



# Brush seals

World-class sealing technology



# Shared success. In a challenging environment.

Over 500 variants developed and built.  
35 years of expertise and experience.  
150 customers around the world.

For more than 30 years, MTU's brush seal technology has provided a solid basis for forward-thinking companies to achieve long-lasting success. Alongside our innovative partners in the engine business, our solutions benefit customers from other branches of industry that also set exacting standards. Our brush seals are installed, for instance, in industrial gas and steam turbines, industrial compressors and other mechanical engineering applications to make them future-proof and efficient.

Behind this unique capability are bespoke solutions for a range of industries and innovative expertise from a single source. In this way, MTU helps drive the success of numerous companies. Brush seal technology made by MTU increases efficiency, ensures availability and protects the environment—in aviation as well as non-aviation applications. This lays the foundation for shared success for decades to come.

#### Industries at a glance

- Aviation: Standard in next-generation aircraft engines—tried and true in operation for decades.
- Industry: Flexible, bespoke solutions for a range of industrial applications.

#### Advantages at a glance

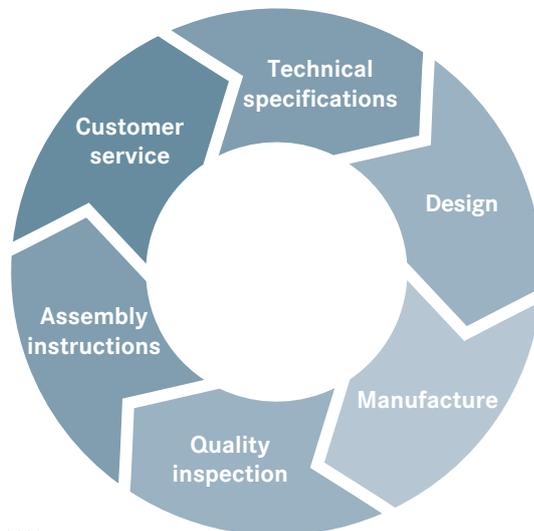
- Enhanced efficiency thanks to up to 80 % less leakage
- Maximum space efficiency thanks to compact design
- Outstanding availability thanks to stable operating behavior
- Durability and return on investment thanks to long service life
- High efficiency thanks to straightforward maintenance and replacement
- Complete versatility—suitable for a variety of applications
- Absolute reliability even under extreme conditions



# Shared success. With bespoke solutions from a single source.

For more than three decades, MTU Aero Engines has been developing, manufacturing and marketing innovative solutions in the field of brush seal technology. Our impressive seals are tailored for use in aircraft engines as well as in industrial applications.

MTU furnishes customers with a complete one-stop service—covering development, production, on-site support and everything in between. Step by step, we create bespoke all-inclusive solutions, with a level of service that only one of the largest brush seal manufacturers can offer. MTU doesn't provide just a seal; it provides a solution.



Shared success.  
The steps at a glance.

## Shared success. In every challenge.

In many ways, MTU's brush seals are far superior to conventional sealing concepts such as labyrinth seals.

Our solutions significantly enhance the performance of any machine and optimize operating costs, a feat we achieve thanks to our unique manufacturing process, unrivalled efficiency and the versatility to integrate our seals into any plant.

Customers benefit from our patented know-how and high degree of design flexibility. What sets MTU's brush seal design apart is the separation of the sealing element and seal housing, which allows the seal to be adapted to perfectly suit the specific requirements and conditions of any given application.

For decades, MTU brush seals have been setting superior standards for advanced sealing systems with a long service life. Besides static and dynamic applications, MTU's brush seals are suitable for use in a wide variety of fluids and can thus reliably and successfully withstand all operating conditions.

### MTU brush seal design

#### Compact design

Brush seals are compact and require appreciably less space than labyrinth seals. This creates additional flexibility with regard to the rotor and housing design.

**Cover ring**  
The cover ring serves to largely eliminate the adverse effects of the gas flow on the front rows of the bristle pack.

**Clamping**  
The wires are mechanically clamped into position rather than welded. This creates a positive connection that is completely secure and extremely durable.

**Materials**  
Besides metals such as Haynes 25, fibers such as Aramid / polymers can also be used for the bristles. Their sealing effect is even better than that of metallic wires.

**Rotor to be sealed**

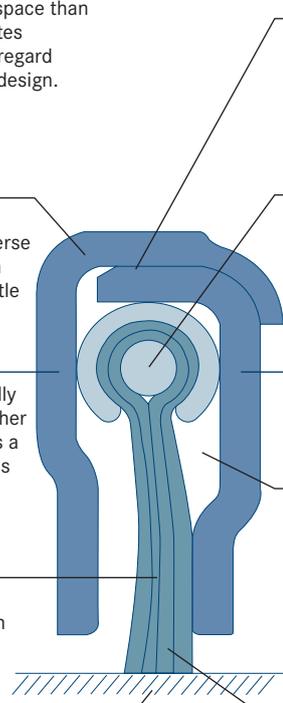
**Housing**  
The outer contour of the housing can be made to measure so that the MTU brush seal is a perfect fit for the given installation environment.

**Sealing element**  
The sealing element is designed in such a way that it reliably seals annular geometries as well as geometries of any other shape.

**Support ring**  
The seal's support ring prevents axial bending of the bristle pack.

**Pressure relief chamber**  
The pressure inside the chamber is nearly the same as that upstream of the seal. This relieves the pressure acting on the upper section of the bristle pack, in turn enhancing the seal's performance and service life.

