

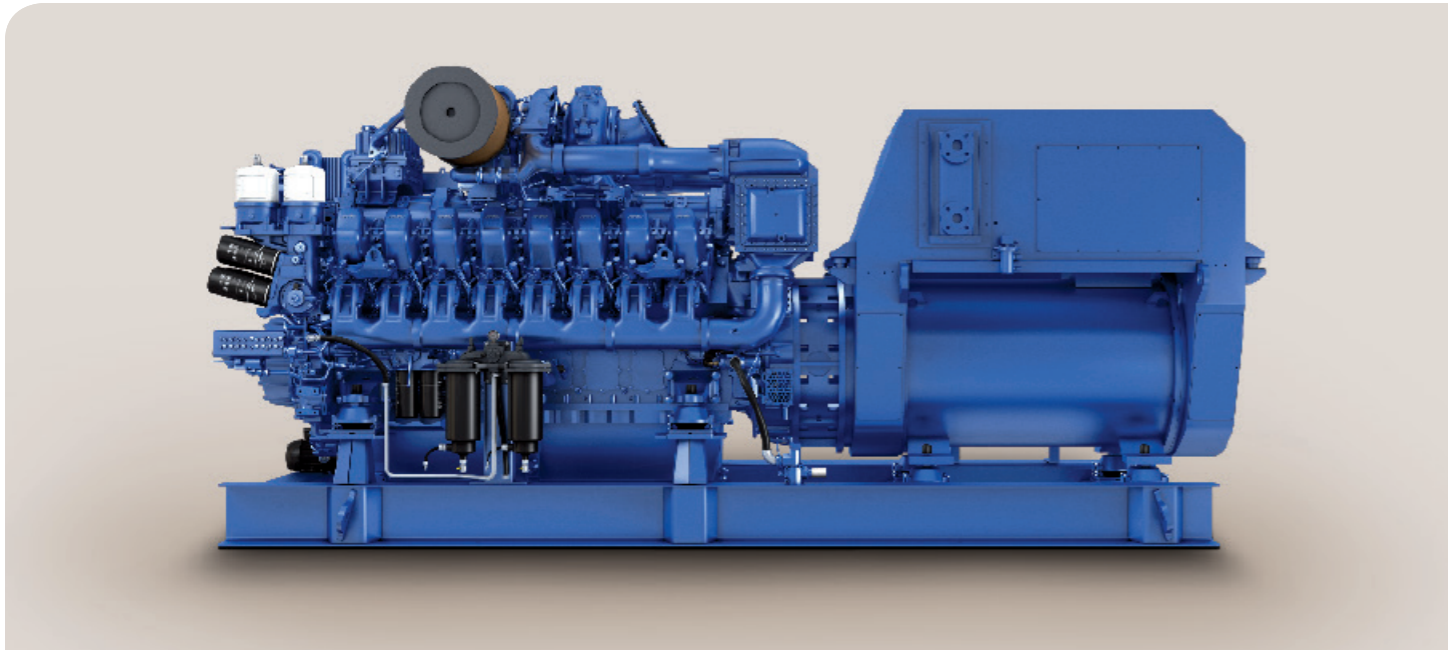
**Commercial Marine & Offshore**

MTU Generator Sets



*Power. Passion. Partnership.*





MTU Generator Sets

# MTU. Generating power.



Boskalis, Ndeavor – 2x 12V 4000 M33S, 2x 16V 4000 M33S

MTU offers a complete genset portfolio for commercial applications - from 5 to 2,700 kWe - for auxiliary and emergency power generation and diesel-electric propulsion. Obtainable as 50/60 Hz versions, MTU gensets feature numerous options and accessories such as soundshields, control panels, PTOs for fire fighting pump drives, etc.

High availability and long TBO of up to 36,000 h ensure economic operation and reliable performance.

As a system supplier specializing in generator sets and automation systems, MTU configures complete propulsion solutions, implementing the best possible technologies based on your needs. From cost-efficient pre-engineered standardized gensets, which are designed and qualified by the central engineering headquarter in Germany, to customized, advanced solutions as well as variable speed gensets - MTU's quality and reliability have been proven in the field, all over the world, for decades.

Available for prompt delivery, MTU constant speed gensets are easy to configure thanks to their modular design principle. This helps to shorten project time frames while enabling our global network of partners and distributors to provide complete genset solutions backed by our factory engineers. Local content requirements can be fulfilled through global component sourcing and worldwide manufacturing options.

