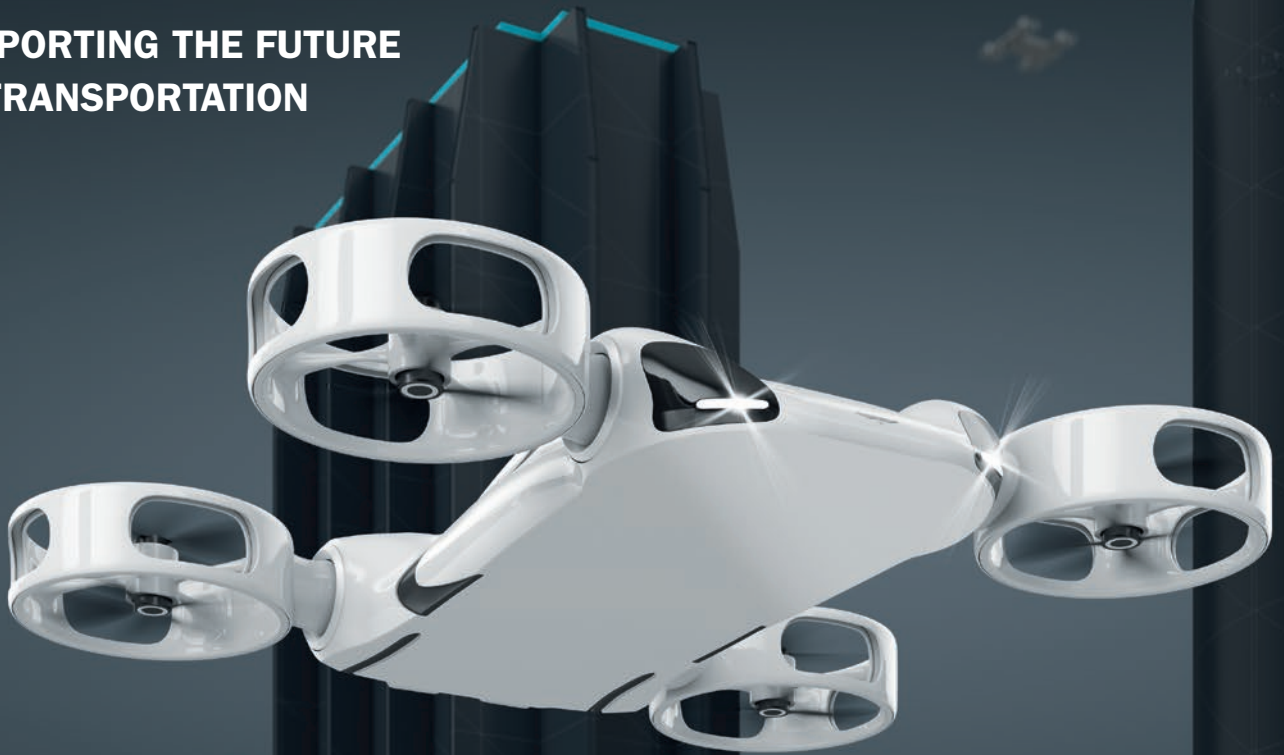


Advanced Air Mobility

**SUPPORTING THE FUTURE
OF TRANSPORTATION**



A completely new way of travel



Advanced Air Mobility (AAM)

Advanced Air Mobility is a rapidly developing industry, providing safe and efficient forms of air transportation that cover everything from package delivery drones to passenger-carrying air taxis. Hybrid-electric or all-electric-powered vertical takeoff and landing vehicles are likely to dominate AAM operations over cities as they are relatively quiet and emit less, or even zero, emissions while running. AAM will revolutionize the way we travel, reducing the need for individually owned cars, cutting down on traffic. This will benefit the environment, not only because of the green energy used, but also indirectly through the impact it has on infrastructure.

