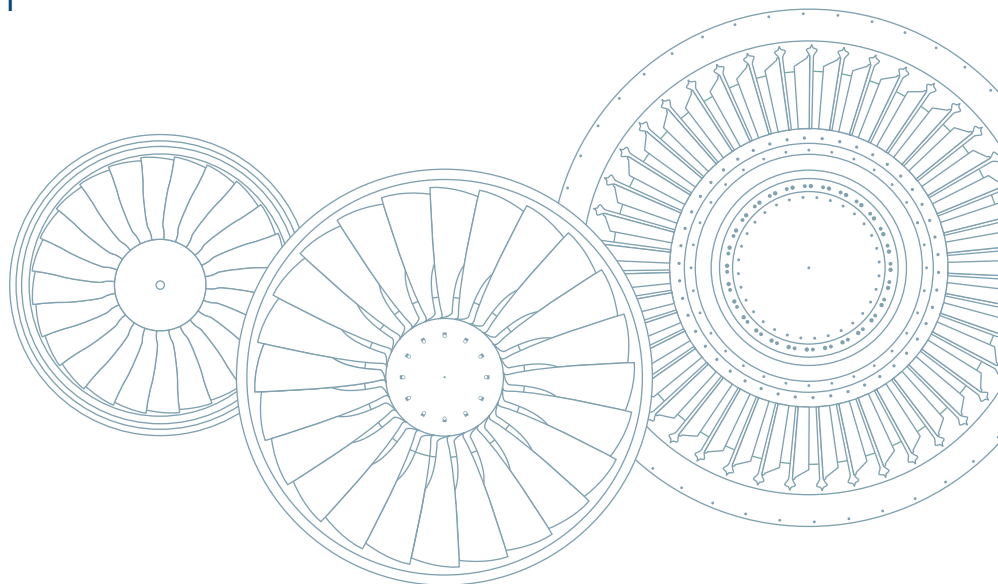




MTU Maintenance Berlin-Brandenburg

Innovation and dedication



The company

MTU Aero Engines is Germany's leading engine manufacturer. The company designs, develops, manufactures, markets and supports aero engines for commercial and military applications as well as stationary gas turbines. Its core competencies include commercial engine repair and overhaul, a market in which MTU is the world's largest independent maintenance provider. All commercial engine and industrial gas turbine maintenance activities are pooled under the roof of MTU Maintenance. The company has locations in Canada, China, Malaysia, Germany and Poland that are dedicated to providing operators of aircraft engines and industrial gas turbines (IGTs) with comprehensive services 24 hours a day. MTU Maintenance has established itself as a reputable brand internationally, with all locations working to the same high quality standards that are constantly being reviewed and further refined. By continuously improving its processes MTU Maintenance succeeded in further shortening and stabilizing turnaround times. With its e.pool services the company provides airlines and operators of stationary gas turbines with spare engines quickly and efficiently.

Maintenance at its best

Based at Ludwigsfelde – south of Berlin – MTU Maintenance Berlin-Brandenburg is MTU's second repair shop in Germany, alongside MTU Maintenance Hannover. The company, which emerged from the former Daimler-Benz Flugmotorenwerk Genshagen, can draw on a wealth of experience gathered over a period of more than 75 years. After 1945, the Ludwigsfelde facility, where aircraft propulsion has a long tradition, started repairing military engines. MTU Aero Engines absorbed the shop in 1991, making it its center of excellence for the repair of industrial gas turbines. Moreover, the shop overhauls and repairs commercial turboshaft and turbojet engines.

A highlight in Ludwigsfelde's portfolio is the CF34: Manufactured by GE, this engine is the bestseller in its class. As an "Authorized CF34 Service Provider" MTU Maintenance Berlin-Brandenburg supports the CF34-3, CF34-8 and CF34-10 models. Apart from the manufacturer General Electric, MTU Maintenance is the first maintenance company capable of providing full repair and maintenance services for the entire CF34 engine family.

