



Land Defense

MTU. Your partner for unrivaled solutions.



Power. Passion. Partnership.



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1 Technological leader
As a supplier of high-quality, performance drive solutions, MTU stands for the highest level of technological expertise.

2 Power
MTU meets even the most demanding drive requirements with powerful and reliable engines and drive systems.

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

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

A customer-oriented technological leader.

MTU supplies its customers with technologically-advanced products that are proven in the field. MTU's range of products and services for off-highway applications is extensive and includes both standard and 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 expert in technology

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.



© KMW - Leopard II

MTU in the World of Defense

We supply far more than just best-in-class engineering.

Protection and defense, support and combat: to fulfill their responsibilities military vehicles need drive systems which meet the highest requirements. MTU engines and drive systems have set the standards for years: unrivaled power, efficient and customized for special needs.

One-of-a-kind expertise. One-of-a-kind commitment.

MTU has over 60 years of experience with drive systems for military vehicles. We are the ones who repeatedly set standards in this field, and we continue to do so – all over the world. Together with our clients and vehicle manufacturers, we develop, manufacture, and service complex, completely customized drive systems – for every category of armored vehicle, for every special need. We are always focused on our mission: providing unrivaled solutions for enhanced performance.

As a system supplier, MTU is your efficient partner in every stage of the project – from design and planning to service.

System supplier with a wide range of products

Engines from five powerful series form the heart of our drive solutions. With this foundation, we cover the entire range at the highest technological level – from standardized solutions to customized, highly integrated system solutions, from light armored 4x4 wheeled vehicles to the heavy armored main battle tank.

The high power density, high torque, fuel efficiency, and the fulfillment of special military requirements make our drive systems the first choice, both when purchasing new vehicles and retrofitting existing units.

With MTU **ValueCare**, we offer a comprehensive portfolio of products and services designed to ensure maximum performance, uptime and value. A qualified team of specially trained technicians supports our military customers all over the world.



1 Series 106

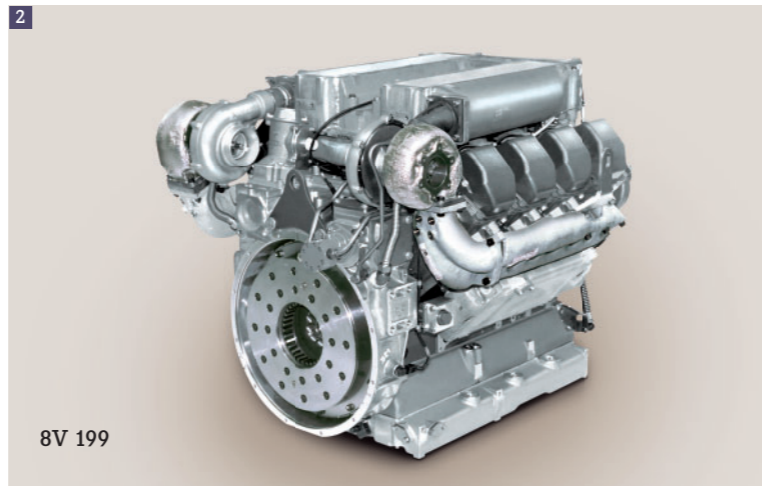
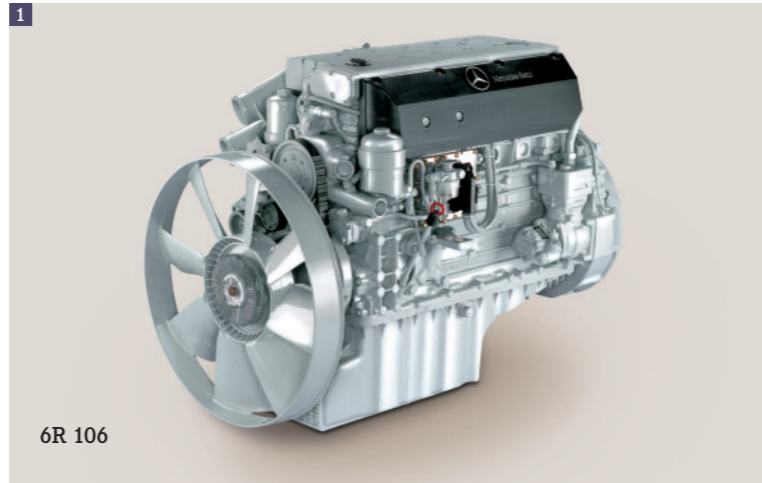
The compact, reliable Series 106 engine is available in 4 and 6 cylinder inline configurations with a power output of 160 – 240 kW (218 – 326 hp).

