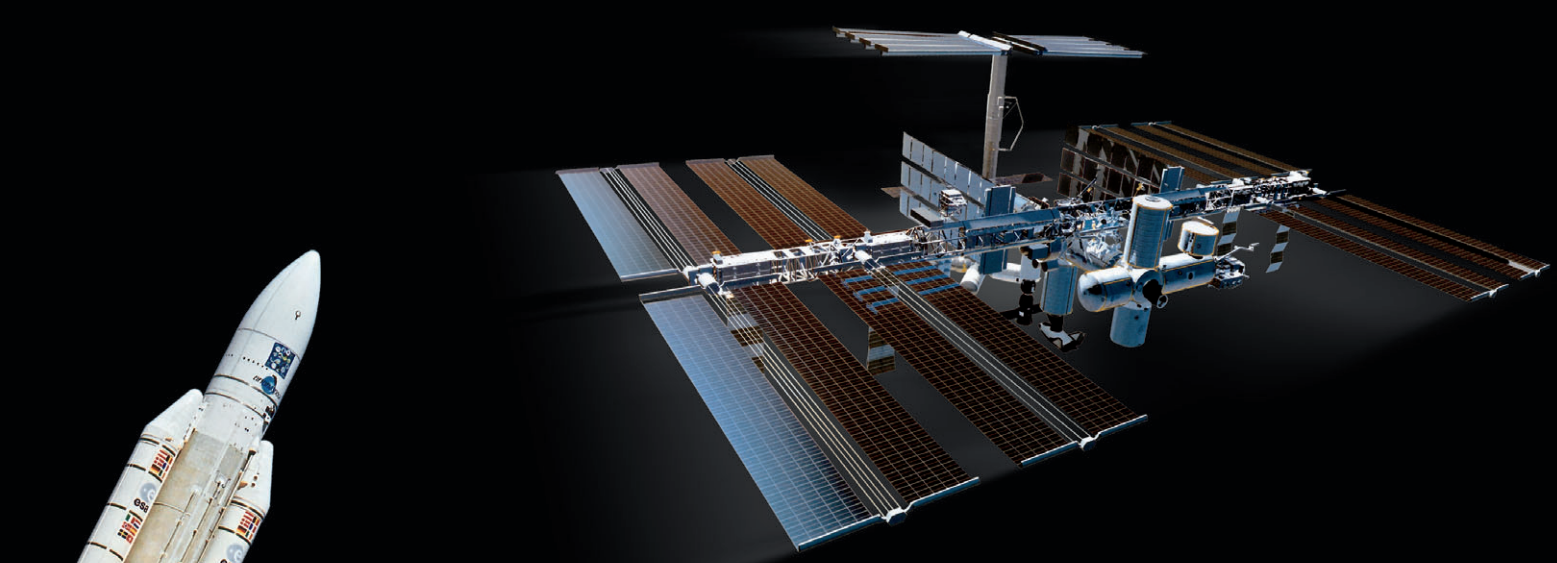


Bremen – *City of Aerospace Technology*

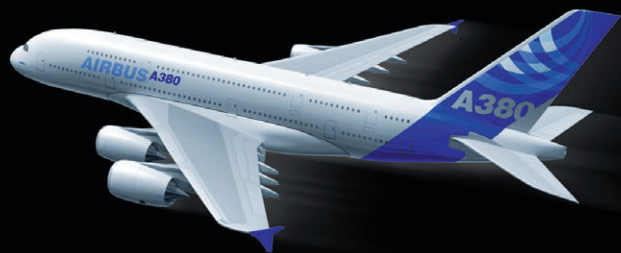
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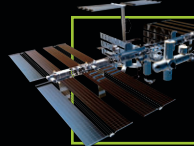


Aerospace Technology made

PERMISSION TO DISCOVER



in Bremen



International Space Station (ISS)

The ISS is the biggest space station that has ever been built. Germany participates in this international space effort with a range of products from Bremen, including the 'Columbus' module and the ATV space transportation vehicle. The space lab is synonymous worldwide for Germany's highly advanced space travel technology.



Columbus module

The 880 million euro 'Columbus' project, the world's most advanced laboratory, was integrated above all by Astrium GmbH in Bremen and provides the International Space Station (ISS) with a highly complex platform for basic research in biotechnology and materials science.



Automated Transfer Vehicle (ATV)

Bremen has gained an unchallenged position as Europe's leader in manned and unmanned space transportation – at the latest since the launch of the ATV in early 2008. On behalf of the European Space Agency ESA, the intelligent ATV built by EADS Astrium (ST) performs automated transportation of essential equipment to the ISS astronauts.



Ariane 5

Ever since the Ariane 5 ESC-A 'Bremen' made by the German space industry achieved worldwide renown, Astrium GmbH in Bremen is the exclusive producer of the high-performance upper stages of the rocket. It brings satellites to the desired position with absolute precision, its additional thrust giving the rocket up to 65 kN in total thrust (equivalent to about 180,000 horsepower) and a payload of more than ten metric tons. Up to eight rockets per year have been ordered for the period to 2010, so the workforce has been expanded from 160 by another 20 employees.



SAR-Lupe

OHB-System AG in Bremen is the headquarter from which this European space project is managed. This is where Germany's first-ever satellite-based monitoring and surveillance system, comprising five satellites, was developed and integrated. Bidirectional data communication delivers high-resolution radar images from practically every corner of the world – around the clock.