An experienced partner for developing new technology

Trelleborg has decades of experience in sealing, damping and protection for aerospace and industrial applications. Our expertise allows us to create tailored solutions for a wide range of customer requirements, making us an ideal partner when developing AAM vehicles. Though sometimes perceived as 'just' a flying car, these vehicles face several challenges and must fly safely in all kinds of weather.

Trelleborg Sealing Solutions Aerospace has a portfolio of products and materials optimized to work in severe weather and extreme temperatures. They display outstanding resistance and are able to withstand harsh chemicals such as de-icing fluids. Our extensive expertise in aerospace speeds up product development and helps to support our customers with certification requirements.

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**A COMPLETE RANGE OF
HIGH-PERFORMANCE
SOLUTIONS FOR ADVANCED
AIR MOBILITY VEHICLES**

**Cabins and
Interiors**



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**Energy Systems
and Management**



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Propulsion



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**Airframes and
Structures**



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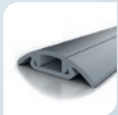
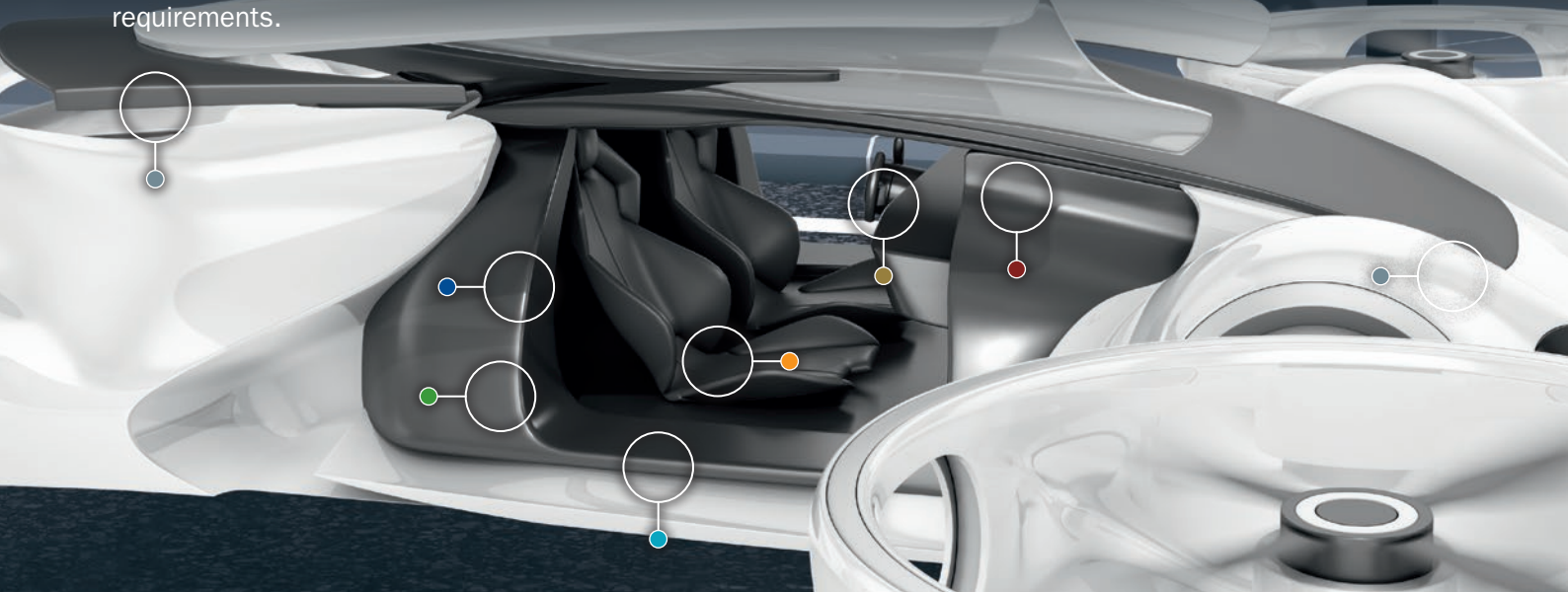
**Controls and
Actuation**



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Cabins and Interiors

Trelleborg Sealing Solutions Aerospace provides components for both functional and aesthetic applications, such as stowage bins, light fittings, and Passenger Service Units (PSUs). We can produce nearly any polymeric interior product, including extrusions for seat tracks, rub strips and gap seals. A range of CFR/CS 25.853 materials and processes are available and we can meet the most stringent smoke and toxicity requirements.