MTU customers benefit from our one-stop shopping philosophy and our commitment to comprehensive service and support, provided through our global 24/7 customer assistance center and service network of more than 1,200 locations worldwide.

Reliability  
Safety  
Efficiency  
Flexibility

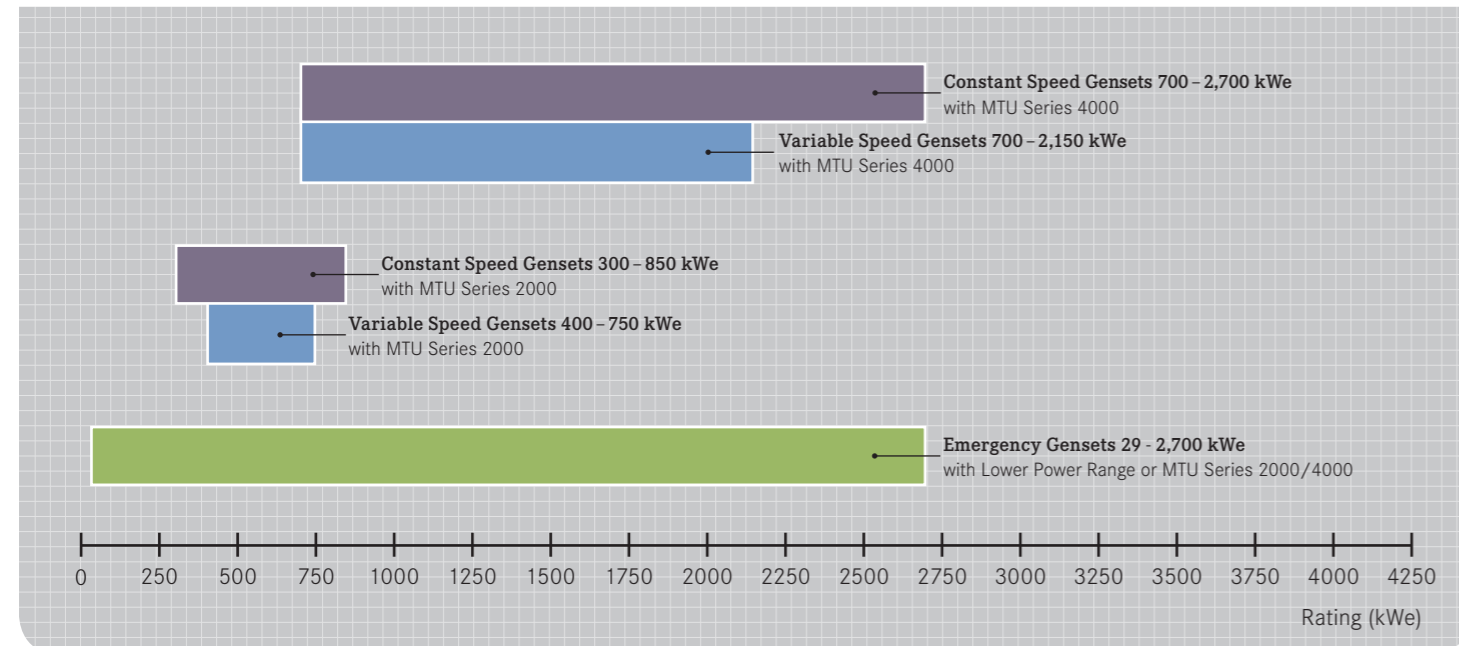
# A powerful portfolio.

From auxiliary and emergency power to diesel-electric and hybrid propulsion E-Drive systems, MTU offers a variety of marine gensets to handle every task on board.

Our gensets are available in 50 or 60 Hz (constant speed) or as innovative variable speed configurations.

