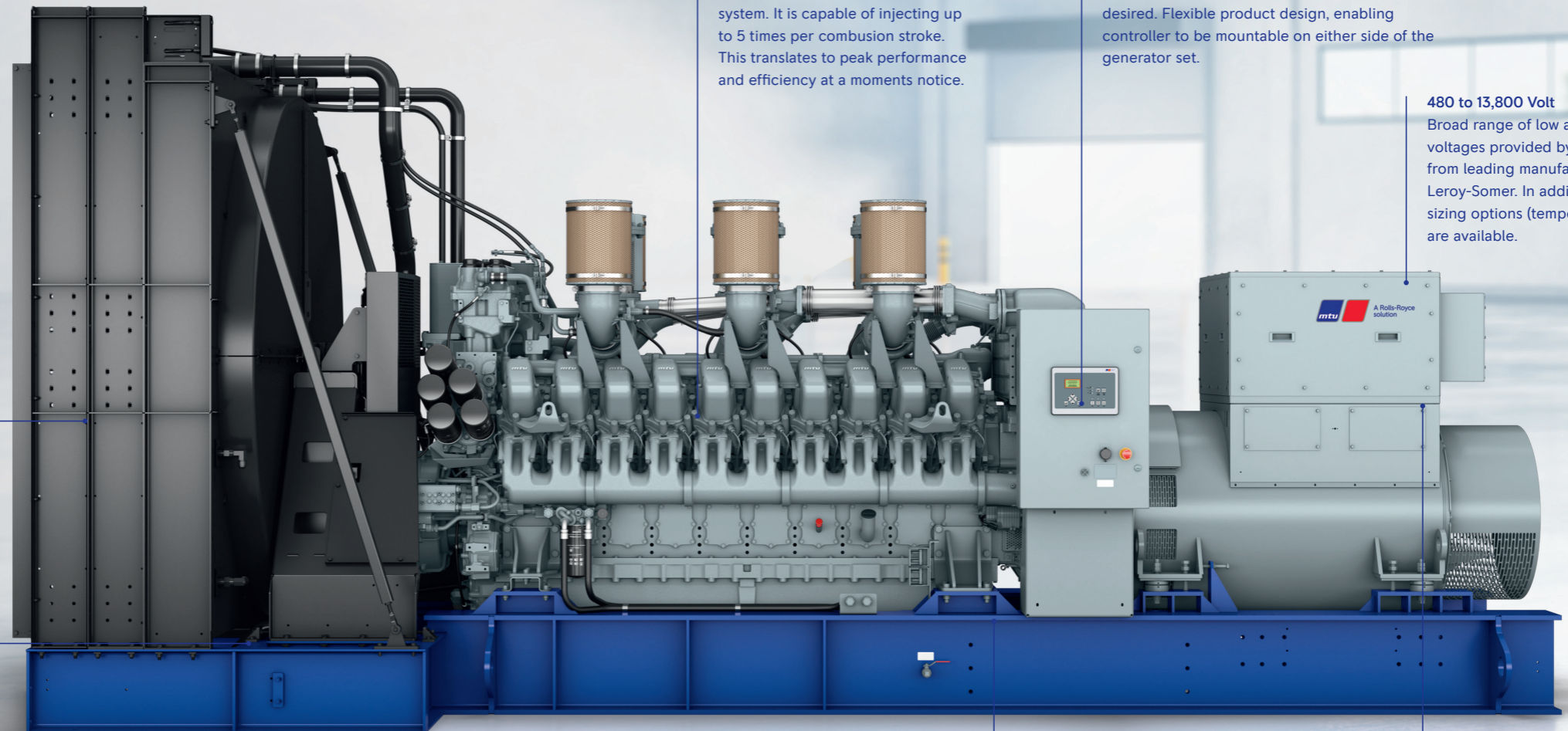
Our state-of-the-art generator sets are based on the legendary **mtu** engines with high pressure common rail fuel injection systems. Now in their fourth generation, they feature 12-, 16-, and 20-cylinder engine variants.

With different cooling packages

The diesel generator set is adaptable to different ambient temperatures, allowing it to perform reliably and efficiently in various ambient conditions.

One standardized fuel connection interface

The unit has a fixed position for easy installation and simplified maintenance.



