



Commercial Marine

We move you.
With reliable power.



Power. Passion. Partnership.



Contents

| | | |
|---|--|---|
| <p>I A CUSTOMER-ORIENTED LEADER IN THE FIELD.</p> <p>II WATER IS YOUR WORKPLACE. MTU IS YOUR PROPULSION.</p> <p>8 Propulsion for Tugs and Pushboats</p> <p>10 Propulsion for Platform Supply Vessels</p> <p>12 Propulsion for Offshore Wind Park Crew Boats, Service and Supply Vessels</p> <p>14 Propulsion for Inland and Coastal Cargo Vessels</p> <p>16 Propulsion for Passenger Vessels and Ferries</p> <p>18 Propulsion for Special Vessels</p> | <p>III COMMERCIAL MARINE PROPULSION OVERVIEW</p> <p>22 Series 60</p> <p>24 Series 1600</p> <p>26 Series 2000 for Vessels with Unrestricted Continuous Operation</p> <p>28 Series 2000 for Fast Vessels with High or Intermittent Load Factors</p> <p>30 Series 4000 for Vessels with Unrestricted Continuous Operation</p> <p>32 Series 4000 for Fast Vessels with High Load Factors</p> <p>34 Series 1163</p> <p>36 Series 8000</p> <p>IV SYSTEMS SOLUTIONS</p> <p>40 Diesel-Mechanic Propulsion Systems</p> <p>41 Diesel-Electric Propulsion Systems</p> <p>42 Combined Propulsion Systems</p> <p>43 Noise Reduction Technologies</p> <p>44 Emissions Reduction Technologies</p> <p>45 Gas-Protected Operation</p> | <p>V MTU WORKBOAT AUTOMATION SYSTEMS</p> <p>48 BlueVision NewGeneration</p> <p>50 BlueVision_Basic NewGeneration</p> <p>52 BlueVision_Advanced NewGeneration</p> <p>VI MTU_VALUE CARE</p> <p>56 MTU_ValueService MTU_ValueSpares</p> <p>58 MTU_ValueExchange</p> <p>VII LOCAL SUPPORT. WORLDWIDE.</p> <p>60 Service Network</p> <p>VIII QUALITY AND CERTIFICATIONS</p> |
|---|--|---|



Powering you to success.

MTU supplies its customers with technically mature, uncompromisingly reliable products that are proven in the field. MTU's range of services for off-highway diesel engines is extensive – from standard to customized solutions.

MTU is the core brand of Rolls-Royce Power Systems AG, which is a world-leading provider of high- and medium-speed diesel and gas engines, complete drive systems, distributed energy systems and fuel injection systems for the most demanding requirements.

The product range of MTU is one of the widest and most modern in the sector. We offer comprehensive, powerful and reliable engine solutions for yachts, commercial ships and naval vessels, construction and industrial vehicles, agricultural machinery, mining, rail and military vehicles as well as for the oil and gas industry. We also provide a full line of service products to help you maximize uptime and performance.

For over 100 years, MTU has been known for cutting-edge innovation and technological leadership. That same spirit of innovation inspires our sustainability efforts. Today and in the future, our focus is on developing and implementing system solutions to maximize efficiency and meet emissions standards.

An important factor of success

If MTU engines symbolize one thing in particular, it's uncompromising reliability. For decades, they have proven themselves in many of the world's toughest applications – in fierce continuous operation under extreme conditions. It is especially in environments that place highest demands on the technology where MTU engines can play off their strengths: robustness, longevity, maximum availability and consequently optimum efficiency. And those qualities significantly determine your success, too.

An expert leader in the field

MTU has always set standards in technological expertise for customized product and system solutions. To deliver you maximum power density, we concentrate our innovation on the continuous advancement of our core competencies: fuel injection, turbo charging, exhaust aftertreatment and electronics.

A passionate engine specialist

We spend every day working together with you, our customers, to deliver engines and systems that best fit your needs. Whether a standard system or a customized solution – we are passionate about the art of engine creation.

A reliable partner

We understand the specific demands for diverse applications. In collaboration with you, we look for the solutions which are best suited to your individual requirements. Every step of the way – from the start of project planning, during the design of your integrated system solution, at the point of delivery and commissioning and continuing through the care of your product – we are there with you for the entire lifecycle.

1 Power

MTU meets even the most demanding propulsion requirements with powerful and reliable engines and propulsion systems.

2 Passion

MTU is passionate about fulfilling the needs of its customers with the utmost professionalism and precision.

3 Partnership

MTU is a reliable and trend-setting partner which acts with foresight in a results-oriented manner.

4 Leader in the field

As a supplier of powerful propulsion solutions that have proved their qualities thousands of times over, MTU stands for the highest level of experience and expertise.

Water is your workplace. MTU is your propulsion.

In us you have a partner at eye level – who is at home on the water just as much as you are. With more than 100 years of experience at sea, we are perfectly acquainted with your applications. We know how harsh the business gets. We comprehend the specific operational requirements. And therefore, we can deliver precisely the products and services you need. We are your ally: qualified, professional and absolutely reliable.

We have a long and intensive history of partnership with commercial shipping. Thousands of our robust, virtually indestructible diesel engines are used all over the world on oceans, seas, and rivers – as main propulsion and onboard power generation. This widespread use is based above all on the tried and tested performance, reliability, long service life and cost-effectiveness of our engines.

Of course, all MTU engines, whether for main propulsion or power supply, meet the requirements of the world's major classification societies.

However, we do not just deliver the perfect “hardware” for various commercial marine applications. Since we have known the workboat market inside out for decades, we know that professional service is one of the key criteria for success. With MTU **ValueCare** we provide you with a diverse portfolio of products and services. Whether by scheduled maintenance, reliable spare part availability or major overhauls – we make sure that your MTU engines run just as you expect them to: powerfully, reliably, efficiently. At any time. All over the world.



Propulsion for Tugs and Pushboats

Your tasks are enormous. We make you strong.