2 Series 199

Highly compact, with an output of 430 – 600 kW (585 – 816 hp) and adapted especially to the demands placed on military vehicles (with a dry sump lubrication system, for example). The Series 199 is available in 6V and 8V configurations and is an ideal drive system for tracked armored and heavy wheeled vehicles.

3 Piranha V: Top mobility with MTU

An 6V 199 engine powers the Piranha V armored vehicle. The engine accelerates the vehicle, which can weigh up to 28 tons, to a top speed of over 100 km/h (62 mph).



Series 106 and Series 199

Diesel engines for light and medium vehicles

Protection and agility

Light and medium-weight vehicles play an important role in the support of tank units. The main demands placed on such vehicles include: optimal protection for personnel, the highest degree of maneuverability and mobility on any terrain, a large operating range, and highest likelihood of survival under the most extreme conditions.

A proven series of engines

In order to meet these demands, personnel carriers, combat, reconnaissance and patrol vehicles are powered by the robust, powerful and compact Series 106 and Series 199 engines. These drive systems are based on Mercedes-Benz truck engines and are modified by MTU for use in armored vehicles. Exceptional quality and state-of-the-art technology are combined with economic benefits such as high fuel efficiency, low operating costs and easy maintenance to satisfy the unique demands of military operations.

Series	Engine model	Number of cylinders	Cylinder arrangement	Bore/stroke mm (in)	Nominal power kW (hp)	Nominal speed rpm
106	4R 106 TD21	4	inline	106/136 (4.2/5.4)	160 (218)	2200
	6R 106 TD21	6	inline	106/136 (4.2/5.4)	240 (326)	2200
199	6V 199 TE21	6	V, 90°	130/150 (5.1/5.9)	430 (585)	2200
	8V 199 TE21	8	V, 90°	130/150 (5.1/5.9)	600 (816)	2300

Other power ratings are available. Engines can be equipped with Integrated Starter Generator (ISG).

Diesel engines for light and medium vehicles

Series	Engine model	Number of cylinders	Cylinder arrangement	Bore/stroke mm (in)	Electrical Drive	Mechanical Drive
					Nominal power max. kW (hp) at 4250 rpm	Nominal power max. kW (hp) at 3800 rpm
890	4R 890	4	inline	115/107 (4.5/4.2)	400 (545)	365 (500)
	5R 890	5	inline	115/107 (4.5/4.2)	500 (680)	460 (625)
	6R 890	6	inline	115/107 (4.5/4.2)	600 (815)	550 (750)
	6V 890*	6	V, 90°	115/107 (4.5/4.2)	600 (815)	550 (750)
	8V 890*	8	V, 90°	115/107 (4.5/4.2)	800 (1090)	735 (1000)
	10V 890	10	V, 90°	115/107 (4.5/4.2)	1000 (1360)	920 (1250)
	12V 890*	12	V, 90°	115/107 (4.5/4.2)	1200 (1630)	1100 (1500)

* projected development

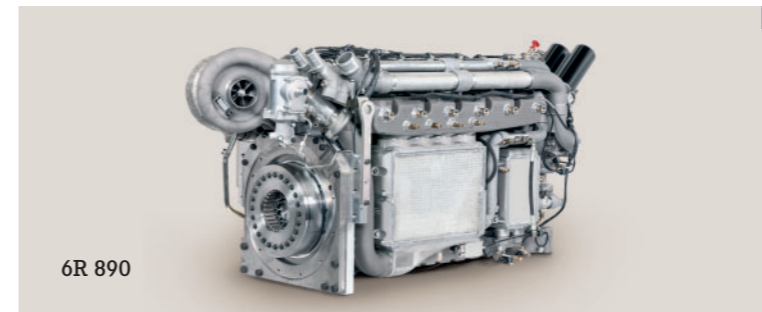
Ratings depend on the specific requirement of each vehicle e.g. performance map / acceleration requirements, altitude, space claim and transmission concepts.

Benchmark technology

The Series 890 is the fourth generation of MTU engines specifically designed for military vehicles. Fully integrated, light and compact drive systems based on the Series 890 set the standard for highly integrated military vehicle systems of the future.