Up to 1,800 bar injection pressure
Thanks to the state of the art high pressure common rail injection system. It is capable of injecting up to 5 times per combustion stroke. This translates to peak performance and efficiency at a moments notice.

Two market leading controller brands
Available (Basler) in the standard scope, with simple integration if alternative controller brands are desired. Flexible product design, enabling controller to be mountable on either side of the generator set.

480 to 13,800 Volt
Broad range of low and medium voltages provided by generators from leading manufacturer Leroy-Somer. In addition, various sizing options (temperature rises) are available.

85% load factor
For standby power – a value exceeding ISO standard, and raising the bar for power applications.

Three and four pole
Many customizable options, such as a right or left side mounting, are available for circuit breakers. Mounted on a base frame, the compact unit takes up less space and can be easily installed - even with multiple breakers.

DECENTRALIZED ENERGY SUPPLY: ANYTIME, ANYWHERE

No matter how specific your energy supply requirements, our solutions always give you excellence that is fine-tuned to your exact needs.

mtu Series 4000 diesel generator sets have been doing just that for over 27 years already – for data centers, hospitals, airports, industrial plants, residential buildings, public facilities, decentralized power stations, microgrids, hybrid solutions and numerous other applications around the world.

Available in different power ratings, including standby, prime and data center continuous, **mtu** Series 4000 diesel gensets cover the range from 1,600 to 4,000 kVA (50 Hz) and from 1,125 to 3,250 kWe (60 Hz). In addition to meeting highest quality, performance and fuel efficiency demands, they continue to define the benchmark for excellence with a variety of highly flexible, eco- and cost-efficient features, including low-voltage alternators, enhanced control panel options and more.



Reliable

Time between overhaul up to 30,000 hours



Flexible

Available in different power ratings, including standby, prime and data center continuous



Rugged design

Designed and tested to meet the most extreme environments and certified to meet IBC and HCAI



Highest power quality

Extremely fast ramp up, best load acceptance and transient behavior with minimal frequency and voltage deviations



Maximum resilience

High performance even under hot ambient conditions and in high altitude environments



Clean technology

A pioneer in developing environmentally friendly engines and reducing emissions.



Full lifecycle services

and a wide range of service products to minimize downtime and reduce lifecycle costs