Reliable, punctual operation and the uncompromising availability of your vessels: That's what you demand. We prepare you not only with rock-solid products, but also with preventive maintenance concepts designed for continuous heavy duty service as well as support around the clock

Tugs and pushboats must maneuver extremely powerful and, at the same time, precisely and quickly in all situations. MTU engines help you meet this requirements with broad performance maps, proven common-rail technology and sequential turbocharging.

In order to predict your profit you need to know your operating costs and maintenance effort. With our comprehensive expertise in marine business, we are able to provide reliable LCC analysis as well as custom spare parts and tool programs adapted to your specific needs.

MTU always delivers solutions to meet your needs – tailor-made for the application, tailor-made for you. Our propulsion systems are extremely flexible and able to meet the most specific requirements. Whether you need the auxiliary crankshaft power takeoff to drive fire-fighting pumps, hydraulic pumps or further application-specific equipment, MTU meets those demands.

You have a lot of responsibility. We give you the capability.

No matter how rough conditions are at sea: You have to get out there – and your vessels' availability must be guaranteed. So what you need are propulsion systems that are 100% reliable, punctual and safe. MTU makes sure they are: with engines braving even the harshest conditions, with preventive maintenance concepts designed for continuous heavy duty service and with comprehensive support around the clock.

MTU delivers customized propulsion and service solutions which satisfy the most specialized and demanding applications:

Fast supply ships

MTU's propulsion systems for fast supply ships offer unsurpassed power density in terms of power-to-volume ratio and power-to-weight ratio combined with the effortless unfolding of power and bottom end torque

Platform offshore supply vessels

MTU offers diesel-electric propulsion systems and onboard power generation for extremely safe, efficient and environmentally friendly operation.

Design of the installation, location in the ship and operating modes are highly flexible.

Due to special mounting concepts, vibration and noise can be reduced to a minimum.



- 1 Rolls-Royce UT 771
Equipped with 4x MTU generator sets based on 12V 4000 M23S Ironmen engines.
- 2 Platform Supply Vessel Orion
Equipped with 4x MTU generator sets based on 16V 4000 M33S Ironmen engines.



Propulsion for Offshore Wind Park Crew Boats, Service and Supply Vessels

You are powering the future. We are powering you.

With its longtime and strong commitment to marine sector, MTU has always felt a particular responsibility for the environment – and has lived up to that responsibility in all aspects. That’s what makes us the ideal partner for companies active in similar, future-oriented sectors – such as power generation from renewables. The range of development includes products and services designed specifically to meet the needs of offshore wind farm operators.

Installation and construction vessels for offshore wind parks

These vessels are specialized for the preparation, transport, and installation of all necessary components of an offshore wind park. To satisfy the varying power demands within this application, MTU offers diesel-electric propulsion systems with an excellent load response, high stability as well as maximum reliability and availability.

Maintenance and service vessels for offshore wind parks

In order to provide high maneuverability, good sea keeping ability, and fast transfer, these vessels require classified propulsion systems. The high bollard push capabilities of MTU engines guarantee safe access to wind turbines. Thanks to their lightness, excellent power-to-weight ratio and response, the engines allow the essential fast maneuvering of the vessels.



- 1 Llandudno Bay
Powered by 2x MTU 8V 2000
- 2 Wind Force II
Powered by 2x MTU 10V 2000
- 3 Friedrich Ernestine
Powered by 5x MTU 16V 4000

Propulsion for Inland and Coastal Cargo Vessels

You have to move incredible amounts. We enable you to succeed.

Your competitive position and economic success depend on reliable and punctual operation. We prepare you with high quality products, preventive maintenance concepts, 24/7 service and as a result, maximum availability.

In order to predict your profit you need to know your operating costs. With our comprehensive expertise in marine business, we are able to provide reliable LCC analysis as well as custom spare parts and tool programs adapted to your specific needs.

Maximizing profit is your goal. Reducing fuel consumption is an important way to achieve that goal. MTU engines are renowned for their fuel efficiency. The sequential turbocharging leads to superior fuel consumption values cross the entire operating range. With an MTU propulsion system you get tried and tested technology that helps your business.

It is essential to be on time to earn money. MTU self explanatory service and simple maintenance work minimizes the risk of delays and downtimes. Our engine design allows basic maintenance on board. MTU training is adapted to your specific needs making you competent to do basic repair on your own.



MTU engines are used in many different types of inland and coastal cargo vessels. Powered by MTU engines they benefit from:

- Low fuel costs
- Low operating costs
- Environmental stewardship



Propulsion for Passenger Vessels and Ferries

You bring people and goods
to their destination safely.
We are on board with you.



The reliable, punctual operation of your fleet is crucial for your success of your business. We prepare you not only with high quality products, but also with preventive maintenance concepts designed for continuous heavy duty service. You can rely on our 24/7 service – and as a result, on the maximum availability of your vessel.

You need to know your operating and maintenance costs to predict your profit. MTU provides you reliable LCC analysis as well as custom spare parts and tool programs adapted to your specific needs. Rely on our specialized expertise in commercial marine business. Our global service network takes care wherever you are.

You have the challenge. We have the propulsion solution.

From fire and rescue boats to research and survey vessels: No matter what specialized task your vessel performs, MTU can provide exactly the right propulsion solution – involving both high quality products and preventive maintenance concepts designed for continuous heavy duty service.

Our decades of experience and individualized systems solutions can meet any challenge, any requirement. We also supply engines that meet the high security requirements for operation in hazardous environments, such as after accidents involving fuels or chemicals. To assure safe gas-protected operation, an anti-gas package is available.

Various PTO options can be implemented to adapt the propulsion system exactly to your application.



1 The outstanding torque developed by MTU engines ensures high-level PTO performance (e.g. for fire-fighting pump) with no reduction in vessel performance.