Top-class testing

Another important program for the company is the TP400-D6 powering the new A400M military transport. MTU Maintenance Berlin-Brandenburg is responsible for acceptance testing and delivery of all production engines, operating the only production test cell for the TP400-D6. The new test facility is one of the most advanced and capable engine test stands around anywhere in the world. The propulsion system for the military airlifter is being built jointly by Europe's engine makers MTU Aero Engines, ITP, Snecma, and Rolls-Royce.



Customer orientation, the first priority

Expert engineers at MTU Maintenance Berlin-Brandenburg can draw on the entire range of highly advanced repair and testing technologies available to provide customers with individually tailored service packages at their doorstep. The company provides full service support for engines and industrial gas turbines from removal to reinstallation. For contingencies, a hotline service is available 24 hours a day, 365 days a year to dispatch specialists on repair missions to any location around the globe. Furthermore, the Ludwigsfelde test center is unique in its kind: Industrial gas turbines, turbojet and turbo-shaft engines are put through their paces in one of the five test cells before they are returned to their operators.

Strong partner

MTU Maintenance Berlin-Brandenburg's mainstay business is the repair of aircraft engines and industrial gas turbines: In the aircraft engine arena, the Brandenburg facility is a competent and experienced partner of Pratt & Whitney Canada and General Electric, repairing engines of P&WC's PT6A, PW200, PW300 and PW500 series as well as those of GE's CF34 series. Airlines around the globe rely on MTU Maintenance Berlin-Brandenburg to provide maintenance, repair and overhaul

services for their CF34 engines; carriers, private customers, government agencies, the air rescue organization DRF Flugrettung and the mobility service provider ADAC are among the customers that value the company's know-how and expertise in supporting Pratt & Whitney Canada engines.

In the area of industrial gas turbines, MTU Maintenance Berlin-Brandenburg overhauls and repairs GE's LM series. The company's customer base includes all major oil and gas companies, such as BP, Shell, ConocoPhillips, ExxonMobil, Petronas, Statoil, National Grid, as well as the electric power companies E.ON, Electrabel and Eletronorte. In the marine sector, the company has been providing maintenance services for the German Navy, the U.S. Navy and numerous operators of high-speed ferries for many years.



LM2500 industrial gas turbines provide the power supply for this natural gas compressor station.



Engines for regional and business jets are one of the mainstays of MTU's Ludwigsfelde-based shop.



Ships also rely on gas turbines as powerplants.

Center of excellence for industrial gas turbines

MTU Maintenance has been repairing industrial gas turbines for more than 30 years. To set up a center of excellence MTU pooled all of its industrial gas turbine maintenance and repair activities at the Ludwigsfelde location in 1995. Main applications are power generation and marine propulsion as well as on- and offshore compressor stations. MTU Maintenance Berlin-Brandenburg is a licensed Level IV Depot for all types of GE's LM2500™, LM5000™ and LM6000™ series gas turbines. Its customers benefit from individually tailored solutions picked from the company's vast portfolio of MRO capabilities.

Industrial gas turbine portfolio:

- LM2500™
- LM2500+™
- LM5000™
- LM6000™

The company's offerings include:

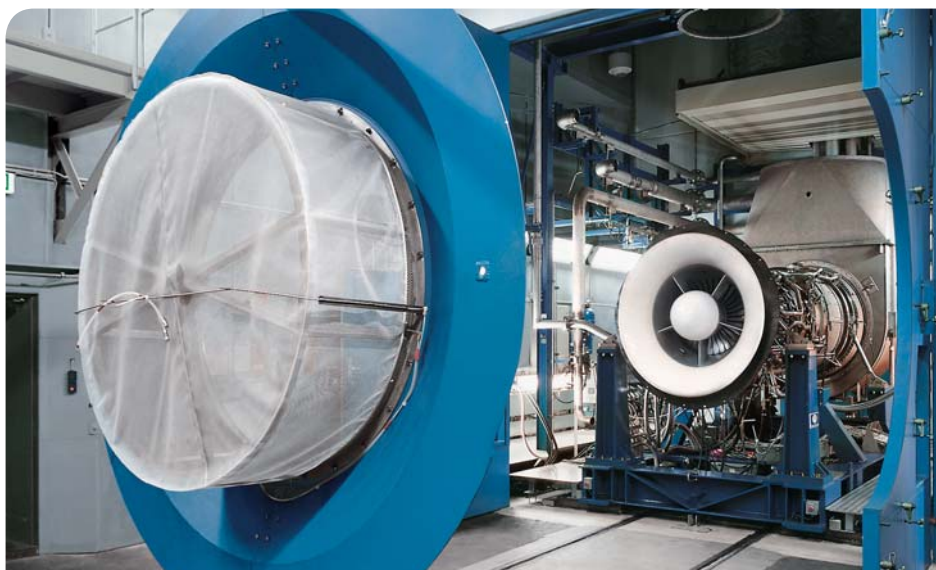
- Modification, upgrade, repair and overhaul of GE's LM2500™, LM5000™ and LM6000™ series of gas turbines
- Testing of gas turbines, gas generators and power turbines
- State-of-the-art repair of gas turbine components and parts
- On-Site inspection and repair through the globally available field service organization, provided within 24 hours, 365 days a year
- Remote engine condition and trend monitoring
- Engineering support
- Engineering hotline with 24/365 service availability
- Provision of lease engines
- Control system support
- Spare parts support
- Maintenance management
- Customer familiarization and training
- Upgrade of engine packages
- Maintenance of IGT packages

The Ludwigsfelde industrial gas turbine test facility counts among the world's most advanced and largest facilities. It is one of just a few test cells worldwide that allow testing of the LM2500™ and LM6000™ gas turbines in true service environments. It is designed for test runs up to 55 megawatts.

The MTU Maintenance team performs the major part of the maintenance and repair work itself. All techniques used are continuously being further developed and refined to enhance the availability and reliability of the industrial gas turbines in the shop's care and achieve best value for the customers' money.



LM6000™ – teardown and assembly in Ludwigsfelde.



The Ludwigsfelde shop boasts one of two test facilities worldwide on which the most powerful gas turbines of the LM series can be tested.



The LM6000™ is the flagship of GE's successful LM series of industrial gas turbines. It is maintained by MTU Maintenance Berlin-Brandenburg.



Industrial gas turbines are also used to power natural gas compressor stations.



Offshore oil drilling vessels are often equipped with LM6000™ power plants.



LM gas turbines offer high reliability, which makes them the ideal choice of power plant for use on oil rigs.

Commercial engine repair

The Ludwigsfelde shop maintains and repairs commercial turboshaft and turbojet engines. The highlight in the company's engine portfolio is GE's CF34. This engine is the most popular propulsion unit for 50-seat regional jets and is the sole engine choice for Bombardier's and Embraer's new 70- to 100-seat jets.

As an "Authorized CF34 Service Provider" the company provides comprehensive MRO services and customer support for the CF34-3, CF34-8 and CF34-10.

Commercial engine portfolio:

- CF34
- PT6A
- PW200
- PW300
- PW500

The company's offerings include:

- Modification, upgrade, repair and overhaul of the CF34 series
- Warranty processing vis-à-vis the OEM (1st run warranty)
- State-of-the-art repair service for engine components and parts
- On-Site services by the mobile repair team
- Engine condition and trend monitoring
- Engineering support
- AOG hotline with 24/365 service availability
- Provision of lease engines through MTU's e.pool services
- Spare parts deliveries in AOG cases
- Individually tailored maintenance programs
- Total Engine Care (TEC) - MTU Maintenance's innovative all-round service

The Pratt & Whitney Canada Customer Service Centre Europe (CSC) is a 50-50 joint venture of MTU Maintenance Berlin-Brandenburg and Pratt & Whitney Canada (P&WC). It was launched in 1992 and since that time has been supporting customers in Europe, Africa and the Middle East. The CSC provides comprehensive MRO and after-sales service for commercial P&WC engines. Longstanding experience and the fact that the company is part of the global P&WC network make MTU Maintenance Berlin-Brandenburg a competent and reliable partner.