Key features

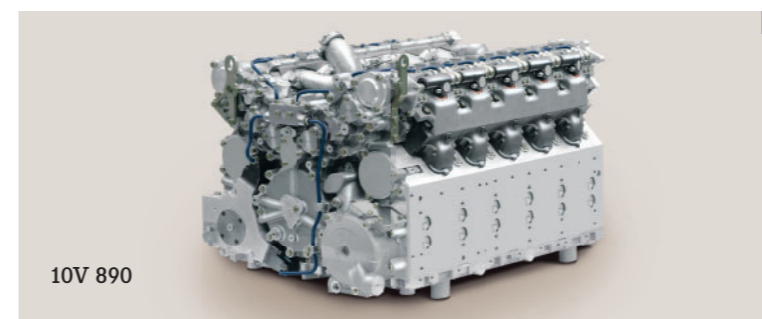
- Extremely compact design
- Available as inline and V configurations
- Optimal use in diesel-mechanical as well as optimized for diesel-electric and hybrid drives
- Developed especially for mounting higher masses on the free end of the crankshaft
- Diesel and single fuel JP capability
- Series design delivers logistical benefits when equipping vehicle fleets
- Starter / generator technology with high electrical power capability
- Each engine adapted to specific customer and vehicle demands
- Engine designed for use of high electrical power capability (ISG or generator)



6R 890



6V 890



10V 890

1 Puma

The Puma infantry fighting vehicle sets new international standards in technology and design. The MTU PowerPack® is based on a 10V 890 engine. It represents the most compact power unit of its kind. It features state-of-the-art integrated starter / generator technology driving the electrical cooling fans.

2-4 Series 890

Highly compact and heavy duty: The Series 890 has an output of 400 – 1200 kW (545 – 1630 hp) for electrical drive and 365 – 1100 kW (500 – 1500 hp) for mechanical drive. It is available in 4, 5 and 6 cylinder inline configurations as well as 6, 8, 10 and 12 V configurations.

1 Series 870

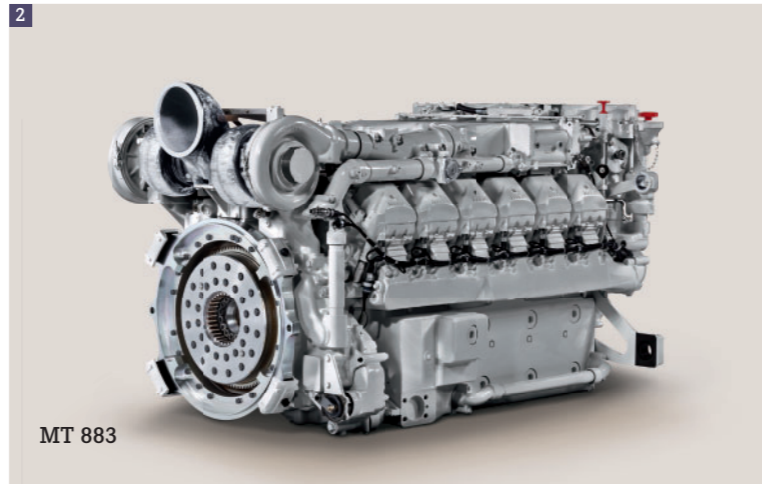
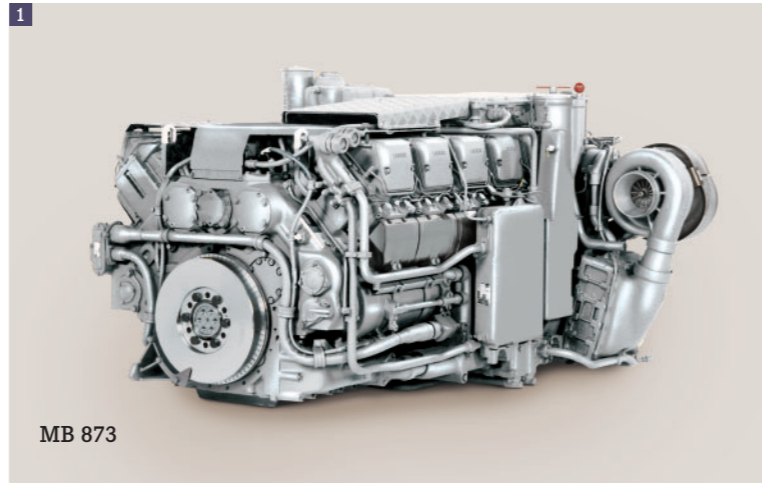
The robust and proven MB 873 is available in a 12 cylinder V configuration with a power output of 1100 kW (1500 hp).

2 Series 880

With its extreme power density, the Series 880 is available in 8 and 12 cylinder V configurations with a power output of 735 – 1200 kW (1000 – 1630 hp) and is ideal for use in heavy vehicles. Additionally a 12V model of the Series 880 is available for amphibious vehicles with a power output of 2016 kW (2740 hp).

3 Leopard II Main Battle Tank

MTU powers the Leopard II main battle tank with a 12 cylinder V configuration Series 870 engine (MB 873) with a power output of 1100 kW (1500 hp). The engine accelerates the vehicle, which can weigh up to 62.3 tons, to a speed of 72 km/h (45 mph). MTU has delivered over 4000 engines for use in Leopard tanks.