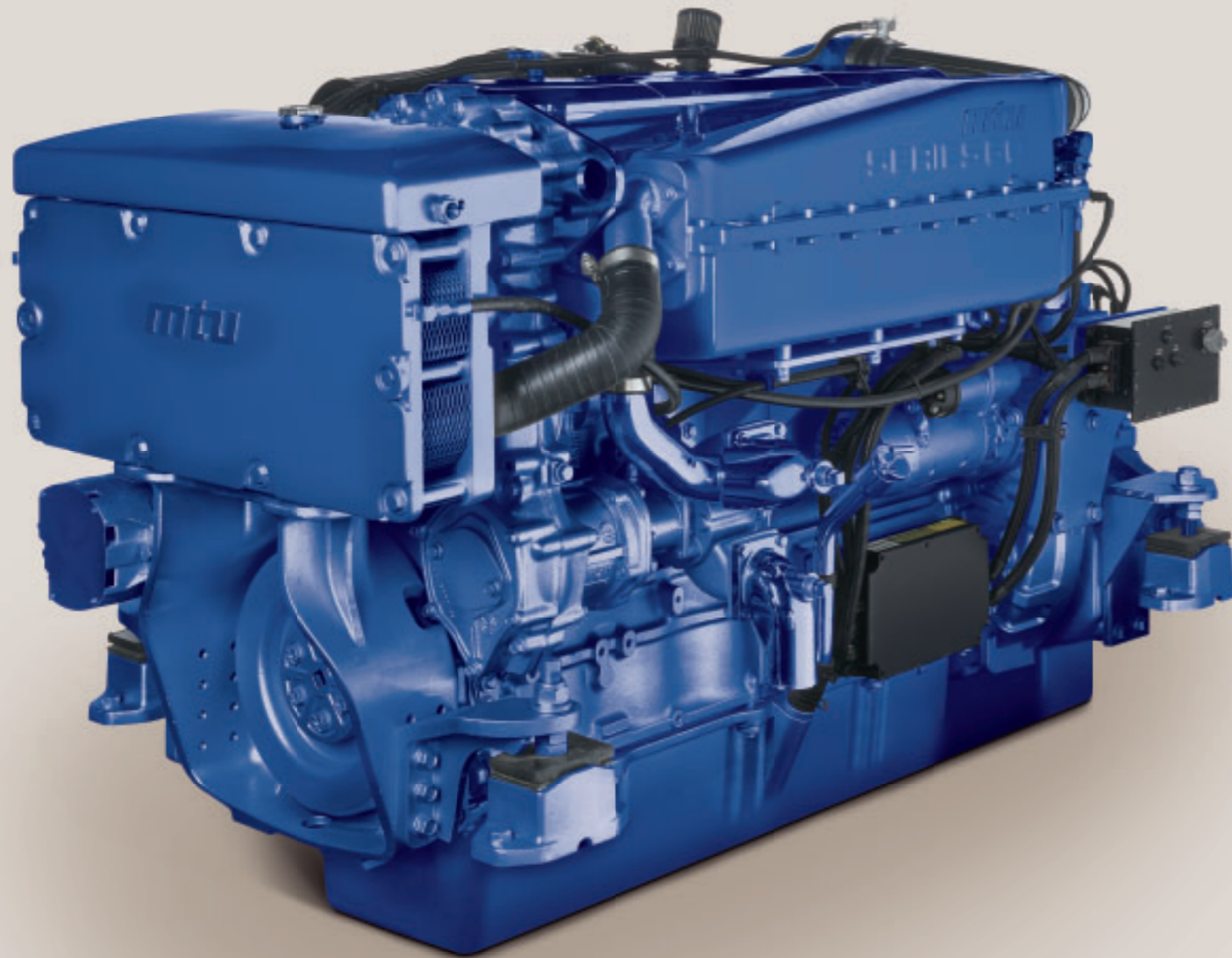
Commercial Marine Propulsion Overview

We move you.
With reliable power.

The more challenging the requirements, the more you need engines you can unconditionally rely on. We partner with our customers to develop the optimum propulsion solutions. Our broad range of real “workhorses” is ideal for meeting even the most demanding needs for power, availability and profitability.



Series 60



Availability

Higher availability translates into maximum service and reliability. A large global population and comprehensive field data enable availability-optimized preventive maintenance plans.

Reliability

Uncompromising reliability maximizes fulfillment of scheduled services, building the base for a reliable business partnership. Large population and comprehensive field data are proof of our outstanding reliability.

Maintainability

Our maintenance-optimized engine offers reduction in maintenance effort. This means reduced labor and higher overall availability of vessel. This saves on cost of ownership.

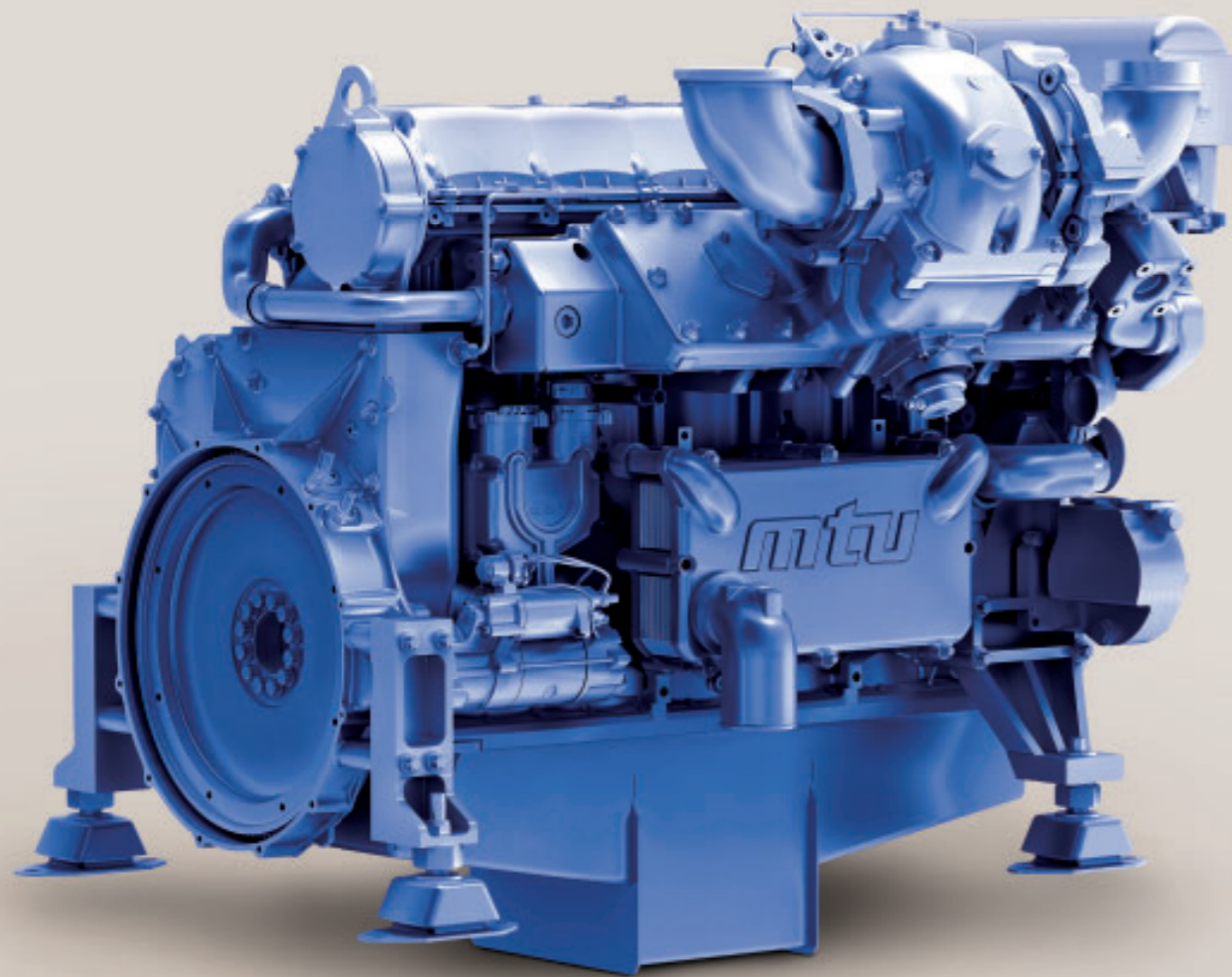
Life Cycle Costs (LCC)