● Extruded Profiles

A broad range of extrudable materials are available, such as TPUs, PVC, PEI, PC, silicone and EPDM sponge, with many more for sealing aesthetic and gap covering applications. Additional uses include: bump strips, seat track covers, panel edge trims, cover seals, appliance tubing, wire/cable management and concealment, and hose.



● Air Distribution: Air Nozzles / Bezel

In compliance with fire testing requirements, including FAR 25.853, engineered molded thermoplastic components are used within the Passenger Service Unit (PSU) as air nozzles and panel support bracket components. These products are available in a wide range of geometries, and include precision injection molded thermoplastic components carefully designed to match interior styles.



● Stowage Bins: Bearings and Wear Pads

Our HiMod® and Orkot® materials are lightweight and resist high loads and wear, making reliable bearings with a long service life. They have very low friction characteristics and nearly universal chemical compatibility.



● Air Conditioning: Diaphragms

We design and manufacture liquid silicone rubber parts with processes including over molding and bonding to produce multicomponent assemblies.



● Seating: Foam Linings

A wide range of foams with different damping characteristics are available for seating applications.



● Panels and Details: Injection Molding

Trelleborg Sealing Solutions designs and manufactures engineered PTFE, PEEK, PU, thermoplastics and thermoset composite products for panels and interior applications.

Find a link to our [Engineered Thermoplastic Aerospace Solutions](#) brochure on page 11