Beluga

The 'White Whale' brings the completed wings for all Airbus aircraft quickly and straightforwardly from Bremen to Toulouse in France. Its gigantic freight door is as high as a five-storey building and can be opened within two minutes, even in strong winds.



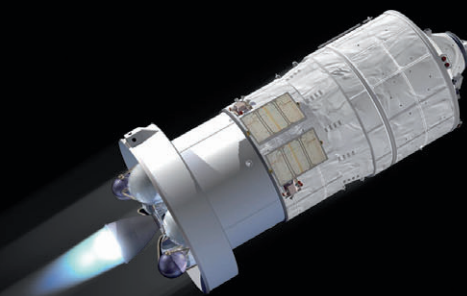
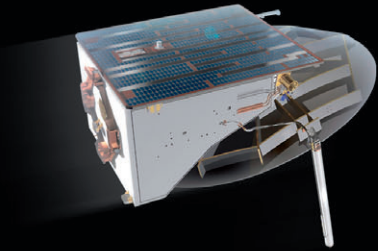
Airbus A380

The first passenger aircraft was developed a century ago in Bremen by Focke-Wulf. Today, the second-biggest Airbus plant in Germany is responsible for building the high-lift system for the world's biggest passenger plane, the Airbus A380 – currently for the 193rd time!



VFW-614

Bremen's 'Fokker' aircraft factory – the Vereinigte Flugtechnische Werke-Fokker GmbH, or 'VFW' – developed the first German commercial jet aircraft and one of the most important post-war products in aviation: the VFW-614. Germany's national research centre for aeronautics and space (DLR) tests the flight behaviour of new advancements using the last model to be still flying.



From Essentials to Innovation



Aviation enterprises in Bremen are strongly characterised by their willingness and courage to develop and adopt new technologies. Carbon fibre-reinforced plastic, for example, is an extremely strong, lightweight and corrosion-resistant material that is now indispensable for state-of-the-art aircraft manufacturing. Other industries also benefit from the advancement of these production technologies for highly-integrated components, and from cost-efficient production processes.

Technologies for Systems



Development of structures and systems, flight physics, assembly, wing equipment and test facilities – Bremen is home to the entire process chain for high-lift systems. These give wings greater lift and are one of the most important areas of future technology. They enable the world's biggest passenger plane, the Airbus A380, to start and land and permit different angles of ascent and descent in order to reduce noise.

Exploration of Space



The world's one and only 'Living Lab Robotic Exploration' tests ground-based and flying robotics systems for planetary exploration, security and environmental monitoring assignments. In Bremen, space travel is a hands-on science. The national research competition for young people, 'Jugend forscht', as well as other projects for schoolchildren are actively supported and assisted by space companies like ASTRIUM and OHB, for example, while PRO TOURA SPACE GmbH organises supersonic flights, astronaut training and parabolic flights.

Orbital



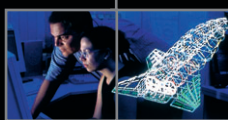
Trailblazing systems like the 'Columbus' module, or latest-generation satellites like the SAR-Lupe are developed, built and integrated in Bremen. These basic and essential components for international space programmes such as the ISS make Bremen a globally recognised centre of excellence in the space industry.

Zero Gravity Logistics



Space gliders, top stages of rockets for satellite transport, carrier systems, the 'Columbus' science laboratory and a supply transporter for the ISS – Bremen's contribution to space logistics is an illustration of the efficiency and performance of the entire German space industry. Short pathways for trade and supplies ensure that logistics on the earth's surface are another success story.

Application Driven Technologies



Concentrated expertise from Bremen's aerospace industry provides an ideal basis for robotics. This is an important cross-cutting area that brings together experience and expertise gained in the fields of UAV (Unmanned Airborne Vehicle), airborne, ground and marine applications in telecommunications, infrastructure, satellite navigation and in climate, environmental and security technologies.

Added Value for Environment

Superb international networking and its geographical position have made Bremen a preferred centre of business and academic research where researchers work closely with policymakers and local government. Bremen's Global Monitoring of Environment and Security (GMES) activities deliver valuable data on air quality, global greenhouse gases, stratospheric ozone, weather parameters and renewable energy parameters.



Innovative Networks for Business Development

Bremen is big for its size. Aerospace is a key priority for policymakers, government authorities and business development agencies in the state of Bremen. The smallest in Germany, Bremen as a state offers start-ups and companies an excellent environment and infrastructures in which to operate – for example with the prime Airport City location, proximity to the research and academic communities, strong networks and assistance for business.



Area of Science and Innovation

In Bremen, cutting-edge innovations are put into use faster than anywhere else – thanks to the uniquely efficient transfer of technologies between the research community and commercial competencies. Here in the 'Short- Way-City', so called, concentrated expertise in basic research is right beside large production plants and suppliers for the aerospace industry.



Home Base for Education

Worldwide renowned international universities and research centres, knowledge transfer from the industry and the proximity to local business make Bremen rank first as a place for studying aerospace sciences. In addition to optimal conditions for a successful career start, the city also offers a fascinating mixture of culture and entertainment.



Aerospace District (Capital)

World-class expertise in the fields of aerodynamics, lightweight engineering and actuators makes Bremen the most important aerospace centre in northern Germany. Prime properties such as Airport City, a wealth of suppliers to the aerospace industry and a broad-based infrastructure provide ideal conditions for business start-ups and inwardly investing enterprises.



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