MTU reduces maintenance and repair costs in order to lower cost of ownership throughout the whole lifecycle of the product. Reliable and valid for decades to come.

| Engine model | | S60 6R |
|--------------|-------------|---|
| Power output | kW (bhp) | 261 – 447 (350 – 600) |
| Speed | rpm | 1800 – 2100 |
| Emissions | | All engines comply with emissions regulations in accordance with IMO II and EPA 2 |

| Series 60 | | for onboard power generation/ diesel-electric drives | |
|--------------|-------------|--|---|
| | | 50 Hz | 60 Hz |
| Power output | kW (bhp) | 298 – 354 (400 – 475) | 271 – 370 (363 – 496) |
| Speed | rpm | 1500 | 1800 |
| Emissions | | All engines comply with emissions regulations in accordance with IMO | All engines comply with emissions regulations in accordance with IMO II and EPA 2 |

Series 1600



When your requirement asks for reliability, safety and comfort:

MTU Series 1600 for onboard power generation

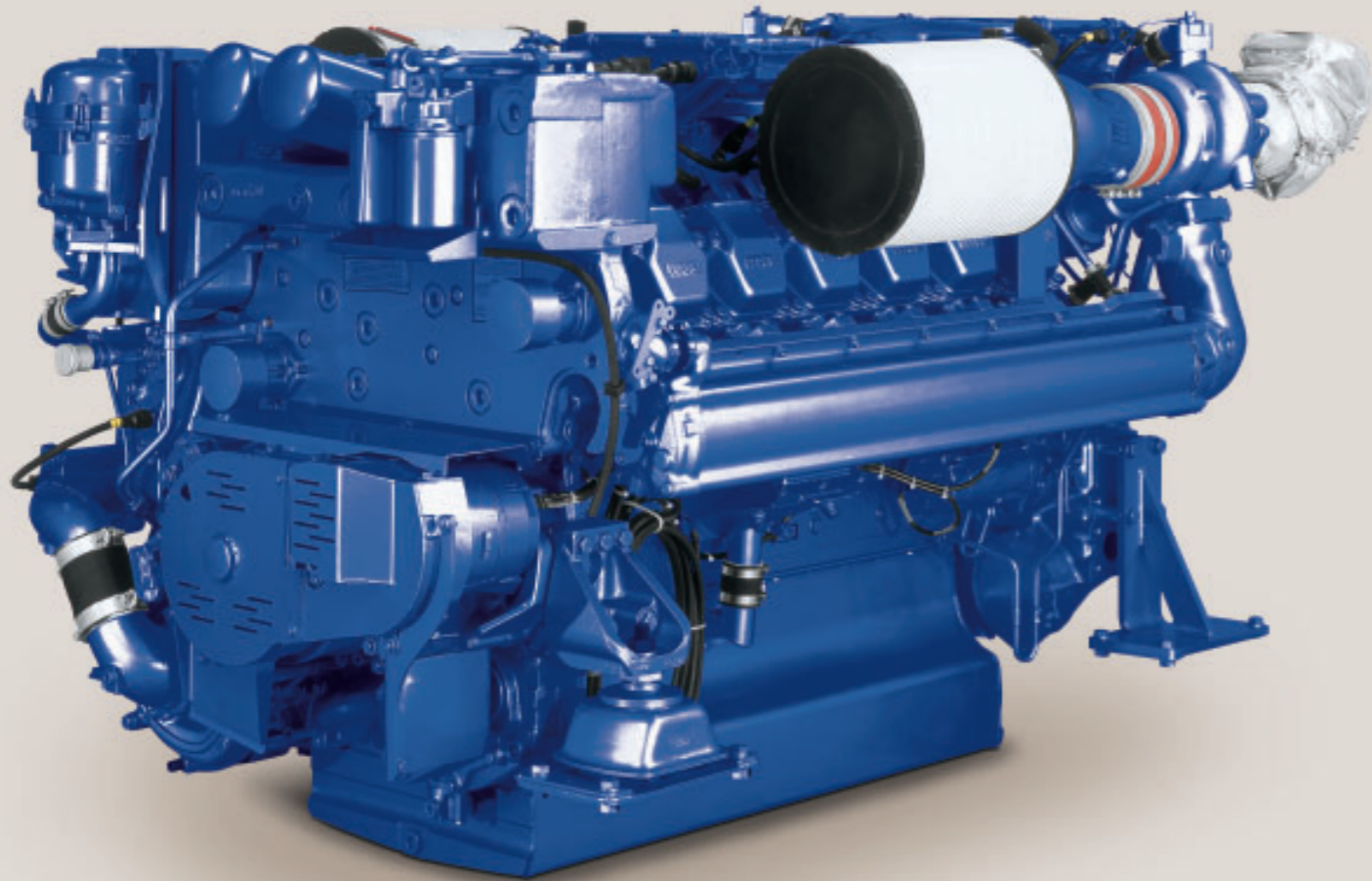
- Uncompromising availability and reliability in operation design and type approval, built in accordance to all major classification society rules.
- Designed and built according to the highest SOLAS requirements.
- Engineered to the most challenging noise, vibration and harshness standards.
- Robust design and marine engine high quality appearance.
- Engine controls and monitoring interfaces compatible to propulsion engines and ship automation.