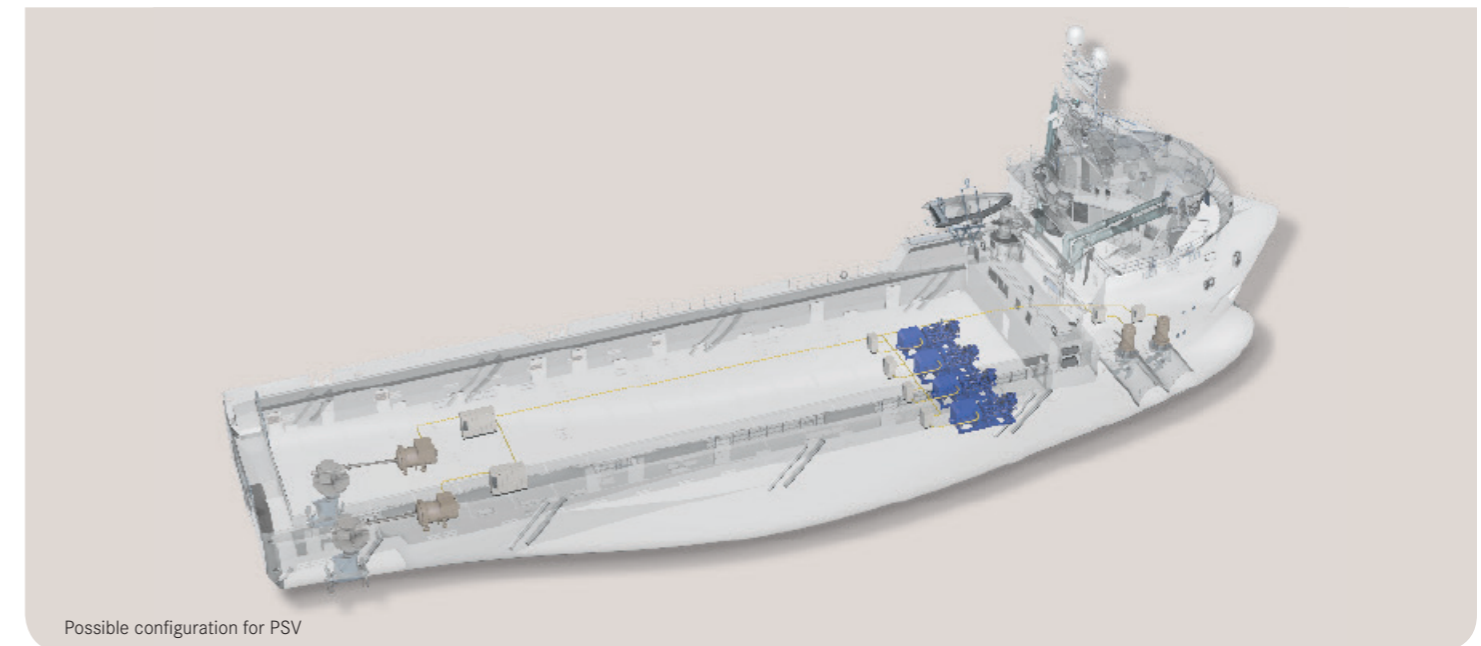
Variable speed gensets are run from idle up to 1,800 rpm compared to 1,500 rpm for 50 Hz and 1,800 rpm for 60 Hz constant speed gensets. Typically variable speed gensets offer significant fuel consumption savings at part load and reduce maintenance costs.

Read more about innovative variable speed genset solutions on page 10.



# Global standards. Customizable configurations.

There is more than one way to design a ship or propulsion system. MTU offers design flexibility and a good value for your money with multiple standardized configuration options. Whether you prefer a cost-optimized, compact solution or a service life optimized solution - MTU provides the flexibility you need when designing your system. Even when adding complexity by choosing a hybrid propulsion system or variable speed gensets, our powerful engineering team keeps project times short.





# Scope of supply. Standardized gensets.

MTU gensets are pre-engineered based on a proven design. Pre-installation of components such as filters directly on the base frame reduces installation work and space, allowing easy connection to vessels interfaces and fast commissioning. All gensets are fully pre-tested at MTU's test facilities to ensure proven readiness for operation.