**Angled position**  
The wires or fibers are usually angled toward the rotor's direction of rotation. Their elasticity enables them to accommodate all rotor movements and subsequently resume their original position.



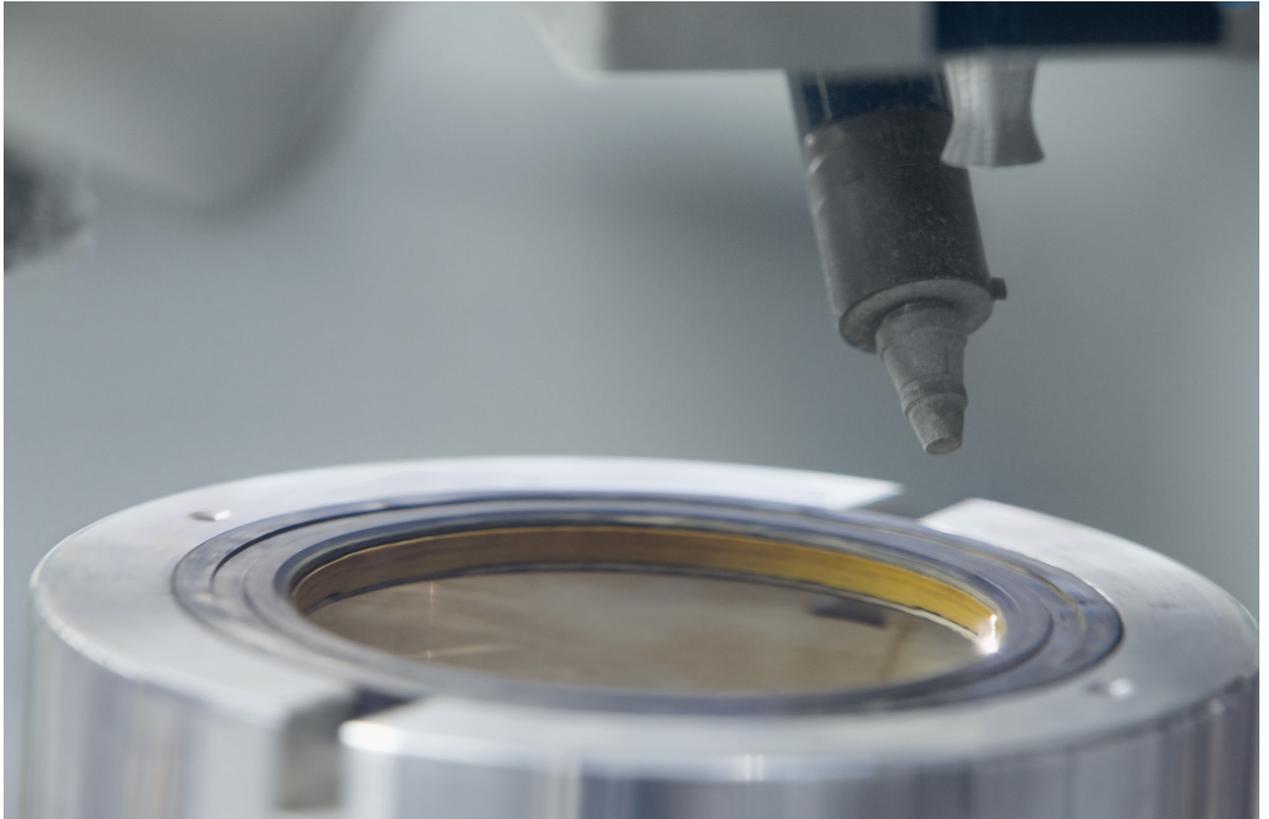
# Shared success. For many industries.

Bespoke solutions built around MTU brush seals serve as a benchmark and set standards in a wide range of different industries. Our expertise in this area builds on the unique experience we have acquired in engine design and manufacture. That's why this technology made by MTU has found its way into many different engine developments all over the world. Customers from many branches of industry now place their trust in MTU's solutions for a wide range of use cases, in including industrial and gas turbines, for example, or compressor and mechanical engineering applications.

## Shared success. In numerous applications.

### Applications

- Aerospace propulsion systems
- Industrial gas turbines
- Steam turbines
- ORC turbines
- Compressors
- Pumps
- Generators
- Additive manufacturing
- Spindle systems
- Automotive



# Shared success. Thanks to a strong team.

Those who drive innovation set standards. Making this a reality calls for a strong team. One whose members see diversity and dialogue as the key to shared success. MTU and its customers both set the bar high. To meet such exacting standards, the company has pooled the requisite know-how and expertise in its brush seal team: brush seal design, manufacturing, sales, marketing and support, all from a single source.

Guided by this principle, MTU's experts have been developing innovative seals for almost every application for more than three decades. The team works closely with customers on-site, who benefit from MTU's background in engine design and manufacture, plus direct access to state-of-the-art test facilities and involvement in key research and development programs. Bringing all these elements together ensures innovation and development. Over the decades, our goal has always been the same: to provide the best possible solutions in brush seal technology. For our customers. For our shared success.

## Contact us today!

Our position as one of the largest brush seal manufacturers together with our unmatched expertise make MTU your perfect brush seal partner. We offer you unique know-how built on decades of experience. We'll work together to find the best solution for you. Get in touch!

### Brush seals at MTU

[www.mtu.de/contact/brush-seals/](http://www.mtu.de/contact/brush-seals/)

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