Dedicated marine propulsion and power generation products tailored to the needs of the professional marine industry is our obligation and heritage.

| Series 1600 | | for onboard power generation/ diesel-electric drives | |
|--------------|-------------|---|--------------|
| | | 50 Hz | 60 Hz |
| Power output | kW (bhp) | 269 (361) | 323 (433) |
| Speed | rpm | 1500 | 1800 |
| Emissions | | All engines comply with emissions regulations in accordance with IMO II and in part also EPA 3. | |

Series 2000

for Vessels with Unrestricted Continuous Operation



Availability

Higher availability translates into maximized fulfillment of scheduled services, building the base for a reliable business partnership. Large population and comprehensive field data enable our availability-optimized preventive maintenance concepts. The insurance for the best feasible availability rate.

Reliability

Uncompromising reliability maximizes fulfillment of scheduled services, building the base for a reliable business partnership. Large population and comprehensive field data are proof of our outstanding reliability.

Maintainability

Our maintenance-optimized engine offers reduction in maintenance effort. This means: reduced man hour requirements and higher overall availability of vessel. This saves on cost of ownership.

Life Cycle Costs (LCC)

Our company reduces maintenance and repair costs in order to maintain benchmark LCC. This saves on cost of ownership throughout the whole lifecycle of the product. Reliable and valid for decades to come.

| | | |
|--------------|-------|---|
| Engine model | | 2000 |
| | | 8V, 12V, 16V |
| Power output | kW | 600 – 800 |
| | (bhp) | (805 – 1070) |
| Speed | rpm | 1500 – 1800 |
| Emissions | | All engines comply with emissions regulations in accordance with IMO II and in part also EPA 2, EU III A (including RheinSchUO II) and EU recreational crafts 94/25 |

| | | | |
|--------------|-------|---|--------------|
| Series 2000 | | for onboard power generation/ diesel-electric drives | |
| | | 50 Hz | 60 Hz |
| Power output | kW | 322 – 770 | 400 – 930 |
| | (bhp) | (445 – 1033) | (536 – 1247) |
| Speed | rpm | 1500 | 1800 |
| Emissions | | IMO II | IMO II |

Some engines for onboard power generation are also available with interface automation **genoline**

Series 2000

for Fast Vessels with High or Intermittent Load Factors



If unmatched performance in terms of speed, agility and safety are in focus,

MTU Series 2000 combines best in class power-to-weight ratio with effortless unfolding of power and bottom end torque. MTU Series 2000 combines industry leading safety features with the durability and reliability of one of the most successful marine engines. Design and type approved by major classification societies and SOLAS making the difference of this engine in the marine market. Designated marine design features enable this engine family to fulfill marine requirements not compromising the power-to-weight ratio.

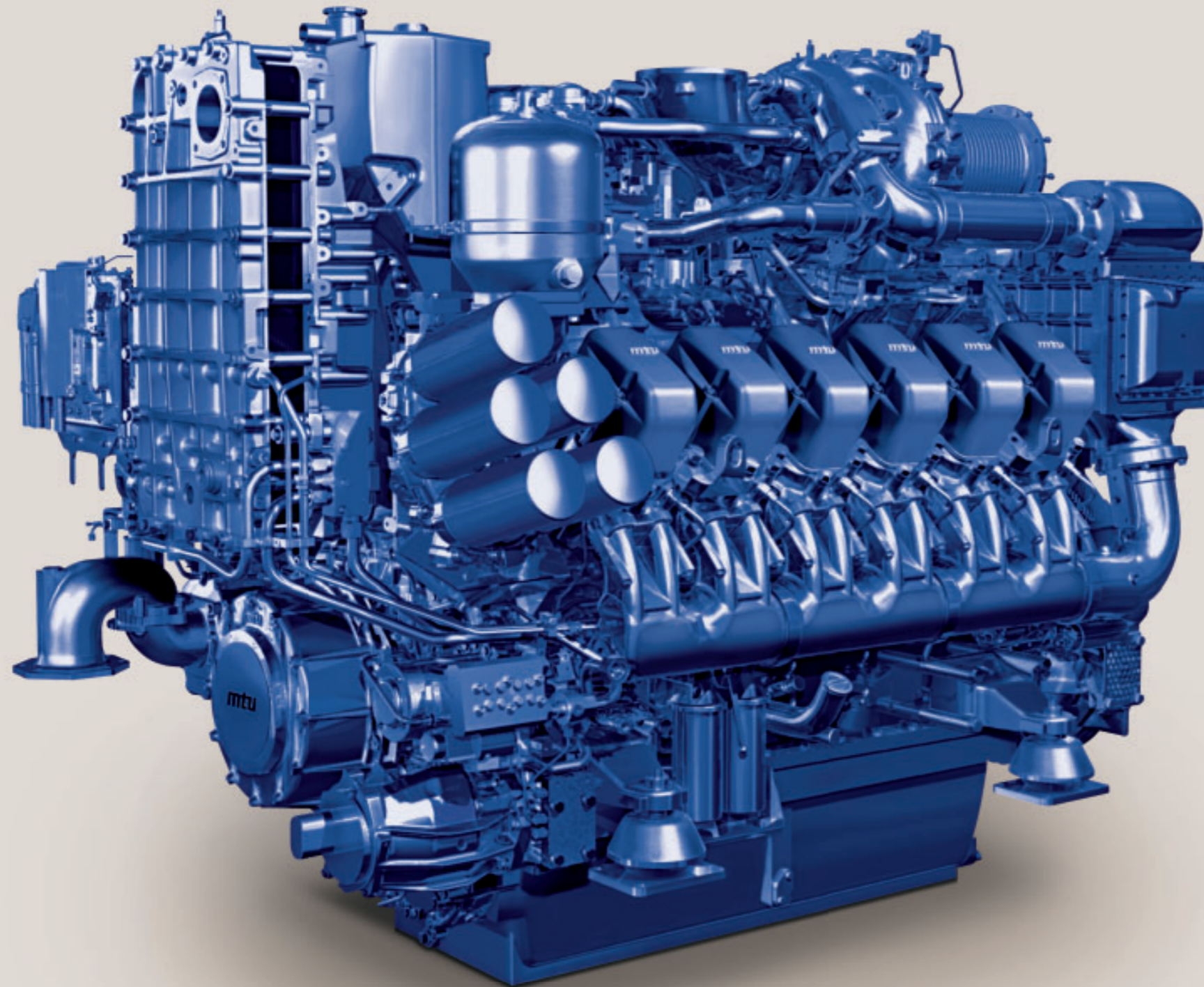
| Engine model | | 2000 |
|--------------|-------|--|
| | | 8V, 10V, 12V, 16V |
| Power output | kW | 720 – 1630 |
| | (bhp) | (966 – 2186) |
| Speed | rpm | 1500 – 2450 |
| Emissions | | All engines comply with emissions regulations in accordance with IMO II and in part also EPA 2, EU III A (including RheinSchUO II) |