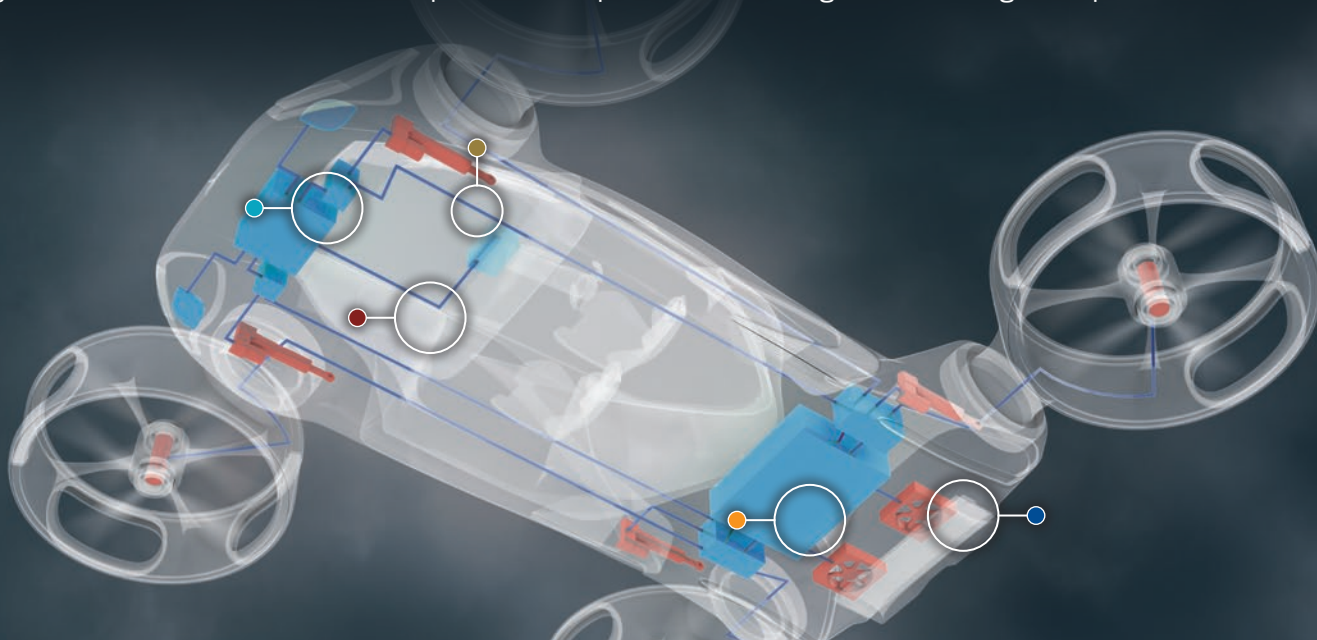


● Gaskets

A full range of gaskets, made from elastomers and other materials, can be supplied either as build-to-print or bespoke designs to fit any applications on AAM vehicles.

Energy Systems & Thermal Management

To support the reliable function of high-performance electrical systems, Trelleborg provides solutions that efficiently shield and protect from multiple environmental factors. Our knowledge and expertise is applied to design and manufacture seals and components that provide electromagnetic shielding and spark resistance.



● Heat Exchangers and Fuel Cell Seals

Plate gasket seals can be supplied either as individual seals or molded onto the components themselves. We offer materials that are compatible with both the wide temperature range and the environments encountered.



● Wire and Pipe Clamps

Trelleborg Sealing Solutions provides both elastomeric and PTFE-covered glass braided sleeves to protect and insulate cables and wiring harnesses, particularly for propulsion systems or where severe vibrations occur.



● Multigate Grommets

Designed to meet our customers' specific needs, multigate grommets allow safe passage of cables and wires through bulkheads and into boxes. The grommets are compatible with water and other aircraft fluids.



● Thermal Management and Cooling Systems

Trelleborg can provide sealing solutions to aid with thermal management. These seals are used to prevent bleed air from escaping the ducts used in numerous applications, such as bleed valves, anti-icing systems, and air conditioning systems.



● Battery Seals

High-voltage batteries are the heart of eMobility and require special protection. By developing a variety of different sealing concepts, Trelleborg can offer custom solutions, regardless of the cover and battery housing geometry involved. These allow for inexpensive, fully automated assembly and simplified disassembly if the battery requires maintenance. With our extensive experience of aircraft fire seals we can provide effective fire protection around batteries and power electronics.



EMI/RFI Seals

We provide a range of solutions that support the EMI/RFI protection systems on aircraft. They feature in mission critical applications susceptible to interference, from airframes to engines and actuators to controls.

Find a link to our [Conductive and Shielding Solutions](#) brochure on page 11



Propulsion

Having supplied main mast and tail rotor seals for many helicopter platforms and a wide range of rotary seals for gearboxes, fuel pumps and electric motor shafts, we can find the right solution for any rotary application. Our composite manufacturing technology is ideal for producing light and strong drive shafts, panels, as well as other rotor components.



● Composite Shafts and Components

Using a true Out-of-Autoclave (OOA) process, we bring additive manufacturing to continuous-fiber thermoplastic composite parts, saving weight and improving reliability. We specialize in high-strength/low-weight shafts and components such as landing skids.



● Polymer Bearings

Our HiMod® and Orkot® materials create bearings with high load and wear resistance, while reducing weight and increasing service life. They also have very low friction characteristics and nearly universal chemical compatibility. Typical applications include sleeves, flanges and wear pads.



● Gearbox Seals

HiSpin® HS40, an extra-low temperature fluoroelastomer (FKM) material compound, withstands high speeds and wide temperature variations, and is compatible with aggressive synthetic transmission oils. It can be used at speeds up to 40 m/s, adapts to the eccentricity of the shaft and is easy to install.