Certified

For ISO 8528, UL/ulc, NFPA 110



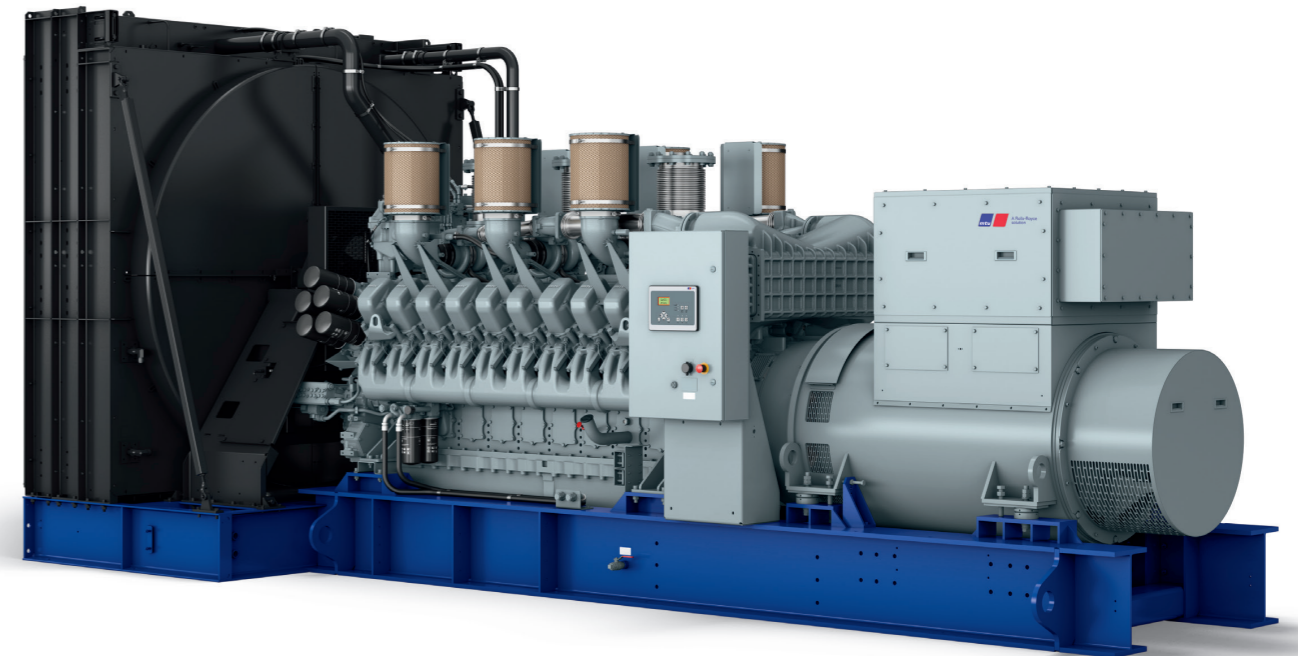
Approved

Designed, manufactured and assembled in USA according to ISO 9001 and ISO 14001.

INTELLIGENT TECHNOLOGY – STATE-OF-THE-ART

With the energy market constantly changing, we are continuously developing our Series 4000 generator sets. We've overhauled our third generation generator sets to incorporate new generator and paint designs. And our fourth generation generator sets feature modified components for increased performance. Other enhancements include:

- Increased power ratings for 12V, 16V and 20V cylinder configurations
- New Leroy Somer generators as standard
- Increased reliability with redundant starters for selected models
- Battery disconnection switch integrated into start system
- Maintenance free batteries
- Improved fuel filter with water separator
- Standardized fuel connection interface
- Basler HD controller: ModBus TCP/IP with advanced programmabilities



SUPERIOR POWER



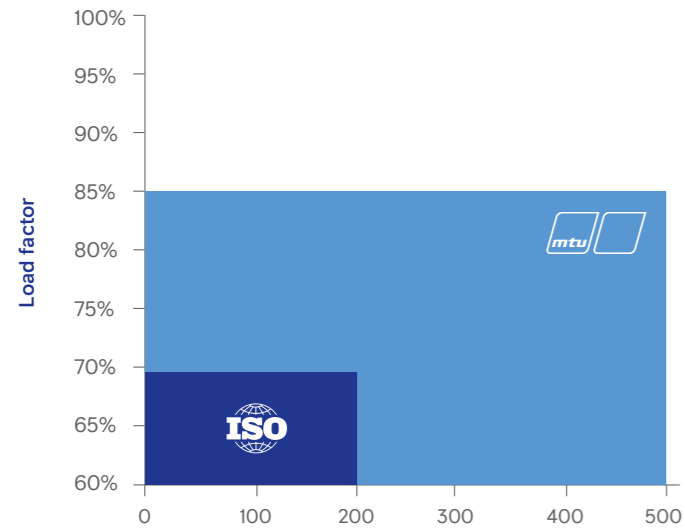
The most important requirement of an emergency standby generator set: Full electrical power with industry-leading load factors available within a few seconds.

Mission-critical systems require fast-start capability and one-step load acceptance. That's why we have designed our systems to offer more available power within only a few seconds. We offer industry leading load factors up to 100% for data centers and up to 85% for standby applications. This exceeds the established industry norms

such as ISO 8528-1 and allows even more operating hours for prime, emergency standby and data center applications. This way, we can deliver sophisticated power solutions with even more actual available power than other manufacturers with the same nominal power – regardless of the circumstances.

Comparing our load factors and operating hours to ISO 8528 requirements

Standby Power & Prime Power for Stationary Emergency

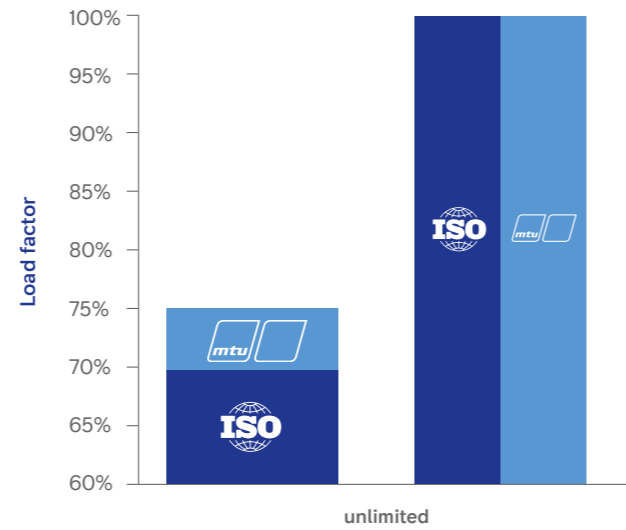


mtu advantage: more available power

Higher load factors and more operating hours offer more available power than ISO-rated engines with the same nominal engine output.