Series 870 and Series 880

Diesel engines for heavy vehicles

For MTU nothing is too heavy

In order to produce compact, extremely mobile, and sufficiently armored heavy vehicles, drive systems must be used that are both powerful and compact. The MTU Series 870 and Series 880 engines meet these requirements in an impressive way. These engines have acquired an excellent reputation in vehicles such as the Leopard II and Leclerc Tropicalisé and in terms of mobility, power density and reliability worldwide. Additionally the Series 880 is available for use in amphibious vehicles.

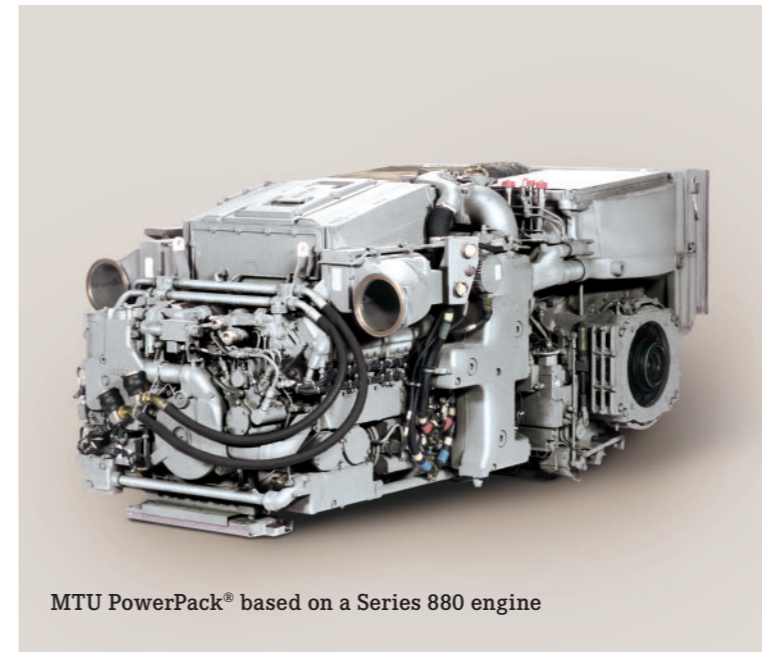
Key features

- Highest power concentration with regard to weight and volume
- Fulfills MIL standards including nuclear hardening and electromagnetic shielding
- Uses state-of-the-art technology such as starter generators and CAN bus communication
- Low fuel and oil consumption due to use of modern engine management and injection systems
- Diesel and single fuel JP capability
- Engines can be equipped with Integrated Starter Generator (ISG)
- State-of-the-art Common Rail injection system (Series 880)

Series	Engine model	Number of cylinders	Cylinder arrangement	Bore/stroke mm (in)	Nominal power kW (hp)	Nominal speed rpm
870	MB 873 Ka-501	12	V, 90°	170/175 (6.7/6.9)	1100 (1500)	2600
880	MT 881 Ka-500	8	V, 90°	144/140 (5.7/5.5)	735 (1000)	2700
	MT 881 Ka-501 ¹	8	V, 90°	144/140 (5.7/5.5)	800 (1090)	3000
	MT 883 Ka-500	12	V, 90°	144/140 (5.7/5.5)	1100 (1500)	2700
	MT 883 Ka-501 ¹	12	V, 90°	144/140 (5.7/5.5)	1200 (1630)	3000
	MT 883 Ka-524 ^{1*}	12	V, 90°	144/140 (5.7/5.5)	2016 (2740)	3300