| Series 2000 | | for onboard power generation/ diesel-electric drives | |
|--------------|-------|---|--------------|
| | | 50 Hz | 60 Hz |
| Power output | kW | 322 – 770 | 400 – 930 |
| | (bhp) | (445 – 1033) | (536 – 1247) |
| Speed | rpm | 1500 | 1800 |
| Emissions | | IMO II | IMO II |

Some engines for onboard power generation are also available with interface automation **genoline**

Series 4000

for Vessels with Unrestricted Continuous Operation



Availability

Higher availability translates into maximized fulfillment of scheduled services, building the base for a reliable business partnership. Large population and comprehensive field data enable our availability-optimized preventive maintenance concepts. The assurance for the best possible availability rate.

Reliability

Uncompromising reliability maximizes fulfillment of scheduled services, building the base for a reliable business partnership. Large population and comprehensive field data are proof of our outstanding reliability.

Maintainability

Our maintenance-optimized engine offers reduction in maintenance effort. This means: reduced man hour requirements and higher overall availability of vessel. This saves on cost of ownership.

Life Cycle Costs (LCC)

Our company reduces maintenance and repair costs in order to maintain benchmark LCC. This saves on cost of ownership throughout the whole lifecycle of the product. Reliable and valid for decades to come.

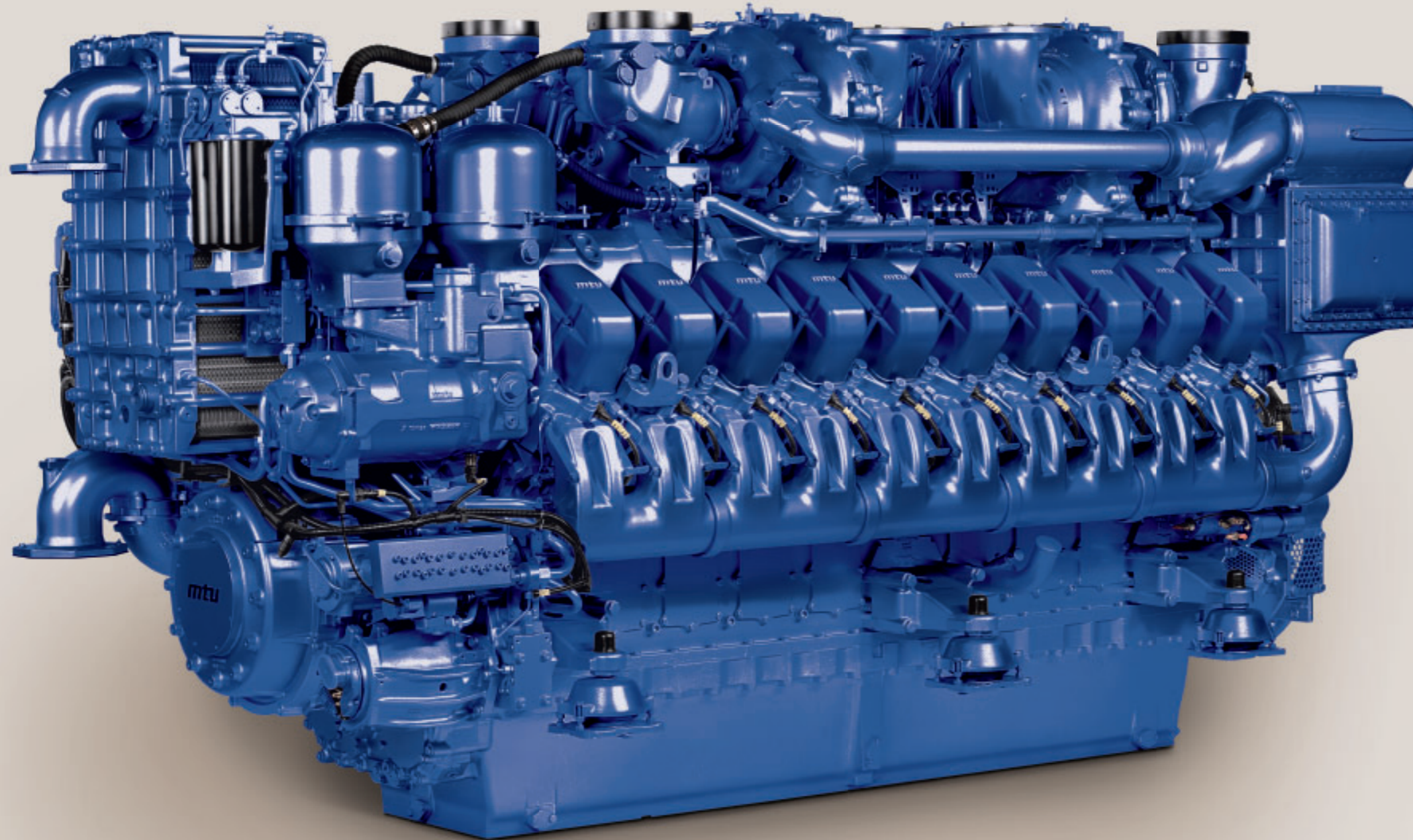
| | | |
|--------------|--|---------------|
| Engine model | Series 4000 8V, 12V, 16V | |
| Power output | kW | 746 – 2240 |
| | (bhp) | (1000 – 3004) |
| Speed | rpm | 1500 – 2100 |
| Emissions | All engines comply with emissions regulations in accordance with IMO II, and in part also EPA 3 and EU III A (including RheinSchUO II) | |