Prime Power

Data Center Continuous Power



HIGHEST POWER QUALITY

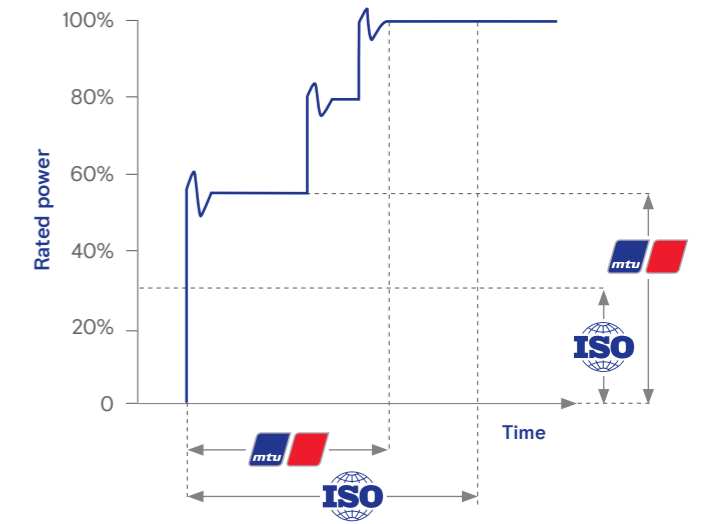


In case of an emergency, our **mtu** Series 4000 generator sets will provide its full electrical power within a few seconds – synchronized to the grid, to another power source or to other gensets in parallel. They are capable of accepting extremely high load steps without having significant frequency and voltage deviations and sacrificing the power quality. All **mtu** Series 4000 generator sets overachieve ISO 8528-5 performance class G2 and their respective performance and power quality requirements for dynamic loading application, removal and recovery time.

- Extremely fast load acceptance
- Minimal frequency and voltage deviations

- Higher load steps possible for fast availability

Illustrative **mtu** Series 4000 ramp-up curve



MAXIMUM RESILIENCE



Our **mtu** Series 4000 gensets operate trouble-free with the highest power quality even under extreme conditions. They have proven their resilience again and again in continuous operation and with full loads in the heat, cold, and dust, as well as with frequent load changes. In addition to their well-known longevity, their low-maintenance construction and long service intervals also ensure cost-effectiveness. They minimize expenses and downtime and ensure that all equipment is fully operational again in record time.

- Highly robust against derating

- Highest possible power output

- PS-SPEC power system sizing and specification





Diesel vs. HVO

CLEAN TECHNOLOGY

Helping clients to achieve ambitious emissions targets requires solutions that are both innovative and individually adaptable. The **mtu** Series 4000 already addresses emissions reduction by meeting the highest standards in fuel efficiency. On top of that, there are two ways to optimize our systems to support your journey to net zero by adding exhaust gas after treatment and/or by enabling the use of renewable fuels.

Renewable and synthetic fuels

In addition to meeting highest standards in fuel efficiency, our **mtu** Series 4000 generator sets can now also be operated with synthetic fuels such as hydrotreated vegetable oil (HVO) and gas-to-liquid (GTL) in accordance with the EN15940 standard. Using renewable fuels such as HVO can lead to a reduction in CO₂ emissions of up to 90% depending on the fuel manufacturer. The use of these fuels has been successfully proven on the test bench and in the field. Fuels according to EN15940 are approved for all Series 4000 system configurations and emission calibrations.

Exhaust gas after treatment

An exhaust gas after treatment (EGAT) system can help keep local emissions such as NO_x-emissions or particulate matter to an absolute minimum. We support to fit EGAT solutions precisely to our generator sets while granting maximum power, best load acceptance, super-fast startup times and absolute resilience. We have a lot of experience in the design, project planning and commissioning of EGAT systems for large power generation projects (in the triple-digit megawatt range).



Scan the QR-Code
& get the whitepaper

Further benefits of renewable fuels (e.g. HVO)



Significant reduction of greenhouse gas emissions (CO₂) with HVO: Improved ecological footprint & corporate image



Simple drop-in fuel: no engine hard- or software adaptations necessary. Blends are possible.