¹ Common Rail

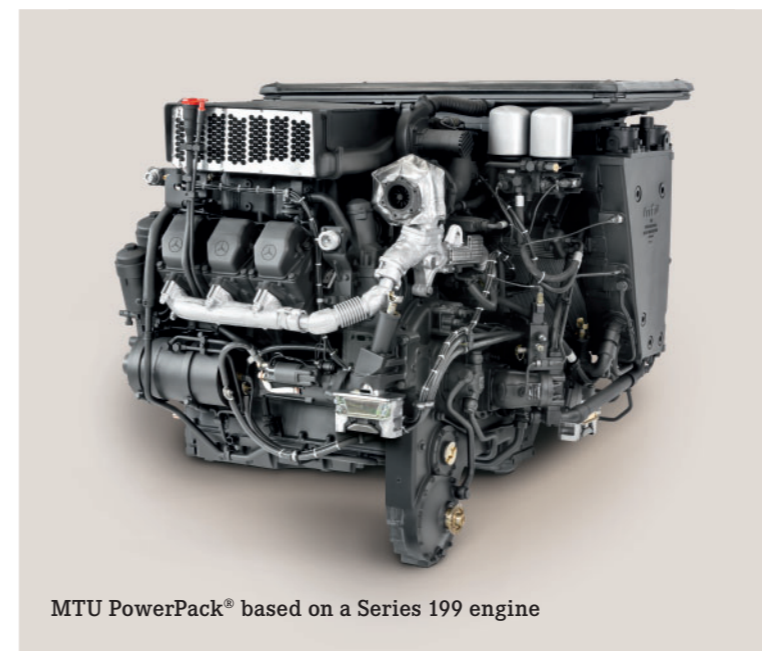
* for amphibious vehicles



MTU PowerPack® based on a Series 880 engine



MTU PowerPack® based on a Series 890 engine



MTU PowerPack® based on a Series 199 engine

MTU Systems Solutions

MTU PowerPack®

System expertise utilized in a practical way

Decades of experience gained from numerous projects carried out around the world led to extraordinary drive systems: the MTU PowerPacks®, consisting of engine, transmission, cooling system, air filtration, energy system, preheating equipment, power management and vehicle integrated features. Compact, highly integrated and extremely flexible, this optimal drive solution can be precisely tailored to the respective vehicle and mission profile.

Key features

- All drive system designs and components come from a single source, ensuring that each component is perfectly integrated for reliability and optimal performance.
- MTU collaborates with vehicle manufacturers to perfectly integrate subsystems during the MTU PowerPack® development phase.
- Consideration of specific customer requirements, including reliable operation in extreme conditions occurs from the beginning.
- Interfaces are reduced due to the optimal system integration of the PowerPack.
- Every PowerPack is delivered ready to be installed into the vehicle, due to quick and easy plug and play technology.
- Self-locking mountings are a key advantage of the MTU PowerPack®.
- The systems are subjected to rigorous testing by MTU under simulated environmental conditions before shipment.
- For testing purposes, entire PowerPack systems can be operated outside of the vehicle even under load.
- From the project start, MTU is the single contact and partner for logistics and service.
- MTU PowerPacks® may also be efficiently used to retrofit existing vehicles in addition to powering new ones.
- Replacement of the original drive system with an MTU PowerPack® prolongs the service life of a weapons system and increases combat efficiency.
- Integrated Starter Generator (ISG)