● eMotor Seals

HiSpin® PDR RT meets the requirements for high speeds and wide temperature ranges. This seal can operate at speeds in excess of 60 m/s. Dry running is possible thanks to its low friction characteristics.



● Propeller Components

Trelleborg's unique manufacturing process for thermoplastic composite components facilitates lighter and more damage resistant components with a long service life. The dampening properties make them ideal for driveshafts. During manufacturing, we utilize In-Situ Consolidated (ISC) technology to prevent fiber wrinkling, offer an unlimited choice of fiber angles and eliminate post-production processes.



● V-Ring®

The V-Ring® is an all-rubber lip seal for rotary applications, primarily used to prevent dirt, dust and water from entering into rotating equipment. The flexible sealing lip allows axial movement and the low contact pressure secures low friction.

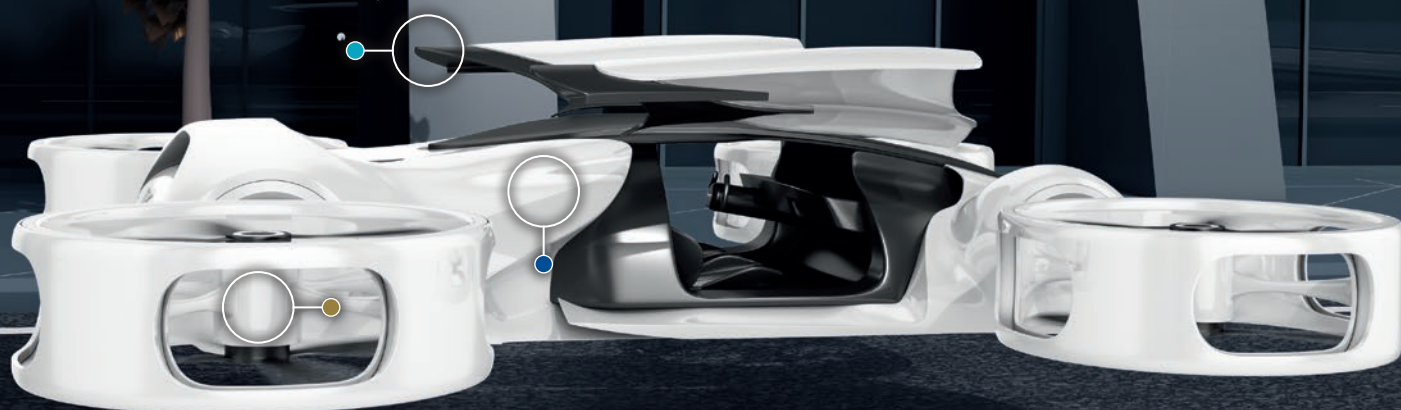


● Lens Gaskets and Wipers

We make weather resistant lens gaskets which remains flexible and watertight for years in color matched silicone materials. They can be customized to suit any lens shape.

Airframes and Structures

Our airframe seals are present on most civil transport aircraft flying today, as wing seals, belly fairings, nacelle seals and many other applications. They offer high flexibility, long life and can be combined with composite or metal structures to limit part count and ease installation. We also have expertise in manufacturing firewall seals and exterior seals with electromagnetic interference (EMI) protection capabilities.



● Door and Window Seals

Door and window seals are designed and made to specification for each individual application, meeting all necessary requirements, these can include inflatable sections and corrugated surfaces for better sealing tightness and fit.



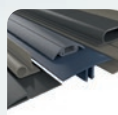
● Bellows and Custom Elastomer Parts

Trelleborg Sealing Solutions can design bellows or boots to protect movable joints from a specification or build-to-print. They are engineered with high flexibility and long life from silicone or other elastomer types depending on the application.



● Composite Panels and Rotor Protection

As the world leader in composite fiber placement, we work with customers to design, develop, prototype and produce composite solutions for aerospace applications. These solutions are recyclable and have exceptional fatigue resistance, boasting extreme toughness and high damage tolerance. In addition, these components help protect against Fire, Smoke and Toxicity (FST).