| | | |
|--------------|---|---------------|
| Series 4000 | for onboard power generation/ diesel-electric drives | |
| | 50 Hz | 60 Hz |
| Power output | kW | 760 – 1760 |
| | (bhp) | (1019 – 2360) |
| Speed | rpm | 1500 |
| | | 1800 |
| Emissions | All engines comply with emissions regulations in accordance with IMO II and in part also EPA 3 and EU III A (including RheinSchUO II) | |

Some engines for onboard power generation are also available with interface automation **genoline**

Series 4000

for Fast Vessels with High Load Factors



If endurance, reliability and safety are in focus of MTU Series 4000 ensures:

A tailor-made propulsion system solution based on MTU's expertise in NVH-, noise, vibration, harshness-engineering set standards.

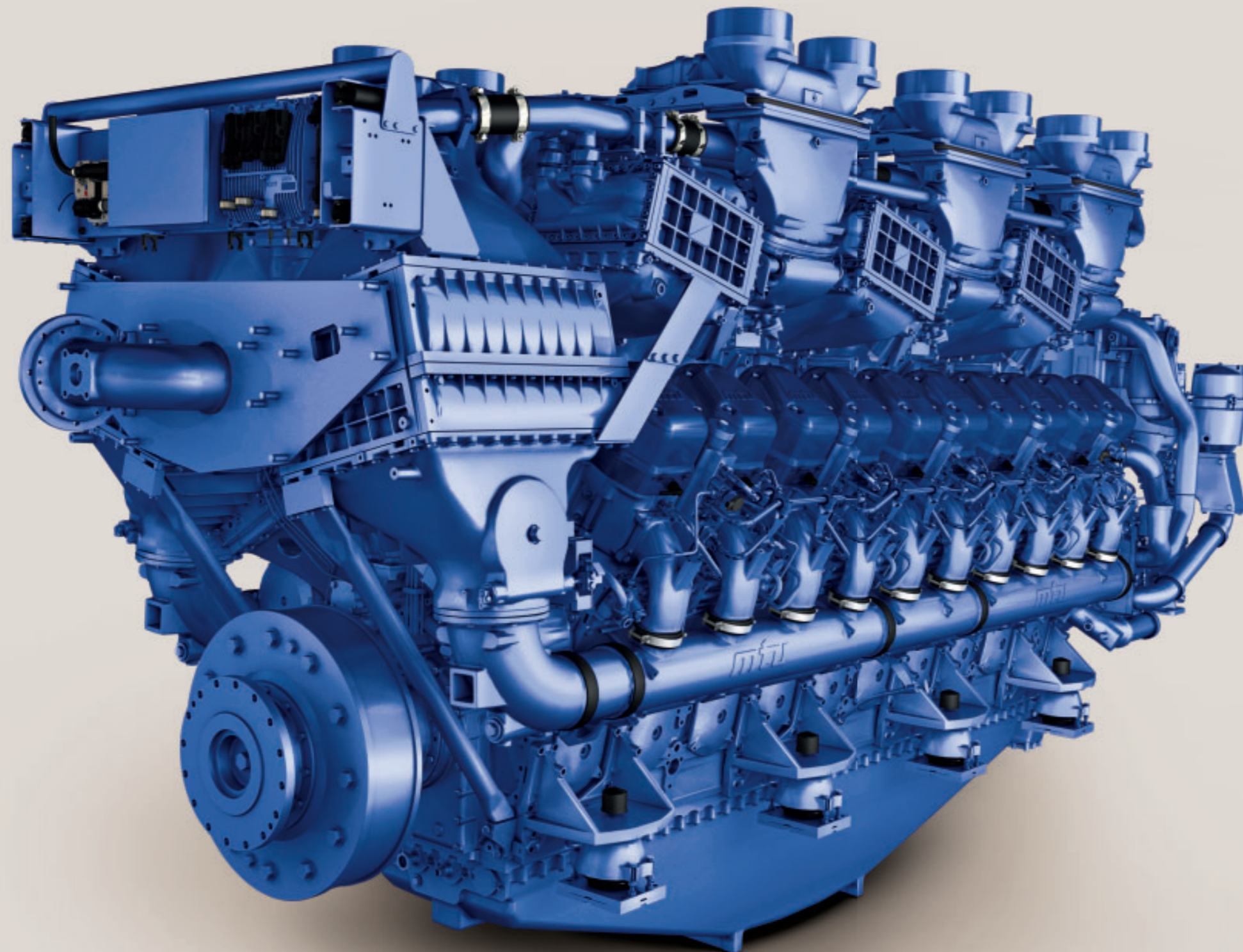
References from very demanding applications are valid testimonials and are proof of MTU's system engineering capability. Unsurpassed power density in terms of volume-to-power ratio and power-to-weight ratio combined with the effortless unfolding of power and bottom end torque due to MTU's unique sequential turbo charging technology.

| Engine model | Series 4000 12V, 16V, 20V | |
|--------------|---|---------------|
| Power output | kW | 1920 – 3600 |
| | (bhp) | (2575 – 4828) |
| Speed | rpm | 1970 – 2050 |
| Emissions | All engines comply with emissions regulations in accordance with IMO II, and in part also EPA 2 | |

| Series 4000 | for onboard power generation/ diesel-electric drives | |
|--------------|---|---------------|
| | 50 Hz | 60 Hz |
| Power output | kW | 760 – 2600 |
| | (bhp) | (1019 – 3487) |
| Speed | rpm | 1500 |
| | | 1800 |
| Emissions | All engines comply with emissions regulations in accordance with IMO II and in part also EPA 3 and EU III A (including RheinSchUO II) | |

Some engines for onboard power generation are also available with interface automation **genoline**

Series 1163



The proven and mature engine for the marine industry.