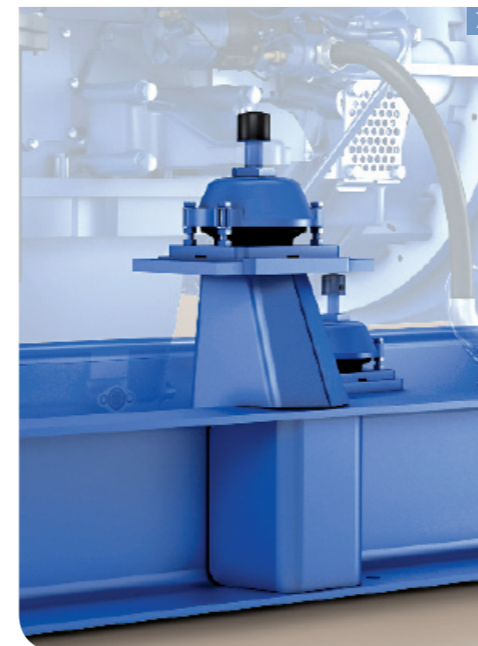
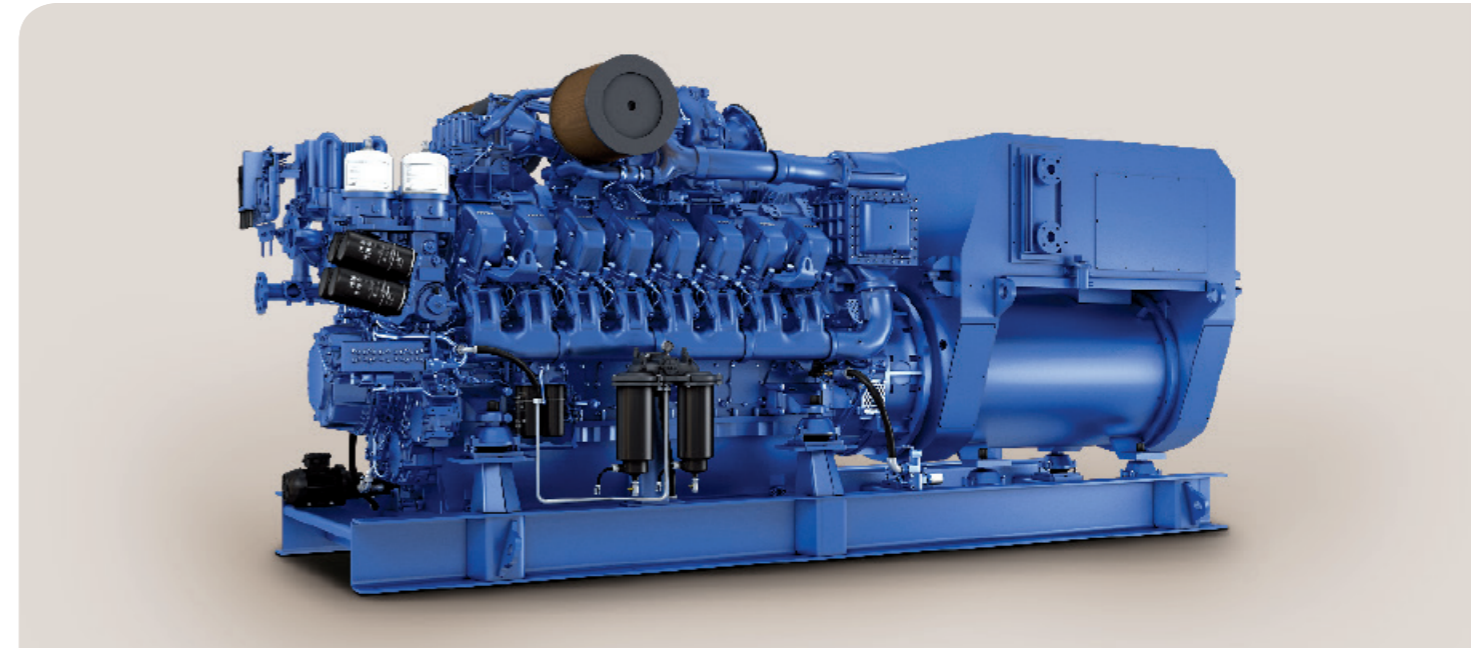
Overall, MTU gensets provide the most attractive cost/performance ratio on the market. Both engine and generator are operated and monitored by the MTU **genoline** System including a Local Operating Panel (LOP).

#### Standard scope of supply and options:

- Engine Series 4000/2000/1600
- Air- or water cooled alternator (50/60 Hz, 400 – 690 V)
- MTU designed baseframe for rigid installation
- (LOP) **genoline** automation system is an innovative high-end developed system for onboard power generation plant. The modular system design guarantees optimum adaption of diesel engine and generator to the diversity of operating conditions for onboard power generation.
- genoline** has standardized interface protocols to ship side automation, e.g. ModBus, J1939
- Central Terminal Box (electrical interface)
- Fuel prefilter with water separator
- Lube oil priming pump with control unit (PPC)
- Certification of all major classification societies
- Available as engine mounted heat exchanger with raw water pump or fresh water cooling system for ship side cooling (e.g. central- or box-cooling)
- Single resilient mounts
- Resilient couplings with high temperature resistance
- Coolant pre-heating unit
- Compressed air starter or electric starter
- Exhaust silencers
- Auxiliary PTO incl. couplings, e.g. for fire fighting pumps

#### Benefits:

- Attractive costs and short lead times due to pre-defined modular solutions
- High availability and reliability due to factory qualified high quality components
- Short installation & commissioning times for shipyards
- Low noise and vibration levels even with single resilient mounting concept
- Worldwide serviceability by all MTU partners: All service relevant components are registered in a global database allowing easy service and spare part supply