Extruded Tubes and Profiles

Tubing and hose products for AAM systems can be made from silicone, PTFE and PVC, and incorporate multiple different layers to meet specifications.

[Find a link to our Airframe and Engine Sealing Capabilities brochure on page 11](#)

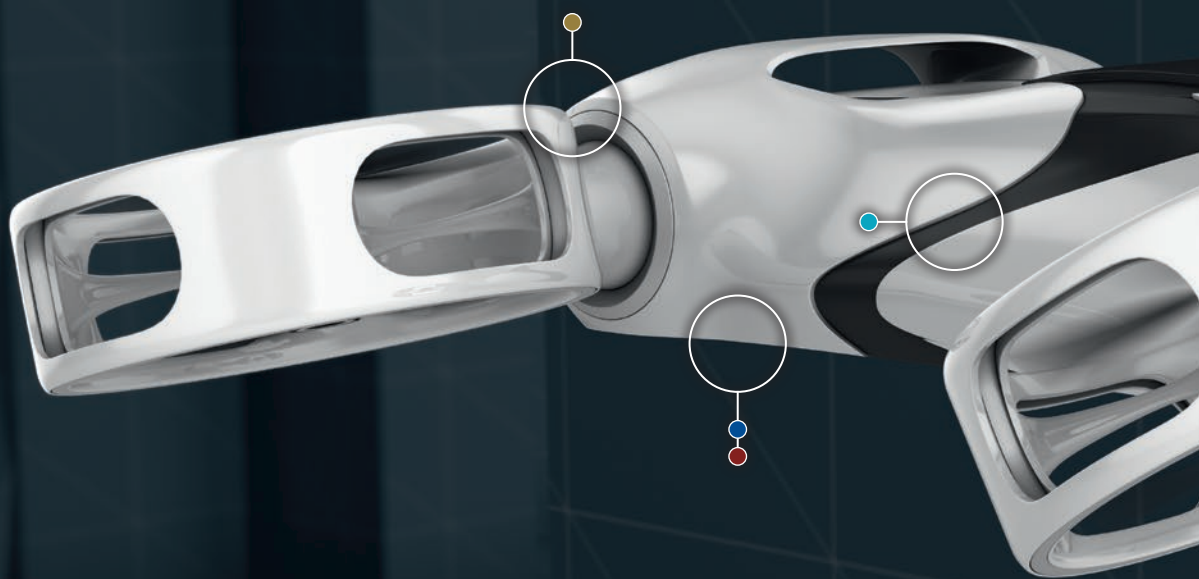


Airframe Seals

Airframe seals cover a broad family of products, individually developed and manufactured for static or semi-static applications. They offer low friction and good abrasion resistance characteristics. Typically, they are used for aerodynamic sealing of doors, windows, canopies, hatches and panels. They are reinforced where necessary, to offer the load, deformation and wear properties required for variable working conditions.

Controls and Actuation

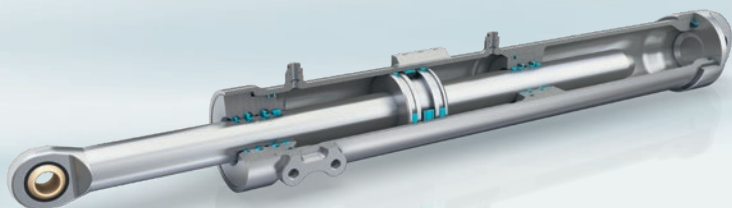
With more than 60 years of aerospace experience, Trelleborg Sealing Solutions Aerospace is a market-leading manufacturer and supplier of sealing systems for hydraulic, pneumatic and electric actuators, as well as polymer and composite swivel and landing gear bearings. We base our products not only on our expertise in aerospace, but also our wider experience of automotive and off-highway engineering to offer optimized solutions for any application.