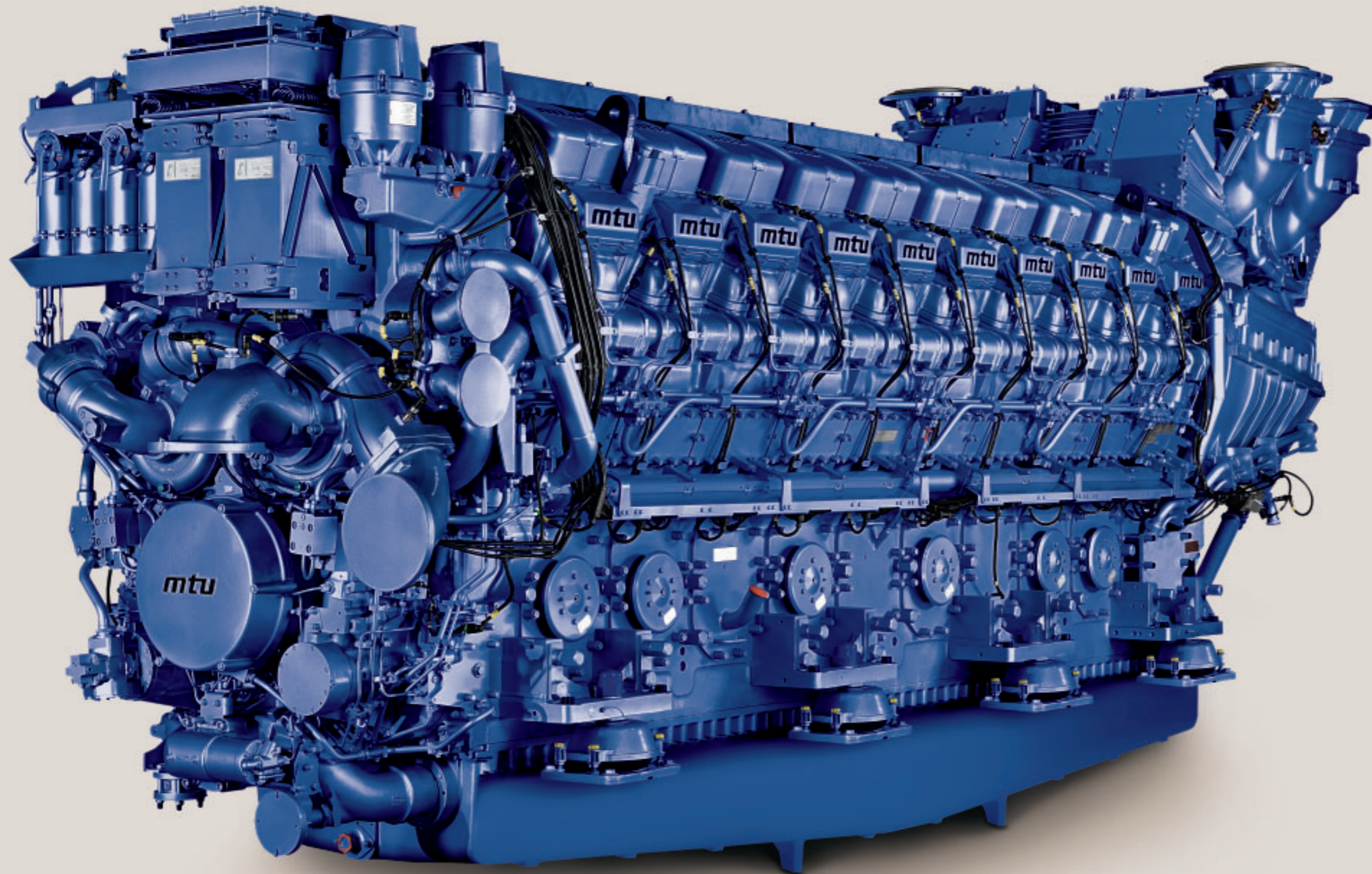
MTU Series 1163 combines industry leading safety features with the durability and reliability of the global market leader of high performance marine engines.

Unique tailor-made propulsion system solutions based on MTU's expertise in NVH-, noise, vibration, harshness-engineering set standards.

References from very demanding applications are valid testimonials and proof of MTU's system engineering capability. Individual customer-specific services for decades to come are the attributes provided to the marine industry.

| | | |
|--------------|-------------|---|
| Engine model | | 1163 12V, 16V, 20V |
| Power output | kW (bhp) | 3600 – 6500 (4828 – 8715) |
| Speed | rpm | 1200 – 1250 |
| Emissions | | All engines comply with emissions regulations in accordance with IMO II |

Series 8000



MTU Series 8000 is dedicated for the marine industry with leading safety features, durability and reliability in its class. Unrivalled operational flexibility whether idling or sailing at full speed, the Series 8000 will deliver – without question.

Unique tailor-made propulsion system solutions based on MTU's expertise in NVH-, noise, vibration, harshness-engineering set standards. References from very demanding applications are valid testimonials and proof of MTU's system engineering capability.

Individual customer-specific services for decades to come are the attributes provided to the marine industry.

| Engine model | 8000 20V |
|--------------|-------------|
| Power output | kW (bhp) |
| Speed | rpm |
| Emissions | |

| | |
|--|---|
| | 7200 – 9100 (9655 – 12205) |
| | 1150 |
| | All engines comply with emissions regulations in accordance with IMO II and EPA 2 |