MTU EuroPowerPack

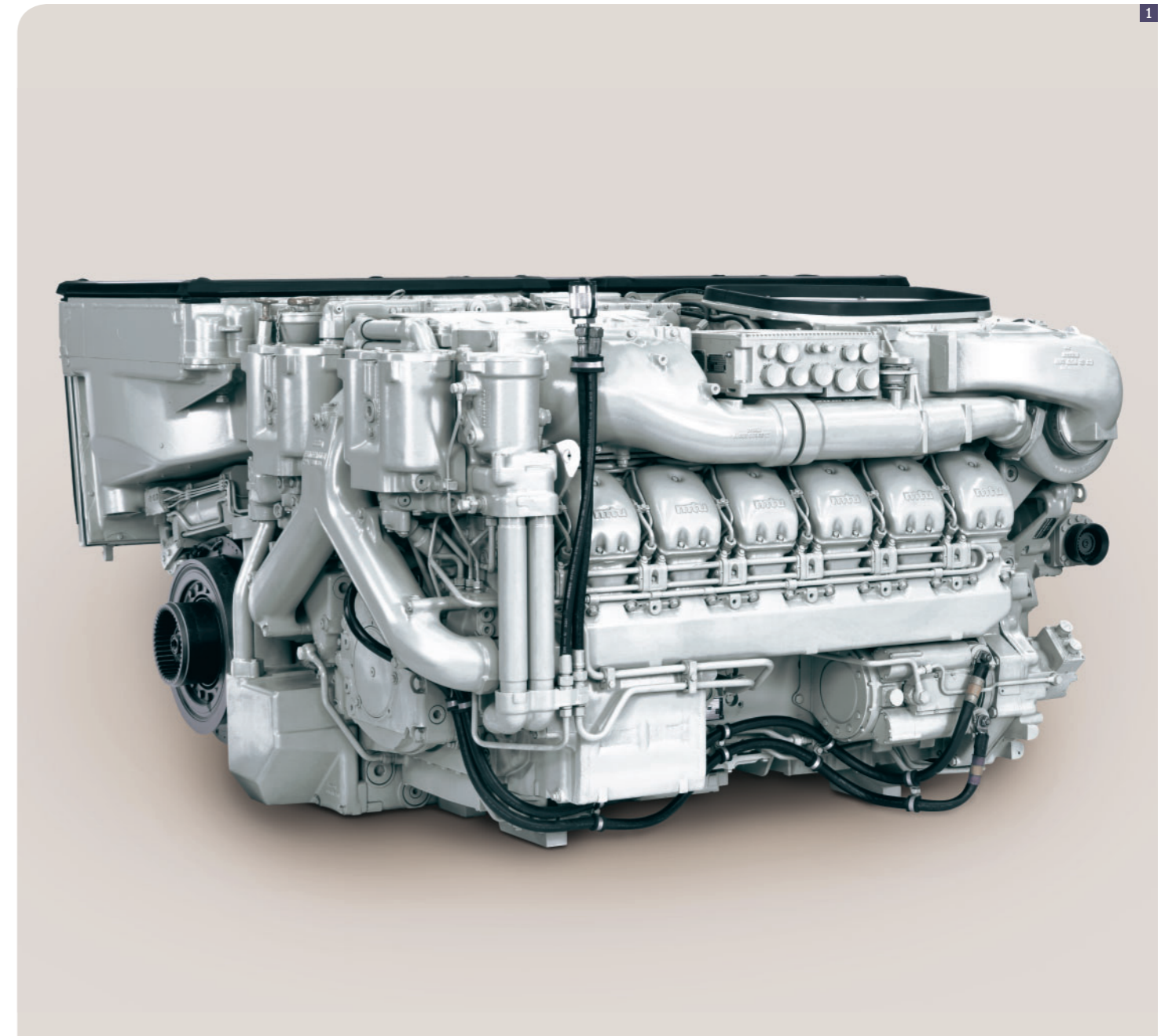
A star among PowerPacks

A special position among MTU PowerPacks® is held by the MTU EuroPowerPack based on an MTU Series 880 engine (MT 883) with a nominal power from 1100 kW (1500 hp) to 1200 kW (1630 hp) – a drive system developed for the third generation of main battle tanks (MBTs) over 60 tons.

Key features

- The most compact drive unit in its power class for MBT applications due to the integration of the components into one system also minimizing weight.
- The MTU EuroPowerPack combines an MT 883 engine with a Renk HSWL 295 TM transmission and is designed principally as a rear drive unit.

- Power is transmitted to the gearbox by a transfer gearbox, mounted parallel to the engine reducing length by nearly 1 m (39 in) when compared to the original drive unit in the Leopard II.
- Compared to the original approximately three additional cubic meters are available to be used for fuel tanks, ammunition space or automatic loaders; compact drive systems provide more flexibility in vehicle design.
- The MTU EuroPowerPack delivers high power density in a compact design.
- Designed for harsh environmental conditions proven in thousands of kilometers
- Most chosen PowerPack for next generation MBT



1 MTU EuroPowerPack

The MTU EuroPowerPack is the most modern rear drive PowerPack for use in main battle tanks. It is based on an MTU Series 880 engine (MT 883) with a nominal power from 1100 kW (1500 hp) to 1200 kW (1630 hp).

2 Special adaptation development for new MBT Altay

To meet the extreme environmental requirements, the MTU EuroPowerPack has been specially optimized for tropical and desert conditions.

Unrivaled solutions. Unrivaled support.

Technology with added value

Our engines and systems are the preferred drive units for military vehicles used around the world. An extensive portfolio of services, customized exactly to these applications, offers added value and important benefits.

An essential part of our service portfolio is a comprehensive internal testing program. Before an MTU drive system can be used in a vehicle, it must first undergo rigorous testing at our testing facilities. Whether cold-start testing, sloped testing, special PowerPack testing, or immersion testing – MTU has the equipment and facilities necessary. The result is the highest level of confidence, right from the beginning.

You benefit from our experience

- As a system partner, MTU supports the entire process from design and planning through delivery and service.
- With the MTU lifecycle cost (LCC) analysis, maintenance costs can be predetermined during the planning stage due to our well-founded estimates of maintenance and operating costs based on decades of experience of real-world applications.
- With MTU LCC costs are clearly understood, making it possible to recognize valuable opportunities to reduce costs.
- MTU has a comprehensive quality system and has achieved ISO 9001:2008 and 14001:2005 certifications.
- MTU engines have proven reliability and endurance with a 400-hour NATO run.

1 Slope testing

MTU has a facility to test engines in inclinations of up to 100% in all directions and in all combinations. The test cell accommodates up to 2 tons in weight and 2200 kW (3000 hp) in power at all inclinations. Lubrication systems can then be specifically adjusted to customer requirements.