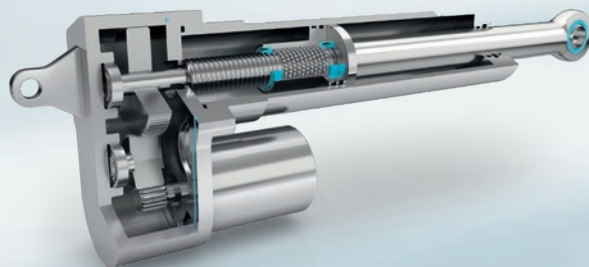
Find a link to our **Aerospace Sealing Systems Catalog & Engineering Guide** on page 11



● Actuation of Doors



● Actuation of Engine Tilt



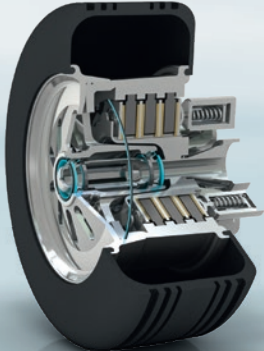
The products shown here are a small part of our aerospace product portfolio. Find more details by following the QR code or by visiting our website: www.trelleborg.com/en/seals/your-industry/aerospace



● Landing Gear



● Wheels and Brakes



Trelleborg Sealing Solutions Market Presence

Trelleborg Sealing Solutions Aerospace offers a full portfolio of solutions and services for nearly any aerospace application. Materials and products can be used in any type of aircraft and our products are designed to provide maximum efficiency to customers. In addition to our experience in the aerospace industry, we are also able to offer solutions based on industrial technology where full aerospace certification is not required.



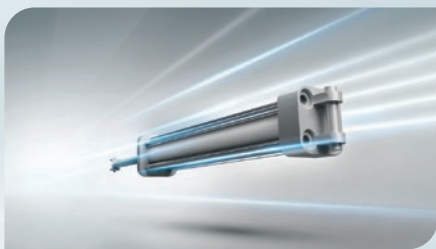
Advanced Air Mobility



Aerospace



Automotive



Fluid Power – Pneumatics



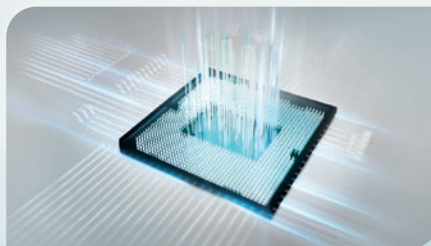
Manufacturing & Machine Tools



Material Handling



Construction & Mining Equipment



Semiconductor



Oil & Gas

OUR AEROSPACE LITERATURE



Explore our website, industry-specific brochures and product catalogs to get an overview of the solutions that are suitable for your application. You can order directly or contact us for engineering assistance to select the most suitable product.

We offer free-of-charge engineering services for seal selection and can develop custom products if our standard range does not meet your requirements.

Go to:
trelleborg.com/seals/literature



Airframe and Engine Sealing Capabilities



Engineered Thermoplastic Aerospace Solutions



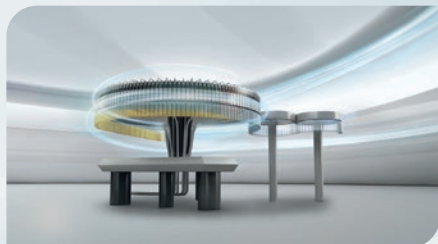
Aerospace Sealing Systems



Conductive and Shielding Solutions



Onboard Systems



Food & Beverage



Processing Equipment



Fluid Power – Hydraulics



Renewable Energy & Power Generation



Healthcare & Medical



Agriculture



Marine Equipment & Construction



Water & Sanitary



Robotics

Trelleborg is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Its innovative solutions accelerate performance for customers in a sustainable way.

Trelleborg Sealing Solutions is a leading developer, manufacturer and supplier of precision seals, bearings and custom-molded polymer components. It focuses on meeting the most demanding needs of aerospace, automotive and general industrial customers with innovative solutions.

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