- 1 Local Operating Panel **genoline**
- 2 Air Starter
- 3 Fuel Pre-Filter
- 4 Pre-Lubrication Unit
- 5 Pre-Heating Unit
- 6 Central Terminal Box
- 7 Single-Resilient Mounting

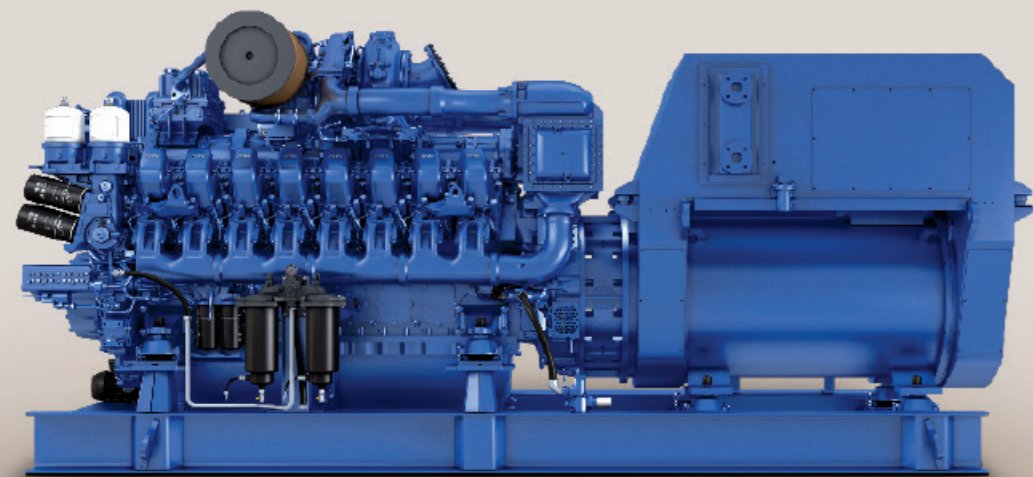
# Flange-mounted generator.

MTU supplies gensets with flange-mounted or free-standing generator on a common baseframe depending on customer requirements.

The basic concept incorporates a flange-mounted generator with roller bearings on driving end and free end. Engine and generator are resiliently mounted with perfectly matched elastic mounts on a steel base frame.

**Benefits:**

- Cost effective solution
- Compact design saves installation space and offers more room for cargo or crew
- Easy service access inside the engine room



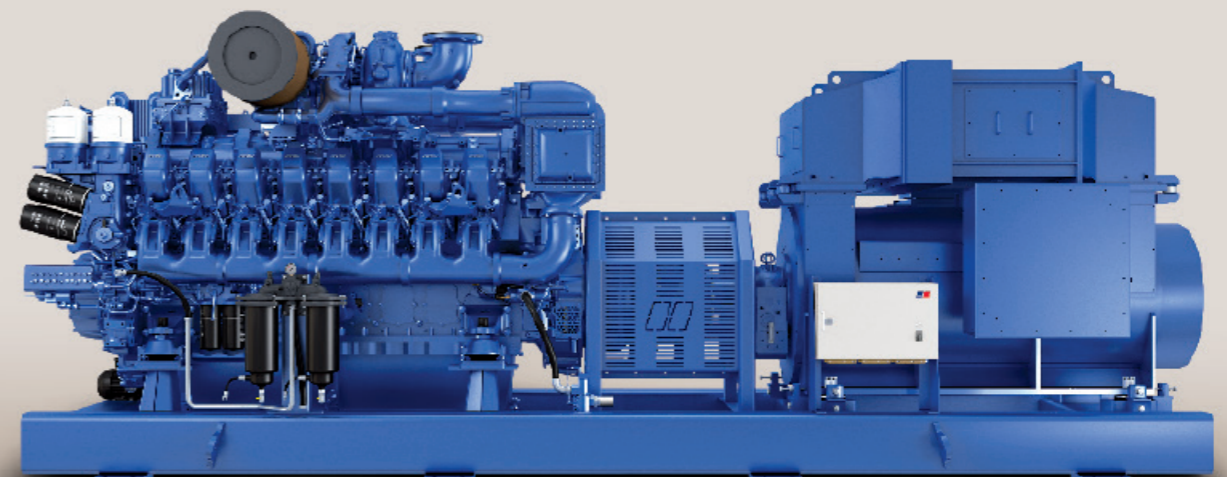
# Free-standing generator.