No effect on service & maintenance intervals: Standard warranty conditions apply.



Approved for S4000 generator sets: all emission optimizations & power ratings



Reduction of harmful pollutants: up to -80% particulate matter (PM) & up to -8% nitrous oxides (NO_x)



Same performances: same maximum power, load acceptance and fuel consumption



Positive chemical properties: higher cetane-number and better water separation (hydrophobic)



Long storage capability: High reliability under cold conditions and high oxidation stability (no FAME), depending on fuel supplier

UPGRADED FEATURES OF THE **mtu** SERIES 4000 GENERATOR SETS

Having recently celebrated 25 years of excellence and performance, **mtu** Series 4000 diesel generator sets continue to define the benchmark for reliable backup, grid stability and prime power generation. How? With a variety of highly flexible, versatile and cost-efficient upgrades designed to precisely fulfill every individual need. Have a look!

1. Approved for HVO and GtL fuels

GtL (Gas-to-Liquid) and HVO (Hydrocreated Vegetable Oil) can be used as drop-in fuels instead of diesel. They offer better storage and lower emissions. Reduction of local emissions (espec PM & NO_x). HVO offers up to 90% CO₂ reduction.

2. Low-voltage alternators

High-efficiency premium Leroy Somer alternators for many power nodes, including low-voltage alternators for the upper power range up to 3,250 kWe

3. Starting System

Fully redundant starting system fulfills even the highest availability requirements for mission critical applications

4. Control panel

Several upgrades to comply with the latest industry standards, including a configuration without a panel for more system integration and 3rd party controller flexibility

5. Circuit-breakers

New line of low-voltage, base frame-mounted, pre-wired and fully factory-tested circuit breakers up to 4,000 A

6. Radiators

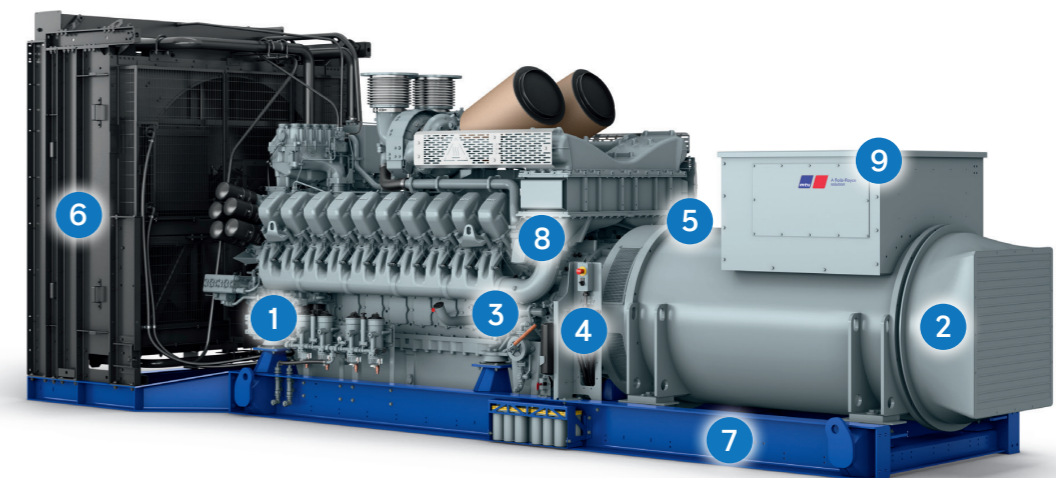
Additional radiator features and general harmonization of standard radiator base frames (mechanical and electrical) simplify system integration planning

7. Base frame

Improved base frame mounting options allow for easier installation on the genset foundation