2 Special PowerPack testing

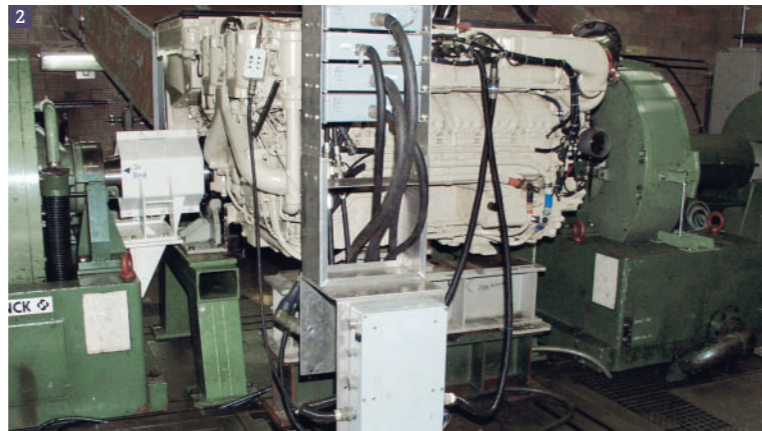
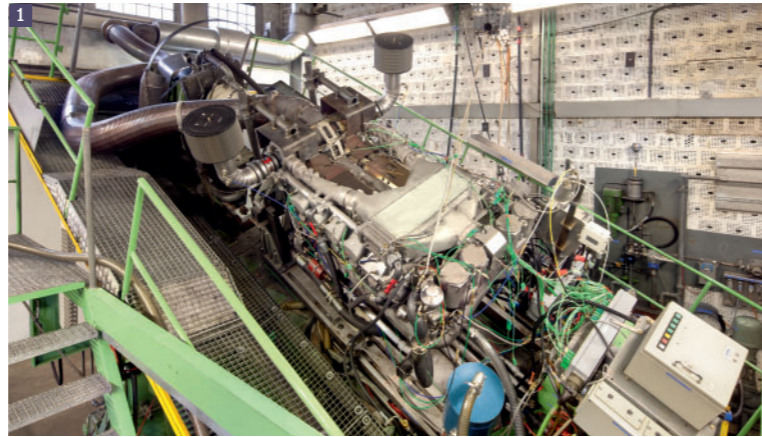
MTU is one of few companies around the world that have the capabilities to test complete PowerPacks for military vehicles. The MTU test facilities handle PowerPacks up to 2000 kW (2720 hp). The main purpose is to minimize cost-intensive vehicle trials with tests to simulate real vehicle and environmental conditions, including cooling system, air filtration system, optional gear shifting and acceleration.

3 Cold start testing

Operating under extreme climate conditions is a key requirement for military vehicles. MTU PowerPacks® are cold start tested for temperatures down to -42° C (-43.6° F). This includes the complete vehicle infrastructure, such as fuel system wiring.

4 Immersion testing

Many customers require tests beyond the engine and PowerPack. Immersion testing is completed by MTU and can include whole vehicle testing. MTU addresses these needs with qualified test engineers and specific knowledge on how to minimize risks.



MTU **ValueCare**

Customized support for military engines and drive systems.

We have a strong commitment to our military customers. With MTU **ValueCare**, this focus extends beyond the sale of our engines and systems. From maintenance solutions and engine overhaul to training and spare parts, MTU offers a full range of support.



Designed for maximum performance, uptime and value, MTU **ValueCare** is a diverse portfolio of products and services that can help you get the most from your equipment.

MTU **ValueCare** for military customers includes:

- **ValueService**: Extensive service solutions from MTU's global service network
- **ValueSpares**: Genuine spare parts and top-quality consumables designed specifically for MTU engines and drive systems

ValueService

Reliable, expert assistance is essential to achieving and maintaining high levels of performance and unconditional reliability throughout your engine's or system's lifecycle. **ValueService** is a full line of maintenance, repair and service solutions designed to help you get the most out of your equipment. From scheduled and unscheduled maintenance and repair to product training, MTU provides comprehensive support, customized to meet your unique needs.

Customized Care maintenance and repair contracts make it easy to plan the cost of maintenance and repairs throughout your engine's lifecycle. The details, terms and periods of each package are precisely tailored to match your individual needs, ensuring cost certainty and maximum availability. Customized Care offers a complete range of services and is available upon request. Professional maintenance is performed by MTU certified technicians, using only genuine MTU spare parts.

An MTU Overhaul offers an alternative to a new engine or PowerPack. It provides proven MTU quality and performance. To get your engine up and running quickly, our overhaul process features competitive turnaround times. For added convenience, we can conduct the overhaul at our MTU Service Center close to you. Overhauled engines from MTU are tested and updated to meet original factory performance requirements.

MTU offers full logistics support through a wide range of products and services including analysis, spare parts, training and technical documentation. Each package is customized to match your specific needs, helping you reduce costs and increase availability.