We offer a free-standing generator arrangement if sleeve bearing generators are preferred. MTU designs durable coupling arrangements with non-aging steel spring resilient couplings supported by a composite type offset coupling. Engine and generator are mounted to a boxed profile steel frame, offering outstanding torsional stiffness and operational safety.

We offer this arrangement also if you choose to supply a generator of your preference.

**Benefits:**

- Longest maintenance intervals based on sleeve bearings and maintenance free, non-aging and heat resistant coupling
- Easy in-vessel serviceability





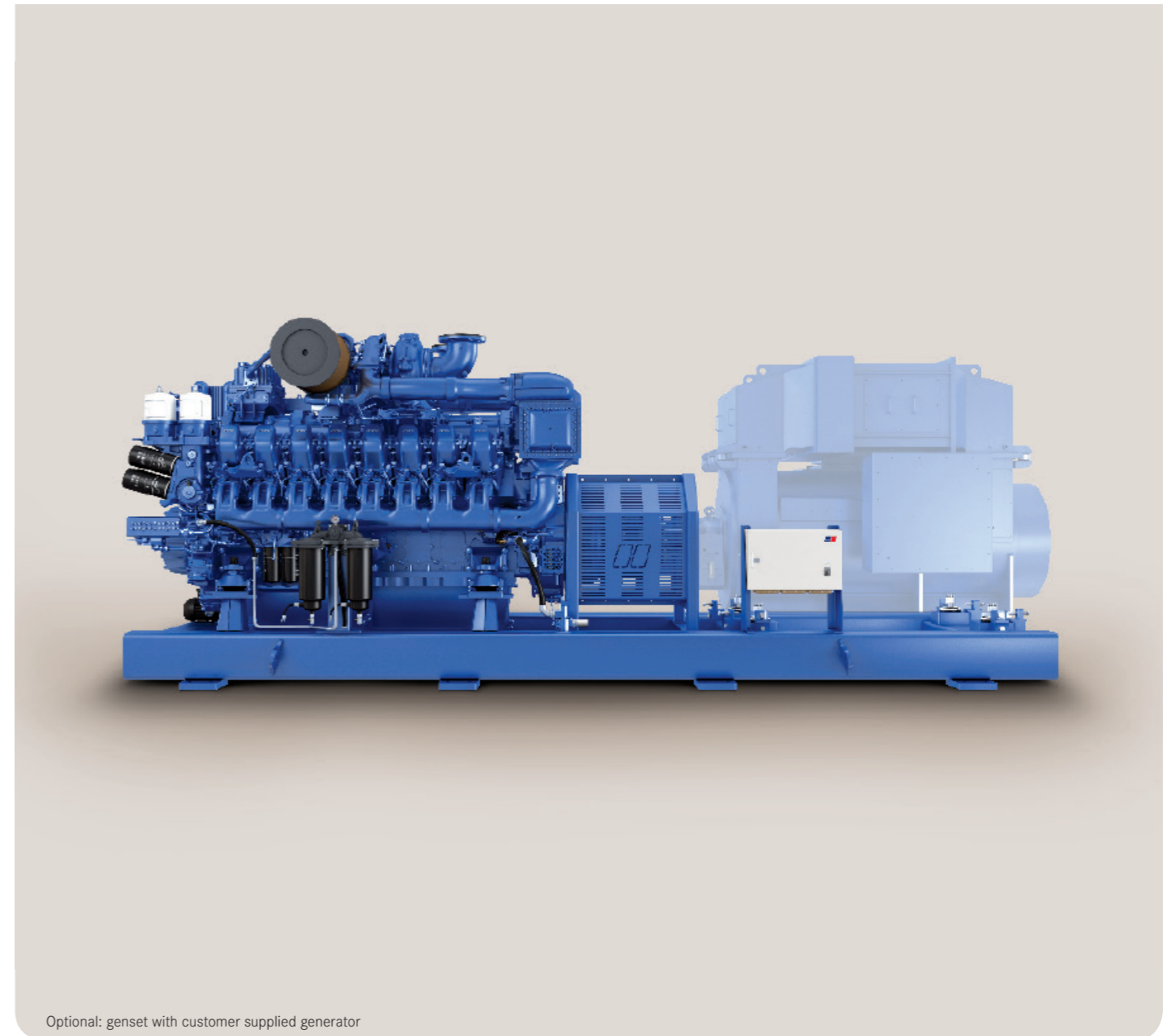
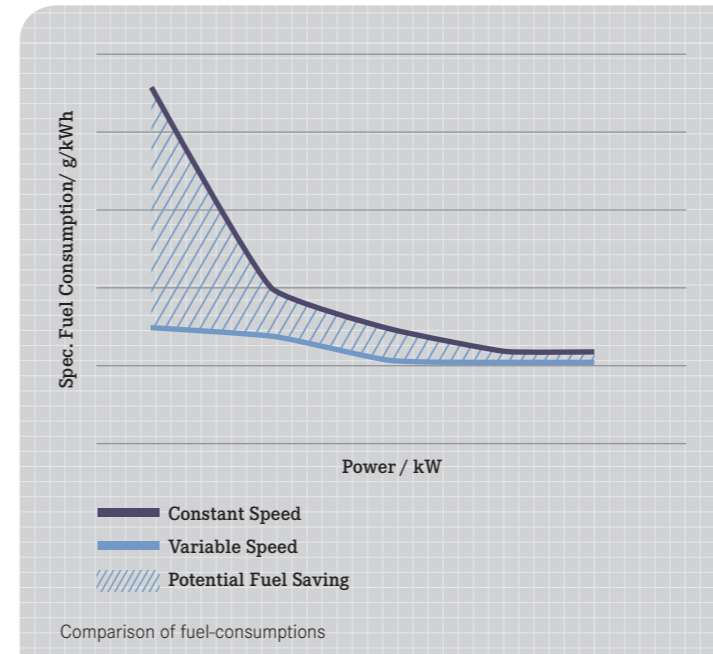
# Flexible power for lower life-cycle-costs.