8. mtu GO Connect Flexible

Top-notch digital connectivity device, including quick system data analysis, preventive and predictive maintenance features and for higher equipment availability and access to the **mtu** GO platform



mtu SERIES 4000 DIESEL GENERATOR SETS POWER RATINGS

Power output ⁽¹⁾	Standby/ Mission critical			Continuous / Prime
	Standby power (3D)	Prime power for stationary emergency (3E) ²⁾	Data center continuous power (3F)	Prime power (3B) ²⁾
60 Hz / 1800 rpm	kWe	kWe	kWe	kWe
12V4000 DS1250	1,250	1,125	1,135	1,125
12V4000 DS1500	1,500	1,400	1,400	1,400
12V4000 DS1750	1,750	1,600	1,600	1,600
16V4000 DS2000	2,000	1,800	1,825	1,800
16V4000 DS2250	2,250	2,045	2,045	2,045
16V4000 DS2500	2,500	--	--	--
20V4000 DS2500	2,500	2,250	2,275	2,250
20V4000 DS2800	2,800	2,500	2,500	2,500
20V4000 DS3000	3,000	2,800	2,800	2,800
20V4000 DS3250	3,250	--	--	--
Load	variable	variable	continuous	variable
Load factor	≤ 85%	≤ 85%	≤ 100%	≤ 75%
10% overload (ICXN)	no	yes	yes	yes
Max. operating hours (per year)	500h	500h	unlimited*	unlimited
Uptime compliant	Tier I & Tier II	Tier I & Tier II	Tier III & Tier IV	Tier I & Tier II

Available voltages	380V / 416V / 440V / 480V / 600V / 4,160V / 12,470V / 13,200V / 13,800V
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1) Power outputs refer to standard scope of supply and may vary depending on generator voltage and ambient conditions.

2) On request

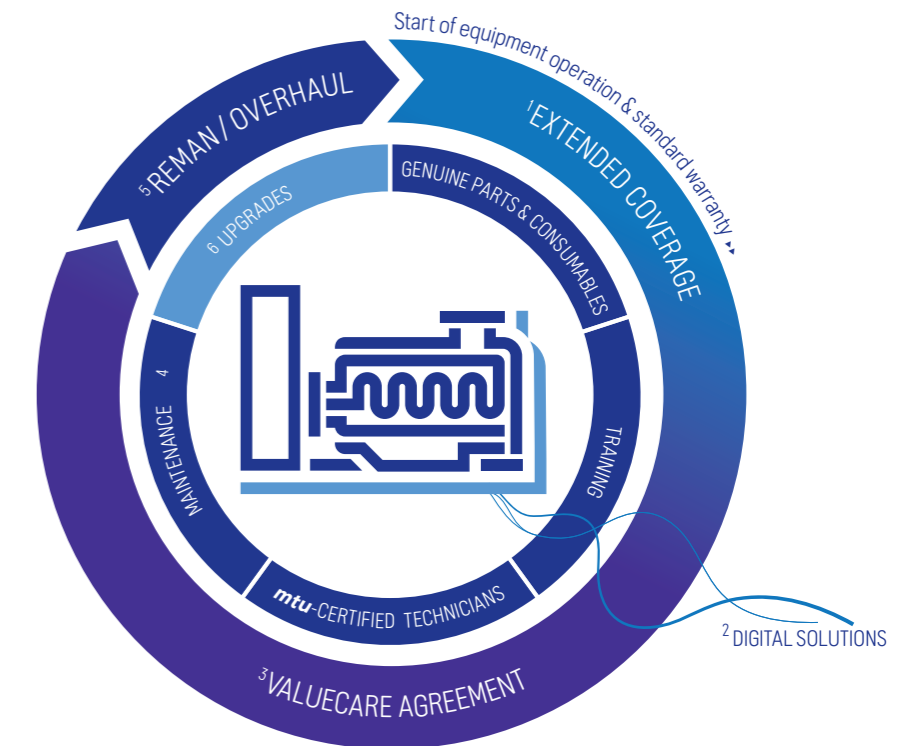
mtu VALUECARE AGREEMENTS



For maximum system performance, reliability and longevity, count on ValueCare, our full portfolio of service solutions. We're 100% committed to helping you get the most out of your equipment by providing:

- Maintenance, repair & overhaul - Rely on our trained experts to keep your equipment performing optimally.
- Annual check - Identify and address problems early with inspections and preventive maintenance recommendations.
- Technical documentation - Get the details you need for proper installation, commissioning, operation and maintenance.
- Training - Empower your operators and maintenance staff with classes taught by product experts.
- Commissioning - Ensure proper system installation, integration and optimization with expert support.
- Genuine parts - Protect and prolong equipment life with the only parts that are tested and approved specifically for your system.
- Consumables - Keep everything running smoothly with filters, oils and coolants that work in perfect harmony with your equipment.
- Remanufactured products - Cut costs and uphold quality with factory remanufactured parts, engines and systems.

- 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.





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