A new service offered by MTU Maintenance Berlin-Brandenburg is international field services for all commercial engines in the MTU Maintenance Group's portfolio, a business it plans to develop further. MTU has set up service centers around the globe to be able to dispatch service technicians to customers at short notice anywhere in the world. The latest addition is MTU Maintenance Dallas in the U.S. Plans are to launch locations also in South America, South-East Asia, Australia, and the Middle East.





FRAGILE-USE PROTECTIVE PAD
WHEN WORKING IN BELLMOUTH
LIMIT 2 PERSONS AT ONE TIME

Repair beats replacement

Across all of MTU's maintenance shops, great effort is made to repair components before reverting to replacement as a last resort. However, to provide customers with the cost benefits of repair without diluting the high quality level customers expect, innovative repair technologies are needed. The development and continuous improvement of such advanced repair techniques is one of MTU's core competencies. The company has carved out a leading position in this field worldwide. Such novel repairs can, for example, extend the service life of engine blades by up to four times. This may save the customer two thirds of the cost of new blades.

Like the other MTU shops, MTU Maintenance Berlin-Brandenburg is committed to this approach. It offers its customers the option of having their parts repaired using the company's high-tech methods. Apart from advanced and highly efficient standard processes, such as high-speed grinding, MTU Maintenance also uses special processes:

- Laser cutting and laser welding in one setup
- Welding high-alloy materials using inductive preheating
- Adaptive milling
- Various thermal spraying processes
- Various robot-based inspection and manufacturing processes



MTU Maintenance has made a global reputation for itself for the unique levels of repair it achieves.

An extensive exchange of experience and know-how among the MTU shops makes refinement of the company's repair techniques an ongoing effort. In this process, the shops can draw on the capabilities of various centers of excellence. This way the process engineers can build on the experience and expertise MTU Aero Engines as the parent company has amassed over decades of commercial and military engine construction.



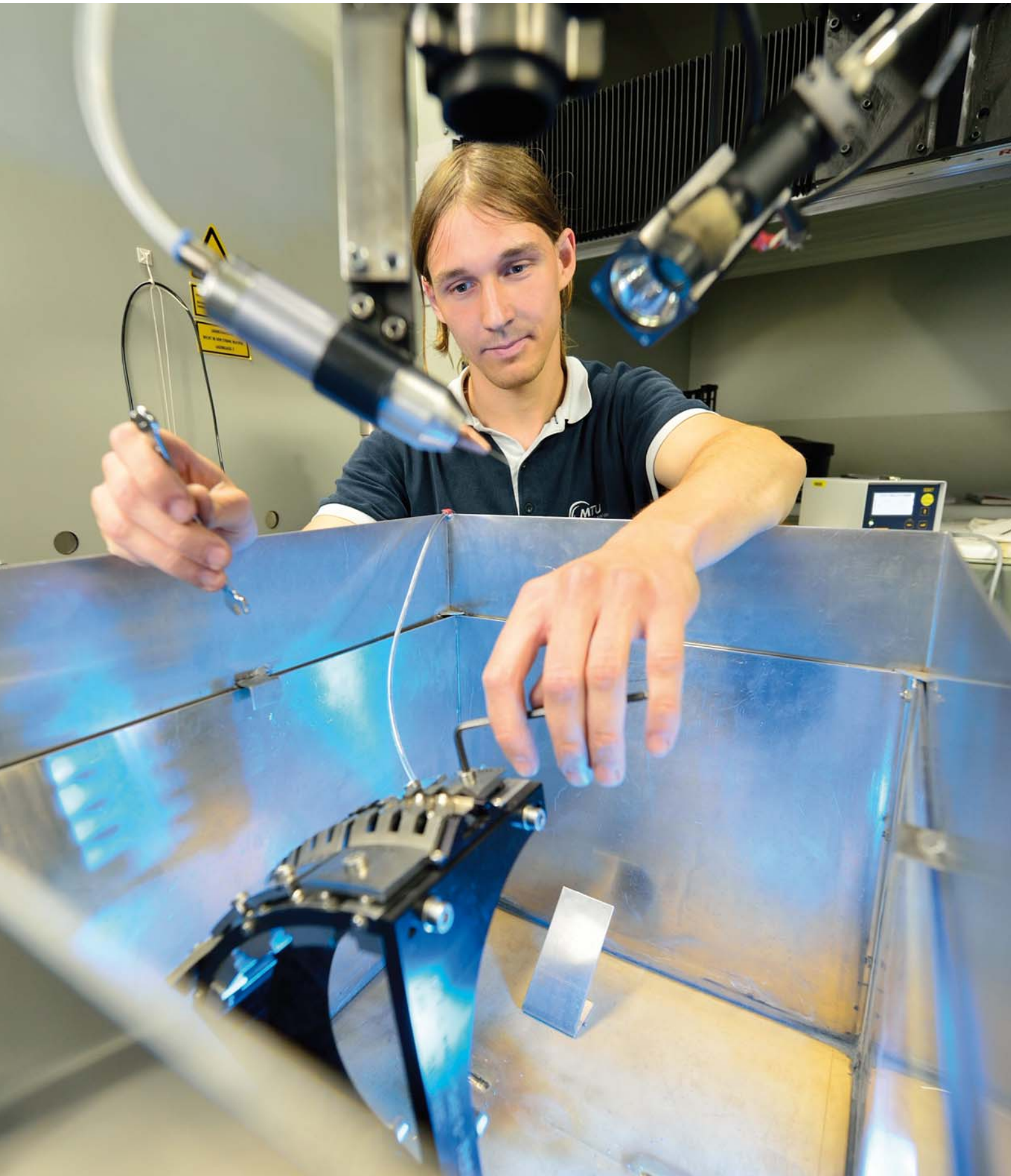
Repair solutions for blisks (integrally bladed disks) help reduce material costs, saving customers a lot of money.