You want a flexible system with advanced technology that gives you the means to operate as efficiently as possible? Variable speed gensets from MTU make that possible. They provide the highest degree of operational flexibility and operating cost reduction. MTU's patented Superior System Controller (SSC) determines the best operating point in the engine performance map in relation to the electrical power demand. And for customers who prefer to implement a generator of their choice MTU offers a precise simulation and calculation to assure safe and economic operation.

**Benefits:**

- Less fuel consumption at part load, up to 15 %\*
- Longer maintenance intervals and less maintenance costs up to 20 %\*
- Lower noise signature

\* significantly depending on project-specific operation (efficiency gain depends on system losses and generator operating curve)





MTU Genset References

# Reliable performance. Proven out at sea.



Rolls-Royce, UT 771 - 4x 12V 4000 M23S



Skansi Offshore, Eldborg - 4x 12V 4000 M50B



Myklebusthaug, UT 7521 - 4x 16V 4000 M63L Variable Speed Gensets



Fairplay IX - 1x 16V 4000 M33F, 2x 16V 4000 M63L



Siem Offshore AS, Siem Moxie - 2x 16V 4000 M23S, 2x 12V 4000 M23S



Havyard, 833L - 4x 16V 4000 M33S



Boskalis, Ndurance - 2x 12V 4000 M33S, 2x 16V 4000 M33S



Harren & Partner, OIG Giant II - 6x 12V 4000 P83



MPI Offshore, Victoria Mathias - 5x 16V 4000 M43S, 1x 12V 4000 P83



Rolls-Royce, UT 535 - 3x 16V 4000 M23S



Stadtwerke Konstanz, Tábor - 4x 12V 2000 M51A



# Always on duty.

Commercial vessel operators all over the world depend on MTU for powerful, reliable performance, no matter what Mother Nature has in store. That's because our gensets are built to meet the unique demands of your business—the long, continuous operating cycles under high loads, unpredictable climates, ever-rising fuel costs and stringent emissions regulations. MTU **ValueCare** products and services are designed with equal care to optimize the performance and longevity of your MTU equipment while ensuring maximum uptime.

## Service and support as reliable as the tides.

Our full portfolio of MTU **ValueCare** products and services is provided through three powerful product lines:

### ValueService

Extensive global service and support to help you get the most out of your equipment and protect your investment.

- Customized Care: Maximize cost certainty and availability throughout the lifecycle of your genset engine with professional maintenance solutions from MTU. The details, terms and periods of each package are tailored to your individual requirements.
- Extended Coverage: Protect against the cost of unexpected engine repairs beyond the standard warranty, with coverage tailored specifically to meet your needs.
- Annual Check: Optimize performance and avoid unexpected downtime with professional inspections and maintenance recommendations from MTU.
- Technical Documentation: Maximize performance and uptime with complete, clear operation and maintenance information, tailored to the specific needs of your equipment.
- Training: Keep your maintenance team proficient with MTU equipment. MTU training provides a hands-on learning experience with the experts who know your equipment best.