We also offer the following services to our military clients:

- Training on all engines and PowerPacks, in multiple languages, available at MTU training centers or on your premises
- A full line of customized technical documentation
- Workshops and testing solutions such as facility planning
- On-site service for preventive and corrective maintenance during the warranty period and for follow-up service
- Fast reaction times and local support
- Highly trained and flexible technicians

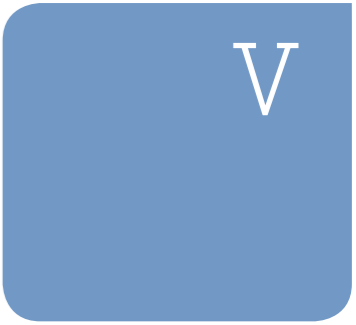
ValueSpares

Genuine **ValueSpares** parts and consumables are designed, tested and approved specifically for MTU engines and systems, to keep your equipment running at optimum efficiency. **ValueSpares** products help you get maximum performance. Whether it's spare parts or oils, coolants or filters, **ValueSpares** products are available worldwide from a single source through our MTU service network.

Local support. Worldwide.

The reliability and performance of your engines and drive systems are crucial for your success and competitiveness. We are committed to your support. Our convenient global service network provides you this assurance.

MTU. Your partner for unrivaled solutions.



Main battle tank	Engine model	Nominal power
TAM	MB 833 Ka-500	520 kW (720 hp)
M 48	MB 837 Ea-500	551 kW (750 hp)
M 60	MT 881 Ka-501	735 kW (1000 hp)
Leopard I	MB 838 CaM-500	610 kW (830 hp)
AMX 30	MB 833 Ka-501	625 kW (850 hp)
OF 40 MK III	MB 838 Ca-501	698 kW (950 hp)
K 1	MB 871 Ka-501	882 kW (1200 hp)
Altay	MT 883 Ka-501	1100 kW (1500 hp)
K 2	MT 883 Ka-501	1100 kW (1500 hp)
Arjun	MB 838 Ka-501	1030 kW (1400 hp)
Leopard II	MB 873 Ka-501	1100 kW (1500 hp)
Leclerc Tropicalisé	MT 883 Ka-500	1103 kW (1500 hp)
Howitzer	Engine model	Nominal power
M 44 / 52	MB 833 Aa-501	330 kW (450 hp)
Palmaria	MB 837 Ea-500	551 kW (750 hp)
K 9 / K 10	MT 881 Ka-500	735 kW (1000 hp)
PzH 2000	MT 881 Ka-500	735 kW (1000 hp)
Personnel carrier	Engine model	Nominal power
M 113	6V 199 TE20	260 kW (300 hp)
Piranha IV	6V 199 TE20	400 kW (545 hp)
Piranha V	6V 199 TE21	430 kW (585 hp)
Boxer	8V 199 TE20	530 kW (721 hp)
Fuchs	6V 199 TE20	335 kW (455 hp)



Bridge-laying vehicle	Engine model	Nominal power
Biber	MB 838 Ca-500	610 kW (830 hp)
K1 Bridgelayer	MB 871 Ka-501	882 kW (1200 hp)
Infantry fighting vehicle	Engine model	Nominal power
Marder	MB 833 Ea-500	441 kW (600 hp)
Puma	MT 892 Ka-501	800 kW (1090 hp)
Pizarro II	8V 199 TE20	530 kW (721 hp)
Ulan	8V 199 TE20	530 kW (721 hp)
Scout SV	8V 199 TE21	600 kW (816 hp)
Anti-aircraft vehicle	Engine model	Nominal power
Gepard	MB 838 CaM-500	610 kW (830 hp)
Roland	MB 833 Ea-500	441 kW (600 hp)
Recovery vehicle	Engine model	Nominal power
K1 Recovery	MB 871 Ka-502	882 kW (1200 hp)
Kodiak	MB 873 Ka-501	1100 kW (1500 hp)
Büffel	MB 873 Ka-501	1103 kW (1500 hp)
Leclerc/Recovery	MT 883 Ka-500	1103 kW (1500 hp)
Mine-clearing vehicle	Engine model	Nominal power
Keiler	MB 871 Ka-501	810 kW (1100 hp)
Husky	6R 106 TD20	150 kW (205 hp)
Amphibious vehicle	Engine type	Nominal power
EFV	MT 883 Ka-524	2016 kW (2740 hp)
Patrol vehicle	Engine type	Nominal power
Iguana	4R 106 TD21	160 kW (220 hp)
Tactica	6R 106 TD20	180 kW (255 hp)
Nimr	6R 106 TD20	205 kW (280 hp)

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