The leading edge of a fan blade is produced by means of adaptive milling.



MTU has a broad range of repair capabilities for all core components in the engine.



In its repair shops, MTU Maintenance Berlin-Brandenburg uses innovative technology, such as laser welding for high-pressure compressor blades and vanes.



Investing in the future: With the solid vocational training it provides, MTU Maintenance Berlin-Brandenburg is laying the foundations for sustainable quality in engine maintenance.



Highly qualified and motivated employees are the company's key to success.



A strong, balanced portfolio of services and acknowledged training and development programs make the company an attractive employer.

Investing in the future

By thinking globally and acting locally, MTU Maintenance has become the world's largest independent provider of commercial engine maintenance services. The top priority of the company's maintenance shops worldwide is to serve its customers faster and provide highest quality at affordable cost.

To be able to serve its customers even better, MTU Maintenance Berlin-Brandenburg has expanded and reconstructed the Ludwigsfelde location, which comprises four shops. The company optimized the shop layout, introduced innovative processes and added new high-tech facilities to the highly advanced materials it already possessed.

MTU Maintenance Berlin Brandenburg realizes that it takes motivated and qualified employees to deliver the high level of quality, reliability and responsiveness the company needs to successfully compete in the repair business. Therefore, the company keeps investing in the training and further development of its staff. It is setting benchmarks when it comes to the in-house vocational training of its employees, recognizing as it does that highly qualified employees are key to future growth.



Colleagues from the repair lines and the administrative areas are working shoulder to shoulder for optimum efficiency.

With the CF34 family of engines, in particular the -10, and acceptance testing and delivery of the TP400-D6 engine for the A400M military airlifter, MTU Maintenance Berlin-Brandenburg has secured itself two programs that reach far into the future.

MTU's well-balanced portfolio, its high-tech repair facilities and its qualified and dedicated staff make it a reliable and powerful driving force for the diversified economy of the federal state of Brandenburg that will keep contributing towards the region's further economic growth.





An MTU Aero Engines Company

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