### ValueSpares

A full line of genuine replacement parts and top-quality consumables to keep your equipment running optimally.

- Ensure optimal performance and lasting value by choosing the only parts that live up to MTU's stringent standards. We offer everything you need for a turnkey installation. And our global logistics network ensures maximum availability and fast delivery to even the most remote locations.
- Maximize performance and longevity with filters, oils and coolants that are tested and approved specifically for your MTU equipment. Available from a single source, **ValueSpares** consumables are an essential part of your preventive maintenance program.

### ValueExchange

Genuine factory remanufactured products delivering factory-new performance at value-conscious process.

Reduce lifecycle costs without compromising performance, service life or quality. **ValueExchange** factory remanufactured products provide the same high standard as new MTU products, along with identical warranty coverage—at a fraction of the cost. And with design and model-related updates made during the remanufacturing process, they also feature similar technological advancements.

### Local support. Worldwide.

Rely on individualized support from our global network of more than 1,200 service centers—anywhere, anytime. Find your authorized MTU distributor at [www.mtu-online.com](http://www.mtu-online.com).

### Customer Assistance Center

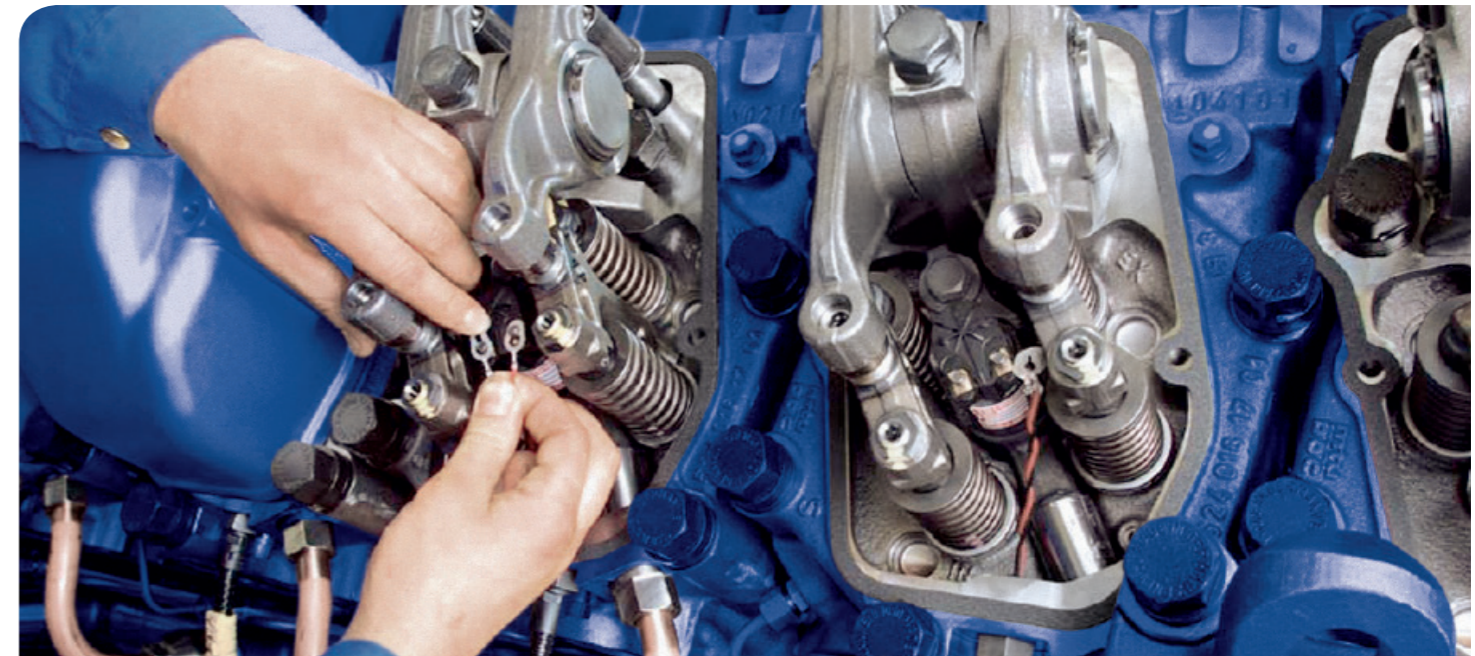
Agents are available 24/7 for fast response to your inquires and service needs.

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Rolls-Royce Power Systems Companies

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